

Software Requirements Specification (SRS)

Research Approval & Repository System (RARS)

Version: 1.0

Prepared for: Ministry of Health

Prepared by: (To be completed)

This document defines the functional and non-functional requirements for a secure, on-premises system that manages research applications, internal approvals, final paper submissions, and a searchable public-facing repository with controlled restrictions for sensitive studies.

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1. Introduction

The Ministry of Health receives research requests from students, NGOs, consultants, and other entities. These requests require ministry approval before data collection. Once research is completed and graded (for students), the final paper must be submitted back to the Ministry. The Ministry also receives requests from third parties and the public to access or analyze existing research outputs. Currently the process is managed manually through hard copies.

RARS digitizes this end-to-end process on an on-premises ministry server and network, providing traceability, security controls, and a public-facing research repository with selective restrictions for sensitive studies.

1.1 Goals

- Replace manual filing with a tracked, auditable workflow from submission to ED decision.
- Enforce mandatory ethics approval and mandatory final graded paper submission for approved applications.
- Provide a searchable repository where the public can find and read research outputs, while restricting sensitive items when required.
- Enable extension requests when data collection timelines change.
- Digitize and import legacy hard-copy research into the repository.

1.2 Assumptions

- Ethics approval is always required before ministry approval.
- Conditional approvals are not issued (approve or reject only).
- Standard turnaround is 5 to 15 working days, depending on volume and review routing.
- System is hosted strictly on ministry infrastructure; no external cloud hosting.

2. Scope and Objectives

2.1 In Scope

- Online application submission with document checklist and validation rules.
- Multi-office review workflow ending with ED approval and letter generation.
- Extension request workflow for approved applications.
- Final graded paper submission and closure of cases.
- Public repository with advanced search, download, and restrictions for sensitive studies.
- Secondary-use requests (optional) for restricted items, with access logging.
- Legacy research digitization and bulk import.

2.2 Out of Scope (initial release)

- Automated extraction of patient-level data from operational systems (RARS only manages approvals and documents).
- Payment processing for access or services.
- Integration with external SSO/Active Directory (not required).

3. Stakeholders and User Roles

Role	Primary Responsibilities
Public Visitor	Search repository and view/download public papers.
Applicant	Submit applications, respond to clarifications, request extensions, upload final paper.
Admin Officer (Filing/Screening)	Initial completeness screening, routing, letter dispatch, closure checks, legacy digitization.
Reviewer (Program/HIS/Data Owner)	Review applications, request clarifications, recommend approve/reject.
Executive Director (ED)	Final decision and approval confirmation for letters.
System Admin (IT)	User administration, backups, monitoring, security configuration.

4. Business Process Workflows

4.1 Primary Research Approval Workflow

- Stage 0: Account creation and verification.
- Stage 1: Application drafting (save-as-draft) with required fields and document checklist.
- Stage 2: Administrative screening (completeness check; SLA target within 5 working days).
- Stage 3: Multi-office technical/program review (SLA target within 5-15 working days total).
- Stage 4: ED decision (Approve or Reject).
- Stage 5: Letter generation, dispatch, and archival in case record.
- Stage 6: Active research tracking and extension requests (if required).
- Stage 7: Final graded paper submission (mandatory) and optional supporting artifacts.
- Stage 8: Closure and publication to repository (with restrictions if applicable).

4.2 Decision Points

- Application submission is blocked until ethics approval letter is uploaded and required fields are complete.
- Administrative screening can return the application for correction; the system preserves versions.
- Reviewers can request clarification; applicant responses are tracked.
- ED issues final approve/reject decision; decision letter is generated from a template.
- Final paper must be submitted before a case can be closed and published.

