

LARA

LAND REFORM IN AFGHANISTAN PROJECT

SYSTEM DESIGN DOCUMENT

MANATRON, INC. – A THOMSON REUTERS BUSINESS

DRACS (Deeds Registry Archive System)

Afghan Supreme Court System

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Executive Summary

The purpose of the DRACS project is analyze functionality requirements and configure the Supreme Court Deeds Registry Archive Conversion System, which will improve data storage scalability in the courts through the replacement of the existing MS Access based system with a Microsoft SQL Server 2008 solution.

DRACS will be based on GRM Registry Backfile system, and configured according to business area analysis done. DRACS will be translated into both Dari and Pashto.



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1 INTRODUCTION

1.1 Purpose

This document details the user and system requirements for the implementation of an information technology system at the Makhzan. The automation of the digitalization processes will involve the configuration of GRM Registry Backfile.

The main audience members of this document are USAID and the Supreme Court of Afghanistan. This document has been written in an explanatory fashion to describe in detail both technical and administrative requirements at the Client Office.

1.2 Scope

This document describes the functional and non-functional requirements for modernization of the archive (Makhzan), specifically as it relates to the configuration of the GRM suite of software products for the automation of transactions that support the *digitalization of property rights*.

1.3 Definitions, Acronyms, and Abbreviations

This section provides definitions for all the terms used in this document:

AfLIS	Afghan Land Information System
AGCHO	Afghan Geodesy & Cartography Head Office
AICRS	Afghan Integrated Cadastre & Registry System
AIMS	Afghanistan Information Management Systems
ALCO	Afghan Land Consulting Organization
ARTS	Afghanistan Reliable Technology Services
BAA	Business Area Analysis
BPR	Business Process Reengineering
CDMS	Cadastral Data Management System
COP	Chief of Party
CORS	Continually Operating Reference Station
COTR	Contracting Officer's Technical Representative
GDMA	General Directorate of Municipality Affairs
GIROA	Government of the Islamic Republic of Afghanistan
GIS	Geographical Information System
GPS	Global Positioning System
HR	Human Resources
ICT	Information and Communication Technology



IDLG	Independent Directorate for Local Government
ISAF	International Security Assistance Force
IT	Information Technology
LADM	Land Administration Domain Model
LARA	Land Reform in Afghanistan
LIS	Land Information System
LIS/PIMS	Land Information System/Parcel Information Management System
MOU	Memorandum of Understanding
MUDA	Ministry of Urban Development Affairs
NGA	National Geospatial Intelligence Agency
PIMSS	Provincial Infrastructure Management Support System
RAMP-UP	Regional Afghan Municipalities Program for Urban Populations
SRS	Systems Requirements Specification
SUIS	Settlement Upgrading Information System
USAID	United States Agency for International Development
UNDP	United Nations Development Programme
VPN	Virtual Private Network

1.4 References

DRACS Business Area Analysis Report, November 2012.
Black's Law Dictionary, 9th Ed., for the iPhone/iPad/iPod touch
Law on Managing Land Affairs, Official Gazette.



2 REQUIREMENTS SPECIFICATIONS

The following chapter contains general requirements for the anticipated for the DRACS system.

2.1 Overall Context

The Makhzan office stores registered records that affect property, including titles, leases, mortgages, encumbrances, conditions, restrictions, exceptions, charges, and others. These documents constitute the register inventory from the Supreme Court.

There are Makhzan offices in each major province, which depends on the district court, there is also a central Makhzan which depends on the Central Department of Deeds and Document Registration of the Supreme Court and is located in Kabul, and each provincial Directorate is required to send copies of all of its land related documents annually to this central Makhzan.

The System will deploy *configured* GRM Registry Backfile to automate the digitalization of land title deeds (Qabala Qatai) and other land related (or supporting) documents in 11 provinces and central Makhzan. Specifically, GRM Registry Backfile will be used to store, manage, retrieve, and analyze information that is related to the registration of rights, interests and encumbrances for registered land in Afghanistan.

The System will support all operational work required for digitalization of existing deeds with supporting documents and will provide the following core processes:

- Support the automatic or semi-automatic generation of outgoing paper reports regarding to the existing rights in the Makhzan.
- Support indexing and scanning of all submitted land related deeds and supporting documents in the archive of the Makhazan office.

