Digital practice:
Guidelines for digitising images in NSW public libraries

This report was prepared by
Swinburne Library Information Service (SLIS)
and Practico for the

State Library of New South Wales

July 2005
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Acknowledgments

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SLIS/Practico also wish to thank the public library staff who participated in the focus group (held in November 2004) and the verification of the guidelines.

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Introduction

In 2003/04, the Office of Information and Communication Technology, NSW Department of Commerce allocated funding to the State Library of New South Wales for the PictureNSW Project. The first stage of the project was to gather information about local studies collections of New South Wales public libraries. Stage 2 would identify guidelines for digital image and metadata creation.

For the first stage, the State Library commissioned an audit of New South Wales public library local studies collections and historical society collections (when housed by a council or on the premises of a public library). This was undertaken by a combined consultancy of Swinburne Library Information Service (SLIS) and Practico Pty Ltd on behalf of the State Library. Many public library staff from all parts of New South Wales contributed through focus groups and as members of the Steering Committee.

All 99 NSW public library services gave detailed responses to the audit questionnaire which covered current standards and practices for digitisation and metadata creation, software, policies, levels of expertise and related training needs within each library service. The results of the audit and the consultants’ report are available on the State Library website at: <http://www.sl.nsw.gov.au/localhistory/>. In addition, there is direct electronic access to each library service website and to their digitised collections (where available) through an online directory.

The second stage of PictureNSW, also conducted on behalf of the State Library by SLIS and Practico, has resulted in the development this publication, *Digital practice: guidelines for digitising images in NSW public libraries*. Once again we acknowledge the commitment of the staff of New South Wales public libraries and the State Library of NSW to achieving our goals.

The Library Council of New South Wales endorsed *Digital practice: guidelines for digitising images in NSW public libraries* at the 6 June 2005 meeting as the basis for the assessment of digitisation projects submitted for Library Development Grant funding. Library Council also recommended the guidelines to NSW public libraries as an essential planning framework for digital image and metadata creation.

We trust that the guidelines will provide useful advice and direction for public libraries in New South Wales. We hope that the guidelines will also assist cultural institutions across the nation to adopt consistent standards and practices as they develop online access to their unique photographic and other holdings. Providing tools for virtual discovery will enable a greater appreciation of the wealth of information to be found in cultural collections.

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July 2005
Glossary

**Alphanumeric**  A string with either alphabetic or numeric characters and no other, for example bat0234

**Copyright**  Legal rights including the rights to make copies, publish and communicate a work

**Digital image collection**  Collection of digital images, usually in a database

**Digital image**  A photograph, picture, artwork, postcard or other pictorial representation captured onto a computer and saved with an image file format

**Digital photographs**  Photographs captured by a digital camera

**DPI**  Dots Per Inch, a standard measure for image resolution as it relates to printing

**Dublin Core**  An international standard metadata format; it is the standard employed by PictureAustralia

**Harvesting**  Using the Internet to collect data from a website or series of websites

**Identifier**  The location of an image file on the web so it can be accessed and displayed

**JPEG**  Joint Photographics Experts Group devised this image file format that compresses data to make file size smaller for flexible application

**Lossless**  An image file format that does not employ data compression. This format is used when archiving digital images, or when creating a master copy from which other files are converted.

**MARC**  Machine Readable Cataloguing

**Megapixels**  Equivalent to one million pixels, commonly employed to describe the resolution capture of digital cameras (eg 2 Mp)

**Metadata**  Structured data describing a physical item or digital file. A library catalogue record is a good example of metadata

**Pixel**  The smallest unit of a digital image, often referred to in relation to screen display where 800 X 600 is referring to the number of pixels displayed.

**Resolution**  Dictates the amount of data captured by the scanner or camera

**Scanner**  Device for capturing a digital image

**Thumbnail**  A small version of a larger image for use in a search result list

**TIFF**  Tag Image File Format. A common lossless file format (.tif)

**Unique identifier**  The location of an image file on the web so it can be accessed and displayed

**Web interface**  A website or webpage
The following diagram presents a viable workflow for a digitising program. The order suggested here follows a logical, sequential path with each step a critical element in any successful digitising program.
Digital practice guidelines

This document provides guidelines and standards to assist with digitising projects in New South Wales public libraries. As well as describing minimum standards and best practice, a rationale and a brief technical explanation have been provided with links to further reading. The steps are presented in a practical sequential path, none of which are to be avoided.

Summary of minimum standards

1. Selection
Begin all digitising projects with a documented rigorous selection procedure.

2. Cataloguing/Metadata
Catalogue digital images in either MARC or Dublin Core completing all mandatory fields.

3. Image resolution
3.1 Scan 20 x 25 cm (8” x 10”) images in JPEG format at a resolution of at least 150 dpi.

3.2 Capture digital originals at a resolution of at least 2 Megapixels.

4. File management
4.1 Name files using up to eight alphanumeric characters and a three-character file extension indicating the file format.

4.2 Ensure that files are regularly backed up.

5. Access to images
Use the web as the main means of providing public access to digitised images.
1. Selection

1.1 Minimum standard
Begin all digitising projects with a documented rigorous selection procedure.

1.2 Best practice
As above.

1.3 Rationale
A documented selection procedure, taking into account criteria such as the following will help to create a high quality digital image collection.