4.3 Public Repository and Restrictions

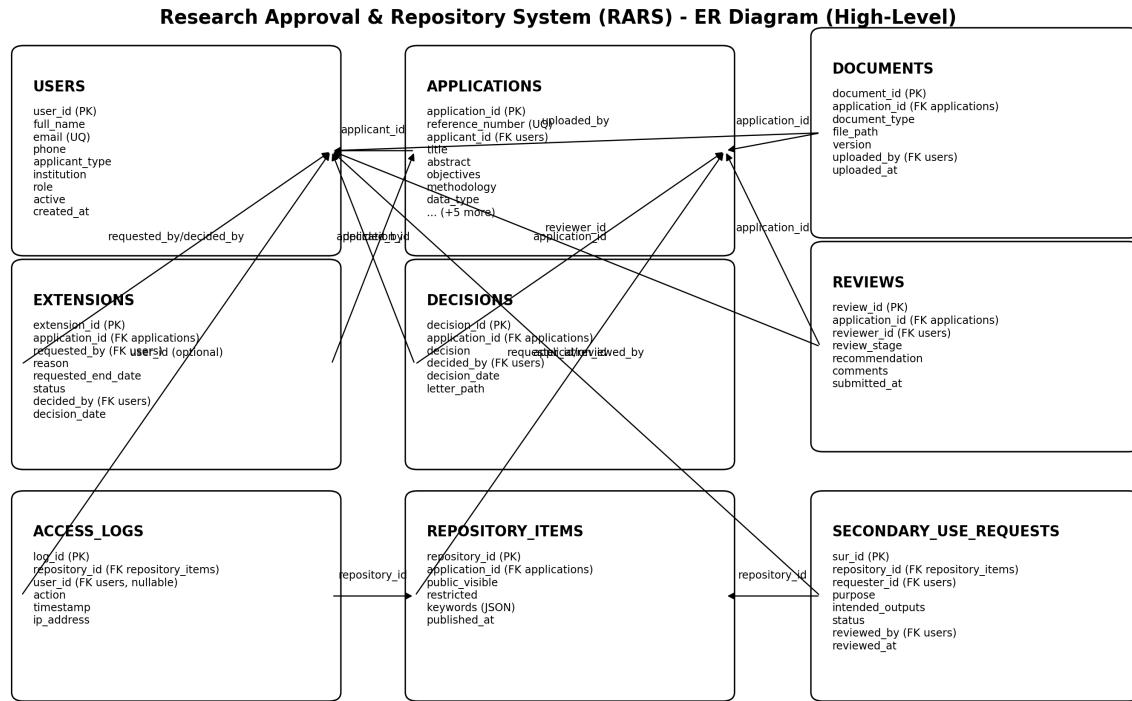
- Repository is searchable by the public, including non-logged-in users.
- Some research outputs may be marked Restricted based on data type and sensitivity (e.g., patient-level data, vulnerable populations, security-sensitive topics).
- Restricted items can still display metadata publicly; access to full files may require authentication and acceptance of terms.
- All views and downloads for restricted items are logged.

5. Functional Requirements

ID	Requirement
FR-01	User registration with email verification and role-based access control (RBAC).
FR-02	Applicant application wizard with save-as-draft and server-side validation.
FR-03	Mandatory ethics approval upload required before submission.
FR-04	Student applications require institution letter and supervisor endorsement upload.
FR-05	Administrative screening queue with return-for-correction workflow and version history.
FR-06	Multi-office review assignment (Program/HIS/Data Owner) with structured review forms and recommendations.
FR-07	Clarification messaging thread per application with attachments and timestamps.
FR-08	ED final decision: Approve or Reject; record decision metadata.
FR-09	Decision letter generation from ministry templates; store letter PDF in case record.
FR-10	Extension request submission and approval workflow for approved applications.
FR-11	Final graded paper submission (mandatory) and closure checks by Admin Officer.
FR-12	Repository publishing of completed cases with searchable metadata and file access rules.
FR-13	Restriction controls based on data sensitivity (patient-level vs aggregated) with per-item override.
FR-14	Public search and download for non-restricted papers; authenticated access controls for restricted items.
FR-15	Audit logs for actions (create/update/decision/download) and exportable case history.
FR-16	Legacy digitization module for scanning/importing historical papers with metadata capture and bulk upload.

6. Data Model and ER Diagram

The following ER diagram is a high-level representation intended to guide database design and API contracts. Field names are indicative and may be normalized further during implementation.



7. REST API Contracts

All endpoints are JSON over HTTPS. Authentication uses JWT bearer tokens. Files are uploaded using multipart/form-data. Base path: /api/v1

7.1 Authentication

Method	Endpoint	Description
POST	/auth/register	Create applicant account; send verification email.
POST	/auth/verify-email	Verify email via token.
POST	/auth/login	Authenticate and return JWT + refresh token.
POST	/auth/refresh	Refresh access token.
POST	/auth/logout	Invalidate refresh token (server-side).

7.2 Users

Method	Endpoint	Description
GET	/users/me	Get current user profile.
PATCH	/users/me	Update own profile fields (phone, institution, etc.).
GET	/admin/users	List users (admin only, paginated).
PATCH	/admin/users/{userId}	Activate/deactivate user; change role (admin only).