2.2 System Architecture Description

The DRACS system will be implemented as multi-layer system:

- **1st layer** – Database Management System and document storage. Microsoft SQL Server 2008 is the DBMS for the System.
- **2nd layer** – The GRM Registry application server. The Application Server (AS) will serve as middleware between Clients and the DBMS and will define data access and host business rules and workflow logic.
- **3rd layer** – Various GRM registration clients, including scanning and indexing.

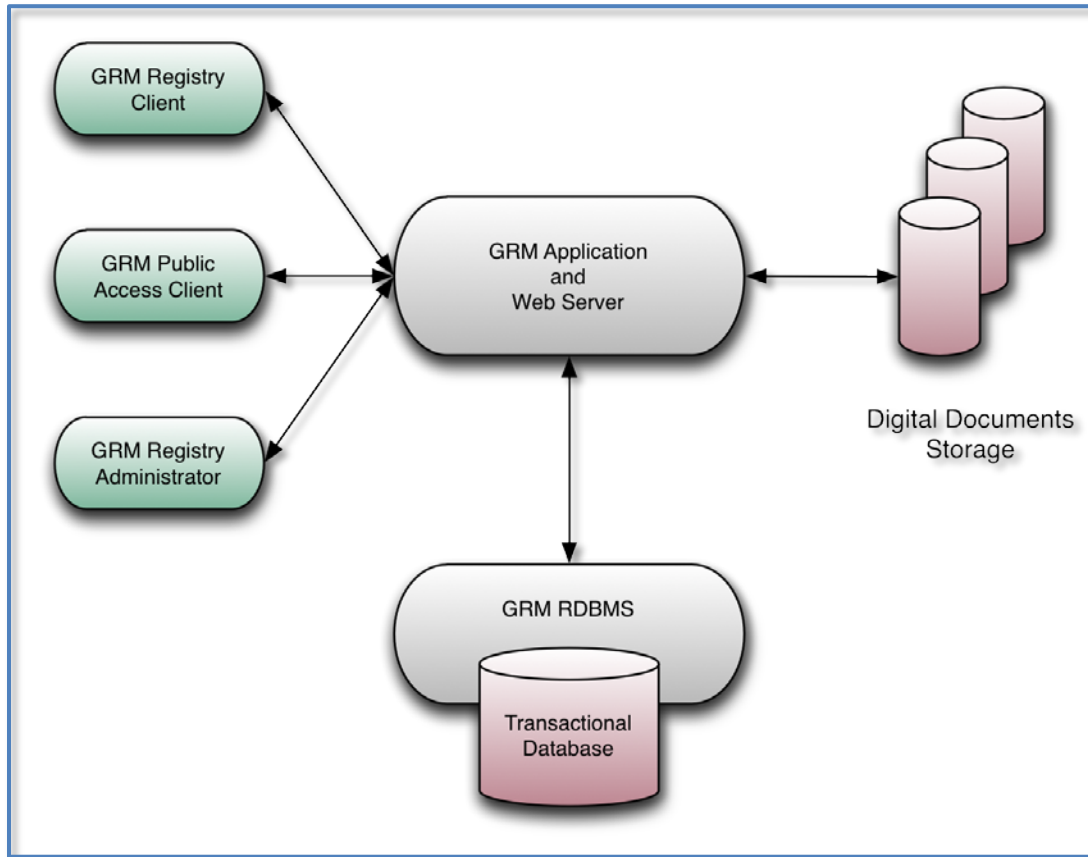


Figure 1. GRM Registry Backfile Architecture

2.2.1 Database Management Systems (DBMS)

For security, performance, and usability reasons, two separate datasets are residing on the same server. The following datasets will be used in the System:

- **Backfile transactions** – a database (managed by Microsoft SQL Server 2008 DBMS) that maintains all information about registered deeds, parties and rights on property.
- **Digital Documents** – a document storage that maintains scanned copies of documents.

2.2.2 GRM Registry Application Server

The application server will control access and set the security policy. The application server also includes workflow and business logic. The following key parts of the application server are recognized:

- **Data Access** – provides access to the DBMS;
- **Workflow Engine** – supports workflow functionality;
- **Reporting Engine** – supports report creation; and
- **Business Rules Engine** – supports business rule definitions and constraints that apply to the business processes.