- Relevance to local area.
- Extent to which the item is a duplicate, for example, if there are many images of the same streetscape with only slight variations in each one, it may be advisable to scan just one of these images. Rarity and contribution to the total collection are relevant — what does it add?
- Conservation status. Some images are too fragile for use of the original, and digitising creates a copy which can be used. Using the digital format of images as the primary means of access to the collection facilitates the preservation of original material.
- Relevance to potential users and knowledge of likely demand.
- Copyright status. Digital image creation must comply with copyright laws.

In the case of digital originals, particularly donated photographs, images must meet minimum resolution standards before becoming part of the collection.

The selection criteria should be added to the library’s Collection Development Policy (CDP). Acquisition, by purchase or donation, retention and disposal criteria should be addressed in the CDP.
1.4 Technical explanation

An example of a collection development policy, incorporating selection criteria for digital images

Documenting life in New South Wales - Our collections

The State Library of NSW collection development policy is available online and public libraries may consider aligning with it and developing their own policies along these lines, taking local and possibly regional considerations into account.

The following tutorials may assist in the creation of selection criteria documentation. Please consider the desired audience as described below as some tutorials will have greater relevance for NSW public libraries than others.

TASI :: Advice | Creating Digital Images | Selection Procedures
<http://www.tasi.ac.uk/advice/creating/selecpro.html>

The Technical Advisory Service for Images (TASI) is funded by the Joint Information Systems Committee, which provides guidance and advice to support research and teaching for higher education in the United Kingdom. The TASI website provides step-by-step procedures for the selection process, as well as other elements of digitising programs.

Selection of Materials for Digitisation
<http://www.collectionscanada.ca/8/3/r3-409-e.html>

Libraries and Archives Canada has produced a guide to selection with a focus on the user’s requirements. The range of questions/issues raised on this site may assist libraries by providing some insight into the needs of their users.

NINCH Guide to Good Practice
<http://www.nyu.edu/its/humanities/ninchguide/III/>

The National Initiative for a Networked Cultural Heritage is a US project providing guidelines and advice for digitising projects. NINCH is a coalition of a large number of libraries, museums and galleries, resulting in a set of guidelines with broad application. Some of the guidelines are relevant in the NSW public library context.

Digital Imaging Tutorial - Selection
<http://www.library.cornell.edu/preservation/tutorial/selection/selection-02.html>

'Moving theory into practice', the digital imaging tutorial presented by Cornell University Library is a well constructed tutorial. The section on selection criteria provides a concise list of key issues.
2. Cataloguing/Metadata

2.1 Minimum standard

Catalogue digital images in either MARC or Dublin Core completing all mandatory fields.

The following table lists the Dublin Core (DC) fields used in PictureAustralia and includes their MARC equivalent along with an explanation and example.

**Mandatory Fields**

<table>
<thead>
<tr>
<th>DC Element</th>
<th>MARC Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Title</td>
<td>245</td>
</tr>
<tr>
<td>*Rights</td>
<td>506, 540</td>
</tr>
<tr>
<td>*Source</td>
<td>786$o$t</td>
</tr>
<tr>
<td>Identifier</td>
<td></td>
</tr>
<tr>
<td>*Identifier.URL</td>
<td>856$u</td>
</tr>
<tr>
<td>*Identifier.URL.thumbnail</td>
<td></td>
</tr>
</tbody>
</table>

**Title 245 field**

The title will appear alongside the image on the web and needs to be as informative as possible. The title may be accompanied by a caption that may or not be informative, but should be included alongside useful information.

*Example*

245 aRyde District Band at the opening of the Band Rotunda in Ryde Park, 4 June 1934 [photograph].
This photograph is from Ryde Library Services image database.

**Rights 506, 540 fields**

Rights specifies the copyright status of the image.

*Example*

540 aMr L A Lenden, cOriginal print donated, dApril 1983.
Source 786$a$t field
Source specifies the owner of the image.

Example
786    #aRyde Library Service.

Identifier; Identifier.URL; Identifier.URL.thumbnail  856$u
Identifier URL and thumbnail: specifies the location of the image on the web so that the image can be displayed.

Example
856  4    #u<http://210.80.142.200/lsphotos/246750.jpg

The fields listed above must be used in a valid record. Use of additional fields such as subject is also highly desirable.

Optional Fields

<table>
<thead>
<tr>
<th>DC Element</th>
<th>MARC Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creator</td>
<td>100, 110, 111, 700, 710, 711, 720</td>
</tr>
<tr>
<td>Subject</td>
<td>600, 610, 611, 630, 650, 651, 653</td>
</tr>
<tr>
<td>Description</td>
<td>500-599, except 506, 530, 540, 546</td>
</tr>
<tr>
<td>Contributor</td>
<td>100, 700</td>
</tr>
<tr>
<td>Publisher</td>
<td>260$a$b</td>
</tr>
<tr>
<td>Format</td>
<td>856$q</td>
</tr>
<tr>
<td>Relation</td>
<td>530, 760-787$o$t</td>
</tr>
<tr>
<td>Coverage</td>
<td>651</td>
</tr>
<tr>
<td></td>
<td>752</td>
</tr>
</tbody>
</table>

Example of adding value with the use of optional fields


610  20    #aRyde District Band #vPhotographs.

