

Preservation of Electronic Records Workbook

New York State
Archives

2011

New York State Archives Presents Preservation of Electronic Records Spring 2011

Agenda

Introduction

Characteristics of Electronic Records

Know Your Electronic Records

Apply Appropriate Strategies

BREAK

Managing Media

Exercise

Coordinate and Track Preservation Efforts

Develop Policies and Procedures

Conclusion and questions

For more information:

Contact Mary Beth Sullivan, Coordinator of Training and Publications

Phone: (518) 474-0670

Email: ARCHTRAIN@mail.nysed.gov

Website: <http://www.archives.nysed.gov/a/workshops>

The New York State Archives is part of the Office of Cultural Education within the New York State Education Department.

Preservation of Electronic Records

New York State Archives
www.archives.nysed.gov
2011

Today, We'll Discuss...

- Definition of e-records preservation
- Preservation strategies
- Implementing a preservation plan
- Coordinating preservation efforts

Definition of Preservation

- Ensuring the use and accessibility of information in a record for the record's full retention period
- By adopting procedures and standards and applying them selectively

Challenges of Preserving E-records

- Unstructured nature of many e-records
- Layers of obsolescence
- Reliance on individual users
- Complexity of e-records
- Massive volumes

Basic Preservation Principles

- Focuses on all e-records
 - Challenging to save e-records even five years
 - Thus, temporary records are also an issue
- May require preserving more than the information in the records
- Requires unified, coordinated effort

Steps to Preserving e-records

1. Understand basic characteristics of e-records
2. Know your e-records
3. Apply appropriate strategies
4. Coordinate and track preservation efforts
5. Develop policies and procedures

1. Characteristics of e-records

- Content
- Metadata
- Functionality
- Technical environment
 - Hardware (including storage medium)
 - Software
 - Operating platform
 - Format

Metadata

- Provides context and meaning
- System generated
- Can be created manually
- Essential for legal admissibility and preservation
- Subject to e-discovery

2. Know Your E-records

- Conduct a comprehensive e-records inventory
- Identify
 - retention periods
 - vital e-records
 - basic characteristics of each e-records system
- Maintain inventory as you design new systems

3. Apply Appropriate Strategies

- Maintaining obsolete technologies
- Conversion to hardcopy
- Standard formats
- Extensible Markup Language (XML)
- Migration
- Emulation
- Strategies for websites
- Managing storage media

What are Backups?

- An inappropriate preservation strategy
- Compressed copies of all records
 - For disaster recovery
 - *Not* the official record
 - *Not* a preservation copy

Maintaining Obsolete Technologies

- Short-term solution
- Assumes storage media will not become obsolete
- Access is limited

Conversion to Hardcopy

- A solution when
 - Limited IT support or small number of records
 - All necessary metadata is captured
 - No need to maintain functionality
- Examples
 - Print electronic data to paper
 - Output data to microfilm

Printing e-records

- Black and white
 - Follow ANSI Standard for Performance of Paper
- Is color important?
 - Inkjet printer: use paper and ink specified by manufacturer
 - Color laser printer: use paper that meets ANSI standard

Standard Formats

- Standard formats can be
 - open source
 - non-proprietary
 - widely accepted and used
- Expected not to change frequently
- Not a permanent solution
- Can create copies in several different formats as a strategy

Compression

- Reduces the size of digital documents
- Some techniques are proprietary
- Lossless = no data is lost
- Lossy = some data is lost

Formats for Images

- Lossless (for master images)
 - TIFF
 - GIF
 - PNG
 - JPEG 2000
- Lossy (for use images)
 - JPEG

Formats for Text Documents

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

Formats for Audio Files

- WAVE (.wav)
 - Lossy, high quality
- Broadcast Wave Format (.bwf)
 - Lossless, non-proprietary

Formats for Video Files

- Motion JPEG2000
 - MJPEG 2000
 - MPEG2K
- Motion Picture Experts Group (MPEG)
 - MPEG-1
 - MPEG-2
 - MPEG-4
 - MPEG-7
 - MPEG-21

Databases and Spreadsheets

- No adequate standards
- Migrate from original format
- Comma or tab-delimited files
- Long-term functionality is problematic
- XML may be a future option

