



Obsolete Physical Carriers Directory 2017
NSLA Digital Preservation project

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Overview

The Obsolete Physical Carriers (OPC) directory is a tool for NSLA libraries to use when looking at digitising analogue content and preserving digital files from obsolete physical carriers.

The directory should be used as a guide when making decisions about which providers to use, what resolution to scan to, file formats and processes to follow. The directory also includes contact details for NSLA staff members who have expertise in specific areas.

The directory presents the following information;

- A snapshot of NSLA Library holdings of each format (excluding NLNZ) and what has been digitised
- Obsolescence rating – categorises the ease with which a range of formats can be read in terms of the availability of the playback equipment
- Media Stability – a rating that aims to categorise the relative stability of a range of formats. The rating considers how long different media may last before becoming unreadable.
- Organisations with experience and capability for particular formats
- Commercial providers with experience and capability for digitising audio-visual collections and preserving digital files from obsolete digital carriers
- Standards and community practise for digital preservation

The directory states the best practise standard or community practise for each format. These are to be considered as recommendations.

At the time of publication a lot of the service providers were untested and it is preferable that this directory become a “live” document that can be updated by each library with actual capabilities of providers.

Contacts in NSLA libraries

There are several staff members in NSLA libraries who have extensive experience with managing audio-visual and obsolete digital collections. Following are a list of staff who can be contacted for advice and guidance when dealing OPC collections.

Audio-visual Preservation

Damien Cassidy – Digital Media Technical Analyst

Audio Preservation - SLNSW

Damien has over two decades experience in audio-visual archives and libraries including the National Film & Sound Archive, The National Archives of Australia and ABC Radio Archives along with stints in commercial studios and as a musician.

(02) 92731625 damien.cassidy@sl.nsw.gov.au

Mark Piva – Manager Sound Preservation and Technical Services

Audio Preservation – NLA

Mark Piva is the Manager of Sound Preservation and Technical Services within the Oral History and Folklore Branch of the National Library of Australia in Canberra, Australia. He is responsible for the management and development of the digital audio preservation program for the Library, including preservation of newly commissioned born digital recordings and supervision of preservation of legacy audiovisual material in the Library's special collections. Along with specialist knowledge in magnetic audio carriers such as open reel, cassettes and DAT, he can also provide general advice on other audio and video carriers and formats.

mpiva@nla.gov.au

Michael Veitch – Film Preservation Officer

Film & Video Preservation – SLSA

[BIO]

+61 8 8207 7329 michael.veitch@sa.gov.au

Joanna Fleming – Digital Curation Specialist

Film and Video Preservation – SLNSW

Joanna has over a decade of experience in the acquisition of digital moving image collections and audiovisual digital preservation working at both the National Film and Sound Archive of Australia and the National Archives of Australia.

Obsolete Digital Carriers

NLA Digital Preservation

NLA provide advice on handling digital content on optical or magnetic media (mainly CD-ROMs, floppies, USB Flash Disks) in general.

DigitalPreservation@nla.gov.au

16 mm film

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 24,280

Total estimated NSLA digitised: 3%

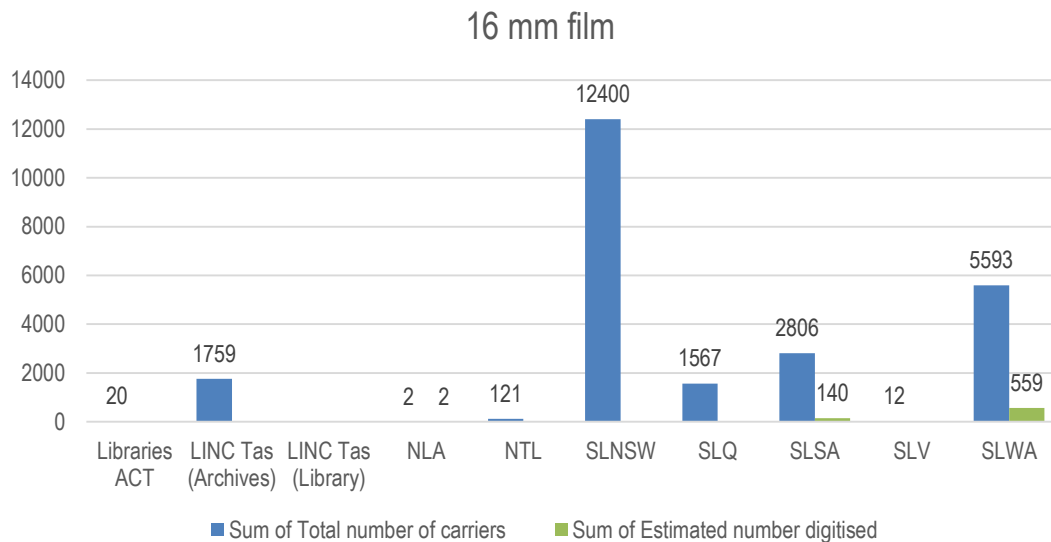


Figure 1: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards

Original negatives and unique film components (including print material where it is deemed the only surviving copy) should be scanned at the highest resolution possible for preservation purposes.

For original negatives and unique motion picture film: 16mm, 35mm

Preservation: 2K scan - 16-bit Linear Digital Moving-Picture Exchange (DPX) sequence with the soundtrack digitised as wave file.

Distribution: DVCPPro (minimum 10bit) broadcast master

Browsing/Access Copy: MP4 H.264

The standards for the digitisation of 16mm motion picture film that is not at risk or unique are as follows

Preservation: HD telecine or Scan uncompressed AVI (.avi)

Distribution: DVCPPro (if required)

Browsing/Access Copy: MP4 H.264

Notes: The film scanner market is very small and may be subject to rapid obsolescence.

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of South Australia

Organisations with digitisation capability

- ACMI
- AIATSIS
- Australian War Memorial (Golden Film Scanner 2K/4K)
- National Archives of Australia (Sydney Office)
- National Film and Sound Archive

Digitisation service providers

2K Scan & HD

- FATS Digital (ACT, NSW, QLD, VIC) - 2K & HD
- Vandal (NSW) – can only handle some shrinkage (Image only, no audio)

HD Only

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- Avid tech (NSW)
- Big egg media (SA)
- Brismedia (QLD)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- MB Productions (QLD)
- National Video Centre (ACT)
- Pro Copy (WA/VIC)
- Retromedia (QLD)
- Video Transfers (VIC)
- WA Duplication (WA, NSW)
- Why Documentaries (NSW)

3 1/2 inch floppy disk

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 2935

Total estimated NSLA digitised: <1%

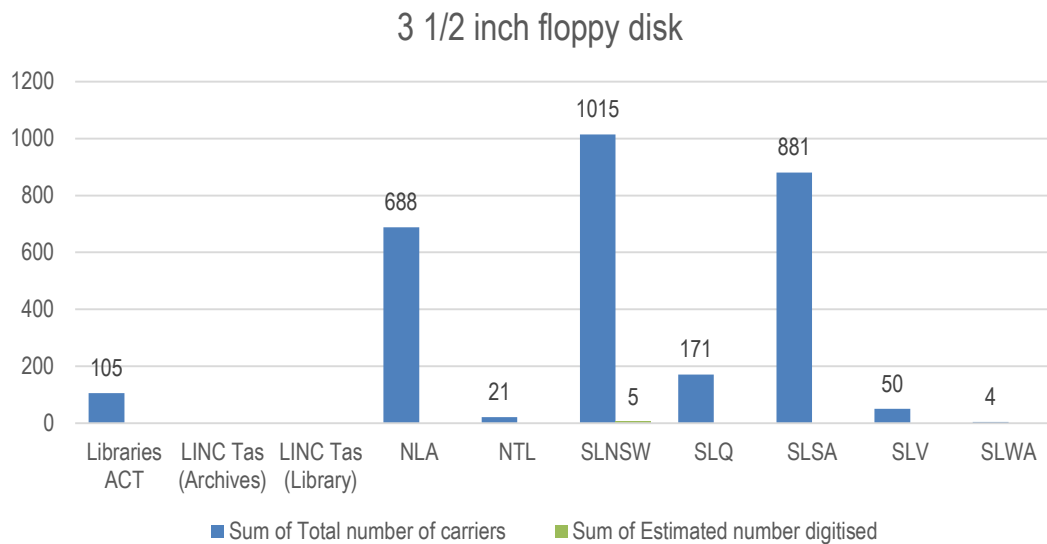


Figure 2: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- LINC Tasmania (Library)
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- State Records Office
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Procopy (VIC, WA)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

35mm (acetate) film

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 378

Total estimated NSLA digitised: 43%

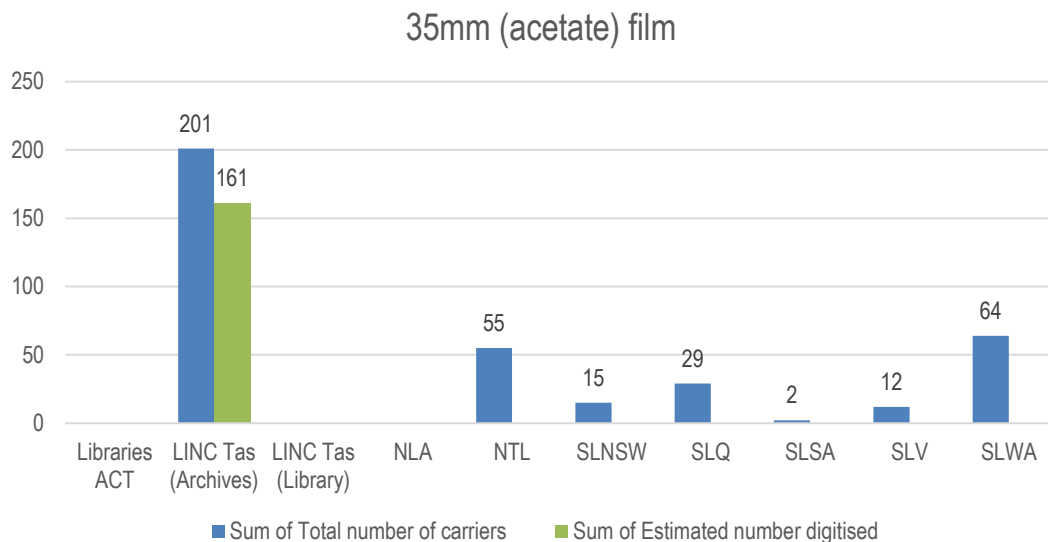


Figure 3: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Original negatives and unique film components (including print material where it is deemed the only surviving copy) should be scanned at the highest resolution possible for preservation purposes.

For original negatives and unique motion picture film

Preservation: 4K scan - 16-bit Linear or log Digital Moving-Picture Exchange (DPX) sequence with soundtrack digitised as wave file.

Distribution: DVCPPro (minimum 10bit) broadcast master

Browsing/Access Copy: MP4 H.264

The standards for the digitisation of 35mm motion picture film that is not at risk or unique are as follows;

Preservation: HD telecine or 2K Scan uncompressed AVI (.avi) or lossless MJPEG2000

Distribution: DVCPPro (if required)

Browsing/Access Copy: MP4 H.264

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI
- AIATSIS
- Australian War Memorial - (Golden Film Scanner capable of scanning 8mm to 35mm 2K/4K)
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

4K Scan

- FATS Digital (ACT, NSW, QLD, VIC)
- Vandall (NSW) 2K/4K (minimal shrinkage) (Image only no audio)

HD Only

- Australian Television Archive (VIC)
- DAMSmart - HD only
- FATS Digital (ACT, NSW, QLD, VIC)

35mm (nitrate) film

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 18

Total estimated NSLA digitised: 0%

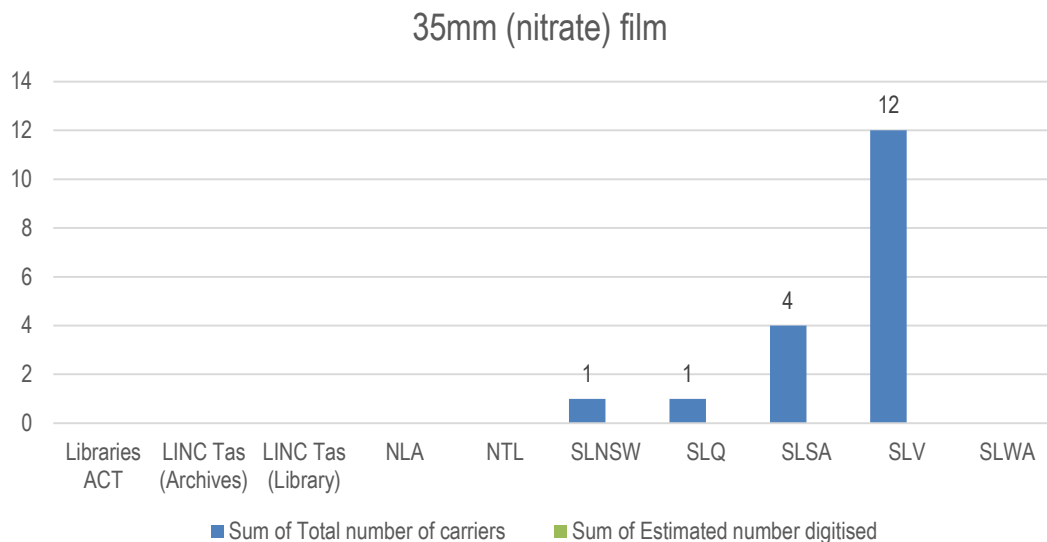


Figure 4: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: Original negatives and unique film components (including print material where it is deemed the only surviving copy) should be scanned at the highest resolution possible for preservation purposes.

Digital transfer standards:

Preservation: 4K scan - 16-bit Linear or log Digital Moving-Picture Exchange (DPX) sequence with soundtrack digitised as wave file.

Distribution: DVCPro (minimum 10bit) broadcast master

Browsing/Access Copy: MP4 H.264

Notes: Nitratocellulos oxide is a class III dangerous good and special care needs to be taken - please ensure that provider is able to handle nitrate film. It requires special transport, insurance and storage.

The National Film and Sound Archive has a duty of care to take in nitrate film. For example, in 2000 SLSA entered into an arrangement with the National Film & Sound Archive (NFSA) under which SLSA's nitrate film collection is stored at NFSA. It is currently 10 titles; the four carriers recorded are very short fragments that have not yet been processed. Under the arrangement SLSA describes new material to NFSA; NFSA advises whether the film (often a copy of a title already held) is important for preservation purposes; if yes, it is transferred to NFSA with ownership retained by SLSA; if no, it is destroyed by a commercial service provider; in both cases SLSA pays NFSA to provide SLSA with a distribution and access copy. NFSA has digitised most of the SLSA nitrate film titles in the course of its collection management activities.

NSLA libraries with playback capability

- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Australian Television Archive (VIC)
- DAMSmart (ACT) – HD only
- FATS Digital (ACT, NSW, QLD, VIC)
- National Film and Sound Archive

5 1/4 inch floppy disk

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 231

Total estimated NSLA digitised: 0%

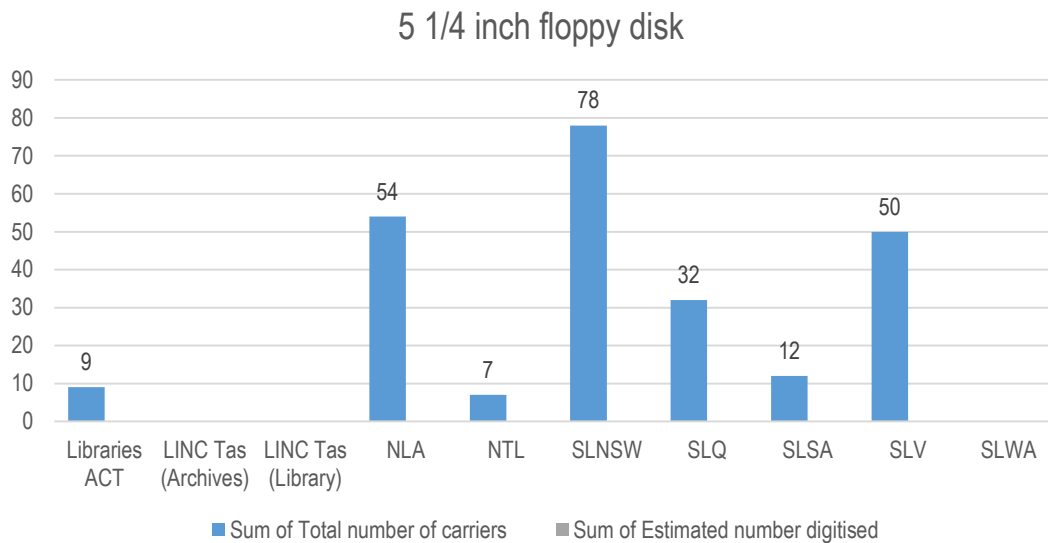


Figure 5: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file.

