Society of American Archivists

Museum Archives Section Standards and Best Practices Working Group

Electronic Records Project

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2013-2014 S&BP Working Group Members

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Part I: Introduction to the SAA Museum Archives Section Standards and Best Practices Working Group Electronic Records Project

The Museum Archives Section's Standards and Best Practices Working Group (S&BP Working Group) has spent the year investigating the topic of museum archives and electronic records. There is no doubt that electronic records pose a challenge to all archivists, and particularly to small repositories with limited IT, which constitute the majority of the museum archives in our Section. As a result, we set out to create a resource that would provide museum archivists with an understanding of the electronic records work currently being done at museum archives, as well as a list of articles, tools, and case studies that could be referred to when building an electronic records program.

We investigated the state of the field in two parts. First, we wanted to understand what our colleagues in museum archives had accomplished with electronic records. We surveyed museum archivists at all stages of electronic records program development. From archivists already implementing digital preservation systems, we wanted to learn about their tools, procedures, and software systems. From those successfully partnering with other museum departments, we wanted to know how institutional support was achieved and how systems across the museum might interface. From archivists only taking their first steps toward establishing a program, we wanted to hear about their test cases, potential approaches, and goals. The S&BP Working Group developed a series of survey questions, which S&BP Working Group members used to conduct over a dozen interviews with museum archivists between November 2013 and August 2014. Those interviews are included here. We hope they will demonstrate trends and common strategies employed by museum archivists, as well as potential tools and procedures for exploration.

The interviews also demonstrated that we are all only beginning to grapple with electronic records issues. There is an opportunity for our S&BP Working Group to partner with Section members to share policies and best practices as they continue to develop. We can also seek out examples from archivists and digital preservation managers working in other types of repositories for adoption by museum archivists. To start this work, and as the second part of our project, the S&BP Working Group created a working bibliography consisting of links to guidelines, articles, and tools to help museum archivists begin their electronic records work.

We have undertaken this project not as experts on electronic records but as everyday museum archivists who understand that we all must overcome the same obstacles in our efforts to collect, preserve, and provide access to contemporary collections and institutions' legacies as they continue to unfold. We invite you to join us as we continue our work ahead.

2013-2014 S&BP Working Group Members

Barbara Austen, Melissa Bowling, Holly Deakyne, Ryan Evans, Eden Orelove, Dawn Sueoka, Jennifer Whitlock, Brian Wilson; *Co-Chairs* Rachel Chatalbash and Susan Hernandez

Part II: Interview Summaries

Interview with: **Abby Adams**, Digital Archivist, Audiovisual Collections & Digital Initiatives, Hagley Museum and Library

Interviewer: Holly Deakyne

Date of Interview: December 19, 2013

1. Introduction: Tell us a little about your institution.

How many archivists are there?

Currently, there are 9 full-time; 1 part-time; and 2 project archivists.

Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty?

My formal title recently changed to "digital archivist," although I continue to work primarily with born-digital records. Kevin Martin heads the Audiovisual and Digital Initiatives department. Other archivists at Hagley digitize and provide descriptions for digital materials, too.

Do you have IT support? Kevin oversees technical support for the OPAC and other library software while the commercial vendor, KDI, maintains our servers, wireless, and other hardware.

Can you provide any background on how your electronic records program was started?

I was hired in May 2012 to formalize Hagley's electronic records management program by developing policies and workflows to preserve born-digital content. The addition of a secure digital preservation system, Preservica, provided us with a solid infrastructure for managing e-records.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

We currently do not manage any born-digital content from the museum, only from other archival departments within the library so I cannot speak from personal experience here. However, I think museums and archival repositories essentially have the same issues to deal with when it comes to managing electronic records.

3. Policies: Do you have an electronic records policy or program statement. If so, what resources did you use to create it? Could we have a copy?

We are in the process of drafting a collections management policy for born-digital records. Currently, we do have a section within our institutional collections development policy for digital content, including electronic records.

"Digital: The products of our web archiving activities, digitization of materials already existing in our collections, and born-digital records acquired from donors and depositors. As conditions and research value warrant, we will seek to digitize portions of any newly acquired collection of materials in more traditional formats in order to promote access. The Audiovisual and Digital Initiatives department will work with other departments and independently to acquire born-digital records. Websites of businesses and organizations whose records comprise significant contributions to our collections or who make yearly financial contributions to Hagley for the maintenance of their collections here will be crawled annually. Web archiving may also supplement paper-based records that document subjects of particular research interests, and may include harvesting web sites maintained by individuals or groups containing significant digitized primary source material."

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

In September 2013, Hagley began using Preservica (http://preservica.com/), a cloud-based version of a digital preservation service called Safety Deposit Box (SDB) offered by Tessella, Inc.

Preservica is easily accessible through your web browser. It uses Amazon Web Services, one of the largest and most reliable cloud providers. At least six copies of data in Preservica are duplicated on Amazon servers in storage facilities on the east coast where file integrity is checked on a monthly basis. It has an easy to use upload tool called SIP Creator so you can add digital records to Preservica where all content and metadata is indexed and made searchable. Alternatively, you can use an FTP program. During ingest, Preservica automatically characterizes files, identifies their formats and reports if they are at risk from obsolescence. It also has the ability to recognize over 800 file formats and provides over 300 migration pathways.

Affordability was one of the primary reasons Hagley chose to implement Preservica. Although the up-front cost seems high for some repositories, costs over the long term for us are much more reasonable than setting up a custom, in-house system that our team of two and a half would be responsible for performing maintenance tasks on such as regularly scheduled file integrity checking of multiple copies, of which some may be located physically off-site. Ongoing maintenance alone would quickly consume our resources. Preservica also provides us with the level of security we need to store digital business records. It does not merge our content with that of other organizations. No third parties have access to our data, and user security is based on roles we create in Preservica.

The fact that Preservica is a production-ready, out-of-the-box system and the learning curve is low, also appealed to us. Within a week after Tessella representatives came out to provide training, we were up and running on our own. Accessibility-wise, we can log in to Preservica virtually anywhere since it has a web interface and offers near line access to our data.

We also like how extensible Preservica is. There is plenty of room for growth. Right now, we have two terabytes of storage space and are only using and eighth of that. Now, we currently have more than five terrabytes of unprocessed digital material but we're not sure yet how much of that we will be keeping and processing and providing access to. Much of it has a 25-year time seal so we are considering using Amazon Glacier as a dark archive for records like those. If the cost of storage becomes too high, using the open-source Islandora (http://islandora.ca/) along with Amazon could be an option as well.

There is also potential for us to provide on-site access for researchers, particularly since it offers full-text search and browse functions.

And finally, our data isn't locked into a proprietary system. Preservica incorporates a wide range of open source tools and allows for easy export of data.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

We store them on a local server backed up off-site and another copy in Preservica. Only the head of Audiovisual Collections and Digital Initiatives and I have unrestricted access.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

The two systems do not interact.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records. (Included in records management plan? Regularly sent? Sent on CDs, via email, via USB drive, etc?)

There are several different ways we receive transfers of born-digital records: via e-mail, electronic media (magnetic and optical discs, external drives); via cloud storage links (DropBox, Google Docs/Drive); FTP. Some donors regularly transfer materials several times a year while others make only one donation.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

I only normalize files upon accessioning if the file formats are obsolete but I always create preservation and access copies when processing born-digital records.

9. Websites: How do you deal with the museum's website? Do you preserve it?
If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

We crawl the Hagley website using Archive-It (https://archive-it.org/). We do not preserve copies of the museum's online collections catalog for long-term preservation. They are only backed up for disaster recovery purposes.

10. Social Media: How do you deal with social media? Do you preserve it?

We currently do not specifically target social media for preservation.

11. Email: How do you deal with email?

We manage e-mail with the same policies and workflows as the rest of our electronic records.

How is it transferred to archives? E-mail is transferred to us in the same ways our other e-records are transferred. (See above)

What file format do you use? PDF, EML and MBOX

Do you have a plan for preserving email?

Yes. I use the MBOX file format for preservation, EML and/or PDF for access, and I extract any attachments.

12. Audio-Visual Materials: How do you deal with audio-visual files?

We manage AV files the same way we would any other e-records.

Have you chosen preservation formats?

 Broadcast Wave (BWF), Motion JPEG2000

What challenges do you face?

AV materials are challenging due to their size, particularly for moving images. The cost of storage is still relatively high and when it comes to video files, it doesn't take long to accumulate petabytes of data requiring secure and redundant backups.

We have plans to purchase DROBO storage devices for storing moving image files this year.

13. Migration: Do you migrate electronic records from old media? Describe the process.

I always pull data off any external media, particularly obsolete media, and photograph each item. I either manually write-block the media or use an external write blocker* (Tableau T35u USB 3.0 Forensic IDE/SATA Bridge) and create an ISO or AFF disk image using FTK Imager (http://www.accessdata.com/products/digital-forensics/ftk) which includes checksums for each file and a comprehensive file directory listing. We currently retain each piece of media but don't plan to do this indefinitely.

*The forensics tool BitCurator (http://www.bitcurator.net) also has a way to write-block computer drives without purchasing an external write-blocker.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

For the majority of collections containing born-digital materials, I attempt to maintain original order just as with physical collections. Processing largely consists of descriptive work for the higher level directories/folders.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

Descriptions for e-records are provided in the finding aid. Researchers may request to see born-digital materials the same way they would request to view analog materials. We have several collections with time seals of 25 years of more. Some of those collections contain e-records. We manage the preservation of them but we cannot provide access to them at this time.

We have not encountered an open collection with personally identifiable information issues yet. If we did, those materials may need to be restricted for a certain period of time or redacted from the access copy.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? (This can include management and IT.) Have you provided any training? (Or what was the rational given to management/IT.)

Management here at Hagley understands how critical it is that we maintain an e-records program -- luckily, it did not require convincing as this attitude was in place prior to starting a digital department in 2007. In the mid-2000s significant money was raised during a capital campaign for the purpose of building digital preservation infrastructure. Since 2007, Hagley has dedicated two full-time positions with duties specifically related to e-records management.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

All of our e-records are backed up redundantly off-site so this isn't an issue for us.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

I think it's important for archivists to understand that electronic records are not so different from analog collections. Preservation management is vital but other workflows are essentially the same.

Maintain original order wherever possible, provide good description, and have a secure way to store redundant backups for long-term access. Migrate, migrate, migrate.

Interview with: **Sally Brazil**, The Frick Collection and Frick Art Reference Library

Interviewer: Dawn Sueoka

Date of Interview: January 27, 2014 via email

1. Introduction: Tell us a little about your institution.

The Frick Collection (see www.frick.org) opened as a museum in 1935. The Frick Art Reference Library was founded in 1920. The library is now part of The Frick Collection. The Archives Department (http://www.frick.org/research/archives) is based in the Frick Art Reference Library. The holdings (approximately 3500 linear feet) consist of institutional archives, manuscript collections and the Frick family archives, a collection on deposit from the Helen Clay Frick Foundation.

How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty?

There are four professional archivists (all with library science/information science degrees) in the department.   While we view digital preservation as an integrated job duty in our department, we are investigating a title change for the archivist leading the implementation of the digital records preservation program that reflects her role. As none of us are fresh out of library school, we rely on workshops and other continuing education opportunities to keep abreast of current trends in the digital preservation field. The Frick Collection is generally supportive of staff training and we take advantage of as many educational opportunities as possible. Regular attendance at the Society of American Archivists annual meetings and museum archives section events, participation in National Digital Stewardship Alliance conferences and attendance at programs sponsored by the Metropolitan New York Library Council (METRO) have benefited the archivists in the department. Three archivists participated in SAA's DAS program—one has received the certification, and the remaining two will take the exam in August.

The Frick has a Digital Preservation Librarian who manages the Digital Lab, a department based in the Library's Conservation Department responsible for the digital scanning of selected library and archival material for preservation and access.

Do you have IT support?

There is IT support for electronic records initiatives, and staff from both the IT Department and the Archives Department are working together to create a viable electronic records program.

Can you provide any background on how your electronic records program was started?

We are currently working to implement an electronic records program. So far this has involved years of research and planning, a complete records survey of all departments, drafting of policies and guidelines, and collaboration with other departments within the institution. Our administration supports this initiative, and we hope to have the program plan approved soon.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

While there are some records that are particular to Museums (e.g. our collection management system), for the most part, our record formats are similar to other types of institutions.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

In consultation with our in-house counsel and other stakeholders within the institution, we are in the process of developing a digital preservation policy, an updated records retention policy that addresses digital records, and various supporting guidelines and procedural documents.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

The Digital Lab (a division of the Library's Conservation Department) selected and manages the *Xinet Digital Asset Management* system, which currently preserves and provides access to the digitized files created by the Digital Lab. The Archives Department is investigating use of *Preservica Cloud Edition* as a preservation system for born-digital institutional records as we believe it will allow us to initiate our preservation program quickly and easily without creating a drain on staff time and financial resources. We can remove our data from Preservica at any time without penalty, so we have the option of migrating to another system in the future if new developments warrant a change. In our view, the quoted cloud storage costs and related costs for managing a local copy, which we would hope to do, are reasonable.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

We are in the process of identifying all electronic records produced by the museum and library and determining how they are stored and administered. The IT Department of The Frick Collection manages day to day storage of electronic records, creating 1-3 backup copies of all data. IT controls access to the back-ups. The Digital Lab controls access to the preservation copies of digitized material. Once we implement our preservation management system, the Archives department will store and control access to preservation copies of digital institutional records.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

There is currently no direct interface with the Archives Department's digital initiatives and those of the museum's photographer who stores his images on The Frick Collection's server. We are working on a plan to transfer his images to the Frick's digital asset management system for preservation and access. The museum's collection management system is TMS and is under the direction of the museum registrar and the IT Department.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.