Extensible Markup Language (XML)

- Developed to transport data between different operating systems
- Open format
- Also a markup language
 - Uses tags to indicate the structure of data
 - Requires another software program to process and read data

Migration

- Periodic transfer of data from one...
 - System
 - Format
 - Medium...to another before the first becomes obsolete
- Not to be confused with...
 - Upgrades
 - Refreshing

Migration Pros and Cons

- Pros
 - Common, proven approach
- Cons
 - Expensive
 - Time-consuming and labor-intensive
 - Risk of information loss

Emulation

- Allows one technology to imitate another
 - Uses new hardware and software
 - Data stored in original file format
- Complicated and potentially expensive
- Needs further investigation

Emulation Examples

- Online game emulators
- Backward compatibility
- Macintosh/Windows emulation

Windows 2000 Emulating DOS

```
Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

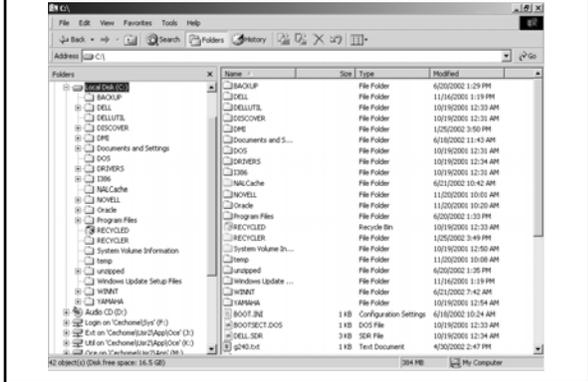
C:\>dir
Volume in drive C: has no label.
Volume Serial Number is 442E-D10A

Directory of C:\

06/20/2002 01:22p <DIR>          BACKUP
11/16/2001 01:47p <DIR>          BELL
10/19/2001 12:33a <DIR>          DELLUTIL
10/19/2001 12:31a <DIR>          DISCOVER
01/25/2002 03:50a <DIR>          DMF
06/18/2002 11:43a <DIR>          Documents and Settings
10/19/2001 12:31a <DIR>          DRS
10/19/2001 12:34a <DIR>          DRIVERS
06/20/2002 02:47p <DIR>          I386
10/19/2001 12:31a <DIR>          I386
06/21/2002 10:42a <DIR>          296 9540-*.cat
11/16/2001 01:44p <DIR>          202 localno.log
10/27/2000 02:10p <DIR>          44  mofrc.txt
11/20/2001 10:01a <DIR>          MOUELL
11/20/2001 10:20a <DIR>          Oacale
06/20/2002 01:33p <DIR>          Program Files
12/12/2001 05:40p <DIR>          333 Shortcut to WINNT.lnk
11/20/2001 10:08a <DIR>          temp
06/20/2002 01:35p <DIR>          unzipped
11/16/2001 01:19p <DIR>          Windows Update Setup Files
06/21/2002 07:42a <DIR>          WINNT
04/30/2002 02:37p <DIR>          1 WINNTLogRes.tmp
06/21/2002 07:42a <DIR>          846 WSRCS2.LOG
11/16/2001 01:35p <DIR>          0 USREMOIE.ID
11/20/2001 10:02a <DIR>          546 WFC-UVL
11/20/2001 10:02a <DIR>          546 WFC-OZ-UVL
11/20/2001 10:02a <DIR>          546 WFC-UMJ
11/20/2001 10:02a <DIR>          8,198 WFC-US-UVL
10/19/2001 12:54a <DIR>          70 YAMMIR
06/16/2002 03:15p <DIR>          11 725 bytes
                                17 Dir(s) 17,767,100,320 bytes free

C:\>
```

Directories in Windows 2000



Preserving Websites

- Capture static pages
- Use harvesting software or service
- Preserve webpages in original format
 - Convert file formats to standards
- Capture dynamic pages

Managing Media

- Understanding types of media
- Maintenance and handling
- Proper storage
- Monitoring for damage and errors
- Security and access

Pitfalls of Media

- Chemical instability
- Media obsolescence
- Multiplicity of formats
- Storage requirements
- Cost