650  0    #aBrass bands#zNew South Wales#zRyde#vPhotographs.

651  0    #aRyde Park (Ryde, N.S.W.) #vPhotographs.

2.2 Best practice

Use the Australian Pictorial Thesaurus or Library of Congress Subject Headings to provide a controlled vocabulary in the subject field.

2.3 Rationale

Cataloguing

Creating catalogue records or metadata can be a major cost in digitising projects, but is an essential element in establishing access to digital collections.

The information contained in the title field should be descriptive enough to act as the only point of access, compliant with the mechanisms of a range of search engines that may only search the title field.

PictureAustralia (PA) is the established national image database with a significant international profile. Compliance with PA standards is an important element for any digitising project in public libraries in NSW, even for those who in the early stages may not have immediate plans to join PA. As small digitising projects mature, joining PA becomes increasingly attractive and complying with PA standards from the beginning facilitates ease of joining.

Thesaurus

The Australian Pictorial Thesaurus (APT) is a hierarchical thesaurus of 15,000 Australian subject terms for the indexing of images and other original material collections. It provides a common indexing language for describing pictorial and other collections of Australian libraries, archives and museums. It is an authoritative vocabulary, compiled and maintained on established principles of thesaurus construction.

The APT uses contemporary Australian words and phrases to describe objects, people, places, activities and concepts. The range and depth of APT terms facilitate the precise indexing of images and collections. Using APT terms will facilitate subject searches across national collections. Terms idiomatic to a particular state are not included, so users requiring such terms should contact their own state library for advice.
The APT arranges terms hierarchically. This means that terms are organised within a table of linked terms. That is, terms which are similar but broader in their application; terms which are similar but narrower in their application; and terms which are related. This allows the user to move around the thesaurus by following its hyperlinks, to choose the most appropriate term.

Top: APT search results on example ‘Rosellas’
Below: The ‘Rosellas’ hierarchy results.
2.4 Technical explanation

Further information regarding metadata in the local history digitising context is available from:

PictureAustralia | Metadata Guidelines
<http://www.pictureaustralia.org/metadata.html>

PictureAustralia provides guidelines for contributors and potential contributors that expand on some of the concepts introduced here.

UKOLN Metadata
<http://www.ukoln.ac.uk/metadata/>

The UK Office for Library Networking provides advice and services to cultural and information institutions in the United Kingdom. This link includes a brief description of metadata and numerous links to tutorials, articles and research projects involving metadata.

TASI :: Advice - Delivering Digital Images | Metadata: Image description, Indexing and Cataloguing
<http://www.tasi.ac.uk/advice/delivering/meta.html>

The Technical Advisory Service for Images (TASI) is funded by the Joint Information Systems Committee who provide guidance and advice to support research and teaching for higher education in the United Kingdom. The TASI website provides information about metadata, as well as other elements of digitising programs.

The Australian Pictorial Thesaurus

Described above

Descriptive Metadata Guidelines for Research Libraries Group (RLG) Cultural Materials

The Research Libraries Group (RLG), based in New York, provides comprehensive advice to research libraries, archives and museums. This page includes a link to the RLG metadata guidelines that provide a generally accepted overview of metadata standards.
3. Image resolution

3.1 Minimum standard

3.1.1 Scan 20 x 25 cm (8” x 10”) images in JPEG format at a resolution of at least 150 dpi.

3.1.2 Capture digital photographs at a resolution of at least 2 Megapixels.

3.2 Best practice

3.2.1 Archive digital copies in a lossless format (e.g. TIFF) at a resolution of at least 300 dpi for a 20 x 25 cm (8” x 10”) image.

3.2.2 Capture archival-quality digital photographs at a resolution of at least 6 Megapixels in a lossless format.

3.2.3 Retain negatives or hard copy images in archival conditions.

3.3 Rationale

Creating an enduring, high-quality digital image is of considerable benefit. Once the image file is created it can be stored, accessed, converted, and managed in many different ways. The only thing that can't be improved once the scan is made is the quality of the digital image.

Setting the appropriate resolution for scanning is relative to the physical size of your photograph. A smaller original will require higher dpi to create a digital image equivalent to a larger original scanned at a lower dpi. Scanning a 20 x 25 cm (8” x 10”) photograph at 150 dpi in JPEG format is an optimal resolution for reference or online images in local history digital image collections. This resolution reflects the advances of scanner capabilities and computer processing, coupled with a reduction in storage costs in recent years. If desired, the files may be converted to 72 dpi to enable web access with more conservative bandwidth consumption while maintaining the library store of 150dpi images.

From left: thumbnail, 72 dpi and 300 dpi
Image: Louise Carbase, c. 1913, Rudolph Buchner carbon print, State Library of NSW
Capturing digital photographs at a high resolution such as 300 dpi allows for maximum flexibility of the image. Higher resolutions allow for larger hard copy reproductions to be printed, while maintaining the quality and clarity of the image.

