Electronic Records Management System

System Specifications

For

Public Offices

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A. INTRODUCTION

1.0 Background

This document is part of a system specification documents. It is applicable to the public and the private sector organizations that wish to introduce Electronic Records Management System, or to assess the Electronic Records Management System capability they currently have in place.

This is established to ensure that the electronic records (e-records) generated by the public sector (or the private sector) can be preserved while maintaining its authenticity, availability and continuity so that it could easily be accessible at any time.

2.0 Objective

This document proposes functional requirements that can be used to evaluate Electronic Records Management System; to be applied in the management of information assets as records. However, these requirements are insufficient to define all mission specific needs for every organization. This specification describes the requirements for the public office to implementing the Electronic Records Management System. It focuses mainly on the functional requirements for the management of electronic records by an Electronic Records Management System (ERMS).

3.0 Scope

This System Specification, which focuses on functional requirements, documents all the requirements needed to deliver the ***IT management services***. The document will provide a mapping of the ***IT management services*** to the processes required to deliver them. It focuses on seven processes below:

- Appraisal Management
- Records Creation and Capture Management
- Records Maintenance Management
- Records Usage and Access Management
- Records Disposal Management
- Records Organization and Storage Management
- Records Acquisition Management

It is written with the assumption that ERMS users include not only Administrators or Archivists, but also general office and operational staff who

use ERMS as part of their everyday work while creating, receiving and retrieving records.

Based on the ANM Unified Model (refer to Section C), solutions are identified to become tools to perform the business processes. The potential solutions identified are as follows:

Solution	ANM	Public Office (Agency)
Record Management System	Owner	Owner
Multimedia Repository	Owner	Owner
Enterprise Content Management System	Owner	Client
Case Management System	Owner	Client
Collaboration Management	Owner	Client
Customer Relationship Management	Owner	Client

This System Specification document will include Record Management System, Multimedia Repository, Enterprise Content Management, and Collaboration Management.

4.0 What is an ERMS?

The management of electronic records is complex, requiring a large range of functionality to be implemented well. Clearly, a system to meet these needs – an ERMS – requires specialised software. This software may consist of a specialist package, a number of integrated packages, custom-designed software or some combination; and in all cases, there will be a need for complementary manual procedures and management policies. The nature of an ERMS will vary from organization to organization. This specification makes no assumption about the nature of individual ERMS solutions. Users of this specification will need to determine how the functionality of an ERMS can be implemented to meet their requirements.

5.0 For WHAT can this Functional System Specifications document be used?

The Functional System Specifications document is intended to be used:

- **by potential ERMS users:** as a basis for preparing an invitation to tender;
- **by ERMS users:** as a basis for auditing or checking an existing ERMS;
- **by training organizations:** as a reference document for preparing records management training, and as course material;
- **by academic institutions:** as a teaching resource;
- **by ERMS suppliers and developers:** to guide product development by highlighting functionality required;

- **by record management service providers:** to guide the nature of the services to be provided;
- **by potential users of outsourced record management services:** as an aid in specifying the services to be procured.

The specifications document is written with an emphasis on usability. Throughout, the intention has been to develop specifications, which are useful in practice.

B. METHODOLOGY

IT management services are defined based upon ARKIB Negara Malaysia's perception of services, and are scoped according to the requirements of the ARKIB Unified Model. The High Level Business Process is derived from the ARKIB Unified Model, developed by ARKIB Negara Malaysia. ARKIB Business Process Model explains the business process for ARKIB Negara Malaysia (ANM) and the Public Offices. ARKIB Business Process Model is then translated into IT Process Model and Functional Specifications. Refer to the below figure which illustrates the process flow:

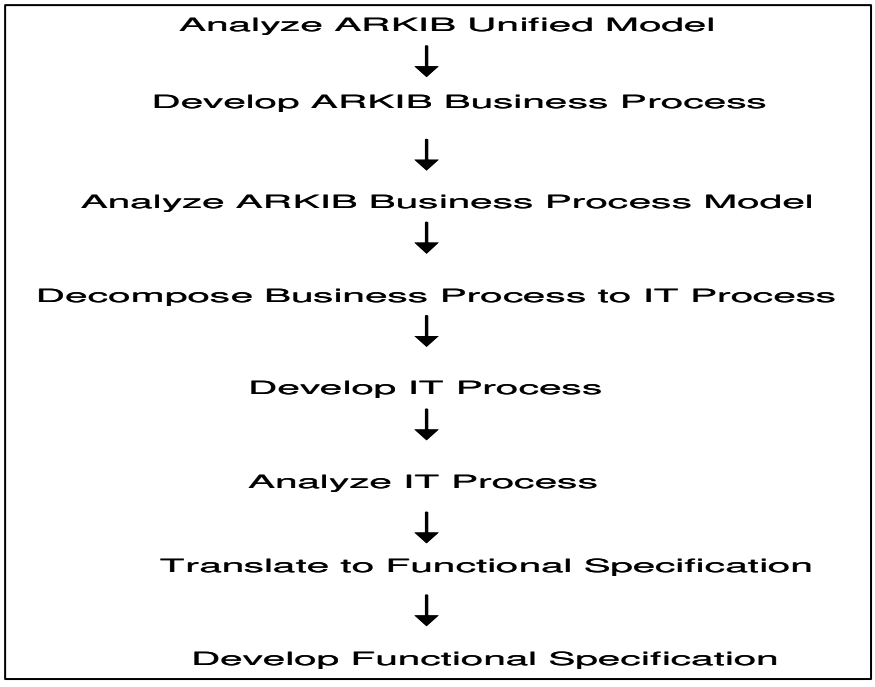


Figure 1: Process Flow

C. THE OPERATIONAL MODEL

1.0 ARKIB Unified Model

The Arkib Model defines the activities that need to occur between ANM and the public office from the point the record is created to the point it is disposed and transferred to ANM. This model should be a living model that should need to be continuously reviewed.

The model is divided into two main sections; The Public Office and ARKIB Negara Malaysia. From the public office's point of view, electronic records will be created due to the requirements to conduct business or its functions. It covers the need for the followings processes to be managed and maintain. The main processes are:

(a). The Appraisal process to assess in determining whether or not the electronic records have any archival value. The assessment of the electronic records will be based on ANM's pre-defined criteria, as well as the public office's specific requirements.

(b). Records Organization process to appropriately index the records, typically via an electronic file plan.

(c). The storage process, where these records are stored and preserved to ensure that these records are always available, authentic and secured.

(d). The "*context*ualisation" process to ensure that all the relevant metadata are captured and preserved.

(e). Finally, the access process that determines the rules and the capability to access the electronic records.

One of the critical components of the ARKIB Unified Model is the Appraisal Process. The conventional practice of appraising records at a series level also applies with electronic records. This is because, a document by itself may not have the archival value but it may provide the context that links the rest of the document in that particular file or series. With electronic records the same applies. Thus, it is appraised at the ***'series or folder'*** levels, as opposed to the document or individual electronic files. If a series or folder has been determined to be of archival value, any items or electronic files that are stored or saved into that folder will be archived according to the determined disposal schedule.

The appraisal process is the responsibility of both ARKIB Negara Malaysia and the public office. The appraisal at the public office is even more critical, as this is where electronic records that have archival value are first identified. The appraisal process will have to be conducted at following area:

- The point of creation
- The point of capture
- Prior to preservation

- Prior to disposal

Within the public office, the appraisal conducted at the point of creation and capture will allow all the necessary contextual information are captured. When the records have met their disposal period, the appraisal prior to preservation and disposal is to confirm that the records are indeed or archival value and have all the necessary contextual information. The records that need to be destroyed would be confirmed that they have indeed been cleared or authorized to be destroyed.

Within ARKIB Negara Malaysia, it is recommended that the archives conduct an appraisal process to ensure that records received are indeed records of archival value and have complied will all necessary standards and requirements of ANM. The records are then captured and preserved in the archives management system.

Below are two diagrams to show the ARKIB Unified Model and the High Level Process Descriptions of the Model.

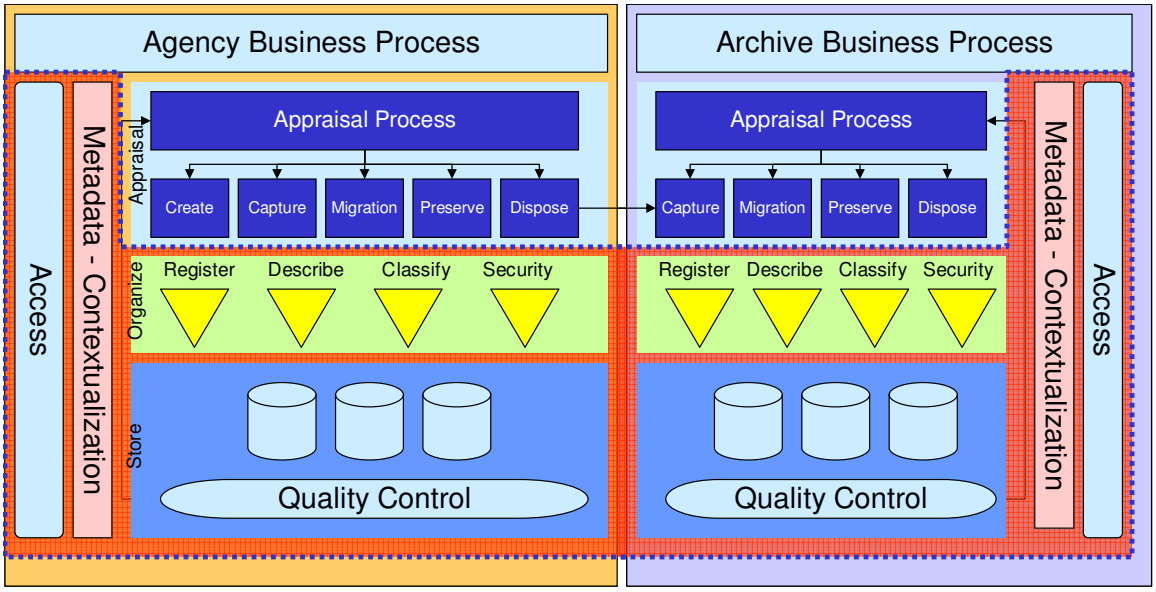


Figure 2: ARKIB Unified Model

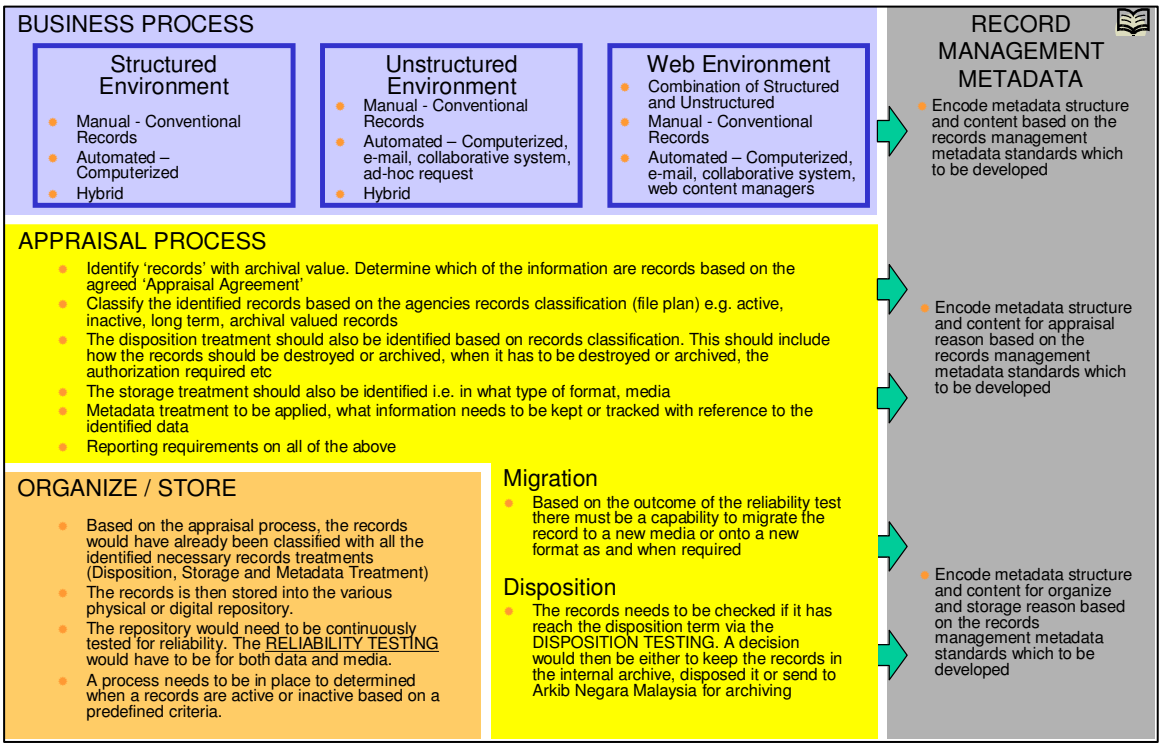


Figure 3: High Level Process Descriptions of the ARKIB Unified Model

2.0 ARKIB Business Process Model

The Business Process Model provides the relationship and assignment of roles and responsibilities between ANM and the public office. At the same time it defines the functions and activities that need to be executed at every management level indicated in the model. This model has been further expanded into a more detail Electronic Records Management Process and Procedure during the analysis to develop the functional specifications. The Business Process Model will form the infrastructure framework for the implementation of electronic records and archives management implementation in the public sector.

The Business Process Model for ANM and Public Office introduces four new processes:

- Business Process 1: Standard and Process Management
- Business Process 2: Change Management and Communication
- Business Process 3: Audit and Quality Management
- Business Process 4: Customer Relationship and Consultation Management

These processes are being introduced to enhance the functions of ARKIB such that to provide better control and disbursement of information within ARKIB and the agencies. This is also reflecting the new ARKIB Act that enhances and provides more governance control to ARKIB in terms of Records Management in the Public Sector.

In addition the new processes will also improve and enhance the role of ARKIB as the sole custodian of all government records in terms of public records and long-term records belonging to public offices / the government agencies.