NSLA libraries with playback capability

- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- State Records NSW
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Procopy (VIC, WA)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

8 inch floppy disk

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 1

Total estimated NSLA digitised: 0%

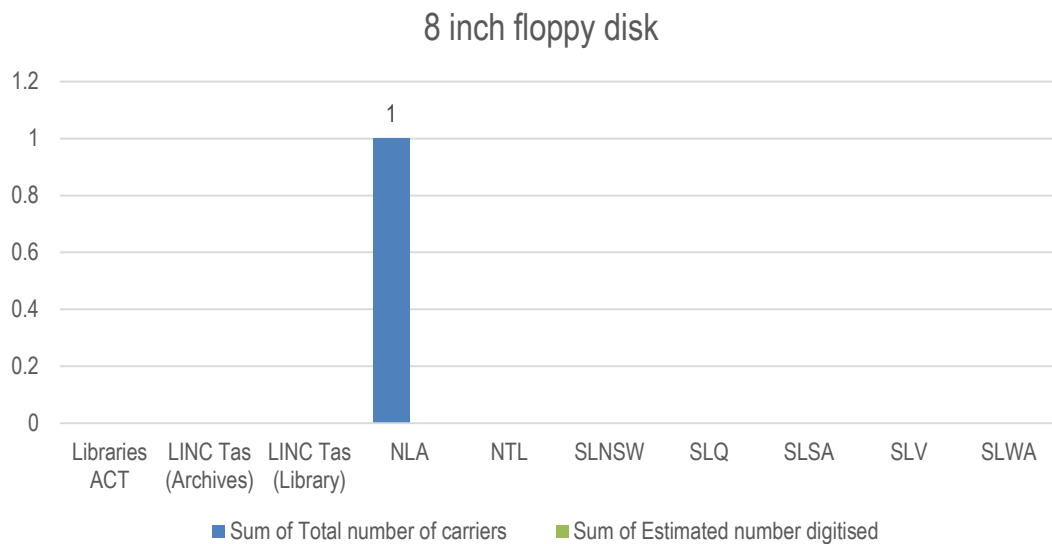


Figure 6: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file.

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- State Records NSW
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Procopy (VIC, WA)
- Spectrum data (WA)
- Technics Data Recovery (QLD)

8mm film and Super 8 film

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 1632

Total estimated NSLA digitised: 26%

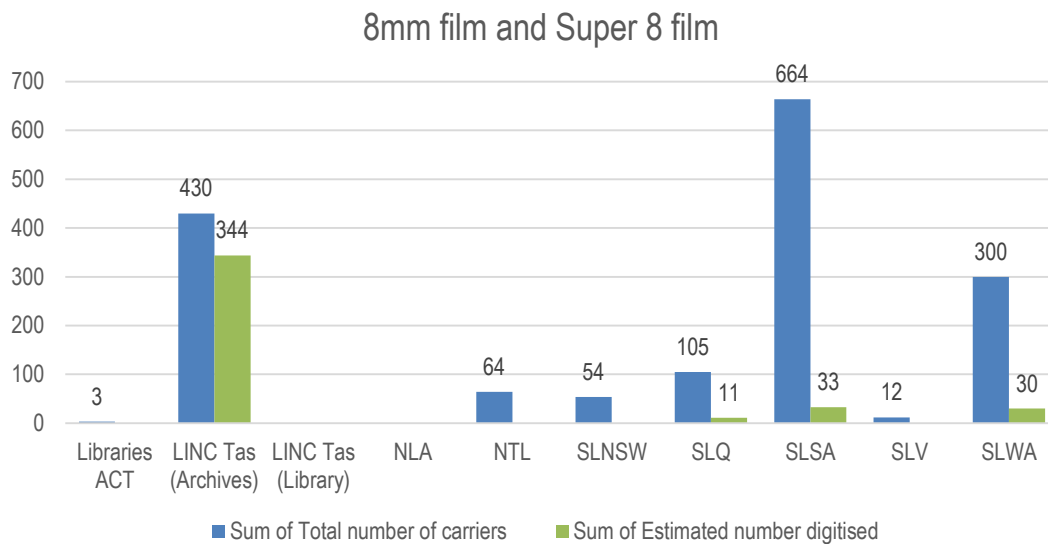


Figure 7: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: 2K scan - 16-bit Linear Digital Moving-Picture Exchange (DPX) sequence with the soundtrack digitised as wave file.

Distribution: DVCPPro (minimum 10bit) broadcast master

Browsing/Access Copy: MP4 H.264

Notes: The film scanner market is very small and may be subject to rapid obsolescence. Also, it is difficult to source good quality legacy preview equipment for small gauge film.

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- Northern Territory Library
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI (VIC)
- AIATSIS (ACT)
- Australian War Memorial
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- Avid tech (NSW)
- Big egg media (SA)
- Brismedia (QLD)
- Captivate Media (QLD)
- Code Art Productions (VIC)
- DAM Smart! (ACT) – HD only
- Digital Eye Video (QLD)
- Digital Eye Video (QLD)
- Disk bank (NSW, WA)
- DVD makers (NSW)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Pro Copy (WA)
- Retromedia (QLD)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Works perfect (NSW)

9.5mm film

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 431

Total estimated NSLA digitised: 38%

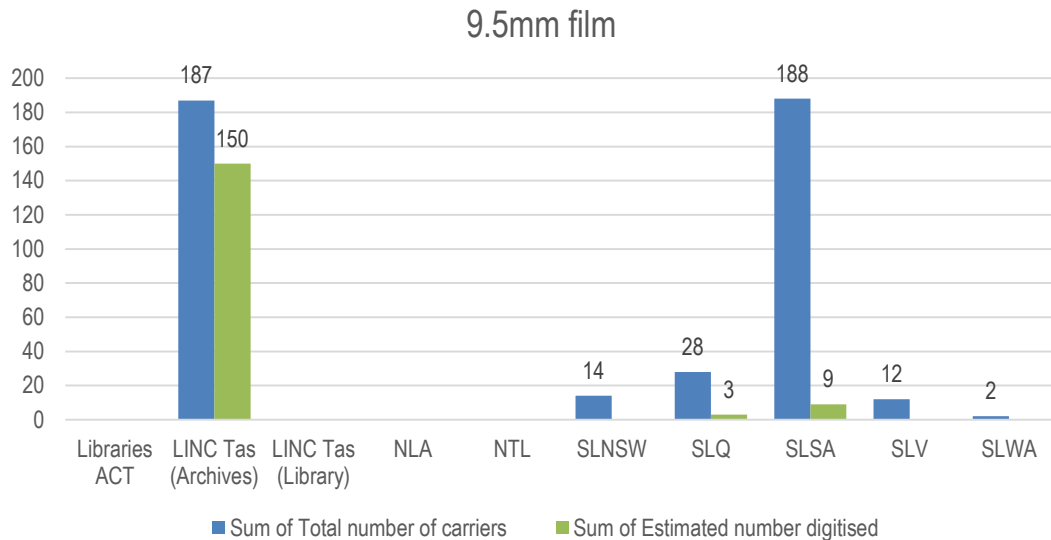


Figure 8: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: 2K scan - 16-bit Linear Digital Moving-Picture Exchange (DPX) sequence with the soundtrack digitised as wave file.

Distribution: DVCPPro (minimum 10bit) broadcast master

Browsing/Access Copy: MP4 H.264

Notes: The film scanner market is very small and may be subject to rapid obsolescence. Also, it is difficult to source good quality legacy preview equipment for small gauge film. Some organisations may only be able to provide the 12 or 10 bit log for preservation.

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia

Organisations with digitisation capability

- ACMI
- AIATSIS
- Australian War Memorial
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Australian Television Archive (VIC)
- Big egg media (SA)
- DAM Smart! (ACT) – HD only
- Disk bank (NSW, WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Pro Copy (WA)
- Retromedia (QLD)

Blu-Ray

Category: Digital

Media: Moving image/Movies (published discs)

Total estimated NSLA holdings: 5

Total estimated NSLA digitised: 0%

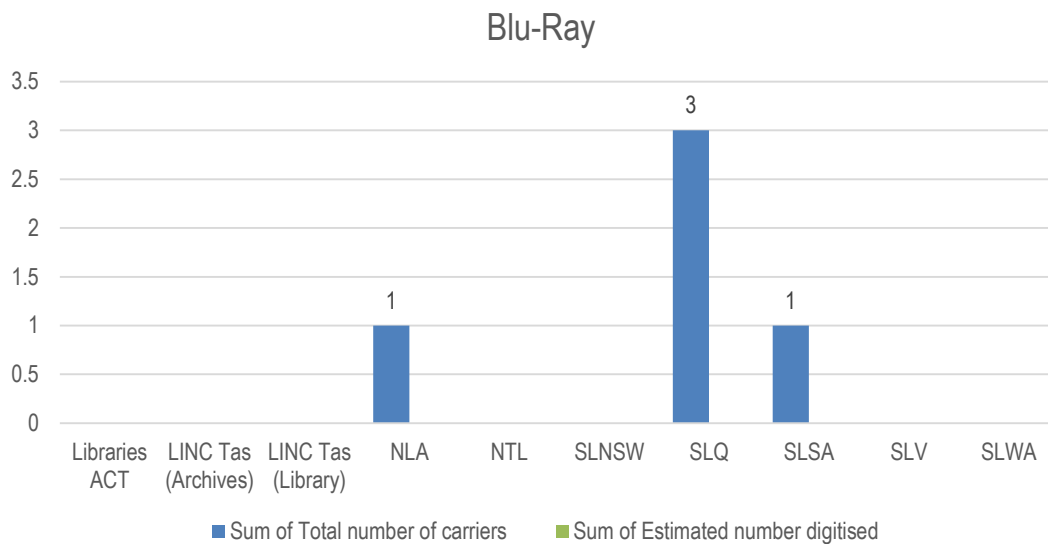


Figure 9: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

Notes: Copy protection issues. Seek best quality/highest resolution version.

NSLA libraries with playback capability

- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia
- State Library of Queensland

Organisations with digitisation capability

- ACMI (VIC)
- AIATSIS (ACT)
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Australian Television Archive (VIC)
- Brismedia (QLD)
- Code Art Productions (VIC)
- DAM Smart! (ACT)
- Darwin ProVideo (NT)
- Disk bank (NSW, WA)
- DVD makers (NSW)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- National Video Centre (ACT)
- Ordiomastering (NSW)
- Pro Copy (WA)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (WA, NSW)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)

Compact Cassette Tape

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 75,130

Total estimated NSLA digitised: 65%

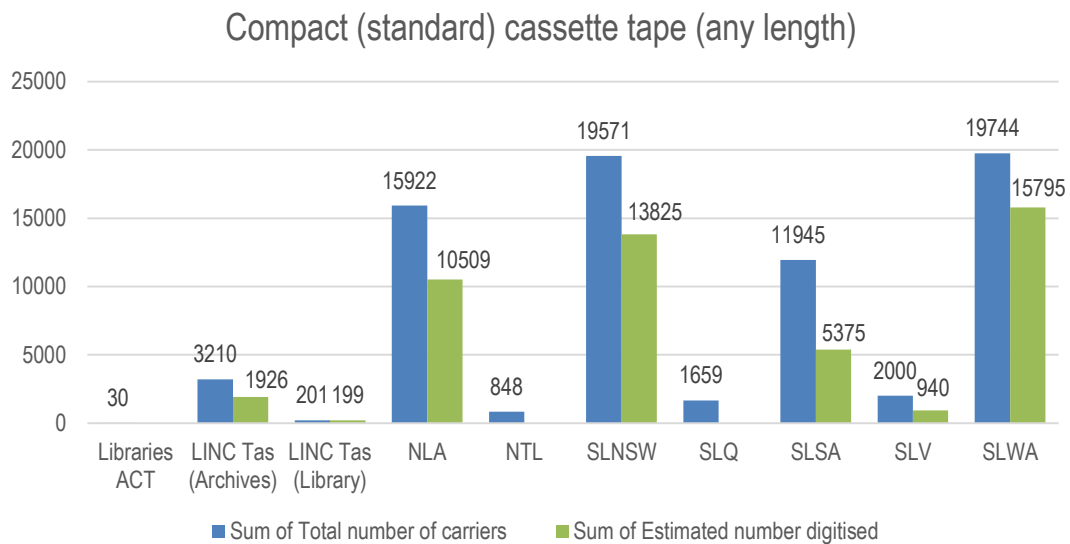


Figure 10: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 48 or 96 kHz Sample Rate, 24bit Word Length, Number of Channels as per source track format.

Browsing/Access Copy: MP3 192kb/s

Notes: Alternative sample rates can be explained as 48 kHz for spoken word or 96 kHz for music.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Archive)
- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- LINC Tasmania (Archive)
- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archives

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Big egg media (SA)
- Brismedia (QLD)
- Code Art Productions (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Darwin ProVideo (NT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Infidel Studios (ACT, NSW)
- MB Productions (QLD)
- National Video Centre (ACT)
- Ordio mastering (NSW)
- Pro Copy (WA)
- Silvertrak (NSW)
- Studios 301 (NSW)
- Turning Studios (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)

Consumer formats – Betamax, Super Betamax, Extended Definition Betamax

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 120

Total estimated NSLA digitised: 64%

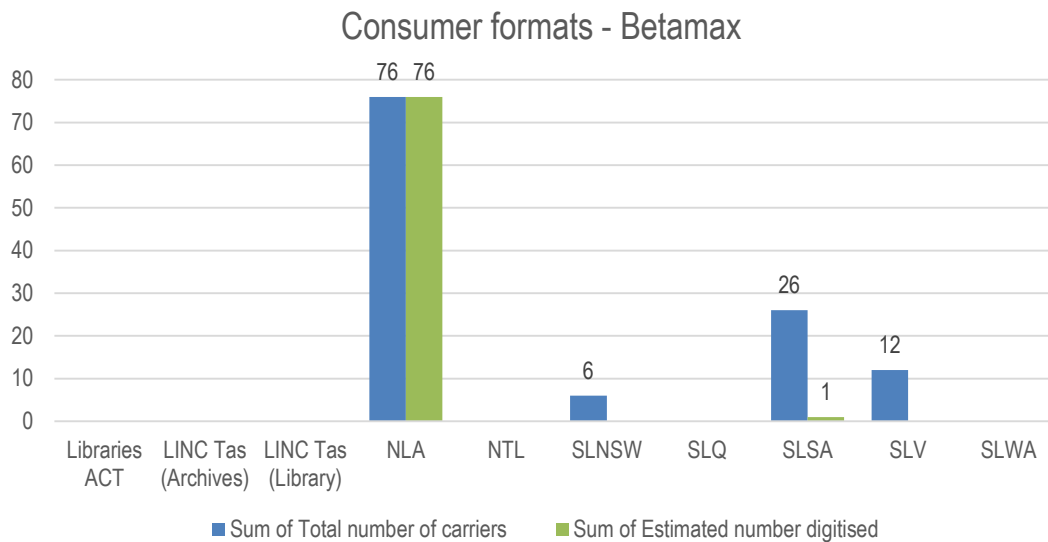


Figure 11: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

Digital transfer standards: TBC

Notes: High ratings due to instability, rarity of players, parts and technicians.

NSLA libraries with playback capability

- National Library of Australia
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)
- Works perfect (NSW)

Consumer Formats - e.g. miniDV

Category: Digital

Media: Moving image (digital video)

Total estimated NSLA holdings: 68

Total estimated NSLA digitised: 37%

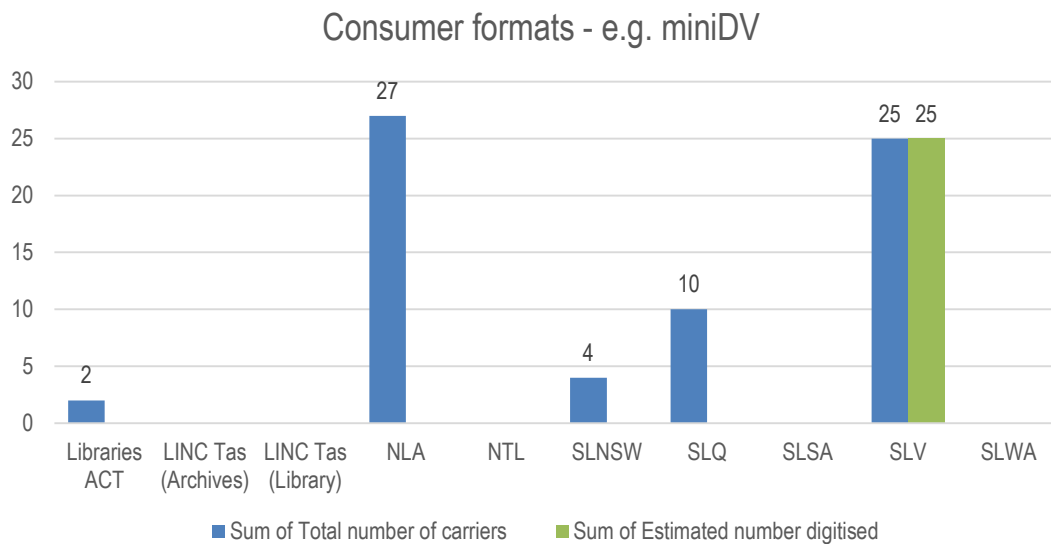


Figure 12: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

NSLA libraries with playback capability

- State Library of Queensland

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- Avid tech (NSW)
- Big egg media (SA)
- Brismedia (QLD)
- Captivate Media (QLD)
- Code Art Productions (VIC)
- Crystal Mastering (VIC)
- DAMsmart (ACT)
- Digital Eye Video (QLD)
- Disk bank (NSW, WA)
- DVD makers (NSW)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)

Consumer formats - EIAJ (J-Format) open reel

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 91

Total estimated NSLA digitised: 8%

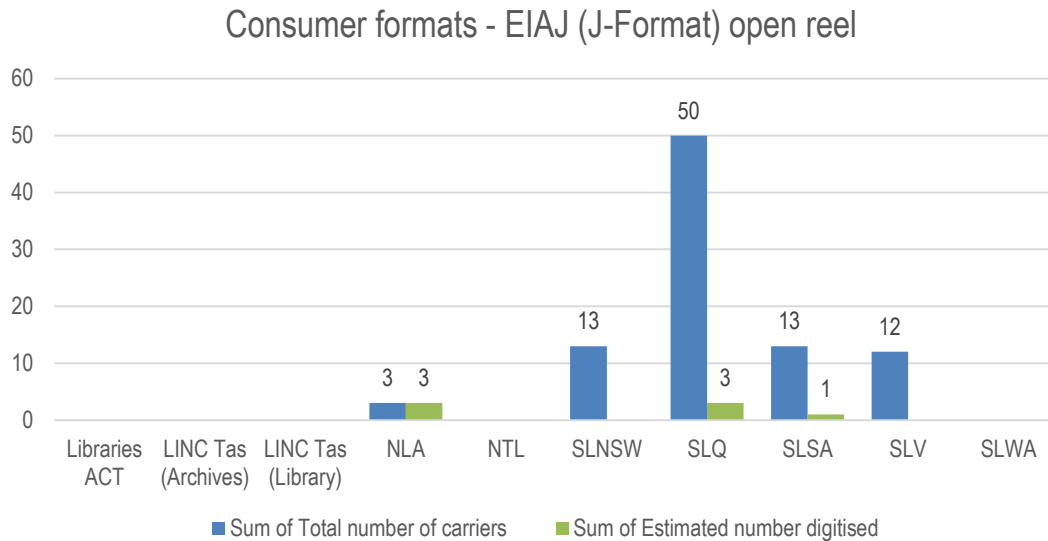


Figure 13: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital transfer standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

Notes: Slow throughput through real time replay, media degradation, cost of replay.