Optical Media

- CDs, DVDs, Blu-ray DVDs
 - Digital characteristics
 - Less stable
 - Fast data transfer rate
 - Random access
 - Increasing storage capacity

Magnetic Media

- Tapes and disks
 - Best performance overall
 - Often analog characteristics
 - Sometimes serial access
 - Established track record
 - Slow data transfer rate

Media Life Expectancy

- Depends on
 - Environment
 - Handling
 - Media quality
- Examples
 - Paper = 100+ years
 - Microfilm = 500 years
 - DLT = 10 - 30 years
 - CDs/DVDs = 5 - 100 years
 - 8mm = 2 - 30 years

Maintenance and Handling

- Use brand-name products
- Use recently manufactured media
- Handle by housing or edges
- Use duplicate copies for viewing
- Create clear, detailed labels
- Refresh periodically

Physical Storage

- Maintain temperature and humidity
- Protect from dust, light, and smoke
- Protect from magnetic fields
- Store on end
- Use fire-resistant media cabinets
- Store copy and master separately

RAID

- Redundant
 - Array of
 - Independent
 - Disks

Identifying Strategies

- Cost effectiveness
- Accessibility
- Necessary functionality
- Newness of strategy
- Your level of resources

Exercise

Identifying a Preservation Strategy

4. Coordinate and Track Preservation Efforts

- Form a technology steering committee
- Gain administrative support
- Identify other resources
- Develop a preservation plan
- Document progress

Technology Steering Committee

- Preservation is just one activity of the committee
- Team members
 - Records Management Officer
 - Information technology
 - Legal counsel
 - Finance
 - Users (system owners)

Responsibilities of Committee

- Ensure communication
- Address records management requirements
- Identify appropriate preservation strategies
- Develop and review preservation plan, policies, procedures
- Review RFPs and responses to RFPs

Administrative Support

- Fosters cooperation between program areas or departments
- Ensures adequate financial support
- Ensures adherence to policy
- Assists in publicity, if necessary

Other Resources

- Staff
- Consultants
- Vendors
- Budget
- Hardware and software
- Climate controlled storage space

Develop a Preservation Plan

- Identify and prioritize needs
- Match needs with appropriate strategies
- Develop a preservation plan to
 - address needs systematically
 - according to a schedule
 - as resources allow

Conclusion

- E-records preservation requires
 - Careful planning
 - Coordination of strategies, functions, and responsibilities
 - Ongoing commitment

Questions?

Thank you!

Electronic Records Preservation Planning Worksheet

- Name and version of the system/system implementation date:
- List previous migrations, if known:
- Who is the records owner (staff position and/or unit)?
- What is the primary business function of this system?
- List records series/dates (continue on separate sheet):
- Records schedule and retention:
- Is the series duplicated? Yes or No
- *What is the longest retention for a unique series in this system?
- Quantity and Estimated Growth:
- How many records are in the system now?
- How many new records are created each day/month/or year?
- Platform dependencies:
- What are the hardware, software, and operating system requirements to run this system?
- Required memory and server space, if known?
- What is the format of the records (database, spreadsheet, word processing, etc.)?
- What file types are created and maintained by the system?
- What file types are supported for import/export?
- Method of import/export, if known?
- System administration:
- Is the system Networked or Stand-alone?
- Is the system maintenance performed by In-house by staff or Outsourced?
- What is the responsible staff position or vendor name?
- Does the vendor service hardware? Yes or No
- At what interval?
- Does the vendor provide software upgrades? Yes or No
- At what interval?
- Date of last upgrade?
- What is the physical location of the records? Location address
- Is this In-house or a 3rd party location?
- How often are back-ups made? Every days , weeks , or months
- Media type?
- Date last refreshed?
- Location of back-ups?
- Are these vital records?
- How frequently are these records accessed? x day , week , or month
- What are the access restrictions for these records, if any?
- Security type (user accounts, application coding, etc.)?
- List other systems which contain related records:

- System Documentation:
- List available system documentation, access and editing policies, user manuals, data dictionaries, etc.
- Does the documentation also document quality controls? Yes or No
- Does the documentation include policies for editing and deletion of records?
Yes or No

