

DEPARTMENT OF MANAGEMENT AND BUDGET

DEPARTMENT OF STATE

OPTICAL IMAGING SYSTEMS

Filed with the Secretary of State on November 4, 1998

These rules take effect 15 days after filing with the Secretary of State

(By authority conferred on the department of management and budget and the department of state by section 2 of Act No. 116 of the Public Acts of 1992, being §24.402 of the Michigan Compiled Laws)

R 24.401 Scope and purpose.

Rule 1. (1) These rules apply to imaging systems used to store and reproduce digital images of the official public records of all state and local governmental entities in Michigan, including the official records of governmental officials, onto optical storage disks under section 2 of Act No. 116 of the Public Acts of 1992, being §24.402 of the Michigan Compiled Laws.

(2) An imaging system stores information by recording a digital version of a scanned record onto an optical storage disk. For more information about optical disk systems, an agency may refer to the association of information and image management (AIIM) technical report entitled "The Use of Optical Disks for Public Records," (AIIM TR25), 1995. The technical report may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Spring, Maryland 20910-5699. Single copies are available at a cost of \$45.00.

(3) The purpose of these rules is to establish standards for the use of imaging technology and to ensure the continued accessibility and retrievability of information stored in imaging systems.

R 24.402 Definitions.

Rule 2. (1) As used in these rules:

(a) "Agency" means a governmental entity of state or local government in Michigan or a governmental official of a state or local governmental entity in Michigan acting in his or her official capacity.

(b) "Archival" means and pertains to records which have been appraised by the state archives to have permanent value to the state of Michigan and which may be scheduled for

transfer to the state archives or to a designated archival depository.

(c) "Human-readable storage medium" means paper, a photograph, a photocopy, or a microform, including, but not limited to, microfilm, microfiche, computer output microfilm, and aperture cards.

(d) "Imaging system" means a system used to store information electronically by recording a digital reproduction of a scanned record onto an optical storage disk.

(e) "Off-site location" means a premises, building, or structure that is separate and apart from the premises, building, or structure that houses an agency's primary imaging system.

(f) "Public record" means a writing, from the time it is created, that is prepared, owned, used, in the possession of, or retained by, a public body in the performance of an official governmental function.

(g) "Records management section" means the records management section of the records and forms management division, office of support services, department of management and budget, or its successor agency.

(h) "Retention and disposal schedule" means a listing of all public records an agency receives, creates, or retains, prescribing where and for how long the public records will be retained and the medium that will be used for retention purposes, as required by section 285 of Act No. 431 of the Public Acts of 1984, being §18.1285 of the Michigan Compiled Laws, and section 5 of Act No. 271 of the Public Acts of 1913, being §399.5 of the Michigan Compiled Laws.

(i) "State archives" means the state archives of Michigan, Michigan historical center, department of state, or its successor agency.

(2) Definitions of the technical terms used in these rules have the same meanings as defined in the AIIM technical report entitled "Glossary of Imaging Technology" (AIIM TR2), 1992. The technical report may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699. Single copies are available at a cost as of the time of adoption of these rules of \$65.00. Copies may also be obtained from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$65.00.

R 24.403 Needs analysis.

Rule 3. Before purchasing an imaging system covered by these rules, an agency shall analyze the recordkeeping tasks and goals to be performed by the system. The analysis shall

identify the type and volume of public records that would be stored on optical storage disks over a 5-year period. The analysis shall also determine the legal and archival requirements pertaining to the retention and use of those public records and the ability of the system to meet the agency's needs.

R 24.404 Sole storage medium; security copy; audit.

Rule 4. (1) An agency may use an imaging system as its sole storage medium for its public records, except for public records identified on an approved retention and disposal schedule either as having a retention period of more than 10 years or as having archival value.

(2) An agency may use an imaging system as a storage medium for a record that is identified on a retention and disposal schedule as having a retention period of more than 10 years or as having archival value if the agency also retains a security copy of the record in a human-readable storage medium and the security copy is maintained in an organized record-keeping system and is listed on an approved retention and disposal schedule.