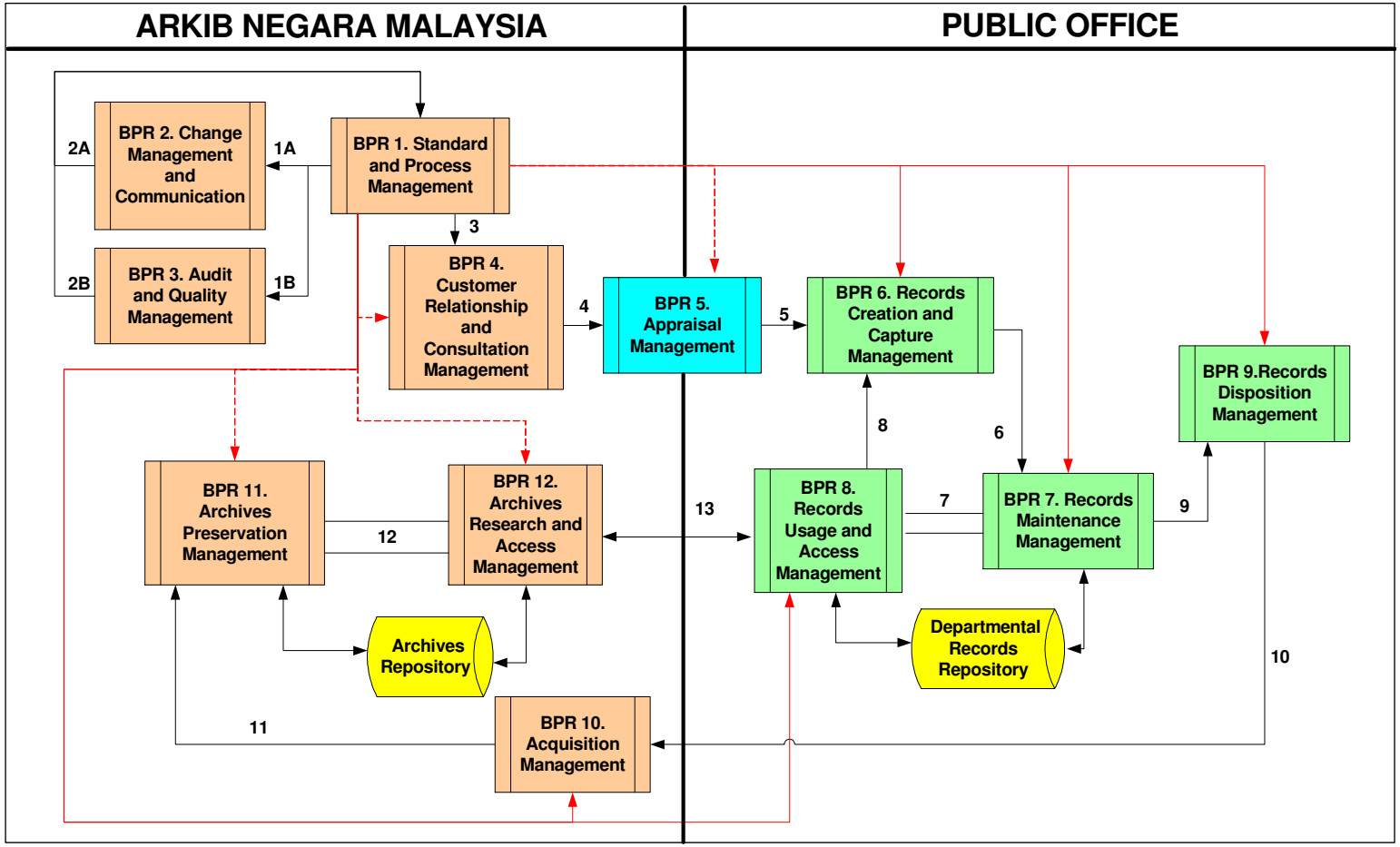


Figure 4: Business Process Model for ARKIB Negara Malaysia and the Public Office

The Business Process Model above is described as below:

No.	BPR	Descriptions
1.	Standard and Process Management:	An area of management where Standards and processes are continuously developed, reviewed and improved based on current trends and best practices.
2.	Change Management and Communication:	A series of activities specifically designed to develop and to enable groups of ARKIB officers to achieve the desired business objective while concurrently undergoing the change process.
3.	Audit and Quality Management:	The area of management that conducts compliance in accordance to policies and procedures that will be established. This process will also cater for new policies and procedures to develop audit rules and regulations.
4.	Customer Relationship and Consultation Management:	An operational process solution that can enhance an organization's ability to see the differences in customer and prospects needs and behaviors based upon the customer's value and priorities. It encompasses sales, marketing and customer service, and focuses on customer experience with the organization.
5.	Appraisal Management:	The area of management that encompasses the appraisal process.
6.	Records Creation and Capture Management:	The area of management that encompasses creation of records, the identification and classification of these records and execution of record capture activities.
7.	Records Maintenance Management:	The area of management where records are organized and maintained.
8.	Records Usage and Access Management:	The area of management that handles the usage and access management of records in the Public Office.
9.	Records Disposal Management:	The area of management that handles the Disposal of records. It also conducts reviews on records to ensure that certain criteria are met before the records are disposed. This will be for both the operational and archival records.
10.	Acquisition Management:	The area of management where records acquisition are planned, executed and monitored; to ensure compliance to the ARKIB's Act for the purpose of preservation.
11.	Archives Preservation Management:	The area of management that will allow records to be preserved while maintaining its authenticity, reliability and security and is required by the ARKIB Act.
12.	Archives Research and Access Management:	This area of management is to facilitate and manage research and access of archives records by the public, agencies and ARKIB. This will include providing the guidelines and tools to manage access.

Table 1: Business Process Model Descriptions

D. APPRAISAL MANAGEMENT FUNCTIONAL REQUIREMENTS

The Appraisal Process is the process whereby electronic records are assessed to determine whether or not the electronic records have archival value. The assessment of the electronic records will be based on Arkib Negara Malaysia's pre-defined criteria, as well as the public office's specific requirements.

For the current practice in conventional records, appraisal is mainly done at the 'series or file level'. This is because, a document by itself may not have the archival value but it may provide the context that links the rest of the document in that particular file or series. As such it is important to note that with electronic records the same applies. I.e. the electronic records will be appraised at the 'series or folder' level as opposed to the document or individual electronic files. If a series or folder has been classified to be archival value, any items or electronic files that are stored or saved into that folder will be archived according to the determined disposal schedule.

It is also important to note that the appraisal process is the responsibility of Arkib Negara Malaysia and the public office. The appraisal at the public office is even more critical as this is where electronic records that have archival value are first identified.

The appraisal process will have to be conducted at point of creation, at the point of capture, prior to preservation and prior to disposal.

BPR 5.0 Appraisal Management

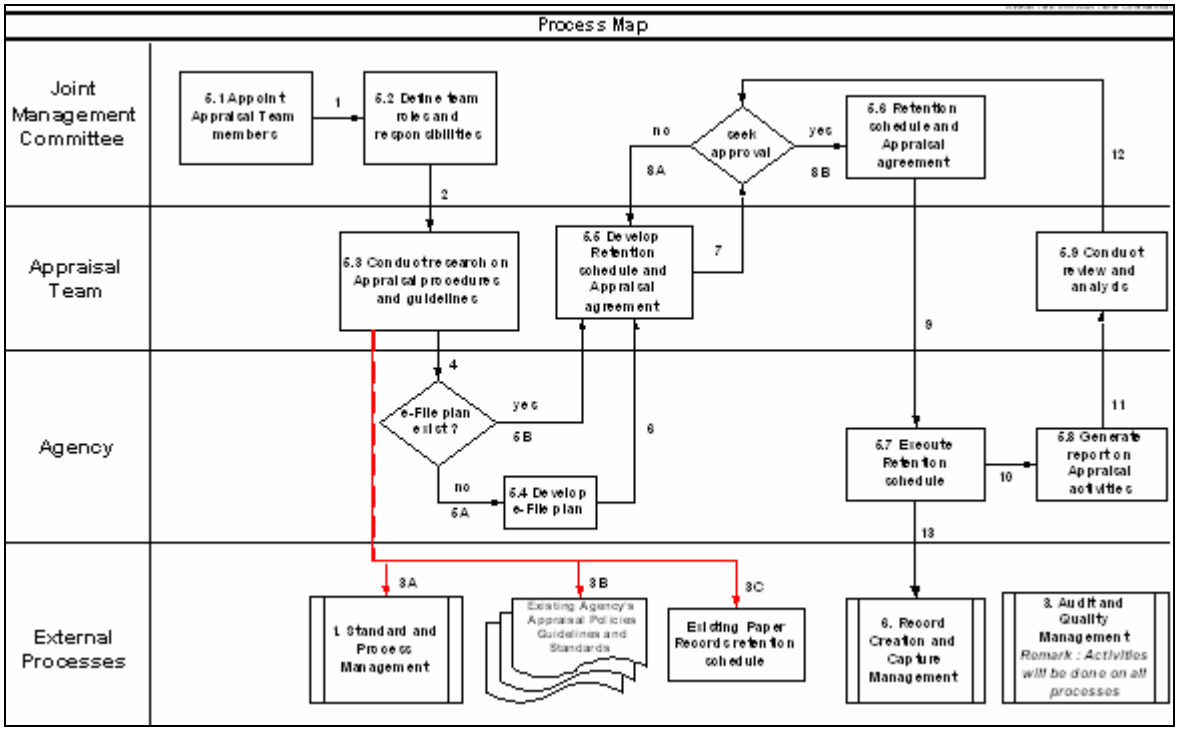


Figure 5: High Level Business Process for Appraisal Management

Description of the Business Process:

1. 5.1 Appoint Appraisal Management team members: A series of activities to identify and appoint the person involved in planning and executing the Appraisal Management activities.

2. 5.2 Define team roles and responsibilities: To define the roles and responsibilities of the Appraisal Management to its members and to define their roles and responsibilities as a team for the effective execution of any Appraisal activities.

3. 5.3 Conduct study on Public Office's Record Management environment: A series of ongoing activities to acquire knowledge, experience and lessons learned, new methods and best practices in the Public Office Records Management.

4. 5.4 Develop e-File plan: The activity of determining the file location to place an electronic record.

5. 5.5 Develop Retention Schedule and Appraisal Agreement: A series of activities to identify and document the retention period of a record into an executable schedule.

6. 5.6 Retention Schedule and Appraisal Agreement: A legal document that binds ANM and the Public Office with respect to the details of the Retention schedule and Records Appraisal process.

7. 5.7 Execute Retention Schedule and Appraisal Agreement: A series of activities to implement the retention schedule and the appraisal activities as agreed in the Appraisal Agreement.

8. 5.8 Generate reports on Appraisal activities: To generate the Appraisal Report, the activities involved are to determine the report format, identify the target audience and the information to be reported and the frequency of the report.

9. 5.9 Conduct review and analysis: To conduct a series of analysis on the review and feedback so that any new recommendations and issues arise from the implementation of the Appraisal methods are addressed and acknowledged for improvement.

IT Process Flow

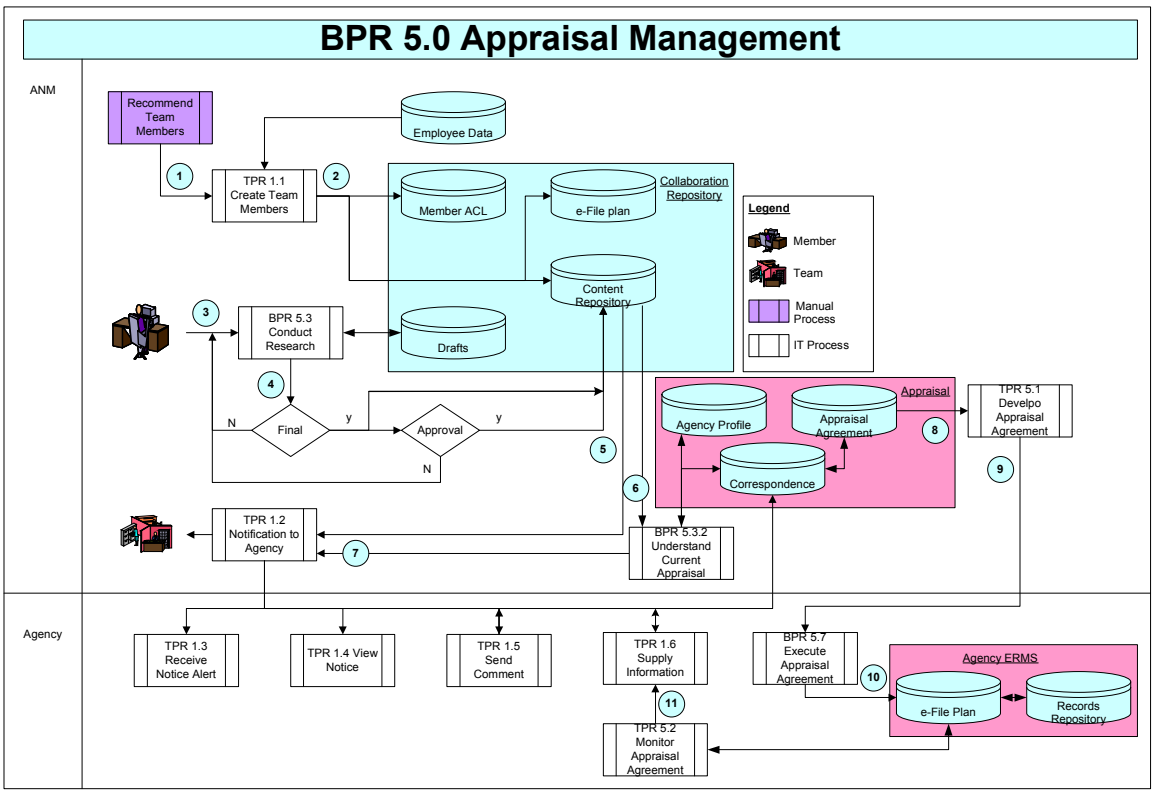


Figure 6: IT Process Flow for Appraisal Management

Description of the IT Process Flow:

(a). The administrator will create the team based on the recommended team members provided by the unit's management. This process will create

- Member Action Control list based on any existing employee data mapped against the role of the member
- e-File Plan to store the various rules related to the content including workflow and process flow
- Draft repository for the content to allow team members a shared area to store their respective work-in-progress
- Content Repository to host the various contents that is approved for distribution

(b). The administrator will sign-off the various workflow and processes flow to the various team approval committee.

(c). Team Members start creating content and work on the content in the shared drive repository.

(d). When the content is ready for distribution, and the team member declares the content as a record, the application will check across the e-file plan for the content file plan i.e. whether the content requires an approval for distribution.

(e). Once the publication is ready for distribution, the respective ANM group will publish a circular to notify Public Offices of this new update. This is performed

through the BPR 2.5 processes. There will be an automated process that moves this content over to the publication area.

(f). Once the content is ready for publication, the respective ANM group will publish a circular to notify Public Offices of this new update. This is performed through the BPR 5.3 processes. There will be an automated process that moves this content over to the publication area.

(g). Once the notification is sent out, the system will allow the Public Offices to view their respective correspondence provided through the notification module. This system allows the Public Offices to perform the following functions.

- Review the correspondence, notices, circulars for the Public Office's consumption
- The Public Offices are also allowed to send their comments or queries to ANM. This will then be routed to the respective personnel in-charge

(h). Once the base information is available, ANM will schedule time to develop the appraisal agreement with the Public Office. The appraisal agreement will allow both parties to confirm and populate the templates for:

- Record
    - Classes
    - Classification
    - Life Cycle
- e-File Plan
    - Retention Schedule
    - Vital Record Rule
    - Permanent Record Rule
    - Disposal Rule
    - Packaging Rules

(i). Once the Appraisal Agreement is approved, ANM will transfer the agreement to the Public Office.

(j). The Public Office will then execute the agreement. This module will generate the e-file plan and records repository based on the records definition and classification for the Public Office.

(k). The Public Office will monitor all activities related to the agreement. This includes all new creates, updates and deletions of the agreement components. Based on any new activity notification and information will be supplied to the ANM monitoring system for updates.

Execute Appraisal Agreement	
1.	The ERMS must provide a function that specifies retention schedules, automates reporting and destruction actions, and provides integrated facilities for exporting records and metadata.
2.	The ERMS must be able to restrict the setting up and changing of retention schedules to the Administrator.
3.	The ERMS must allow the Administrator to define and store a standard set of customized standard retention schedules.

