National Biomedical Imaging Archive (NBIA)

LIFE SCIENCES DISTRIBUTION

Biomedical image repository

The National Biomedical Imaging Archive (NBIA) (formerly the NCIA) is a searchable database of biomedical images. NBIA provides the biomedical research community—including researchers from industry, academia and clinical care—with access to DICOM images, image markup, annotations and rich metadata. NBIA enables the development of imaging resources that lead to improved clinical decision support, accelerated decision-making and quantitative imaging assessment of patient outcomes.

NBIA provides Web-based access to de-identified DICOM images, markups and annotations using role-based security. In addition to the NCI-hosted NBIA, institutions can adopt NBIA for data storage by installing their own instances of this application. These instances can also be advertised as grid nodes on the caBIG® national grid for federated data sharing.

Capabilities

- Query a searchable repository of biomedical images
- Access image archives and imaging resources
- Access caGrid interfaces for retrieving image metadata and files
- Visualize images via a number of DICOM viewers
- Use interfaces for application-level integration
- Develop and validate analytical software tools that support lesion detection and classification software to accelerate diagnostic imaging decisions and quantify imaging assessment of patient outcomes

NBIA interface

Categories of Use

☐ Biospecimens	☐ Data Sharing	■ **Imaging**	☐ Proteomics
☐ Clinical Trials Management	☐ Genome Annotation	☐ Microarrays	☐ Translational Research
☐ Data Analysis & Statistical Tools	☐ Infrastructure	☐ Pathways	☐ Vocabularies

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

National Institutes of Health

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Architecture Overview

- **Application type:** Web/remote application with data uploads/downloads through a Web interface.

- **System requirements**: Full installation requires installation of MySQL version 5.0.45; ANT (Apache) version 1.7; JDK version 1.5 or higher; FTP server; access to a mail server.

Installation and Administration

- **Skill sets needed:** Experienced database administrators and J2 Engineers, specific experience in installing and supporting Web-based databases and FTP servers. The NBIA installation packages (graphical and command line installers) contain the binaries and scripts necessary to install the application, Clinical Trial Processor (with NBIA modification) and the grid service. Deployment assistance is available from caBIG®-licensed support service providers.

- **Infrastructure needed**: Staff experienced in extracting images from PACS machines and the ability to package and submit them from the CTP client.

- **Long-term administration needs**: Basic IT administrative support.

Resources

Tool Overview Page	https://cabig.nci.nih.gov/tools/NCIA
Primary Workspace	Imaging (IMAG) https://cabig.nci.nih.gov/workspaces/Imaging
NBIA Developers LISTSERV	https://list.nih.gov/cgi-bin/wa?SUBED1= nbia_user-l&A=1
caBIG® Tool Inventory	https://cabig.nci.nih.gov/inventory
NCI Center for Bioinformatics Applications Support	ncicb@pop.nci.nih.gov

Key Contributors

- American College of Radiology Imaging Network

- NCI Center for Biomedical Informatics and Information Technology (NCI CBIIT)

- NCI Cancer Imaging Program

- Science Applications International Corporation (SAIC)

- University of Maryland/ Baltimore VA Medical Center

- TerpSys

Other Life Sciences Distribution Components

- caArray

- Cancer Genome-Wide Association Studies (caGWAS)

- caTissue Core

- Clinical Trials Object Data System (CTODS)