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## Preserving Your Family History in the Digital Age

**Genealogists collect family history information in a variety of formats. These collections traditionally consisted of research notes along with an archive of letters, photographs, and documents, stored in paper folders and sturdy binders. Today's genealogists also utilize digital technology to locate, save, and create digital "family papers."**

The proliferation of online content has enabled researchers to download documents and other material from a wide range of sources. Many genealogists now utilize a family tree program (such as our free AnceSTREES service, available at [AmericanAncestors.org/ancestrees](http://AmericanAncestors.org/ancestrees)) to collect and organize their research.

The nature of "family papers" has likewise evolved. Most family photographs and home videos are now taken with cell phones and digital cameras. Correspondence has moved largely from letters and cards to email, social media, and texts and messages. Like the physical media of past generations, these digital "family papers" can provide insight into the personalities and lives of family members.

As odd as it might seem, this abundance of digital files creates challenges to access. Digital storage is now so cheap that researchers are inclined to keep every digital file they download, create, receive, or purchase. As the quantity of digital files increases,

organizing the collection becomes more difficult. When faced with thousands of files, how do we locate the correct one—or determine after time has passed which documents are relevant or significant? As any researcher knows, if you can't find an important file, it may as well not exist.

Digital media poses other challenges to long-term use. A computer or other device is required to access files stored online or on a hard drive. A drive or device may be needed to access storage media. Compatible software is necessary to view the documents.

As technology evolves, even the most popular digital storage media are superseded by new options. Few new computers today come with equipped with internal floppy disk, CD, or DVD drives (although external drives are still available). Obsolescence of both



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hardware and software is a significant barrier to the long-term use and preservation of digital files. By contrast, paper records can be viewed without any special devices hundreds of years after their creation.

Like physical records, digital files are vulnerable to environmental damage. CDs, flash drives, hard drives, and other physical storage media can be damaged through natural disasters, accidents, and improper storage and handling. Physical documents and photos protected from environmental damage may survive for hundreds of years. With the proper storage and handling, digital files can likewise remain stable for decades. (However, even with appropriate preservation, most digital storage media has a short lifespan and will need to be periodically evaluated.) Digital storage media should be stored upright, in cases or envelopes, and protected from dust, dirt, and light in an environment with consistent temperature and humidity.

Digital files require regular and active management to ensure that they remain accessible. Four major steps are part of the digital preservation management process:

- Identify
- Select
- Organize
- Store

### Identify

Identify where your digital files are located and review their contents. You may want to create a list (either digitally or on paper) of the locations of your digital files, along with a brief description of their contents.

Begin looking for your files on the hard drive of any computer you currently use. Then check computers you have used in the past for files you neglected to transfer. In addition, search any removable media—such as CDs, flash drives, floppy disks, and external hard drives. Labels on the storage media may help you identify the contents. Don't delay opening

and reviewing any removable storage media now—as technology becomes obsolete it will be difficult to read older disks and files.

If you have a digital camera, your photos, audio, and video files might be on a storage card. Search your cell phone or tablet for photographs and videos, as well as communications with family and friends through texts and other messaging systems. Social media accounts, email, and online cloud storage (such as Dropbox, Google Drive, and OneDrive), might store digital files. Identify the places where you store digital copies of your genealogical research—either online or on your computer.

### Select

Once you have identified the locations of your digital files, you need to select the most important files for long-term preservation. No hard-and-fast rules exist for selection; choose the files

that have value for you. Photographs, videos, letters, emails, and genealogical research material may be important enough to preserve. Discard multiple versions of the same file. For example, if you have many photographs of the same event, choose your favorites and keep the original images. If you have multiple versions of a written document, keep the most complete copy.

If you have trouble choosing which files to keep, ask yourself:

- Does the file have personal meaning for you?
- Is the file unique?
- Do you want to pass this file on to your descendants?
- Does the file contain important legal, financial, or medical information?
- Do you refer to this file often?

If your answer to any of these questions is yes, the file is a good candidate for preservation.