4.	The ERMS must be capable of associating a retention schedule with any record, file or class of a classification scheme.
5.	The ERMS should be capable of associating more than one retention schedule with any file or class of a classification scheme.
6.	Every record in a file or class must, by default, be governed by the retention schedule(s) associated with that file or class.
7.	For each file, the ERMS must: • Automatically track retention periods that have been allocated to the file or to the class in which it belongs. • Initiate the disposal process once the end of the retention period is reached.
8.	If more than one retention schedule is associated with a file or class, the ERMS must automatically track all retention periods specified in these retention schedules, and initiate the disposal process once the last of all these retention dates is reached.
9.	Each retention schedule must allow the retention periods to be specified for a future date, with the date being specified in at least the following ways: • Passage of a specified period of time after the file is opened. • Passage of a specified period of time after the file is closed. • Passage of a specified period of time since the most recent record has been assigned to the file. • Passage of a specified period of time since a record has been retrieved from the file. • Passage of a specified period of time after a specific event (which event is described in the schedule, and will be notified to the ERMS by the Administrator rather than being detected automatically by the ERMS) (for example, "…after contract signature"). • Specified as "indefinite" to indicate long term preservation of the records.
10.	The ERMS must enable a retention schedule to be assigned to a file that can take precedence over the retention schedule assigned to a class in which the file is assigned.
11.	The ERMS must allow the Administrator to amend any retention schedule allocated to any file at any point in the life of the file.
12.	The ERMS must allow the Administrator to change which schedule(s) is/are associated with a file at any point in the life of the file.
13.	When an Administrator moves electronic files or records between classes of the classification scheme, the ERMS should optionally allow the retention schedule of the destination class to replace the existing retention schedules(s) applying to these records.
Usability – ARKIB Negara Malaysia	
14.	Employee personal data extracted from the Employee Personal Data Repository. This personalized view includes: • Employee details such as Name, Address, Contact Number, e-Mail address, Position • Availability of the employee for new task. • Skills and strength.
15.	Approval by Management Committee will automatically trigger the process notification to notify the Team Leader by email system. From the email, a link will direct the Team Leader to the page where the document is located and the status of the document will be displayed. • A button will be provided to approve, KIV or reject documents. • A button will be provided to the Team Leader to trigger the process notification to notify the Head of Department. • A button will be provided to the Head of Department to trigger the process notification to notify the Team Members.
16.	A search engine to search for the documents such as the standards, procedures and

	guidelines, ANM/Public Office Act & policies, File plan, existing Appraisal agreement and etc.
17.	Statistical method to analyze report from the Public Office's report for easy report findings.
18.	Provide templates for all reports so that all reports generated will have the same format.
19.	Create a virtual class room to support Record Management e-learning class
20.	Learning materials will be provided by ANM through the identified website and virtual class room will be created to support online Record Management e-learning class.
Usability – Public Office	
21.	Public Offices will be able to choose from different templates the various methods of accessing the ANM repository on Standards, Procedures and Guidelines.
22.	Public Offices will be able to review/search by atest Updates, Updates by date, Topic / Subject, Implementation Plan or Effective Date, Archives
23.	Request for information from Standard and Process Management Team to the Public Office can be categorized to Normal and Urgent. • Normal: Public Office will have more time to prepare for the information requested by the Management Team. • Urgent: Public Office needs to submit the information requested by the Management Team as soon as possible.
24.	Public Offices will get alerted for any notification sent by the ANM and a personalize view for receiving notification from ANM.
25.	Public Offices should be able to input comments and feedbacks and submit to the ANM via notification process provided by ANM.
26.	Public Offices will be able to schedule training session with ANM to form a Record Management e-Learning class.
27.	Help desk and support facility will be provided to help and support the training launched by ANM.
28.	Public Office will receive request from ANM to supply information regarding the existing appraisal agreement and any relevant information through email.
29.	An identified media will be provided by ANM to help the Public Office provide the required information to them.
30.	A checklist will be provided by the ANM to ensure all relevant information required by them is provided.

E. RECORD MANAGEMENT SYSTEM SPECIFICATIONS (FUNCTIONAL)

Record Management System Specifications

A Record Management System is a system that keeps track of both electronic records and physical records. Records management addresses the life cycle of records, which usually consists of three stages: creation or receipt, maintenance and use, and disposition.

Basic document management principles, which apply to documents in any medium, are:

- Manage the whole document life cycle
- Identify the valuable documents
- Ensure the quality of information about the documents
- Secure the valuable documents
- Provide appropriate access to the documents
- Preserve the valuable documents

Records Creation and Capture Management

Terminology

The term “capture” is used to encompass the processes of registering a record, deciding which class it is to be classified to, adding further metadata to it, and storing it in the ERMS.

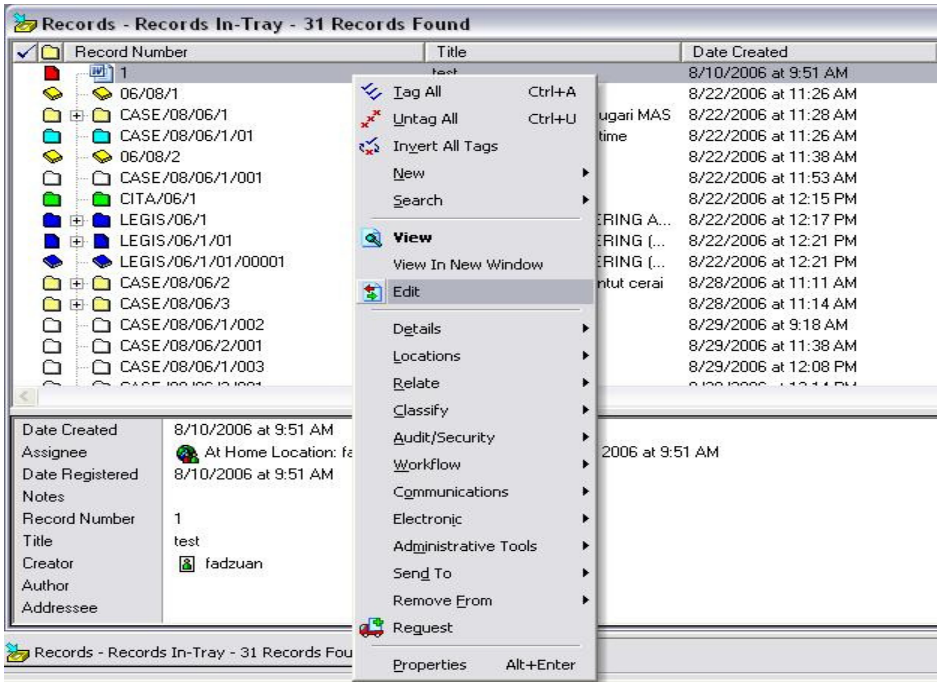
In the context of an ERMS, the registration and other processes may be separate or indistinguishable.

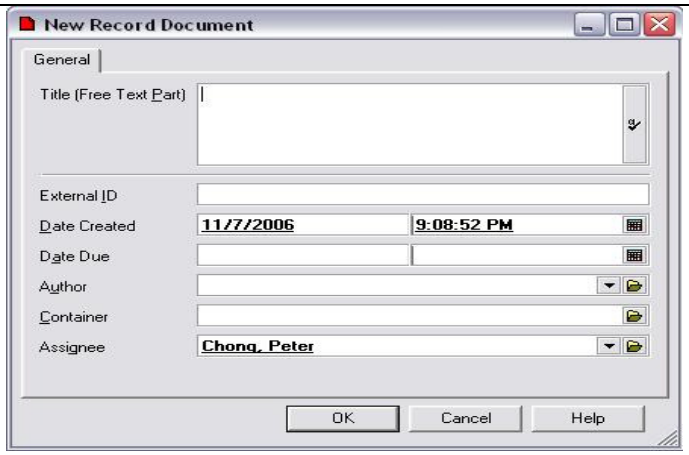
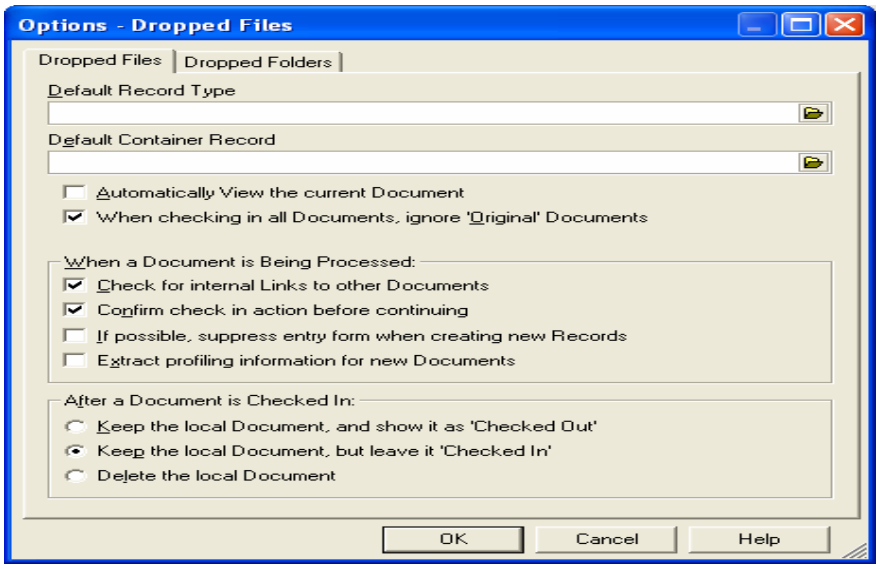
This section covers requirements relating to getting records into an ERMS.

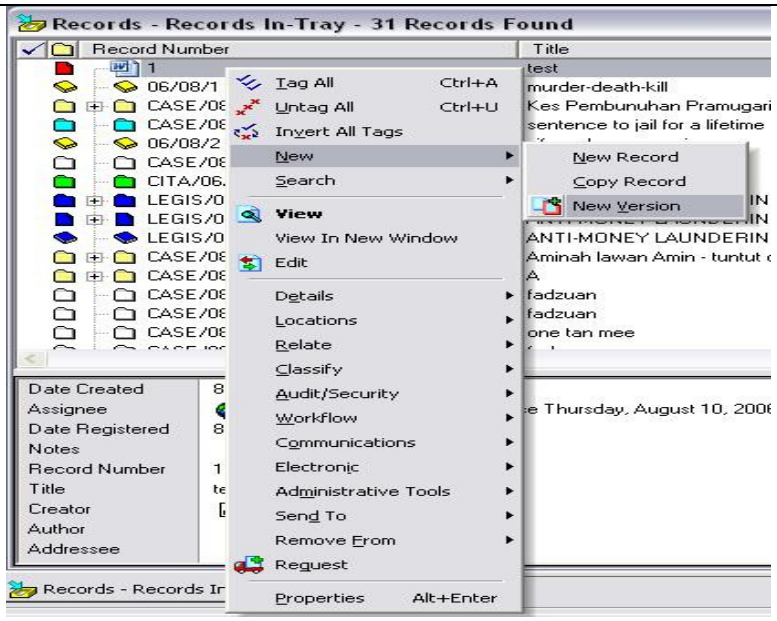
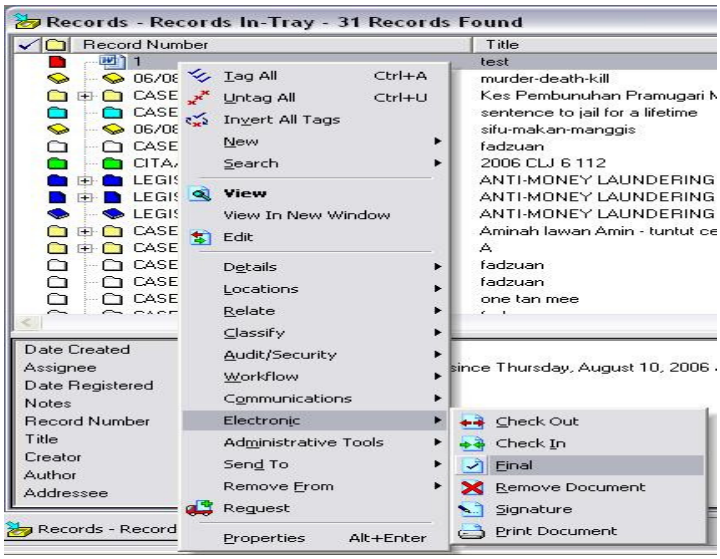
Capture process: Electronic documents that are generated or received in the course of business processes originate from both internal and external sources. The electronic documents may be in various formats, may be produced by different authors; and may be received as single documents and as multiple document files. They may arrive through different communication channels e.g. local area network, wide area network, electronic mail, facsimile, letter post (to be scanned) and at variable arrival rates and volumes. A flexible input system is required to capture documents with good management controls so that these diverse requirements are addressed. Requirements will include:

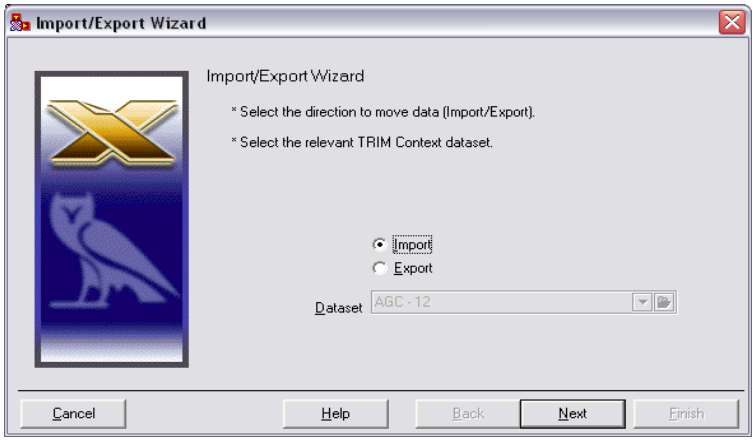
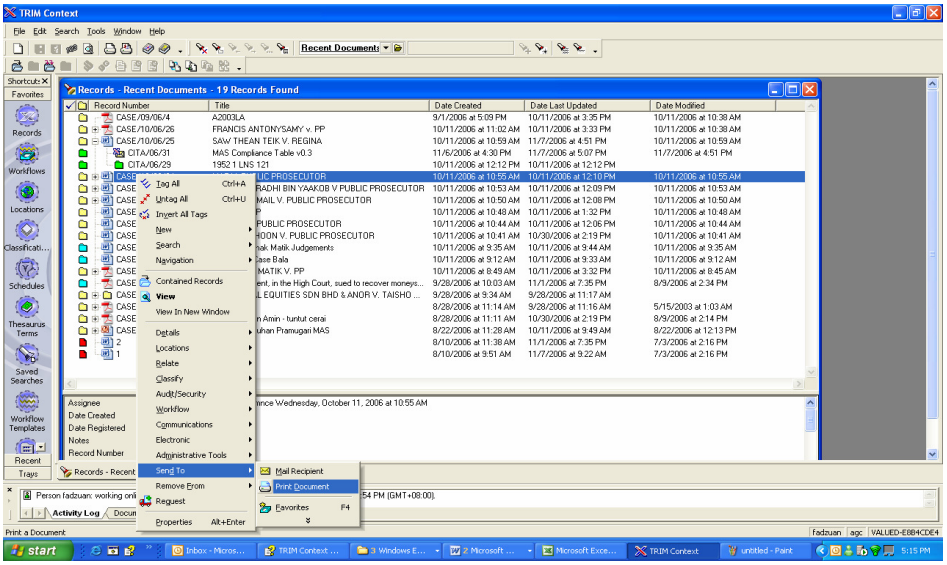
- Type of Capture
- Type of Export
- Declare
- View/Inquire
- Capture

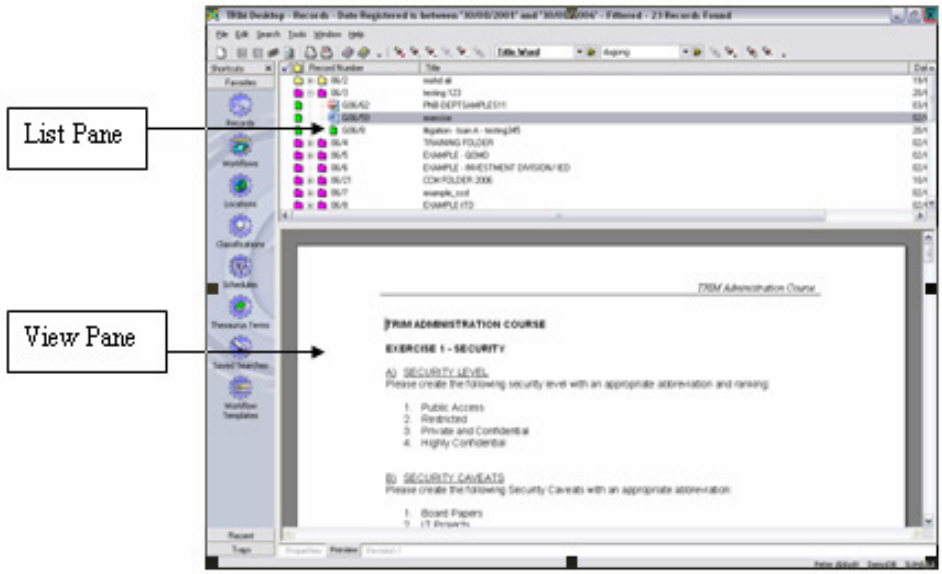
Type of Capture: Records may reach the ERMS in bulk in a number of ways, for example, from another ERMS, as an electronic file made up of a number of records of the same type (e.g. daily invoices) or a bulk transfer from an EDMS. The ERMS must be able to accept these, and must include features to manage the capture process.

