

C-DAC's Toolkit for LOINC (CLNtk)

Electronic Health Records (EHR) Standards for India were put forwarded by the Ministry of Health & Family Welfare (MoH&FW), Government of India in December 2016. The standards aim to bring uniformity to the creation and maintenance of healthcare information and address various aspects, viz., structure, exchange, content, security, and privacy.

Logical Observation Identifiers Names and Codes (LOINC) is one of the coding standards recommended for recording tests, measurements, and observations used for processing results and reports in the Laboratory and Imaging Information Systems. To promote the use and adoption of LOINC in the country, with the support of MoH&FW, the Centre for Development of Advanced Computing (C-DAC), Pune, has developed C-DAC's Toolkit for LOINC (CLNtk) to enable the easy integration of LOINC into healthcare applications.

C-DAC's Toolkit for LOINC (CLNtk)

CLNtk is a specially designed FOSS application for easy access and integration of the LOINC standard in healthcare applications. The toolkit provides simple-to-use REST APIs for LOINC standard integration. It enables clinicians and researchers to find relevant LOINC codes through its components including, the long common name, short name, display name, and other related information. The salient features of the C-DAC's toolkit for LOINC include:

Salient Features

- Free & Opensource Software (FOSS) under Apache License v2.0
- Easy to use RESTFUL API for hassle-free integration of LOINC
- Provides Lucene index creation from the LOINC standard CSV files
- RESTFUL API for search, expand panel, lookup. Also, supported APIs to fetch information from LOINC standard
- Supports Lucene based full-text search
- Enables searching with advance search
- Toolkit based on platform-independent technologies
- Quick development or augmentation of existing applications using components
- API Documentation available

What's new in C-DAC's Toolkit for LOINC v3.0?

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- Support to Common Lab Codes of India (CLCI):
 - Brief about CLCI: CLCI is a curated subset of LOINC®, representing standardized, computer-readable list of most commonly used laboratory test and measurement codes in India.
 - Search and browse the CLCI codes through search API, enabling easy discovery of nationally recommended laboratory codes for commonly performed diagnostic tests in India.

- Ability to filter search restricted to CLCI or entire LOINC database with existing parameters.
- Configuration steps updated for inclusion of CLCI CSV along with LOINC CSV files.
- Integration example updated to enable CLCI results restriction with a new toggle button.
- Lookup API response structure updated to include *displayName* and *Long common Name* fields for panel tests.
- Swagger UI streamlined with additional theme-based toggle option.
- Bug fixes and improvements

What's in C-DAC's Toolkit for LOINC?

The C-DAC's toolkit for the LOINC zip package contains the following:

loincserv.war

- A war that can be readily deployed along with the application or centrally by the vendor for one or more products/deployments
- Provides Ready to call Representational State Transfer (REST) APIs LOINC search and lookup LOINC codes and other information.

Demo Page

The sample Laboratory Demo page shows the use of REST APIs provided by CLNtk. The demo page provides one of the ways to search and record various laboratory tests with LOINC standards code.

The package also contains license.txt and NOTICE.txt

Targeted User Community

The developed C-DAC's toolkit for LOINC (CLNtk) will be a great help to enable the exchange and aggregation of clinical results for care delivery, outcome management, and research by providing a set of universal codes and structured names to unambiguously identify things you can measure or observe, building applications used in medical domains.

The healthcare domains can be Laboratory Information System (LIS), Electronic Health Record (EHR) Systems, Hospital Information Systems (HIS), Clinical Information System, Software Vendors that make applications/systems/devices and requires support to health informatics standards. Health Informatics Professional studying or doing research in the area of medical data capture, storage, transmission, visualization, etc. will also need the LOINC to interact with medical systems.

Availability

The C-DAC's toolkit for LOINC (CLNtk) is available from the C-DAC website www.cdac.in under Apache License v2.0 as free and open-source software.

LOINC Table Files are free for access by registration. Users are advised to register and obtain a suitable license to use LOINC codes in their software and work from <https://www.loinc.org>

For any information regarding C-DAC's toolkit for LOINC please write to C-DAC at sdk-eng@cdac.in.