NSLA libraries with playback capability

- National Library of Australia
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of South Australia

Organisations with digitisation capability

- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)
- Works perfect (NSW)

Consumer formats - Philips N1500-N1700

Category: Analogue

Media: Moving Image (analogue video)

Total estimated NSLA holdings: 9

Total estimated NSLA digitised: 0%

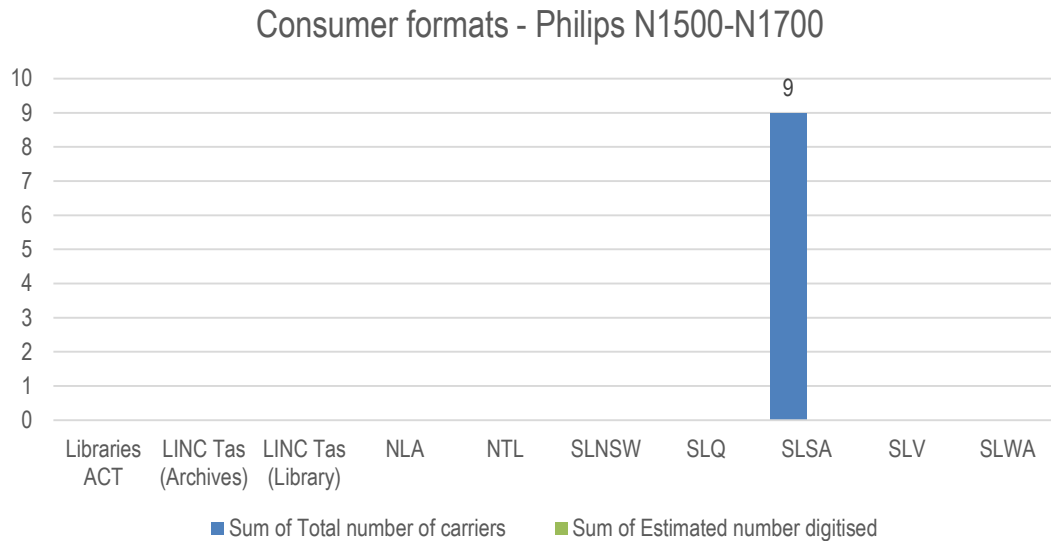


Figure 14: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

Notes: Playback equipment is very rare in Australia and parts/technicians rarer.

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI (VIC)
- AIATSIS (ACT)
- Australian Television Archive (VIC)
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Australian Television Archive (VIC)
- Avid tech (NSW)
- Brismedia (QLD)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- WA Duplication (NSW, WA)

Consumer formats - VHS, VHS-C, S-VHS, S-VHS-C etc.

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 33,248

Total estimated NSLA digitised: 8%

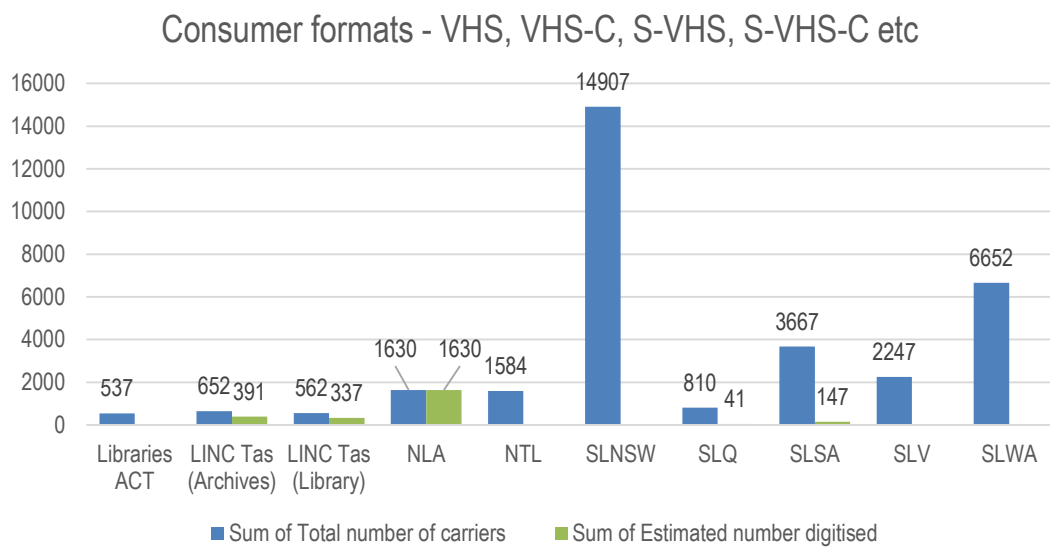


Figure 15: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

Notes: Obsolescence rating of 3 due to scarcity of broadcast quality players with inbuilt Time Based Correction and advanced electronics. Scarcity of parts and technicians.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Archive)
- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- LINC Tasmania (Archive)
- National Library of Australia
- Northern Territory Library
- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW) (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)
- Works perfect (NSW)

Consumer formats - Video 8, Hi 8 etc.

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 110

Total estimated NSLA digitised: 6%

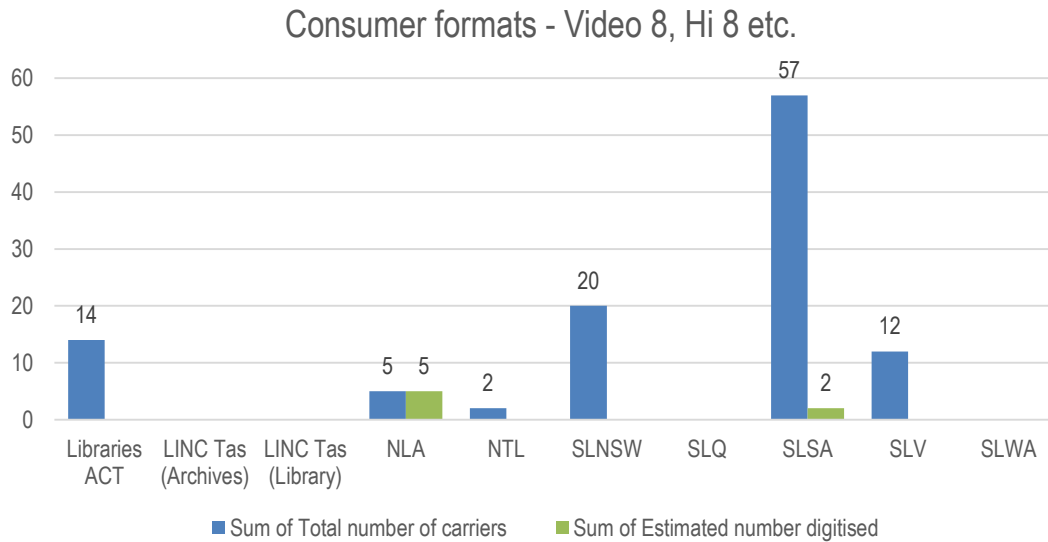


Figure 16: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

NSLA libraries with playback capability

- National Library of Australia
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian Television Archive
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- Dr What (small quantities)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)
- Works perfect (NSW)

Cylinders

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 336

Total estimated NSLA digitised: 12%

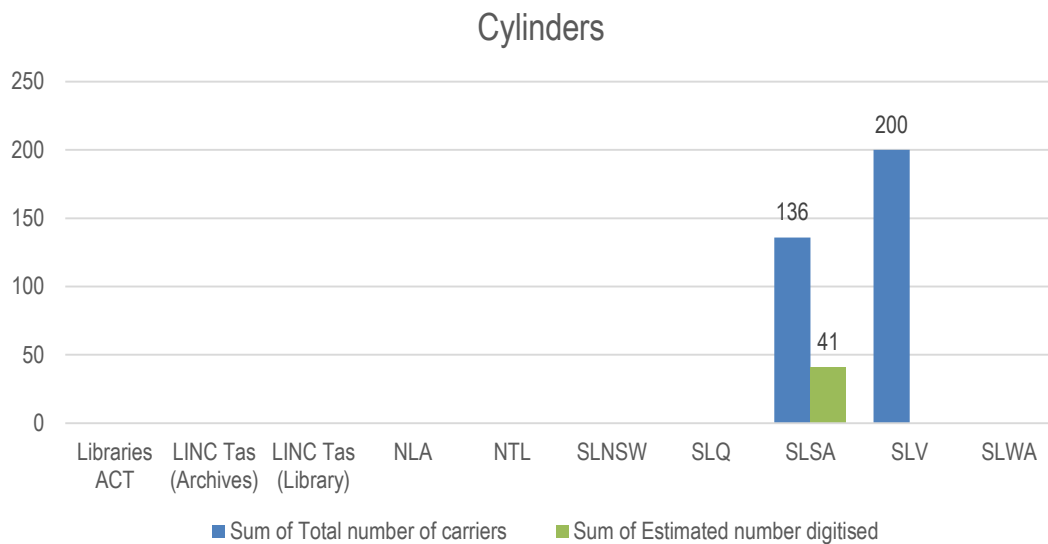


Figure 17: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation Copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 96 kHz Sample Rate, 24bit Word Length, Stereo.

Browsing/Access Copy: MP3 192kb/s constant bit rate.

Notes: Stereo transfer is preferred for cylinders to facilitate digital signal restoration.

NSLA libraries with playback capability

- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archives

Digitisation service providers

- Crystal Mastering (VIC)
- DAM Smart! (ACT)

Data CD (any content on recordable CD-R/RW)

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 6110

Total estimated NSLA digitised: 9%

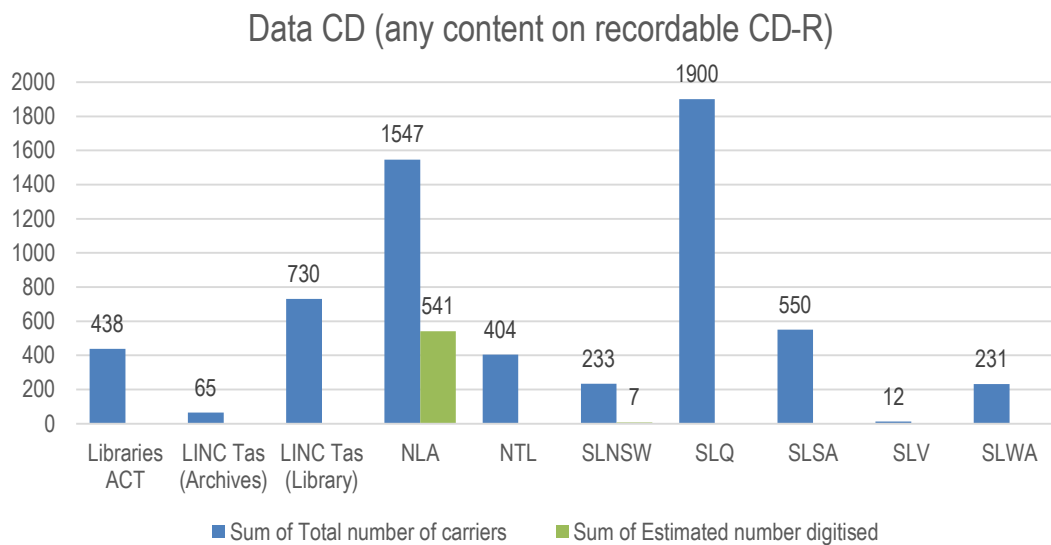


Figure 18: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- ACT Heritage Library
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- Action Replay (VIC)
- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Microimage (VIC)
- Procopy (VIC, WA)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Data DVD (any content on recordable DVD-R, RW; DVD+R/RW)

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 1539

Total estimated NSLA digitised: 6%

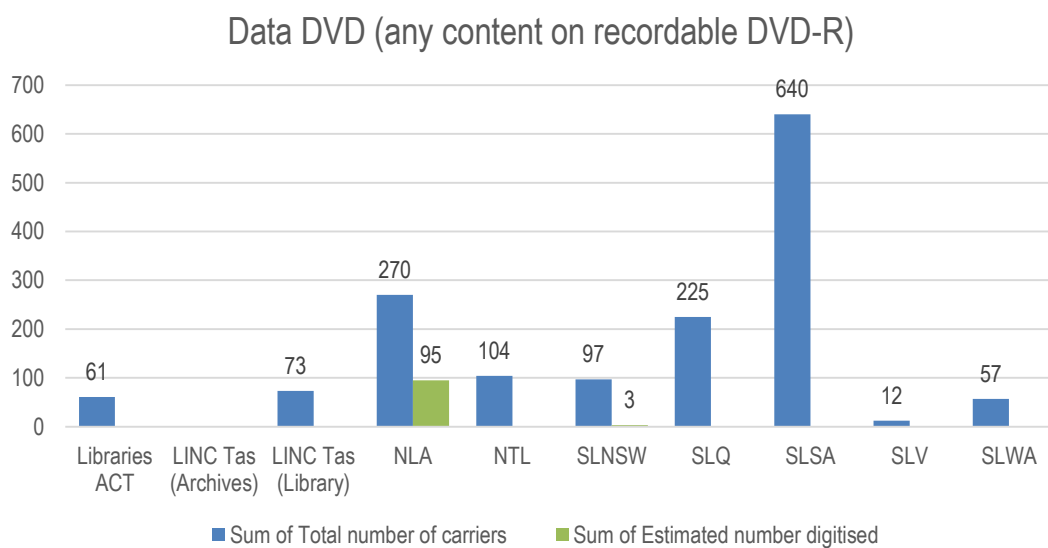


Figure 19: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format, or Raw).
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- ACT Heritage Library
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- Action Replay (VIC)
- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Microimage (VIC)
- Procopy (VIC, WA)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Data on Cassette or cartridge tape (e.g. DLT, SDLT, LTO etc.)