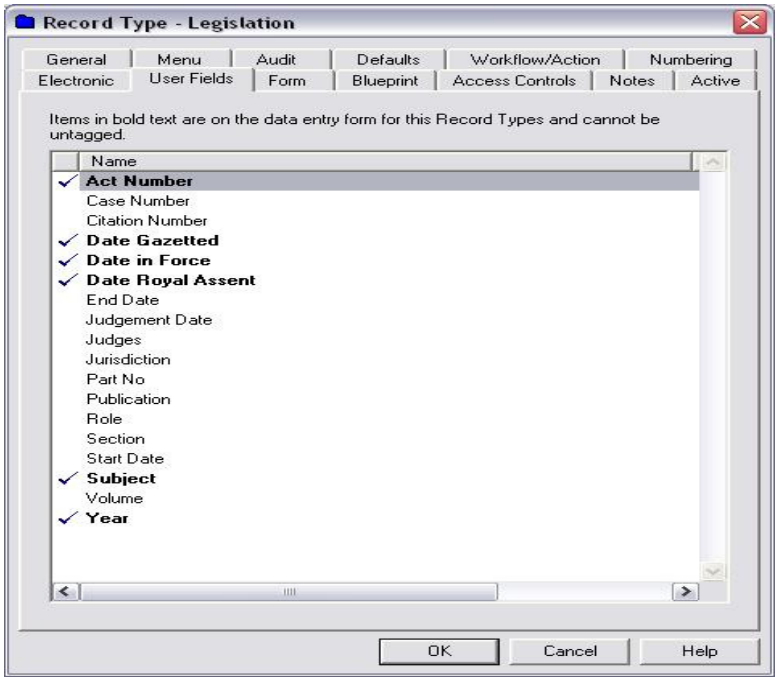
	Description of Requirements
	a. Capture
RM1	Create new/edit existing document – A user shall be able to create a new document or edit an existing document within an authoring application. 
RM2	Capturing of metadata regardless of media - The system shall provide the ability to associate document metadata to the content of an electronic document (e.g. word processing, e-mail and attachments, spreadsheets, images, audio, etc.) or to reference, within metadata, non-electronic documents (e.g. paper files, microfilm, reports, video, photographs).
RM3	Prompt for document metadata - The system shall prompt the user for document metadata at the time of creating, saving or closing a document and at the time of sending an e-mail.

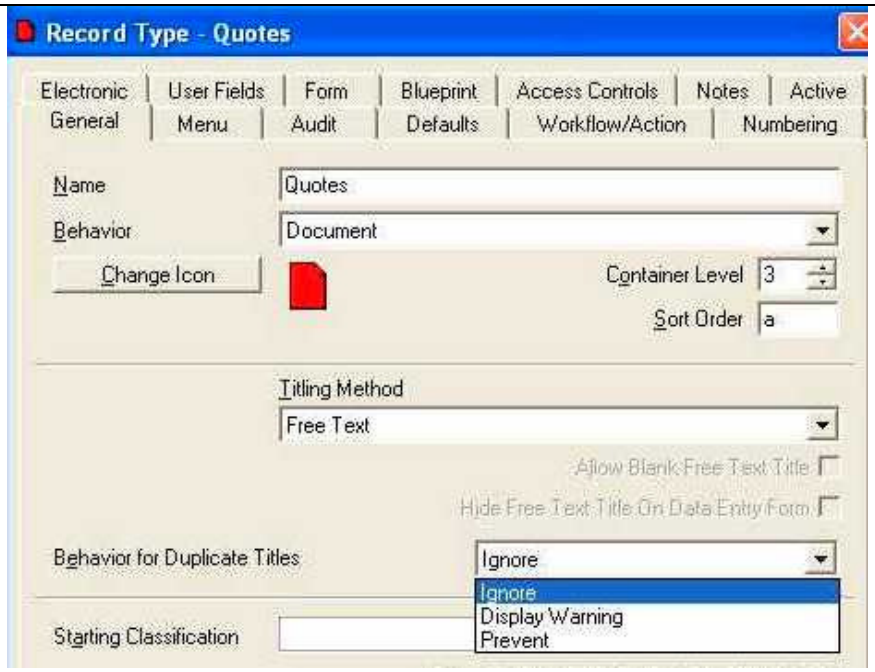
	Description of Requirements
	
RM4	Initial loading of documents - The system shall provide the capability to apply common document metadata values and load documents into the document repository in bulk (e.g. loading by sub-directory). 
RM5	Version control – The user shall have the option whether to create a new version, replace the existing version (provided the document has not been finalized) or create a new document. New versions shall be automatically linked to the original document and higher or lower versions of the document.

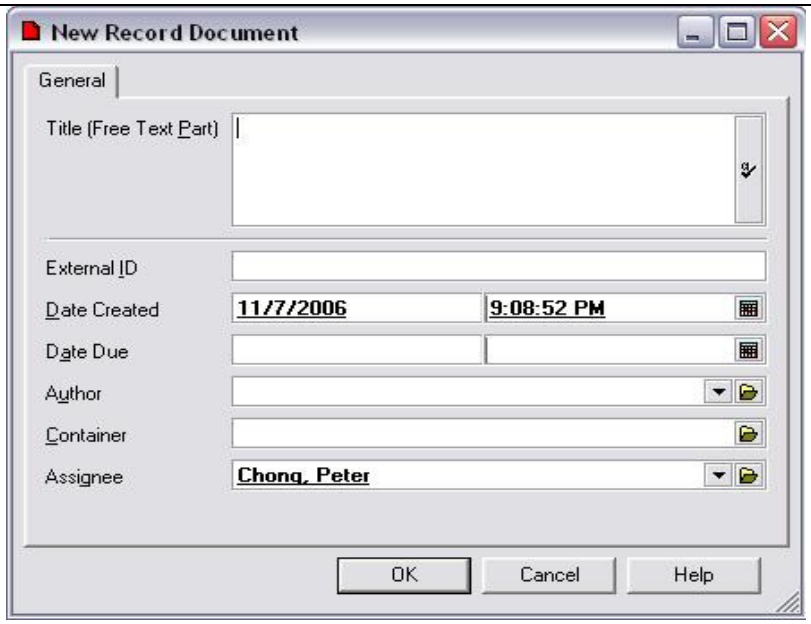
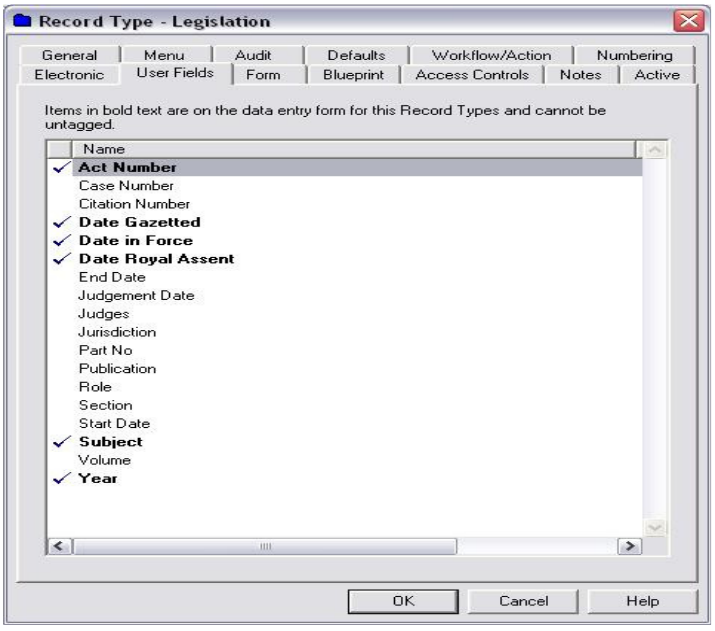
	Description of Requirements
	
RM6	Document status/electronic approval – The user can electronically designate a document as being finalized (authorized by a named authority) thereby protecting the document from modification. 
RM7	Linking document attachments - The user is able to attach/link multiple electronic documents to form a single "virtual document" which is subsequently managed as a single entity to ensure its integrity.
RM8	Profiling documents with attached images – The user shall be able to profile an original hardcopy document and to attach its image as electronic attachments.
RM9	Launching of applications – The system shall launch the authoring applications (i.e. associated or generic viewer) from within the document retrieval function of RMS for the purpose of creating, editing or viewing a document.

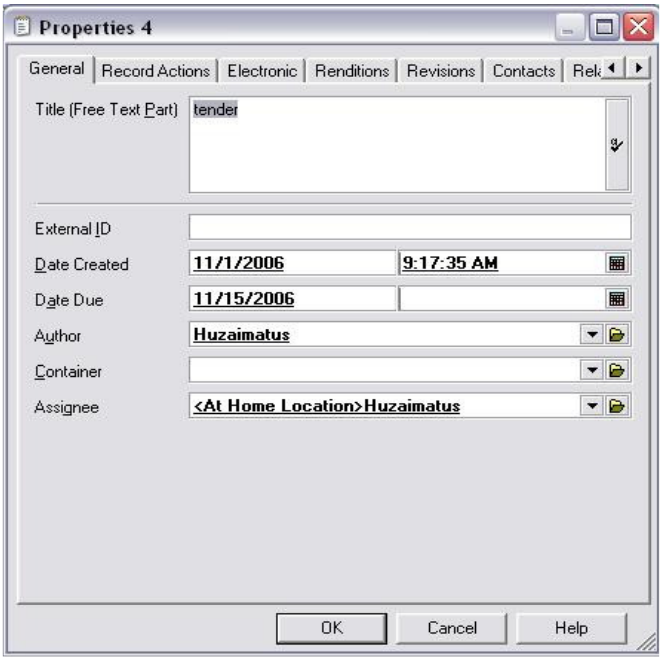
	Description of Requirements
RM10	Distribution by user determined lists - The user shall be able to file a single document in multiple repositories based on user-determined lists.
RM11	Exporting - The user shall be able to select sets of documents from repositories and export the set and associated metadata to a repository or to offline storage. 
RM12	User notification - When filing a document, a user will be able to designate other users to be notified of the presence of document or file.
RM13	Printing without launching native application - The user shall have the capability to print a document or a group of documents from a search list without launching the native application. 
RM14	The Electronic Records Management System (ERMS) record capture process must provide the controls and functionality to: ○ Register and manage all electronic records regardless of the method of encoding or other technological characteristics. ○ Ensure that the records are associated with a classification scheme and associated with one or more files.

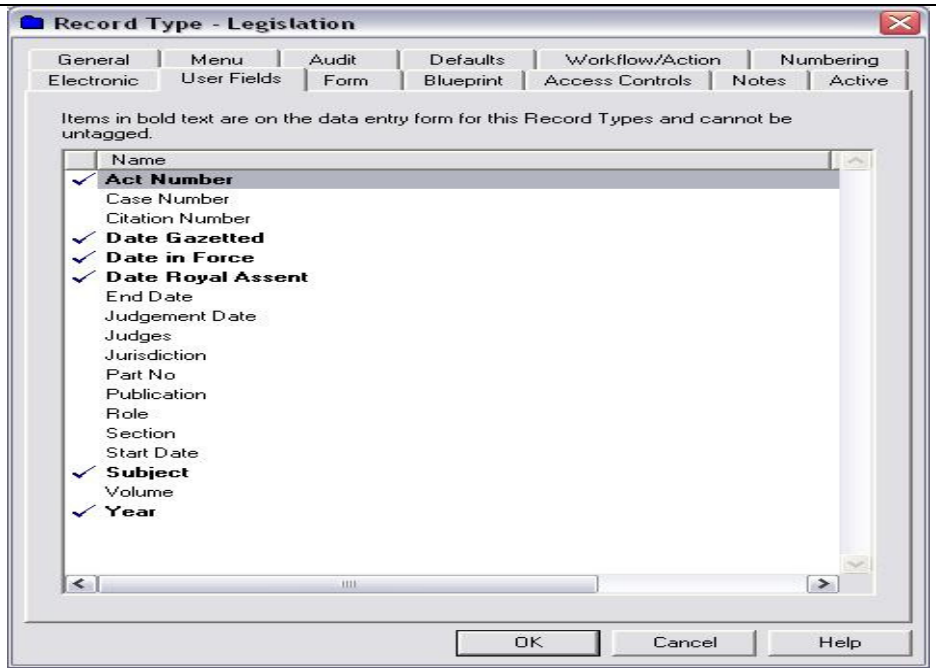
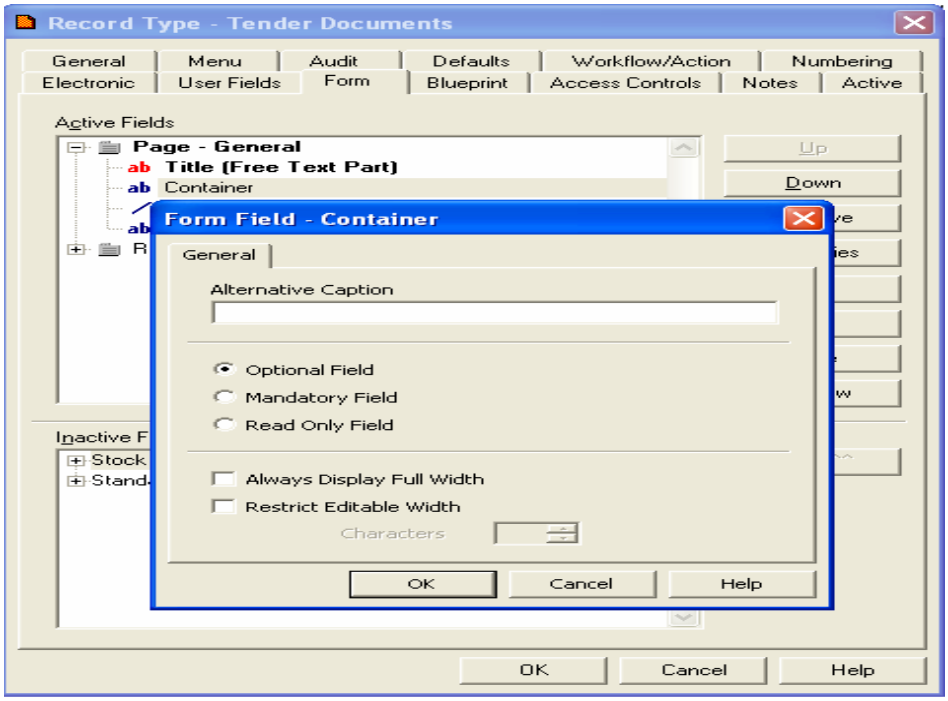
	Description of Requirements
	○ Integrate with application software that generates the records.
RM15	The ERMS must be able to take into the electronic record management environment: ○ The content of the electronic record, including information defining its form and rendition and information defining the structure and behavior of the electronic record, retaining its structural integrity (for example, all the components of an e-mail message with attachment(s), or of a web page, with their links). ○ Information about the electronic document, for example, the file name; ○ The date of creation and other document metadata about the elements of the record. ○ Information about the context in which the electronic record was originated, created and declared, for example its business process and, originator(s), author(s). ○ Information about the application program, which generated the record, including its version.
RM16	The ERMS must allow the capture acquisition of all metadata elements specified at systems configuration, and retain them with the electronic record in a tightly-bound relationship at all times.
RM17	The ERMS must ensure that the content of selected elements of the metadata of the electronic record can only be changed by authorized users and Administrators.
RM18	The ERMS should support the ability to assign the same electronic records to different electronic files, from one electronic document without physical duplication of the electronic record.
RM19	The ERMS must support automated assistance in registration of electronic documents, by automatically extracting metadata, for at least the following types of document: ○ Office documents (e.g. word-processed letters in a standard format). ○ E-mail without attachments, both incoming and outgoing. ○ E-mail with attachments, both incoming and outgoing. ○ Facsimile messages, both incoming and outgoing.
RM20	The ERMS must record the date and time of registration as metadata.
RM21	The ERMS must ensure that every registered record has a viewable registry entry including the following metadata specified at configuration time. 