Digital photographs taken with 2 megapixels resolution provide images adequate for web display and access and are the current industry standard for newspaper and magazine reproduction.

Digital photographs taken with 6 megapixels resolution provide archival-quality images adequate for long-term use, large reproductions and book publishing.

Digital archiving, in this context, will provide a collection of images that can be put to a variety of uses such as printing and publishing (web or other). The digital archive will constitute an asset and as such needs to be incorporated into a rigorous backup procedure, including offsite storage. The archival settings recommended here are not sufficiently high to match film resolution. Original photographs and negatives require archival storage conditions.
3.4 Technical explanation

Screen display
When publishing on the web, it is desirable to create a screen image that downloads quickly while producing a clear image. The screen quality of an image is limited to the settings of each monitor that is used to view the image. Pixel count dictates the size that the image will display on the screen, which is established in the local context of monitor settings. It is recommended that digital images take up no more than half the screen of an 800x600 pixel screen (a common screen setting) for web viewing. Due to the limitations of monitor screens, beyond a certain resolution the only advantage in larger files is in reproducing, or printing, the image.

Print quality
The resolution required for printing depends on the purpose of the printing. Most reproduction for newspapers and magazines requires images to be at 300 dpi. Images for published books may need a higher resolution. Other graphical displays may require even higher resolution.
Digital archives
If access to originals for re-scanning cannot be guaranteed, scanning at 300 dpi is recommended. A 20 x 25 cm (8" x 10") print scanned at 300 dpi will save as a TIFF at approximately 20 megabytes. Memory storage costs are the main implication for higher resolution.

To create a set of images with different resolutions (to cater for archiving, web access and thumbnails for example) scan at the highest resolution required. The original scan resolution can only be safely resized downward (i.e. to a lower dpi). From 300 dpi lower resolution images can be created for web access. The images only have to be scanned once.

When archiving a master copy it is very important to save your image file as a TIFF rather than a Jpeg. TIFF is a lossless format that guarantees your image will not alter during saving (unless you’ve altered it). It is an industry standard format for this purpose.

TIFF files are larger than Jpegs, so storage costs will be higher. Consider the scope of your project and your available resources before committing to high resolution, high quality archive images. If, however, a higher resolution of the collection is required at some later point, there are significant costs in recapture.

Determining resolution of digital images
The resolution, size or pixel count of any image can be checked by determining the image size using your image editing software.

Further technical explanation is available from a range of resources including:

Scanning Basics 101 - All about digital images
<http://www.scantips.com>

Wayne Fulton is the author of this site and the accompanying book; and uses plain language and simple graphics to describe the process of digitising images. It provides a comprehensive scanning manual.

TASI :: Advice - Creating Digital Images
<http://www.tasi.ac.uk/advice/creating/creating.html>

The Technical Advisory Service for Images (TASI) is funded by the Joint Information Systems Committee who provide guidance and advice to support research and teaching for higher education in the United Kingdom. The TASI website provides detailed advice on creating digital images by scanning, as well as other elements of digitising programs.
4. File management

4.1 Minimum standard

4.1.1 Name files using up to eight alphanumeric characters and a three-character file extension indicating the file format.

4.1.2 Ensure that files are regularly backed up and stored offsite as part of a disaster recovery plan.

4.2 Best practice

4.2.1 Create a web interface and a unique identifier for each image.

4.2.2 Use documented file naming practice incorporating a numbering system consistent with local collection.

4.3 Rationale

It is important to use standard file naming conventions, in order to facilitate cooperative ventures.

Scanned images are a valuable resource. It is important that these files are incorporated into a regular backup system.

Creating a web interface for each image allows web harvesting programs, such as that conducted by PictureAustralia, to access image collections.
4.4 Technical explanation

File names in ‘8.3’ naming conventions are required to have no more than 8 alphanumeric characters separated with a decimal point from the 3-character file type (for images usually .tif or .jpg).

Some libraries create folders of images based on subject, others based on collection, but almost all are using running numbers as file names. Depending on the size of collection (and allowing for growth), some of the 8 characters may be used to identify the file in other ways.

Backup procedures are an important part of any data management. Image files should be saved on a hard drive that is regularly backed-up (i.e. copied and stored off-site).

For web access, two versions of each image are required – a thumbnail, which will come up on a search result list, and a larger screen image. Thumbnails are usually designated by a ‘t’ at the end of the file name, so the larger screen image might be 0123456.jpg and its corresponding thumbnail 0123456t.jpg.

If storing an archival digital copy (or digital original), it should be designated with a ‘u’ at the end of the file name, consistent with industry standards, u=archive.

<table>
<thead>
<tr>
<th>Name</th>
<th>Date Modified</th>
<th>Size</th>
<th>Kind</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.a128725t.jpg</td>
<td>12/04/05</td>
<td>80 KB</td>
<td>JPEG Image</td>
</tr>
<tr>
<td>2.a128725u.jpg</td>
<td>12/04/05</td>
<td>88 KB</td>
<td>JPEG Image</td>
</tr>
<tr>
<td>a272001t.jpg</td>
<td>11/04/05</td>
<td>216 KB</td>
<td>JPEG Image</td>
</tr>
<tr>
<td>a272001u.jpg</td>
<td>11/04/05</td>
<td>308 KB</td>
<td>JPEG Image</td>
</tr>
</tbody>
</table>

Screenshot showing an image folder of varying files.
5. Access to images

5.1 Minimum standard
Use the web as the main means of providing public access to digitised images.

5.2 Best practice
Images should be accessible for harvesting and searching by PictureAustralia and other harvesters and search engines.