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 2175

Total estimated NSLA digitised: 0%

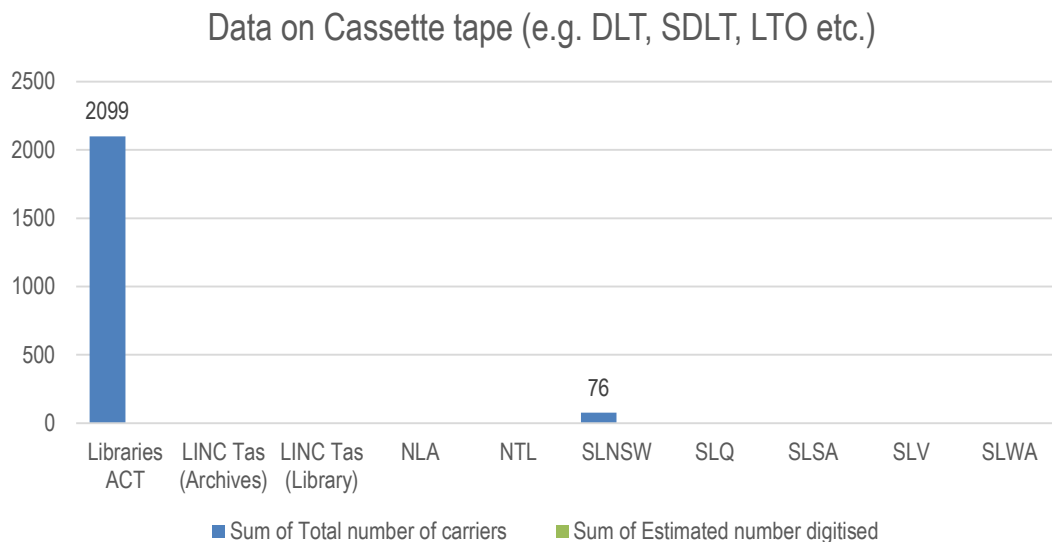


Figure 20: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format, or Raw).
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Issues with availability operating software with the older data tapes like DLT. Tapes are easily damaged by mishandling and subject to temperature fluctuations. LTO tape drives are backwards compatible by two generations.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Library)
- State Library of Queensland

NSLA libraries with digitisation and/or transfer capability

- ACT Heritage Library
- State Library of Queensland

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Detect (SA)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Digital Audio Tape (DAT)

Category: Digital

Media: Audio

Total estimated NSLA holdings: 8634

Total estimated NSLA digitised: 91%

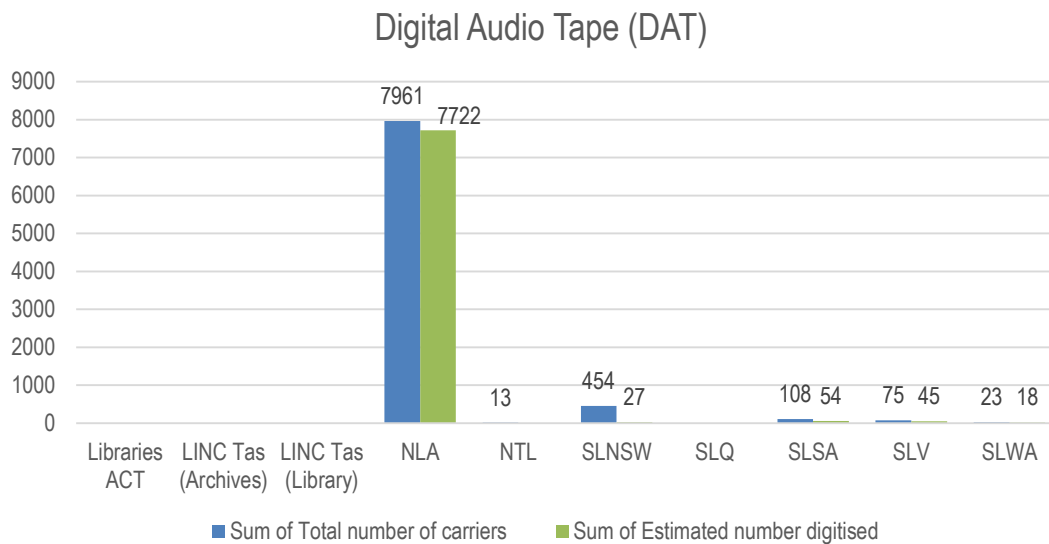


Figure 21: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - Sample Rate and Word Length as per source, Stereo. Digital to digital transfer.

Browsing/Access: MP3 192kb/s constant bit rate.

Notes: DATs recorded at a 32kHz Sample Rate should have an up-sampled derivative copy at 44.1kHz Sample Rate, 16bit Word Length for preservation file format normalisation and improved support for playback and file processing systems.

NSLA libraries with playback capability

- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of South Australia
- State Library of Western Australia

Organisations with digitisation capability

- ABC Archives
- ACMI (VIC)
- AIATSIS (ACT)
- AICCM
- Australian Film and Radio school
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archives
- Queensland School of Film and Television
- SAE Institute
- State Records Office
- Sydney Film School
- University of South Australia
- University of Sydney
- University of Western Australia
- Victorian College of the Arts

Digitisation service providers

- Action Replay (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Infidel Studios (ACT, NSW)
- MB Productions (QLD)
- Ordiomastering (NSW)
- Preferred Media (NSW)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)

Digital Multitrack (ADAT, DTRS)

Category: Digital

Media: Audio

Total estimated NSLA holdings: 25

Total estimated NSLA digitised: 0%

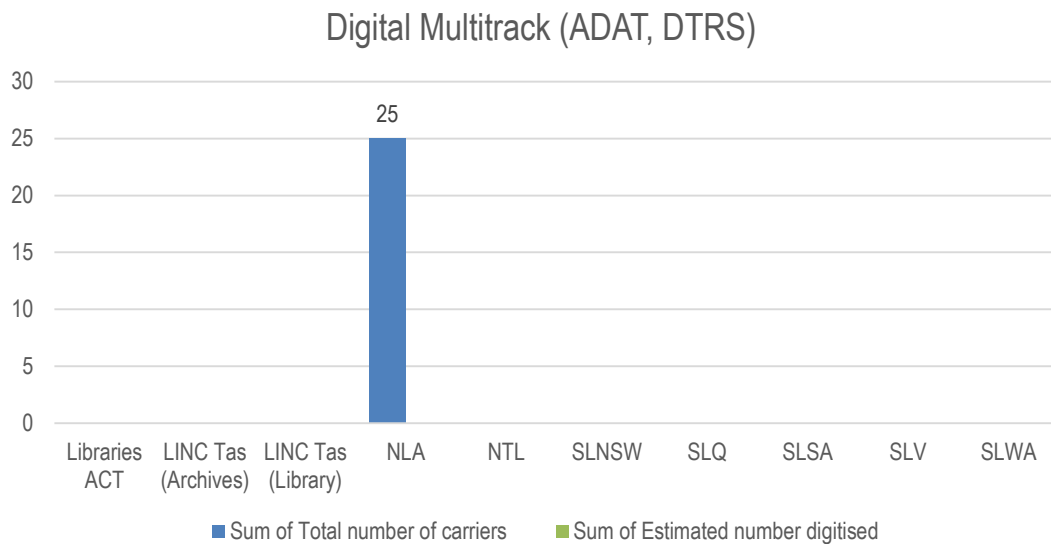


Figure 22: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: Either RF64 (MBWF) or Individual Mono, Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - Sample Rate and Word Length as per source. Digital to digital transfer.

Notes: Multitrack formats are generally not used for browsing/access purposes. A final mix is better suited for these purposes.

NSLA libraries with playback capability

- National Library of Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia

Organisations with digitisation capability

- ABC Archives
- ACMI (VIC)
- AIATSIS (ACT)
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archives

Digitisation service providers

- Action Replay (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Infidel Studios (ACT, NSW)
- Silvertrak (NSW)
- WA Duplication (NSW, WA)

Hard drive – external

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 24

Total estimated NSLA digitised: 9%

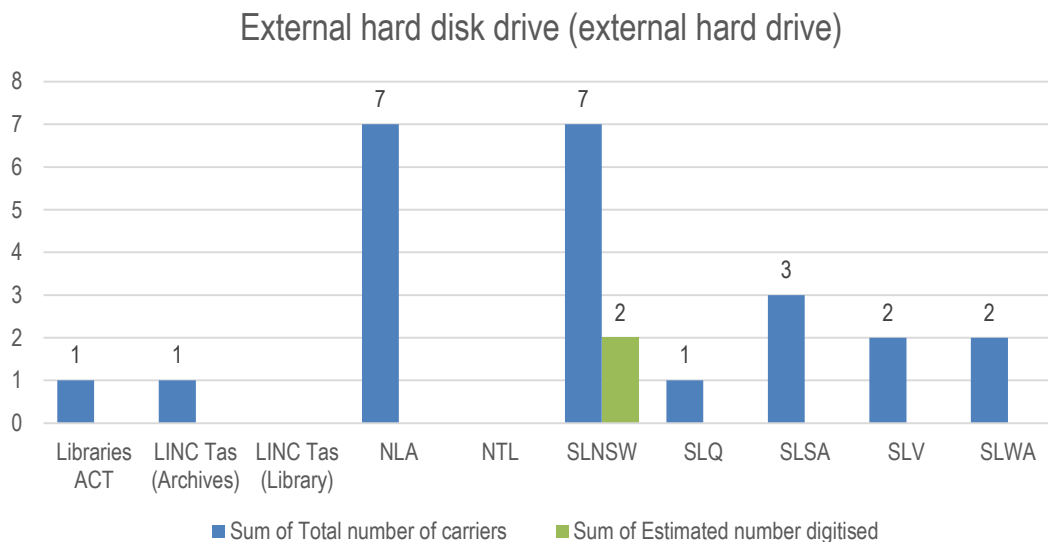


Figure 23: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Must use write-blocker.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Library)
- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- ACT Heritage Library
- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- 24hour Data (QLD, VIC, WA)
- CBL data (VIC)
- Data Detect (SA)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Microimage (VIC)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Hard drive – internal (in a laptop or desktop computer)

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 15

Total estimated NSLA digitised: 0%

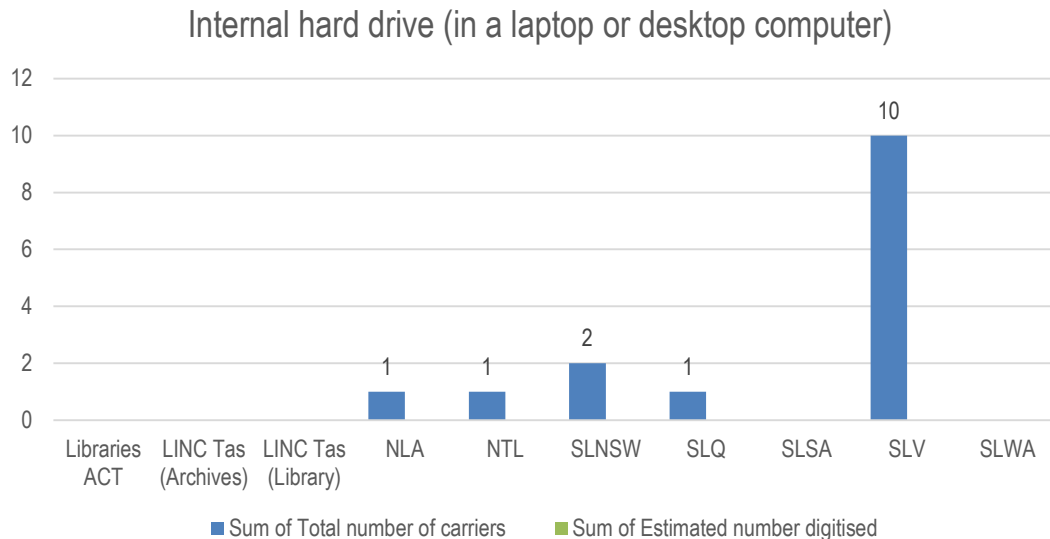


Figure 24: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Remove hard drive, Must use a write blocker.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- Northern Territory Library
- State Library of Queensland
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- 24hour Data (QLD, VIC, WA)
- Brismedia (QLD)
- CBL data (VIC)
- Data Detect (SA)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Katalyst Data Management (WA)
- Microimage (VIC)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Games on cartridge or card

Category: Digital

Media: Games (published)

Total estimated NSLA holdings: 12

Total estimated NSLA digitised: 0%

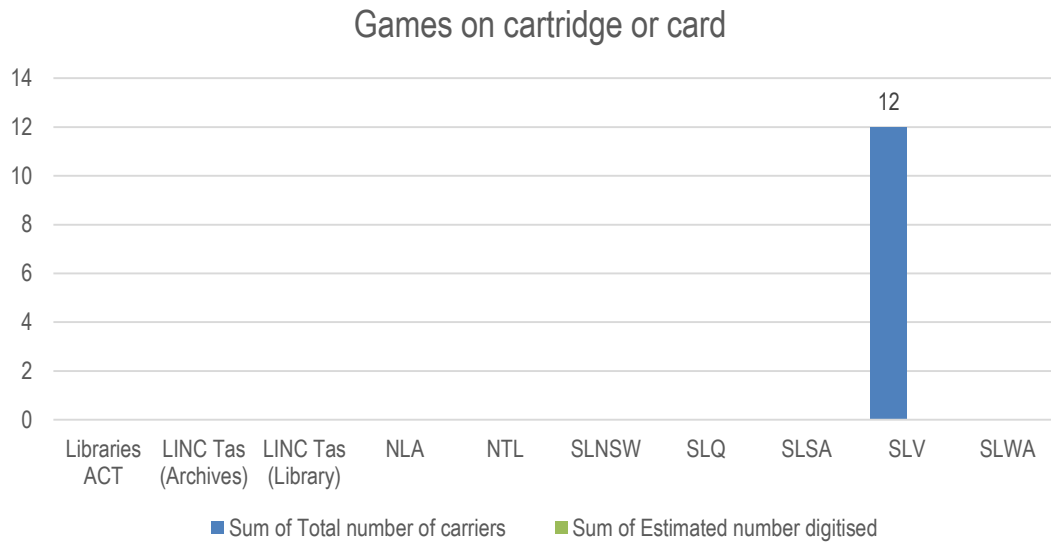


Figure 25: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- Academy of Interactive Entertainment
- Flinders University
- Play it Again Project

Digitisation service providers

- N/A

Games on cassette

Category: Digital

Media: Games (published)

Total estimated NSLA holdings: 12

Total estimated NSLA digitised: 0%

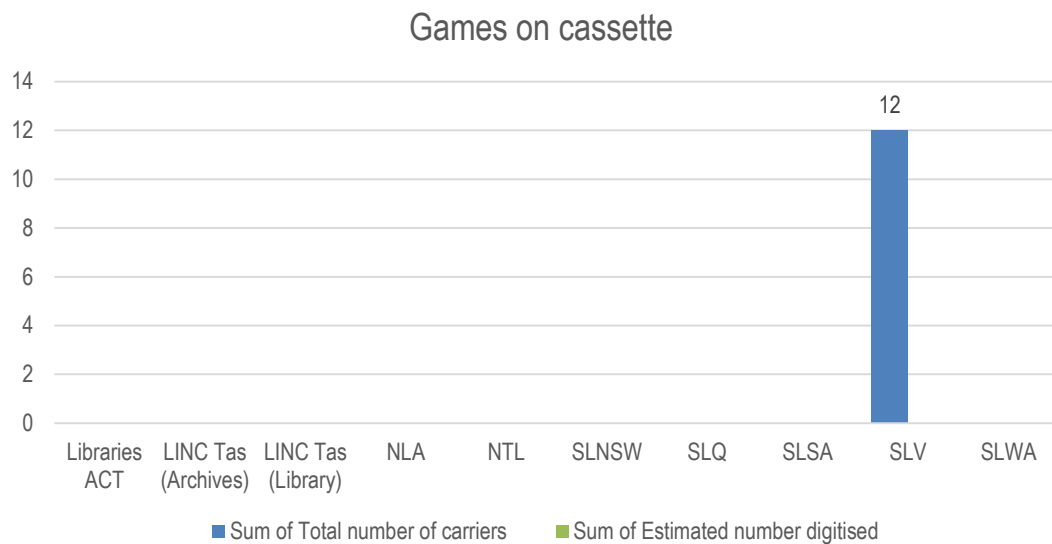


Figure 26: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: Wave File - 22.5 kHz Sample Rate, 8bit Word Length, Mono. Sourced from a single channel when played back on a stereo device (as opposed to a sum of the left and right channels).

Notes: Transfer of cassette based data to audio file is sufficient to create an encoded copy of the data but requires decoding for further usage. A decoded copy of the data should be created where possible.

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- N/A

Digitisation service providers

- Academy of Interactive Entertainment
- Flinders University
- Play it Again Project

Games on CD/DVD/Blu-Ray

Category: Digital

Media: Games (published)

Total estimated NSLA holdings: 12

Total estimated NSLA digitised: 0%

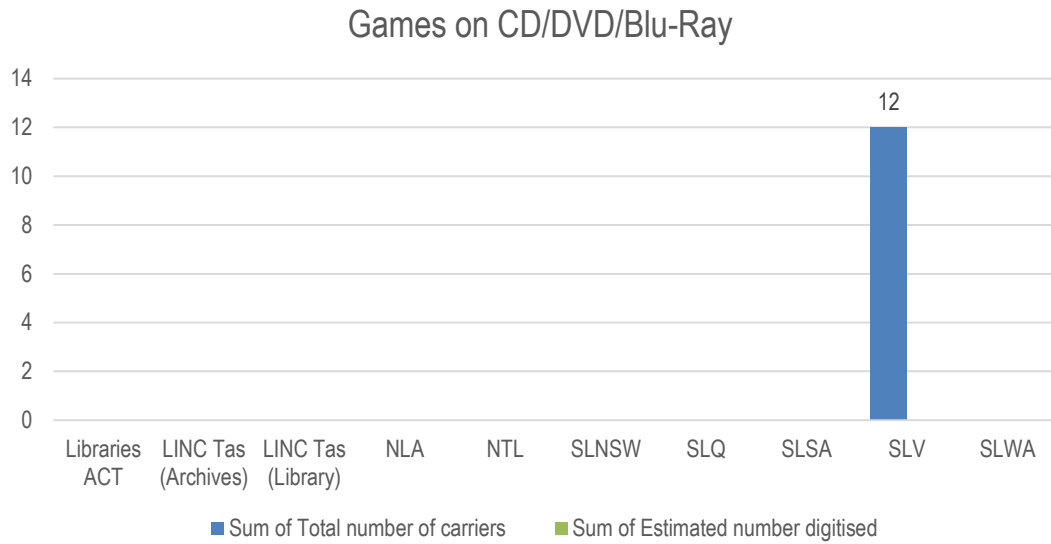


Figure 27: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- N/A

Digitisation service providers

- Academy of Interactive Entertainment
- Flinders University
- Play it Again Project

Games on floppy disk/magnetic media

Category: Digital

Media: Games (published)