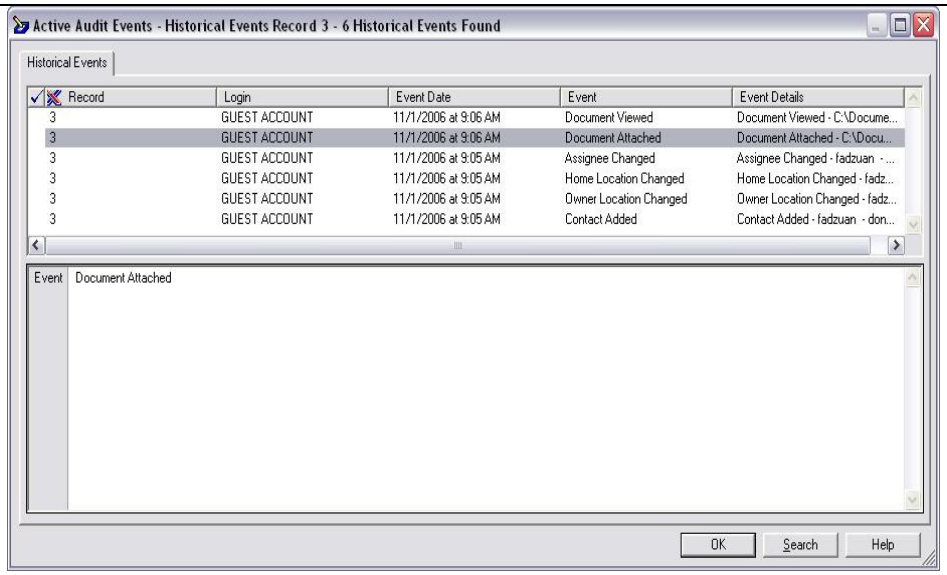
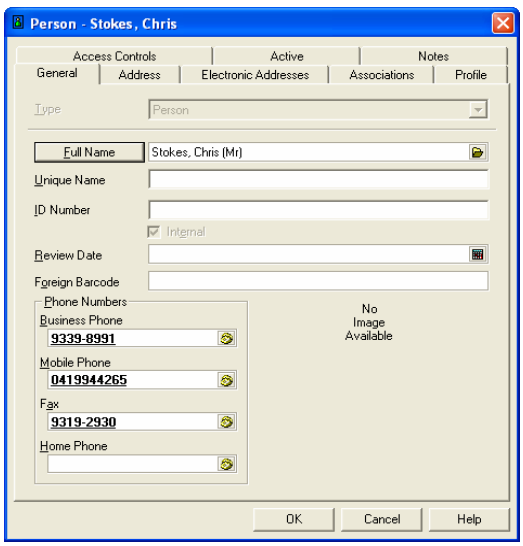
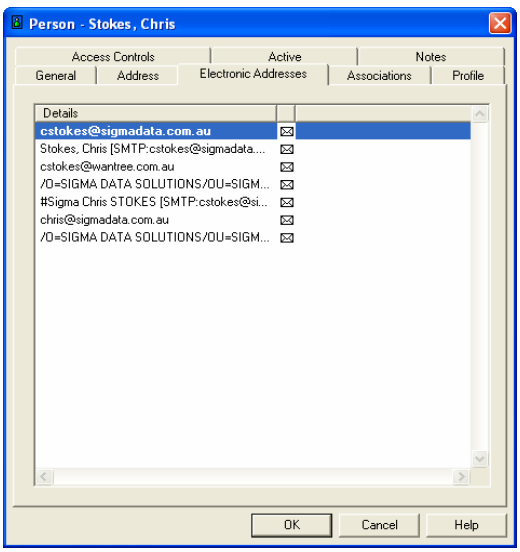
	Description of Requirements
RM22	The ERMS must allow entry of further descriptive and other metadata at: o Time of registration. o A later stage of processing. 
RM23	Where a document has more than one version, the ERMS must allow users to choose at least one of the following: o Register all versions of the document as one record. o Register one version of the document as a record. o Register each version of the document as a record.
RM24	The ERMS should provide automated support for decisions on the classification of electronic records to electronic files by means of some or all of the following: o Making only a subset of a classification scheme accessible to a user or role. o Storing for each user or role a list of that user's most recently used files. o Suggesting the most recently used files by that user. o Suggesting files, which contain related electronic records. o Suggesting files by inferences drawn from record metadata elements, for example, significant words used in the document title. o Suggesting files by inferences drawn from the record contents.
RM25	The ERMS should allow a user to pass electronic records to another user to complete the process of capture.
RM26	The ERMS must support automated assistance in registration of electronic documents, by automatically extracting as much metadata as possible, for as many kinds of document as possible.
RM27	The ERMS must issue a warning if a user attempts to register a document which has already been registered in the same file.

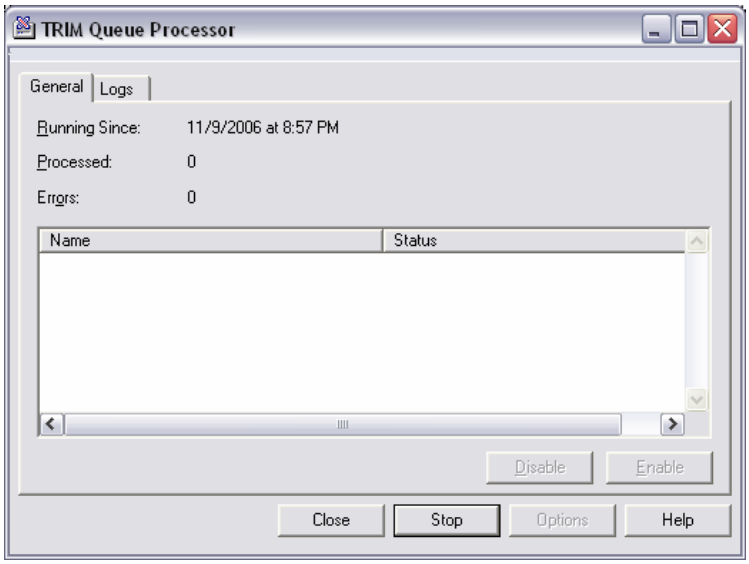
	Description of Requirements
	
RM28	The ERMS must provide the ability to capture transactional documents generated by other systems. This must include: o Supporting predefined batch file transaction imports. o Providing edit rules to customize the automatic registration of the records. o Maintaining data integrity validation.
RM29	The ERMS must support the use of metadata for electronic records
RM30	The ERMS must support the capture and presentation of metadata for electronic records as set out in the accompanying metadata standard for electronic records management.
RM31	The ERMS must ensure the capture of all required metadata elements specified at systems configuration, and retain them with the electronic record in a tightly-bound relationship at all times.
RM32	The ERMS must be capable of automatically capturing: o Metadata acquired directly from an authoring application o Metadata acquired directly from an operating system o Metadata generated by the ERMS itself.
RM33	The ERMS must be capable of capturing metadata acquired from the user at the time of declaration.

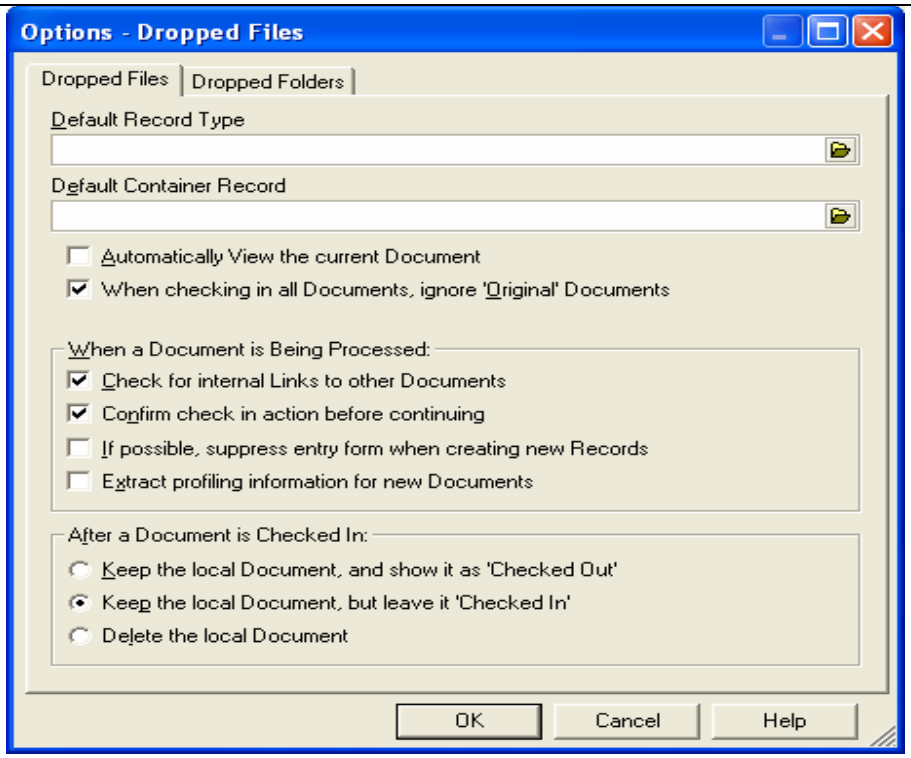
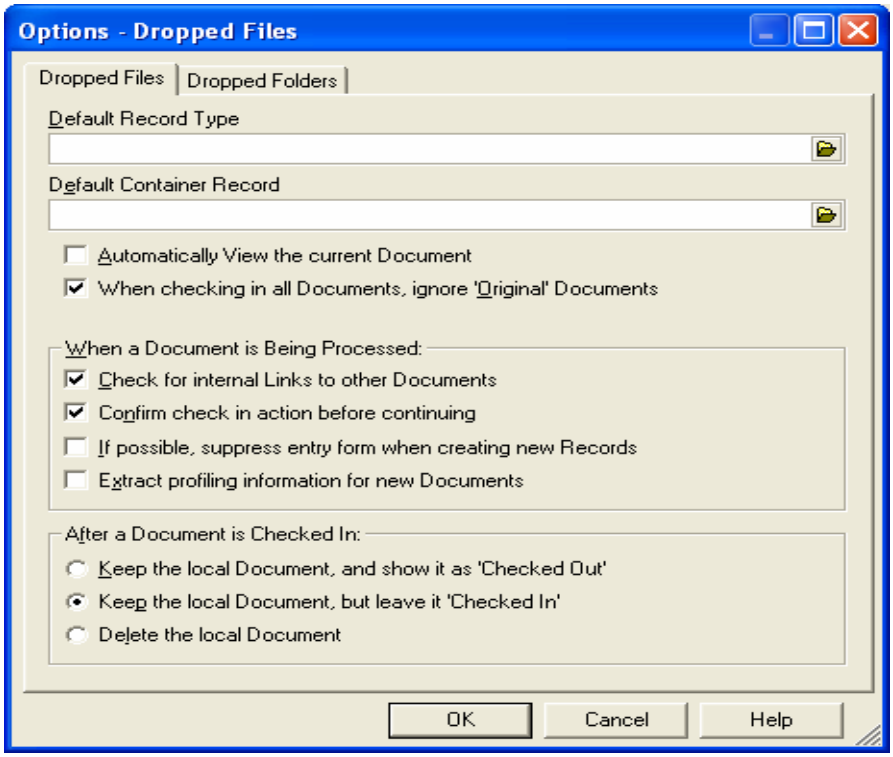
	Description of Requirements
	
RM34	The ERMS may provide an option for capturing metadata from the 'document properties' information held by a document where this is available; but if so, the ERMS must allow this metadata to be edited prior to declaration.
RM35	The ERMS must support the ability to optionally assign one or more controlled vocabulary terms by selection from a pre-defined list to an electronic record.
RM36	The ERMS may support the ability to optionally assign one or more controlled vocabulary terms by selection from an ISO 2788 compliant thesaurus to an electronic record.
RM37	The ERMS must allow entry of further descriptive and other specified metadata at a later stage of processing (i.e. where this is allowable within other requirements); and must be able to restrict this ability to authorized users. 

