

 **डिजिटल लय**
DIGITALAYA
Electronic Library and Archival System

World's First ISO 16363 Certified Trusted Digital Repository



DESIGNED & DEVELOPED BY HUMAN-CENTRED DESIGN & COMPUTING GROUP, C-DAC, PUNE
AS PER THE OBJECTIVES OF CENTRE OF EXCELLENCE FOR DIGITAL PRESERVATION PROJECT

© SOFTWARE TOOLS & TECHNOLOGIES ILLUSTRATED IN THIS DOCUMENT ARE COPYRIGHT OF C-DAC

सी डैक
CDAC

प्रगत संगणन विकास केंद्र
CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING
www.cdac.in

HCD



DIGITĀLAYA is an e-Library and Archival System which helps in long term preservation of cultural digital data. It can be customized to incorporate library standards like MARC21 and Dublin Core and file formats commonly applicable in cultural domain.

DIGITĀLAYA complies with Open Archival Information System (OAIS) ISO 14721. It is a proven solution when it comes to going for audit and certification of your digital repository as per ISO 16363.

Salient Features

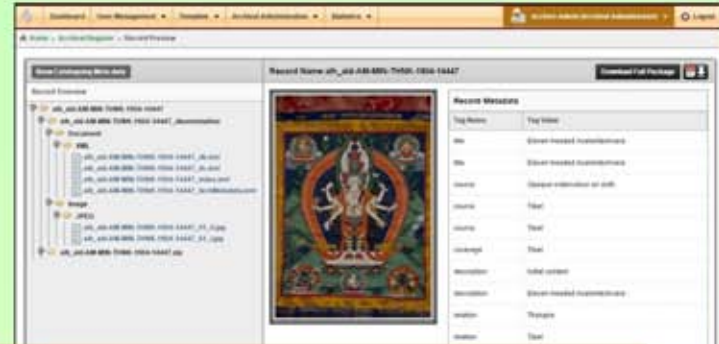
DIGITĀLAYA: e-Library and Archival System

- Management of multi-institutional data
- MARC21 with searchable tags
- Extended Dublin Core standardized for NCA
- Customizable SIP, AIP, DIP Templates
- Ingest procedures for Image, PCD, Audio, Video and Documents
- Automatic preview generation for AV
- Tracking of data from acquisition to publishing
- Audio and video tagging
- Built-in format conversion for DIP
- Identify duplicate SIPs, invalid SIPs and reconciliation
- Periodic Integrity Assurance
- Audit and repository status reports
- Integrated with Object Based Storage interface
- Archive Register
- User wise dashboards / reports
- Print Metadata / register
- Collaborative framework
- Repository Administration
- User management
- Biometric + Password Authentication

DIGITĀLAYA: Public Access Module

- Search and retrieval
- Auto-suggestions
- Command search and advanced search
- Exact keyword or fuzzy search, Metadata and full text search, search within results
- Filtering based on wide range of parameters
- Zoom in / out for images
- Book view / audio and video preview
- Collection wise access
- Dissemination Information Package (DIP) as per the specification

DIGITĀLAYA is customizable for the implementation of audio video streaming, full text searchable digital library and object based storage.