We have not yet defined the transfer procedures.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

The system we implement in the future will normalize file formats upon ingest.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

The Frick is part of the New York Art Resources Consortium, which was awarded a Mellon grant to initiate a program of web archiving for art historical resources, as well as the institutional websites of the three member institutions. We work closely with the dedicated grant staff working on this project to improve captures of our website and social media outlets for preservation and access. The online collections catalog is not currently captured. After the grant project, the Archives Department plans to manage the capture of institutional web content. The *Archive-It* service we subscribe to hosts our content on servers within their data centers as well as with Duracloud. We also have the option to export our content and preserve it locally if we desire.

10. Social Media: How do you deal with social media? Do you preserve it?

Twitter and Facebook content is embedded on our website and is therefore captured along with our other web content. Instagram content is captured through a separate web crawl. We accession our Twitter archives (xml) twice yearly and will ingest these files into our preservation management system.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

We are working on a plan for email which will involve, at the least, transfer of email from departing staff and possibly will involve transfers of active email on a regular basis. Email will be normalized prior to ingest into our preservation management system (we are looking into both XML and MBOX conversions).

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

Born-digital audio and video files will be preserved in the preservation management system. Additionally, we are investigating the process of having a number of audio tape reels, cassettes, and CDs digitized for preservation and access. Once digitized, we will ingest these files into our preservation management system.

13. Migration: Do you migrate electronic records from old media? Describe the process.

We have a small number of floppy disks and CDs in our holdings and we will address that migration once we implement our preservation management system.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

We plan to arrange and describe our digital records in a manner similar to our paper holdings.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

The preservation management system we plan to implement has an access component. We will mediate internal and external access to preserved digital files, establishing appropriate restrictions for sensitive and confidential materials, as we do for our paper holdings. As a primarily institutional archive, the immediate needs for management of electronic records are internal and wide public access is not currently anticipated. We have not received collections in electronic format from outside of the institution but that will no doubt change.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? Have you provided any training?

We plan to encourage participation in our digital records preservation program with staff training sessions and wide distribution of new and updated policies, guidelines, and procedures.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

IT stores back-up tapes offsite. The preservation management system we are investigating will involve storage of multiple copies in multiple locations with integrity checking.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

Nothing to add.

Interview with: **Michelle Elligott**, Museum of Modern Art

Interviewer's Name: Melissa Bowling

Date of Interview: February 21, 2014

1. Introduction: Tell us a little about your institution. How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty? Do you have IT support? Can you provide any background on how your electronic records program was started?
Staff: 3 permanent archivists, 7 project archivists (sometimes more), no digital archivist, not much IT support, no electronic records program at the moment, but have a goal to use a consultant and off the shelf Records Management Application (IT does support the implementation of an e-records program and RMA).

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?
Unlike archives in corporations, archives in non-profits (and museums) are often more complex and layered (messy); departments often work independently, using a variety of software, formats, etc. (whereas corporations are often more structured, with software, formats, and output defined by corp. standards).

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?
We have a policy for records in any format, but no workflow for archiving electronic records. A pilot program is on the table now; however, a consultant will need to be hired to help implement and create a written workflow.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.
No system right now. Currently reviewing various off the shelf RMAs which include maintenance service, ability to normalize documents to PDF/A, etc.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

Currently, the all electronic records are backed-up daily (the entire institution) by IT on the local server and offsite tapes. We are considering a cloud storage option. Currently, only IT has access to the institutional back-up.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?
We are hopeful that the RMA software we purchase will be able to search (not necessarily interface) the current DAM, etc.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.
No process yet.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?
Not yet, but we will normalize to PDF/A.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?
The website will be under the purview of the Archives for permanent preservation and management. But we haven't begun to tackle this. The various databases used by the museum (membership, collections, etc,) are run independently of the website and are backed-up daily by IT (as mentioned previously).

10. Social Media: How do you deal with social media? Do you preserve it?
Social media is not under the purview of the Archives. Social media is not currently being archived.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?
Currently using Postini, a Google email add-on, which offers an archive function. The RMA system to be purchased will help finesse email data making it more searchable. The data has not been transferred yet, as we do not yet have the RMA, however, we will convert to PDF/A as well. The plan for preserving email is to move the data into the RMA using our standard records management guidelines.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

We have analog and digital. Analog will be converted to digital. AV files will be stored in the DAM; Archives will control the workflow, will determine what gets added as 'archives', do appraisals, etc. Will be using .wav format.

13. Migration: Do you migrate electronic records from old media? Describe the process.

Plan to migrate analog to digital as mentioned above. The Archives has had a policy to not accept floppy discs, etc. so migration of these sorts of media will not be an issue. An outside vendor will be used to migrate the analog AV to .wav.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Arrangement and description of e-records will not be done in the near term. In the long term, we will analyze types of records and how they are used to develop guidelines for these archival activities.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

The RMAs we're looking at allow us to give/restrict access to staff and researchers and also have a web interface that allows for offsite access.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? Have you provided any training?

Those who will be participating in the pilot are eager for full text searchability and putting an end to a tedious print and file routine. No training has been provided yet.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

IT has a plan for back-up tapes and IT will back up the Archives' systems (cloud, etc.).

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips?

What do you need to see in an electronic records resource guide?

Nothing to add.

Interview with: **Nancy Enneking**, Head of Institutional Records, J. Paul Getty Trust

Interviewer: Holly Deakyne

Date of Interview: November 21, 2013

1. Introduction: Tell us a little about your institution.

(Paraphrased from the website) The J. Paul Getty Trust is an international cultural and philanthropic organization dedicated to the visual arts. It consists of four current administrative and programmatic units: the J. Paul Getty Museum, the Conservation Institute, the Research Institute, and the Getty Foundation. Past units or programs include the Education Institute, the Information Institute, and the Leadership Institute. The Institutional Archives (IA) is within the Research Institute and collects and maintains the records related to all of these units plus documentation on building the Getty Center and the Villa Museum, information about exhibitions, and audio-video recordings of Getty-sponsored educational programs such as symposia, conferences, and lectures.

How many archivists are there?

1.75 FTEs which equals a little over a quarter-time person for the museum records.

Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty?

Integrated.

Do you have IT support?

Yes.

Can you provide any background on how your electronic records program was started?

Staff had been wanting to give us electronic material for some time and by about 2011 we simply couldn't not accept them anymore. Simultaneously, the Research institute started a formal working group to determine some core needs for managing electronic records - A member of our department was co-chair of the working group and all members of the department served on it.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

Core types of records and the processes to preserve and provide access to them are the same all over. Museums, because they are inherently engaged with timeless cultural heritage objects, might have more records that need permanent retention. Certain museum records might need to be preserved and made available through emulation instead of migration in order to retain the exact look and feel of the original, and not just the information. This could also be an issue encountered in architectural firms. (Emulation: http://www.paradigm.ac.uk/workbook/preservation-strategies/selecting-emulation.html)

3. Policies: Do you have an electronic records policy or program statement?
Draft in development, constantly changing as new methods and software are tried, some parts are finished, others need input from higher management.

If so, what resources did you use to create it?
Other policies at the institution (like the retention schedule), own practices that worked, policies will change based on needs, copious reading and research.

Could we have a copy?
Not at this time, but we are happy to informally bounce ideas around with anyone!

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.
The Research Institute uses Rosetta (replacing the prior digital repository Digitool), both are Ex Libris products. (http://www.exlibrisgroup.com/category/RosettaOverview) The system was primarily selected as a preservation repository for the Research Institute's massive amount of digitized public content - born-digital content was only a vague thought on the horizon. Rosetta was not selected by Institutional Archives, but by other parts of the Research Institute, and it is predominantly used by other departments. It is a good system for highly controlled digital files (formats, names, etc.); it has a harder time with the chaos of digital content that we have pouring in. Rosetta has no discovery interface and is dependent on other systems for access (we are using ExLibris's Primo). IA is exploring using the open-source software Hydra (http://projecthydra.org/) as a supplement to help with discovery. We are hoping that it will provide additional flexibility in helping us manage born-digital content.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

There are about 7TB on a network server and some items in Rosetta. The items in Rosetta do not have another copy elsewhere since it is supposed to be a preservation system. The server is backed up by the Trust's IT department periodically, and Rosetta is backed up by the Library's IT department. These backups are sent out of the earthquake zone to somewhere in Utah or on tapes to Iron Mountain. IA does not keep duplicates of this since they are assured that IT is properly backing up.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

TEAMS is a web-based digital asset management application that is used for storing, cataloging, accessing, and transforming digital media, including images, audio, and video by all units and departments at the Getty. It does not interact with Rosetta.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records. (Included in records management plan? Regularly sent? Sent on CDs, via email, via USB drive, etc?)

Transfer is not yet regular via the retention schedule. Hopefully it will be within the next two years. Electronic records are mainly transferred when people leave (IT removes and stores the computer hard drives for high level employees) or when employees are organizing their files and want to transfer items; also when a department wants something made available to the public, they will send it to IA (for example, digital recordings of events). Records are sent in all manner of ways: discs, USB drive, network transfers, older media for older files.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

The original is kept as is. For a very few non-interactive records, access copies are created in PDF/A when possible and needed. Most items do not immediately get any kind of preservation format access copy because there are not enough employees to perform this and there is no automation in place to do it. For some records, we don't want to change them because we aren't certain what types of changes would make the record no longer admissible in court. There is little or no case law about this. Since there is no automation, it isn't feasible to manually create an audit file to go with the record documenting all the changes made to files when creating the preservation format.

9. Websites: How do you deal with the museum's website? Do you preserve it?

Currently trying the California Digital Library Web Archiving Service (http://webarchives.cdlib.org) which is a crawler, but it isn't working for the Getty's website because the site is pretty advanced. The archived version loses almost all navigation.

If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

Do not archive the library OPAC, do not consider it archival. Do not archive The Museum System because those files are permanently in use, therefore kept by the museum registrar.

10. Social Media: How do you deal with social media? Do you preserve it?

Eventually plan to crawl the blog, Facebook, and Twitter. Would preserve the social media tools the Getty utilizes and samples of Twitter/Facebook activity, but not try to keep it all. Might preserve snapshots of activity during certain important events (e.g. when the Trust President died).

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

Currently there is no system in place to archive email overall. The Getty uses GroupWise which doesn't have very good functionality to do that. As said before, selected employees have their hard drives saved by IT when they leave the Getty (e-mail archives are saved on C drives, not on central network servers). We've recently started taking some of the drives and imaging them, including the email archive on the drive. The Getty is going to move to a new email system (unknown which one right now), but hoping it will have a way to migrate the old e-mail archives to the new system - which should give us a greater chance of analysis.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

AV files are also saved in the format received. Copies in MPEG2000 (video) and WAV (audio) are made for ingestion into Rosetta. MP3 and MP4 files are made for access. The reason originals are kept as is (like on discs) is because some countries without adequate internet request interlibrary loans of AV items and it is easier to copy from a disc to a disc to send it. One challenge is that there are incompatible

formats within the Getty organization, but VLC Media Player (http://www.videolan.org/vlc/index.html) will open most types of AV file.

13. Migration: Do you migrate electronic records from old media? Describe the process.

Ultimately will migrate, except for those items that need to retain their look and feel. In those instances, will stick to emulation. There is no fixed policy, but if the emulators get better and better, maybe there won't be a need to migrate? IA has purchased FTK (http://www.accessdata.com/products/digital-forensics/ftk) to help analyze and appraise our born-digital content. The internal viewer is surprisingly good for a wide variety of formats.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Files usually stay in the folder hierarchy received with the file names used. There would be exceptions to this if there was no order, but most people use some kind of folder organizational method on their computers/network drives.

The finding aid is written as usual and right now we are starting to get increasing numbers of collections that are hybrids of papers and electronic. Instead of having a folder-to-folder linking system, a link to the top level folder of the electronic records for that series, subseries, etc. is included in the finding aid. The user can see the cascade of folders. This can be seen in Pacific Standard Time Oral History Interviews with Artists, Filmmakers, Curators, Collectors, and Critics, 2008-2012. Getty Foundation. The Getty Research Institute, Finding aid no. IA40011 (http://hdl.handle.net/10020/cifaia40011).

The downside is that the names of files and folders in the electronic records are not word searchable right now (unless there were corresponding paper files that were listed in the finding aid.) A solution might be to use the folder-tree to automatically populate the titles in the finding aid, but that isn't currently feasible with Archivists' Toolkit or ArchivesSpace.

Alternatively, we may use a command line instruction to copy the electronic folder inventory to text, manipulate that to EAD and have a separate subseries for the electronic content. We would still not necessarily link at the folder level, but rather at the subseries level. This way one could at least word-search the folder titles in conjunction with the paper titles.

There's GOT to be a better way to do this, we just aren't there yet!

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

The access policies match the policies already in place for non-electronic records. For copyright issues, some records might only be available onsite. The FTK viewer also allows for pattern searching of records for things like social security numbers or other terms to find sensitive materials, but it is still work intensive. We do have draft guidelines on how to redact an electronic record for use.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? (This can include management and IT.) Have you provided any training? (Or what was the rational given to management/IT.)