2.2.3 GRM Registry Client Applications

2.2.3.1 GRM Registry Workstation

The GRM Registration Workstation will enable the following functionalities:

- Initiating Transactions;
- Data Entry (or Indexing);
- Data Verification;
- Record of past transactions; and
- Document Printing
- GRM Scanning Client

The GRM Scanning Client is used to scan deeds and supporting documents. The Scanning Client can also be used to attach documents and files (Word, Excel, PDF, etc.) to a transaction.

2.2.3.2 GRM Registry Administrator

The GRM Registry Administrator provides a set of centralized configuration and administration tools for the GRM Registry Backfile.

All configuration settings are server centric. Users with Administrative privileges are the only users allowed to access the administration module.

2.2.3.3. GRM Web Access

The GRM Web Access module provides an intranet web-based access to Registry content. The GRM Web Access module provides the following functionality:

- Search and browse registered deeds;
- Search and browse properties;
- Search and browse process and completed transactions; and
- Search, view, and print scanned documents (depending on permissions).



2.3 Functional User Groups

DRACS is envisaged to improve the inventory procedures in the Makhzan Office by automating digitalization processes. *Figure 2* below provides a general presentation of the proposed system users and how they interact with the System.

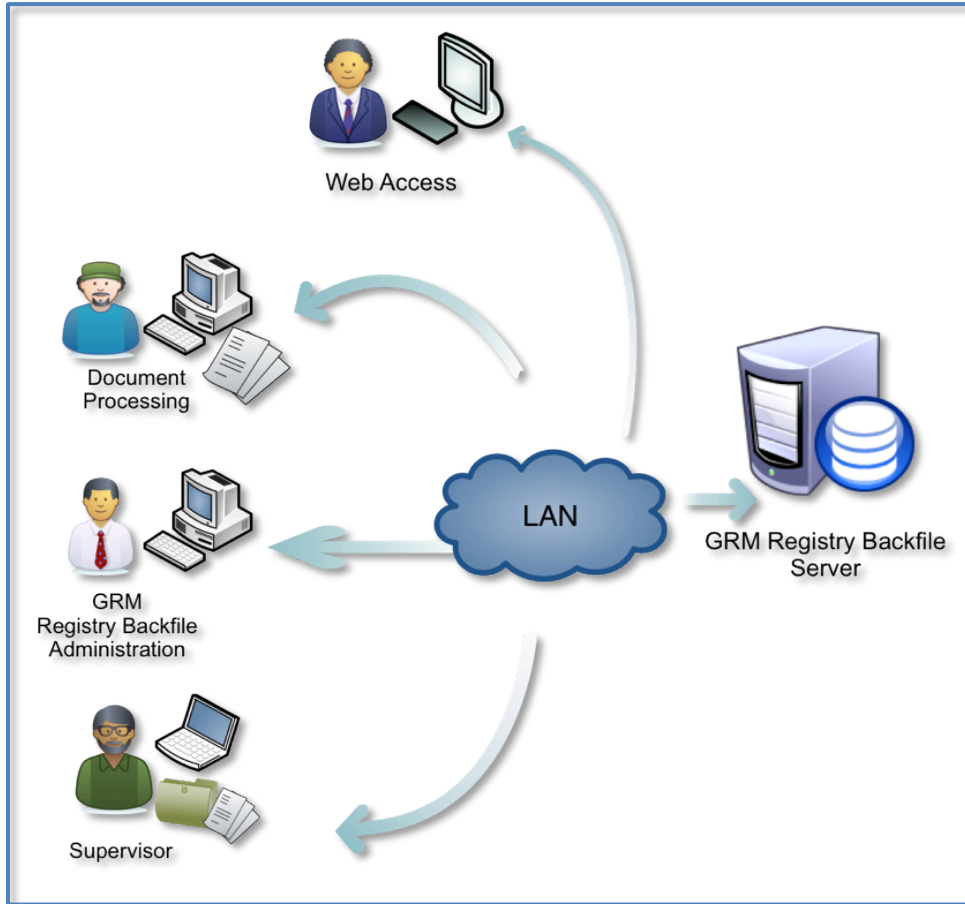


Figure 2. Proposed System Users

All the users that will work with the System can be seen on the *Figure 3* below, and in the following descriptive table.