5.3 Rationale
Once photographs have been selected, catalogued and digitised, web access is a logical and desirable outcome that has become the industry standard for libraries. The value of NSW public library digital images could be increased by the establishment of a web presence for each collection. Currently many public library collections available on the web are not easy to find.

CD-ROM is an inappropriate format for public access to the collection because access is restricted to those who use the CD at the library or borrow or purchase the CD-ROM.

When establishing a web presence for your image database, consideration should be given to creating a meaningful URL, for example <http://www.lakemac.com.au/ourcity/local_photos.asp>.

In order to be accessible by harvesters, images should be accompanied by metadata such as Dublin Core. PictureAustralia and Collections Australia Network are compatible with Dublin Core metadata. Both organisations offer assistance with Marc to Dublin Core mapping to public library local history image collections.

Search engine optimisation includes establishing appropriate link text, anchor text and alternative titles for image pages. Consideration of these topics will enhance your web presence. The title field is often the only field searched by search engines. Descriptive titles are essential. Descriptive titles can be employed as metatags.

5.4 Technical explanation
Harvesting to create aggregated databases of metadata such as PictureAustralia provides a further layer of access. In order to be accessible to a web harvester or web search, it is necessary to build a website which links the image and the record so that locating text will lead immediately to the image.

An images website should be searchable on all of the record, or elements of the record, and where possible should also permit sequential browsing of the database by broad category. There are several ways of structuring a site, and technical advice should be sought on the most appropriate means of achieving it. The use of Australian Pictorial Thesaurus terms can be used to create browsing lists.
Additional resources

PictureAustralia provides comprehensive information for libraries wishing to contribute to the service/database.

PictureAustralia | For Contributors
<http://www.pictureaustralia.org/join.html>

The NSW Government's Chief Information Office provides advice on creating and managing a web presence. This information includes advice on disability access and search engine optimisation.

Providing information and Services Using the Internet Guideline
Appendixes

Appendix 1  Background to the development of the guidelines

Picture NSW falls within the NSW Heritage Online strategy which aims to provide aggregated online access to the heritage collections of NSW public libraries and the State Library of New South Wales and, perhaps at a later stage, those in other institutions as well.

NSW Heritage Online will have a number of stages, and the strategy will evolve. It is seen as having several purposes:

- Provide online access to heritage resources by developing a single aggregated online resource.
- Create online content, using the heritage collections of the library system and build a sustainable, scalable service.
- Support educational, recreational and business uses.
- Position NSW cultural institutions as active players in the emerging information economy.
- Leverage government investment in regional connectivity through NSW.net.

In 2003/04, the Office of Information and Communication Technology (OICT), NSW Department of Commerce, allocated funding to the State Library of New South Wales for the first stage of the Picture NSW Project (Research and Scoping). The purpose, as defined in the Project Plan (August 2003), was:

- to gather information about the local history collections of New South Wales public libraries
- to identify common standards for digital image and metadata creation
- to make recommendations on technical and infrastructure requirements of an aggregated service
- to test the concept of an aggregated New South Wales image service.

In December 2003 an audit was undertaken of NSW public library local history collections and historical society collections (if housed within council or on the premises of a public library). All 99 NSW public library services gave detailed responses to the audit questionnaire. The results of the audit and the consultants’ report are available at <http://www.sl.nsw.gov.au/localhistory>. There is also direct electronic access to each library service website and to their digitised collections (where available) through a directory which was produced from the responses to the audit and is available at <http://www.sl.nsw.gov.au/localhistory/directory.cfm>.
Stage 2 of Picture NSW, also funded through the OICT, was to investigate and make recommendations into the needs and requirements for a statewide approach to digitisation projects and activities in NSW public libraries through the provision of standards and guidelines, and of training.

The aim and scope of the project are detailed below:

- To identify and document digital technical standards and guidelines which then become essential criteria in the Library Development Grant Guidelines for digitisation projects (the grants being the major source of establishment funding for all NSW public libraries’ digitisation projects).
- To develop a proposal for awareness and familiarisation sessions on digitisation initiatives for NSW public libraries in association with representatives of the State Library’s Public Library Services division, and members of the CPLA (Country Public Libraries’ Association) and the MPLA (Metropolitan Public Libraries’ Association).
- To participate in a feedback/training presentation on the outcomes of the Picture NSW Project Stage 2 for NSW public libraries and State Library staff.

The guidelines are to include advice/criteria for selection of material to be digitised; cataloguing/metadata standards; and digital access and preservation standards.

The proposal for awareness sessions is to include advice on technical and administrative systems and requirements, skills, and workshops on cataloguing and digitisation standards.

Following the initial meeting with the project steering committee, the scope was extended to include specifications for the treatment of digital originals (i.e. photographs taken with a digital camera).