Colleagues were convinced both through their own increasing understanding of the problems and by a variety of discussions we had with them as a part of our ongoing Records Management processes. Management knows that certain records are very important and that these records are being produced solely digitally instead of on paper. IT is a bit more of a struggle, since they tend to desire one-size-fits-all approaches or expect there to be a single vendor solution to work for all electronic records and that isn't a reality. Flexibility and inventiveness, at a certain point, do involve staff and funds that are in short supply.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

Just the backups mentioned in question 5 about storage.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide? (Last time you mentioned the legal dept and being able to experiment with programs – not being blocked by IT.)

Look at solutions from other fields like medical and police. These fields are way ahead in preserving electronic records because they have to be. FTK software comes from police forensics.

Make sure you create policies/workflows that are sustainable, both in manpower and storage. If you begin with a very high level of item level description, you might be expected to do that level of work for all digital content, and we can no more do that for electronic records than we can for most paper records. Automate everything you possibly can!

Keep in mind that the policies you end up with won't work in all situations. You will at some point encounter electronic records that need a new strategy.

If you are an institution that collects records from outside either through gift or purchase, take a good, hard look at your contracts and agreements. What does it mean to "own" digital files that you may be taking from the web or that may exist in unknown numbers of duplicates among the associates of the donor?

Interview with: **Michelle Ganz**, University Archivist and Cataloger, Lincoln Memorial University and Abraham Lincoln Library and Museum

Interviewer's Name: Jennifer Whitlock

Date of Interview: December 3, 2013

1. Introduction: Tell us a little about your institution. How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty? Do you have IT support?

Michelle Ganz is the University Archivist and Cataloger for Lincoln Memorial University, a small private university and museum in Tennessee. Since she is the only archivist on staff, for both the museum and university, e-records in the archives are integrated with her other duties. Michelle thinks IT support is crucial to a digital preservation program.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

Since their museum focuses on the American Civil War, they do not have much digital material in the collection. The big issue for museums as opposed to academic institutions is that museums rarely have the infrastructure, funds, or expertise to create a digital repository.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

While she does not have an official policy, she consults the policies and procedures of other institutions to see how they are handling their electronic records. She often consults the policies of Ohio State University because they have really great policies and are happy to share. And it doesn't hurt that she's an alumnus. She also looks at other local institutions such as University of Tennessee and also institutions that are similar in size like Berea College or Lee College.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

Lincoln Memorial University uses two instances of ContentDM. One instance is part of the Digital Library of Appalachia where the University Archives are accessed. The second instance is used for the museum

and hosts the Lincoln Herald. In addition, all digital files for both the library and the museum are stored on her computer hard drive, an external drive, and the university's server. Her "dark archive" is the master file on the remote server. Copies on her server and computer are the access versions.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

Currently Michelle has three places where records are stored: her computer hard drive, the museum's remote server, and an external hard drive. She considers the external hard drive to be the "dark archive" and views the remote server as the regular back up. The remote server is accessible to Michelle, the curator, and their IT department.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

Michelle does all her own digitization work. She has two Epson 10000XL scanners (one in the museum and one in the university archives) and a photography studio set up for museum objects.

The only Digital Asset System is ContentDM, but they are investigating options for an institutional repository, which hopefully will also store archival materials. They have not chosen any system yet. She considered working with the communications department, but they do not have the systems in place for this type of work.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.

Currently all e-records are emailed to Michelle. She puts metadata in a text file and saves it with the record. It is not her ideal solution, but she has such a small amount of e-records at this time that she hasn't devised a more robust system. Ideally she would like to have a system that could store the embedded metadata with the file, like ContentDM or an Institutional Repository.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

If an item arrives in Word format, Michelle converts it to a PDF. If it is an image file, she will try to convert it to a TIFF, but this may not always be possible depending on the quality of the original. When

she digitizes materials, she scans and saves the images as 600dpi TIFF files. She plans to photograph in RAW format and then convert to TIFF.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

She does not currently oversee the preservation of the website. A separate department oversees the management of the website. She believes that someone is taking steps to preserve it, but needs further confirmation.

Lincoln Memorial University's catalogs are stored in a few different ways. The museum collections are cataloged with Past Perfect, which is stored on Michelle's local drive, a server in the basement, a well as with the software company Museum Software. The library catalog is stored by OCLC on their remote and cloud servers.

10. Social Media: How do you deal with social media? Do you preserve it?

Michelle does not preserve social media either, but their social media coordinator keeps track of their various social media outlets.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

Michelle does not have a system in place for email preservation. She relies on the individuals to save their important emails on their individual computers. She is having a tough time with institutional buy-in around email preservation. She has had some success with baked goods bribery.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

Michelle preserves AV materials in their original format. She verifies they are still playable and tries to store them with good preservation practices. She would like to get institutional support for the

preservation of emails and the conversion of AV materials. It is difficult to find the funds and the support to do further preservation of these items.

13. Migration: Do you migrate electronic records from old media? Describe the process.

Michelle has a variety of old media including reel-to-reel audiotapes, films, floppy discs, CDs, DVDs, filmstrips, microfiche and a new discovery of 2-inch discs with no labels. But without funding she has not done any migration. She boxes the items and stores them.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Currently she arranges and describes the records chronologically by date of creation or last update. She plans to add more metadata fields when her collections grow such as creator, department, field of study, and intended use.

15. Access: How do you (or how do you plan to) provide access to electronic records?

She will likely institute a system like Sharepoint or Google Drive in the future to provide access to her electronic records. Michelle has been testing the Google Drive option. When she creates a library catalog record for an item, she uses the 856 field to link to the item on Google Drive.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? (This can include management and IT.) Have you provided any training? (Or what was the rational given to management/IT.)

So far Michelle's program is mostly "a program of one." She hopes the future university-wide institutional repository program will drive more participation. Ideally she will be able to provide some training, but the IT department will do most of the training.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

Although Michelle would like to do more, their current disaster plan consists of mainly removing the physical drives during an evacuation. Once an institutional repository program begins, she intends to include e-records recovery in the disaster plan.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

Michelle would like to see easy to follow examples, case studies with details of successes and failures, and additional resources.

Interview with: **Susan Hernandez**, Electronic Records Archivist, the Cleveland Museum of Art

Interviewer: Barbara Austen

Date of Interview: December 18, 2013

1. Introduction: Tell us about your institution.

The Cleveland Museum of Art has an Archivist/Records Manager and an Electronic Records Archivist on staff. The Archivist recognized the need for electronic records management and re-designed an earlier job description to meet that need. There is an IT department of about 10 people which does offer support to the archives but that department can be overwhelmed at times, meaning projects can be slow getting started. The IT department also supports the library and museum.

2. E-records in Museums: Are there any electronic records you feel are unique to museums?

Electronic Records Archivists deal with the same types of documents in general. Unique types of records may be photographic documentation of exhibit installations, events, objects, and conservation before and after pictures. The Cleveland Museum also is starting to collect time-based media artwork, which presents issues of permission and copyright and can make migration to a new platform complex.

3. Policies: Do you have an electronic records policy?

The Museum has a general records policy that addresses both analog and electronic records. That policy is already available on the SAA standards portal (http://files.archivists.org/groups/museum/standards/8-Museum_Records_Policy_Final.pdf).

4. Digital Preservation Systems: Do you have a digital preservation system?

The museum is in the process of developing a DSpace instance as an institutional repository. The project was prompted by the need to get digital photographs off of CDs and onto a more stable platform. The committee developing the instance consists of several IT staff members, two people from the photograph lab, two conservators, and the archivists. A smaller team is developing the ingest protocol and procedures.

The team was tasked with using open source tools to develop the repository. They considered Archivematica, Fedora, DSpace, and Invenio. At the time Archivematica was still in Beta and they didn't feel it would be stable enough. Invenio was more of a library oriented system so they concentrated on

DSpace and Fedora. After some investigation they found that Fedora required more development than they could support so they chose DSpace.

The project has moved slowly. The metadata mapping and workflow development for the ingest of the legacy images has been very complicated. The photo studio has used various formats over time, including proprietary RAW formats like CR2 and NEFF. There are also many DNG files, which is a widely used format but is not yet a standard preservation format. Also many metadata formats have been used over time with no standardization until relatively recently. Many but not all editorial photographs did have some embedded IPTC descriptive metadata but information was not entered into consistent fields. Once the crosswalk mapping the embedded metadata to Dublin Core was finished the Library Applications Analyst created a script to walk the embedded metadata to qualified Dublin Core and a local CMA schema. The same analyst also created a graphical user interface for uploading images into the repository.

Ingest into the preservation system has been divided into segments. Most of the museum's editorial photography has been imported and they are now working on object photography. After object photography is finished they will move on to conservation photography and finally end with the archival institutional records, which will be even more complicated due to the multitude of formats, hierarchical arrangement, and metadata types.

5. Storage: Where do you store electronic records?

The DSpace instance will be hosted in the cloud through a local company in the Cleveland area called Blue Bridge Network, a "top notch data center." Because the museum is located on a main data line download and upload times are fast. The records are replicated in another system in Michigan, which is on a different power grid. Access will be for staff only since this is a preservation system. At the current time, electronic records are stored on the archives server.

6. DAMS and Archives: How does your archives digital preservation program interface with your museum's digital asset management system?

At this point they don't interface. The museum uses Piction as its digital asset management system. Piction has an involved staging process to get the images ready for ingest. At this point the team thinks it's unlikely that DSpace will be able to efficiently serve images directly to Piction.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.

The museum has a shared server space and there are designated "drop zones" where staff can put files that need to go to the archives. A web-based form on the library web site allows staff to attach zip files. When the archives staff gets a message that there are files waiting, they download the files to the archives server.

8. Preservation Formats: Do you normalize files to preservation and access formats upon ingest?

There is no preservation format policy yet. Access is through the file directory on the server.

9. Websites: How do you deal with the museum's website?

The archives staff is doing nothing with the web site right now. Significant blog entries are saved as PDF/A.

10. Social Media: How do you deal with social media?

The archives does not preserve social media. The Marketing and Communications Departments sample posts and sends them in hard copy to the Board. The archives does preserve a copy of what is distributed to the Board.

11. Email: How do you deal with email?

Certain staff create email that is considered a record and these are transferred to the archives either on a regular basis or at the end of the staff person's tenure. They are saved as Microsoft PST files. Email accounts that are considered non-record are destroyed one year after the staff person leaves the museum. Preservation of email is a top priority. The plan is to migrate from PST to MBOX file format for preservation and then to DSpace. They have not worked out a plan for access to or searching email.

12. Audio-Visual Materials: How do you deal with audiovisual files?

The museum has not addressed audiovisual materials. They currently live on a server in the original format. The challenge is where to store the files and how to provide access. They have used Viddler to host some larger video files for public access.

13. Migration: Do you migrate electronic records from old media?

Files are taken from old media and transferred to servers and the original media is retained with whatever paper documents accompanied them. VHS tapes have been migrated to DVD (both master and reference copies) but are not stored on the server.

14: Arrangement and Description: How do you arrange and describe electronic records?

Electronic records at the museum generally fall into two categories: discreet batches and single items. Discreet batches from one department or one staff member are accessioned when they are downloaded to the server. Single items are treated more as a vertical file. They are deposited into a folder and not formally accessioned.

Folders are arranged by department, and within them are folders with the accession number and a brief description. The archives staff tries to put files into folders and name them with something descriptive. They also flatten the file structure where possible, delete duplicates, and weed non-records. Any unusual file formats are noted in the accession record.

15: Access: How do you (or how do you plan to) provide access to electronic records?

Currently staff cannot browse the server for electronic files. Archives staff will locate the files requested and attach a copy to an email, transfer them through the network, or burn the file to a disk.

16. Outreach: How did you convince your colleagues to participate in your electronic records program?

The museum has an established records management process, so it is part of the institution's culture. Each department has a Records Officer to work with the archives, and the archivists provide training for all staff. There are also quarterly Records Officer Meetings. Each department has a cap on its server space so they need to regularly transfer their records to the archives if they want them preserved. In addition there is a "Cleanup Task Force" consisting of IT and archives staff that review and assist other staff with determining what to keep and how to transfer files.

17. Disaster Recovery: Do you have any plans or procedures for the recovery of electronic records in case of a disaster?

There is an institution-wide disaster policy that addresses IT assets across the museum but there is no separate plan specifically for electronic records.

18: Conclusion: What haven't we asked that would be useful for others to know?

Archivists' training in dealing with analog material is transferrable to electronic records, it just takes a different set of tools, so we should not feel intimidated.

Metadata has been a persistent problem. There is no easy way to map or convert legacy metadata for use with Dublin Core (used with DSpace), partly because there are different types of files and different levels of metadata. Creating Submission Information Packages (SIPs) to meet OAIS standards is the most challenging, complex and time consuming part of the process of storing and preserving electronic records.

Interview with: **Gregory A. Jackson, CA**, Glencairn Museum, Bryn Athyn Historic District

Interviewer: Dawn Sueoka

Date of Interview: December 6, 2013

1. Introduction: Tell us a little about your institution.

The Bryn Athyn Historic District, located in Bryn Athyn, PA, comprises the Bryn Athyn Cathedral, the Cairnwood Estate historic home, and the Glencairn Museum, a small- to medium-size museum of the history of religion, which contains Egyptian, Assyrian, Greek, Roman, Medieval, and other types of collections. Greg is also the archivist for Bryn Athyn College.

How many archivists are there?

1 fulltime archivist, occasional part-time help, and staff brought in for grants. There is no records manager on staff.

Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty?

It is an integrated duty.

Do you have IT support?

Yes, to a certain extent. IT, which has a staff of 6, installs and tweaks various platforms, like Archon.

Can you provide any background on how your electronic records program was started?