Digital files can become corrupted during storage and copying, changing the files and sometimes making them unreadable. This phenomenon, known as bit rot, can cause significant changes to files, as shown in this JPEG image. Boston Normal Cooking School class, 1892. Louise Bartlett Carruth Baxter family papers, Mss 1115, R. Stanton Avery Special Collections, NEHGS.





## Organize

Your digital archive will be most useful if you (and your descendants) can easily locate important files. Your files should have brief but descriptive names, and be saved in organized folders. Creating descriptions of your files is also very helpful, especially for photographs, video, and audio.

Good file names make specific files much easier to find. The default file names created by software programs, cameras, and other digital devices are not informative. A file name should provide information about when or where the photograph was taken and what it depicts. A file name isn't the place for a caption or description of the document! Save those details for the metadata, or description. For greatest interoperability between systems, file names should be short, and use only alpha-numeric characters, hyphens, and underscores. No spaces, punctuation, or special characters should be included. File names should always end with a period and a file extension.

The file-naming scheme you choose should make sense to you, and help you remember the file contents. For example, your file names might include first and last names, a word or two describing the document, and the date. The exact information that you include does not matter, as long as you are consistent in the order and formatting of elements. If you choose to include dates, select one of these formats: YYYYMMDD or YYYY\_MM\_DD. Using these formats will allow chronological sorting of files.

Here are some examples of good file names:

- Smith\_letter\_20050513.docx
- 201507-BostonTrip-img05.jpg
- John\_Tisdale\_descendants.pdf

Consider how to organize your digital files so you can find them later. The folders in which you save your files should be organized consistently and in a way that makes sense to you. For example, files could be organized by

year, subject, or general type. Within these broad categories, create sub-folders for additional organization.

An optional (but recommended) step is to add metadata, or descriptive information, to the files you want to preserve.

Metadata helps ensure that your files are discoverable—especially by searching—either within your operating system or in a software program. Metadata also helps preserve the context of a digital file by recording why a file was created, when, and by whom. Some basic metadata is automatically recorded by operating systems or software—such as date of creation, file size, and sometimes creator. Digital cameras and cell phones automatically record the camera settings used to take each image, and the location where the photograph was taken, if available. Images, audio, and video particularly benefit from descriptive metadata, since these files don't typically include searchable text.

Metadata can be saved in separate files, recorded in an image or file manager, or embedded within the file itself. Regardless of the method used, all descriptive metadata should include the same kind of information. Some recommended elements include a *Title*, *Creator* (if known), the *Date* that the file was originally created, the *Source* of the file (if relevant), and *Keywords*. Keywords can include any people, places, or subjects mentioned or portrayed in the document. If the title, date, and keywords don't adequately describe a file, you may want to add a description. The description field should include any additional information about a file that will help you find

## Folder examples

- My Archive
  - 2006
  - 2007
  - 2008
  - 2009
    - Family
    - Friends
    - School events
  - 2010
    - Blog
    - Digital Photos
    - Digital Video
    - Documents and Important Papers
    - Music
  - 2011
    - Family Events
      - Uncle Bobs 70th party
    - Holiday parties
    - Misc
    - Vacations

In this example, a digital archive has been organized into folders by year. Within each year, additional folders organize the folders by document type or subject.

it later, or explain why you chose to preserve it.

Metadata can be recorded in a separate file, such as a spreadsheet or text file. Information about the whole folder should be written at the beginning of the file, followed by details (if any) about individual files within the folder. Save your metadata file in the same folder as the files it describes. You can also create a separate metadata file to describe the folder structure and provide a general summary of the files.

Your metadata can also be recorded with an image or file organizer. If you choose this option, make sure that your metadata can be exported for use in another program so that you can switch software programs if necessary. Another option is to embed the metadata within the file itself. Embedded metadata can be added directly by using built-in tools in your operating system, or with a separate software program. Examples of programs



### Metadata text file example

Collection: William Lowe Papers  
 Make/Model of scanner: Epson Scan 1000XL  
 Scanning software used: Epson Scan Professional  
 File format used/compression level: TIFF, compression unknown  
 Date of digitization: 2011-05

Folder: Lowe\Photographs\France\_October\_1919  
 photo.1.tif Captain William Lowe, June 4, 1919 in camp at Brest, France written on back.  
 photo2.tif William Lowe in uniform at barracks, 1919, identified by son Amos Lowe.