Digital Library for Bhandarkar Oriental Research Institute (BORI), Pune



File formats supported in DIGITĀLAYA for Cultural Domain

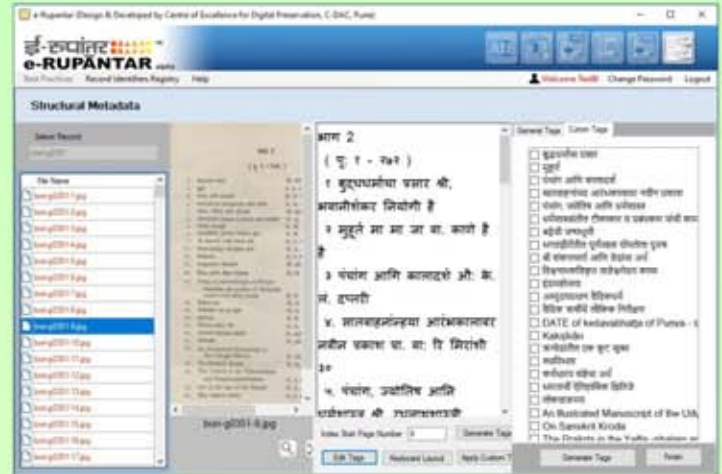
Type of data	Source formats	Conversion
Rare Books	High resolution uncompressed TIFF images	JPG and PDF/A-1b ISO 19005
Manuscripts	High resolution uncompressed TIFF images	JPG and PDF/A-1b ISO 19005
Slides	Kodak Photo CD (PCD)	JPG and PDF/A-1b ISO 19005
Audio	Digitization is in process as per the standardized specification	Broadcast WAV or MP3
Video	Digitization is in process as per the standardized specification	Mp4 or MOV
Metadata	Libsys database	MARC21 and Dublin Core in XML format

Huge amount of digitization has been already done by several organizations which does not follow the best practices essential for long term preservation. Therefore, the pre-archival processing tool called e-RUPANTAR has been developed in order to help in getting the digitized records in acceptable form as per the information science and preservation best practices. This software provides a collection of digital preservation best practices such as policy based and batch assignment of Unique Record Identifiers, batch cropping, image enhancement, image watermarking, OCR, structural tagging, conversion to PDF/A and creation of Submission Information Packages (SIPs) as per the OAIS standard. It also provides user management and registry of URIs.

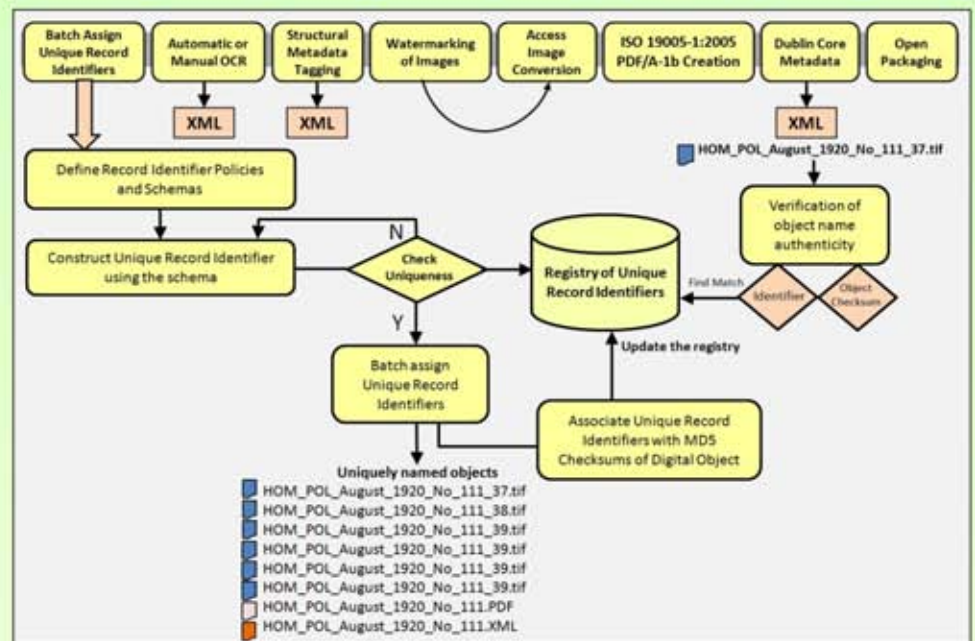
Salient Features

e-Rupantar: Pre-Archival Processing

- Automatic tagging
- Integrated workflow with best practices
- Content organization
- Cropping and enhancements
- Policies and schemas for Unique Record Identifiers
- Batch assign Unique Record Identifiers
- Automatic / Selective OCR XML output
- URI schemas in XML for name validation
- Access Image conversion
- Image Watermarking
- Batch image cropping with shortcuts
- PDF/A-1b Conversion
- Maintain registry of URIs with fixity
- Validate content against URI
- Define collection wise process flows
- Production of valid SIP acceptable to OAIS
- Centralized admin/ best practices settings
- Saving of workflows based on the type collection
- Reverse a step partially or completely
- Enforcement of best practices in multi-user environment
- User management



