

E-LabNotebook 3

A desktop Electronic Lab Notebook built for materials science and analytical laboratories



Organize Work the Way Labs Actually Work

ELN3 mirrors the natural hierarchy of laboratory research: Projects contain Folders, which contain Procedures (experiments), Specimens (samples), and Actions (measurement steps). Drag-and-drop reordering, live search filtering, and persistent tree state let researchers navigate months of work in seconds. A full-text search (Ctrl+F) queries across all items, protocols, files, measurement values, and tags, so researchers can locate any record instantly. A built-in unit converter handles on-the-fly conversions between SI units directly in the notebook.

Attach and Preview Instrument Data In-Place

Files of any type can be attached to experiment records - select multiple files at once to attach them in a single step. Built-in viewers handle images, HTML reports, Office documents, columnar data files, and specialized instrument formats. Researchers review raw data without leaving the notebook. A configurable preview panel shows file thumbnails for the current item, its children, or the entire procedure at a glance, making it easy to spot results without opening each record individually.

Structured Protocols with Template-Based Forms

Formal lab entries are created from reusable templates that define input fields, sections, and layouts. A built-in template manager with live preview lets administrators design and version forms without external tools. Templates can be exported and imported as files, making it simple to share standard forms between research groups or ELN instances. Protocols follow a four-state validation workflow: Draft, In Review, Approved, or Rejected, with full status history and a dedicated review queue. Experiment templates provide pre-configured workflows for common procedures - 13 built-in templates cover deposition, specimen characterization, and more, with bulk import for adding custom sets.

Electronic Signatures and Data Integrity

Items can be electronically signed with password verification, recording the signer's identity, timestamp, meaning (Authored / Reviewed / Approved / Witnessed), and a SHA-256 content hash. Signed records are locked against further modification. Integrity verification recomputes the hash at any time to confirm content has not been altered since signing.

Cross-Reference Linked Experiments

Items can be linked bidirectionally across projects, creating a web of related experiments. A Link Manager shows all connections for any item, and clicking a link navigates directly to the referenced record. Labels and notes describe the relationship, making it easy to trace dependencies between specimens, measurements, and processes across the entire notebook. Duplicating an item to another project can automatically create a cross-reference, maintaining traceability without extra steps.

Multi-User Collaboration with Access Control

ELN3 supports both local SQLite mode for individual researchers and remote MySQL mode for shared team use. Five user roles (Guest, User, Power User, Supervisor, Admin) control access to features and data. Projects can be shared with specific users at Read-Only or Read-Write permission levels. Optimistic concurrency control prevents data loss when multiple users edit simultaneously. A supervisor dashboard with user and time-range filters gives administrators an at-a-glance view of team activity.

Complete Audit Trail

Every create, update, and delete operation across all entities is automatically logged with timestamps and user identity. The audit log viewer lets administrators filter by date range, entity type, operation, and user, supporting traceability requirements for ISO and GLP-compliant laboratories.

Data Analysis and Export

A built-in scatter plot with automatic linear regression lets researchers visualize experimental conditions against test results directly from their data. Results can be copied as images or CSV for use in reports. Full experiment packages (items, files, protocols, and status history) can be exported to JSON and imported into other ELN3 instances.

Reference Data Management

Administrators configure file types, equipment registries, action type categories, measurement value types with SI units, and protocol templates, all from within the application. Bulk CSV import lets new groups load their entire equipment catalog, file type definitions, and measurement categories in one step instead of entering them one by one.

Quick Setup and Built-In Help

A step-by-step connection wizard walks new users through database configuration: choose between local or shared mode, point to the database, and start working. If a remote database is unreachable at startup, an automatic connection diagnostics dialog identifies the failing component instead of showing a raw error. The login screen features a password visibility toggle and Caps Lock warning to reduce login friction. Built-in Quick Start and Administration guides are accessible from the Help menu. An automatic update checker notifies users when a new version is available, with options to snooze or skip.