

**Preserving Family Records in
Digital Format**


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Agenda

- Managing family e-records
- Preservation strategies
- Types of electronic media
- Maximizing longevity



Identify Your e-Records

- Digital camera images
- Word processing documents
- Database & spreadsheet files
- Scanned & downloaded images
- Audio & video recordings
 - Analog & digital
- PDF files
- Websites



When Your Records Are At Risk

- Software obsolescence
- Hardware
 - Obsolescence & failure
- Storage media
 - Deterioration & physical destruction
- Security
 - Physical & digital
- Proprietary format



Managing Family e-Records

- Develop filing system
- Provide security
- Make duplicates
- Plan for disasters




e-Filing

- Manage and file your records well
- Ensure quick, reliable access
- Develop filing standards
- Create logical folder structure
- Maintain your computer system



File Naming Conventions

- Model on paper filing systems if possible
- Use easily understandable names
- Strive for consistency
- Determine how you search for records




e-Record Security Threats

- Networked environment
- Computer crashes
- Fire or other natural disaster
- Tampering
- Viruses



Securing Computer Records

- Regularly update virus & spyware software
- Avoid software & files from unknown sources
- Make all users follow rules
- Keep all computers up to date



Passwords



- Use passwords to protect your data
 - To restrict access to approved users
 - To protect from unauthorized changes
- Use passwords at various levels
 - Your computer
 - Your e-mail and Internet accounts
 - Specific computer files
 - Computer folders

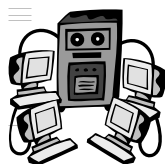
Backing Up vs. Duplicating

- Backing up
 - Reduces storage space
 - Compresses & essentially encrypts the file
 - Not recommended for preservation
- Duplicating
 - Uses same space as originals
 - Stores documents uncompressed
 - Leaves the documents more accessible



Making Dupes

- Duplication provides protection from loss
 - Hard-disk crashes
 - Intentional damage
 - Accidents
 - Disasters
- Decide necessary frequency
- Use copies vs. accessing original files



Duping Do's



- Dupe as frequently as you need
- Make duplication simple & routine
- Use reliable media
- Label and date media clearly
- Maintain offsite
- Verify your dupes

Duping Don'ts



- Don't dupe over the only duplicate
- Don't store important duplicates on site
- Don't rely on fire-resistant safes
- Avoid safe deposit boxes

Disaster Planning



- Identify your risks
- Implement preventative measures
- Create response plan

Preservation Strategies

- Maintaining obsolete technologies
- Conversion to hardcopy
- Migration
- Storing records in standard formats



Evaluate Preservation Strategies

- Costs
- Time commitment
- Accessibility
- Necessary functionality




Maintaining Obsolete Technologies

- Examples . . .
 - Outdated computer, software or media
- Only short-term solution
 - Requires maintenance
 - Failure of any component disastrous
- Access & functionality limited
- Risks very high




Printing e-Records

- Black and white laser printing
 - Best solution for printing
 - Use paper that meets ANSI Standard for Permanence of Paper [ANSI/NISO Z39.48-1992 (R1997)]
- If preservation of color is important
 - Inkjet printer: use paper and ink specified by manufacturer
 - Color laser printer: use paper that meets ANSI standard
 - Consider preserving records in both paper and e-format




Migration

- Periodic transfer of data to newer system
 - Before old system becomes obsolete
 - Transfer of data to new media
- Can do item-by-item migration or . . .
- Programmed mass migration
- Example - WordPerfect files to MS Word



Migration Challenges

- Time consuming & labor intensive
- May lose some information
- Opportunity for human error
- Conversion software costs



Storing Records in Standard Formats

- Formats expected not to change
 - Usually open and popular formats
- May lose essential formatting & info
 - If converting to a new format
- May not be a permanent solution



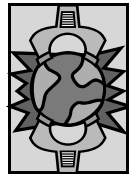
Standard File Types For Images & Graphics

- Lossless compression examples
 - Tagged Image File Format (TIFF)
 - *Recommended for long-term preservation
 - Graphics Interchange File (GIF)
 - Portable Network Graphics (PNG)
 - JPEG 2000
- Lossy compression example
 - Joint Photographics Experts Group (JPEG)



Compression

- Process that reduces the size of digital documents
- Two types:
 - Lossless = no data is lost
 - Lossy = some data is lost
- Some techniques are proprietary



JPEG vs. TIFF



JPEG



TIFF

Resolutions for Scanned Images

- 300 dpi (minimum)
 - Preservation copy
- 150 dpi
 - Printer output
- 96 dpi
 - Internet publication



