

Exomaly LIMS: Plans and Features

What is a LIMS?

A LIMS (Laboratory Information Management System) is software that replaces notebooks, spreadsheets and loose paperwork in a testing laboratory. It records the journey of every sample, from the moment a customer sends it to the moment the result report is issued, so the laboratory always knows which sample is where, who worked on it, who checked it and whether the result can be trusted.

Example: a factory sends a wastewater sample to a testing laboratory to measure heavy metals. Without a LIMS, samples and results are scattered across notebooks and spreadsheets, easy to mix up and hard to trace when a customer or an assessor asks. With a LIMS, every step leaves a record.

1. Sample receipt
The sample gets a unique number; a QR-code label is printed and attached to it.

2. Assignment
The tests to run are chosen and assigned to the right section and person.

3. Result entry
The analyst enters the result; the system checks it against the limits and flags unusual values.

4. Review and approval
A second person checks and an authorised person approves: whoever enters a result cannot approve it (the "four-eyes" principle).

5. Result report
The report is issued to the customer. An issued report is never edited, only replaced by a new version; every change is logged.

Beyond the sample flow, a LIMS also manages what a laboratory must be able to prove during an ISO/IEC 17025 assessment: equipment and calibration, staff competence, document control, complaints and corrective actions. Exomaly LIMS supports meeting ISO/IEC 17025 in the clauses the software is responsible for.

Status of the features, last updated at 07:52 on 25 Oct 2026 (Vietnam time).

Base plan / module	Available	Partial	Under construction	Availability
Base plan: Sample Operations	16	3	9	Yes
Base plan: Standard ISO 17025 (adds to Sample Operations)	7	2	6	Yes, core is complete
Analytics module	5	3	6	Yes, with the conditions described
Customer module	0	2	2	Portal available; e-mail not yet
Instrument Data module	0	0	2	Under construction
Business module	0	0	5	Under construction
Advanced Compliance module (pharma, GMP)	0	1	3	Under construction
On request (quoted separately)	—	—	—	Quoted per project

"Available" means in use today. "Partial" means the core exists and the rest is under construction. "Under construction" means being built or in the development plan, not yet released and without a firm date. "On request" means built only when a laboratory orders and pays for it; it is not under construction. One line may cover several small functions.

Work order: a smaller number is done earlier. Numbers 1 to 38 put the pilot labs first (the two base plans and the Analytics module); numbers 39 to 53 are the four other modules, Customer, Instrument Data, Business and Advanced Compliance; from 54 the work is on request, when a customer pays. The order is a plan that changes with customer feedback, not a date commitment. A code starting with core_ is the

name of a core feature: always on, no switch. The other codes are flags, the switches that turn a feature on or off per laboratory; the flag of a feature not yet built is a name reserved in advance and is added to the system when the feature is built.

Base plan: Sample Operations

For a laboratory that needs to manage the sample flow from receipt to the result report, and keeps its quality-system records elsewhere (on paper or in another system).

Flag code / core name	Feature	Status	Work order	Note
core_workflow	Core laboratory workflow: sample receipt, result entry, four-eyes review and approval, immutable result reports with -R1 replacement versions, numbering, due dates	Available	—	Two layers of protection: in the application and in the database
core_custody	Sample storage, return and disposal; QR labels; sample-number locking and handover person/time	Available	—	Disposal needs two people
core_qc_basic	QC and control charts	Available	—	Data-science part is in the Analytics module. A failed QC currently warns, it does not yet block review (ISO 7.7.3)
core_change_reason	Mandatory reason for changes and late entries	Available	—	Enforced in the database
core_attachments	File attachments and raw data (R2): SHA-256 hash, quotas, preview, voiding with a reason	Available	—	Retention lock of 5 years
core_quotation	Per-test quotations and provisional cost of a work order	Available	—	Internal use; quotations are not yet sent by e-mail and customers cannot yet accept them online
core_export_csv	CSV export, saved filters, export log and access log	Available	—	Hourly export limit
core_catalog_import	Master data (G1 to G4), bulk import from Excel (G5), record retention periods	Available	—	Bilingual sample Excel file
core_report_verify	Public report verification page: QR on the report, verification code, report stamp, code revocation	Available	—	No login needed
qms_blind_customer	Customer identity hidden by role: analysts and reviewers see only the sample number, the customer data is removed on the server	Available	—	On by default; a laboratory can ask otherwise
core_grid_ui	Sample table usable on narrow (390 px) screens; column chooser, Export button, saved filters	Available	—	
core_storage_conditions	Structured storage conditions (temperature, maximum holding time) and completion of sample-storage requirements under ISO 7.4	Available	1	ISO 7.4

