Mississippi Department of Archives and History
Public Records - Standards
Destruction of Original Records after Imaging

A. PURPOSE.

These rules provide the standards that must be used by state agencies, counties, municipalities, or other entities of the State of Mississippi, when undertaking imaging technology applications with the intent of disposing of the original public records. This rule replaces relevant portions of "Reproduction of records of archival or enduring value, storage of the copies; and destruction of the originals."

The purpose of this rule is to ensure that public records maintained only in digital format through the use of an optical imaging system will remain accessible to the public, state agency and/or local government for the full period that the record must be maintained.

B. AUTHORITY.

The authority for the establishment of this rule is §25-59-9 and §25-59-29, Mississippi Code of 1972, Annotated.

C. SCOPE.

1. This rule is applicable to all custodians of public records (see definition of "public records" at E.18) including state agencies, counties, municipalities, school districts, and other entities of the State of Mississippi.

2. This rule establishes the minimum requirements necessary for disposal of original public records after duplication in an imaging system.

3. This rule applies to records series which have been scheduled as permanent by the State Records Committee or Local Government Records Committee.

D. INTENT.

The Department of Archives and History is aware that there may be instances where an agency or local government has an imaging application which, due to the nature of the application, might require adoption of technical standards that are not in compliance with the standards outlined in this rule. It is not the intention of Department of Archives and History to impose standards upon an agency or local government that will reduce the intended benefits of an imaging application, provided the Department can be confident that steps have been taken to insure the future migration of the images in accordance with retention

requirements. In such cases, the agency or local government may request to work with the Department to develop alternative systems. The use of an alternate system should be considered exceptional, and the Department will not approve disposal of original records unless it is fully confident that all measures insuring future migration of data are in place.

E. DEFINITIONS.

1. AIIM - the Association for Information and Image Management, a standards-setting body affiliated with the American National Standards Institute (ANSI), which is the principal developer of standards for microforms and information storage technologies involving images, such as optical disks and scanners.

2. ANSI - the American National Standards Institute, a private national standards organization in the United States, which coordinates the development and maintenance of various industry standards.

3. CCITT - International Telegraph and Telephone Consultative Committee (predecessor of ITU).

4. COLD (Computer Output to Laser Disk) - the storage on optical disk of coded data generated by a host computer. COLD replaces COM (Computer Output to Microfilm) as a mainframe storage medium.

5. CD-ROM (Compact Disk - Read Only Memory) - a data storage system using compact disks as the medium.

6. DPI (Dots Per Inch) - in scanning, a measurement of resolution - the number of pixels a scanner can physically distinguish in each vertical and horizontal inch of an original image.

7. Flatbed - scanner design in which the document is placed on a glass surface similar to placing an item on the glass of a photocopier. This allows for the scanning of materials that cannot be fed through an automatic document feeder.

8. ICR (Intelligent Character Recognition) - the ability of software to recognize and translate bit mapped scans or faxes of hand printed or machine printed alphanumeric characters into machine-readable text.

9. IEC - International Electrotechnical Commission.

10. ISO - the International Organization for Standardization, which coordinates national standards worldwide.

11. ITU - International Telecommunication Union (formerly CCITT).

12. JPEG - a standard for still image compression developed by the Joint Photographic Experts Group.

13. OCR (Optical Character Recognition) - the ability of software to recognize and translate bitmapped scans or faxes of printed alphanumeric characters into machine-readable text.

14. Open System - a system with characteristics that comply with specified, publicly maintained, readily available standards and that therefore can be connected to other systems that comply with those same standards.

15. Optical Disk - a direct access storage device that is written and read by laser light.

16. Original Record - a public record in the format as created or received, or in the format as reproduced in accordance with standards issued by the Mississippi Department of Archives and History.

17. Public Body - any department, bureau, division, council, commission, committee, subcommittee, board, agency and any other entity of the state or a political subdivision thereof, and any municipal corporation and any other entity created by the Constitution or by law, executive order, ordinance or resolution. Within the meaning of this chapter, the term "entity" shall not be construed to include individuals employed by a public body or any appointed or elected public official.

18. Public Records - all books, records, papers, accounts, letters, maps, photographs, films, cards, tapes, recordings or reproductions thereof, and any other documentary materials, regardless of physical form or characteristics, having been used, being in use, or prepared, possessed or retained for use in the conduct, transaction or performance of any business, transaction, work, duty or function of any public body, or required to be maintained by any public body (as defined in Mississippi Code Annotated 25-59-3).

19. TIFF (Tagged Image File Format) - a family of bitmap file formats for describing and storing color and grayscale images.