Standard File Types for Text

- American Standard Code for Information Interchange (ASCII)
- Unicode
- Rich Text Format (RTF)
- Portable Document Format (PDF)
 - PDF/A
- Extensible Markup Language (XML)



Standard File Types For e-Mail

- Remove from e-mail system
- Convert to standard text file format
- Preserve attachments too
 - May have to convert them to appropriate standard format



Standard File Types for Databases & Spreadsheets

- No adequate standards
- Two options
 - Keep in original format & migrate
 - Or preserve as comma- or tab-delimited files
- XML may be future option
- Long-term access is problematic



Standard File Types for Video & Audio

- Audio
 - WAVE (.wav)
 - Broadcast Wave Format (.bwf)
- Video
 - MotionJPEG2000 [lossless compression]
 - Motion Picture Experts Group (MPEG) [lossy compression]



Standard File Types for Websites

- Capture static webpages by
 - Taking snapshot (manual)
 - PDF/A
 - Using web harvester (automated)
- Preserve pages in original format
 - HTML, XHTML, XML
- May need to convert other file formats to standard
- Capture dynamic pages by preserving
 - Database, every possible user query, database software



Electronic Storage Media

- Consider all to be temporary storage
- Digital vs. analog media and data
- Primary types of media:
 - Optical
 - Magnetic
 - Magneto-optical



Digital Media & Data

- Data stored as 1s and 0s
- Information loss is sudden and total
- No loss of quality when copied
- All optical media is digital
- All data produced by computers is digital
- All data stored on optical media is digital



Optical Media

- Optical media
 - CDs, DVDs
 - Digital characteristics
 - Less stable
 - Fast data transfer rate
 - Random access



Optical Media Examples

- Read only memory (ROM)
 - CD-ROM, DVD-ROM
- Recordable
 - WORM, CD-R, DVD-R
- Rewritable (RW)
 - Magneto-Optical (MO), CD-RW, DVD-RW



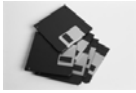
Magnetic Media

- Magnetic media
 - Tape, disks, and diskettes
 - Best performance overall
 - Analog characteristics
 - Serial access
 - Established track record
 - Slow data transfer rate (except DLT)




Magnetic Media

- Disks and diskettes
 - 3.5-inch
 - Zip & Jaz
 - Hard drives
- Computer tape
 - Half-inch, QIC, Digital Linear Tape (DLT)
 - 3480/3490 open-reel tape
 - 3590 tape cartridges
 - Linear Tape Optical (LTO)




3.5" diskettes




DLT drive

Magnetic Media cont.

- Solid state media
 - USB, jump, thumb & flash drives
 - Memory sticks, cards
- Videotape
 - VHS, digital videotape
- Audio tape
 - Cassette, 4mm DAT




Memory stick



USB drive

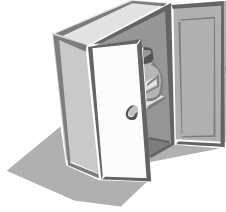
Media Life Expectancy (Physical)

- Depends on
 - Environment
 - Handling
 - Media quality
- Examples
 - Paper = 100+ years
 - Microfilm = 500 years
 - Computer diskette = 2 - 5 years
 - DLT = 10 - 30 years
 - CD-ROM = 5 - 50 years
 - Magneto-optical = 5 - 100 years



Maximizing Longevity

- Store records on quality media
- Handle properly
- Maintain proper storage
- Monitor media regularly
- Refresh media periodically



Storing Records on Quality Media

- Use quality, brand-name products
- Use recently manufactured media
- Don't reuse media indefinitely
- Avoid VHS tapes or audio cassettes



Proper Handling of Media

- Handle by housing or edges
- Don't bend or place objects on top
- Use duplicate copies for viewing
- Do not use paper clips or rubber bands
- Create clear, detailed labels



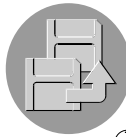
Maintaining Proper Storage

- Maintain optimal temp and humidity
 - 45°F to 65°F
 - 30% to 40% RH
- Protect from dust, light, and smoke
- Protect magnetic media from mag fields
- Store media on end
- Use fire-resistant media cabinets
- Store copy and master separately



Refresh Media Periodically

- Copying from old to new media
- Ensures integrity and accuracy
- Do before signs of deterioration
- Follow a refreshment schedule
 - Videotape = 10 years
 - Tape and Disc = 3 - 5 years
 - Computer diskette = 1 year




Conclusion

- Develop & follow preservation plan
- Maintain offsite duplicates
- Maintain system components
 - Equipment
 - Software
 - Data
 - Media



Questions?



The End

Thank You