Basic descriptions of your files can be written in a text file or spreadsheet. This example describes some digitized family photographs, and includes the folder and file names, along with a description of each file.

that are designed for use with images include Photoshop Elements Organizer, XnView MP, and Adobe Bridge. These applications can also be used as image browsers, and most have editing tools as well.

Most image editors also include tools for adding embedded metadata; many other programs, such as Microsoft Office, OpenOffice, and Adobe Acrobat, also include tools for adding and editing a file's metadata or properties.

Depending on the software, embedded metadata may be hard to create, but it will stay with the file, even if the file is moved to another location. Some image managers automatically index embedded metadata, so you can use it to search for images or other files and filter them for more relevant results. Embedded metadata in any kind of file can also be accessed by the search tools in your operating system, making it easier to find photographs and other files featuring specific people, places, and subjects.

The Properties tool in Microsoft Word allows users to add and edit metadata to describe their documents. Many other programs have similar features.

### Store

Storage involves both the file format used to save your files, and the place where you save them. For the best long-term preservation, save your files in popular, widely used standard file formats that can be opened by many software programs.

Some recommended file formats for preservation are listed in the table on page 31. These file formats should be used to save the version of a file that you want to preserve for future family members and researchers. Use these formats also for files you share with others, as these formats can be opened by many software programs, regardless

BenneyJohn-desc-draft.docx Properties

General	Summary	Statistics	Content	Custom
Title:	The Descendants of John Benney of St. Columb Minor, Cornwall			
Subject:	Benny family; Cornwall (England: County)			
Author:	Benny, Sally			
Manager:				
Company:				
Category:				
Keywords:	John Benney; John Benny; William Benny; Albert Edward Benny; Cornwall; St. Columb Minor; St Newlyn East; St. Enoder; England			
Comments:	Three generations of the descendants of John Benney (d. ca. 1828) of St. Columb Minor, Cornwall, England.			
Hyperlink base:	Normal.dotm			
Template:				
<input type="checkbox"/> Save preview picture with this document				



of operating system. When you create and edit a file, however, use whatever software program you prefer and save the file in a format compatible with the software. For example, if you use a family tree program, you should save your data in the program's native file format and edit that file. For long-term preservation, or to send your family tree to other family members, export a copy and save it as a GEDCOM, which can be opened by any family tree program.

Advanced users may wish to save files in open file formats, rather than proprietary ones. The specifications of open file formats have been published and are freely available, so multiple software programs can more easily read, save, and support those formats. In contrast, proprietary file formats are generally created and used by commercial companies for their own software programs. If the software is discontinued or the company goes out of business, opening those files—much less converting them to a format that other software programs can use—can be challenging.

Encrypted and password-protected files can be difficult to open without the appropriate password or software. Therefore, for best results, files in your digital archive should be saved without any encryption or other form of access control.

For long-term preservation, saving multiple copies of your files is essential. The “3–2–1 Rule,” recommended by the American Society of Media Photographers, is a good rule of thumb to follow:

- Make 3 copies
- On at least 2 types of storage media
- And save 1 copy in another location

The variety of storage media options includes the hard drive of your computer, external hard drives, USB flash drives, CDs, and DVDs.

Another option is online cloud storage, such as Dropbox, Google Drive, iCloud, or OneDrive, which can