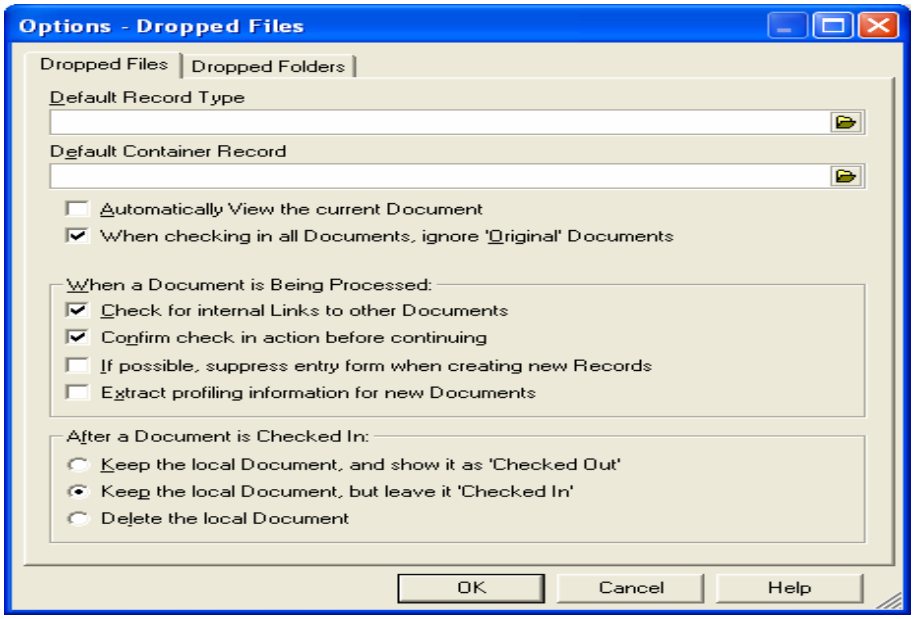
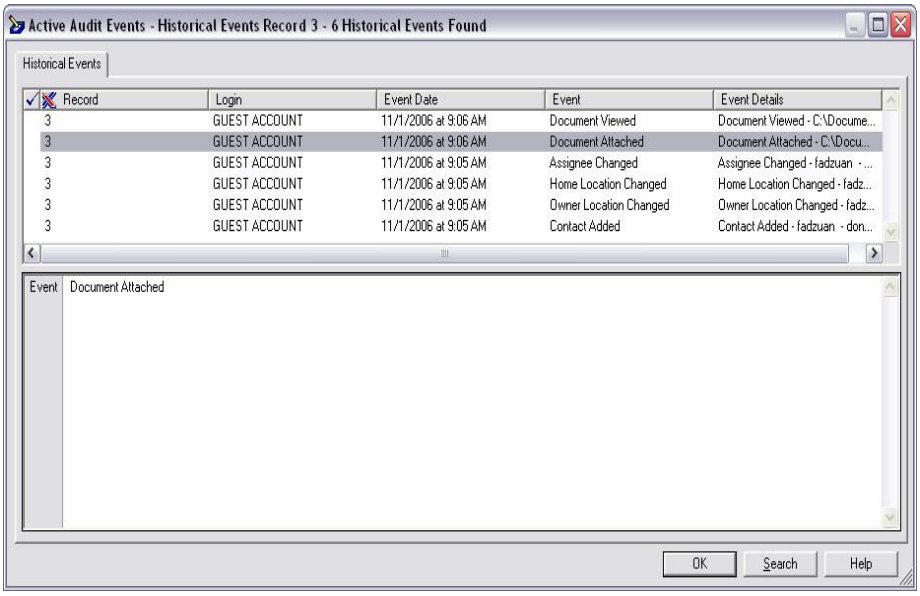
	Description of Requirements
RM38	The ERMS must prevent any amendment of selected elements of metadata of the electronic record, which have been acquired directly from the application package, the operating systems or the ERMS itself (for example, certain dates) as defined by the accompanying records management metadata standard.
RM39	The ERMS must be capable of allowing a user to edit the content of selected elements of metadata of the electronic document during but not after the process of declaration, including Title and Creator. 
RM40	The ERMS must ensure that the content of selected items of metadata (a subset of those that may be changed) of the electronic record can only be changed by an authorized user, as defined by the accompanying records management metadata standard.
RM41	The ERMS must allow an authorized user, after declaration, to edit the content of all metadata elements that have been captured from, or edited by, a user, but not those elements that have been system generated.
RM42	The ERMS must support: o The definition of user-defined metadata elements for electronic records, by an Administrator o The required metadata element set for each new record_type to be separately selected when defining the record type (within system requirements) o Each selected metadata element to be defined as either mandatory or optional (except where the system requires metadata elements to be mandatory) o Later reconfiguration of the selected metadata set.

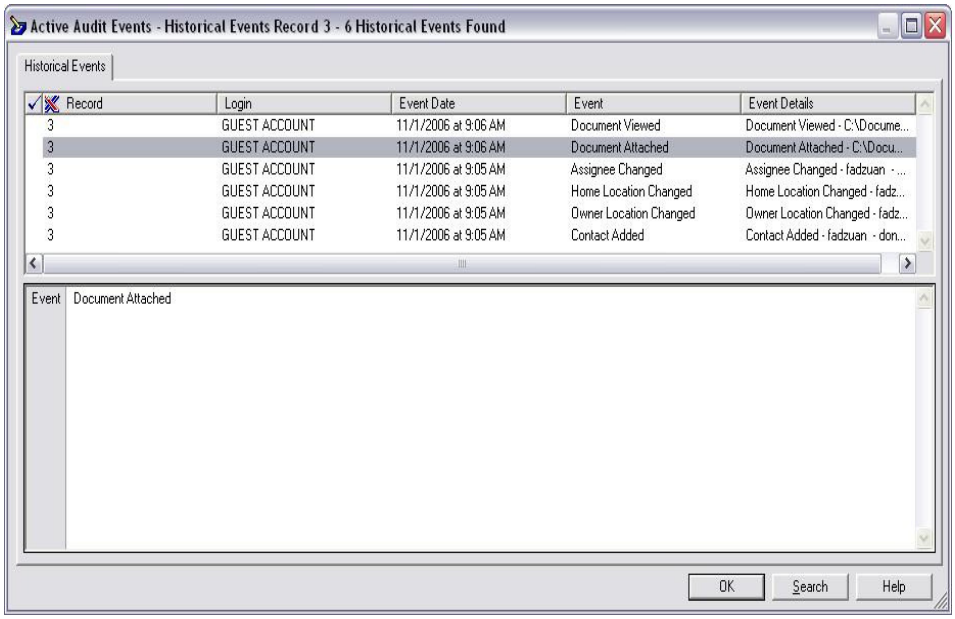
	Description of Requirements
	 
RM43	The ERMS must record the date and time (to the nearest minute) of declaration as a metadata element attached to the record; this data should in addition be recorded in the audit trail.

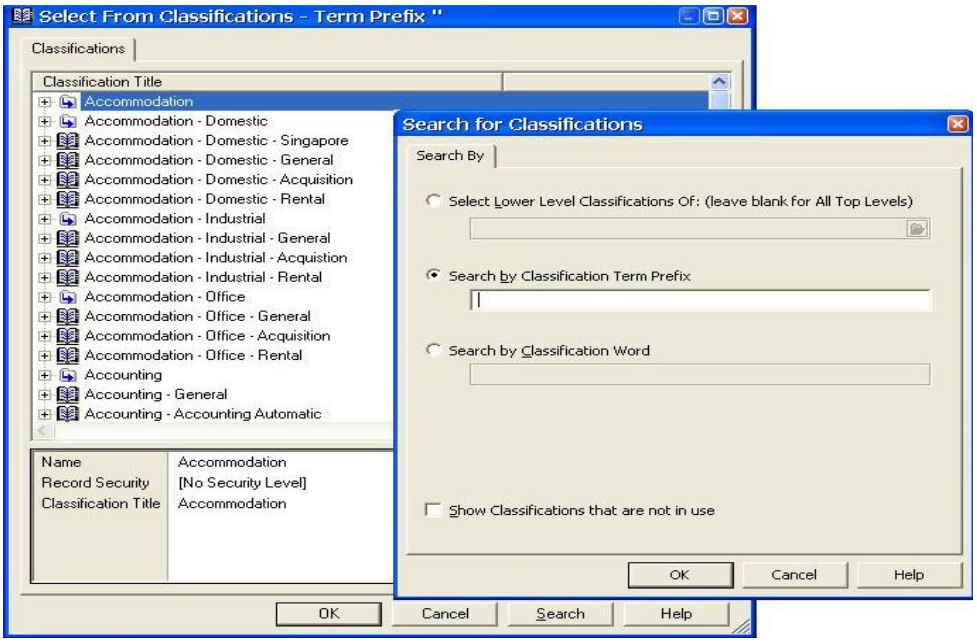
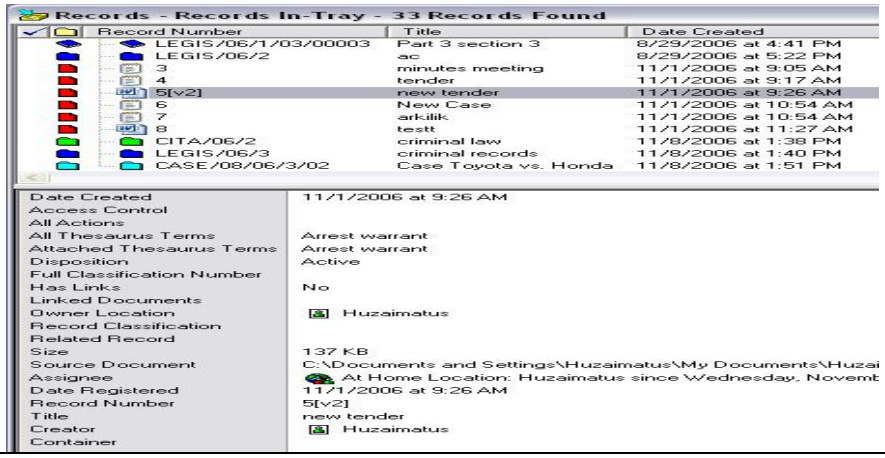
	Description of Requirements
	
RM44	The ERMS must ensure the capture of e-mail transmission data and be capable of mapping this data to electronic record metadata elements, as set out in the accompanying records management metadata standard.
RM45	When capturing an e-mail message, the ERMS must ensure that e-mail transmission data is included in the body of the record, including sender, recipients, and date of receipt.
RM46	The ERMS must capture the 'intelligent' version of an e-mail message address, where one is associated with the original message; for example, 'John Smith' rather than js042@aol.com, as well as the full version.  
RM47	The ERMS must validate the content of selected metadata elements, to conform with requirements as set out in the accompanying metadata standard for electronic records management; in particular, in relation to: ○ Date formats ○ Numeric and alphanumeric formats

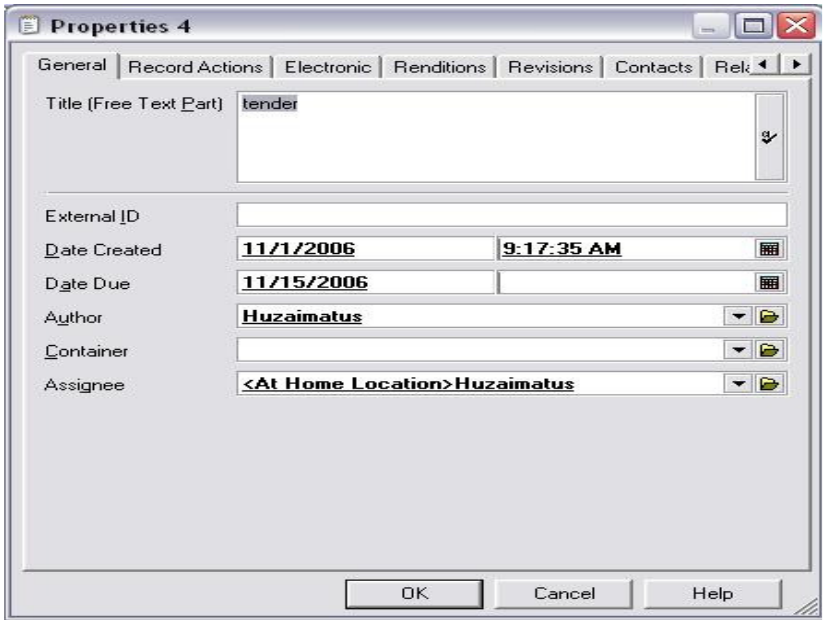
	Description of Requirements
	b. Type of Capture
RM48	The ERMS must be able to capture an e-mail message (and attachments if present) from within an e-mail client.
RM49	Records may reach the ERMS in bulk in a number of ways. For example, from another ERMS, as an electronic file made up of a number of records of the same type (e.g. daily invoices) or a bulk transfer from an ERMS. The ERMS must be able to accept these, and must include features to manage the capture process.
RM50	The ERMS must provide the ability to capture transactional documents generated by other systems. This must include: o Supporting predefined batch file transaction imports o Providing edit rules to customize the automatic registration of the records o Maintaining data integrity validation
RM51	The ERMS system must provide facilities to manage input queues. 
RM52	The ERMS should be able to set up multiple input queues for different document types.
RM53	Within the schedule for implementation, the ERMS must be able to directly import, in bulk, electronic records in their existing format with associated metadata that is presented according to a pre-defined XML schema (schema to be defined based on the accompanying records management metadata standard), mapping this to the receiving ERMS folder and metadata element structures.

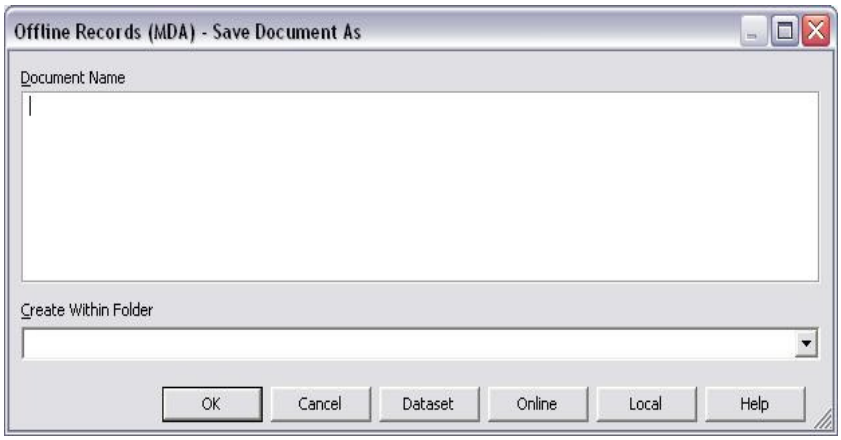
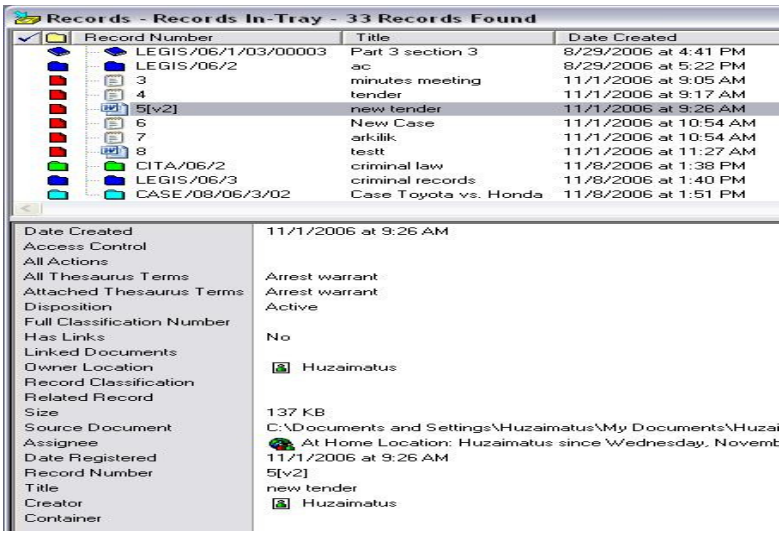
	Description of Requirements
	
RM54	The ERMS must be able to indirectly import, in bulk, electronic records in their existing format with associated metadata that is presented in a non-standard format, mapping this to the receiving ERMS folder and metadata element structures. 