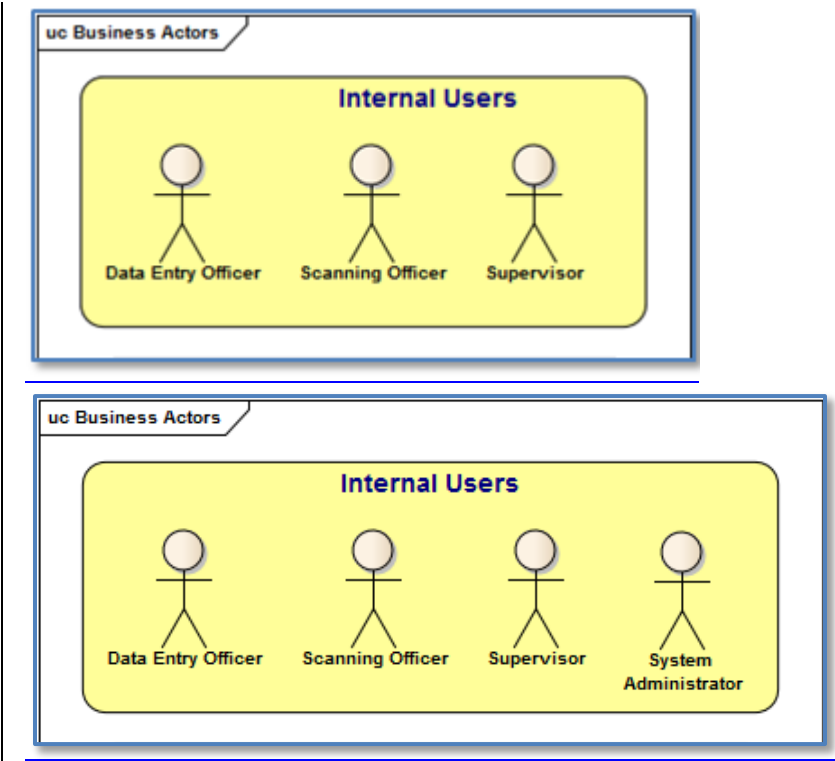


Figure 3. System Users

ID	Group Name	Description
[USR-01]	Data Entry Officer	This person enters information into the GRM Registry system
[USR-02]	Scanning Officer	This person will scan the land related deeds and all supporting documents, maintaining a digital copy of all land related files that are processed by the Makhzan (maintaining a EDMS)
[USR-03]	Supervisor	Responsible for reviewing all indexed and scanned documents and information entered in the system, such information committed to the database.



3 SUPPORTED TRANSACTIONS

This section describes the supported transactions that have been identified for configuration of the DRACS system. Below is a list of basic configured transactions to be supported by the proposed system.

ID	Transaction Name (Dari)	Transaction Name (English)	Code	Workflow
[TR-01]	Qabala Qatai	Definitive (Irrevocable) Title Deed	QQI	Indexing and Scanning
[TR-02]	Qabala Jaizi	Deed of Mortgage	QJZ	Indexing and Scanning
[TR-03]	Qabala Masooli	Taxable Deed	QML	Indexing and Scanning
[TR-04]	Qabala Dawlati	Government Deed	QDW	Indexing and Scanning
[TR-05]	Ibra Khat	Waiver	IRK	Indexing and Scanning
[TR-06]	Taraka Khat	Deed of Distribution per stirpes ¹	TRK	Indexing and Scanning
[TR-07]	Taqsim Khat	Deed of Distribution per capita	TQK	Indexing and Scanning
[TR-08]	Tamlik Khat	Letter of Conveyance	TMK	Indexing and Scanning

¹ Per stirpes: Proportionately divided between beneficiaries according to their deceased ancestor's share



4 FUNCTIONAL REQUIREMENTS AND PRINCIPLES

The functional requirements section describes in detail the proposed functionality that will be delivered in the DRACS system. Please note that in an effort to provide a complete requirements list, both project specific requirements and standard package features have been included.

4.1 Assumptions

The following assumptions have been made in the preparation of these requirements based on the GRM Registry Backfile software application:

- The System will provide an electronic archive of land and property rights.
- The System will support the scanning of land related deeds and all submitted supporting documents.
- The System will support the attachment of existing documents and files to transactions (i.e. PDF files).
- The System will be responsible for maintaining all identifiers currently maintained by the Makhzan Office.
- The System will provide authorized users the ability to access and search registry data via the intranet web-based module.
- The Directorate of Deeds and document Registration will provide all hardware and network infrastructure including configured operating systems; installed on the end user workstations and the servers that will be used for the installation and configuration of GRM Registry (the Hardware will be provided through assistance of Harakat).
- The system will be licensed to be used in 11 provinces and the central makhzan
- The installation of the system will be done in Kabul and is responsibility of the client to deploy the configured servers to their respective final locations.