core_retained_sample	Reference (retained) samples: a "reference" type for stored samples, sealing (who, when), structured storage location (rack, shelf, conditions), expiry reminders	Available	2	ISO 7.4.1, 7.4.2
core_formula	Automatic calculation formulas from multiple measurements	Under construction	6	
core_bulk_review	Bulk approval (each sample still gets its own decision and log line)	Available	7	Each sample still gets its own decision and log line; four-eyes rule unchanged
core_batch_qc_gate	Batch QC gate that blocks review; tracing of results when a batch QC fails	Partial	9	Phase 1 (warning, no blocking) is done
core_westgard_nelson	Optional Westgard and Nelson rules on QC charts	Under construction	11	
core_feedback	Send feedback and ask questions inside the application, with a screenshot and the screen being viewed	Available	13	Supports the pilot labs' regular feedback. No notifications or automatic screenshot yet
core_specification	Specification per product: limits and comparison with a standard linked to a product or customer	Partial	14	Verdicts against a specification exist; specifications per product are still to do
core_bulk_intake	Bulk sample registration and pre-registration by the customer (sample list, batch entry)	Available	15	Several samples in one go, advance sample lists. Sample numbers are still issued by the server
core_files_audit_polish	Files, audit log and QC polish: PDF preview, file versions, separate QC report export, automatic audit-log review	Under construction	17	Four small items
core_notifications	In-app notifications (bell, task counts on the menu) available; bulk actions (receive, assign section, print labels) later	Partial	18	
core_ux_polish	Form draft autosave, keyboard shortcuts, loading skeletons, first-run guide	Under construction	19	
core_calibration_curve	Calibration curve: build a multi-point curve, check linearity, back-calculate concentration from the signal	Under construction	25	Built once the lab has real calibration-curve samples
core_pwa_scan	PWA, QR scanning by camera (result approval on a phone)	Under construction	30	
core_a11y_header	Mobile header bar; accessibility (NVDA testing, published WCAG level)	Under construction	31	
core_viewer_account	View-only accounts for management: read reports and the overview, write nothing	Under construction	37	Read only, no writes; charged per account
core_quote_copy	Copy an old quotation into a draft; export quotations and provisional costs to CSV	Under construction	38	

Base plan: Standard ISO 17025 (adds to Sample Operations)

All of Sample Operations plus the quality system. Supports compliance with ISO/IEC 17025 for the clauses a software system can cover (not every clause: several are only partly covered).

Flag code / core name	Feature	Status	Work order	Note
core_qc_pt_mu	Proficiency testing (PT), measurement uncertainty (U)	Available	—	ISO 7.6, 7.7.2
core_equipment	Equipment, calibration, schedules, intermediate checks, equipment-to-method links, tracing of affected results	Available	—	ISO 6.4. Tracing works for results linked to equipment
core_competence	Staff competence, authorisation, competence gate	Available	—	ISO 6.2. The competence gate is off by default; the lab switches it on per method
core_doc_control	Document control: draft, review, approval (three people), current version, periodic review, read acknowledgement	Available	—	ISO 8.3
core_quality_register	Quality register: complaints, corrective actions (CAPA), risks, customer feedback, internal audits, management review	Available	—	ISO 7.9, 8.5 to 8.9
core_validation_record	Software validation pack for each release	Partial	—	ISO 7.11.2. Being finalised
core_method_validation	Method validation (LOD/LOQ, trueness, repeatability) and electronic raw records	Partial	3	ISO 7.2.2. Validation records, studies and four-eyes approval exist; environmental conditions and reagent links come later
core_reagent_register	Reagent and standard register: lots, bottles, expiry after opening, prepared solutions, use records, trace-back to results; stock by mass, inventory and procurement later	Available	5	ISO 6.4, 6.5, 6.6. Stock by mass later
qms_readiness	Assessor pack; accreditation-readiness dashboard	Available	8	Clause-by-clause table and a printable pack, to help the laboratory prepare for an assessment
core_retraining	Retraining when a document changes (linking competence to document control)	Under construction	10	
core_quality_metrics	Quality indicator dashboard, feedback trends, satisfaction survey	Under construction	12	Sending surveys to customers needs the customer portal
core_oos_investigation	Out-of-specification (OOS) investigation: open an investigation from a result, conclude the cause, link a corrective action	Under construction	16	Linked to the quality register that already exists
qms_result_trace	One-click trace of a result: the sample and who received it, who tested it and their competence at the time, the equipment and its calibration, reagent lots, the day's QC, method validation, who reviewed and approved, the sealed audit trail	Under construction	33	The data is already in the system, only linked together; ISO 6.2, 6.4, 6.6, 7.5, 7.7