(3) If an agency creates a security copy under subrule (2) of this rule in the form of a microform, then the security copy may not be produced from a digital image. A microform produced as a security copy shall be in compliance with R 18.101 et seq. of the Michigan Administrative Code.

(4) The records management section and the state archives may conduct periodic audits of an agency's imaging system if the agency uses the system as a storage medium for records which have a useful life of more than 10 years or which have archival value. If the audit determines that an agency is not in compliance with these rules and if the agency fails to take corrective action within a reasonable time, then the records management section or the state archives may direct the agency to cease and desist from using the imaging system as a storage medium for the public records subject to the audit.

R 24.405 Retention and disposition schedule.

Rule 5. (1) All digital image reproductions, indexes, and related records, including, but not limited to, input documents, systems documentation, human-readable copies, backup disk copies, and indexes, shall be listed on an approved retention and disposal schedule before the imaging system is purchased. Records relating to any aspect of an imaging system shall be disposed of only in accordance with an approved retention and disposal schedule.

(2) An agency shall develop a method of determining when a particular image has reached the end of its retention period and shall dispose of the image in accordance with the

appropriate retention and disposal schedule. An imaging system shall provide a method for the complete expunction of each recorded image and for the removal of the index identifier pertaining to each image. An agency may consult the AIIM technical report entitled "The Expunction of Information Recorded on Optical Write-Once-Read-Many (WORM) Systems" (AIIM TR28), 1991, for guidance about expunction procedures. The technical report may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699. Single copies are available at \$33.00. Copies may also be obtained from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$33.00.

R 24.406 File format, compression, and encryption.

Rule 6. (1) A digital image file format is a structured container for information about each digital image file and the image data. Information about the digital image file includes, but is not limited to, its name, width, length, resolution, and compression technique. A nonproprietary image file format shall be used to ensure an agency's ability to successfully transfer digital images between different hardware and software, or to upgrade or modify hardware or software. The imaging system shall use a nonproprietary digital image file format. However, if an agency has a need to use a proprietary file format, then the vendor shall provide a bridge to a nonproprietary digital image file format. An agency shall include and retain information about a bridge with the other system documentation.

(2) The American national standards institute (ANSI) and AIIM provide a standard open interchange format for image transmission. An agency using an imaging system shall comply with the provisions of the publication entitled "Standard Recommended Practice - File Format for Storage and Exchange of Images - Bi-Level Image File Format: Part I" (ANSI/AIIM MS53), 1993. The publication is adopted by reference in these rules and may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699, at a cost as of the time of adoption of these rules of \$52.00, or from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$52.00. An agency shall retain comprehensive information about the digital image file format used by the imaging system.

(3) The large file sizes of typical scanned documents require digital image compression to support data transmission

and to promote storage efficiency. The imaging system shall use the international telecommunications union (ITU), formerly the consultive committee on international telegraphy and telephony (CCITT), group 3 and group 4 compression techniques entitled "Terminal Equipment Protocols for Telematic Services", which are adopted by reference in these rules and may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699, at a cost as of the time of these rules of \$72.00, or from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$72.00. In the alternative, the imaging system shall have the vendor provide a bridge to the techniques with comprehensive documentation about the compression. Regardless of which compression standard is used, it shall be a lossless version.

(4) An agency shall not use an imaging system that utilizes an encrypted software source code.

#### R 24.407 Migration strategy.

Rule 7. (1) An agency shall ensure access to images of records that are stored on optical disks during the entire length of the record retention period. An agency shall establish a migration strategy for images retained on optical storage disks. The migration strategy shall do at least 1 of the following tasks:

(a) Upgrade equipment as technology evolves and recopy the information and records on the optical storage disk, as required.

(b) Based upon the projected longevity of an optical storage disk, recopy the information on new optical storage disks a minimum of once every 7 years.

(c) Transfer data from an obsolete generation of optical storage disk technology to a newly emerging generation of technology, in some cases bypassing the generation of technology that is mature but at risk of becoming obsolete.