Worksheet completed by:

Name

Position

Date

Glossary of Terms in Electronic Records Preservation

access

permission, opportunity and ability to use a record

acetate film

magnetic tape that uses acetate as its basefilm (chemically less stable than polyester and vulnerable to vinegar syndrome)

American National Standards Institute (ANSI)

a standard-setting, non-governmental organization, which develops and publishes standards for "voluntary" use in the US

American Standard Code for Information Interchange (ASCII)

the most common format for text files in computers and on the Internet. In an ASCII file, each alphabetic, numeric, or special character (including spaces and carriage returns) is represented with a 7-bit binary number (a string of seven 0s or 1s). UNIX and DOS-based operating systems use ASCII for text files.

analog

technology that conveys data as electronic signals or waves

ANSI

See "American National Standards Institute"

ASCII

See "American Standard Code for Information Interchange"

audiovisual record

a record stored on a medium that must be accessed through a machine other than a computer (examples include motion pictures and audiotapes of meetings)

audit trail

a record of what operations someone has performed (additions, deletions, modifications) while on a computer system during a specific period of time

authenticity

the verification that a record has not been altered or manipulated in any way and is what it claims to be

back up

to copy an electronic record to ensure its information will not be lost, and often using data compression to save space

backfile conversion

the conversion of an older set of records into the new standard record format in an office to increase access to the records

backup

a copy of an electronic record, maintained to protect the information from loss and often compressed to save space

basefilm

the carrier upon which the recording layer of magnetic tape lies (now a polyester film and previously either acetate or nitrate)

binder

the substance that adheres magnetic particles to the basefilm of magnetic tape

bit

contraction for binary digit, the smallest unit of data a computer can process

CD-R

See "Compact Disc, Recordable"

CD-ROM

See "Compact Disc, Read Only Memory"

CD-RW

See "Compact Disk, Rewritable"

Compact Disc, Read Only Memory (CD-ROM)

the disk is made of clear polycarbonate plastic, covered with a layer of dye, a thin layer of aluminum, and a protective lacquer layer over that. Data is encoded by a laser in the form of bumps or pits impressed in the dye which a laser later reads and interprets as light reflected from the aluminum layer. It is capable of storing approximately .65 GB or 650 MB.

Compact Disc, Recordable (CD-R)

a type of WORM, in that it allows only one recording, that is made and read in the same manner as a CD-ROM, however, it has a layer of organic polymer dye as the recording medium

Compact Disc, Rewritable (CD-RW)

a type of Magneto-Optical disc and similar to a CD-R, but uses an alloy (metallic) layer instead of dye as the recording medium which can be transformed to and from a crystalline state repeatedly; also called rewritable CDs

compression

a software or hardware process that shrinks digital files so they occupy less storage space and can be transmitted faster and easier

computer-output microfilm

the process of converting electronic data to images microfilm or microfiche; microfilm or microfiche produced using that process

conversion

(1) the translation of data from one format to another (e.g., TIGER to DXF; a map to digital files). (2) data conversion when transferring data from one system to another (e.g., SUN to IBM)

critical records

records or documents which, if damaged or destroyed, would cause considerable inconvenience and/or require replacement or recreation at considerable expense

DAT

See "Digital Audio Tape"

data format

a specific type of computer file, such as a Microsoft Word 97 file or a JPEG image file; sometimes called "file format"

data migration

See "migration"

data quality

refers to the degree of excellence exhibited by the data in relation to the portrayal of the actual phenomena

database

a computer file that stores data structured in a way that allows for easy and specific access to the information it contains

digital

the use of binary code to record information which can be text in a code such as ASCII, or scanned images in a bit mapped form, or sound in a sampled digital form, or video

Digital Audio Tape (DAT)

a technology that records digital audio data on magnetic tape. The storage capacity ranges from 1 to 4 GB.

Digital Linear Tape (DLT)

a type of half-inch magnetic tape that is commonly used for storing large GIS databases or for backing up mainframes. It can hold 2 to 70 GB. It uses compression to transfer data quickly and in large quantities.