Tagging and structuring of digitized rare book / manuscript



Pre-archival best practices integrated in e-Rupantar software

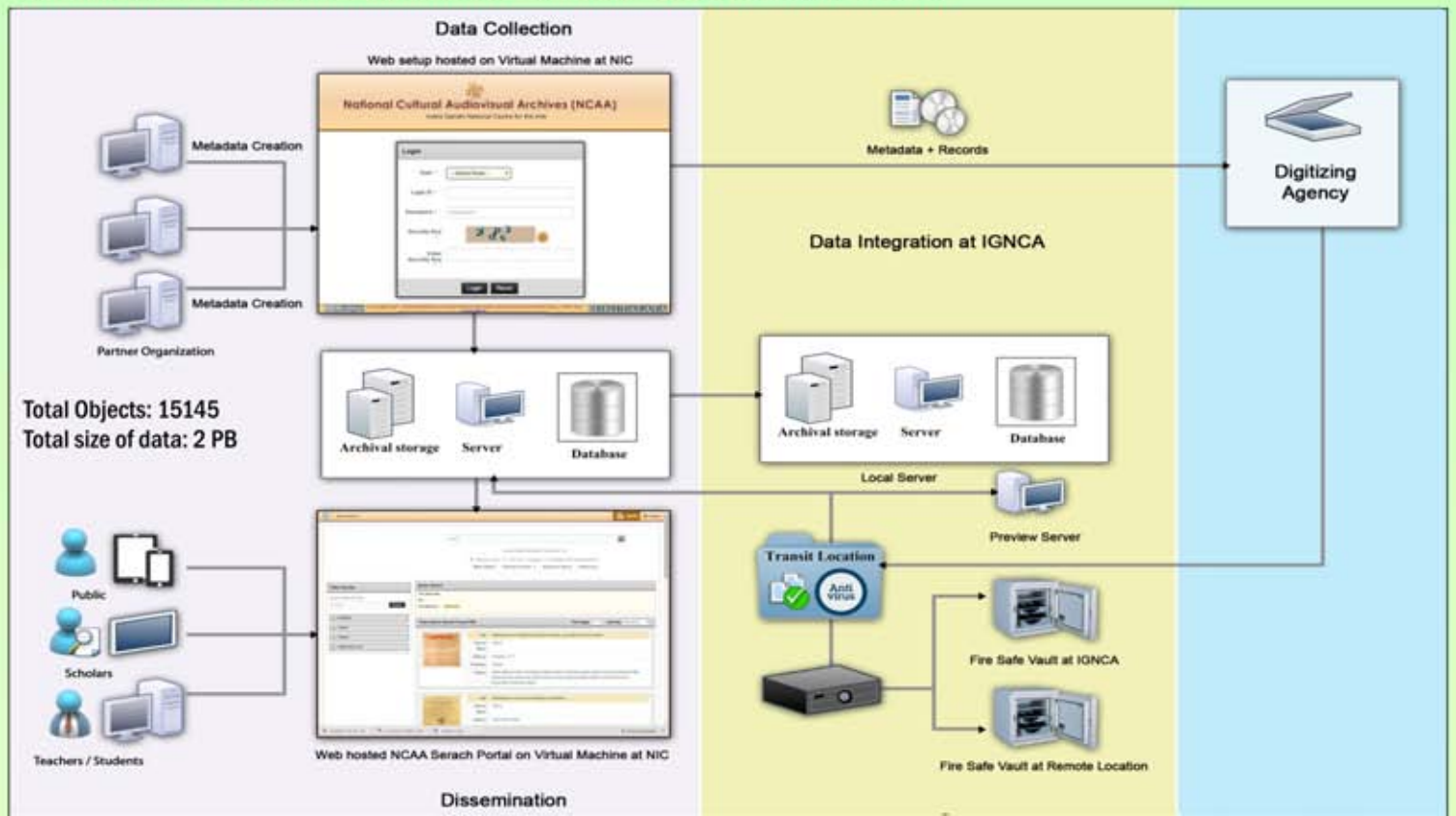


World's First ISO 16363 Certified Trusted Digital Repository established using DIGITĀLAYA (डिजिटललय)

During 27 Nov. 2017, National Cultural Audiovisual Archive (NCAA) has been audited and certified as Trusted Digital Repository as per ISO 16363, which is an umbrella standard requiring technical conformance with several ancillary standards such as Open Archival Information System (OAIS) ISO 14721, OWASP ISO 27034 Application Security, Information and Security Management ISO 27001, and several other standards dealing with metadata, file formats and open technologies.