The program was started in response to the fact that so much archival material is being produced digitally—including newsletters, meeting agendas and minutes, emails.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

Exhibition records, including, labels, brochures, and photographs of collections, are one example of electronic records that are unique to museums.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

There is currently no electronic records policy or program statement.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

The museum is not using a digital preservation system.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

IT used to maintain servers, but because of increasing storage needs, cloud storage via a commercial service provider is now being used.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

The museum uses PastPerfect to manage their catalog which contains some photographs, but electronic records are not integrated into that system; they are described in Archon.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.

Because there is no records retention schedule in place, Greg approached the heads of various departments and schools and asked their permission to copy specific types of electronic records (such as student handbook, faculty council meeting minutes and agendas) from shared drives to the archives server. Besides selected reformatting as described in question 8, no other changes are made to the records.

The archives is also copied on email correspondence delivered to "all" lists, for staff, student, and faculty. Messages are archived via Microsoft Outlook.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

Born-digital photographs and AV files retrieved from shared drives are transferred to the archives server and maintained in the same format (for more information about digitized AV material, see question 12).

Upon ingest, document files (Word, Wordperfect, odf, etc.) are converted to PDF/A, and then the original file copies are deleted from the archives server. The original files are left on the college/museum servers for the faculty/staff to use. The PDF/A functions as the preservation and "official" copy. If there

is ever a question over which version of a document is the "official" document, it can be retrieved from the archives server.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

Websites are not being preserved.

10. Social Media: How do you deal with social media? Do you preserve it?

Social media is not being preserved.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

Email is not typically transferred to the archives, and staff do not typically save emails anywhere else besides their inboxes. However, the museum director is leaving soon. Greg will ask him to cull his email, then will ask for IT's help to archive his mailbox in Outlook. The Outlook archive will then be transferred to the archives.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

Born-digital files AV files are not reformatted.

Cassette tapes are digitized using a cassette deck and "Tape 2 PC." Reel-to-reel tapes get sent out to a transfer house. Master copies are saved in WAV format and access copies are provided as mp3s.

VHS tapes are digitized using a DVD/VCR combo player with "Video One Touch." For video that has been digitized by a transfer house, Greg requests .mov and MP4 files on a portable hard drive for transfer to the network and asks that a copy put on digital beta tape.

13. Migration: Do you migrate electronic records from old media? Describe the process.

For older material received on 3.5 floppy, for example, older formats like WordPerfect are converted to PDF. Obsolete media are not kept. If an item meets the archives' selection criteria and can't be played or viewed on contemporary equipment, then it's a candidate for migration.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Electronic records are entered into Archon as though they were paper records, i.e., they are arranged into collections, series. The same goes for hybrid collections. Digital objects themselves are not linked through Archon, because if the file path changes, the links break (this is a local IT problem, not one inherent to all Archon installations). If the collection contains electronic records, the finding aid will note that the series is on the archives server, and that the archivist will provide access.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

All requests for material go through the archivist. The institution is not large enough to require an automated system for management and retrieval of records; it is most efficient for the archivist to locate material on the servers.

Records are restricted and/or redacted in accordance with the library and archives' restriction policy. If necessary, the archivist will print out records, then redact them. Records are provided to users via shared drives thumb drives, email or CD.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? Have you provided any training?

By begging, explaining! Greg went to the heads of all schools to request access to their material. He emails the high school secretary at the end of the year and requests certain series of electronic records. He also approached principals and deans and recommended certain series of records for transfer to the archives.

Getting colleagues to turn electronic records over to the archives has been the biggest challenge thus far. Greg has also been trying to dissuade colleagues from saving material to their personal hard drives, which are not backed up by IT.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

All records are stored on offsite networks. Disaster recovery procedures would be coordinated by the cloud storage provider.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

Greg would like to find more information about migrating files from obsolete formats and media. For example, GroupWise used to be used for email, but information on the backup tapes is no longer accessible.

Interview with: **Jim Moske**, The Metropolitan Museum of Art Archives

Interviewer: Melissa Bowling

Date of Interview: July 15, 2014

1. Introduction: Tell us a little about your institution. How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty? Do you have IT support? Can you provide any background on how your electronic records program was started?

Staff: Total Museum staff over 2,000. Museum Archives staff, 3.5 permanent, 3 temporary/grant-funded. No "Digital Archivist" job title. IT supports installation and maintenance of collection management databases including Archivists' Toolkit and a separate custom Access database. Currently no institution-wide electronic records program, though we collect small batches of born digital material from selected departments and sources around the institution.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

Perhaps unique to art museums are challenges and opportunities to collaborate with curatorial staff attempting to preserve born-digital artworks. Otherwise types of records and processes are fairly consistent with those of other non-profits and cultural organizations.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

No statement specific to electronic records.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

No preservation system. Those e-records we currently collect are stored on institutional servers; some digitized material stored in CONTENTdm managed by Museum's Watson Library.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

Institutional servers, backed up routinely by IT staff. Accessible to Archives staff and IT staff. Some digitized material stored in CONTENTdm managed by Museum's Watson Library but also accessible to Archives staff.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?
Museum's Digital Media department oversees MediaBin as DAM for images and TMS for artwork collection information; currently no active connection between these systems and Archives to preserve electronic records, though discussions around PDF preservation using MediaBin or other DAM are ongoing. Museum's Watson Library manages a CONTENTdm installation that includes some digital surrogates of analog material held by Archives.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.
Submissions of electronic records are received as attachments to email, downloaded from institutional intranet, or transferred from CDs received from other Museum departments.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?
Some migrated to PDF or PDF/A format.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?
Currently no systematic preservation of complete website; however, we selectively collect some born-digital content that appears on the website, such as Museum press releases.

10. Social Media: How do you deal with social media? Do you preserve it?
Currently no preservation of social media posts.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?
Currently no systematic, institution-wide email preservation, though we experiment with preservation of select folders/accounts.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

Some A/V material held by Archives has been digitized and is stored in Museum's Watson Library CONTENTdm installation.

13. Migration: Do you migrate electronic records from old media? Describe the process.

Some are migrated to PDF or PDF/A format.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Mirror descriptive practice currently used for analog material utilizing Archivists' Toolkit and Access databases.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

Some digitized A/V content is currently accessible via Museum's Watson Library CONTENTdm installation. Most other electronic records recently collected are restricted and not yet appropriate for public access.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? Have you provided any training?

Ongoing working group meetings with staff from other interested departments.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

No e-record-specific disaster plan; aspects of Museum-wide business continuity and collections care emergency plans are relevant.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips?

What do you need to see in an electronic records resource guide?

 No Additional Comments

Interview with: **Katie O'Connell**, Brooklyn Museum (currently ARTstor)

Interviewer: Ryan Evans

Date of Interview: November 26, 2013

1. Introduction: Tell us a little about your institution. How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty? Do you have IT support?

Katie O'Connell fulfilled a year and a half grant-funded, full-time position focused on developing a plan for initiating an e-records management program. The Brooklyn Museum otherwise has one full-time and one part-time archivist in the Archives Department. Currently no one is solely in charge of digital archives/ e-records. The archives had support from IT during this process. The head of technology at Brooklyn Museum was on the steering committee for the grant initiative.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

While Katie expects she is biased having worked primarily in Museums, she thinks that the record types and processes should present the same issues in museums when compared to other types of institutions. The success of such an initiative would depend most greatly on how thoroughly that institution has incorporated basic archival principles.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

Katie is happy to share the procedural documents created under the grant initiative with the working group (see Appendix A and Appendix B). The resource she consulted most heavily in their creation is Chris Prom's blog "Practical E-Records." She found it most useful that the approach of the blog was on institutions with limited resources, and positing practical models within those constraints.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

There is no one specific digital preservation system implemented at the Brooklyn Museum for e-records. They handle accessions via Microsoft Access, in conjunction with Duke data accessioner, an open source tool used to execute metadata extraction as well as checksums. PDF/A files are generated as access copies, a process that is highly manual compared to a comprehensive preservation system.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

E-Records are stored on IT's network drive named E-Records. The retention schedule at the museum is format neutral (e-records follow the same selection protocol as paper records). A second drive on the archives drive is designated as a drop-off location. Similar to the image processing workflow, the permanent archives drive will allow read only access within the department. Currently the e-records are only backed up regularly by IT in one place, the E-records drive. Access copies are processed on a case by case basis according to institutional requests.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

Digital images are managed within the Luna database. Currently there is no interaction with the e-records initiative, and their preservation workflows are completely independent.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.

Please see procedural documents submitted to the group by the Brooklyn Museum. There is a set time schedule for transfers, every two years unless there is a particular reason (such as a staff member departing). These documents are weeded, and submission forms are created in Excel and transferred into Microsoft Access.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

Original files are kept in proprietary format (Word, pdf, text, and excel, etc.) for preservation. PDF/A files are generated for stable access copies.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

Websites were not a focus for this iteration of electronic records preservation. Archives prints out portions of the website periodically. The content published on the website is preserved and maintained within departments, then preserved in common formats within the e-records initiative.

10. Social Media: How do you deal with social media? Do you preserve it?

Social Media was not a focus for this phase of e-records preservation either. It is however on the radar for archives. The museum's website is robust in terms of social media, including tagging for images and other user generated content

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

Email as a format is not in the scope of this initiative either. Email is currently being preserved according to the normal retention schedule in the form of printouts, saved as paper.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

AV materials are also not in the scope of this project.

13. Migration: Do you migrate electronic records from old media? Describe the process.

The methodology for the e-records preservation initiative was outlined early on as having 5 phases:

1. a survey which included an assessment of file types and formats held in different departments institution-wide.
2. an action plan implemented including procedures and policies
3. a pilot test was conducted with a single department (education)
4. staff training was conducted regarding file submissions
5. research was conducted for preservation system solutions

The short answer is that not much removable media was submitted during the survey phase. Future e-records initiatives might focus more heavily on this issue.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Submission forms are a huge help in creating metadata for the resources. In addition data is extracted by Duke including size, file type, creator and creation date. A simple windows search function is relied upon for access. Description and search are not yet standardized.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do

you deal with restricted electronic records and/or records that might contain personally identifiable information?

Department heads do retain personnel files which are confidential. Currently their confidential nature is indicated in the submission process. An automated system for restricting access to these files is not in place yet. Archives staff monitor requests and only provide access copies for unrestricted materials.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? Have you provided any training?

It was crucial for Katie and others on this project to get early buy-in from higher level staff members. Training was given to staff, especially the department assistants. Buy-in and cooperation were universal following this outreach phase.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

This aspect is part of IT's general procedures and has not yet been addressed as a separate issue for the e-records initiative.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

Because the process of addressing electronic records management can be so intimidating, Katie would suggest starting with a small and reasonably executable aspect. From Chris Prom's blog she learned that it is crucial to set reasonable parameters early in the process.

Interview with: **Emily Rafferty**, Head Librarian and Archivist, The Baltimore Museum of Art

Interviewer: Eden Orelove

Date of Interview: December 18, 2013

1. Introduction: Tell us a little about your institution.

The Baltimore Museum of Art Archives has both manuscript collections and institutional archives and is responsible for records management functions. We received a 2.5 year NHPRC grant (ending in February 2014) to start a records management program (including electronic records), create records retention schedules, and process the backlog.

How many archivists are there?

There is only one full-time permanent employee in the library/archives – Emily Rafferty, the Head of the department. We have a project archivist funded by the NHPRC grant and several volunteers and interns.

Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty?

It is an integrated job duty.

Do you have IT support?

We have limited IT support. During budget cuts, the IT Director was laid off. There is one full-time IT Help Desk Staff member who has to deal with everything in the museum. The BMA is currently looking into hiring a Chief Technology Officer.

Can you provide any background on how your electronic records program was started?

The electronic records program was started through the NHPRC grant.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

With the exception of museum archives containing large amounts of images of works of art (and other images), museum archives are similar to other types of archival repositories. I haven't seen a lot of differences in reading through literature – most archives contain similar records, such as business records, education records, etc.

3. Policies: Do you have an electronic records policy or program statement?

We have a general records management policy that covers electronic as well as other formats.

If so, what resources did you use to create it?

It was created as part of the NHPRC grant. It was passed by the museum's board of trustees and vetted by legal counsel. We looked at museum archives books, policies of other institutions, especially the Getty model and spoke with an archivist there to help develop our policy.

Could we have a copy?

Yes (to view the policy visit the Museum Archives Section Standards portal here: http://www2.archivists.org/groups/museum-archives-section/standards-best-practices-resource-guide).

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

No, we do not have a digital preservation system, but we would love to! At a curatorial and educational divisions meeting recently, we talked about technology and digital preservation systems. We hope to implement one in the future.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

Everything is stored on internal servers and the IT staff person backs it up to tape. We have not made copies of anything. We just have the original files that get stored on the server.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

We do not have a digital asset management system.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records. (Included in records management plan? Regularly sent? Sent on CDs, via email, via USB drive, etc?)

The details are included in the records retention schedules. There are specific comments about electronic copies and what to do with them, and how to send records regularly. We have received born-digital records from one person since the plan was established. There is a dropbox on the server so that

people can drop folders straight into that. The system has been in place for 9 months. There is a form in which contributors are asked to describe the records, size, etc.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

Yes, whenever possible. Or we ask the staff to save things as PDF or PDF/As, but different versions of Adobe software cause issues.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

The website is maintained by a vendor. Some web staff deal with it in some ways (sending content to and from). The retention schedule lists them as the office of record. We have not yet received any files from them.