4.2 Import from Legacy Systems

A preliminary digitalization of data was performed through the previous LTERA project, which captured information of irrevocable title deeds (Qabalaе Qatai), the information regarding to the deeds and parties is stored in Microsoft Access database and the scanned images maintained in a single hard drive with references to those files in the database.

DRACS will import the images and basic data of the legacy system in scope compatible with the data model of DRACS, if database structure and information is provided not later than December 31st, 2012.

4.3 Language Requirements

The system will be configured to support Dari or Pashto. The language will be defined during the installation of the system. Once installed it cannot be changed.

Due to the support of two different languages at different regional offices, two independent systems must be deployed at the central repository office:



- One system to support data replicated from the regional offices with Dari language; and
- Another system to support data replicated from the regional offices with Pashto language.

4.4 Indexing Principles

The table below lists the general requirements

ID	Description	Details/Comments
[GEN-01]	The system shall allow the Administrator and any other persons designated by the Administrator to access defined modules and/or applications.	This is related to user access and assignment of privileges to access features and stages in the system
[GEN-02]	The system shall support the review of information and verification of information on screen.	
[GEN-03]	The system shall allow the suspension of transactions.	Suspension means the temporary hold of the process on indexing or scanning for different purposes (like end of the working hours).
[GEN-04]	The system shall allow the withdrawal of a pending transaction	If there is a transaction that contains inaccurate data or needs to be withdrawn from the digital archive, the system will provide a way to withdraw the transaction by the authorized user(s) and keep a record of that procedure for data audit.
[GEN-05]	The system shall allow the scanning and linking of scanned documents to a related transaction	
[GEN-06]	The system shall allow the attachment of already scanned images to a related transaction	
[GEN-07]	The system shall allow the attachment of image files to a related transaction	
[GEN-08]	The system shall allow the viewing of completed transaction details via the web viewer.	



4.5 Property

ID	Description	Details/Comments
[PROP-01]	The system shall support the recording of basic information associated with a property	Basic information is as per information captured in the property books
[PROP-02]	The system shall support the record of past land related deeds.	

4.6 Parties

ID	Description	Details/Comments
[PRT-01]	The system shall support the entry of personal information.	
[PRT-02]	The system shall support the search of parties already registered in the database	
[PRT-03]	The system shall support multiple parties as part of a single transaction.	

4.7 Rights

ID	Description	Details/Comments
[RGHT-01]	The system shall support the indexing of existing registered land rights	

4.8 Identifiers

ID	Description	Details/Comments
[ID-01]	The system shall support generation of sequential numbers for entities or objects in the system.	
[ID-02]	The system shall support the use of a unique identifier for each person/entity.	Taskera (National ID), Passport or Driver's License for individuals; Certificate of Incorporation/Registration for the companies; no identifiers for the Government.



ID	Description	Details/Comments
[ID-03]	The system shall support the use and generation of a unique identifier for all system transactions.	
[ID-04]	The system shall support the capture of a unique identifier for documents that are recorded.	

4.9 Reporting

ID	Description	Details/Comments
[REP-01]	The system shall provide the functionality to print a Content Summary report from the Content category	
[REP-02]	The system shall provide the functionality to print a Content Detailed report from the Content category	
[REP-03]	The system shall provide the functionality to print a Instrument Ageing report from Tracking category	
[REP-04]	The system shall provide the functionality to print a Staff List report from the Staff category	
[REP-05]	The system shall provide the functionality to print a Staff Productivity Detailed report from the Staff category	
[REP-06]	The system shall provide the functionality to print a Staff Productivity Summary report from the Staff category	
[REP-07]	The system shall be able to export reports in “standard” exchange formats.	PDF, XLS

4.10 Data Replication Requirements

ID	Description	Details/Comments
[RPL-01]	The system must support off-line replication of completed transactions (i.e. scanned and indexed data) from the regional offices to the central repository office.	The off-line replication data will be carried to the central repository on external media (e.g. external hard drives, DVD or Blue Ray discs – depends on the volume of the data to be replicated).