C-DAC Pune in collaboration with IGNC, New Delhi had taken up NCAA as a pilot digital repository to be developed as part of Centre of Excellence for Digital Preservation, Sponsored by MeitY. This digital repository is established with and powered by DIGITĀLAYA (डिजिटललय) an archival management system developed by C-DAC Pune, which complies with Open Archival Information System (OAIS) ISO 14721. It is being used by the users from 21 partnering institutions who contribute audiovisual data in this digital repository regularly. Presently, NCAA is managing around 2 Petabytes of rare cultural audiovisual data pertaining to dance, drama, music and literature. NCAA happens to be the first Certified Trusted Digital Repository (Certificate No. PTAB-TDRMS 0001) as per ISO 16363 in India and world.

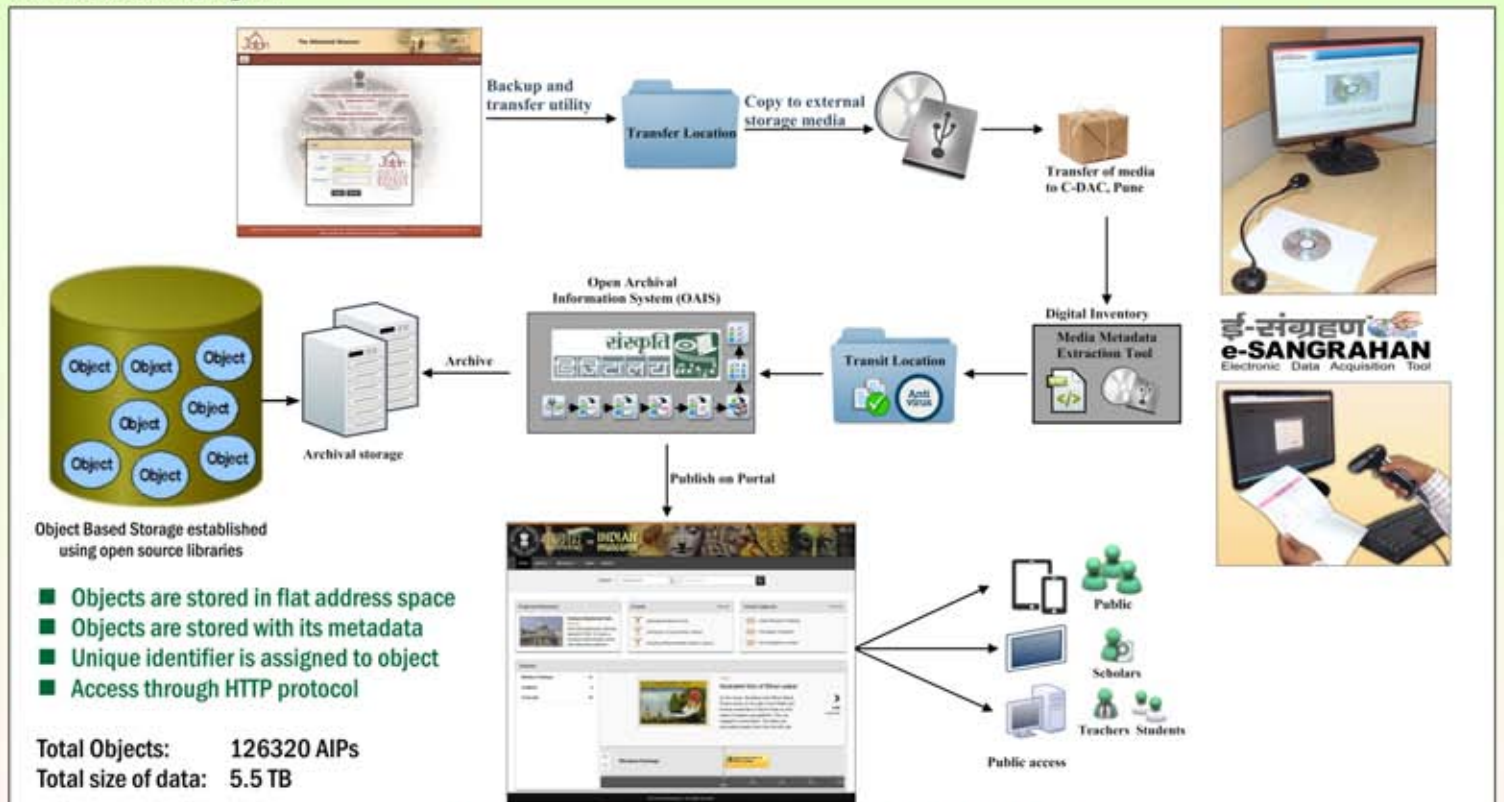
DIGITĀLAYA setup for National Cultural Audiovisual Archive (NCAA), IGNC, New Delhi