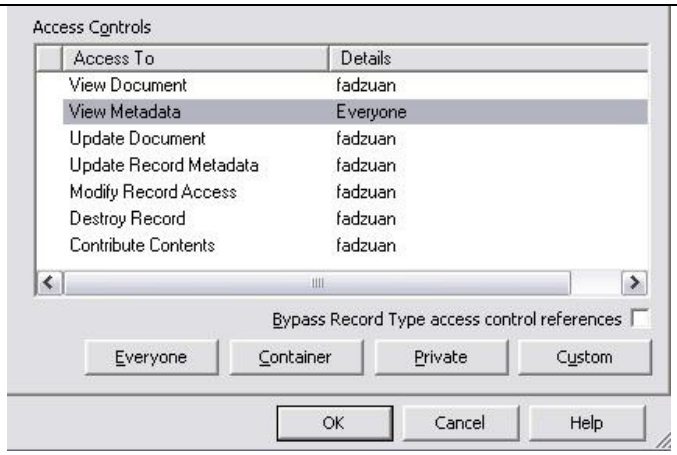
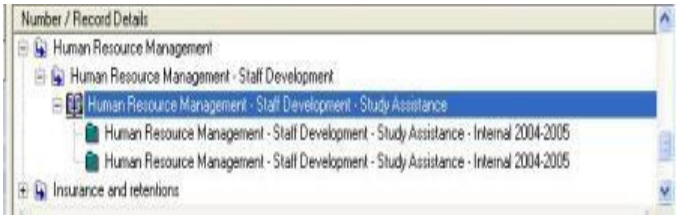
	Description of Requirements
RM55	The ERMS should be able to import, in bulk, existing electronic documents, in any and all supported formats, that have no associated metadata presented separately from the document, by: o Placing documents in queues for further processing o Automatically extracting metadata from the document properties where possible o Providing facilities for the addition of missing metadata, and the assignment of documents to folders o Supporting the declaration of documents from these processing queues. 
	c. Type of Export
RM56	Whenever the ERMS transfers a single record, the ERMS must be able to include a copy of the audit trail data associated with the records, volumes and files being transferred. 

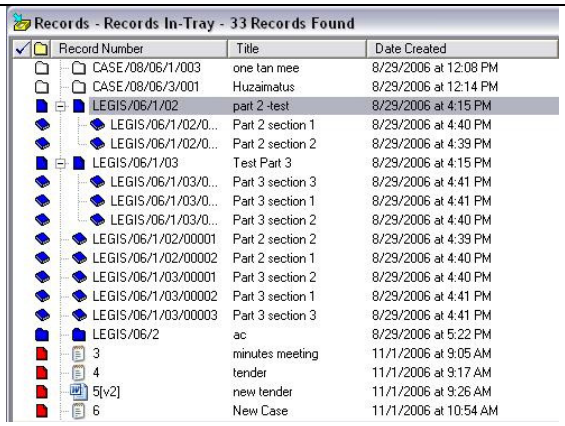
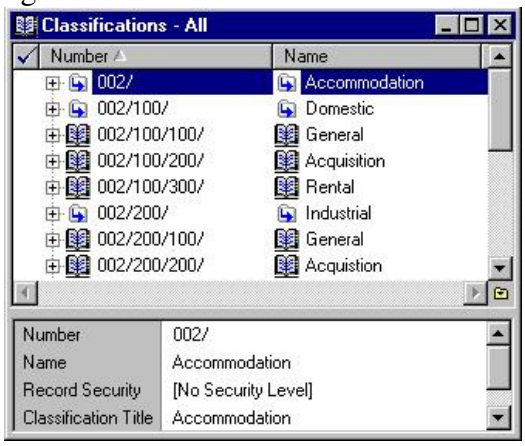
	Description of Requirements
RM57	Whenever the ERMS transfers or exports records, the ERMS must be able to include a copy of all the audit trail data associated with the records, volumes and files being transferred. 
RM58	The ERMS should be able to export an entire class of the classification scheme in one sequence of operations, ensuring that: o The relative location of each file in the classification scheme is maintained, so that the file structure can be reconstructed; o All metadata at higher points in the hierarchy is retained and moved with the class. 
	d. Declare
RM59	File classification scheme – The system shall support pre-defined file classification schemes in hierarchical structure.
RM60	Classify information – The system shall provide the capability to classify information

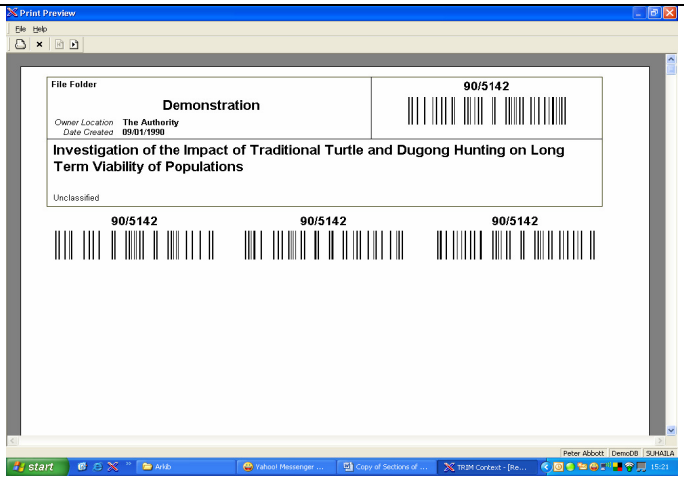
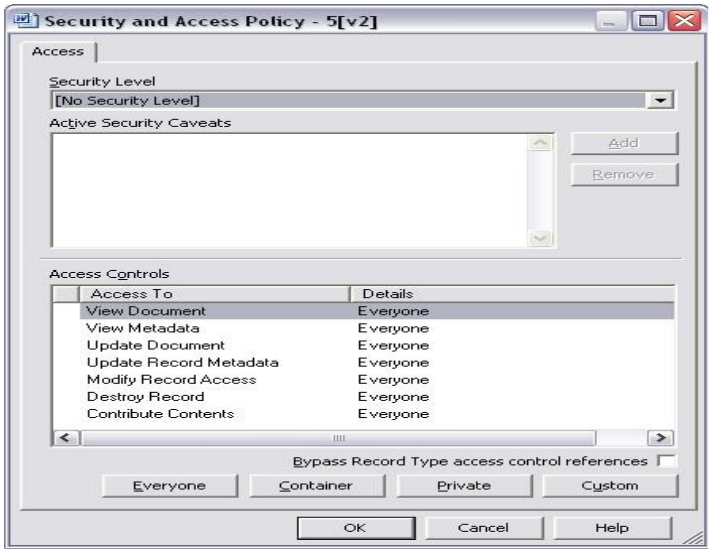
	Description of Requirements
	for documents and files and capture file titles and numbers in hierarchical structure with fill file number validation. 
RM61	Add, modify and delete file numbers/titles as a single set – A designated individual shall be able to add, modify and delete file numbers/titles as a single set and globally including prompts to confirm the action and messages if the action will affect other levels in the hierarchy or other related records.
RM62	Transfer to central database - The system provides the capability to transfer the file classification scheme and all associated data from a local RMS site to a central file classification database.
RM63	Restrict creation - The system shall provide the capability to restrict the creation of new files to designated individuals.
RM64	File description - A designated individual shall be able to establish a description of each file including title, description, function/activity, organization, cross-reference number, subject officer, physical location and recording medium and more detailed or deferring information at the different file levels or for volumes and enclosures including file title, keywords, previous file number, cross-reference number and file dates (open, closed), vital record identifier and status, security level, warning message, and retention period, disposal action and disposal authority. 

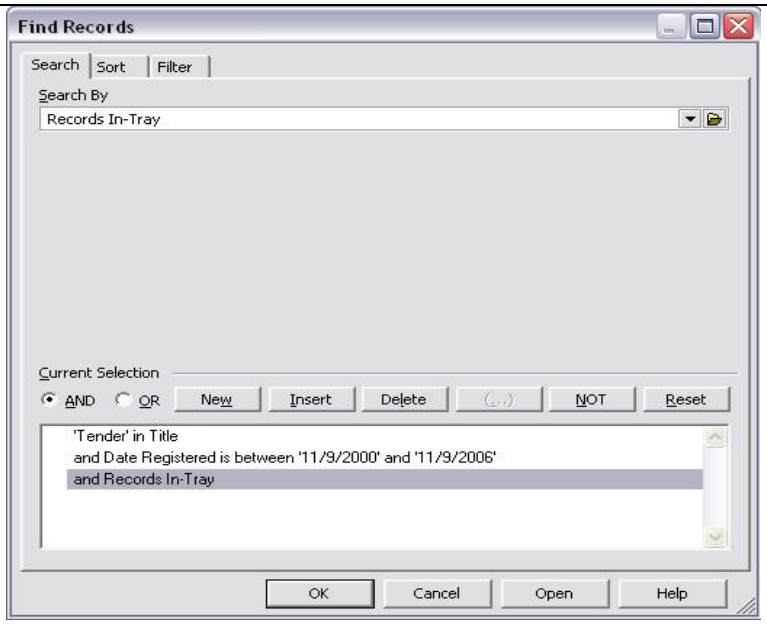
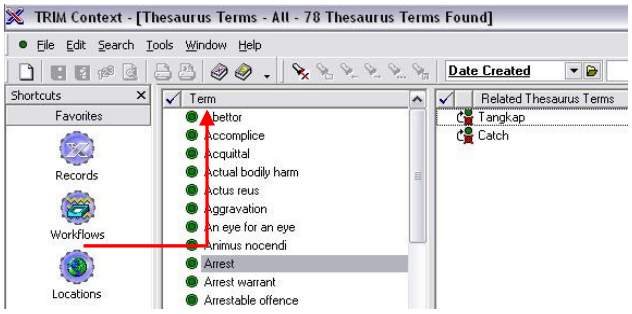
	Description of Requirements
RM65	Core Document Metadata Schema - The system shall provide the capability to define a specific set of document metadata fields and their associated values, which shall be common to all document metadata Schema used by RMS and to restrict the update of metadata to a designated individual.
RM66	Document & User/group metadata - The system shall provide a facility to build, maintain and manage the metadata associated with individual documents and each RMS user.
RM67	Importing user metadata – The technical architecture allows user metadata to be populated within RMS by importing relevant data from automated user accounts files maintained for LAN or e-mail administration. 
RM68	Profiling non-electronic documents – The user shall be able to profile non-electronic documents including title, file number, keywords, topic, sender, addressee, related file number, date of document, and date of receipt.
RM69	Automatically capture and provide metadata - The system shall provide the capability to capture and provide core document metadata automatically.
RM70	Indexing - The system shall provide a mechanism to index the text of stored electronic documents in a real-time mode, on a timed "batch processing basis", or upon system administrator request.
RM71	Global changes to metadata – A designated individual is able to perform global changes to the document metadata based on modifications to values within the file classification system, the removal or amendment of keywords, the removal or reassignment of system users (e.g., authors) or the removal or re-assignment of business functions. 

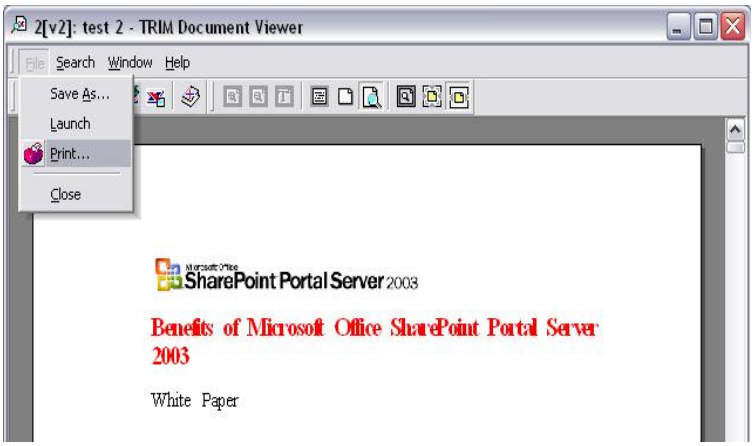
	Description of Requirements
RM72	Option to file - The user is provided with the option of filing a document in a selected document repository or filing it in the user's work space (outside the RMS environment). 
RM73	Personal repository access list - The user is able to create a personal list of repositories to file into and from which documents can be viewed and/or retrieved.
RM74	Matching document metadata schema to repository - The system provides the user with the document metadata schema, on the profiling screen, that matches the selected repository. 
RM75	Insertion of file number/title – The user is able to insert (copy/paste) a selected file number/title into the authoring tool that is currently using the RMS capability.
RM76	Cross-referencing – The user is able to cross-reference a document to more than one file number.
RM77	Restricting access rights across the bureau or department - The system provides facilities to ensure that "write and modify rights" shall be restricted to designated individuals.

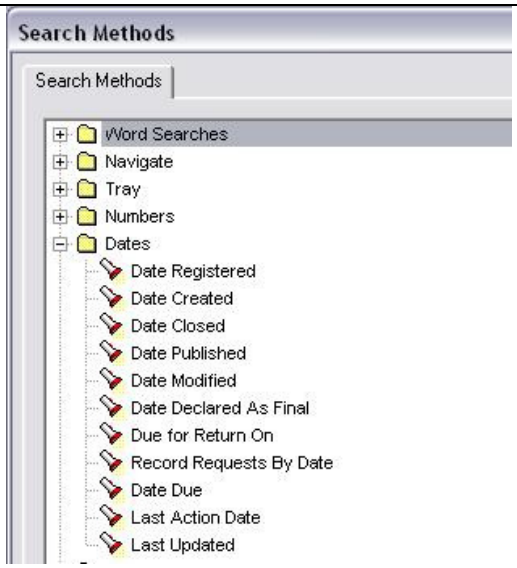
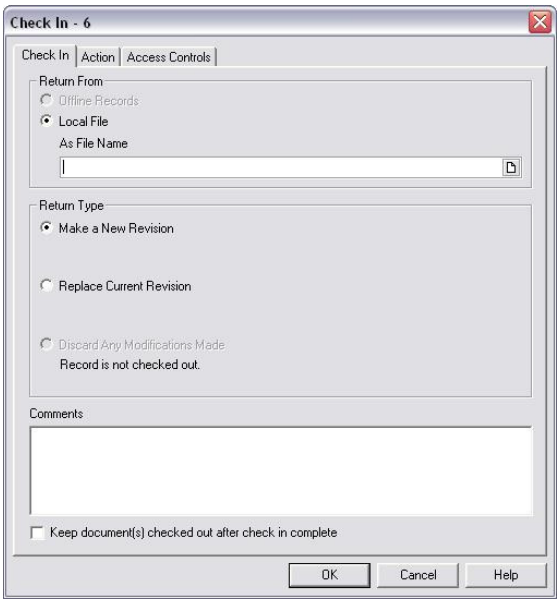
	Description of Requirements
	
RM78	Drill-down capability - The system shall provide the capability to navigate the file classification scheme or file repository using a drill-down method. The drill-down method shall also permit horizontal navigation without having to go back to the top of the hierarchy and the ability to populate the file number/title document metadata fields with a "select and click". 
RM79	Retrace navigation - The system provides the capability to navigate the file classification scheme and file repository by retracing the drill-down path and by a "pop-to-top" from anywhere in the structure. 
RM80	Viewing the file classification scheme and file repository - The system shall allow each user to view either the full file classification scheme and file repository or only a specific selection of file titles/numbers as an individualized custom view.

