

STATE OF NEBRASKA
STATE RECORDS ADMINISTRATOR
ELECTRONIC IMAGING GUIDELINES
MARCH 2003

Following is a voluntary guideline issued by the State Records Administrator (Secretary of State) for use by state and local government agencies in the State of Nebraska. This is a guideline only and does not have the force and effect of rule and regulation or of law. Realizing the potential budgetary impact should this guideline be made mandatory, the State Records Administrator has chosen not to reissue this guideline as a mandatory rule and regulation at this time. However, the State Records Administrator strongly recommends that this guideline be followed in the development of any new electronic imaging systems and applied to existing systems as resources allow.

This office needs your input. Please use the "Comments" form to submit your comments, recommendations and questions. If you would prefer faxing your comments/questions, our fax number is (402) 471-2406.

State of Nebraska

State Records Administrator

Electronic Imaging Guidelines

March 2003

001 Scope and Purpose

001.01 Scope. These guidelines apply to all state and local government agencies in the State of Nebraska as defined in the Records Management Act (Revised Statutes of Nebraska, Chapter 84, Article 12). The term "agencies" means state and local government agencies.

001.02 Purpose. These guidelines do not require agencies to create, send, communicate, receive, store, preserve, or otherwise process records by electronic means or in electronic form. Rather, they provide guidance for agencies that choose to use the technologies for these purposes.

002 Definitions

002.01 Record. The Records Management Act (Revised Statutes of Nebraska, Chapter 84, Article 12) defines a record as: "any book, document, paper, photograph, microfilm, sound recording, magnetic storage medium, optical storage medium, or other material regardless of physical form or characteristics created or received pursuant to law, charter, or ordinance or in connection with any other activity relating to or having an effect upon the transaction of public business." A record is information that is inscribed on a tangible medium or that is stored in an electronic or other medium and is retrievable in perceivable form.

002.02 Public record. The Records Management Act (Revised Statutes of Nebraska, Chapter 84, Article 12) defines a public record as follows: "Public records includes all records and documents, regardless of physical form, of or belonging to this state or any agency, branch, department, board, bureau, commission, council, subunit, or committee of this state except when any other statute expressly provides that particular information or records shall not be made public. Data which is a public record in its original form shall remain a public record when maintained in computer files."

002.03 Electronic record. A record created, generated, sent, communicated, received, or stored by electronic means.

002.04 Electronic recordkeeping system. An electronic system in which records are collected, organized, and categorized to facilitate their preservation, retrieval, use, and disposition.

002.05 Record copy. A single copy of a record retained by its custodian as the official record of a government transaction and in accordance with the appropriate records schedule. All other copies are duplicate copies, held for convenience, and may be destroyed.

002.06 Records retention schedule. A listing of approved records retention periods governing the retention and disposition of all government records.

002.07 Electronic imaging system. A computer-based system that stores digitally encoded document images. These systems provide image retrieval and distribution on demand. They are an alternative to paper or microfilm record systems.

002.08 Records Management Application. Software used by an organization to manage its records. Its primary management functions are categorizing and locating records and identifying records that are due for disposition. RMA software also stores, retrieves, and disposes of the electronic records that are stored in its repository.

003 Planning

003.01 Feasibility study. Public agencies should perform a feasibility study to ensure that an electronic imaging system is appropriate for its information management needs before committing to a particular application. Public agencies should realize that the information being created or converted to an electronic format is a government asset, which should be managed for a larger, strategic advantage. The following areas should be analyzed and evaluated before implementing any system:

- Business process analysis
- Work flow evaluation
- A complete inventory of existing records
- Data needs assessment
- Alternative technologies assessment
- Network support
- Cost/benefit analysis
- Projected growth
- Retention and legal requirements

004 Selection of records for imaging systems

004.01 Records with an established retention of ten years or less. State and local government officials may maintain public records with an established retention of ten years or less in an electronic imaging system and may dispose of the originals after receiving authorization from the State Records Administrator provided they:

1. Maintain security copies of the disks, tapes, and indexes in off-site storage.

2. Migrate and convert both the working and security copies of the disks, tapes, and indexes if the systems are upgraded or changed in a way that prevents access to the contents of the old system.