The approach taken by the consultants, Swinburne Library and Information Service and Practico Pty Ltd (SLIS-Practico), in the preparation of this report is detailed below.

**Development of guidelines**

Research was conducted into international and Australian standards, guidelines and practice in libraries and other relevant organisations. This included critical analysis of the feasibility of such practices for NSW public libraries.

The development of the digital guidelines took into account the information and knowledge gained during the Local History Collections Audit and discussions with the Project Steering Committee as well as SLIS’s experience in developing digitising procedures for the State Library of Victoria in 2002.
In order to gain an overview of how digital standards, guidelines and training are provided to public libraries and museums in other jurisdictions in Australia, telephone or in-person interviews were conducted with representatives from state and territory libraries, including the State Library of New South Wales, and the Museums Association of Australia.

A focus group was held at the State Library of New South Wales on 9 November 2004 with NSW public library staff who have varying levels of experience of digitising projects. The purpose of the session was to identify issues which would assist in the development of guidelines and training programs for digitising projects in NSW public libraries.

**Verification**

The draft digitisation guidelines and recommended approach to awareness and training were provided to the Chair of the Project Steering Committee in January 2005 for comment prior to the February meeting of the Committee. To ensure that the draft guidelines, which include minimum and recommended standards, are practicable and easy to understand, they were also distributed to six selected focus group participants for testing and verification. Responses received were strongly supportive and provided several useful suggestions, which have been incorporated into the guidelines.

Following the verification process and feedback from the Project Steering Committee in February and March, the draft guidelines and training plan were revised and presented to a larger session of public library and State Library staff held in Sydney in May 2005.
Appendix 2    Image digitising in Australia

Australian libraries have been creating digital copies of images since the 1980s, and making them available across the Internet since the arrival of the World Wide Web in 1994. Image digitising is a well-established practice among Australia's libraries and other cultural institutions, and has spread amongst individual Australians, commercial information providers and web developers.

The leading programs remain those of the large libraries and cultural collections – the National Library, state libraries, and museums. The national and state archives and public records institutions have also become major producers of digitised images, built on the huge photographic collections generated by government agencies over the last century.

The National Library’s PictureAustralia (PA) – <http://www.pictureaustralia.org> – is a major model for using metadata to aggregate disparate local collections. It has created a portal that brings together libraries, museums and archives, both small and large. PA's documented standards are also a valuable resource for digitising practitioners. It is common for digitising projects to be PA compliant from commencement regardless of whether membership of PA is a clearly defined goal.

Collections Australia Network (CAN), formerly AMOL (Australian Museums and Galleries Online) is planning to provide online 'exhibition space' and infrastructure for many Australian museums, galleries, libraries and collections. Of particular relevance to public library digitisation projects has been their online digitisation course, 'Capture your collections' at <http://amol.org.au/capture/>, the most accessible online course available in an Australian context; it is currently under review.

Planned future developments in CAN seem likely to add useful resources to those available to local image digitising activities – a core goal is to help smaller institutions to digitise. The project will include a webform for submission of data, server space for storage of smaller online collections, and an open archives repository.

There is digitising activity in all states and territories, and this takes place both in state institutions and local agencies such as public libraries. It is inevitable, given the evolutionary nature of image digitising, that the standards used lack consistency and coherence. They are also likely to change over time with developments in the technology, falling costs of hardware and of data storage, and improvements in the bandwidth available to Australians. These changes have made possible higher resolutions for online collections.
Other factors which have impacted on standards and practices include patterns of supply, the development of local practices, and loose groupings around particular software. For example, users of a particular integrated library management system may take a common approach to managing their digital collections. In Victoria the proliferation of Inmagic software in the 1990s had a major impact on how images were stored and indexed, and in NSW, Victoria and elsewhere the services provided by SearchTech (since the 1980s) have been influential in creating patterns of practice, such as the adoption of particular screen resolutions.

While there is no statewide approach to digitising collections in South Australian public libraries, a number of individual public library services have extensive digitisation programs.

More recently, there have been efforts to create statewide approaches which bring together the collections of state institutions and local institutions.

Within New South Wales, the State Library has a strong, well-established digitising program extending back to the 1980s. The Australian Pictorial Thesaurus was developed from the State Library of New South Wales thesaurus, used in the largest national collection of online images, and adopted by other major collections five years ago. It will also be adopted by CAN. The practice of the State Library has itself evolved from its analog videodisk beginnings in the late 1980s.

Amongst public libraries there are now some large online collections, with a total of almost 200,000 images online. The State Library of New South Wales has a role in facilitating a statewide approach through leadership in digitising practice, provision of expertise, and the mandating of basic standards in its funding programs.

Picture Queensland and Picture Victoria are being established under the direction of the relevant state libraries. The two projects highlight the variety of options available for aggregated image collections.

Picture Queensland (PQ) is creating a high-quality archival resource of selected images from the State Library and in the future also from libraries throughout Queensland. The image library is at <http://www.pictureqld.slq.qld.gov.au>.

Picture Victoria (PV) is creating a portal for access to Victorian images at <http://www.pictures.libraries.vic.gov.au>. PV is open to a range of picture collections, although funding and resource allocation is available only to public libraries.

