

Digitisation Technical Specifications

Purpose

This Records Advice has been prepared to provide ACT Government employees with guidelines for understanding recordkeeping requirements when digitising and converting records, information and data.

Background

This advice details the minimum technical requirements that images must satisfy when digitising source records in order to destroy the physical originals after digitisation. The requirements are designed to ensure that a digitisation effort results in the creation of a full and accurate copy of the physical original.

This Advice should be read in conjunction with the [Source Records Disposal Schedule](#).

Digitisation specifications

Each type of source document (e.g. documents, photographs and negatives) must meet specifications for the following components:

- the resolution required (in dpi (dots per inch))
- the type of image (bi-tonal, greyscale, colour)
- the bit-depth (when greyscale or colour)
- colour management; and
- compression algorithm mode and settings to be used.

Lower specifications

Agencies may choose to relax the requirements in this specification for temporary records where the business reasons necessitating the exemption have been notified in the agency Records Management Program and agreed by the Principal Officer. The requirements cannot be relaxed for Territory Archives or unsentenced records.

The requirements may only be relaxed after a thorough usability analysis has confirmed that the resulting images are adequate for all reasonable business purposes. The usability analysis must:

- identify all reasonable business uses of the records. Note that reasonable business uses of the records are broader than day-to-day business uses, and include, for example, use in legal action, investigations and Freedom of Information requests; and
- confirm that it can be reasonably expected that all images at the lower specification are usable for all of the identified reasonable business uses. This confirmation must be

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based on usability tests and consider the needs of stakeholders for all the reasonable uses.

The usability analysis, and the evidence on which the analysis is based (e.g. usability tests) must be retained for as long as the digitised records. Both the analysis and evidence must be made available to the Director of Territory Records.

It is not necessary to conduct this usability analysis where the requirements stated in this advice are adopted.

Higher specifications

Agencies may use higher standards than are given in this document if desired

Retrospectivity

If a record has been digitised to the requirements in this advice and the technical requirements are subsequently changed, agencies will not be expected to re-digitise to the new requirements.

Output formats

Part 3 of the *Territory Records Act 2002* notes that for the purposes of public access, records become eligible for access by members of the public 20 years after the date of creation. Consequently it is recommended that conversion of source records be performed using specific outputs to ensure record content is retrievable using future technological software.

These requirements do not specify an output file format (e.g. TIFF or PDF/A). It will be necessary for agencies to select suitable output formats for their purposes. Compliant formats include TIFF, PDF/A, JPEG, and JPEG2000. Agencies should only use JPEG where the digitisation device *only* produces JPEG images.

Lossy compression

Some digitisation devices (e.g. digital cameras) only produce images using lossy compression (e.g. JPEG). In this case, this lossy compression technique can be used in the final image. Extreme care must be taken when processing images using lossy compression to prevent degradation of the image.

Where the digitisation device can produce images using lossless compression, this compression mode must be retained in the final image.

Multi-page records

It is recommended that agencies do not use multi-page TIFF files to store multi-page records. This is because multi-page TIFF images are not widely supported in viewing software. Agencies should store multi-page records in PDF/A files. If necessary, tools can be obtained to combine single image PDFs into a multi-page PDF/A.

Generation of images

These requirements specify the final output required. The intermediate images generated by the digitisation device, or stored during processing, are not specified. However, intermediate images must not be of lower quality than the final output. For example:

- The resolution of intermediate images must be at least that of the final output;
- Lossy compression must not be used for the intermediate images unless the digitisation device (e.g. digital camera) only produces images using lossy compression.

Digitisation Specification requirements

The requirements listed below have been set at a level sufficient to produce images suitable for all general purposes (including long term retention and reuse).

