Minimum Standards For Digital Imaging Or Scanning Of Textual Documents

Arizona State Library, Archives and Public Records

A Request for Document Imaging must be completed and approved prior to starting a scanning or digitization project. Please contact RMC at: 602-926-3815 or records@azlibrary.gov.

Records with a Permanent retention can only be scanned for access, not for replacement of paper records. The original paper record or microfilm record will remain the official record. The paper or microfilm record may not be destroyed. However, it is prudent and highly recommended that for disaster recovery and future projects options to scan the records at the standards for 31 years or longer retention.

1. These are minimum standards. Considerations such as original document size, quality, legibility, image characteristics (spatial resolution, pixel bit depth, signal resolution, and color mode) and intended use must be taken into account for quality digital reproductions.

2. This table provides the *minimum* standards for digitization. Use the appropriate standard in the table that most closely matches the overall content of the items you wish to digitize.

3. This is the standard for scanning textual documents only. This does not include maps, photographs and other media types. Permission to scan is still required by A.R.S. §41-151.16. See Request for Document Imaging of Public Records at http://www.azlibrary.gov/arm/forms.

4. Scan resolution is 100% scan ratio (1:1) and true optical resolution in dpi calculation.

5. Quality control will need to be performed consistently throughout the process to ensure quality of scans. 20% minimum quality control is required for all records.

6. You must evaluate the digital output quality to verify that the digitized version accurately represents the content of the original document. Meeting minimum standards does not imply legibility of the digital reproduction. All scans must be legible to the smallest font on the record, regardless of color and markings.

   If scanning at the minimum standards do not accurately represent the record and the record is not completely legible, you must use a higher dpi, a higher bit number, grayscale or color scanning, adjust other scanner settings and thresholds or take any other action as required to ensure accuracy and legibility of the scanned record.

7. Due to rapidly changing technology, migration of media, migration of file format and other actions will be required for continued accessibility.

8. Security, to the level required by law, and accountability of the records must be maintained during the scanning process. This will include additional security requirements for records containing privacy, classified or any other type of sensitive data. Examples of records with security requirements include FERPA, HIPAA and personal identifying information. Consult with your Risk Manager or legal representative and your IT Security Manger before scanning.

   Refer to Statewide Information Security P800 and Privacy P900 policies, (http://aset.azdoa.gov/security/policies-standards-and-procedures) and related statewide security and privacy standards for information on identifying and maintaining the confidentiality, integrity and availability (CIA) of data in records.

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Notes: Careful attention must be paid to quality control, metadata, file naming schemas, directory structure, versioning, naming of derivative files, long term storage, migration, backup, and disaster recovery to ensure "faithful reproduction" and access to the document over time.

"Faithful digital reproductions are digital objects that are optimally formatted and described with a view to their quality (functionality and use value), persistence (long-term access), and interoperability (e.g. across platforms and software environments). Faithful reproductions meet these criteria, and are intended to accurately render the underlying source document, with respect to its completeness, appearance of original pages (including tonality and color), and correct (that is, original) sequence of pages. Faithful digital reproductions will support production of legible printed facsimiles when produced in the same size as the originals (that is, 1:1)." (Quoted from: Digital Library Federation's Benchmark for Faithful Digital Reproductions of Monographs and Serials at http://www.diglib.org/standards/bmarkfin.htm and supported by Federal Agencies Initiative Still Image Working Group's Technical Guidelines for Digitizing Cultural Heritage Materials http://www.digitizationguidelines.gov/guidelines/FADGI_Still_Image-Tech_Guidelines_2010-08-24.pdf .)

Annotations:

1. TIFF v6 – Baseline TIFF, uncompressed with no application/product dependencies or extensions.
2. PDF file format may be used if there is no reliance on linked fonts, non-standard header information, or other data stored outside of the file.
3. PDF/A is the preferred version of PDF for long-term retention since all of the elements to render the file are contained within the file itself.
4. Use CCITT Group IV compression. Use Group III as needed.

References:

Please refer to the *Guidance on Minimum Standards for Digital Imaging and Standards for Permanent Records*, located at the following: http://www.azlibrary.gov/arm/guidelines-standards-and-statutes.

Current retention schedules are located at http://www.azlibrary.gov/arm/retention-schedules .