Total estimated NSLA holdings: 13

Total estimated NSLA digitised: 0%

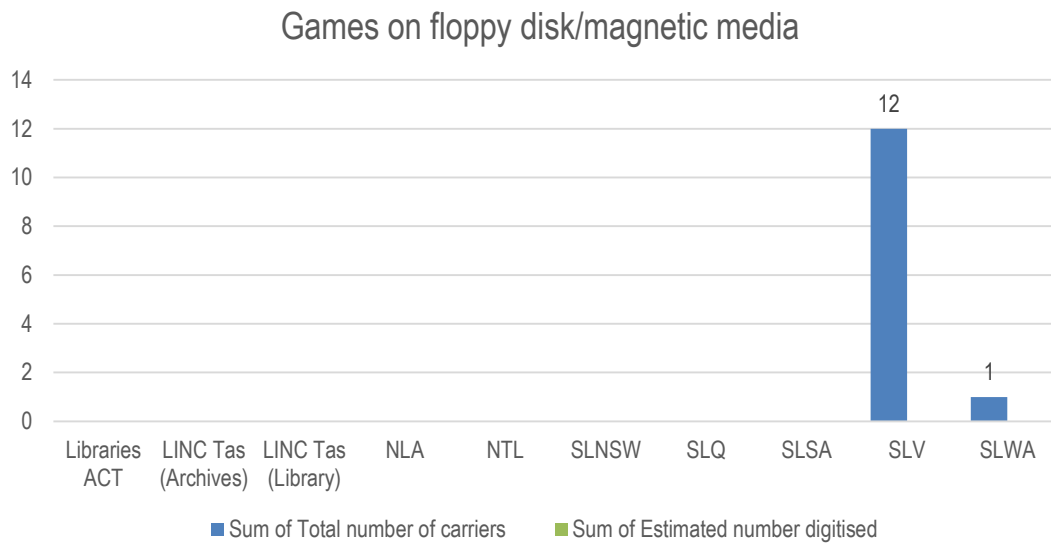


Figure 28: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- N/A

Digitisation service providers

- Academy of Interactive Entertainment
- Flinders University
- Play it Again Project

Jaz disk

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 2

Total estimated NSLA digitised: 0%

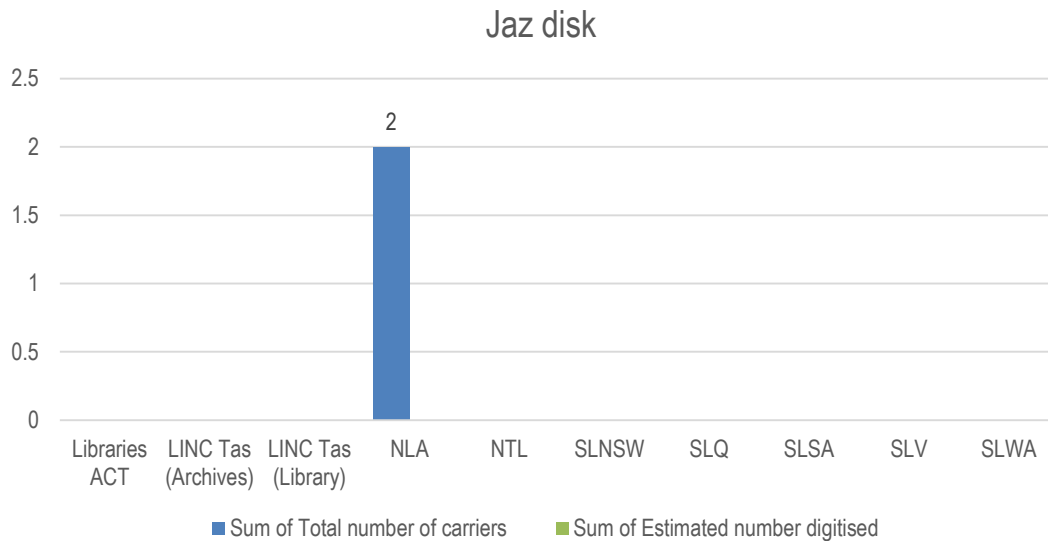


Figure 29: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Remove hard drive. Must use a write blocker.

NSLA libraries with playback capability

- National Library of Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Lacquer (Instantaneous) discs

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 364

Total estimated NSLA digitised: 0%

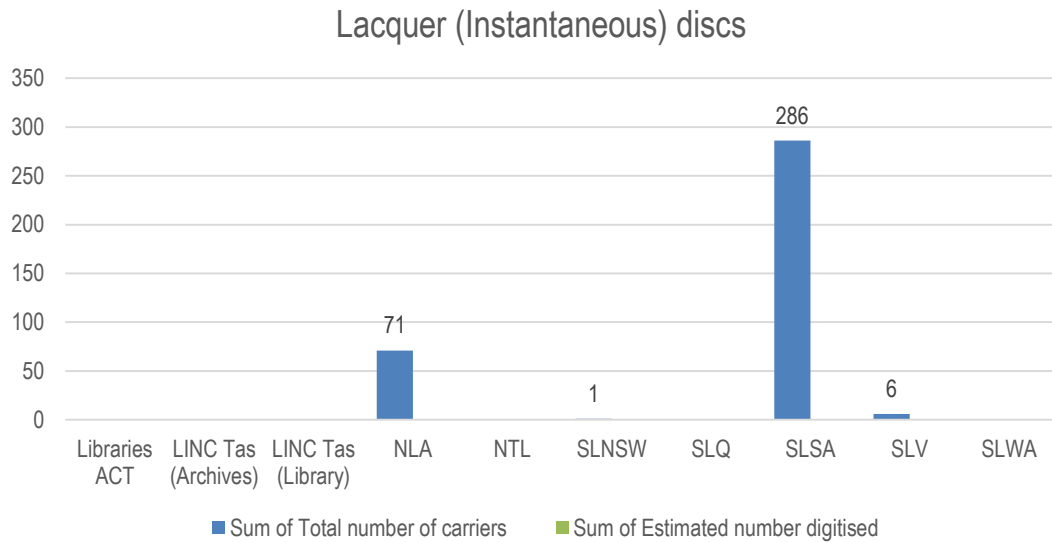


Figure 30: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 96 kHz Sample Rate, 24bit Word Length, Stereo.

Browsing/Access: MP3 192kb/s constant bit rate.

Notes: Stereo transfer is preferred for mono discs to facilitate digital signal restoration.

If the equalisation curve is unknown, the audio engineer should create both a flat transfer and a version using the curve most likely applied originally.

NSLA libraries with playback capability

- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI (VIC)
- AIATSIS (ACT)
- Australian Film and Radio school
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archives
- Queensland School of Film and Television
- SAE Institute
- State Records Office
- Sydney Film School
- University of South Australia
- University of Sydney
- University of Western Australia
- Victorian College of the Arts

Digitisation service providers

- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Silvertrak (NSW)
- WA Duplication (NSW, WA)

Laserdisc

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 142

Total estimated NSLA digitised: 0%

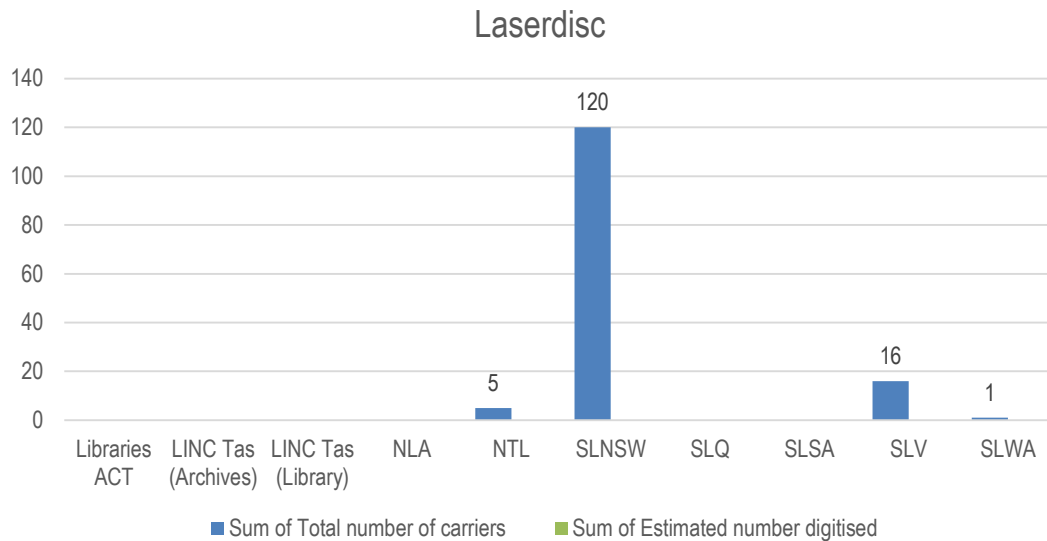


Figure 31: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro (minimum 10bit) broadcast master.

Access: MP4 H264.

NSLA libraries with playback capability

- State Library of NSW
- State Library of Queensland

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI (VIC)
- AIATSIS (ACT)
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Australian Television Archive (VIC)
- DVD makers (NSW)
- FATS Digital (ACT, NSW, QLD, VIC)
- Retromedia (QLD)

Magnetic full coat sound (acetate) - any size

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 51

Total estimated NSLA digitised: 0%

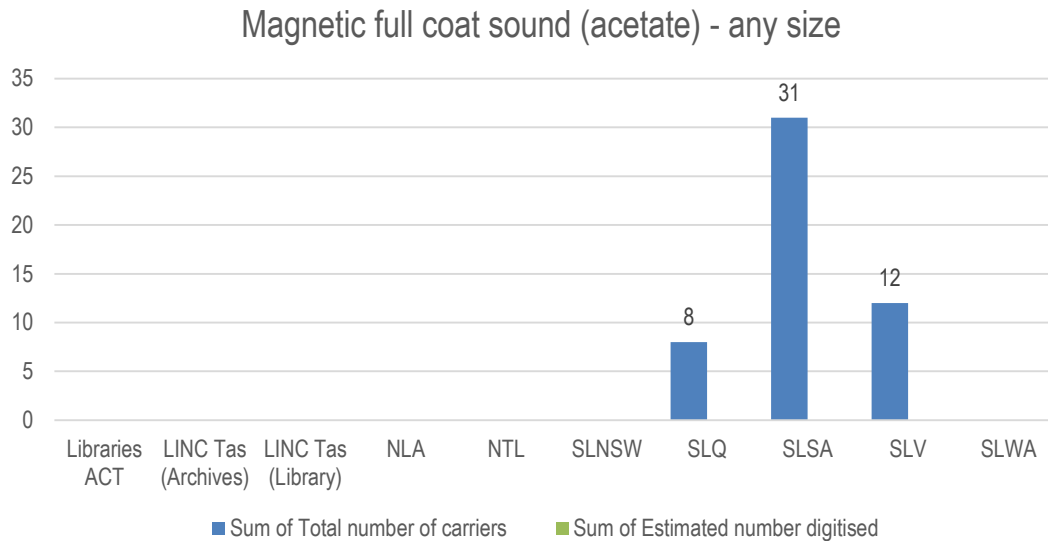


Figure 32: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 96 kHz Sample Rate, 24bit Word Length, Number of Channels as per source track format.

Notes: Should be synchronised and preserved with matching moving image content where possible.

NSLA libraries with playback capability

- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI (VIC)
- AIATSIS (ACT)
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Australian Television Archive (VIC)
- DAM Smart! (ACT)
- FATS Digital (ACT, NSW, QLD, VIC)
- Retromedia (QLD)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)
- Works perfect (NSW)

Magnetic full coat sound (polyester) - any size

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 14

Total estimated NSLA digitised: 0%

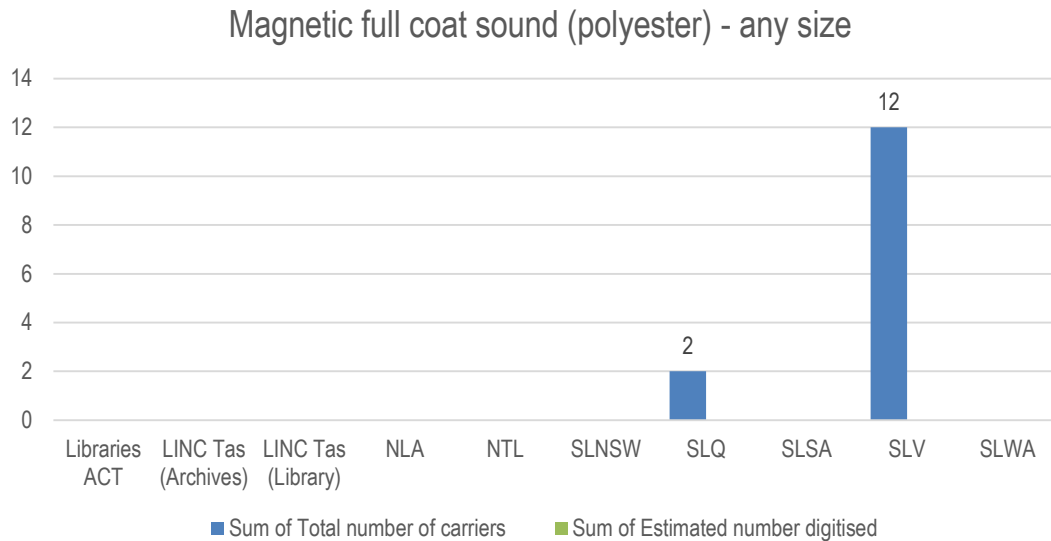


Figure 33: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 96 kHz Sample Rate, 24bit Word Length, Number of Channels as per source track format.

Notes: Should be synchronised and preserved with matching moving image content where possible.

NSLA libraries with playback capability

- State Library of Queensland

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- ACMI (VIC)
- AIATSIS (ACT)
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Australian Television Archive (VIC)
- DAM Smart! (ACT)
- FATS Digital (ACT, NSW, QLD, VIC)
- Retromedia (QLD)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)
- Works perfect (NSW)

Magnetic tape reel (any size)

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 30,504

Total estimated NSLA digitised: 61%

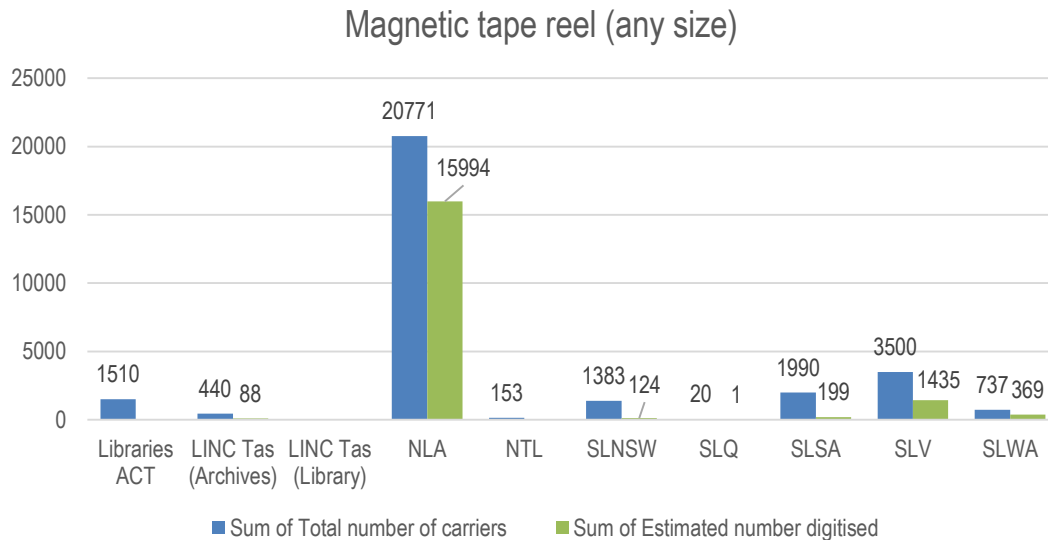


Figure 34: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation Copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) – 48 or 96 kHz Sample Rate, 24bit Word Length, Number of Channels as per source track format.

Browsing/Access Copy: MP3 192kb/s constant bit rate.