An agency must comply with these minimum technical requirements and demonstrate, for source records being viewed for disposal after conversion, that the agency has implemented digitised images that meet the following specifications:

Requirements	Evidence of Compliance
<p>1. For clean, high contrast documents for which colour is either not present or not essential for understanding the document and any graphics are line art. Agencies should produce images conforming to the following specifications or higher:</p> <ul style="list-style-type: none">• Format: PDF (PDF/A encouraged); JPEG 2000, PNG or TIFF• Resolution: 300 dpi• Scanning ratio: 100%• Colour profile: bi-tonal• Bit depth: 1 bit• Searchability: OCR encouraged (PDF or PDF/A complies)	<p>Testing of the images that the minimum requirements listed in these technical specifications have been met.</p> <p>For a guide to suitable quality assurance checks see AS/NZS ISO 13028: 2012, Information and documentation - Implementation guidelines for digitisation of records.</p>

Requirements	Evidence of Compliance
<p>2. For text and graphics documents with high contrast and low contrast (low contrast includes watermarks, grey shading, faded text, coloured background) and where colour is either not present or not essential for understanding the document. Agencies should produce images conforming to the following specifications or higher:</p> <ul style="list-style-type: none"> • Format: PDF (PDF/A encouraged); JPEG 2000, PNG or TIFF • Resolution: 300 dpi • Scanning ratio: 100% • Colour profile: greyscale • Bit-depth: 8 bits • Searchability: OCR encouraged (PDF or PDF/A complies) <p>This specification can be used for all documents except for photographic collections and where colour is essential for understanding the document.</p>	<p>Testing of the images that the minimum requirements listed in these technical specifications have been met.</p>
<p>3. For all documents with text or graphics including colour, high contrast and low contrast (low contrast includes watermarks, grey shading, faded text, coloured background). Agencies should produce images conforming to the following specifications or higher:</p> <ul style="list-style-type: none"> • Format: PDF (PDF/A encouraged); JPEG 20004, PNG or TIFF • Resolution: 300 dpi • Scanning ratio: 100% • Colour profile: colour • Bit-depth: 8 bits per channel RGB • Colour management: embedded ICC colour profile encouraged • Searchability: OCR6 encouraged (PDF or PDF/A complies) <p>Can use this specification for all documents except for photographic collections.</p>	<p>Testing of the images that the minimum requirements listed in these technical specifications have been met.</p>

Requirements	Evidence of Compliance
<p>4. For black & white photographs agencies must produce images conforming to the following specification:</p> <ul style="list-style-type: none"> • Resolution: 600 dpi • Type of image: greyscale • Bit-depth:8 bit • Colour management: embedded ICC colour profile <p>Lossless compression (Lossy compression is acceptable if this is the only representation available from the digitisation device)</p>	<p>Testing of the images that the minimum requirements listed in these technical specifications have been met.</p>
<p>5. For colour photographs agencies must produce images conforming to the following specification:</p> <ul style="list-style-type: none"> • Resolution: 600 dpi • Type of image: colour • Bit-depth: 24 bit • Colour management: embedded ICC colour profile • Lossless compression (Lossy compression is acceptable if this is the only representation available from the digitisation device) 	<p>Testing of the images that the minimum requirements listed in these technical specifications have been met.</p>
<p>6. For black & white negatives agencies must produce images conforming to the following specification:</p> <ul style="list-style-type: none"> • Resolution: 2400 dpi • Type of image: greyscale • Bit-depth: 8 bit • Colour management: embedded ICC colour profile • Lossless compression (Lossy compression is acceptable if this is the only representation available from the digitisation device) 	<p>Testing of the images that the minimum requirements listed in these technical specifications have been met.</p>

Requirements	Evidence of Compliance
<p>7. For colour negatives agencies must produce images conforming to the following specification:</p> <ul style="list-style-type: none"> • Resolution: 2400 dpi • Type of image: colour • Bit-depth: 24 bit • Colour management: embedded ICC colour profile • Lossless compression (Lossy compression is acceptable if this is the only representation available from the digitisation device) 	<p>Testing of the images for resolution, image type, bit depth, colour management profile, and compression algorithm</p>
<p>8. Where it is required to relax the requirements of this specification for temporary records, agencies must conduct a usability analysis conforming to the following specifications:</p> <ul style="list-style-type: none"> • Identification of all the reasonable business uses of the records. • Evidence to confirm that it can reasonably be expected that all records will be usable for all identified business uses 	<p>Usability analysis and supporting evidence</p>

References

[PROS 11/07 Capture Standard](#)

[Scanning Specifications - National Archives of Australia](#)