
This is the fifth in a series of technical leaflets distributed by the ISU Library Special Collections Department. The Special Collections Department was founded in 1969 and collects papers, records, rare books, and other items that relate to Iowa State University, agriculture and rural life, and science and technology. The purpose of Leaflet #5 is to provide guidance for campus departments on managing their own digital files for ongoing sustainability.

The Iowa State University Special Collections and University Archives is in the process of developing a program for acquiring and preserving born-digital materials (e.g. email, computer files, etc.). In the meantime, we offer the following recommendations for managing digital files generated by your department.

1. **Digital files are subject to the same retention requirements as paper files or other formats.** If you would need to retain it or transfer it if it was a physical document, then you need to retain or transfer it even though it is an email or other digital file.
 - a. Check the University's retention schedule here: <http://records.policy.iastate.edu/>
 - b. Check the Archives' transfer guidelines here:
<http://www.add.lib.iastate.edu/spcl/arch/guidelines/depts.html>
 - c. If you're not required to retain the files, but you think they may have historic value, please contact the archives! email: archives@iastate.edu or phone: (515) 294-6672

2. **Maintain the context of your files.** When these files are used again (or transferred to University Archives), it will be important to know what they are and how they were used. The simplest way to maintain this is through descriptive foldering. Generally your files should be organized into logical groupings - reflecting specific projects, particular people, procedures, activities, geography, or some other organization that reflects how you work.

Here is an example for an academic unit:

Root Directory/Shared Drive

- 1) Admissions {Directories based on primary functions of the unit}
- 2) Advising
- 3) Curriculum
 - a. CurrCommittee {Secondary directory based on activities within the function}
 - b. CourseApproval
 - c. CourseCatalog
 - i. 1998-1999 {Tertiary directory based on academic year}
 - ii. 1999-2000
 - iii. 2000-2001
 1. doc#1.doc {Documents based on subject}
 2. doc#2.txt

Additionally, your file names themselves are important. Rather than naming files by a generic term (i.e. "flyer" or "committee notes"), add a word that will make it clearer what the file is related to. Be consistent in the ordering of words in your file names. For example, use either [DOCUMENT TYPE][SPECIFIC PURPOSE] (FlyerHolidayParty20081205) or [SPECIFIC PURPOSE][DOCUMENT TYPE] (HolidayPartyFlyer20081205)

Examples:

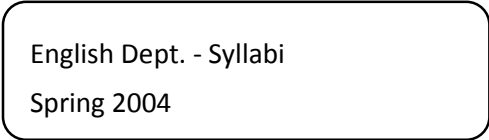
- SpeakerSeriesPoster20120125
- StudentRecruitmentCommitteeNotes20130422
- TravelFundCommitteeNotes20150313

3. **Use computer-friendly file names.** Computer programs are sensitive to the use of symbols in names. Some programs can handle these easily, but the file may become inaccessible if used in a newer version of the program or moved to a different operating system (i.e. PC to Mac to Linux). The easiest way to avoid losing access to your files in this way is through adopting some file naming conventions:
 - a. Avoid using these characters in the file name: \ / : * ? " < > | &
 - b. Avoid using spaces. They can be replaced with _ or -
 - c. Include a date in the file name: YYYYMMDD (December 1st, 2014: 20141201).
 - d. Keep names as short as possible. You can use capital letters to indicate new words rather than adding _ or - (example: *ThisIsMyFile20141201.docx* vs. *this-is-my-file-20141201.docx*)
4. **Organize your email.**
 - a. Organize your email into folders

- b. Move important outgoing messages from the "sent" folder to the appropriate folder for the subject or project. Outgoing messages are just as, or more, important than incoming messages as a record of your own work.
- c. Download important attachments. When possible, refer to a location on a shared drive or include a web link rather than attaching the file directly.
- d. Use a signature block on all your email correspondence.
- e. Use descriptive subject lines.

5. Label your disks

- a. Make sure any storage media (CD-ROM, usb flash drives, etc.) are labeled. Include the name of the department or person who created the files, the rough dates, and a brief description of the files:



English Dept. - Syllabi
Spring 2004

6. **Make sure your files are backed up.** Save your files to a place that is being backed up by your department or use CyBox or another mechanism for ensuring that your files are routinely backed-up.
7. **Don't compress your files.** Compression can alter or corrupt the files.
8. **Migrate your files.** When your office buys new software, save a copy of the file in the new format. Ideally you'd keep the original file and the migrated file since this will keep the original bitstream intact.
9. **Use sustainable file formats.** Computer files remain accessible by migrating them to the newest formats. Therefore, it is important to save files in formats that won't be easily corrupted over time and are likely to be readable in future software. Below is a guide to common file formats.

FORMAT	SUSTAINABLE?	ALTERNATIVE
.accdb - Access databases (.mdb, .accdb, etc.)	👎 No	.siard, delimited text files with ddl, .txt, PDF/A
.ai	👎 No	.svg, PDF/A
.aiff	☹️ Acceptable, but not preferred	.wav
.avi uncompressed .doc, .docx	👍 Yes! ☹️ Acceptable, but not preferred	PDF/A, .odf, .txt, .rtf
.eps	👎 No	.svg, PDF/A
.gif	👎 No	.tif, .tiff
.html	👍 Yes!	
.jpg, .jpeg	👎 No	.tif, .tiff
.midi	☹️ Acceptable, but not preferred	.wav
.mov	☹️ Acceptable, but not preferred	.avi uncompressed
.mp2	☹️ Acceptable, but not preferred	.avi uncompressed
.mp3 (mpeg3, not iTunes)	☹️ Acceptable, but not preferred	.wav
.mp4	👎 No	.wav, .avi
.odf	👍 Yes!	
.odp	👍 Yes!	
.ods	👍 Yes!	
.pdf	☹️ Acceptable, but not preferred	
PDF/A	👍 Yes!	
.ppt, .pptx	☹️ Acceptable, but not preferred	.odp, PDF/A
.rtf	👍 Yes!	
.siard	👍 Yes!	
.tif, .tiff	👍 Yes!	
.txt	👍 Yes!	
.wav	👍 Yes!	
.xls, .xlsx	☹️ Acceptable, but not preferred	.ods, .csv, .txt, PDF/A
.xml (with DTD)	👍 Yes!	