The ACT Library Service has a large collection of photographs, and a digitising program. They have adopted relatively high standards, a selective approach, archiving using TIFF files, 300 dpi for online images, and contracted-out scanning. There is an in-house database using Lotus Notes and Dublin Core metadata.

There has been a focus in our research on public library collections. However, there has also been parallel development in the museums and archives communities. The Museum of Victoria was a pioneer in digitising programs, while other museums, most notably the Australian War Memorial, have developed substantial online collections of digitised images. There also are many other significant photographic collections, including newspaper collections and commercial photographic libraries. Some newspaper photographic collections have been transferred to public or state library collections and are therefore open to the public, but most are closed.

We have therefore paid some attention in our recommendations to the standards which apply outside the library world. However, the primary focus remains public library collections.

At this stage, most online collections are dominated by scanned copies of historical photographs. There is relatively little material based on digital originals. Such material is likely to become increasingly important in two main categories – digital photographs of historic sites, artefacts and people; and older digital images which become progressively of historical value themselves.

This report takes into account the likely growth of digital originals as a growing component of digital image collections, and the guidelines have been written to accommodate them.
Appendix 3  Focus group

Participants

Campbelltown City Library Service
Ku-Ring-Gai Library
Lake Macquarie City Library
Canterbury City Library
Penrith City Library
Wagga Wagga City Library
Newcastle City Library
Fairfield City Library

Apologies:  Blacktown City Council Library Service
Shellharbour City Library Service

Introduction

A focus group was held with representatives from NSW public libraries who had experience of digitising projects. The purpose of the session, held at the State Library of New South Wales on 9 November 2004, was to identify issues which would assist in the development of guidelines and training programs for digitising projects in NSW public libraries.

Creating a range of adaptable benchmarks was considered a desirable outcome by the group. This would allow for individual project requirements while establishing minimum standards that apply to the unique needs of NSW public libraries.

1. Image resolution

Most projects had created images scanned at 72 dpi which allows for quick loading on a webpage and protects against reproduction as it prints at a low quality. Speed of screen display was the main motivation for scanning at low resolution. The majority of focus group participants had outsourced to Searchtech and adopted Searchtech’s image resolution standards.

Considerable interest was evident in creating digital archival copies scanned at 300 dpi. Most were in agreement that if they could start again they would scan at the archival level which allows for reasonable reproduction as well as the web quality images.

Naming conventions and digital file management are critical skills when establishing digital archives.
2. Cataloguing
Most libraries are cataloguing to a high standard and will include all available information. Cataloguing standards for local history images are consistent with library service standards for the entire collection.

The group supported cataloguing forms that will prompt for details, particularly a separate field for date.

3. Thesaurus
The group questioned the value and relevance of APT. It introduces a more cumbersome step in cataloguing, so the reasons for use need to be made very clear. Most of the time key information is included in the title or notes field (for example the name of person, street, church, etc).

4. Archiving
See image resolution above.

Participants stressed very clearly that digital archives do not replace physical original archives (i.e. still important to keep negatives/prints).

Standards for digital originals apply here.

5. File naming
Most libraries use running numbers as file names and generally organise files into folders based on image location or subject matter. File naming consistent with 8.3 naming convention is not long enough to have a library code and running number, so this may not be feasible.

General support for file naming conventions, but nobody is keen to change their current procedures.

Some discussion took place regarding file management and storage. Liaison with Council IT departments is required to ensure adequate storage space. Picture NSW and State Library guidelines will be a valuable resource for this purpose.

6. Management of digital originals
The management of photographs taken by digital camera (digital originals, as opposed to scanned copies from physical originals) requires minimum specifications. Standards will have to apply to digital originals created by the library service as well as images donated by the public.

7. Picture NSW
Establishing guidelines and standards through Picture NSW will provide a valuable resource for NSW public libraries. NSW public library staff require standards that
have been developed with an understanding of their particular situation and cater for their needs.

The group indicated that they saw very limited value in Picture NSW as a single-search image bank. They felt that users would be more likely to search either the local collection via the library service website or search PictureAustralia. An intermediate (i.e. state-based) search has limited value.

8. PictureAustralia

There was only one dissenting voice about the value of belonging to PA, but general concern about paying for ‘excessive’ marketing was apparent. Most libraries would like to become members with no cost and see that there is just as much value for PictureAustralia in libraries being members, therefore there should be no charge.

All were in agreement that the guidelines being developed through Picture NSW should include advice on joining PA.

9. Training requirements and practices

All participants agreed that there is a state-wide need for training. It was suggested that zone-level training may be useful for establishing support networks as well as making it easier for those travelling. Strong interest was expressed in a mailing list for local studies that may be used for digitising support.

A question arose regarding currency of supporting documentation, specifically, will the website be funded to be updated?

Participants suggested one or two-day training sessions that are not too technical, but establish standards, based on the following points.