Notes: Slow throughput through real time replay, media degradation, cost of replay. Alternative sample rates can be explained as 48 kHz for spoken word or 96 kHz for music

NSLA libraries with playback capability

- ACT Heritage Library
- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archives

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Big egg media (SA)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Infidel Studios (ACT, NSW)
- MB Productions (QLD)
- National Video Centre (ACT)
- NT Data Centre (NT)
- Pro Copy (WA)
- Silvertrak (NSW)
- Studios 301 (NSW)
- WA Duplication (NSW, WA)
- Wildbear Productions ACT
- Works perfect (NSW)

Memory card (SD, Compact flash)

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 7

Total estimated NSLA digitised: 0%

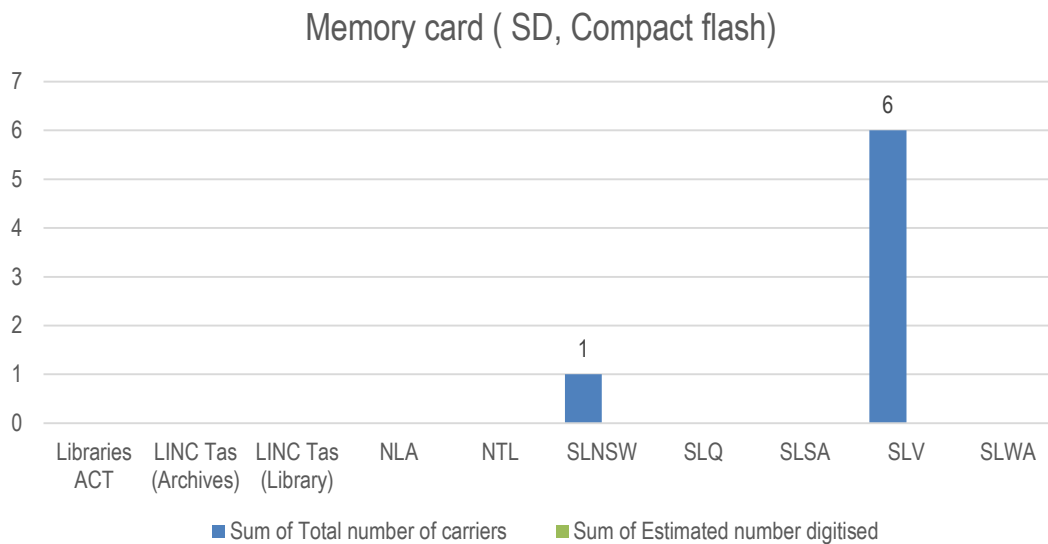


Figure 35: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also, ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Must use write-blocker.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- State Library of New South Wales
- State Library of Queensland
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- State Library of New South Wales
- State Library of Queensland
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- 24hour Data (QLD, VIC, WA)
- Action Replay (VIC)
- Brismedia (QLD)
- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Disk bank (NSW, WA)
- Go Systems (NSW)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Microcassette/minicassette

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 1859

Total estimated NSLA digitised: 22%

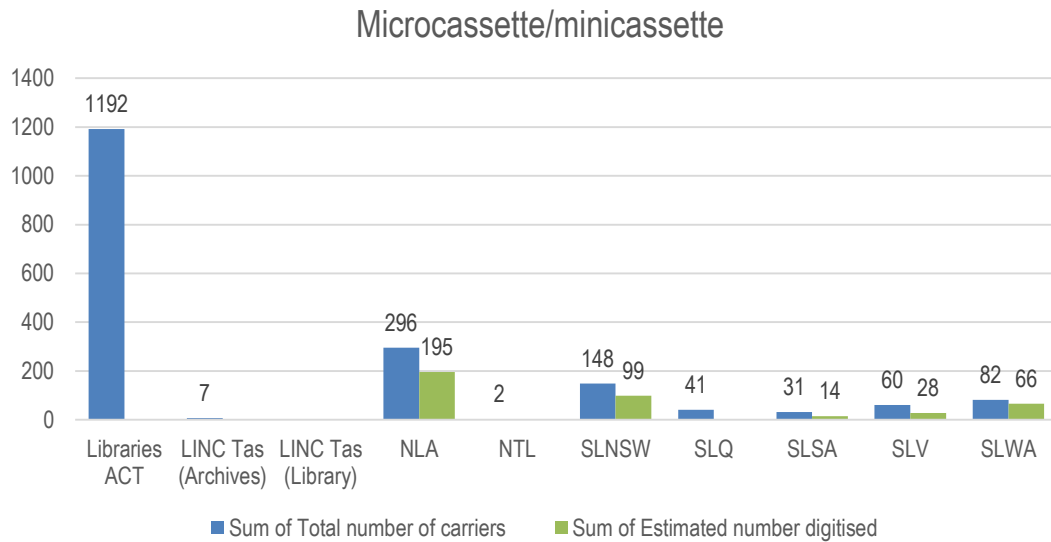


Figure 36: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation Copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 48 kHz Sample Rate, 24bit Word Length, Number of Channels as per source track format, commonly mono.

Browsing/Access Copy: MP3 192kb/s constant bit rate.

Notes: while office machines are still available, higher quality transcribers are not available new.

NSLA libraries with playback capability

- State Library of Queensland
- State Library of South Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- AICCM
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archives

Digitisation service providers

- Action Replay (VIC)
- Big egg media (SA)
- Brismedia (QLD)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- Silvertrak (NSW)
- WA Duplication (NSW, WA)
- Works perfect (NSW)

MiniDisc

Category: Digital

Media: Audio

Total estimated NSLA holdings: 183

Total estimated NSLA digitised: 54%

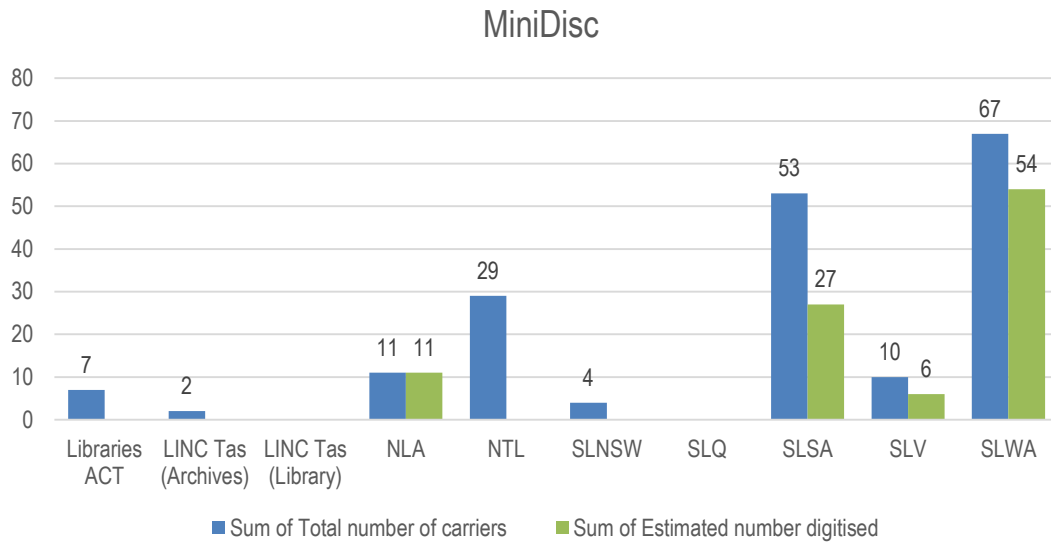


Figure 37: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - Sample Rate, Word Length and Number of Channels as per source track format.

Browsing/access copy: MP3 192kb/s constant bit rate.

Notes: There are a number of codecs in use to store audio on MiniDiscs. There are some models of players that will enable direct transfer of the native file. If possible it is recommended to keep a copy of the original file as well as a normalised copy in BWF or FLAC format. Any damage to optical discs can be catastrophic and there are no new players available.

NSLA libraries with playback capability

- State Library of Queensland
- State Library of South Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia
- State Library of Western Australia
- State Library of Queensland

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archives

Digitisation service providers

- Action Replay (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Ordiomastering (NSW)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)

Pro formats - Betacam, Betacam SP etc.

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 1529

Total estimated NSLA digitised: 15%

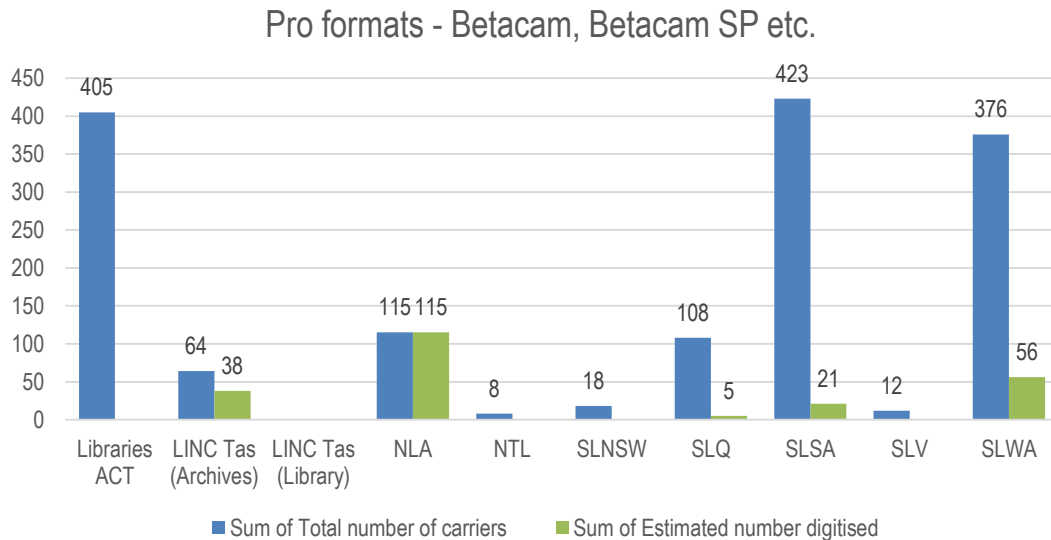


Figure 38: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro50.

Access: MP4 H264.

Notes: Betacam SP can be played back through digital Betacam players.

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- National Library of Australia
- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- LINC Tasmania (Archive)
- National Library of Australia
- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)

Pro formats - DVCAM, HDV, DVC-Pro, Digital Betacam, HDCAM, XD CAM etc.

Category: Digital

Media: Moving image (digital video)

Total estimated NSLA holdings: 405

Total estimated NSLA digitised: 24%

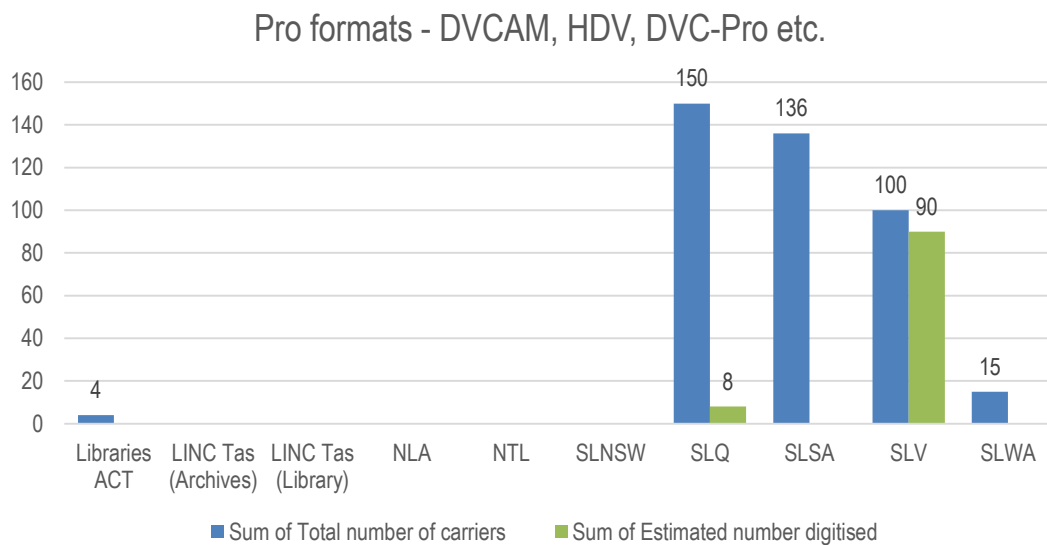


Figure 39: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPro50.

Access: MP4 H264.

Notes: Not all providers will have HD cam and XD cam machines as they are costly. These formats require different playback equipment. These formats have been grouped together, but they require different playback equipment and preservation standards.

NSLA libraries with playback capability

- State Library of Queensland
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- Avid tech (NSW)
- Big egg media (SA)
- Brismedia (QLD)
- Captivate Media (QLD)
- Code Art Productions (VIC)
- Crystal Mastering (VIC)
- DAMsmart (ACT)
- Digital Eye Video (QLD)
- Disk bank (NSW, WA)
- DVD makers (NSW)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)

Pro formats - open reel (1", 2")

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 838

Total estimated NSLA digitised: 10%

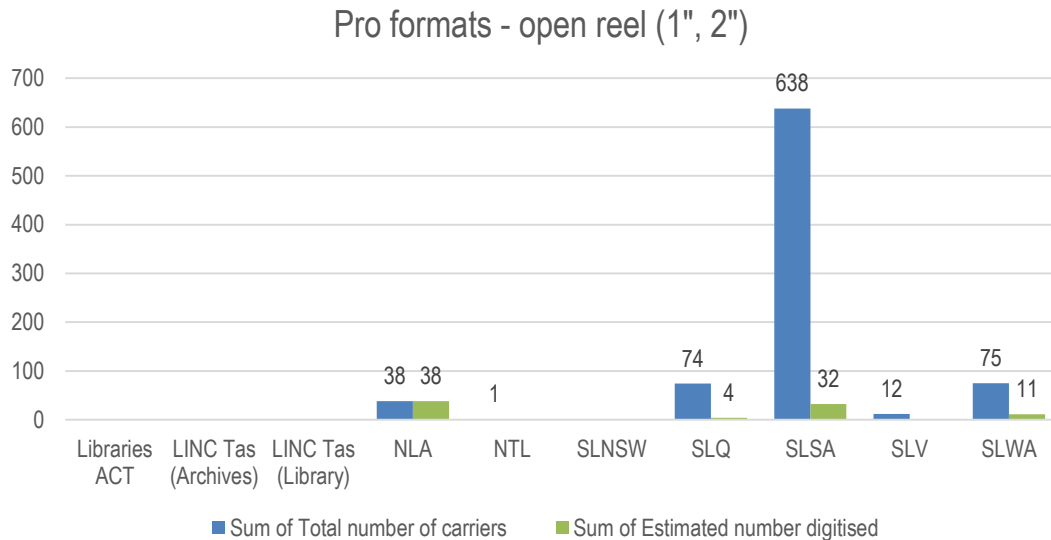


Figure 40: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPPro50.

Access: MP4 H264.

Notes: The survey would need to be repeated to split these formats. 2" and its equipment is quite rare so it can be assumed NSLA is predominately holding 1", which have a lower stability rating.

NSLA libraries with playback capability

- National Library of Australia (1" only)
- State Library of South Australia (1" only)

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia (1" only)
- State Library of South Australia (1" only)

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive (1" and 2")
- State Records Office

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- DAM Smart! (ACT) (1" and 2")
- Disk bank (NSW, WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)

Pro formats - U-matic

Category: Analogue

Media: Moving image (film)

Total estimated NSLA holdings: 3317

Total estimated NSLA digitised: 13%

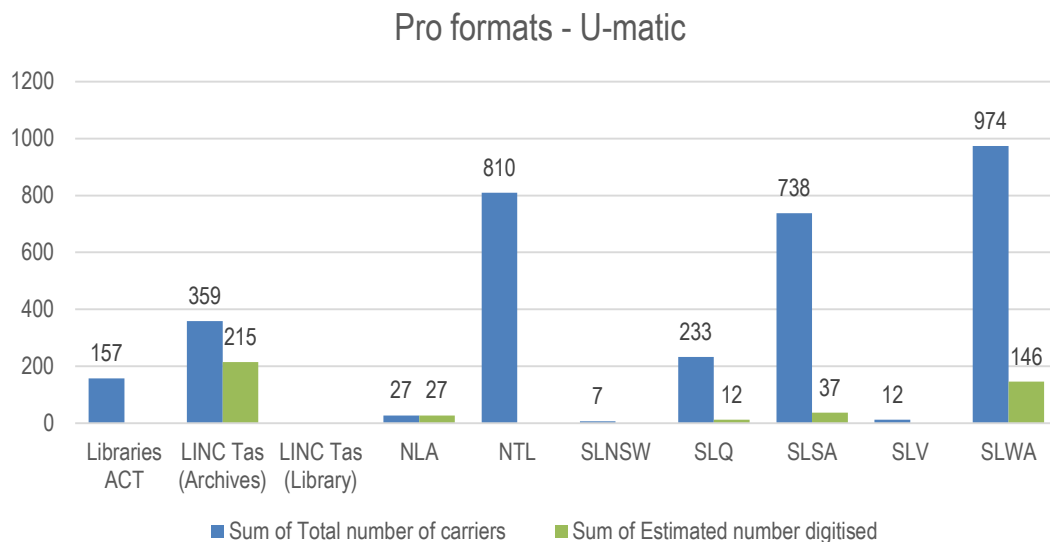


Figure 41: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: MJPEG2000 - Lossless VBR (50-100Mb/s): Soundtrack digitised as wave file: MXF Wrapper.

Distribution: DVCPro50.

Access: MP4 H264.

Notes: Format requires high maintenance before previewing or playback can occur due to relatively high incidences of (1) instability of leader splice (dry and powdery or sticky, requiring cleaning or replacement so that whole tape isn't dirtied as played) and (2) hydrolysis (requiring baking).

Slow throughput through real time replay.