7.3 Applications

Method	Endpoint	Description
POST	/applications	Create draft application.
GET	/applications	List own applications (applicant) or queue view (staff) with filters.
GET	/applications/{appId}	Get application detail including workflow status and documents.
PATCH	/applications/{appId}	Update draft or returned application fields.
POST	/applications/{appId}/submit	Submit application (runs validations).
POST	/applications/{appId}/return	Return for correction with reasons (admin/reviewer).
POST	/applications/{appId}/assign-reviewers	Assign reviewers and due dates (admin).

7.4 Documents

Method	Endpoint	Description
POST	/applications/{appId}/documents	Upload document (multipart).
GET	/applications/{appId}/documents	List documents with versions.
GET	/documents/{docId}/download	Download (permission-controlled; logs access).
DELETE	/documents/{docId}	Soft-delete document version (admin only).

7.5 Reviews and Clarifications

Method	Endpoint	Description

POST	/applications/{appId}/reviews	Submit review form and recommendation (reviewer).
GET	/applications/{appId}/reviews	List reviews (staff).
POST	/applications/{appId}/messages	Post clarification message (applicant/staff).
GET	/applications/{appId}/messages	Get message thread for application.

7.6 Decisions and Letters

Method	Endpoint	Description
POST	/applications/{appId}/decision	ED posts final approve/reject decision.
GET	/applications/{appId}/decision	Get decision detail and letter metadata.
GET	/letters/{letterId}/download	Download generated letter PDF.

7.7 Extensions

Method	Endpoint	Description
POST	/applications/{appId}/extensions	Request extension (applicant).
GET	/applications/{appId}/extensions	List extension requests.
POST	/extensions/{extId}/decision	Approve/reject extension (ED/admin workflow).

7.8 Final Submission

Method	Endpoint	Description
POST	/applications/{appId}/final-submission	Upload final graded paper and artifacts.
POST	/applications/{appId}/close	Close case once checks pass (admin).

7.9 Repository and Public Search

Method	Endpoint	Description
GET	/repository/search	Public search (q, filters, paging).
GET	/repository/{repoid}	Get repository item metadata.
GET	/repository/{repoid}/download	Download paper (rules depend on restricted flag).
PATCH	/repository/{repoid}	Update keywords/restriction flags (admin).

7.10 Audit and Logs

Method	Endpoint	Description
GET	/admin/audit	Search audit logs (admin).
GET	/admin/access-logs	Search repository view/download logs (admin).

7.11 Legacy Digitization (Import)

Method	Endpoint	Description
POST	/admin/legacy/import	Bulk import legacy papers with metadata (admin).
GET	/admin/legacy/import/{jobId}	Check import job progress and errors.

7.12 Example Payloads (Selected)

POST /applications (create draft)

```
{ "title": "...", "dataType": "AGGREGATED", "startDate": "2026-03-01", "endDate": "2026-05-30" }
```

POST /applications/{appId}/submit (submit)

```
{ "declarationAccepted": true }
```

GET /repository/search (public search)

```
/api/v1/repository/search?q=malaria&year;=2025&restricted;=false&page;=1&pageSize;=20
```

8. UI Wireframe Descriptions

These are screen-by-screen descriptions for UX/UI design and development. They specify layout regions and key components. Final visual design can follow ministry branding guidelines.

8.1 Public Repository Home

- Header: Ministry logo, Search bar (keywords), Login button.
- Filters panel (left): Year, Institution, Topic/Program, Region, Data Type, Restricted/Public toggle (hidden for public if not applicable).
- Results list (center): Title, authors, institution, year, short abstract snippet, badges (Public/Restricted).
- Footer: Disclaimer, contact email/phone, policy links.

8.2 Repository Item Detail

- Title, authors, institution, date approved/published.
- Metadata: objectives, methodology summary, regions/facilities, data type, keywords/tags.
- Download/View button: visible immediately for Public items; for Restricted items prompts login + terms acceptance.
- Related items panel: 5-10 similar studies by keyword/topic.

8.3 Applicant Dashboard

- Stats cards: Drafts, Submitted, In Review, Approved (Active), Pending Final Submission, Completed.
- Table: Applications with reference number, title, status, last updated, action buttons (Continue, View, Upload Final, Request Extension).
- Notifications panel: messages from reviewers/admin, deadlines.

8.4 Application Wizard (Create/Edit)

- Stepper navigation: Applicant Info, Study Details, Data Request, Ethics & Documents, Review & Submit.
- Right-side checklist: required documents with status (Uploaded/Missing).
- Save draft button always available; Submit enabled only when validations pass.
- Inline validation messages on required fields.