20. WORM (Write Once, Read Many) - storage media (usually recordable CD-ROM or optical disk) that is not re-writable. Information can only be written to the disk once. It is permanently stored on the disk.

F. TECHNICAL REQUIREMENTS.

1. OPEN SYSTEM ARCHITECTURE

The design of the system shall permit future system upgrades with minimal effect on system operation. The system architecture shall allow flexibility in exporting and importing data to other non-proprietary systems. Standards for open systems such as the United States Department of Defense's TAFIM, the Institute of Electrical and Electronic Engineers' Open Systems Handbook: A Guide to Building Open Systems, or Open Systems Handbook: A Guide to Building Open Systems published by the Open Software Foundation shall be used.

2. NON-REWRITABLE STORAGE MEDIA

Only non-rewritable storage media is acceptable. Such media include write once read many (WORM), compact disk-read only (CD-ROM), and microfilm produced in accordance with standards issued by the Mississippi Department of Archives and History. Prior to disposal of the scanned documents, images must be stored on one or more of these media.

a. Use of these storage media shall be in accordance with the following standards:

WRITE ONCE READ MANY (WORM). Standards for WORM optical disks may be found in the WORM portion of ISO/IEC 1336 - Volume and file Structure of Write-Once and Rewritable Optical Disks Using Non-Sequential Recording for Information Interchange - Universal Disk Format.

COMPACT DISK - READ ONLY. ISO 9660 - Volume and File Structure of CD-ROM for Information Interchange.

MICROFILM. Mississippi Department of Archives and History Rule.

b. The use of digital optical disks with a guaranteed minimum shelf life of five years and a minimum post-write life of twenty years is required.

3. NON-PROPRIETARY IMAGE FILE FORMAT

TIFF file format is the required standard for alphanumeric documents and JPEG file format is the required standard for graphic documents. Because of variation in the structure of these file formats among vendors and in order to increase the likelihood of accessibility to permanent records stored in this method, comprehensive documentation of the image file format must be maintained with other system documentation. Alternative file formats are acceptable provided complete documentation of the digital image file format*, including tested*

procedures and techniques for the conversion of images and data, is maintained.

4. COMPRESSION ALGORITHIM.

ITU Group 3 and 4 (formerly CCITT Group 3 and 4) shall be used.

5. SCANNING RESOLUTION.

300 dpi or greater

6. MEDIA ERROR DETECTION AND CORRECTION

ANSI/AIIM MS 59-1996, Media Error Monitoring and Reporting Techniques for Verification of Stored Data on Optical Digital Data Disks, is the required standard for reporting the error rate data to the operating system for user evaluation.

7. INDEXING SYSTEM

The indexing system used to retrieve images shall be a relational database. Alternative indexing systems must be approved in writing by the Mississippi Department of Archives and History. Information on establishing index fields in an electronic imaging system may be found in ANSI/AIIM TR40-1995, Suggested Index Fields for Documents in Electronic Image Environments.

G. SYSTEM MANAGEMENT/FUNCTIONAL REQUIREMENTS.

The comprehensive management of a document imaging system is key to its functional success as well as the quality, integrity, and authenticity of the imaged records. System planning, design, budgeting, procurement, procedure formulation, training, and testing all require thoughtful deliberation and patience.

The following is an overview of required practices in several categories of system management and operation.

1. Documentation

Comprehensive procedural and system documentation must be maintained to ensure that the operation continues to function effectively over time. The documentation shall include:

a. Hardware and software specifications, brand names, versions, and dates of installation, upgrade, replacement, and conversion.

b. An overview of system purposes and uses.

c. Policies and procedures for all aspects of system operation and maintenance,

including procurement, file and document preparation for scanning, data entry, quality control, indexing, corrections, expungement, redaction, back-ups, security, migration, application of safeguards to prevent tampering and unauthorized access, and printing.

d. Data structure and content, including file layout and data dictionaries.

e. Enhancement algorithms are techniques for processing the image so that the result is visually clearer than the original image. Imaging systems should not be capable of altering a record as scanned, except for standard computer-enhancement routines used to improve legibility.

f. Documentation is also necessary for providing audit trails, for establishing legal admissibility of images, and for use by future system operators as staffs change. It is the responsibility of the system's administrators, not the vendor.