Digital Versatile Disc, Read Once Memory (DVD-ROM)

the disk is made of clear polycarbonate plastic, covered with a layer of dye, a thin layer of aluminum, and a protective lacquer layer over that. Data is encoded by a laser in the form of bumps or pits impressed in the dye which a laser later reads and interprets as light reflected from the aluminum layer.

Digital Versatile Disc, Recordable (DVD-R)

a type of WORM, in that it allows only one recording, that is made and read in the same manner as a DVD-ROM, however, it has a layer of organic polymer dye as the recording medium

Digital Versatile Disc, Rewritable (DVD-RW)

a type of Magneto-Optical disc and similar to a DVD-R, but uses an alloy (metallic) layer instead of dye as the recording medium which can be transformed to and from a crystalline state repeatedly.

digital videotape

a type of magnetic medium that records audio and visual elements in a digital format

disaster recovery plan

a written, approved course of action to take when disaster strikes that ensures an organization's ability to respond to an interruption in services by restoring critical business functions and records

Disk Operating System (DOS)

a non-graphical line-oriented command- or menu-driven operating system. First widely-installed operating system or platform for personal computers.

diskette

a type of magnetic medium in a 3.5 inch square casing and used with personal computers to store up to 1.44 MB of data (5.25 inch square diskettes are now obsolete); also called "floppy disk"

DLT

See "Digital Linear Tape"

DOS

See "Disk Operating System"

duplicate (noun)

an extra copy of a record

DVD-R

See "Digital Versatile Disc"

DVD-ROM

See "Digital Versatile Disc, Read Only Memory"

DVD-RW

See "Digital Versatile Disc, Rewritable"

EBCDIC

See "Extended Binary-Coded Decimal Interchange Code"

electronic record

(definition from ESRA) "information, evidencing any act, transaction, occurrence, event, or other activity, produced or stored by electronic means and capable of being accurately reproduced in forms perceptible by human sensory capabilities"

(simple definition) a record that is in electronic form

electronic records management

the application of records management principles to electronic records

Electronic Signatures and Records Act (ESRA)

New York legislation passed in 1999 to ensure that electronic signatures are legally binding in government and to clarify the authority of New York government entities to create and maintain records created by computers in electronic form

electronic text

written matter in editable electronic form (a word processing file, for instance, as opposed to an image of a document)

emulation

the use of new hardware and software to allow an information technology to imitate another

ESRA

See "Electronic Signatures and Records Act (ESRA)"

Extended Binary-Coded Decimal Interchange Code (EBCDIC)

a code for representing characters as numbers and which is widely used on IBM mainframe computers (similar to ASCII, which is the standard for personal computers)

Extensible Markup Language (XML)

a file format that facilitates the use of SGML documents on the Internet as it is a subset of SGML. Its language is similar to HTML, however XML describes the content, within the markup symbols, in terms of what data is being described. (XML, for instance, could allow you to search for "Saturn" online only where the term was referring to an automobile, only where it was referring to a planet, or only where it was referring to a zodiacal sign.)

file backup

the practice of dumping (copying) a file stored on disk or tape to another disk or tape. This is done for protection in case the active file gets damaged

file format

See "data format"

File Transfer Protocol (FTP)

the protocol used over the Internet that allows the viewing, downloading, and uploading of large files quickly from a website

Fluorescent Multi-layer Disc, Read Only Memory (FMD-ROM)

a clear multi-layer (10-100) disk that consists of fluorescent materials embedded in pits and read by laser. It can hold 140 GB and is still in the development stage.

FMD-ROM

See "Fluorescent Multi-layer Disc, Read Only Memory"

forward compatible

refers to a hardware or software system that is designed in such a way that it fits with planned versions of itself

FTP

See "File Transfer Protocol"

GIF

See "Graphics Interchange Format"

graphical user interface (GUI)

a computer interface (such as Windows or Macintosh programs) where the user can use graphic representations of files, pull-down menus, and other intuitive graphics to navigate and work within the program

Graphics Interchange Format (GIF)

a lossless file format for displaying bit map images (graphics) on the Internet. It was developed by CompuServe and uses a proprietary compression technique, thus it is not in the public domain and PNG (non-proprietary) has been developed to replace it.