This guide draws on:

"Best Practice - Organization of University Records." Bentley Historical Library, University of Michigan. 2007. <http://bentley.umich.edu/uarphome/manual/special/digital/best2.php>

"Eleven Tips for Preserving Your Personal Data." PARADIGM Project, 2008.
<http://www.paradigm.ac.uk/workbook/appendices/guidelines-eleventips.html>.

"Guidelines for Preservation." The Bancroft Library, University of California - Berkeley. 2013.
<http://bancroft.berkeley.edu/info/guidelines.html>

"Recommendation for File and Directory Names for Long-term Preservation and Access."
Harvard Library, 2009. http://library.harvard.edu/sites/default/files/OIS_recs_for_file_names.pdf.

"File Format Guidelines for Management and Long-Term Retention of Electronic Records."
State Archives of North Carolina, 2012.
http://www.ncdcr.gov/Portals/26/PDF/guidelines/file_formats_in-house_preservation.pdf

CHECKLIST FOR DONATING OR TRANSFERRING DIGITAL FILES

The following is a checklist published by the Council on Library and Information Services that offers advice to records creators who may eventually transfer their files to an archives.

Gabriela Redwine, Megan Barnard, Kate Donovan, Erika Farr, Michael Forstrom, Will Hansen, Jeremy Leighton John, Nancy Kuhl, Seth Shaw, and Susan Thomas. *Born Digital: Guidance for Donors, Dealers, and Archival Repositories*. CLIR Report 159. Washington, DC: Council on Library and Information Resources, October 2013. <http://www.clir.org/pubs/reports/pub159>.

INITIAL COLLECTION REVIEW

- Be aware that simply viewing files can alter them.
- Avoid manipulating, rearranging, extracting, copying, or otherwise altering data residing in the original source media in anticipation of offering the materials for gift or purchase, or preview files in accordance with established guidelines provided by the repository.
- Ask repositories for guidance and documentation on
 - determining the most appropriate repository for the digital materials
 - negotiating the terms of an acquisition agreement or contract as it relates to born-digital materials
 - describing the context and history of the files and media being transferred
 - handling digital media
 - documenting storage, access attempts, copies, and transport of digital media and files
- Clarify expectations about the extent to which the digital materials on offer will be preserved and made available for use.

PRIVACY AND INTELLECTUAL PROPERTY

- Consider screening e-mail files for sensitive or extraneous messages. When this is not possible, consider appropriate embargo periods and discuss restrictions on access to e-mail before that date with the repository.
- Inform repository staff if there is a possibility that the digital records include the intellectual property of people besides the donor of the materials.
- Inform repository staff if there is a possibility that the digital records include legally protected private files, such as confidential government files, medical records, and legal case files, or other kinds of sensitive information, such as Social Security and credit card numbers.
- Consider whether a repository should be allowed to decrypt passwords and logins.
- Discuss with repository staff the variety of deleted information that may be present in digital files and media, and come to an agreement about how such information will be handled and made available to researchers (e.g., perhaps after an embargo period).

KEY STAGES IN ACQUIRING DIGITAL MATERIALS

- Discuss whether the repository will be the exclusive owner of the digital files transferred, whether copies of the digital files will be allowed, and if so, how they are to be made.
- Clearly identify which born-digital materials are to be offered to the repository.
- If offering digital media to a repository, determine whether all files on the media can be captured and made accessible, or whether only certain types of files are accessible.
- Be prepared for the repository to retain the original digital media unless the acquisition agreement indicates otherwise.
- Determine whether limited, specific files or information need to be restricted or redacted and when those restrictions will expire.
- Consider seeking advice from a legal professional when working with the repository on a contract or agreement.
- Consider involving a technical specialist in conversations with repository staff about what guidelines to follow when copying and transferring media and files.
- Be prepared to have ongoing communications with the repository during the capture and processing of digital materials.
- Determine whether computer equipment no longer used by the donor can be offered as part of the acquisition.
- Consider writing a personal computing history to provide context for the digital media and computers in the acquisition.
- Seek guidelines from the repository for shipping of hardware or transfer of digital files.
- Document the ways in which digital media and files have been stored, accessed, and transported prior to their arrival at, or collection by, the repository.
- Be prepared for electronic copying and transfer to take a significant amount of time, and for repository staff to develop new capture techniques to accommodate novel acquisition scenarios.

POST-ACQUISITION REVIEW BY THE REPOSITORY

- Include information about physical damage to digital media in the initial collection inventory or survey. Noting damaged digital media is as important as disclosing damage to paper materials. Digital photographs of media and equipment may be helpful.
- Remain open to ongoing communication with repository staff about the acquisition.
- Take great care when packing and shipping physical media and transferring digital files. Media damaged in shipping or files corrupted in transfer lose significant cultural value.