Key issues:

- where to start
- selecting and buying equipment
- documentation
- consistency
- awareness raising
- metadata – what it means, how to find it, how to create it
- digital camera/scanning/digital manipulation – more than just scanning an 8x10 image
- scanning and storage.
Suggestions for supporting documentation, including a website:

Dublin Core – make it sensible and how they relate to preparing for PA and your library
Technical specifications
Definitions
Glossary
Disclaimers
Sample forms
Selecting/buying equipment
File naming conventions (compatible with PA)
Describing photographs
Samples
Cataloguing forms
Overview of APT
General guidelines for selection
Importance
Rarity
Conservation status
Preservation
Examples of collection management/development criteria.
Appendix 4  Local Training

Introduction

Digitisation projects involve far more than scanning photographs and making them available through a library’s catalogue and website. Both planning and documentation of procedures are critical to the success of these projects.

Before undertaking a digitising project libraries need to ensure their staff have the necessary skills and knowledge to complete the tasks.

Each library or group of libraries will need to source or deliver training to meet its own needs. Ideally training would be delivered at the time a library is planning to embark on a digitising project so the knowledge and skills learnt can be put into immediate practice.

The training should address managing the work including the implementation of these guidelines, copyright and privacy.

The following recommended content for digitising awareness training is based on a review of the literature, discussion with library staff who have been involved in digitising projects, the results of the Local History Audit in Stage One of the PicturesNSW Project, and discussion with consultants who have conducted training in this area for public library staff in Queensland and Victoria. A telephone interview was conducted with senior staff from Public Library Services (PLS) at the State Library of New South Wales and views were also sought from the focus group participants on the most effective way of delivering awareness and training to public library staff involved in digitisation projects.

Training Content

Comprehensive training on digitisation for a public library will address the following topics.

Planning

• Rationale for digitising
• Project management including outsourcing options
• Budget
• Staffing
• Selection criteria and collection development policy including importance, rarity, conservation status and preservation
• Copyright
• Indigenous protocols
• Disclaimers
• Metadata/cataloguing indexing guidelines
• Names, places, topical headings
- Sample documents
- Digital imaging project plan
- Documentation
- Data management strategies
- Evaluation

**Equipment**
- Selecting and buying equipment
- Interfaces
- Software
- Resolution (DPI)
- File formats
- File naming conventions (compatible with PictureAustralia)
- File sizes
- Preservation and storage of files
- File naming protocols
- Archival preservation
- Describing photographs
- Samples
- Overview of *Australian Pictorial Thesaurus*

**Processing**
- Image capturing or scanning procedures
- Scanner care and maintenance
- Scanning software
- Use of image editing software

**Supporting documentation**

It is suggested that a training manual is provided to those attending a course. The manual could be developed by the trainer or adapted from an existing manual such as that currently being developed by CAN (Collections Australia Network), as a successor to the AMOL (Australian Museums Online) online course. Any manual should include as a minimum the following topics:

- Definitions
- Glossary of terms
- Collection management/development criteria
- Sample workflows
- Examples of standard forms for copyright, disclaimer, acquisition/loan, cataloguing
- Bibliography of useful manuals, websites
Delivery of Digitisation Training

The audience for training is predominantly the library staff involved in digitising. Planning components of the course should be attended by staff responsible for the overall management of the digitising project, such as the library manager, branch manager or the local studies librarian.

Selection criteria for a library service’s digitisation project need to be clearly defined, documented and explained to the person(s) responsible for selecting items to be digitised. This component of training therefore needs to involve the library manager, branch manager or the local studies librarian. The cataloguing/indexing/metadata elements should be attended by those responsible for cataloguing or reference.

Training can be delivered in a number of ways: by a person or group from more experienced libraries, by an external contractor, to a number of libraries through a collaborative arrangement, or in some other way.

Online courses

<http://amol.org.au/> CAN (Collections Australia Network), the successor to the Australian Museums Online, is currently developing an online course which should be freely available on the Internet later in 2005. You can follow its progress on the AMOL website.

<http://www.tasi.ac.uk/> TASI (the Technical Advisory Service for Images) is funded for the UK further and higher education sector, and provides advice and guidance to the sector on creating digital images, delivering digital images to users, and managing both small and large-scale digitisation projects, as well as advice in its core area, the use of digital images to support teaching, learning and research.
Appendix 5  References & further resources

The following websites provide further relevant information about image digitising. For each site, the list includes the name of the author or authoring body, the title of the site (if there is a title), the title of the subsite (if the reference is to a subsite), and the web location.

**Australian museums and galleries online. Capture your collections: a digitisation course for remote and regional museums and galleries.**<http://www.amol.org.au/capture>

**Australian Pictorial Thesaurus**<http://www.picturethesaurus.gov.au>


Wayne Fulton. **A Few Scanning Tips.**<http://www.scantips.com>


Library of Congress. **MARC to Dublin Core crosswalk**<http://www.loc.gov/marc/marc2dc.html>


PictureAustralia<http://www.pictureaustralia.org>
State Library of New South Wales. *Local History Directory*  

<http://www.slq.qld.gov.au/__data/assets/file/6288/gl_meta_1.3.doc>

Technical Advisory Service for Images (TASI)  
<http://www.tasi.ac.uk/>

UK Office for Library Networking. Metadata  
<http://www.ukoln.ac.uk/metadata/>