ID	Description	Details/Comments
[RPL-02]	The system in the central repository office must support receipt of multiple replicas from the regional offices.	
[RPL-03]	The replicas from the regional offices where the system deployed in Dari language should be uploaded into the system at the central repository office that is deployed in Dari language.	
[RPL-04]	The system in the central repository office deployed in Dari language should not allow receipt of replicas in languages other than Dari.	
[RPL-05]	The replicas from the regional offices where the system deployed in Pashto language should be uploaded into the system at the central repository office that is deployed in Pashto language.	
[RPL-06]	The system in the central repository office deployed in Pashto language should not allow receipt of replicas in languages other than Pashto.	

4.11 Office Specific Functionality Requirements

ID	Description	Details/Comments
[OFL-01]	<p>In the regional offices, the system should allow:</p> <ul style="list-style-type: none"> • data scanning and indexing functionality; • reporting functionality; • web based data searching and browsing functionality. 	
[OFL-02]	<p>In the central repository office, the system deployed in Dari should allow:</p> <ul style="list-style-type: none"> • reporting functionality – in Dari; • web based data searching and browsing functionality – in Dari. 	Data scanning and indexing functionality should not be allowed at the central repository office, this will be implemented by the disabling scanning and indexing workflow.



ID	Description	Details/Comments
[OFL-03]	<p>In the central repository office, the system deployed in Pashto should allow:</p> <ul style="list-style-type: none"> • reporting functionality – in Pashto; • web based data searching and browsing functionality – in Pashto. 	<p>Data scanning and indexing functionality should not be allowed at the central repository office, this will be implemented by the disabling scanning and indexing workflow.</p>

4.12 General Software Requirements

ID	Description	Details/Comments
[GS-01]	The Application Server of the system must be compatible with Windows Server 2008 x64 R2 Standard Edition.	
[GS-02]	The system must be implemented on MS SQL Server 2008 x64 Standard Edition.	
[GS-03]	The client applications of the system must be compatible with Windows 7 x32 and x64.	
[GS-04]	The client web based applications of the GRM Registry system (such as GRM Registry Administrator and GRM Registry Web Access) must be compatible with MS Windows Internet Explorer 9 or higher	

4.13 General Hardware Requirements

ID	Description	Details/Comments
[GH-01]	The system should be able to run on Intel compatible platform	
[GH-02]	The Application Server components of the system must be able to run on x64 bit platform.	
[GH-03]	The client components of the system must be able to run on x32 and x64 bit platform.	



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5 WORKFLOWS AND DESCRIPTIONS

This section describes the business processes that have been identified for configuration of the System. The DRACS system will have only one workflow, for indexing and scanning deeds, with supporting documents.

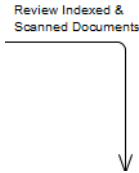
5.1 Workflow Description

This section describes the business process models that are depicted using process diagrams and tables. The process diagrams are composed using the following standard modeling notation elements used in the diagrams. The tables below provide a description of the process workflow:

- **Element:** The name of an activity or stage in the process; activities which have been determined to be similar in nature between processes may have the same name, but may be slightly different and include different inputs and outputs.
- **Graphical Representation:** Identifies the ‘Actor’ or the role of the user who is performing this activity; and the description of what the ‘Actor’ is doing in the activity.
- **Description:** Describes the functions that should be performed by the system; the information used and captured by the system (‘inputs’); the system artefacts (‘outputs’ in the form of reports, letters, etc.) that are generated during this activity; and the ‘next activity’ in the process.

Element	Graphical Representation	Description
Actor		An Actor is a user of the system; user can mean a human user or a system function (subsystem) in the model. In the workflow diagrams, actors are shown within vertical swim-lanes that contain activities performed by the actor.
Start and End Points		An event is something that “happens” during the course of a business process. These events affect the flow of the process and usually have a cause (trigger) or an impact (result). Events are circles with open centers to allow internal markers to differentiate different triggers or results. There are two types of events: Start and End.
Activity		An activity is a generic term for work that the office performs. Activities may be tasks, processes or sub-processes.



Element	Graphical Representation	Description
Sequence Flow		A Sequence Flow is used to show the order that activities will be performed in a Process.