10. Social Media: How do you deal with social media? Do you preserve it?

It's the same situation. The marketing department is in charge of preservation and social media.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

We have considered email in the retention schedule, like correspondence. The dropbox will accept email files, but people like to have all their email in some way they can search it, and sending it in means they can't search it. We hope to get email accounts of staff that have left, which are currently preserved by IT. The old IT Director had concerns about privacy issues and had them saved on CDs and didn't want them reloaded on the server.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

There are quite a few AV materials that are in non-digital formats. Everyone has been really willing to get rid of cassettes and VHS tapes. We have gotten grants to digitize all of that and store the data on the server and create metadata and digital files that are accessible online. Events and lectures held in the auditorium are recorded – copies on CDs are available and need to be transferred off of the CDs. The auditorium staff will record lectures, but smaller projects aren't deemed as important.

13. Migration: Do you migrate electronic records from old media? Describe the process.

We try to as much as possible. We use a USB disk drive users plug in when they find CDs. They can copy things to the server. Because the grant is an MPLP grant, we can't get down to that level of detail with files, so we've flagged items for future work.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

We plan to not do anything different from paper records – we'll just keep records in series and records group.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

We're not sure at this point. The grant also allowed us to create an access policy that details what records are available to whom and when, and closes everything for 25 years from date of creation. It closes these records to outside researchers, but we don't have a way to make them accessible to internal researchers either.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? (This can include management and IT.) Have you provided any training? (Or what was the rational given to management/IT.)

The initiative for getting the grant came from the former Library Director. The Library Director worked for 10 years to get this to happen and worked to get staff to recognize that records management is important. Everyone is on board with records management activities. We did interviews with all staff, and had a really easy time compared to similar projects I heard about from other archivists and records managers. We have done training sessions to show people how to use the dropbox and the records management schedule.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

I'm not aware of any. Disaster recovery plans have dealt with art at the BMA. There needs to be a vital records plan, but this has not gotten anywhere yet.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

It will be useful to see what other museums are doing and see the standards they are adhering to, including file formats. It helps to be able to convince people at your institution to implement change when others are doing it.

Interview with: **Heather Slania**, Director of the Betty Boyd Dettre Library and Research Center, National Museum of Women in the Arts (NMWA)

Interviewer: Eden Orelove

Date of Interview: December 19, 2013

1. Introduction: Tell us a little about your institution.

"The mission of the Library and Research Center is to facilitate knowledge creation about the history and achievements of inspirational women artists worldwide" (from website).

How many archivists are there?

There is no dedicated archivist. There is one part-time paid archival internship (the Dettre Archival Internship), which helps fill the gap. The Director position is all-encompassing. Not a whole lot of time is spent on archives. I am currently applying for a CHALLENGE grant to fund an archivist position.

Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty?

Integrated.

Do you have IT support?

There is one half-time IT person. Most of IT support comes from a contracted company.

Can you provide any background on how your electronic records program was started?

I am currently looking at cleaning up old issues. The previous policy was to print out emails and put them in the files. Right now everyone is keeping their old stuff. The first step will be to have a separate drive for archives, and the records will be arranged in same way as paper documents. I hope to implement this system in 2014.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

I think we are in the same situation as other repositories, except that photographic records are more important. We generate fewer reports and more images and catalogs and other publications, which are very image centric. We have to deal with images more, especially when it comes to determining which image we should archive. Not all are worthy of archiving, but perhaps more than one is.

3. Policies: Do you have an electronic records policy or program statement?

Yes.

If so, what resources did you use to create it?

I edited our old statement and included other details. It was created to start the process of records management. I still need to work on it/reformat it and make it more user friendly.

Could we have a copy?

Yes (to view the policy visit the Museum Archives Section Standards portal here: http://www2.archivists.org/groups/museum-archives-section/standards-best-practices-resource-guide).

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

Yes. We are using Archive-It to archive the website and social media platforms. During the 25th anniversary of the NMWA, we had a web redesign and had to think about how to archive past and future versions of the website. I used this situation to interject the tools that can be used for this. Archive-It was chosen because it seemed the most stable and it had been used for a while. It seemed the most likely to stick around and it is easy to use.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

Currently all the records are active, and not in archival storage. We plan to implement a read-only archives drive in the future.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

We don't have a digital asset management system. We have starting talking among the departments to try and figure that out. All departments need images, we need to implement a DAMs.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records. (Included in records management plan? Regularly sent? Sent on CDs, via email, via USB drive, etc?)

Currently we don't do transfers of born-digital records, but we do archive web and social media.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

N/A

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

We preserve the entire website using Archive-It.

10. Social Media: How do you deal with social media? Do you preserve it?

We use Archive-It to preserve social media, including Twitter, Facebook, and the museum blog (Wordpress). Additionally, the museum just started using Instagram, which will be archived in the future.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

We don't currently deal with email. It is a hope that people are saving the things they should be saving, and not throwing them out.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

DVDs and CDs are archived, and all of the archived stuff is living on network drives.

13. Migration: Do you migrate electronic records from old media? Describe the process.

Not really. That is a long-term project. There is so much to be done. Migration is expensive, and we need to get a better handle on what the archives already has. There is also a big copyright problem with a lot of the material we have.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

We will process them in the same way as physical items. Email will be trickier, but otherwise the general records will be organized the same way.

15. Access: How do you (or how do you plan to) provide access to electronic records? How do you deal with restricted electronic records and/or records that might contain personally identifiable information?

A read-only drive will be implemented. The records within that drive would be unavailable for people to see besides the archives and the department that created them. It will be easy to turn permissions on or off.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? (This can include management and IT.) Have you provided any training? (Or what was the rational given to management/IT.)

People are excited for when an electronic records program will be implemented. Education has been especially supportive – they are good advocates. Initially we tried to implement a schedule, which didn't work, but eventually people contributed their paper records. We are currently talking about getting Microsoft Sharepoint to deal with internal communications. If this happens, people would have to clean/archive systems before implementing Sharepoint, which might move people in the direction of contributing more to the records management process.

We have a pretty supportive management. The Head of Business Operations and the Director of the museum understand the importance of finding things quickly.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

The Operations Manager takes a backup copy of the museum's drives home with him every day.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

It would be useful if you pulled out specific and popular solutions that people have had to the electronic records management issue. Part of the problem is that there is no good solution. I left archives for 5 years and came back, and we are still having the same conversation. Having a solution pointed out would be useful. It would be helpful to clearly see what the options are - what currently exists (and works) and does not exist. I also want to stress that web archiving is so much easier than managing other electronic records. If archivists want something easy to do, implement Archive-It!

Interview with: **Francine Snyder**, Director of Library and Archives, Solomon Guggenheim Museum

Interview: Jennifer Whitlock

Date of Interview: April 4, 2014

1. Introduction: Tell us a little about your institution. How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty? Do you have IT support?

Francine Snyder is the Director of Library and Archives at the Solomon Guggenheim Museum, an art museum in New York City. The Library and Archives staff includes Francine, an assistant archivist and an assistant librarian, which is about the equivalent of 1.5 staff members for the archives. Digital Archivist is not a separate position. As they consider additions to the archives staff, Francine debates whether digital archives should be a separate position or whether it should be integrated with analog records. IT department supports the entire institution and they are supportive to the library and archives, but with varying degrees of understanding what they do.

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

Francine has considered this topic a lot lately. While she believes that museums are not unique when it comes to file formats, but they have other distinct challenges with e-records. Museums have permanent records that are managed by various other departments that are not under the control of the archives (i.e. curatorial and conservation). The challenge for museum archivists is to create a digital preservation system that can help manage these records that live outside the archives.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

As part of an 18 month long NHPRC e-records grant, they will create an e-records policy and will be happy share when it is completed later this year.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

As part of the NHPRC e-records grant, Francine and her staff are testing various systems. Currently, the Guggenheim Archives has set up an OAIS-compliant digital repository by installing and testing

Archivematica Ubuntu Linux Virtual Private Server with 500 GB of disk space. By September 2014, the repository will be upgraded by attaching 10 TB of enterprise-class storage that will be made redundant through backup procedures.

Archivematica, which is a free and open source digital preservation system designed for long-term access to collections of digital objects, was selected as it automates the ingest Archival Information Package (AIP) as well as the creation of preservation packages and access information packages. We hope to use the software to automate and moderate migration, fixity, and checksums. Because it is open source, Archivematica also has the advantage of not requiring a long-term contract or budget approval. The archives is not "locked" into the system as the created AIPs and DIPs with their corresponding XML metadata files can be easily copied/moved into another system.

5. Storage: Where do you store electronic records? How many backup copies do you keep?
Their plan is to have designated server storage with a remote redundant back-up. Access to the preservation copies will be restricted to designated archives and IT staff.

As the Guggenheim's records are restricted from public access for 25 years (with exceptions), any requests for internal (or approved external) access will be managed on a case-by-case basis.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?
Currently the DAM and digital preservation program are two different systems. The DAM is an active working tool, with active records, but Francine admits it is a fluid relationship. There are some master copies in the DAM, but for the most part no archival content is preserved there. In addition, they will work with the Digital Asset Management (DAM) team as a possible method for access to select visual records.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.
Currently, Archives staff are notified by the creator that they have something for the Archives. The archivists request permission to access it from wherever it is stored. And then the records are

transferred to their server. The record creator fills out a data sheet about what they are transferring, much like for paper records. They will try to create and implement a more formal process with the NHPRC e-records grant.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

The Guggenheim Archives plans to normalize files and access formats when processing electronic record collections and will implement solutions to automate these critical tasks. See Appendix C for a detailed chart of preservation and access formats. This chart is used as a working document that can be updated as formats change.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

As far as the website's preservation, they are implementing Heritrix, an open source web crawling software created by the Internet Archive, and a local version of the Way Back Machine to render the website. They are especially concerned with capturing special exhibition and other unique content that may not stay on the website in the future. However capturing the collection catalog online is not the priority since preserving the collection database is the priority.

10. Social Media: How do you deal with social media? Do you preserve it?

Currently they are not trying to preserve social media. Occasionally they will use screen capture to keep examples, but they have no comprehensive program to save it. Since Twitter is being preserved by Library of Congress and Facebook content is recycled content that is preserved elsewhere, it is not a priority for the Library and Archives to preserve this social media content.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

Francine says this is another area that they are working on and admits it is an area they cannot ignore. They recently finished a pilot project, which migrated old email from an obsolete program Novel Enterprise. This migration was one of the pilot projects for the NHPRC grant and the next step is to decide what to do with Microsoft Outlook emails. Currently they are saving the emails in.pst and

investigating mbox as a preservation format.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

At the Guggenheim Library and Archives, this is a big topic given the large size of many AV files. They have done an analysis of all the file formats on the network and how many of each format they have. They have created a chart of these formats and the recommended preservation format for these types of files (see [Appendix C](#)). What remains to be determined is how much will go into the archives particularly video, i.e. do we have enough server space to preserve b- rolls, outtakes, and other supporting files?

13. Migration: Do you migrate electronic records from old media? Describe the process.

At the Guggenheim, they do have a forensic workstation set up with a zip drive, floppy drive, etc. They have files stored on CDs, DVDs, and magnetic tape. Francine and her staff have found that appraisal is a big problem. Many of the CDs and DVDs may not be worth keeping. Sarah Haug, Assistant Archivist, is on a working group in New York City that is trying to figure out migration strategies and creating community forensic stations. This one year project for the working group ends in December 2014.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

Arrangement and description of e-records is another topic they are thinking about but they don't have the answers yet. They have considered integrating e-records into the finding aid along with analog records or creating unique series for the e- records. E-records are their own content, but they cannot stand alone.

Appraisal is difficult since they do not have the tools to appraise e-records easily. They have recently installed QuickViewPlus, a software that can render the records quickly. However, they have more analog archives to process as well.

They are focusing on getting files safely into a digital repository and then arrangement and description can be figured out later.

15. Access: How do you (or how do you plan to) provide access to electronic records?

At the Guggenheim Library and Archives, they do not have plans to provide public access to e-records any time soon. The e-records will be accessed internally only. Hopefully there will be better tools in the next five years or so to provide access. Their museum records have a twenty-five-year window to be accessed by the general public, so they gives them some time to find the tools and figure out the workflow for e-records. Francine encourages record creators to only give them inactive records, so there won't be frequent requests for access.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? (This can include management and IT.) Have you provided any training? (Or what was the rational given to management/IT.)

In order to proactively educate staff on electronic records, the archives staff plans to integrate the discussion into their records management program. They hope to implement regular trainings once their workflow is complete.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

As of now, the Guggenheim's disaster recovery plan is to have 1) two complete copies of the repository that are not co-located, 2) daily backups, and 3) automated file fixity information that is monitored on a daily basis. This will allow file replacement if a file is found corrupted as well as repository backup if there is a geographic disaster.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

Francine raised a few issues in conclusion:

- Small institutions need practical tools without a lot of technical requirements.

- Solutions for limited resources and practical workflow.

- Create a place to discuss ideas and issues.

- Provide assurance that better tools are coming and preserve them until then.

- Appraisal is a huge issue. It's too easy to save (drafts, iterations, etc. are numerous); how do we find a workflow balance?

Interview with: **Lorraine Stuart** and **Emily Perkins**, Museum of Fine Arts, Houston

Interviewer: Jennifer Whitlock

Date of Interview: July 2, 2014

1. Introduction: Tell us a little about your institution. How many archivists are there? Does anyone have the title "digital archivist" (or similar) or is this an integrated job duty? Do you have IT support?