Architecture of DIGITĀLAYA setup for NCAA Project of IGNC involving 22 partner organizations and a digitization agency

National Digital Repository for Museums of India

www.museumsofindia.gov.in



Architecture of National Digital Repository for Museums of India

National Digital Repository for Museums of India is established using JATAN: Virtual Museum Builder, e-Sangrahan: e-Acquisition Software and DIGITĀLAYA integrated with Object Based Storage for implementing all the best practices of digital preservation in-house.

Benefits of Digital Preservation

Administrative continuity

Helps in clear identification, preservation and protection of the valuable digital resources of an organization. Administrative continuity can be ensured by transcending the hurdles of digital obsolescence and rapidly changing technologies.

Protection of digital intellectual assets

The wealth of knowledge and intellectual assets of an organization are increasingly encoded in digital formats which requires to be retained and protected. Such digital information represents intellectual property which is produced with considerable amount of time, effort and money.

Reuse

Repositories of e-records and the tools to mine, analyze and re-purpose them represent a society's intellectual capital. Digital preservation helps in immediate, near term as well as long term usability of digital information beyond its primary users.

Long term view

Access to e-records from the past and digital continuity is critical for planning, trend analysis, decision making and research.

Legal obligations

Digital preservation helps in fulfilling the legal obligations of record retention and protecting the evidentiary value of e-records.