qms_vilas_dossier	VILAS accreditation application and maintenance dossier: scope, method validation, PT and competence tables for scope extensions and surveillance assessments	Under construction	34	Needs the accreditation body's current forms
qms_integrity_report	Monthly data-integrity certificate: the sealed audit chain checked automatically, a printable page with its hash to hand to assessors	Under construction	35	ISO 7.5.2, 7.11.3

Analytics module

An add-on module for either base plan. Data-analysis services: some run as soon as QC, PT and uncertainty data exist (QC drift, PT trend, uncertainty monitoring, outliers, review prioritisation); three switch on once the lab has real history (turnaround prediction, late-risk list, sample-volume forecast).

Flag code / core name	Feature	Status	Work order	Note
ds_tat_prediction	Turnaround-time prediction (P50, P90) at sample receipt	Partial	—	The model must be retrained on the lab's real data before it is switched on
ds_late_risk	Late-risk sample list (needs turnaround prediction)	Partial	—	As above
ds_history_outlier	Outlier flag against a test's history (z-score from median and MAD)	Available	—	
ds_intake_forecast	Forecast of samples received this week and next, for the whole lab and per section	Partial	—	Meaningful only with the lab's real sample history
ds_qc_drift	QC drift detection (CUSUM/EWMA): early warning of small sustained shifts	Available	—	
ds_pt_trend	Proficiency-testing trend (CUSUM across rounds)	Available	—	
ds_mu_monitor	Measurement-uncertainty monitoring: confidence interval of U	Available	—	
ds_review_triage	Review prioritisation by risk (sorting only, never auto-approves)	Available	—	
rpt_trend	Result trends by sampling point, customer, source	Under construction	20	
ds_capacity, ds_assign_hint	Staff and equipment capacity forecast; assignment suggestions	Under construction	21	
ds_tat_prediction	Retrain the turnaround model on the lab's real data and check it beats the "standard days" rule	Under construction	22	Needs the lab's real data
ds_advanced_stats	Advanced statistics: ANOVA, DOE, regression, SPC; annual product review report, operational indicators	Under construction	23	Same family of analytics services as the plan
ds_calibration_forecast	Machine-learning calibration forecast	Under construction	32	Needs the lab's real data

ds_result_confidence	Result confidence score before approval: the day's QC, equipment, competence, anomaly flags and expired reagents combined into one score with reasons in the review queue	Under construction	36	Suggests only, never approves; the four-eyes rule stays
----------------------	---	--------------------	----	---

Customer module

Add-on module: customer portal, e-mail for reports and notifications; later Zalo and SMS.

Flag code / core name	Feature	Status	Work order	Note
cx_portal	Customer portal: track progress, download reports and -R1 versions, answer quotations (phase 1); submit requests, statistics (later)	Partial	39	Phase 1 tested live on a trial instance; not yet set up for any lab
cx_email	E-mail: send reports, notifications, one-time codes	Partial	40	Groundwork done; sending reports and notifications is not yet available
cx_sms, cx_crm	Light CRM; SMS and Zalo notifications	Under construction	50	
cx_zalo	Notifications and customer portal over Zalo	Under construction	51	Cost per message

Instrument Data module

Add-on module: result import from instrument export files, sample worklists sent to instruments, automatic file capture. Connecting each instrument is charged per job.