These standards are written with national standards and best practices. These standards are based, in part, on the following:
Federal Agencies Initiative Still Image Working Group's Technical Guidelines for Digitizing Cultural Heritage Materials
http://www.digitizationguidelines.gov/guidelines/FADGI_Still_Image-Tech_Guidelines_2010-08-24.pdf
A Framework of Guidance for Building Good Digital Collections - NISO Recommended Practice
http://www.niso.org/publications/rp/framework3.pdf
Technical Guidelines for Digitizing Archival Materials for Electronic Access
http://www.archives.gov/preservation/technical/guidelines.html

Effective Date: June 9, 2014 - This standard replaces prior version dated February 1, 2014.

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Records Scanned for Web Access or Use Copy Only Originals may not be destroyed.			
Textual Documents with or without Illustrations in text	**Minimum scan resolution**	**Save as file format**	**Additional Notes**
Originals may not be destroyed. The original record must be kept for the retention period listed on applicable retention schedule.			
DETAILS			
Clean, high contrast documents with smallest character of 1.0 mm or larger, text only	150 dpi bitonal	GIF PNG JPEG TIFF v6[4] PDF[2] PDF/A[3]	Compression with no application/product dependencies or extensions and no loss of image readability.
Documents with handwritten notes/markings, low contrast, half-tone illustrations, photographs or poor legibility	200 dpi bitonal **or** 200 dpi 8-bit grayscale	GIF PNG JPEG TIFF v6[4] PDF[2] PDF/A[3]	Compression with no application/product dependencies or extensions and no loss of image readability.
Documents and items where color is important for accurate representation	300 dpi 24-bit color	GIF PNG JPEG TIFF v6[4] PDF[2] PDF/A[3] JPEG2000	Compression with no application/product dependencies or extensions and no loss of image readability.

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Scan Resolution assumes 100% scan ratio and original 8 ½" by 11".

Records with a <u>30 years or less</u> total retention period			
Textual Documents with or without Illustrations in text	**Minimum scan resolution**	**Save as file format**	**Additional Notes**
DETAILS			
Clean, high contrast documents with smallest character of 1.0mm or larger, text only	200 dpi bitonal	TIFF v6[1 or 4] PDF[2] PDF/A[3]	If you plan on OCRing, 300 dpi is required for increased accuracy. Compression with no application/product dependencies or extensions and no loss of image readability.
Documents with handwritten notes/markings, low contrast, half-tone illustrations, photographs or poor legibility	200 dpi bitonal **or** grayscale	TIFF v6[1 or 4] PDF[2] PDF/A[3]	Compression with no application/product dependencies or extensions and no loss of image readability.
Documents and items where color is important for accurate representation	300 dpi 24-bit color	TIFF v6[1 or 4] PDF[2] PDF/A[3] JPEG2000	Compression with no application/product dependencies or extensions and no loss of image readability.

Scan Resolution assumes 100% scan ratio and original 8 ½" by 11".

Minimum Standards For Digital Imaging Or Scanning Of Textual Documents

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Records with a <u>31 years or longer</u> total retention period ****Does not include Permanent Record.**			
Textual Documents without or with minimal Illustrations in text	**Minimum scan resolution**	**Save as file format**	**Additional Notes**
For records with a total retention of 31 years or longer: Due to rapidly changing technology, migration of media, migration of file format and continued accessibility, it is prudent and highly recommended that for disaster recovery and future project options the paper record is not destroyed. **<u>**Records with an approved retention period of Permanent or designated Historical and Permanent, may not be destroyed after scanning.</u>** Permanent records may be scanned for access only. However it is highly recommend to follow these standards for disaster recovery purposes and for future projects and technology changes. Please refer to the *Guidance on Minimum Standards for Digital Imaging and Standards for Permanent Records*, located at the following: http://www.azlibrary.gov/arm/guidelines-standards-and-statutes.			
DETAILS			
Clean, high contrast documents with smallest character of 1.0mm or larger, text only	400 dpi bitonal	TIFF v6[1] PDF[2] PDF/A[3]	Use grayscale as needed. Files must be uncompressed with no application/product dependencies or extensions.
Documents with handwritten notes/markings, low contrast, half-tone illustrations, photographs or poor legibility	600 dpi 8-bit grayscale/24-bit color	TIFF v6[1] PDF[2] PDF/A[3]	Files must be uncompressed with no application/product dependencies or extensions.
Documents and items where color is important for accurate representation	600 dpi 24-bit color	TIFF v6[1] PDF[2] PDF/A[3]	Files must be uncompressed with no application/product dependencies or extensions.