Protection from litigation

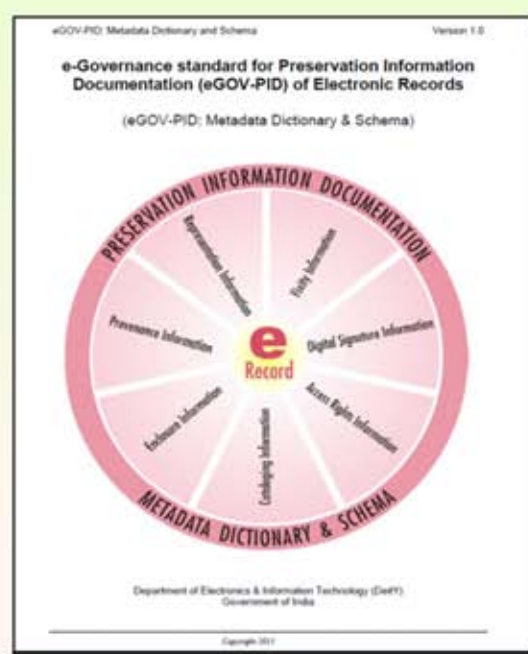
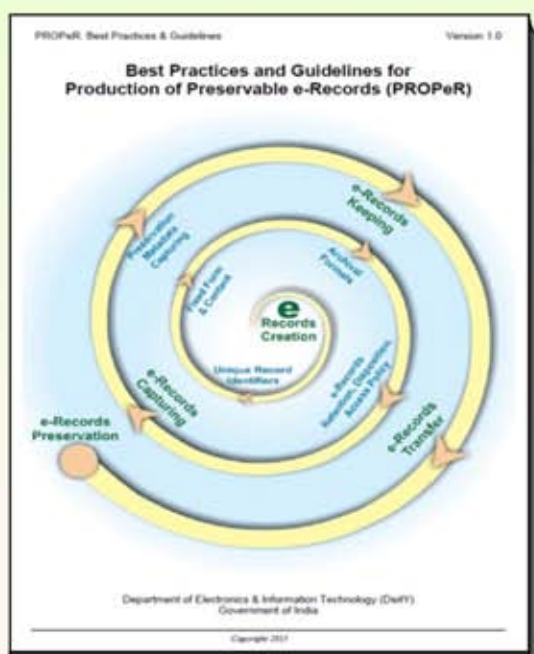
Careful implementation of digital preservation best practices ensures availability of electronic records in a legally admissible manner, especially while complying with RTI and IT Act requirements.

Digital heritage for future generations

The information, knowledge, cultural and historical artefacts in the modern digital age are being created, encoded and stored through digital means which forms the digital heritage for future generations.

Digital Preservation Standard & Guidelines

Available at <https://egovstandards.gov.in>





Centre of Excellence for Digital Preservation

The Centre of Excellence for Digital Preservation is a flagship project under the National Digital Preservation Programme (NDPP), sponsored and initiated by R & D in IT Group, Department of Electronics and Information Technology, Government of India. The CoE is entrusted with Human-Centred Design & Computing Group, C-DAC, Pune with the following objectives -

- Conduct research and development in digital preservation to produce the tools, technologies, solutions and infrastructures to ensure that the digital information remains discoverable, accessible, readable, usable, reliable, authentic and trustworthy on long term basis.
- Develop the digital preservation repositories and provide help in nurturing the network of Trustworthy Digital Repositories (national digital preservation infrastructure) as a long-term goal.
- Define the digital preservation standards by involving the experts from stakeholder organizations, consolidate and disseminate the best practices generated through various digital preservation projects implemented across India.
- Build the technical competencies necessary for the audit and certification of trustworthy digital repositories, curriculum design and training for data managers, e-records keepers and archivists.
- Spread awareness about the potential threats and risks due to digital obsolescence, the digital preservation best practices and maintain technology watch on continuing basis.



Human-Centred Design and Computing Group

HCDC Group at C-DAC, Pune is the designated Centre of Excellence for Digital Preservation, by the Department of Electronics and Information Technology (DeitY), Government of India. The group has been entrusted the key agenda to provide inputs for the roadmap of national digital preservation programme in the country and the development of requisite technological infrastructure, tools, standards, guidelines and policies therein. Under this project, the group has established international alliances and built the capabilities and skill sets to design, develop and deploy a range of digital preservation and archival solutions across domains. The group inherits its core skills from developing interactive games, 3D modelling, virtual museums and multimedia learning and specializes in designing highly usable interfaces for solutions and services delivered through PC, mobile devices, Kiosk, Web, Interactive TV and emerging technological media.