Flag code / core name	Feature	Status	Work order	Note
int_instrument	Import results from instrument export files (preview, column mapping); later, send sample worklists to instruments	Under construction	42	Needs sample files from the lab's instruments; exporting sample lists in the instrument's format comes first. Connecting each instrument is charged per job
int_sdms	Automatic collection of files from instruments and e-mail, parsed into a results table (SDMS)	Under construction	43	After one real instrument file type can be read

Business module

Add-on module: extended quotations, customer-specific report templates, advanced reports, invoicing, receivables and margin, reports in government-agency formats.

Flag code / core name	Feature	Status	Work order	Note
biz_pricing	Extended quotations: other fees, framework agreements, per-customer price lists, line discounts	Under construction	44	Tax treatment is being finalised

rpt_template	Customer-specific report templates: letterhead, JSON configuration, custom forms	Under construction	45	The lab's letterhead is in the base plan; a report form laid out as the lab's own is charged per job. Keeps the mandatory fields of ISO 7.8.2.1
rpt_advanced	Advanced reports: choose columns, scheduled export, charts in reports, pivot	Under construction	46	Scheduled export needs e-mail
biz_invoice, biz_margin	Invoicing, receivables; margin per test and customer	Under construction	47	E-invoicing needs a provider
rpt_gov_forms	Reports in the formats of government agencies (national technical regulations, ministry and department monitoring forms)	Under construction	52	Needs the agency's actual report forms

Advanced Compliance module (pharma, GMP)

Add-on module for pharmaceutical and GMP laboratories: electronic signature, digital signing of reports, software validation kit, step-by-step method procedures.

Flag code / core name	Feature	Status	Work order	Note
rpt_esign	Electronic signature: password re-entry with signature meaning	Under construction	41	True digital signatures need a certificate provider
qms_validation_pack	Software validation kit for customers: user requirements, repeatable test scripts (IQ/OQ/PQ), test strategy, procedures	Partial	48	Extends the software validation record; no GMP claim yet
ops_method_steps	Configurable steps per test method	Under construction	49	
rpt_vn_esign	Digital signature of result reports with Vietnamese signing certificates, alongside the existing QR verification	Under construction	53	A real digital signature needs a certificate provider

On request (quoted separately)

No fixed subscription: a one-time implementation fee plus a small monthly maintenance fee. Built only when a customer funds it.

Flag code / core name	Feature	Status	Work order	Note
ds_ai_assistant	AI assistant: explain charts, read-only Q&A	On request	4	Demonstration on the demo site, not yet in the product. Cost is metered per use
ind_micro	Microbiology: colony counts, MPN, membrane filtration, antibiograms, microbiology and food-safety dashboard	On request	24	Opens when the lab needs microbiology

ind_water	Water and environment package: maximum hold time, sample delivery groups, regulator-specific report forms, data intake from subcontracting labs	On request	26	Report forms under Vietnamese rules still to be researched
ind_env_monitoring	Environmental monitoring: hierarchical sampling points, sampling schedule, trends and alerts (clean rooms, plants)	On request	27	Only for labs with clean rooms or plant monitoring
int_lab_software	Integration with instrument software and outside systems: chromatography software, external QMS, MES, SCADA, MQTT	On request	28	Needs a customer with a specific system
ops_mobile	Mobile: camera barcode scanning, photos and location attached to data, sampling on site, offline work	On request	29	Extends scanning and the phone application
ops_subcontract, ops_project, ind_sampling_plan	Subcontracting; projects and batch contracts; periodic sampling plans and stability sampling at 3, 6, 12 months	On request	54	
ind_pharma, ind_field	Industry features: pharmaceutical, field work	On request	55	
ops_multisite	Multiple sites within one customer	On request	56	
int_api, int_sso	Open API, webhooks; on-premises SSO	On request	57	
int_iiot	Automatic instrument connection (CLSI LIS, HL7); temperature and humidity monitoring	On request	58	Needs specific instruments and sensors
ops_equipment_booking	Equipment booking	On request	59	
ops_sample_split	Sample splitting: sub-samples with their own codes (aliquots) at receipt, traced to the parent sample; storage-location inventory	On request	60	Built on request when a customer has real sub-samples
std_*	Extension to other ISO standards	On request	61	
int_erp	ERP/SAP connection: receive sampling orders, return the usage decision after testing	On request	62	The SAP side is configured by the customer or their SAP consultant
ds_mu_bottomup, ds_coa_draft	Bottom-up (GUM) uncertainty estimation; automatic result-report drafts	On request	63	
ind_stability	Stability studies: protocol, pull points by storage condition, reminders, expiry dating	On request	64	Built when a customer pays for it
ind_lot_mgmt	Product lot management: lot registration, parent-child lot tree, traceability, hold and release, raw-material release, per-lot result report	On request	65	Only for labs tied to manufacturing or pharma
ops_les	Step-by-step method execution (LES): electronic worksheet that enforces each step, end-of-step checks, stop on deviation	On request	66	Designed together with per-method step configuration
ops_rules_engine	Configurable rule set: flags, alerts, reflex tests (result A adds test B), reporting units	On request	67	Auto-approval is not included: four-eyes stays