The Museum of Fine Arts Houston (MFAH) Archives department was started in 1984 with an NHPRC grant. They currently have three full time professional positions, one paraprofessional position, and an intern. Lorraine Stuart, Archives Director and Emily Perkins, Digital Archivist, both participated in this interview. Emily is the second Digital Archivist to serve at MFAH. They received funding from NHPRC to plan and implement a digital preservation program for e-records. As a result of the grant, the MFAH IT and Archives departments developed an Electronic Transfer Protocol (ETP) for accessioning e-records, which transferred 14,000 e-records, comprising 310 GB, with hash numbers to the Archives. During the planning grant, the planning team unanimously chose Tessella for their digital preservation software. After some delays with changes in directorship at the museum and changes at Tessella, they have finally settled on the Preservica Standard Edition. (Preservica, Inc. is now the US subsidiary of Tessella's digital unit.)

2. E-records in Museums: Are there types of electronic records or processes that you think are unique to museums or are we in the same situation as all other types of archival repositories?

Lorraine commented that the majority of e-records preservation applies to all institutions: everyone has either unstructured data, structured data, and/or emails. She did point out there are some special challenges with science museums having large data sets and that for art museums, preserving digital artworks is the biggest challenge of all.

3. Policies: Do you have an electronic records policy or program statement? If so, what resources did you use to create it? Could we have a copy?

Currently, the MFAH has a very general policy developed by the museum's Legal and Compliance officer. They do have the Electronic Transfer Protocol manual that explains how to transfer records over a network, and create descriptive metadata, etc. In light of the new software, both will have to be modified or superseded.

4. Digital Preservation Systems: Do you have a digital preservation system of any kind? If so, please describe it and tell us why your institution chose that particular solution.

After evaluating two open source and two commercial options, they have chosen Perservica SE by Tessella. Loraine emphasized that one of the primary reasons they chose Tessella is that it follows the OAIS model. But other important reasons are that it has an easy to use interface, it has enough support to ease the load on IT, and has different versions to choose from. All versions will work in a Microsoft environment; the full-blown enterprise software without virtualization and the SE version via a virtual machine that runs Linux internally but connects externally to a Microsoft SQL database.

They also mentioned that it has helpful tools such as the storage adaptor, the SIP creator, SOLR, and the technical registry, which identifies file types and performs active preservation using PRONOM.

5. Storage: Where do you store electronic records? How many backup copies do you keep? Who has access?

Records in the past were stored on a designated file share. They will be having more conversations with both IT and Preservica on this topic. They leave most of the storage issues up to their IT department. Presently a full tape back-up is generated every four months with incrementals generated each night. Tapes are maintained at a site in north Houston. Additionally, back-ups are generated on disk every six weeks and a disk clone is created every five days. The museum has a mirror site for critical operations in another area of the state; whether it's feasible to also mirror the archival records there or whether the present back-up system is sufficient is a matter that has to be discussed.

The creating department has their files transferred with the file structure maintained and with "read only" access to their files. Archives staff has "read only" access to all the files.

6. DAMs and Archives: How does your archives' digital preservation program interface with your museum's digital asset management system run by the imaging or photography department?

The MFAH Image Library uses Portfolio software. Under an IMLS grant, an interface between Portfolio and The Museum System (TMS), is being developed. The Archives does not plan to interface with these systems at this point (which would require Preservica EE), but they will maintain the Image Library's master image files in the archives.

7. Transfer of E-records: Describe the process by which you receive transfers of born-digital records.

They currently rely on end users to transfer files using retentions schedules, inventories, etc. The archives department will advise on selection, but the end user will chose the file, keep a record of what is sent, and then select a brief description of the records from a drop down menu.

8. Preservation formats: Do you normalize files to preservation and access formats upon ingest?

Emily says that they probably won't normalize files on ingest and are keeping the native format for now. However they do normalize images to TIFF and audio to WAV prior to ingest. Right now, the MFAH Archives standard for digital video is AVI file format with DV25 4:2:2 encoding, but they are exploring other formats, codecs, and storing uncompressed files. They use Adobe media tools to search for non-standard files such as Windows media files (.wma) and to convert them to standard formats. They have also adopted PDF/A for digitized documents and may normalize word documents to this also.

9. Websites: How do you deal with the museum's website? Do you preserve it? If so, do you preserve your online collections catalog (online access to objects in the museum) or only the rest of the website?

Lorraine says the MFAH website has had three major revisions over time. They saved the first version, which was rather simple. However the current website is rather complex and is more difficult to preserve. They are not currently preserving it. IT has maintained a copy of the second website which Lorraine would like to ingest, although the website is not as high priority as other types of records.

10. Social Media: How do you deal with social media? Do you preserve it?

They do not preserve social media.

11. Email: How do you deal with email? How is it transferred to archives? What file format do you use? Do you have a plan for preserving email?

Currently the MFAH has no system in place for transferring email. The museum director does transfer emails, but that is all for now. Lorraine is thinking about what email format to use for preservation. For now she keeps the emails in .msg. Even though it is proprietary, it does preserve all of the email's original characteristics. She has considered MBOX but it is just like a text file and would be very easy to

edit. She's considering keeping the .msg file for a certain number of years and then transferring them to MBOX. However this policy has not been officially adopted yet.

12. Audio-Visual Materials: How do you deal with audio-visual files? Have you chosen preservation formats? What challenges do you face?

Emily said they have chosen .wav files for audio. But due to lack of consensus in the community about video formats, they are still weighing their options. They are considering the importance of not only the encoding itself but also the wrapper. They are also considering their options of what to do if the uncompressed files are too large to store and they have to use compression. They will do a test set with Preservica to help make these decisions.

They are also concerned about the intellectual rights of audio-visual materials. Emily gave an example of a conservation symposium that was recorded on video. They plan to connect the video to the related releases for the symposium as an AIP.

13. Migration: Do you migrate electronic records from old media? Describe the process.

Lorraine said the records manager did migrate some files off of old floppies. But this is not a big priority for them right now. They are focusing on getting control of archival records that are on the network first. Then they can go back and capture files off of removable media, etc.

14. Arrangement and Description: How do you (or how do you plan to) arrange and describe electronic records?

According to Emily they will keep their current finding aids and catalogs. For audio-visual materials, they are working towards modifying their current audio-visual cataloguing to a FRBR conceptual model, presently used for image cataloging, in which the main image is described and related it to all of its derivative images. In the audio-visual catalog each item has a separate record.

15. Access: How do you (or how do you plan to) provide access to electronic records?

Emily confirmed that the records will be accessible through Preservica and through the network to MFAH staff on site. They are still a few years away from making these records available to the general public.

16. Outreach: How did you convince your colleagues to participate in your electronic records program? Have you provided any training?

MFAH has a manual about e-records that explains why the museum needs an e-records program. When the ETP was launched a series of training sessions were held. Similar training will be done for the Preservica launch.

17. Disaster Recovery: Do you have any plans or procedures in place for the recovery of electronic records in the case of a disaster?

Lorraine explained that the Museum has a master plan for disaster recovery in which both archives and IT play a role. Mainly, though, they rely on their mirror site and backups in the case of a disaster.

18. Conclusion: What haven't we asked you that would be useful for others to know? Any final tips? What do you need to see in an electronic records resource guide?

Lorraine raised her concerns about the e-records preservation struggle for "lone arrangers" and small institutions vs. major institutions with more money, resources, etc. She thinks we need developers to create systems that are easier for lone arrangers to tackle.

Emily raised the issue of audio-visual materials and would like to see this topic covered on the resource guide.

Part III: Museum Archives Section Standards and Best Practices Working Group Electronic Records Resources

Acquisition or Transfer of Electronic Records

Redwine, Gabriela, et al. 2013. "Born Digital: Guidance for Donors, Dealers, and Archival Repositories." *Council on Library and Information Resources.* Available at: http://www.clir.org/pubs/reports/pub159 This resource offers recommendations for the transfer of born-digital materials from donors to repositories. It is intended for a broad audience including dealers, donors, and repository staff. It includes sections on initial collection review, privacy and intellectual property, key stages in acquiring digital materials (agreements, contracts, transfer and handling), and post-acquisition review. Appendices include checklists and additional resources.

Paradigm Project. 2005-2007. *Workbook on Digital Private Papers.* Available at: http://www.paradigm.ac.uk/workbook/index.html The Personal Archives Accessible in Digital Media (paradigm) project saw the major research libraries of the Universities of Oxford and Manchester come together to explore the issues involved in preserving digital private papers through gaining practical experience in accessioning and ingesting digital private papers into digital repositories, and processing these in line with archival and digital preservation requirements. Appendices include a gift agreement and a form to document transfer. The site also includes a comprehensive workbook about managing electronic in general.

Prom, Chris. "Transfer Guidelines." *Practical E-Records (blog).* Available at: http://e-records.chrisprom.com/recommendations/develop-submissioningest-policies/transfer-guidelines/ Chris Prom of the University of Illinois Urbana-Champaign has included two transfer forms for both corporate bodies and associations and for individuals.

Migration from Old Media

Erway, Ricky. 2012. "You've Got to Walk Before You Can Run: First Steps for Managing Born-Digital Content Received on Physical Media," OCLC Research. Available at: http://www.oclc.org/content/dam/research/publications/library/2012/2012-06.pdf?urlm=168601 This resource provides a great first step for beginning the process of managing born-digital content. The intended audience is those archivists who have digital materials but have not started to manage them.

Barrera-Gomez, Julianna, and Ricky Erway. 2013. "Walk This Way: Detailed Steps for Transferring Born-Digital Content from Media You Can Read In-house," OCLC Research. Available at: http://www.oclc.org/content/dam/research/publications/library/2013/2013-02.pdf This easy to understand document seeks to expand on the basic information provided in "You've Got to Walk Before You Can Run." It includes information on preparing your workstation, transferring the data (checksums, virus checks, recording the file directory), securing project files, and assessing content. It provides sample workflows and additional resources.

Storage and Disaster Recovery

Altman, Micah, Jefferson Bailey, Karen Cariani, Michelle Gallinger, Jane Mandelbaum, and Trevor Owens. May/June, 2013. "NDSA Storage Report: Reflections on National Digital Stewardship Alliance Member Approaches to Preservation Storage Technologies." *D-Lib Magazine.* Available at: http://www.dlib.org/dlib/may13/altman/05altman.html This article summarizes a survey administered to the National Digital Stewardship Alliance Membership regarding preservation storage technologies. While the respondents in this survey are generally

maintaining more data than most museum archivists (they reported having collections between 50 and 400 TB), it provides a useful overview of storage practices and trends for digital archives. Preliminary results of the 2013 NDSA Storage Survey are presented here: http://www.digitalpreservation.gov/meetings/documents/storage13/TrevorOwens_LevelsDigitalPreservationandPreliminaryStorageSurveyResults.pdf

Instrumental for the Minnesota Historical Society. 2013. "Report on Digital Preservation and Cloud Services." Available at:
http://www.mnhs.org/preserve/records/docs_pdfs/Instrumental_MHSReportFinal_Public_v2.pdf
This report, commissioned by the Minnesota Historical Society, evaluates various cloud providers on factors such as storage capacity, provisions for ensuring and monitoring data integrity, ability to manage metadata, security, availability, and cost. Findings are summarized in a table.

Phillips, Megan, Jefferson Bailey, Andrea Goethals, Trevor Owens. 2013. "The NDSA Levels of Digital Preservation: An Explanation and Uses."Available at:
http://www.digitalpreservation.gov/ndsa/working_groups/documents/NDSA_Levels_Archiving_2013.pdf
Developed by the NDSA, this is a tiered set of guidelines intended to help users plan digital preservation programs and make existing programs more robust. Increasingly sophisticated levels of stewardship are delineated for five content categories: storage and geographic location, file fixity and data integrity, information security, metadata, and file formats. Trevor Owens explains each tier of the storage and geographic location category here: http://blogs.loc.gov/digitalpreservation/2013/12/protect-your-data-storage-and-geographic-location/. Jane Mandelbaum describes storage systems and the information security category here: http://blogs.loc.gov/digitalpreservation/2014/04/protect-your-data- information-security-and-the-boundaries-of-your-storage-system/

New York State Archives. 2012. "Records Advisory: Electronic Records Disaster Preparedness and Recovery." Available at:

http://www.archives.nysed.gov/a/records/mr_disaster_assistance_erecords.shtml
This advisory describes salvage procedures for hard drives, data tapes, optical media, and solid-state drives in the event of a water disaster. It also outlines various risk-reduction and disaster-preparedness strategies.

National Archives and Records Administration. Guidelines for the Emergency Salvage of Media.
Hard drives available here: http://www.archives.gov/preservation/records-emergency/pdf/electronic-media.pdf
Data storage tapes available here: http://www.archives.gov/preservation/records-emergency/pdf/audio-video-tapes.pdf
CDs/DVDs available here: http://www.archives.gov/preservation/records-emergency/pdf/audio-video-tapes.pdf
Floppy disks available here: http://www.archives.gov/preservation/records-emergency/pdf/magnetic-media.pdf

Digital Preservation Systems
Preserving (Digital) Objects With Restricted Resources. 2013. Tool Grid. Available at:
http://digitalpowrr.niu.edu/tool-grid/

This tool grid includes an extensive list of digital preservation tools and systems grouped into categories based on the OAIS reference model. Summaries of each tool are included.

Arrangement, Description, and Access
Edwards, Cloe, Amy F. Brown, Meg Eastwood, Martha Tenney, and Kevin O'Donnell. 2012. "Processing Internal Hard Drives." *Practical Technology for Archives.* Available at:
http://practicaltechnologyforarchives.org/issue1_edwards/
This case study is the result of a class project conducted as part of the University of Texas at Austin's School of Information coursework. It is a step by step look at how the group processed a collection of internal hard drives dating from the early 1990s through mid-2000s. It includes information on imaging the drives, recording the file structure, the creation of .tar files to preserve directory structure, and uploading information into the DSpace repository. Open source tools are discussed and specific what worked and what didn't feedback is given.