(2) A new generation of imaging technology and optical storage disk technology shall be backward compatible with older generations of technology. In this regard, an agency shall do both of the following:

(a) Require that a new system or system upgrades provide backward compatibility to the existing system or require vendors to guarantee conversion of 100% of the extant image and index data to the new system, if the system cannot provide hardware and software compatibility.

(b) Ensure that all information that is required for retention at the time of conversion remains accessible through migration to the new system.

(3) An agency shall ensure that comprehensive information about the migration of images is retained in the system's documentation.

R 24.408 Indexing and image retrieval.

Rule 8. (1) An agency using an imaging system shall index each image stored by the system with a specific or unique identifier. The index shall contain information sufficient to enable the agency to retrieve images and records in an efficient and effective manner. The index shall have the same retention period as the information and shall be migrated at the same time as the information. The index shall comply with the ANSI/AIIM publication entitled "Standard Recommended Practice for the Identification and Indexing of Page Components (Zones) for Automated Processing in an Electronic Image Management (EIM) Environment" (ANSI/AIIM MS55), 1994. The publication is adopted by reference in these rules and may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699, at a cost as of the time of adoption of these rules of \$52.00, or from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$52.00.

(2) An agency shall prepare and maintain a written description of its method for indexing images.

(3) An agency shall implement procedures for verifying the accuracy of index entries. Verification may be accomplished visually, by duplicative typing of index data, or by any other method that accomplishes positive index data verification. An agency shall test its indexing verification method to ensure that the index permits the retrieval of images in an efficient and effective manner.

(4) All index information relating to stored images shall be retained on magnetic or optical media that are designed to function with the imaging system. An agency may retain index data on the same medium where recorded images are stored, if the agency also retains a separate copy of the index.

(5) If an agency replaces an optical storage disk, then the agency shall convert the index for the images onto a new medium. The new medium shall be capable of reading and fully converting all information stored on the replaced disk.

R 24.409 Error detection and correction.

Rule 9. (1) Error detection and correction is the ability to predict the point at which an optical storage disk is no longer readable. This ability is critical if the recopying of disks is to take place at the appropriate time.

(2) An agency shall specify that the small computer standard interface (SCSI) command "Write and Verify" is used when writing data to optical storage disks.

(3) An agency shall acquire a utility program that monitors the amount of disk space used to relocate data sectors when errors are detected.

(4) An agency shall ensure, through systems operations procedures, that current readability is maintained by periodic copying when the relocation table reaches 70% of capacity.

R 24.410 Optical storage disk standards.

Rule 10. (1) An optical storage disk is the only information storage medium approved for retention of digital images under these rules.

(2) An agency shall only use nonerasable write-once-read-many (WORM) disks. Disk drives and multifunction disk drives capable of recording on WORM disks or rewriteable disks may be used. However, only disks manufactured exclusively as WORM shall be used.

(3) If an agency stores its digital images on CD-ROMs, then the agency shall ensure that the disks comply with the international standard organization (ISO) standard entitled "Volume and File Structure of CD-ROM for Information Exchange" (ANSI/NISO/ISO 9660), 1990. The standard is adopted by reference in these rules and may be obtained from the National Information Standards Organization, P.O. Box 1056, Bethesda, Maryland 20827, at a cost as of the time of adoption of these rules of, \$98.00, or from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$98.00.

(4) An agency shall not use disk media to record image data later than 5 years after the date of disk manufacture.

R 24.411 Disk labels.

Rule 11. An optical storage disk shall be kept in a protective cartridge. A disk cartridge shall have an eye-readable label containing all of the following information:

(a) The name of the agency or the unit within the agency that is responsible for the records on the disk.

(b) A sequential number or other specific identifier that identifies the disk in the series of disks used by the system.

(c) The date of disk manufacture.

(d) Identification of the disk as the master or a backup storage copy.

(e) The records series title and item number from the retention and disposal schedule, and the creation dates of the records.