5.2 Indexing and Scanning Workflow

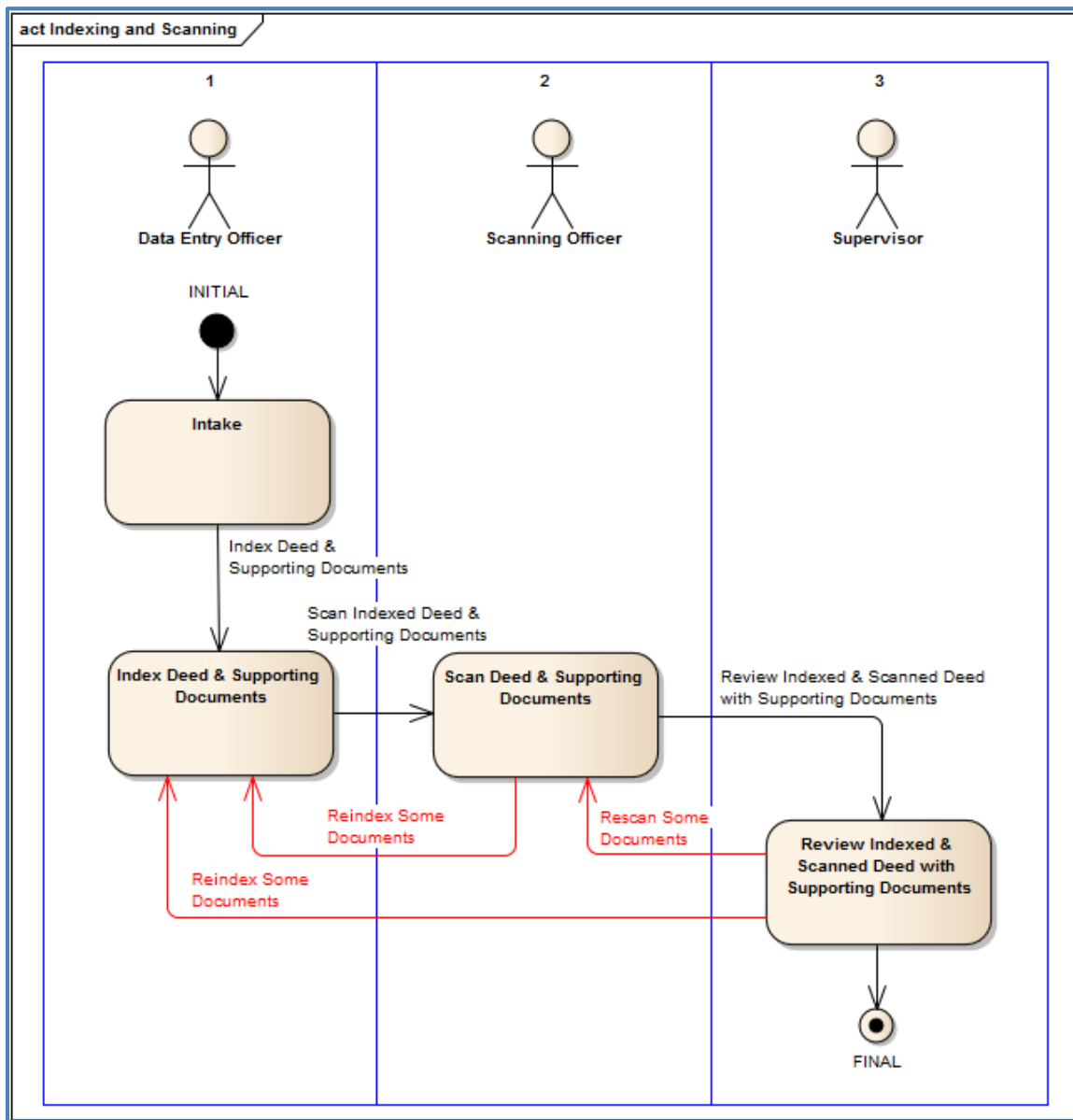


Figure 4. Indexing & Scanning workflow

The table below lists the functional modules to be configured for the stages in the “Indexing and Scanning”.



ID	Stage	Description	System Function
[IS-01]	Intake	Data Entry Officer initiates new scanning and indexing transaction.	Selection of the new transaction from transaction list
[IS-02]	Index Deed & Supporting Documents	Data Entry Officer indexes deed and supporting documents	Indexing document attributes, properties, parties, and rights
[IS-03]	Scan Deed & Supporting Documents	Scanning Officer scans deed and supporting documents	Scanning pages of the documents indexed at previous stage
[IS-04]	Review Indexed and Scanned Deed with Supporting Documents	Supervisor performs quality control of the indexed and scanned information.	Reviewing indexing and scanning. If any problem then sending transaction back to re-index or re-scan to the correspondent stage in the workflow.



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