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- National Library of Australia
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- LINC Tasmania (Archive)
- National Library of Australia
- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian War Memorial
- National Archives of Australia
- National Film and Sound Archive
- State Records Office

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Australian Television Archive (VIC)
- DAM Smart! (ACT)
- Disk bank (NSW, WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- MB Productions (QLD)
- National Video Centre (ACT)
- Preferred Media (NSW)
- Pro Copy (WA)
- Retromedia (QLD)
- Silvertrak (NSW)
- Video Transfers (VIC)

Published apps on mobile devices

Category: Digital

Media: Software (published)

Total estimated NSLA holdings: 6

Total estimated NSLA digitised: 0%

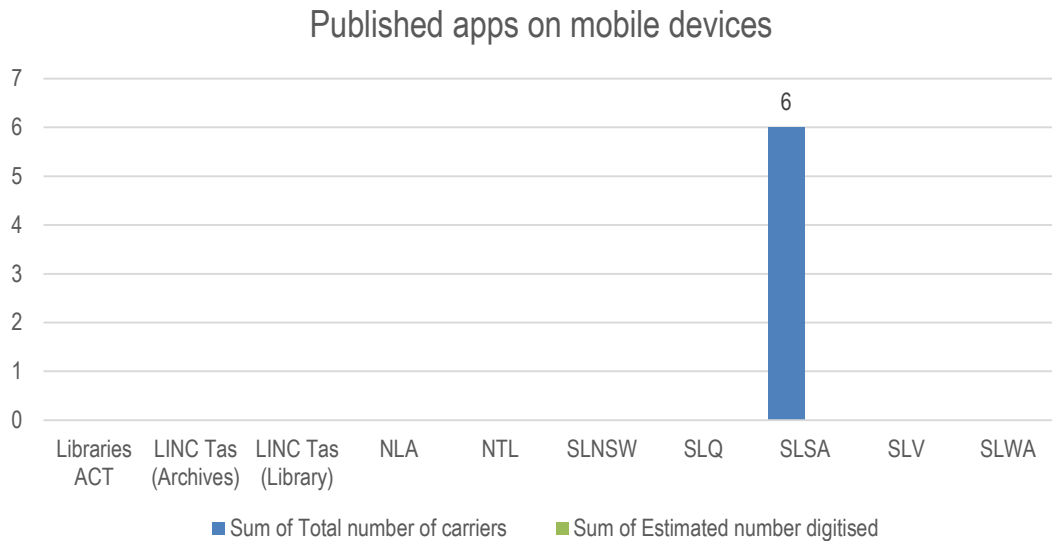


Figure 42: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- Academy of Interactive Entertainment
- Flinders University: Computer Archaeology Lab
- University of Melbourne

Digitisation service providers

- N/A

Published audio CD (music/sound on CD)

Category: Digital

Media: Audio

Total estimated NSLA holdings: 70,146

Total estimated NSLA digitised: 3%

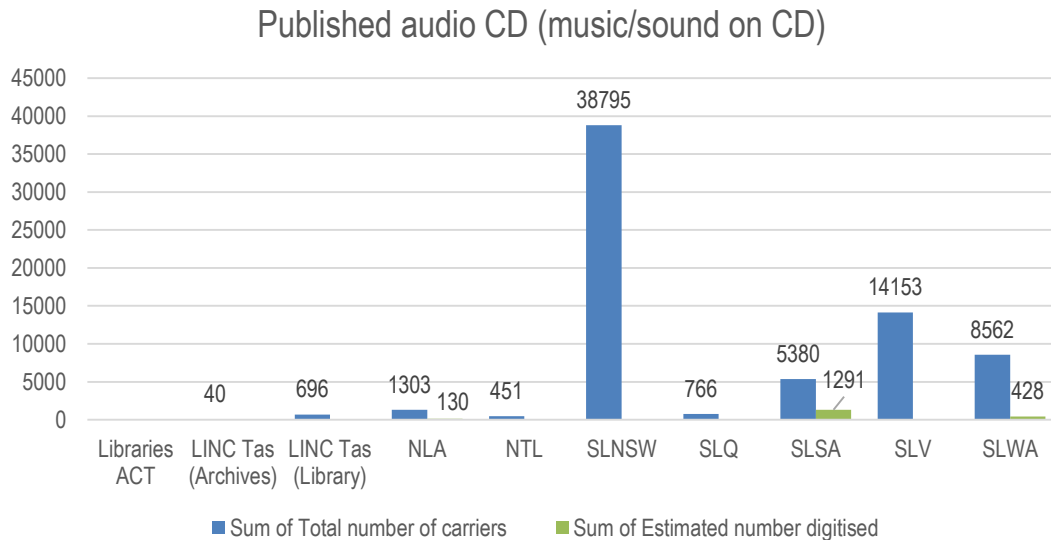


Figure 43: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 44.1 kHz Sample Rate, 16bit Word Length, Stereo. Direct digital extraction (disk image ripping).

Browsing/Access: MP3 192kb/s constant bit rate.

Notes: SLSA uses Wavelab and Cube Tec CD-Inspector for disk imaging, as opposed to ripping individual tracks. Disk imaging retains original order and original space between tracks. It also ensures that all hidden tracks are captured. Published Audio CD (music/sound on CD):

A significant proportion of locally-produced published audio will be CD-Rs in Australian jurisdictions. CD-R is a high risk media. It differs from commercial audio CD because of an unstable layering production process that is often exacerbated by the use of non-professional sound cards and CD burners in personal computers, and the application of adhesive labels to the media surface. Early manufactured commercial CDs can also be prone to bit rot.

For CD a Media Stability Rating of 2 and an Obsolescence Rating of 2, as the equipment is being phased out.

For CD-R SLSA gives a Media Stability Rating of 4 and an Obsolescence Rating of 2.

NSLA libraries with playback capability

- LINC Tasmania (Archive)
- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- LINC Tasmania (Archive)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- | | |
|------------------------------------|--------------------------------------------|
| ● ABC Archives | ● National Film and Sound Archives |
| ● ACMI | ● Queensland School of Film and Television |
| ● AIATSIS | ● SAE Institute |
| ● AICCM | ● State Records Office |
| ● Australian Film and Radio school | ● Sydney Film School |
| ● Australian War Memorial | ● University of South Australia |
| ● Charles Sturt University | ● University of Sydney |
| ● Deakin University | ● University of Western Australia |
| ● National Archives of Australia | ● Victorian College of the Arts |

Digitisation service providers

- | | |
|-------------------------------------|-------------------------------|
| ● Action Replay (VIC) | ● Infidel Studios (ACT, NSW) |
| ● Aureola productions (NSW) | ● MB Productions (QLD) |
| ● Big egg media (SA) | ● National Video Centre (ACT) |
| ● Brismedia (QLD) | ● Ordiomastering (NSW) |
| ● Code Art Productions (VIC) | ● Preferred Media (NSW) |
| ● Crystal Mastering (VIC) | ● Pro Copy (WA) |
| ● DAM Smart! (ACT) | ● Silvertrak (NSW) |
| ● Darwin ProVideo (NT) | ● Studios 301 (NSW) |
| ● Disk bank (NSW, WA) | ● Video Transfers (VIC) |
| ● ezDigital (WA) | ● WA Duplication (NSW, WA) |
| ● FATS Digital (ACT, NSW, QLD, VIC) | ● Works perfect (NSW) |

Published data/multimedia on floppy disk

Category: Digital

Media: Electronic resources

Total estimated NSLA holdings: 1538

Total estimated NSLA digitised: 13%

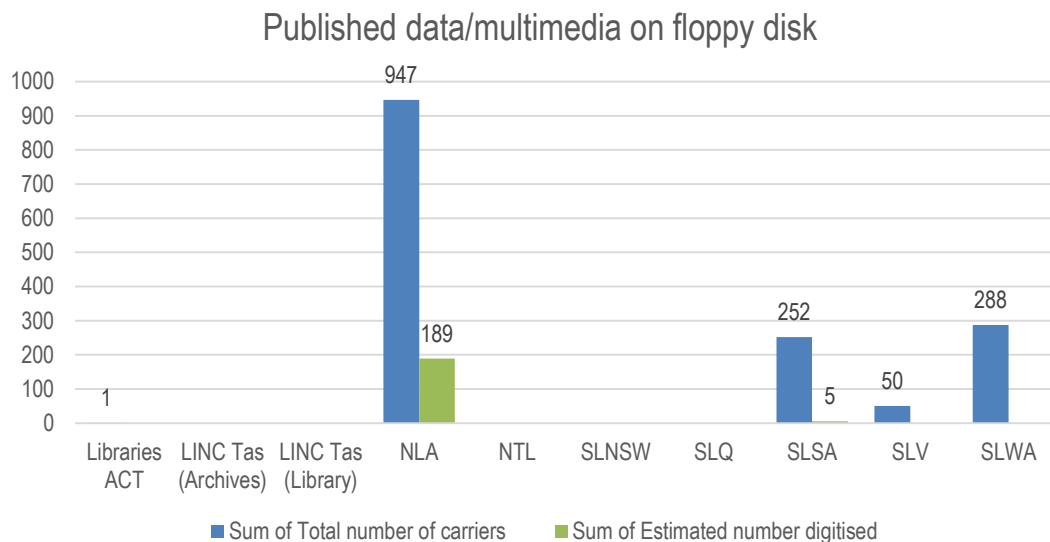


Figure 44: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Remove hard drive. Must use a write blocker.

NSLA libraries with playback capability

- National Library of Australia
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Microimage (VIC)
- Procopy (VIC, WA)
- Technics Data Recovery (QLD)

Published data/multimedia resources on CD/DVD

Category: Digital

Media: Electronic resources

Total estimated NSLA holdings: 21,054

Total estimated NSLA digitised: 11%

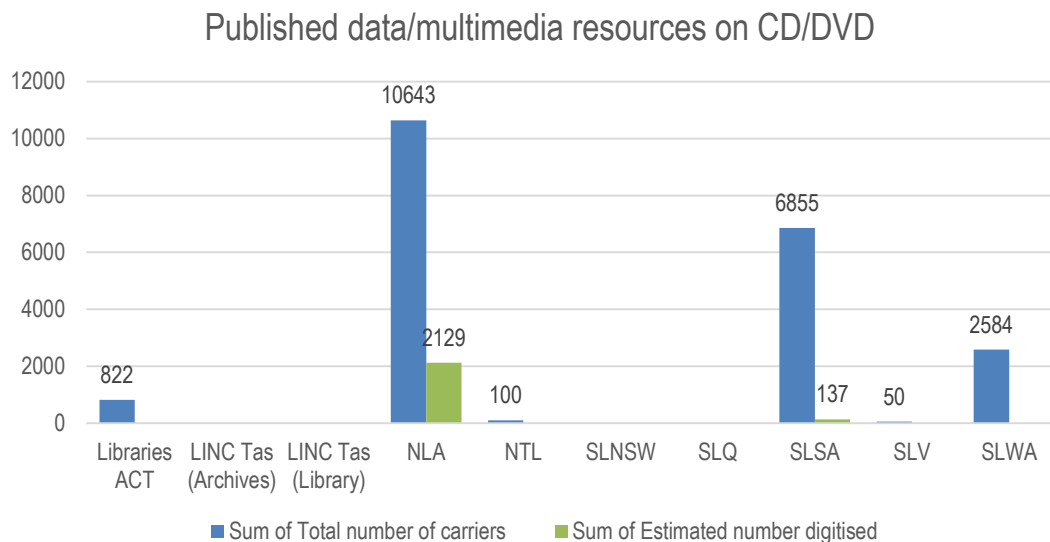


Figure 45: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Remove hard drive. Must use a write blocker.

Only Latin-1 characters in filenames are supported by the bit-level preservation system to date so no non-English material (except for a few languages like Indonesian which are in the Latin alphabet) is preservable to date.

NSLA libraries with playback capability

- ACT Heritage Library
- LINC Tasmania (Library)
- National Library of Australia
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- ACT Heritage Library
- National Library of Australia
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Microimage (VIC)
- Procopy (VIC, WA)
- Technics Data Recovery (QLD)

Published DVDs (MPEG-2 encoded)

Category: Digital

Media: Moving image/movies (published discs)

Total estimated NSLA holdings: 9934

Total estimated NSLA digitised: 2%

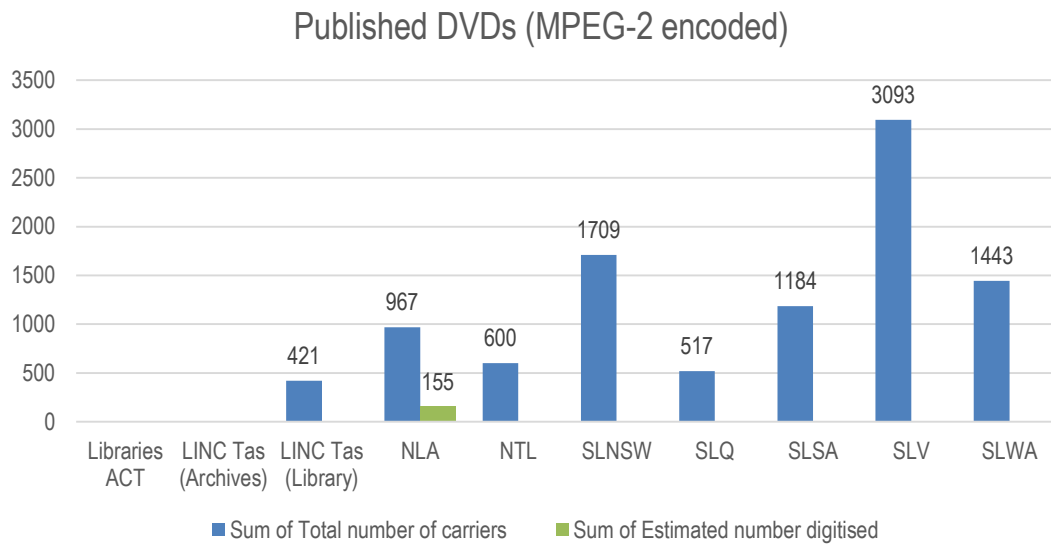


Figure 46: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation: Disk image & MPEG

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Remove hard drive, Must use a write blocker.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- National Library of Australia
- Northern Territory Library
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- Northern Territory Library
- State Library of South Australia
- State Library of Western Australia
- State Library of Queensland

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- Australian National University
- Australian Television Archive
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archive
- SAE Institute
- University of Sydney

Digitisation service providers

- Action Replay (VIC)
- Australian Television Archive (VIC)
- Brismedia (QLD)
- Code Art Productions (VIC)
- DAM Smart! (ACT)
- Darwin ProVideo (NT)
- Disk bank (NSW, WA)
- DVD makers (NSW)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- National Video Centre (ACT)
- Ordiomastering (NSW)
- Pro Copy (WA)
- Silvertrak (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)
- Why Documentaries (NSW)
- Winning Post Productions (TAS)

Shellac discs

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 13,298

Total estimated NSLA digitised: <1%

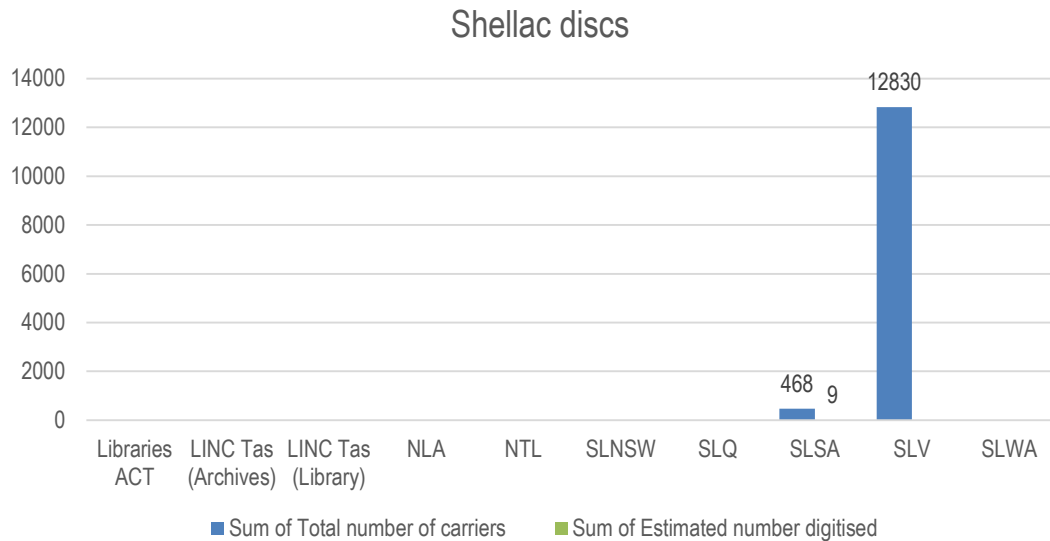


Figure 47: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation Copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 96 kHz Sample Rate, 24bit Word Length, Stereo.

Browsing/Access Copy: MP3 192kb/s constant bit rate.

Notes: Stereo transfer is preferred for mono discs to facilitate digital signal restoration.

78 stylus required.

Acoustic recordings: Flat transfer only; no equalisation curve originally applied.

Electric recordings: If the equalisation curve is unknown, the audio engineer should create both a flat transfer and a version using the curve most likely applied originally.