(f) The beginning and ending dates during which images were recorded onto the disk.

(g) The software needed to access the digital images or index stored on the disk.

R 24.412 Environmental conditions for optical storage disks.

Rule 12. (1) The disk manufacturer's recommendations for the storage and use of optical disks shall serve as a guide for storing and using an agency's disks.

(2) An agency shall provide a stable storage and use environment for optical disks. The relative humidity of a storage area for optical storage disks shall not be more than 50%, and the ambient room temperature shall not be more than 75 degrees Fahrenheit.

(3) All disk media shall be kept free of condensation.

(4) An optical disk is affected by dust, debris, and fingerprints. An agency shall not remove the plastic cartridge protecting a disk. A cartridge shutter shall not be opened to expose the optical disk's recording surface.

(5) An agency shall not store disk media in any of the following ways:

(a) Under other objects.

(b) In a place that could readily permit water damage to occur.

(c) In a manner or place that is likely to subject the disks to physical shocks, shattering due to rapid temperature change, or damage due to exposure to direct sunlight, other light sources, or sources of heat, oil, or solvents.

R 24.413 Backup storage disks.

Rule 13. (1) An agency shall periodically prepare backup storage copies of recorded disks and shall store the backup disks at a secure, environmentally controlled, off-site location.

(2) An agency shall store its backup storage disks and backup index media together.

(3) An agency shall update its backup storage disks and index media on a regular basis.

(4) An agency shall copy or migrate, or copy and migrate, its backup storage disks and original image disks at the same time.

R 24.414 Scanning and testing for quality.

Rule 14. (1) An agency shall ensure that the scanner for each imaging system functions properly and is adjusted accurately.

(2) An agency shall establish scanning quality control procedures and shall periodically document the use of the



procedures. The documentation shall have the same retention period as the information.

(3) When scanning input records, an agency shall comply with the ANSI/AIIM standards in the publications entitled "Standard Recommended Practice for Quality Control of Image Scanners," (ANSI/AIIM MS44), 1993, and "Recommended Practice for the Requirements and Characteristics of Documents Intended for Optical Scanning," (ANSI/AIIM MS52), 1991. The standards are adopted by reference in these rules and may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699, at a single copy cost as of the time of adoption of these rules of \$39.00. The standards may also be purchased from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$39.00.

(4) An agency shall test and certify scanner performance as a routine part of a regularly established schedule of maintenance for operating an imaging system.

#### R 24.415 Image resolution.

Rule 15. (1) The resolution of scanned images shall be sufficient to permit the recording of an accurate image of the public record. An agency shall use the AIIM technical report entitled "Resolution as it Relates to Photographic and Electronic Imaging," (AIIM TR26), 1993, as a guide for establishing resolution criteria. The technical report may be obtained from the Association of Information and Image Management, 1100 Wayne Avenue, Suite 1100, Silver Springs, Maryland 20910-5699. A single copy is available at a cost as of the time of adoption of these rules of \$45.00. The report may also be purchased from the Department of State, State Archives, Michigan Historical Center, 717 W. Allegan, Lansing, Michigan 48918-1800, at a cost as of the time of adoption of these rules of \$45.00.

(2) Standard letter quality records shall be scanned at not less than 200 pixels per inch. Photographs and other higher quality or more detailed records shall be scanned at not less than 400 pixels per inch. Engineering drawings shall be scanned at not less than 200 pixels per inch.

(3) If an imaging system employs optical character recognition capability, then scanning resolution shall be not less than 300 pixels per inch.

#### R 24.416 Authentication.

Rule 16. An agency shall ensure that the system's software is designed to track usage of the imaging system and access to the system. The software will authenticate that records were created, edited, and deleted according to

documented procedures, will attempt to prevent or indicate the occurrence of unauthorized access to sensitive records, and will maintain this information in chronological order. Legal retention periods for authenticating information shall be included in retention and disposal schedules.

R 24.417 System administrator and system documentation.