GUI

See "graphical user interface"

hard disk

a storage device that uses a magnetic recording material

hardcopy

a printed or paper copy of an electronic document

HD-ROM

See "High Density, Read Only Memory"

helical scan recording

type of recording in which recorded tracks are parallel to each other but are at an angle to the edge of the tape. VHS videotapes, 8 mm tape and 4 mm DAT use this type of recording.

High Density, Read Only Memory (HD-ROM)

similar to other optical media, except it uses an ion beam, instead of laser, to inscribe information onto pins of stainless steel or other durable materials. Ion beams have a smaller diameter than laser. The disk has a larger storage capacity than other optical media and can hold 165 MB of data. It is still in the development stage.

HTML

See "Hypertext Markup Language (HTML)"

hydrolysis

the chemical reaction that occurs when tape binder composed of polyester urethane absorbs moisture from the air, creating a waxy, astringent or pungent odor

Hypertext Markup Language (HTML)

the standard computer language used to add tags to a digital document so it can be interpreted by a web browser

image

a graphic representation or description of an object that is typically produced by an optical or electronic device. Common examples include remotely sensed data such as satellite data, scanned data, and photographs.

image resolution

the fineness or coarseness of an image as it was digitized, measured as dots per inch

imaging

the process of electronically capturing the visual appearance of documents, especially those on paper; informally called "scanning"

International Organization for Standardization (ISO)

a worldwide federation, founded in 1947, of national standards bodies from some 100 countries, one from each country

Internet

the master network of interconnected computer networks that allows the rapid transfer of information in electronic form between computers over large distances

intrinsic value

the value a permanent records has that requires its preservation in its original form rather than as a copy

ISO

See "International Organization for Standardization"

Joint Photographic Experts Group (JPEG)

devised the standard for still image compression (lossy), sanctioned by the International Standards Organization and CCITT; used for photographic images, not for text images

JPEG

See "Joint Photographic Experts Group"

laser disc

an optical disc with the same technology as a CD, except laser discs are 12" in diameter

login

to begin a user session on a computer by authenticating one's identity, usually by using a username and its associated password

longitudinal scan recording

type of recording in which recorded tracks are parallel to the edge of the tape and run the full length of the tape. Half-inch and QIC tape use this type of recording.

lossless compression

a compression method that retains every bit of data that was in the original file. GIF and PNG are examples.

lossy compression

a compression method that reduces a file by permanently eliminating certain information. JPEG is an example.

magnetic

information is stored by the magnetization of particles in the coating

magnetic tape

a storage medium consisting of a thin plastic ribbon wound around a spool coated with iron oxide compound to record data with electrical pulses

Magneto-Optical disc

type of optical storage media on which data can be recorded repeatedly. It has an alloy (metallic) layer that a laser heats allowing magnetic properties to be changed (includes CD-RW and DVD-RW).

MAME

See "Multiple Arcade Machine Emulator"

medium

a physical material that can record information, such as magnetic tape, optical disc, paper or microfilm; also called "storage medium"

metadata

information describing a set of data (such as the subject, date, and recipients of an e-mail record)

migration

the periodic transfer of data from one electronic system to another, retaining the integrity of the data and allowing users to continue to use the data in the face of changing technology; sometimes called "data migration"

Motion (or Moving) Picture Experts Group (MPEG)

an international standard for digital video and audio (lossy) compression (includes MPEG-1, -2, -4 and MP-3)

MPEG

See "Motion (or Moving) Picture Experts Group"

Multiple Arcade Machine Emulator (MAME)

a computer program that simulates the hardware and software of old and new video games

Mylar

the trademarked name for a brand of polyester (an inert plastic)

native format

the original file format of an electronic record

optical

information is stored by digitally etching the surface with a laser beam

optical disc

a direct access storage device that is written and read by laser light, such as compact discs and laser discs

password

a character string usually selected by a user, known to the computer system, and used in conjunction with an associated username to identify the user and allow access to the system

PC

a personal computer

PDF

See "Portable Document Format"

permanent record

a record that must be retained forever because of legal requirements or its continuing research value; also called "archival record" or "historical record"

personal computer (PC)

a small computer designed for an individual user

platform

a hardware or software architecture of a particular model or family of computers (i.e., IBM, Tandem, HP, etc.)