### Recommended file formats for preservation

TYPE	RECOMMENDED FILE FORMATS
Documents	.PDF (preferably PDF/A) .ODT (OpenDocument Text) .TXT (Plain text) .DOC, .DOCX (Microsoft® Word Document) .RTF (Rich Text Format)
Images	.TIF, .TIFF (Uncompressed) .JP2 (JPEG2000) .JPG, JPEG .PNG .PDF (PDF/A) .GIF .DNG (Digital Negative)
Video	.MPEG-2 .MP4 (MPEG-4, with H.264 encoding) .MPEG-1 .AVI (AVI, full frame, uncompressed) .MOV (QuickTime Movie, uncompressed) .WMV .OGG
Audio	.WAV (WAVE Format LPCM) .AIF, .AIFF (Uncompressed) .MID, .MIDI .WMA (Windows® Media Audio) .MP3 (MPEG3) .M4A (MP4 AAC)
Spreadsheets	.ODS (OpenDocument Spreadsheet) .CSV (Comma-separated values) .TXT (Tab-delimited text file) .PDF (preferably PDF/A) .XLS, .XLSX (Microsoft® Excel Spreadsheet)
Presentations	.ODP (OpenDocument Presentation) .PDF (preferably PDF/A) .PPT, .PPTX (Microsoft® PowerPoint Presentation)
Genealogical research and family trees	.GED (GEDCOM) .PDF (for family group sheets and other reports, and graphical family trees)
Web sites and web pages	.HTM, .HTML (HTML or XHTML, with associated files) .PDF (for a small number of individual web pages)
Email	.MBOX .PDF (for individual emails)

*American Ancestors Magazine*. Boston, MA: New England Historic Genealogical Society, 2010. (Online database. *AmericanAncestors.org*. New England Historic Genealogical Society, 2010.)



be accessed from any location. Before choosing an online storage option, review its features and make sure that it meets your needs.

Free cloud storage accounts offer a limited amount of storage; a paid account may be necessary for your entire digital archive. Select a service that will not compress, resize, or otherwise alter your files. In addition, choose an option that provides tools for exporting a complete copy of your files, in case you need to move your archive.

Since digital storage media (such as hard drives, CDs, etc.) have limited lifespans, check the files in your digital archive on a yearly basis. Review the files for anything unexpected, such as a file with an unusually small size. In addition, open a selection of the



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### Resources for more information

- Personal Archiving (Library of Congress), [digitalpreservation.gov/personalarchiving](http://digitalpreservation.gov/personalarchiving)  
Includes advice on preserving digital photographs, audio, video, email, personal digital records, websites, and scanning personal documents and photographs.
- “Adding Descriptions to Digital Photos.” Library of Congress Digital Preservation: The Signal. [blogs.loc.gov/thesignal/2011/10/mission-possible-an-easy-way-to-add-descriptions-to-digital-photos](http://blogs.loc.gov/thesignal/2011/10/mission-possible-an-easy-way-to-add-descriptions-to-digital-photos)
- Personal Digital Archiving Strategies (Kari Smith and Jessica Venlet, MIT Libraries Institute Archives & Special Collections), [libraries.mit.edu/digital-archives/files/2015/10/2015\\_pda\\_handoutdissemination-v3.pdf](http://libraries.mit.edu/digital-archives/files/2015/10/2015_pda_handoutdissemination-v3.pdf)
- Digital Preservation Best Practices and Guidelines (State Archives of North Carolina and State Library of North Carolina), [digitalpreservation.ncdcr.gov](http://digitalpreservation.ncdcr.gov)
- “Preserving Your Family’s Digital Legacy: A Talk at the Winchester Historical Society” (Life Cycles of the Bits and Pages, by Helen Bailey), [bitsandpages.wordpress.com/2014/04/24/preserving-your-family-digital-legacy-a-talk-at-the-winchester-historical-society](http://bitsandpages.wordpress.com/2014/04/24/preserving-your-family-digital-legacy-a-talk-at-the-winchester-historical-society)
- Personal Digital Archiving Guide series (Bits and Pieces blog, University of Michigan Libraries):
  - ♦ Personal Digital Archiving Guide Part 1: Preservation Planning, [lib.umich.edu/blogs/bits-and-pieces/personal-digital-archiving-guide-part-1-preservation-planning](http://lib.umich.edu/blogs/bits-and-pieces/personal-digital-archiving-guide-part-1-preservation-planning)
  - ♦ Personal Digital Archiving Guide Part 2: Media Types and File Formats, [lib.umich.edu/blogs/bits-and-pieces/personal-digital-archiving-guide-part-2-media-types-and-file-formats](http://lib.umich.edu/blogs/bits-and-pieces/personal-digital-archiving-guide-part-2-media-types-and-file-formats)
  - ♦ Personal Digital Archiving Guide Part 3: Storage, [lib.umich.edu/blogs/bits-and-pieces/personal-digital-archiving-guide-part-3-storage](http://lib.umich.edu/blogs/bits-and-pieces/personal-digital-archiving-guide-part-3-storage)
- Digital Photography Best Practices and Workflow, [dpbestflow.org](http://dpbestflow.org)
- IPI Guide to Preservation of Digitally-Printed Photographs (PDF), [dp3project.org/webfm\\_send/739](http://dp3project.org/webfm_send/739)
- Creating Long-Lasting Inkjet Prints (NEDCC Preservation Leaflets), [nedcc.org/free-resources/preservation-leaflets/5.-photographs/5.4-creating-long-lasting-inkjet-prints](http://nedcc.org/free-resources/preservation-leaflets/5.-photographs/5.4-creating-long-lasting-inkjet-prints)
- Wilhelm Imaging Research, [wilhelm-research.com/](http://wilhelm-research.com/)  
Includes reports on the longevity of many commercial and home photograph printers.
- The Digital Beyond. [thedigitalbeyond.com/about](http://thedigitalbeyond.com/about)
- “5 Steps to Creating Your Digital Estate Plan” (Next Avenue), [nextavenue.org/5-steps-creating-your-digital-estate-plan](http://nextavenue.org/5-steps-creating-your-digital-estate-plan)