Rule 17. (1) An agency shall identify a person to act as a system administrator to monitor the installation and operation of the imaging system and the training of assigned personnel.

(2) The system administrator shall maintain documentation pertaining to the imaging system, including its optical storage disks. In addition to maintaining any other record required by these rules, the system administrator shall maintain all of the following records:

(a) A description of the imaging system's and the optical disk's hardware, including all of the following information:

- (i) Equipment specifications.
- (ii) The names and addresses of manufacturers.
- (iii) Equipment model numbers.
- (iv) Equipment maintenance requirements.
- (v) Technical operating manuals.

(b) Records reflecting the results of the performance appraisal and reliability testing performed at the time of system installation.

(c) A procedures manual and flowchart indicating the normal routine of the agency and the role that the imaging system assumes in normal activities. The documentation shall describe the procedures to be followed for all of the following:

- (i) Document preparation.
- (ii) Document scanning.
- (iii) Scanner testing.
- (iv) Method of indexing.
- (v) Verification of index data.
- (vi) Image editing.
- (vii) Image enhancing.
- (viii) Image and index updating.
- (ix) Image and index deleting.

(d) A written procedure governing the regular removal of images from the system when the images have reached the end of their administrative, fiscal, and legal usefulness.

(e) A procedure to provide for total expunction of images from the disk and the removal of index entries.

(f) A description of all software programs and updates, including compression algorithms and file formats.

(g) A description of the hardware and software used for the detection and correction of error codes, including the

placement of error correcting codes and a description and the orientation of preformatted blocks on a disk.

(h) A description of file layouts and content, including all of the following information:

(i) The location of files on the optical storage disk.

(ii) How the files are laid out.

(iii) The meaning of the information in the file directory.

(iv) The formats used to encode the contents of files.

(i) A plan to enable the optical storage disks recorded by the system to be read by another brand or type of system if the system's hardware or software fails or otherwise becomes permanently inoperable.

(j) A description of security procedures.

(k) A plan to provide for major upgrades of hardware and software to avoid obsolescence or the loss of recorded information.

(1) A contingency plan to allow the agency to continue functioning during temporary system's downtime, which shall also be included in the procedures manual.

(3) Before an imaging system is purchased, the system administrator shall arrange to have the agency's retention and disposal schedule amended to include the imaging of records, the retention of the human-readable copies, and the storage of backup copies and shall ensure that the new schedule is approved.

R 24.418 Safeguard plan; vendor codes escrow; notice from vendor.

Rule 18. (1) Before acquiring an imaging system, an agency shall prepare a written plan that includes safeguards to ensure the agency's continued ability to access and retrieve image data if the agency's vendor no longer supports the system's hardware or software or if the system becomes inoperable due to damage, malfunction, or obsolescence.

(2) By contract, an agency shall require its imaging system vendor to do both of the following:

(a) Deposit a copy of the imaging system's application software codes and associated documentation in an escrow account with a bank, archive, or other acceptable institution for transmission to the agency if the vendor's business fails.

(b) Notify the system administrator about the cessation of the imaging system or its product line, changes or upgrades to the imaging system, or the cessation of service support for the imaging system.

R 24.419 Annual system review.

Rule 19. An agency shall review its imaging system on an annual basis. The review shall verify all of the following:

(a) The statistical error rate and any loss of recorded information.

(b) That satisfactory scanner performance and reliability are being maintained by comparing currently scanned and recreated hard copy images of test targets with original benchmark target images.

(c) That the scanner testing logbook is being properly maintained and that all necessary procedures are being followed and documented.

(d) That all required targets are being scanned on a routine basis.

(e) That backup storage copies of images and indexes are routinely produced on separate disks and stored at an off-site location.

(f) That human-readable copies of records are created, managed, and stored as required by these rules.

(g) From the master disks in use and the backup storage disks that are stored at the off-site location, that the images being stored on the image disks have not deteriorated.

(h) That security measures have been developed and are being utilized.

(i) That comprehensive documentation about appropriate aspects of the imaging system has been created and retained.