Bailey, Jefferson. 2013. "Disrespect des Fonds: Rethinking Arrangement and Description in Born-Digital Archives. *Archive Journal*, Issue 3. Available at: http://www.archivejournal.net/issue/3/archives-remixed/disrespect-des-fonds-rethinking-arrangement-and-description-in-born-digital-archives/
This article is an intellectual look at the concept of original order in the digital age. Starting with an overview of the history of original order the article moves into a discussion of how original order may or may not apply to digital records in the same way it applies to analog collections. Several case studies and advanced projects that use data mining and other similar tools for exploring patterns within large sets of digital materials are discussed.

Antracoli, Alexis. "Describing a Hybrid Manuscript Collection." Descriptive Notes, the Newsletter of the Description Section of the Society of American Archivists
(Winter 2012): 18-19. Available at:
http://www2.archivists.org/sites/all/files/descriptive_notes_2012_winter_0.pdf
The article describes the strategy the Bentley Library at the University of Michigan chose to describe a hybrid collection of gubernatorial papers.

Shein, Cyndi. 2014. "From Accession to Access: A Born-Digital Materials Case Study." *Journal of Western Archives* Volume 5, Issue 1. Available at:
http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1036&context=westernarchives
This article describes the Getty institutional archives' experience with making a hybrid collection of oral history materials available online. It includes sections on processing workflows (including a discussion of tools used), strategies for description (MARC, DC/METS, EAD), method of posting the materials online, the creation of finding aids, and embedding metadata in files using Mp3tag.

Light, Michelle. 2013. "Session 1: Managing Twenty-First Century Special Collections: Born Analog, Born Digital, and Born Difficult." Available at: http://www.oclc.org/research/events/2013/06-03.html and here:
http://www.youtube.com/watch?v=aVei6ETfeV0&list=PLLB61wwipFoZG41HGFiSLBDk7XBDLQ6bx&index=7

Policies and Outreach
The National Archives, Great Britain. 2011. "Digital Preservation Policies: Guidance and Outreach." Available at: http://www.nationalarchives.gov.uk/documents/information-management/digital-preservation-policies-guidance-draft-v4.2.pdf

This is a basic resource that defines digital preservation policy and makes the case for why an organization might need one. This may be a good starting point for those unfamiliar with digital preservation.

Jisc Digital Media. "Establishing a Digital Preservation Policy." Available at: http://www.jiscdigitalmedia.ac.uk/guide/establishing-a-digital-preservation-policy
This is a very brief and succinct outline on establishing a digital preservation policy.

Prom, Chris. "Policy Development." *Practical e-Records* (blog). Available at: http://e-records.chrisprom.com/resources/policy-templates/
This page contains links to digital preservation policy recommendations from other agencies.

Preservation Formats

Archivematica preservation formats chart. Available at: https://www.archivematica.org/wiki/Format_policies
This chart lists the preservation and access formats Archivematica has chosen to use, along with the open source tool used to normalize the files.

Bentley Historical Library. 2011. "Sustainable Formats and Conversion Strategies at the Bentley Historical Library." Available at: http://bentley.umich.edu/dchome/resources/BHL_PreservationStrategies_v01.pdf

Library of Congress Sustainability of Digital Formats page. Available at: http://www.digitalpreservation.gov/formats/fdd/descriptions.shtml
This website provides specific information about file formats and their characteristics.

Challenging Formats: Websites, Email, Social Media

Cochrane, Euan. 2011. "Practical Options for Archiving Social Media." Content Summary for ALGIM Web-Symposium Presentation 03/05/11. Available at: http://www.algim.org.nz/Documents/Symposium%20Web/2011%20Web%20Symposium/Presentations/Euan%20Cochrane-Practical%20Options%20for%20Archiving%20Social%20Media.pdf
This resource identifies tools and services for use in archiving content produced through Facebook, Twitter, Blogs, Flickr, and websites.

Kelly, Matthew. 2011. "Archive Facebook." *2011 NDIIPP Partners Meeting*. Presentation from Washington, DC. Available at: http://www.digitalpreservation.gov/meetings/documents/ndiipp11/Workshop3_Slides-ODU-B.pdf

Pregill, Lily. 2013. "Ready for Reframing: Reports on Web Archiving." *New York Art Resources Consortium.* Available at: http://nyarc.org/content/readying-reframing-reports-web-archiving
This page includes links to reports, recommendations, and a summary of the project.

Prom, Christopher J. 2011. *Preserving Email*, a DPC Technology Watch Report. Available at: http://dx.doi.org/10.7207/twr11-01
This is a thorough and advanced introduction to the topic of email preservation. It covers preservation formats such as MBOX, EML, and XML.

The Collaborative Electronic Records Project, 2008-2009. Available at: http://siarchives.si.edu/cerp/
Although the work of the Collaborative Electronic Records Project (CERP) has ended, the project page is useful for archivists researching methods of email preservation. The website includes access to an XML email account schema that was used for email preservation by the the project team.

Slania, Heather. 2013. "Online Art Ephemera: Web Archiving at the National Museum of Women in the Arts." Art Documentation: Journal of the Art Libraries Society of North America , Vol. 32, No. 1 (Spring), pp. 112-126. Availble through JSTOR here: http://www.jstor.org/stable/10.1086/669993.
A thorough account of a small museum's attempts to establish a web archive using Archive-It and some of the problems associated with web archiving in general.

General Resources (resources that apply to multiple categories)

"AIMS Born-Digital Collections: An Inter-Institutional Model for Stewardship," 2011. Available at: http://www.digitalcurationservices.org/aims/
The AIMS paper describes the four functions of stewardship: Collection Development, Accessioning, Arrangement and Description, and Discover and Access. Each of the four functions is broken down into objectives, and tools and processes are discussed.

Digital Preservation Coalition Technology Watch Reports. Available at: http://www.dpconline.org/publications/technology-watch-reports.
The DPC Technology Watch Report series "is intended as an advanced introduction to specific issues for those charged with establishing or running services for long term access." Included are such topics as preservation metadata, web-archiving, digital forensics and preservation, and intellectual property rights and preservation.

Association of Southeastern Research Libraries Introduction to Digital Preservation Webinars. 2013. Available at: http://www.aserl.org/intro-dp-2013/
A series digital preservation webinars including "Preservation Planning and Overview of PREMIS for Beginners," "Forbearing the Digital Dark Age: Capturing Metadata for Digital Objects," "Management of Incoming Born-Digital Special Collections," and "Using FITS to Identify File Formats and Extract Metadata." Recordings and PowerPoint presentations are available free of charge.

Hirtle, Peter B, Emily Hudson, and Andrew T Kenyon. 2009. *Copyright and Cultural Institutions: Guidelines for US Libraries, Archives, and Museums.* Cornell University Library. Available at: http://ecommons.library.cornell.edu/handle/1813/14142
This resource discusses copyright law in the digital age. Case studies on digitizing oral histories and student work are also included.

Kirschenbaum, Matthew G., Richard Ovendon, Gabriela Redwine. 2010. "Digital Forensics and Born-Digital Content in Cultural Heritage Collections." *CLIR Publication No. 149*. Washington, D.C.: Council on Library and Information Resources. Available at: http://www.clir.org/pubs/reports/pub149/pub149.pdf

Commonly Cited Standards
Open Archival Information System Reference Model (OAIS).
http://public.ccsds.org/publications/archive/650x0b1.pdf

Trusted Digital Repository (TDR). http://public.ccsds.org/publications/archive/652x0m1.pdf

Trusted Repository Audit Checklist (TRAC).
http://www.crl.edu/sites/default/files/attachments/pages/trac_0.pdf

Commonly Used Tools
"Practical E-Records: Software and Tools for Archivist." http://e-records.chrisprom.com/resources/software/

ABC Amber Outlook Convertor (email conversion): http://www.processtext.com/abcoutlk.html

Aid4Mail2 (email conversion): http://www.aid4mail.com/

Archive-It Web Archiving Service: http://www.archive-it.org/

Archivematica: https://www.archivematica.org/wiki/Main_Page (micro-services for processing digital objects from ingest to access in compliance with the ISO-OAIS functional model)

Bitcurator (includes several digital forensics tools): http://www.bitcurator.net/aboutbc/

California Digital Library's Web Archiving Service: http://webarchives.cdlib.org/

Conversion Software Registry: http://isda.ncsa.uiuc.edu/NARA/CSR/php/search/conversions.php (if you want to convert from one file format to another, it will list programs that can do the conversion)

Curator's Workbench (ingest and description tool):
http://www.lib.unc.edu/blogs/cdr/index.php/2010/12/01/announcing-the-curatorsworkbench/

Cygnus Hex Editor: http://www.softcircuits.com/cygnus/fe/ (if you can't open a file of the file type is unknown, you may be able to view the file header with this tool)

DROID (Digital Record Object Identification): http://sourceforge.net/projects/droid/

Duke DataAccessioner (ingest tool): http://library.duke.edu/uarchives/about/tools/data-accessioner.html

Emet (image metadata extraction tool from ARTstor): http://sourceforge.net/projects/emet/

FFmpeg (audio and video conversion): http://ffmpeg.org/

FITS (File Information Tool Set): http://code.google.com/p/fits

HTTrack (local website copying app): http://www.httrack.com

ImageMagick (image conversion): http://www.imagemagick.org/

Inkscape (graphics conversion): http://www.inkscape.org/en/

Irfanview (batch image conversion): http://www.irfanview.com/

Library of Congress Digital Preservation Tools Showcase: http://www.digitalpreservation.gov/tools/

Metadata Extraction Tool (for images, office documents, audio, video, markup languages, and internet files; from the National Library of New Zealand): http://meta-extractor.sourceforge.net/

QuickView Plus (view and appraise files without opening them):
http://www.avantstar.com/metro/home/products/quickviewplusstandardedition

Xena: http://xena.sourceforge.net/ (detects file format of digital objects and converts digital objects into open formats for preservation)

Appendix A: Brooklyn Museum Electronic Records Management Procedure Outline for Archives Staff

Brooklyn Museum Archives: ERM Procedure Outline for Archives Staff

1. Transfer and Ingest - take files into Archives drive

   - On a schedule agreed upon with the Museum Archivist (generally every two years), departments can transfer inactive, permanent files that are five or more years old; questions about non-permanent electronic records should be directed to the Museum Archivist.

   - Departments prepare files:

     i. delete duplicate files from within accession

     ii. put drafts in sub-folders labeled "drafts"

     iii. rename folders so they contain both individuals' names and their job titles

     iv. submit files in existing folder structure; if some folder structure information will be lost in transfer, maintain it by creating new folders or renaming unclear folders. When possible, include a "Read Me" with background on how files were organized

   - Departments complete and submit submission form; notify Museum Archivist

     i. submission form includes information on creator(s), file content, date range, file types, file volume, and number of files, and can be imported directly into ACCREC database.

   - copy files to ArchivesDropBox; do not delete original copies from departmental drive until notified by Museum Archivist that transfer was successful (Museum Archivist confirms that Archives drive has been backed up before confirming transfer and approving departmental deletion)

   - Museum Archivist pulls files from transfer drive and puts them on permanent drive in "Unprocessed" folder, transfers submission form data into ACCREC database (accession date= date files moved to permanent drive)

2. Processing – preparing files for long-term storage in repository

- Archives will accept files in all formats and maintain bit level copies along with checksums and metadata, but file migration for preservation will only be performed on supported formats, currently limited to Microsoft Word, Excel, and PowerPoint.

    i.   Accession via Duke Data Accessioner – create checksums, metadata

    ii. batch migrate most Office documents (Word, PPT, Excel) to PDF/A using Acrobat 8 Professional; maintain both original bitstream and PDF/A preservation copy or use

    iii. Archivist will maintain a record of preservation steps taken and save this record with files

- Archives will maintain both bit level files submitted by departments and any derivatives/documentation on preservation actions taken

3. Preservation/Access – what will happen over document lifetime in archives, what happens when someone has a reference question

- Preservation – files can be batch migrated as new formats are added to supported formats list; other migration decisions will be made on an ongoing basis as technologies/best practices change

- Process will be evaluated and adjusted as needed

- Access- as with paper files, internal and external researchers will contact Museum Archivist with questions. Direct access may be provided to read-only access copies on machines in the Archives at the discretion of the Archivist, or read-only access copies may be distributed via email or FTP.

    i. use search function to locate files for access–either existing Windows search or add a utility over and above for advanced search

Brooklyn Museum Archives' Electronic Records Management Program Statement

1. Introduction

The Brooklyn Museum Archives serves the greater Museum mission by collecting, preserving, and making available the records that constitute the history of the Museum. The Archives strives to serve the needs of future researchers for viable, authentic, representative, and usable evidence concerning the history of the Museum. Since most records produced in the last 20 years have been created and managed in electronic formats, and since the volume of such records grows every year, the Brooklyn Museum Archives takes active steps to identify, preserve, and provide access to the significant records that we and our partners believe will be necessary to document the activities and developments of the Brooklyn Museum.

This program statement outlines how we intend to meet the challenges of identifying, preserving, and providing access to a set of vital and useful electronic records at the Brooklyn Museum.

2. Program Charge and Mandate

The Brooklyn Museum Archives is charged with documenting the origins, development, activities, and achievements of the Museum. As part of this mandate, we will acquire, preserve, and provide access electronic records and manuscript materials that fall within the documentary scope provided in section four below.