004.02 Non-permanent records with an established retention of more than ten years.

State and local government officials may maintain non-permanent records with an established retention of more than ten years in an electronic imaging system and dispose of the originals provided they:

1. Maintain security copies of the disks, tapes, and indexes in off-site storage.
2. Migrate and convert both the working and security copies of the disks, tapes, and indexes if: (a) the systems are upgraded or changed in a way that prevents access to the contents of the old system, or (b) the information has not been recopied in ten years.
3. Sample both the working and security copies of the disks and indexes at least once a year to make certain the data is readable and recopy to new media immediately if any loss of information is detected.
4. Obtain an authorization for disposal in advance from the State Records Administrator.

Agencies not able to ensure compliance with points 1-4 above should retain a paper or a microform that meets state standards for the established retention period.

004.03 Records with a permanent retention.

004.03.01 General. Agencies should meet all the requirements found in Section 004.02 above.

004.03.02 Transfers to the Nebraska State Historical Society (NSHS). The NSHS is responsible for the care, maintenance and reference use of state records with enduring value, regardless of media. The NSHS will accept electronic records of permanent value that are scheduled for transfer to the Society, or it will work with the agencies in preserving and accessing electronic records maintained in agency custody. Because of the variety of formats of electronic records, issues of proprietary software and specialized hardware, decisions should be made in consultation between the NSHS staff, the agency staff, and the State Records Administrator about either transferring the records or maintaining them in the agency of origin. If the transfer decision is made, the method, frequency and format of the transfer should be determined cooperatively by the agency, the NSHS staff, and the State Records Administrator.

004.03.03 Non-transfers. If the decision is made to maintain the records in the agency of origin, the agency should be responsible for making the records accessible to the public in a manner consistent with the way the NSHS would perform this function. The originating agency should be responsible for upgrading the system to current technology standards so that data remain usable over time and for testing at regular intervals any storage medium used for accuracy or loss of data.

004.04 Use of Records Management Application (RMA) Software. Agencies may use Records Management Application (RMA) software to manage records in digital form. RMA software categorizes and locates records and identifies records that are due for disposition. RMA software also stores, retrieves, and disposes of the electronic records that are stored in its repository. Agencies should use RMA software that complies with DoD 5015.2-STD, "Design Criteria Standard for Electronic Records Management Software Applications," as issued by the U.S. Department of Defense.

005 Documentation

005.01 General. To maintain effective operation and to be able to retrieve data as operating environments change over time, agencies should keep full documentation of:

005.01.01 Hardware and software, including brand names, version numbers and dates of installation, upgrades, replacements, and conversions.

005.01.02 Data structure and content, including the file layout and data dictionaries.

005.01.03 "Enhancement" algorithms. These are techniques for processing an image so that the result is visually clearer than the original image.

005.01.04 Operating procedures, including: methods for scanning or entering data; revising, updating, or expunging records; indexing, backing up disks, tapes, microfilm, etc.; testing the readability of records; applying safeguards to prevent tampering and unauthorized access to protected information; and carrying out the disposition of original records. In addition, to provide audit trails, agencies should document procedures for logging and tracking.

006 Hardware and software selection and specification

006.01 Open systems. Agencies should require an open systems architecture for electronic imaging applications or require vendors to provide a bridge to systems with non-proprietary configurations.

006.02 Image file format. Agencies should use a non-proprietary digital image file format or provide a bridge to a non-proprietary digital image file format. A standard definition for file formats is found in: American National Standards Institute (ANSI)/Association for Information and Image Management (AIIM) MS53-1993, "Standard Recommended Practice, File Format for Storage and Exchange of Images, Bi-Level Image File Format, Part 1.", or open published standard file formats, such as the Adobe Portable Document Format (PDF), HTML or XML.

006.03 Compression. Agencies should seek vendors who use standard rather than proprietary compression algorithms to make future migrations of data more certain and reliable. Imaging systems should utilize the Consultative Committee on International Telegraphy and Telephony (CCITT) Group 3 or Group 4 compression techniques without

proprietary alterations to the algorithm. If the use of a proprietary compression algorithm is unavoidable, the system should provide a gateway to either Group 3 or Group 4 standards.