NSLA libraries with playback capability

- State Library of South Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- State Library of South Australia

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- AICCM
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archives
- SAE Institute
- University of South Australia
- University of Sydney
- University of Western Australia

Digitisation service providers

- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- FATS Digital (ACT, NSW, QLD, VIC)
- Ordio mastering (NSW)
- Preferred Media (NSW)
- Pro Copy (WA)
- Silvertrak (NSW)
- WA Duplication (NSW, WA)

Software on cartridge or card

Category: Digital

Media: Software (published)

Total estimated NSLA holdings: 12

Total estimated NSLA digitised: 0%

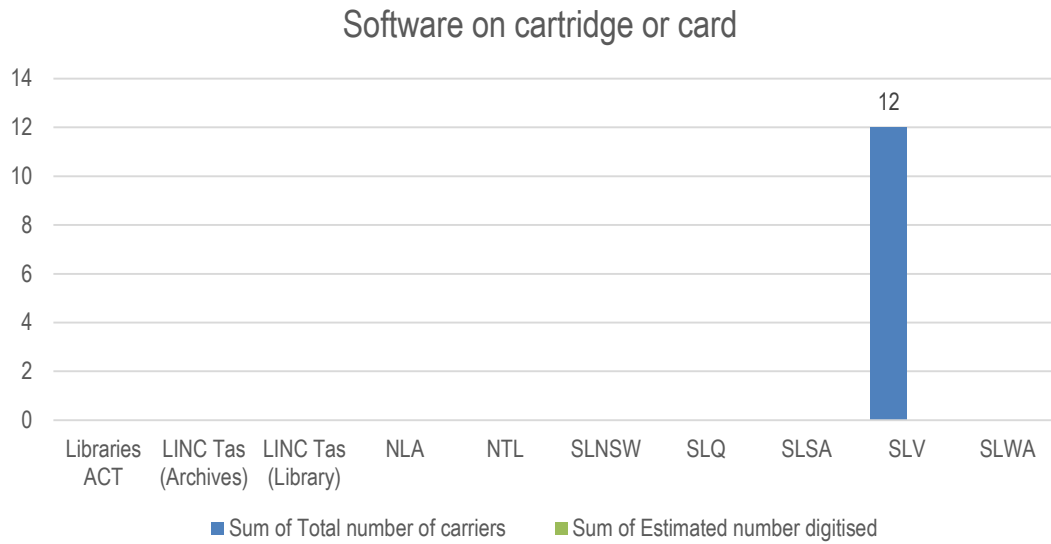


Figure 48: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- Academy of Interactive Entertainment
- Flinders University: Computer Archaeology Lab
- University of Melbourne

Digitisation service providers

Software on cassette

Category: Digital

Media: Software (published)

Total estimated NSLA holdings: 12

Total estimated NSLA digitised: 0%

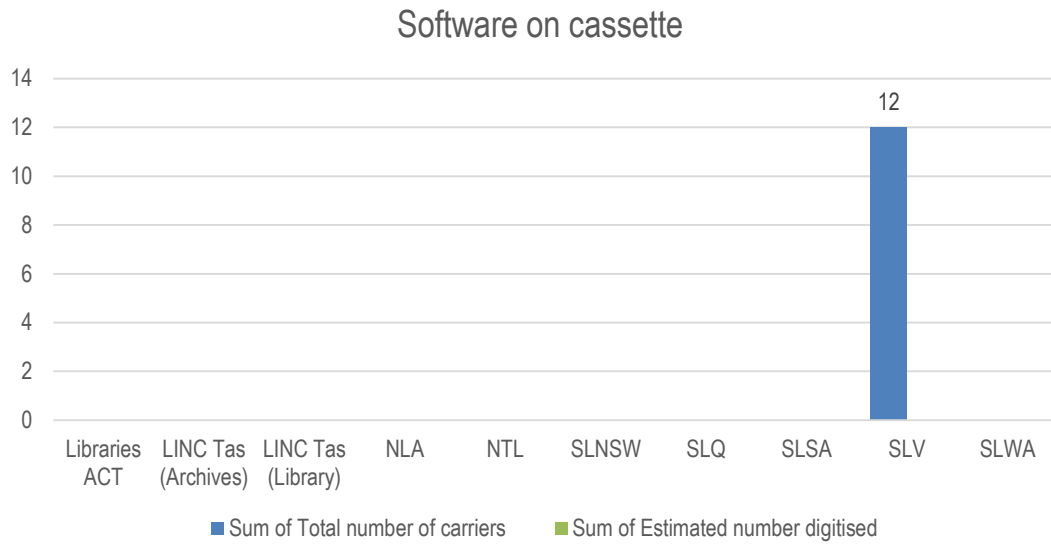


Figure 49: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- N/A

NSLA libraries with digitisation and/or transfer capability

- N/A

Organisations with digitisation capability

- Academy of Interactive Entertainment
- Flinders University: Computer Archaeology Lab
- University of Melbourne

Digitisation service providers

Software on CD/DVD/Blu-Ray

Category: Digital

Media: Software (published)

Total estimated NSLA holdings: 8105

Total estimated NSLA digitised: 0%

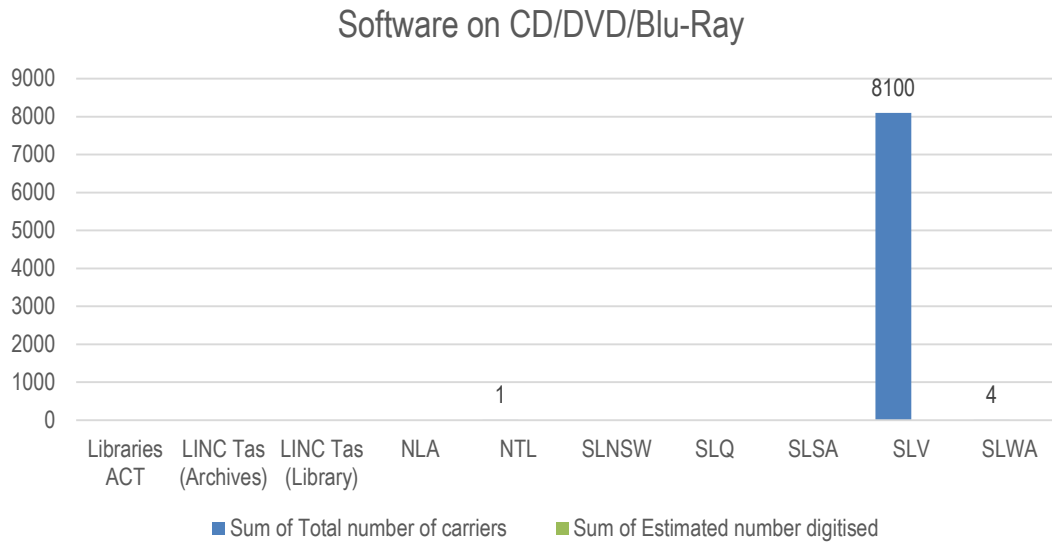


Figure 50: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- State Library of New South Wales
- State Library of Queensland
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- State Library of Queensland
- State Library of Western Australia

Organisations with digitisation capability

- Academy of Interactive Entertainment
- Flinders University: Computer Archaeology Lab
- University of Melbourne

Digitisation service providers

Software on floppy disk/magnetic media

Category: Digital

Media: Software (published)

Total estimated NSLA holdings: 51

Total estimated NSLA digitised: 0%

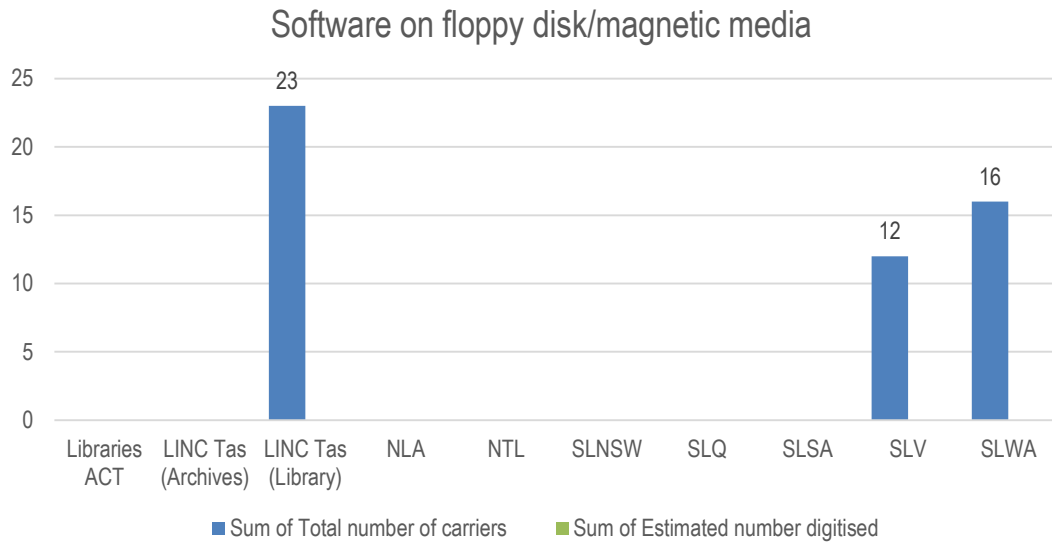


Figure 51: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards: TBC

Digital transfer standards: TBC

Notes:

NSLA libraries with playback capability

- State Library of Queensland
- State Library of Western Australia

NSLA libraries with digitisation and/or transfer capability

- State Library of Queensland
- State Library of Western Australia

Organisations with digitisation capability

- Academy of Interactive Entertainment
- Flinders University: Computer Archaeology Lab
- University of Melbourne

Digitisation service providers

USB flash drive (memory stick, thumb drive)

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 159

Total estimated NSLA digitised: 21%

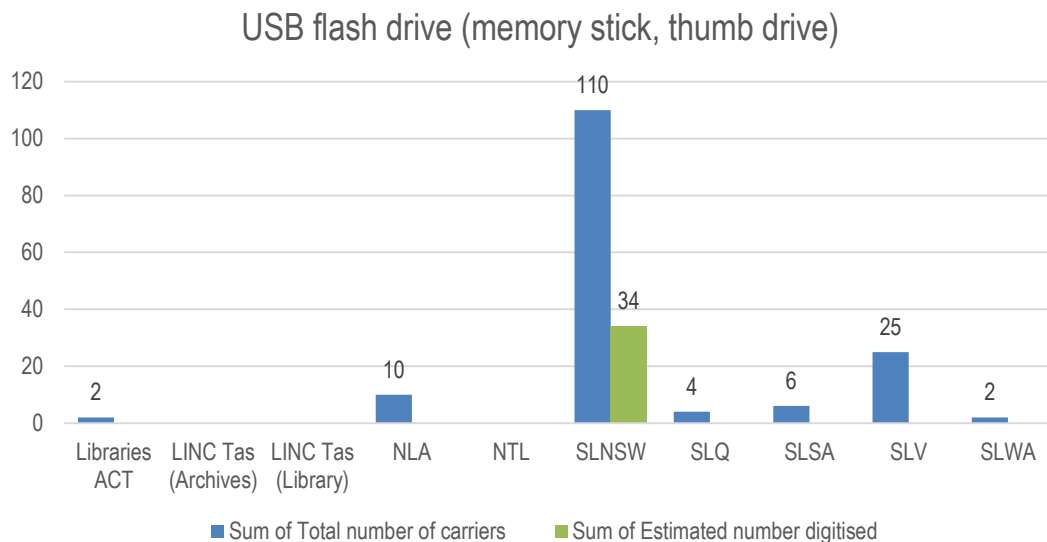


Figure 52: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also, ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Must use a write blocker.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of New South Wales
- State Library of Queensland
- State Library of South Australia
- State Library of Western Australia
- State Library Victoria

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- 24hour Data (QLD, VIC, WA)
- Brismedia (QLD)
- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Microimage (VIC)
- Procopy (VIC, WA)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

Vinyl discs

Category: Analogue

Media: Audio

Total estimated NSLA holdings: 73,911

Total estimated NSLA digitised: <1%

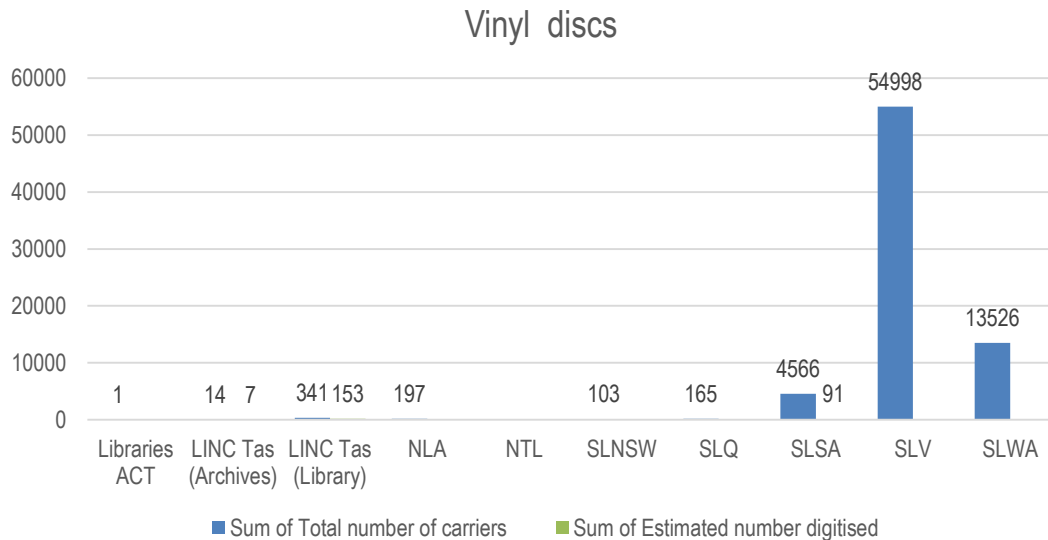


Figure 53: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

Preservation Copy: Either Broadcast Wave File (BWF) or Free Lossless Audio Codec (FLAC) - 96 kHz Sample Rate, 24bit Word Length, Stereo.

Browsing/Access Copy: MP3 192kb/s constant bit rate.

Notes: Stereo transfer is preferred for mono discs to facilitate digital signal restoration.

SLSA gives a Media Stability Rating of 2 on the grounds that we didn't focus on local audiovisual publications until the late 1980s (legal deposit legislation included audiovisual in 1989) and our retrospective collecting relied on second hand copies, subject to wear and tear. Other jurisdictions may also have large second hand components of collections.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- National Library of Australia
- State Library of Queensland
- State Library of South Australia
- State Library Victoria

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia
- State Library of South Australia
- State Library Victoria

Organisations with digitisation capability

- ABC Archives
- ACMI
- AIATSIS
- AICCM
- Australian Film and Radio school
- Australian War Memorial
- Charles Sturt University
- Deakin University
- National Archives of Australia
- National Film and Sound Archives
- Queensland School of Film and Television
- SAE Institute
- State Records Office
- Sydney Film School
- University of South Australia
- University of Sydney
- University of Western Australia
- Victorian College of the Arts

Digitisation service providers

- Action Replay (VIC)
- Aureola productions (NSW)
- Big egg media (SA)
- Code Art Productions (VIC)
- Crystal Mastering (VIC)
- DAM Smart! (ACT)
- ezDigital (WA)
- FATS Digital (ACT, NSW, QLD, VIC)
- Infidel Studios (ACT, NSW)
- MB Productions (QLD)
- National Video Centre (ACT)
- Ordio mastering (NSW)
- Procopy (WA)
- Silvertrak (NSW)
- Studios 301 (NSW)
- Video Transfers (VIC)
- WA Duplication (NSW, WA)

Zip disk

Category: Digital

Media: Data (non-published content)

Total estimated NSLA holdings: 11

Total estimated NSLA digitised: 0%

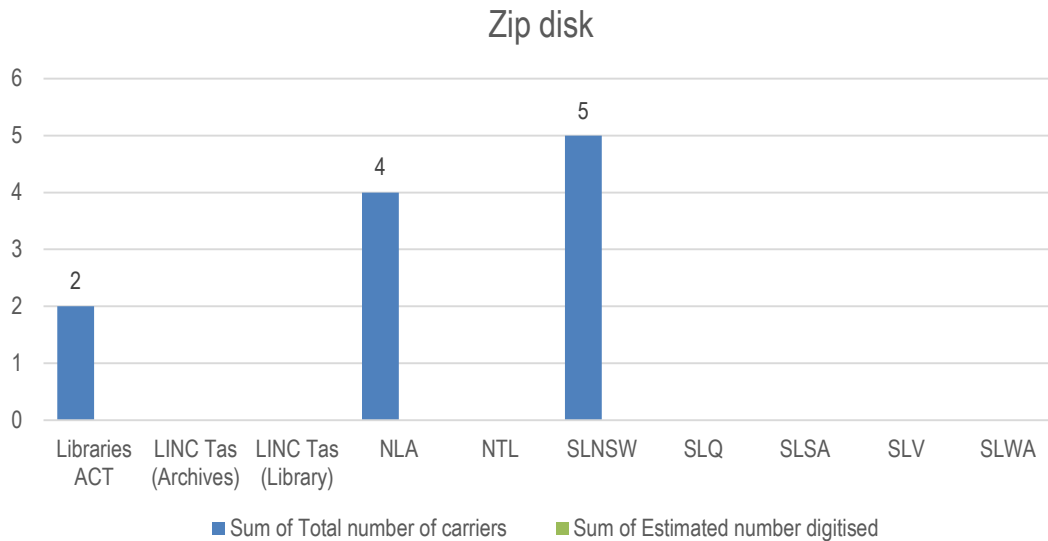


Figure 54: NSLA holdings, based on the Stage 1 audit (November, 2015)

Digital preservation standards:

1. Bit-level preservation: E01 (Expert Witness Format), or Raw.
2. Metadata export to archival, library standards from disk image.
3. Ingest extracted content into digital repository. Also ingest disk image into digital repository if there are executable programs on the disk or interdependencies between files.

Digital transfer standards: Hierarchical file packaging - i.e. BagIt.

Access: Depending on the content extracted, emulation or file format migration may be required for access.

Notes: Virus checking is mandatory. Creating a raw disk image would require an additional metadata file. Remove hard drive. Must use a write blocker.

NSLA libraries with playback capability

- LINC Tasmania (Library)
- National Library of Australia
- State Library of South Australia

NSLA libraries with digitisation and/or transfer capability

- National Library of Australia

Organisations with digitisation capability

- CSIRO
- Flinders University: Computer Archaeology Lab
- Monash University
- National Archives of Australia
- National Institute of Forensic Science
- University of Melbourne: Digital Forensics Lab
- University of Sydney

Digitisation service providers

- Brismedia (QLD)
- CBL data (VIC)
- Data Recovery Labs (QLD)
- Data Rescuers (NSW)
- Go Systems (NSW)
- Spectrumdata (WA)
- Technics Data Recovery (QLD)

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