We are committed to acting as a responsible steward of all electronic records in our repository to the best of our abilities, so that such records may be viable and accessible for as long as they are needed, by members of the Brooklyn Museum staff and the public.[1]

3. Partners

As we seek to fulfill this charge, we will work with the following groups and organizations to implement technologies and procedures that support our commitment to identify, preserve, and provide access to electronic materials that are deposited in our repository:

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Program Statement modeled after Chris Prom's *Practical E-Records* blog: http://e-records.chrisprom.com/recommendations/

- Museum departments creating permanent electronic records
- Museum departments who will collaborate on administration of ERM program, including Technology, Digital Collections and Services, and Museum Libraries

4. Documentary Scope

We seek to identify, preserve, and provide access to Museum records of enduring value. We acquire records from the Office of the Director (including Board of Trustees' minutes), curatorial departments, and other departments, in consultation with department heads. We will maintain materials for use by Museum staff and qualified members of the community interested in research.

While the Museum Archives will accept a variety of file formats for deposit, policies on supported formats will outline additional preservation methods to be taken for specific formats.

5. Guiding Values and Commitments

- We strive to implement as many of the elements of the Open Archival Information Reference Model (OAIS) standards as is feasible.
- We and our partners will use hardware, software and storage media that comply with industry-standard best practices and procedures.
- We will utilize and adhere to community and other standards concerning the appraisal, arrangement, description, preservation, and access of all materials in our electronic records repository.
- We will clearly document our policies, procedures, and practices.
- We strive to maintain accurate records concerning the authenticity, provenance, chain of custody, and integrity of all records deposited with us.
- We will comply with ownership, copyright and intellectual property rights as they affect digital content in our repository.
- The exact level of preservation services that we provide for a particular record set will depend on the technical quality and completeness of the data as it is deposited with us. We may seek to augment such data.

6. Pre-deposit services

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The Archives provides information and guidance on records management and records schedules for museum departments. Such advice and/or assistance may help ensure that records are more easily used during their active life and that they are easier to identify, authenticate, organize, preserve and disseminate after deposit with us.

We offer the following services to help achieve this goal:

- Consulting regarding best practices in file naming and folder organization
- Records retention schedules specific to Brooklyn Museum departments
- Staff training on electronic records management
- Guidelines identifying non-permanent electronic records which do not need to be transferred to the Archives. Questions about managing these materials should be directed to the Museum Archivist.

7. Acquisition of Records

We will acquire, manage, and provide access only to records that have been determined to have permanent legal, administrative, or historical value.   At this point, we will not manage active or semi-active records.

Factors affecting the determination of permanent value include, but are not limited to:

- Prior determination of value under the approved records retention schedule and appraisal by the archivist.
- Appropriateness of records under our collection policy.

Electronic materials will be transferred to our custody under the terms of an authorized submission agreement.[2] The submission agreement will serve as the basis for the generation of archival management information and will list conditions and commitments pertinent to the deposit that it covers.

We will permanently maintain the submission agreement and will provide a copy to the records producer/creator upon request.

8. Processing and Management of Records

Electronic records accessioned into the Archives will be processed according to the Processing Procedures. [3] To the furthest

extent possible, we will use the procedures listed in our electronic records processing guidelines to ensure long-term preservation. If necessary, we will use other techniques and will describe the techniques and software used in a processing noted included in the preservation description information.

During processing, we may decide that certain records do not warrant permanent preservation, based on our collection policy and appraisal criteria. In this case, we will describe the nature of the files that we did not include and will alert the records creator to any actions we have taken.

We may undertake one or more preservation actions to migrate or convert records to a supported format prior to deposit in our electronic records repository. We will describe any preservation actions and will maintain documentation of them along with pertinent files.

In the case of records transferred or migrated to another format for preservation and access purposes, we will maintain a copy of all records deposited with us in their original format.

We will maintain documentation concerning preservation actions and tools that we utilize in our processing workflow.

We will perform periodic reviews of our procedures and the integrity and completeness of objects and preservation description information that we manage.

9. Access and Use of Electronic Materials

Access to electronic records will be granted with approval of the Museum Archivist. In the case of supported formats, the necessary software and hardware environment(s) will be provided on site in the Libraries and Archives. Access will be provided to non-supported-format files, but we cannot guarantee the availability of necessary hardware and/or software.

Access to electronic documents may be provided in several formats, including viewing the files on a computer in the Libraries and Archives or the distribution of access copies via email or FTP. Museum staff members who have deposited files with the Archives may reference these files by contacting the Museum Archivist.

As defined in the Archives Mission Statement, records will be as open for research as possible. Curatorial and Director's files are

closed to for 25 years; during this time period, questions may be answered by the Archivist from these files. Certain other materials may be restricted due to sensitive information, security, or preservation reasons.

Resources:

Lavoie, Brian F. "The Open Archival Information System Reference Model: Introductory Guide." DPC Technology Watch Series, Report 04-0: January 2004. http://www.dpconline.org/docs/lavoie_OAIS.pdf

Neil Beagrie, Najla Semple, Peter Williams, and Richard Wright, *JISC Digital Preservation Policies Study, Final Report*, October 2008.
http://www.jisc.ac.uk/media/documents/programmes/preservation/jisc policy_p1finalreport.pdf

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[] In some instances, records may not be available for use due to restrictions imposed by legal requirements or other terms. In addition, most records will be accessible only on site at the Brooklyn Museum Archives due to technological and/or rights issues.

[2] Link to sample submission form once it is complete.

[3] Link to electronic records processing procedure once complete.

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Electronic Records Management Start-Up Project
Electronic Records Processing Manual
Appendix A: SRGF Preservation and Access Formats
Updated May 9, 2014 – Prepared by Anthony Cocciolo, Electronic Records Consultant

Original file is preserved, and files are created for preservation and access. This table is based on the normalization table from Archivematica.[1]

Relevant Pilot	Media type	File formats	Preservation format(s)	Access format(s)	Archivist needs to manually normalize?	Notes
Pilot 5 - Standard Records	MS Office (2007 and greater): Word, PowerPoint	DOCX, PPTX	Original format	PDF	Yes, use script created by consultant to normalize: `pres&access.vbs`[2]	MS Office Open XML files can be unzipped and viewed as XML.
	MS Office (2007 and greater): Excel	XLSX	Original format	Original format	No.	
	MS Office (binary formats): Word & Powerpoint	DOC, PPT	DOCX, PPTX	PDF	Yes, use script created by consultant to normalize: `pres&access.vbs`	MS Office binary files are well documented, however, the open XML versions may be more sustainable because they are text-based.[3]
	MS Office (binary formats):	XLS	XLSX	XLSX	Yes, use script created by consultant to	Not normalized to PDF because

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[1]   https://www.archivematica.org/wiki/Media_type_preservation_plans#Normalization
[2] Script available on: https://github.com/Guggenheim
[3] http://www.digitalpreservation.gov/formats/intro/specifications.shtml

Excel				normalize: `pres&access.vbs`	spreadsheets can be tedious to view in this format.
Plain text	TXT	Original format	Original format	No.	
Portable Document Format	PDF	PDF/A	Original format	No, automatically converted by Archivematica using Ghostscript[4]	PDF submitted should include fonts embedded; avoid "Smallest file size" PDFs which do not embed fonts.[5], InDesign and QuarkXPress files should come in as high-quality or press quality PDFs.
Raster images – Highly sustainable[6]	JPG, JPG2000, PNG, TIFF	Original format	JPG	No, automatically converted by Archivematica using ImageMagick.	
Raster images – Questionable sustainability[7]	BMP, PCT, TGA, GIF, PSD[8]	Uncompressed TIFF	JPG	No, automatically converted by Archivematica using	

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[4] Using the behavior described here: https://www.archivematica.org/wiki/PDF_to_PDF/A_using_Ghostscript
[5] http://help.adobe.com/en_US/acrobat/X/pro/using/WSb2f1a50375cd48d3-1f36d19412ada208ceb-8000.html
[6] Based on Library of Congress' Sustainability of Digital Formats – Still Images: http://www.digitalpreservation.gov/formats/fdd/still_fdd.shtml
[7] Ibid.

					ImageMagick.	
	Adobe Illustrator	AI	PDF/A	PDF	No, most Illustrator files have PDF embedded within it, so it is not necessary to create a separate PDF. However, if PDF is not embedded within the Illustrator file, then create a separate PDF.	The lack of a PDF being embedded within the InDesign file will be caught with FIDO format identification in Archivematica.
	Rich Text format	RTF	Original format	PDF	Yes, use script created by consultant to normalize: `pres&access.vbs`	
	Adobe InDesign	INDD, IND	PDF/A	PDF	Yes, create PDF/A and PDF using InDesign and Acrobat.	InDesign files should generally not be submitted; prefer high-quality PDFs that will be auto-converted into PDF/A.
Pilot 6 - Obscure file formats	AutoCAD [2D model / drawing]	DWG, DXF	Original format	PDF	Yes, export to PDF in DWG viewer.	The DWG file format has been openly specified, and open

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[8] Adobe Creative Suite files (Photoshop, Illustrator, InDesign, Flash) could face long term preservation challenges because Adobe will only be making those products available via cloud subscription: http://news.cnet.com/8301-1001_3-57582735-92/adobe-kills-creative-suite-goes-subscription-only/ However, Adobe has made great strides in providing open documentation on many of their formats, which helps ameliorate the previously mentioned concern.

					software is available for reading it.[9] Also, AutoDesk makes a free DWG viewer – DWG TrueView.[10]
Bentley Systems CAD format [2D model / drawing]	DGN	DWG	PDF	Yes, convert to DWG and PDF using AutoCAD.	
VectorWorks and MiniCad [2D model / drawing]	MCD, VWX	DWG [AutoCAD]	PDF	Yes, export to DWG and PDF using VectorWorks.	Major category – 19,130 files in this format. Export to DWG from VectorWorks.
Rhino [3D Models]	3DM	Original format	Original format, PDF (acts like a preview)	Yes. In Rhino, select Print and Save as PDF. Include the 3DM file and PDF file in the manually normalized access folder.	Major category – 1,111 files in this format. To preserve would need to preserve software and emulate if needed.[11]
Autodesk 3D Max [3D models]	3DS	Original format	3DM, PDF (acts like a preview)	Yes. Export to Rhino 3dm using Autodesk 3D Max. Create a PDF	Minor format at SRGF; To preserve would need to preserve

[9] http://opendesign.com/files/guestdownloads/OpenDesign_Specification_for_.dwg_files.pdf ; http://www.opendesign.com/guestfiles/teigha_viewer
[10] http://usa.autodesk.com/adsk/servlet/pc/index?id=6703438&siteID=123112
[11] http://www.ijdc.net/index.php/ijdc/article/viewFile/105/80

					preview, and include the 3DM and PDF file in the manually normalized access folder.	software and emulate if needed.[12] Or, convert to Rhino.[13]
	Raw camera files/Digital Negative format**	3FR, ARW, CR2, CRW, DCR, DNG, ERF, KDC, MRW, NEF, ORF, PEF, RAF, RAW, X3F	Uncompressed TIFF	JPEG	No, automatically converted in Archivematica using ImageMagick and UFRaw.	
	General Vector images	EPS, SVG	SVG	PDF	No, automatically converted in Archivematica using Inkscape.	
Pilot 7 – Obsolete file formats	WordPerfect files	WPD	DOCX	PDF	Yes, use script created by consultant to normalize: `pres&access.vbs`	Script leverages MS Word 2007+ for Windows to do conversion.
	QuarkXPress	QXD	PDF/A	PDF	Yes, export to PDF/A and PDF using InDesign and Acrobat. Need fonts used available on system.	QXD files should generally not be submitted; prefer high-quality PDFs that will be auto-converted into PDF/A.

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[12] http://www.ijdc.net/index.php/ijdc/article/viewFile/105/80

[13] If converting to Rhino, would want to ensure that no information is lost in the process, such as textures.

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	Lotus 1-2-3	WK4	XLSX	XLSX	Yes, export using Gnumeric.[14]	
Pilot 9 – Significant Email Correspondence	MS Outlook Personal Folders	PST	MBOX	MBOX (need viewer)	No, uses readpst to create MBOX file.	A viewer for MBOX files is required, and can be installed on an archives computer.
	MS Outlook Message	MSG	EML	PDF	Yes, see Appendix C	EML file is text and MIME based and well-suited for long-term preservation.[15]
	Novell Groupwise Email	MLM	DOCX	PDF	Yes, use script created by consultant to normalize: `pres&access.vbs`	MLM files are WordPerfect 5.X files
	MS Outlook Express Message	EML	Original format	PDF	Yes, see Appendix C	
Pilot 10 – Web archiving SRGM Websites	Web documents stored on Network	HTML. HTM, Misc. files used for web display (JPG, PNG, etc.)	Text based remain original format; other files converted as indicated in this table.	Text based remain original format; other files converted as indicated in this	No.	

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[14] http://www.gnumeric.org/

[15] http://www.dpconline.org/component/docman/doc_download/739-dpctw11-01pdf

					No.	Heretix (retrieve) and WayBackMachine (view). WARC viewers can be used for reading the WARC file.
				table.		
	Web documented retrieved from web archiving	HTML, HTM, Misc. files used for web display (JPG, PNG, etc.)	WARC	WARC		
Pilot 11 – Very large files (or Video/Audio media)	Audio	AC3, AIFF, MP3, WAV, WMA	WAVE (LPCM)	MP3	No, automatically converted in Archivematica using FFmpeg	
	Video	AVI, FLV, MOV, MPEG-1, MPEG-2, MPEG-4, SWF, WMV, DV	FFV1/LPCM in MKV	MP4	No, automatically converted in Archivematica using FFmpeg	