2. Quality Control

a. To ensure the integrity and legibility of scanned images, there must be in place established procedures for quality control. Visual quality inspection of each image is necessary and should be performed initially by the staff member scanning and then by a second staff member.

b. The accuracy of the index must also be verified through visual inspection by a second staff member of each index entry following either entry of terms or creation through optical or intelligent character recognition.

c. The system should also include the ability to rescan and to correct indexing errors before the image and/or index is written to optical media.

d. Quality control issues must be raised with vendors during the selection process and be considered when planning for time and staff budgeting. Since original records are more often than not destroyed once reformatted, the importance of image and index quality control must not be underestimated.

e. Information regarding the establishment and use of procedures for the ongoing control of quality within an electronic imaging system may be found in ANSI/AIIM MS44-1988 (R1993), Recommended Practice for Quality Control of Image Scanners.

f. Information regarding appropriate use of test charts and patterns in document imaging applications may be found in AIIM TR38-1996, Compilation of Test Targets for Document Imaging Systems.

3. Indexing

a. Complete, appropriate and accurate indexing capability is essential. Indexing and information retrieval needs must be assessed during system planning and design. Migration and long-term usability planning must also include consideration of continuing information retrieval requirements. As noted in F.7, information on establishing index fields in an electronic imaging system may be found in ANSI/AIIM TR40-1995, Suggested Index Fields for Documents in Electronic Image Environments.

b. The importance of indexing requires that vendor claims be validated through demonstration and testing.

4. Migration

a. A comprehensive plan for refreshing data and for migrating images, indexes and related data through successive versions of hardware and software is essential for ensuring long-term access to imaged records. Not only should plans be established for the migration of images and related data, but structural data relationships should be preserved under migration. The strategy should facilitate the movement of records from one generation of technology to another and should take into consideration vendor stability and dependability, system obsolescence, and media longevity.

b. The reality of obsolescence requires that agencies and governmental entities keep pace with constant developments and improvements. Technology trends must be monitored. The technology choices made when systems are developed or upgraded may determine the ease of migration.

c. Systems should consist of hardware and software that conform to non-proprietary standards and should be constructed in an open system architecture.

d. Budgeting and planning should include consideration of the costs of technology upgrades and data migration.

5. Back-up, Disaster Recovery, and Security Copies

a. Back-up procedures and disaster recovery plans should be in place with specified provisions for the imaging system. Detailed information on back-ups and disaster recovery should be obtained from vendors. Back-up expense and complexity can vary depending on the type of media and the amount of data to be stored and must be considered during the planning and selection process.

b. A regular schedule of back-ups should be instituted for all data on the system, including indexes.

c. Security copies should be labeled with information to include date, system, and software used, and any existing restrictions on access, keeping in mind that

it is impossible to determine content merely by looking at a disk or tape. It is preferable that security copies be stored off site, in an area with stable environmental conditions and with adherence to the manufacturer's specifications for the storage of the media, whether magnetic or optical. Information regarding optical media storage may be found in ANSI/PIMA IT9.25-1998, Imaging Materials-Optical Disc Media-Storage.

6. Expungement/Redaction/Encryption Capabilities

a. Agencies and governmental entities should have in place a strategy to guarantee that material exempted from disclosure is not made available to the public. Imaging systems should have the capability to expunge images and index entries and to redact confidential portions of images or indexes when required by law. System administrators may also wish to further insure privacy of their data through the use of an encryption technique by which data is scrambled before transmission and then unscrambled (decrypted) by the receiver.

b. The potential need for expungement, redaction and encryption capabilities must be assessed on the front end and discussed with vendors when planning for long-term usability of an imaging system. Explanation of procedures for expunging information on WORM optical systems may be found in ANSI/AIIM TR28-1991, The Expungement of Information Recorded On Optical Write-Once-Read-Many (WORM) Systems.

7. Legality

a. The legal admissibility of reproductions of state and county records is addressed by Mississippi Code Annotated (MCA) Sections 25-59-29 and 19-15-3, respectively.

b. Requirements for the legal acceptance of records are outlined in ANSI/AIIM's TR-31 (1992-1994), a four-part legal admissibility series, and the Mississippi Rules of Evidence .

8. System Selection

a. Agencies/governmental entities should conduct a thorough survey of document and paper types, sizes, colors, and contrasts within their records and collect examples of potential problems or obstacles, such as browned and fragile papers, pencil and pen handwriting, bound volumes, photographs, and oversized items. Before selection, a scanner should demonstrate the ability to handle the job. The potential need for flatbed scanning capability rather than automatic feed alone must also be assessed, both for immediate and future needs.

b. The selection of a vendor is perhaps the most important single decision impacting an imaging system's success. A vendor's stability, accessibility, and

long-term viability must be assessed when procuring a system heavily dependent on vendor support.