8.5 Upload Documents Modal/Page

- Document type dropdown (Ethics Letter, Supervisor Letter, Institution Letter, Proposal, Tools, etc.).
- Drag-and-drop upload area, file size/type hints, progress bar.
- Document versions list with uploaded date/time and uploader.

8.6 Admin Screening Queue

- Queue filters: New submissions, Returned, Overdue, By institution, By applicant type.
- List view: reference number, applicant, title, submitted date, SLA countdown.
- Action buttons: Open, Return for correction, Forward to review.

8.7 Application Detail (Staff View)

- Tabs: Overview, Documents, Review Forms, Messages, Timeline/Audit.
- Overview: key metadata and status.
- Documents tab: view/download with role controls.
- Assign reviewers (admin only) with due dates and stages.

8.8 Reviewer Console (Assigned Reviews)

- My Assignments list: due date, stage, application title, status.
- Review form: structured fields + recommendation approve/reject + comments.
- Request clarification button opens message thread and adds a task for applicant.

8.9 ED Decision Screen

- Summary of application and reviewer recommendations.
- Decision radio: Approve / Reject.
- Decision notes (optional).
- Generate letter preview and confirm.
- Decision history panel (read-only).

8.10 Extension Request Screen

- Applicant view: current approved dates, request new end date, reason, attachments (optional).
- Staff view: list of extension requests, status, ED decision actions.

8.11 Final Submission Screen

- Upload final graded paper (mandatory).
- Optional uploads: tools, dataset, codebook.
- Declaration checkbox (paper is final graded version).
- Submit final package button; then status becomes 'Pending Closure Check'.

8.12 Legacy Digitization (Admin)

- Bulk upload interface: spreadsheet template import or form-by-form entry.
- Attach scanned PDF, capture metadata (title, authors, year, institution, keywords, restriction flag).
- Import job status: processed, failed rows, downloadable error report.

9. Non-Functional Requirements

9.1 Security

- All traffic over TLS; system accessible only from ministry network (and approved perimeter rules if any).
- Encryption at rest for database and file storage; separate keys managed by IT policy.
- RBAC enforced on every endpoint; least privilege.
- Audit logging for decisions, document access, and admin actions.
- Virus scanning on uploaded files (recommended).

9.2 Performance and Reliability

- Support at least 200 concurrent public users and 50 concurrent internal users (adjustable target).
- Search responses within 2-3 seconds for typical queries on indexed metadata.
- Nightly backups with periodic restore testing.

10. Reporting and Audit

- Operational dashboards: items by stage, overdue reviews, average turnaround time.
- Compliance: approved studies missing final paper, extension request volumes, top institutions.
- Public repository analytics: top downloads, top topics (optional).
- Audit export per application: full timeline of actions and documents.

11. Data Migration and Digitization

Legacy hard-copy research must be digitized and imported so the repository is complete. The system should support both manual entry and bulk import.

11.1 Legacy Import Options

- Option A: Bulk spreadsheet import (CSV/XLSX) + zipped PDFs referenced by filename.
- Option B: Admin UI form-by-form entry for small batches.
- Option C: Hybrid: bulk metadata import then upload PDFs via UI.

11.2 Legacy Metadata Minimum Set

- Title, authors, year, institution, abstract/summary (if available).
- Keywords/tags, topic/program area, region/facility (if known).
- Restriction flag (Public/Restricted) with reason.

12. Acceptance Criteria

- Applicants can submit applications only when all mandatory documents and fields are complete; ethics approval is enforced.
- Admin screening can return applications; resubmission preserves history and timestamps.
- Reviewers can submit recommendations and request clarifications; applicants can respond with attachments.
- ED can approve/reject and the system generates a letter stored in the case record.
- Extension requests can be submitted and decided, with updated approved date ranges recorded.
- Final graded paper submission is enforced before closure and publishing to repository.
- Public users can search and download public papers; restricted papers require authentication and log every access.

13. Approval and Sign-off

By signing below, the undersigned confirm that this SRS accurately captures the required functionality and controls for the Research Approval & Repository System (RARS).

Name	Title/Office	Signature	Date
	System Owner (Research Office)		
	Executive Director (ED)		
	ICT Representative		
	Legal / Compliance (if applicable)		

Appendix A: Terms and Conditions (Repository Use) - To be completed per Ministry policy.