PNG

See "Portable Network Graphics"

Portable Document Format (PDF)

a file format that has captured all the elements of a printed document as an electronic image

Portable Network Graphics (PNG)

a lossless, non-proprietary file format for displaying graphics on the Internet and intended as a replacement for GIF

preservation

the use of procedures and environmental standards to minimize the deterioration of records

proprietary

(said of a technology) owned exclusively by a single company and, therefore, less likely to be able to move data into another system

QIC

See "Quarter Inch Cartridge"

quality control

the process of taking steps to ensure the quality of data or operations is in keeping with standards set for the system

Quarter Inch Cartridge (QIC)

a common format for magnetic tape for data storage. It can hold 40 MB to 5 GB of data.

random access

data can be read directly from any part of a disk making data access fast. A characteristic of optical media.

re-writable

optical media from which data can be erased and new data added

refresh

the copying of the stream of bits of a record from old to new media

relational database

a collection of data items organized as a set of formally-described tables from which data can be accessed or reassembled in many different ways without having to reorganize the database tables. It was invented at IBM in 1970.

relative humidity

the percentage of moisture in the air relative to the maximum amount the air can hold at that temperature

retention

the act of keeping records for the amount of time required given their administrative, fiscal, legal, or historical value and use; also called "records retention"

retention period

the amount of time a record must be kept to meet administrative, fiscal, legal, or historical requirements

retention schedule

See "records retention and disposition schedule"

retrieval

the process of locating a record and taking it to the place where it will be used

Rich Text Format (RTF)

a file format, developed by Microsoft, that allows you exchange text files between different word processors in different operating systems

rosetta disk

a machine- and human-readable nickel disk upon which microscopic images of documents are engraved with a laser

RTF

See "Rich Text Format (RTF)"

schedule

(noun) See "records retention and disposition schedule"

serial access

data can only be accessed by starting at the beginning and playing through the tape until the item of data is reached. Thus, data access is slow. A characteristic of tapes (e.g., computer, audio and video).

series

See "records series"

SGML

See "Standard Generalized Markup Language"

software

programs that run operations on a computer

SQL

See "Standard Query Language"

Standard Generalized Markup Language (SGML)

a computer language of which HTML and XML are subsets. SGML describes the structure of a document rather than its physical characteristics or format.

sticky-shed syndrome

an effect of hydrolysis whereby the polyester urethane binder of magnetic tape becomes tacky and the magnetic layer flakes off the backing

storage medium

See "medium"

Structured Query Language (SQL)

the standard interactive and programming language for getting information from and updating a relational database

Tagged Image File Format (TIFF)

a lossless file format for storing color and gray scale images and used as a standard for the maintenance of long-term records

TIFF

See "Tagged Image File Format"

unicode

a format for text files in computers and on the Internet. It is more comprehensive than ASCII; it is a 16-bit system, thus it contains a large number of characters including those supported by ASCII as well as many classical and historical texts in a number of languages, mathematical and other symbols.

Vertical Helical Scan or Video Home System (VHS)

a type of analog video format commonly used with videotape with recording tracks run diagonally to the edge of the tape

VHS

See "Vertical Helical Scan or Video Home System"

vinegar syndrome

the chemical reaction that occurs when excess moisture reacts with a cellulose acetate base to create acetic acid, and which is recognized by a telltale vinegar odor

Web

See "World Wide Web"

webpage

a single document on the Web

website

a collection of webpages on the World Wide Web

World Wide Web (the Web)

the portion of the Internet that supports the presentation of information formatted in HTML, including hyperlinks so users can move quickly to other resources

WORM

See "Write Once Read Many"

Write Once Read Many (WORM)

optical storage device on which data is permanently recorded and cannot be altered. CD-R is a type of WORM.

WWW

See "World Wide Web"

XML

See "Extensible Markup Language"

Zip disk

a proprietary magnetic storage medium developed by Iomega Corporation for the storage of large digital files and available with three different storage capacities (100 MB, 250 MB, and 750 MB)