ops_sample_pool	Derived and pooled samples: full parent-child sample relations, two-way tracing	On request	68	Designed together with sample splitting
ops_custom_fields	Custom fields per sample type and test; query builder and reusable report templates	On request	69	How to customise per customer still to be decided
ops_work_planning	Work assignment and planning by competence, workload and calendar (people, teams, equipment)	On request	70	Extends capacity forecasting
ops_config_change	Configuration change management: approved change requests, rollback, configuration transfer between environments	On request	71	Needed only when per-customer configuration becomes data
core_archiving	Archiving of old data, partitioning and advanced filtering for multi-year data	On request	72	Built when data spans several years
ds_ai_agents	Extended AI: semantic search, natural-language questions, suggestion agents, predictive maintenance	On request	73	Read-only and suggestions, never writes a decision; cost per use
ops_sampling_kit	Sampling kits sent to customers (kit design, stock, orders) and sample distribution requests	On request	74	Only when the lab sends sampling equipment to customers
qms_env_monitor	Environmental-condition monitoring with sensors (sample fridges, balance rooms, incubators), alerts when limits are passed	On request	75	Needs specific sensors
ds_ai_assistant	ISO assistant on the lab's real data: ask about clauses and get links to the actual records, check a report before approval	On request	76	Extends the demonstration version; charged per use, with a monthly cap
ops_eln	Electronic lab notebook (ELN): notebook templates, notes linked to samples and tests, witness	On request	77	Outside ISO/IEC 17025; built only on request
ind_biobank	Biobank and clinical research: subjects and consent, study protocols, blinding, multi-well plates	On request	78	Outside ISO/IEC 17025 (separate standard); built only on request
ind_clinical	Clinical laboratory testing (LIS): patients, critical values, reference ranges, LOINC/SNOMED codes, HL7/ASTM, anatomic pathology	On request	79	Outside ISO/IEC 17025 (separate standard); built only on request
ind_forensic, ind_bioanalysis	Forensics (cases, exhibits, evidence kits) and bioanalysis (PK, incurred-sample reanalysis)	On request	80	Two narrow fields; built only on request

What We Can Deliver

Exomaly LIMS is an independent project founded by Trương Đăng Khoa, who designs, programs and operates it directly. That lets us decide quickly and build exactly what a laboratory really needs, without layers of approval. For every feature marked "Under construction" in this document, we can fully deliver it, because it is within our ability, once both sides have agreed on the two conditions below.

Two conditions

1. **Complete input documents.** The laboratory provides what the feature needs to be right from the start: for example sample files exported from its instruments, calculation formulas, current procedures and forms, the test catalogue. Clear documents make the feature match the laboratory's reality and reduce rework.
2. **An agreed development budget.** Exomaly LIMS is a small project with limited resources, so features beyond the plans already offered are delivered against a quotation agreed in advance. The budget covers development time, testing and external service costs (such as e-mail, digital signature, e-invoicing) the feature needs.

How we work

1. The laboratory sends the request and the related documents.
2. We analyse it and reply in writing with scope, cost and an estimated timeline.
3. Both sides confirm; we build and test it on a trial instance.
4. We accept it together with the laboratory before it goes into production use.

Notes

- The timeline is set in writing once both sides meet the conditions above; this document does not give a completion date before that point.
- For features that depend on a third party (digital-certificate provider, e-invoicing provider, instrument manufacturer), the Exomaly LIMS part is fully within our ability; the third party's own schedule is outside our control and will be stated clearly in the quotation.
- A feature accepted under a laboratory's contract belongs to that contract's scope; shared parts are updated for all customers.