### Glossary

**Archives:** Materials—created in any format by a person, family, or organization—that are deemed worthy of preservation due to their permanent or long-term value.

**Bit rot:** Corruption of digital files due to errors in copying and deterioration of storage media. Depending on where the change occurs in the digital file, it can cause changes in the appearance of the file, or can even make a file inaccessible.

**Born-digital:** Digital files that were originally created in a digital format, such as a digital photograph or word processing document.

**Digital obsolescence:** Occurs when digital materials are no longer readable, due to archaic, obsolete storage media, file formats, or operating systems, and caused by the rapid development of technology.

**Digitization:** The conversion of analog materials into a digital format, through scanning, digital photography, or some other process. Your digital archives may contain both born-digital and digitized files.

**Cloud storage:** Storage of digital data on remote servers, sometimes in multiple locations. Cloud storage can be accessed online.

**Digital preservation:** Ongoing activities that are required to provide long-term access to digital material, regardless of the challenges of media failure and technological change.

**Metadata:** “Data about data” that documents important aspects of a resource, and helps users to find, interpret, and access resources in any format. Includes descriptive metadata, which describes the content of a resource.

**Migration:** The transfer of digital data from one storage medium or file format to another, to allow ongoing access to the information.

files to make sure that your computer can still access and display them properly. If you find any problems, replace the damaged file with an undamaged one from a duplicate copy of your digital archive. Migrate the files to new storage media every five years, and more often if necessary.

For particularly important digital files, print copies so that you have physical backups as well. Use archival paper to ensure that these copies last as

long as possible. (Documents should be printed on archival bond paper.) Consider creating photo books and prints to safeguard your photographs and allow for easy sharing. Digital photographic prints are not yet truly archival, but professional prints on archival photographic paper are likely to last the longest. Some inkjet photo printers can produce long-lasting photographic prints, depending on the combination of inks and papers used. In any case,

printed versions of digital files should be stored like all other important documents: in archival enclosures in a stable environment, protected from light, dust, and moisture.

After expending considerable effort to preserve your digital archive, make sure that at least one person knows where your digital files are located and how to access them. You may want to give a copy of your digital archive to someone else for additional safekeeping or formalize plans for your digital estate in your will. Your files could still be lost if no one else knows about their existence or how important they are to you.



Digital preservation is a cycle. As you continue to create digital files, do not neglect the other critical steps in the process: select files you want to preserve, give them meaningful file names, save them in organized folders, and create multiple copies.

The entire digital preservation cycle can seem overwhelming—but don't be discouraged. Focus on completing attainable steps, and you can make your files significantly more accessible in the future. Following even some of the recommendations in this article will make a difference. Organizing and backing up your files is especially important.

Although preserving digital files requires regular effort, this diligence will pay off in the long run. Your personal and family archives are precious, regardless of their creation date, and deserve to be preserved and passed down to future generations of your family. ♦