006.04 Scanning resolution. When determining document scanning resolution, agencies should consider data storage requirements, document scanning throughput rates, and the accurate reproduction of the image. Vendor claims should be validated using a sampling of the agency's documents. Calibration and maintenance of the scanners should meet the manufacturers' recommended schedule. The following minimum resolution readings are for black and white documents.

006.04.01 Standard text office documents. A minimum resolution of 200 dots per inch (dpi) is desired.

006.04.02 Drawings, maps and plans. A minimum resolution of 300 dots per inch (dpi) is desired.

006.04.03 Deteriorating documents or documents with fine detail. A minimum resolution of 600 dots per inch (dpi) is desired.

006.05 Error correction and detection. Agencies should select equipment that conforms to the standard methodology for media error detection and correction.

006.05.01 Optical disks. The system should provide techniques for monitoring and reporting verification of the records stored on a digital optical disk, and the system administrator should actively follow the status of the monitors. The system should comply with ANSI/AIIM MS59-1996, "Media Error Monitoring and Reporting Techniques for Verification of Stored Data on Optical Digital Data Disks."

006.05.02 Annual sample. On an annual basis, agencies should select a sample of images from both primary and backup storage media to verify continued accessibility. The sample size should be adequate to provide statistically valid results.

006.06 Indexing. Agencies should use an indexing database that provides for efficient retrieval, ease of use, and up-to-date information about the digital images stored in the system. The indexing database should be selected after an analysis of agency operations and user needs.

006.06.01 Query Interface. The query interface for the indexing database should meet the requirements of Federal Information Processing Standards Publication 127-2, "Database Language SQL." The purpose of FIPS SQL is to promote portability and interoperability of database application programs.

006.06.02 Image headers. A standard image file header such as TIFF or vendor supplied image file header should be used. If a proprietary header is used, the system should

provide a bridge to a non-proprietary header label standard such as ANSI/AIIM MS53, "File Format for Storage and Exchange of Images, or Bi-Level File Format, Part 1."

007 System Implementation

007.01 Staffing. The agency should assign a permanent staff member as system administrator and require the vendor to provide a project director during the installation and training periods.

007.02 Documentation. The agency should establish operational practices and provide technical and administrative documentation to ensure the future usability of the system, continued access to long-term records, and a sound foundation for assuring the system's legal integrity. Procedural controls should reflect requirements for the legal acceptance of records as outlined in AIIM TR31-1992, "Performance Guideline for the Admissibility of Records Produced by Information Systems as Evidence."

007.03 Quality control. The agency should perform a visual quality control evaluation of each scanned image and related index data. When the system is operational, the agency should perform a weekly scanning quality test that complies with ANSI/AIIM MS44-1988 (R1993), "Recommended Practice for Quality Control of Image Scanners."

008 Media handling, backup, and storage

008.01 Labeling. Disks, tapes, and other storage containers should be labeled with particular care since it is impossible to determine content merely by looking at a disk or tape. Labeling is critical when the disk and its index are stored on different media.

008.01.01 Security copies. Security copies should be marked with appropriate external labels that identify the government entity, system and software used, and any access restrictions.

008.01.02 Documentation. The agency should maintain specific, detailed documentation of the contents and the system specifications needed to access each tape or disk.

008.02 Backup. The agency should implement backup procedures to create security copies of digitized images and their related index records.

008.02.01 Backup storage. Security copies should be stored in secure and suitable off-site facilities.

008.02.02 Storage conditions. Backups for indexes, images, and other system components stored on magnetic or optical media should be housed in an area with stable environmental conditions. The current standards for magnetic media are: room temperature, 65-75 degrees Fahrenheit; relative humidity, 40-45 percent. These environmental standards also should be observed for security copies of optical media.

009 Refreshment, migration, and conversion plans

009.01 Planning. Agencies should prepare a plan for "refreshing" data and for migrating and converting images and corollary indexes to new storage media as needed to preserve the records in an accessible form.

009.02 Recopying. Data maintained on electronic media should be recopied onto new media at least once every 10 years.