	Description of Requirements
	 Records - Records In-Tray - 33 Records Found Record Number / Title / Date Created CASE/08/06/1/003 — one tan mee — 8/29/2006 at 12:08 PM CASE/08/06/3/001 — Huzaimatus — 8/29/2006 at 12:14 PM LEGIS/06/1/02 — part 2 -test — 8/29/2006 at 4:15 PM LEGIS/06/1/02/0... — Part 2 section 1 — 8/29/2006 at 4:40 PM LEGIS/06/1/02/0... — Part 2 section 2 — 8/29/2006 at 4:39 PM LEGIS/06/1/03 — Test Part 3 — 8/29/2006 at 4:15 PM LEGIS/06/1/03/0... — Part 3 section 3 — 8/29/2006 at 4:41 PM LEGIS/06/1/03/0... — Part 3 section 1 — 8/29/2006 at 4:41 PM LEGIS/06/1/03/0... — Part 3 section 2 — 8/29/2006 at 4:40 PM LEGIS/06/1/02/00001 — Part 2 section 2 — 8/29/2006 at 4:39 PM LEGIS/06/1/02/00002 — Part 2 section 1 — 8/29/2006 at 4:40 PM LEGIS/06/1/03/00001 — Part 3 section 2 — 8/29/2006 at 4:40 PM LEGIS/06/1/03/00002 — Part 3 section 1 — 8/29/2006 at 4:41 PM LEGIS/06/1/03/00003 — Part 3 section 3 — 8/29/2006 at 4:41 PM LEGIS/06/2 — ac — 8/29/2006 at 5:22 PM 3 — minutes meeting — 11/1/2006 at 9:05 AM 4 — tender — 11/1/2006 at 9:17 AM 5[v2] — new tender — 11/1/2006 at 9:26 AM 6 — New Case — 11/1/2006 at 10:54 AM The figure below illustrates the Classification list.  Classifications - All Number / Name 002/ — Accommodation 002/100/ — Domestic 002/100/100/ — General 002/100/200/ — Acquisition 002/100/300/ — Rental 002/200/ — Industrial 002/200/100/ — General 002/200/200/ — Acquistion Number: 002/ Name: Accommodation Record Security: [No Security Level] Classification Title: Accommodation
RM81	Third party filing – The user shall be able to file documents directly or to designate the document as a "file-and-send" for filing by a designated individual.
RM82	Reserve and charge out of paper files & attachments – The user shall be able to reserve and charge-out paper records, volumes and other secondary storage containers, with automatic client look-up and capture.
RM83	Automatic calculation of recall dates - The system shall perform automatic calculation of recall dates for charge-outs with the ability to override.
RM84	A designated individual shall be able to BU files, volumes, enclosures, and/or documents to be sent to users on a specified date. Although multiple users can request a BU for an item on a specific date, only one request for this item can be granted for modification/editing.
RM85	File labels – A designated individual shall be able to generate labels (single or multiple) for physical files, volumes, enclosures and secondary storage containers, when requested, or automatically upon creation of the file/volume, etc.

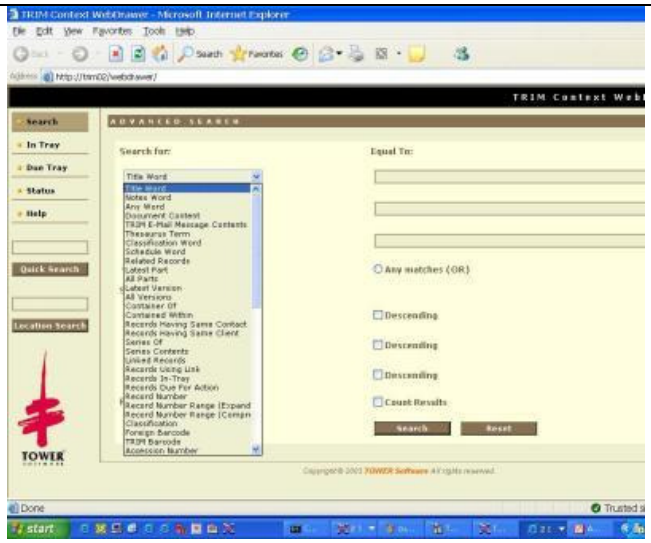
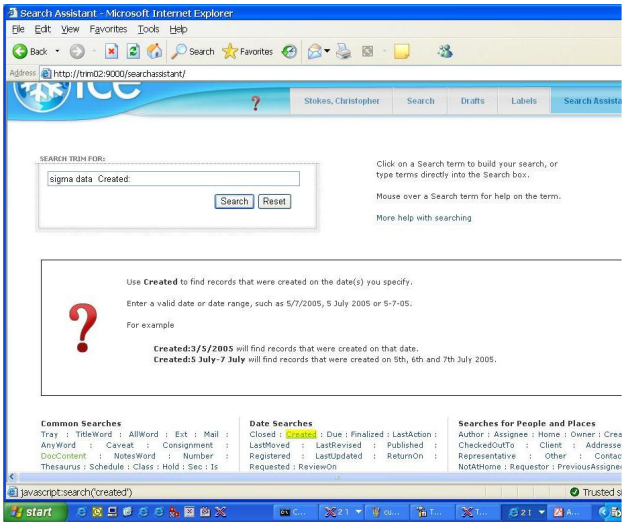
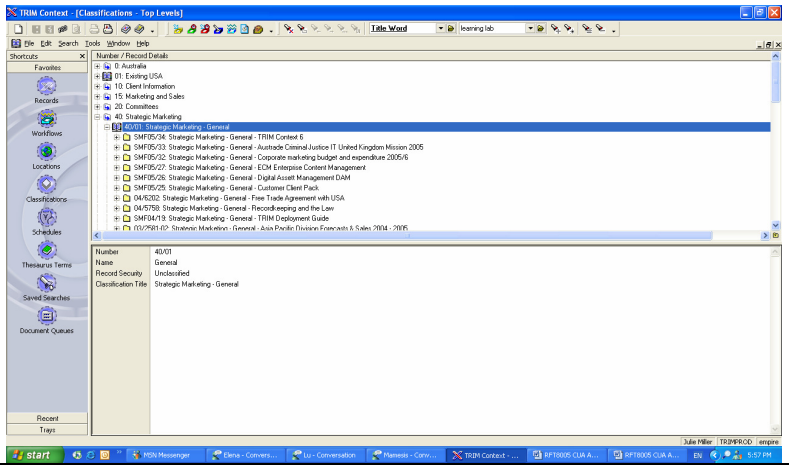
	Description of Requirements
	
RM86	Multiple repository search – The user is able to select one or more document repositories prior to invoking a document search and to present the search results from the selected repositories in a combined manner showing the source repository.
RM87	Matching document metadata schema to document repository - If the selected repositories do not use the same document metadata schema, then the document metadata schema shall default to the "Core Document Metadata Schema".
RM88	Bureau or department-wide repository access rights - RMS provides facilities to ensure that "read, write and modify rights" are restricted to designated individuals. 
RM89	Document metadata search – The user shall be able to search by one or a combination of any document metadata field profiled, including text descriptions.
RM90	Full-text search – The user shall be able to search on document contents. Text retrieval capabilities of the system shall include intelligent search, such as Boolean and fuzzy search. All searching shall be case insensitive as default, while also allowing case-sensitive searches.

	Description of Requirements
	
RM91	Simultaneous thesaurus search in English or Bahasa Malaysia– The user is able to perform thesaurus searches on the contents of documents using either Bahasa Malaysia or English terminology. This could include the execution of separate searches using either a Bahasa Malaysia or English interface.
RM92	Selecting thesaurus terms - The system provides the ability to select a term in either Bahasa Malaysia or English. A single search would then be performed using the terms provided.  When the users search based on Thesaurus Term, the related record attached with the Thesaurus term will be displayed. 

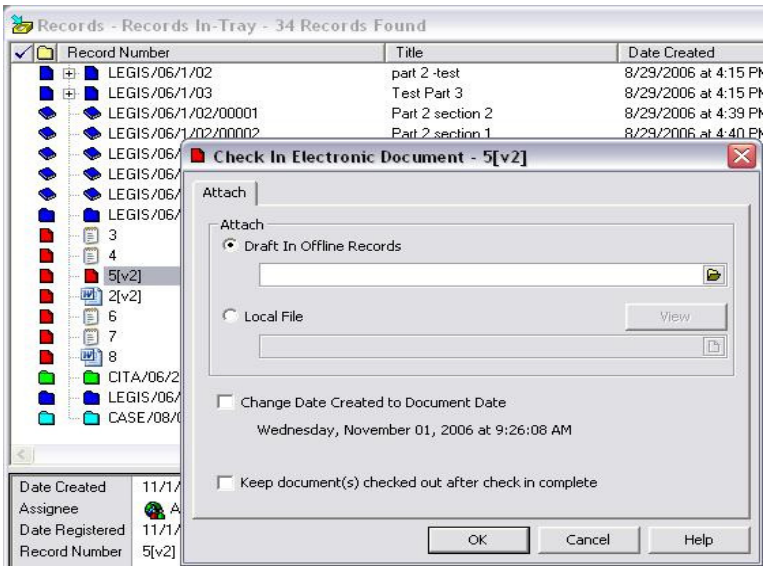
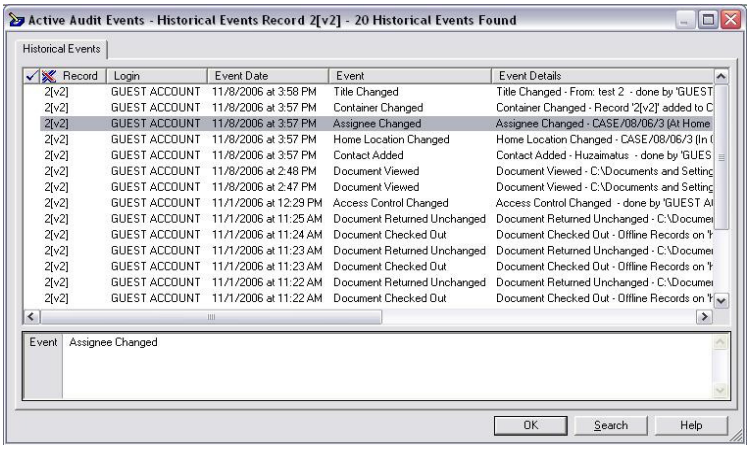
	Description of Requirements
RM93	Retrieval of document(s) - The technical architecture shall provide a facility to retrieve electronic documents and associated attachments from any document repository (or a collection of documents) managed by RMS informing user of location of document (e.g. online, offline, etc.)
RM94	View without launching – The system shall include the capability to view electronic documents without launching the native or originating application. 
RM95	Hit list - The system allows the user to view, retrieve or print electronic documents from a customizable hit list.
RM96	Attached/Linked Documents – The user is able to select and retrieve one or more documents from an attached/linked multiple electronic documents (a single "virtual document").
RM97	Most recent version of document - The system shall provide a mechanism that ensures that the default retrieval strategy shall always retrieve only the most recent version of a document. The system shall provide a facility for the retrieval of any or all earlier versions of an electronic document as requested by the user. 
RM98	List of last edited/profiled documents - The system shall provide each user with a list of the most recently edited or profiled documents at the desktop.

	Description of Requirements
	
RM99	Checking-in/out documents – The user shall be able to check-in and check-out electronic documents.
RM100	Block from editing – The system shall prevent other users from modifying a checked-out document but allows viewing access by those users.
RM101	Notification - The system shall provide notification, when a user attempts to access a file that has been checked-out.
RM102	Check-in without launching - The system provides the capability to check-in a document without having to launch the native application. 
RM103	Application of choice – The system allows the administrator to specify a default "application, and its version, of choice" for editing sessions, where a file format is supported by multiple applications (e.g. *.BMP is supported by a number of graphics editors).
RM104	Launching a second document - The system shall provide the capability to open additional documents into an existing instance of an application (e.g. if MS Word is launched by a retrieved file, a second file shall simply add another document window

	Description of Requirements
	to MS Word and not start another copy of the application).
RM105	The Records Management Application (RMA) shall provide the capability to create organizational record categories and files. The RMA shall provide the capability to output for viewing, saving and printing, a list of current organizational record categories and files.
RM106	The RMA shall provide the capability to assign a record classification code to each record.
RM107	The RMA shall provide the capability to assign a record category disposition instruction in the form of text.
RM108	The ERMS must support the process of declaration, in which an electronic document is marked as a formal electronic record and is associated with one or more folders directly by an end user
RM109	The ERMS must prevent any amendment to the content of any electronic record (which has been declared) by any user including an Administration
RM110	The ERMS must at all times prevent the destruction or deletion of any electronic record (which has been declared) with the exceptions of: o Destruction in accordance with a disposal schedule o Deletion by a systems administrator as part of an audited procedure
RM111	The ERMS must support the naming of electronic records, and allow this name to be different from the existing electronic document filename (including e-mail subject lines used to construct record titles); if the existing filename is taken by default, the ERMS must allow this name to be amended at the time of declaration.
RM112	ERMS must ensure that the content of the body of an e-mail message and the transmission details cannot be amended in any way between processes of capture and declaration (but excluding the subject line used as record title, which can be edited).
RM113	The ERMS should ensure that the content of and the transmission details of other electronic transactions with which the ERMS is closely integrated cannot be amended in any way between processes of capture and declaration.
RM114	The ERMS must ensure that all electronic records are assigned to at least one folder on completion of declaration.
RM115	The ERMS must not impose, by its own architecture or design, any practical limit on the number of records which can be captured and declared into a folder; or on the number of records which can be captured and declared into the ERMS as a whole.
RM116	The ERMS must allow an electronic record to be assigned to more than one folder.
RM117	Where multiple assignments are achieved by use of a pointer system working with a single actual record, the ERMS must be able to manage the integrity of all pointers or references, to ensure that: o Following a pointer, whichever folder that pointer is located in, will always result in correct retrieval of the record o Change in location of a record also redirects any pointers which reference that record.
RM118	The RMA shall provide the capability to allow authorized individual(s) to add a record category and to suspend disposition of a record category.
	e. View / Inquire
RM119	Interface – The technical architecture shall provide a Graphical User Interface (GUI) interface or a web-enabled interface.

	Description of Requirements
	 
RM120	Personalized desktop – A designated individual shall be able to use a tool-set for customization of the desktop and document metadata fields. As a minimum, this shall include the ability to hide or display document metadata fields, add coded buttons and size windows. 

	Description of Requirements
RM121	Revising on-line help – A designated individual is able to access, revise or make additions to on-line help facilities. This includes the capability to load, maintain and retrieve custom process rules pertaining to using and administering RMS.
RM122	Bahasa Malaysia- All software applications, utilities, viewers, drivers, APIs, etc. that deal with text shall be capable to change to Bahasa Malaysia.
RM123	Year 2000 compliance – The system shall conform to Year 2000 standard and requirements, meaning that neither performance nor functionality is affected prior to, during or after Year 2000. In particular, the system shall fulfill the following:- o No value for current date will cause any interruption in operation; o Date-based functionality much behave consistently for dates, prior to, during and after Year 2000; o In all interfaces and data storage, the century in any date must be specified either explicitly or by unambiguous algorithms or inferencing rules; and o Year 2000 must be recognized as a leap year.
RM124	The system shall provide application program interfaces that allow integration with common computer applications such as office automation applications, workflow applications, and electronic-form/correspondence tracking software.
RM125	The system shall allow integration with messaging software such as Lotus Notes. The user shall be able to transfer e-mail messages, their associated metadata and attachments between messaging software such as Lotus Note and the system such that e-mail messages can be filed in an RMS repository; and initiate mailing RMS-filed documents from an RMS repository as attachments to an e-mail message.
RM126	Support of both user activation and forced activation filing – The user shall be able to file by user activation through a specific action (User Decided Filing) and forced activation where the filing process is automatically initiated upon receipt or sending of a message (Forced Filing).
RM127	Configuring filing activation - The Interface shall provide a facility to configure the Filing Activation on a user basis and on a workgroup basis.
RM128	Filing from a list or folder – The user shall be able to select for filing a message from an e-mail Client message list and/or message folder.
RM129	Filing from current view - The user is able to select for filing the message currently being viewed in the e-mail client.
RM130	Filing single or multiple selections – The user shall be able to select for filing single or multiple messages with one selection.
RM131	Automatically capturing data elements - The Interface shall provide a facility for automatically capturing the following e-mail data elements from the e-mail message and populating the Document Metadata of the e-mail Message Copy that is to be filed as an RMS document: (a) From: (sender/author); (b) To: (recipient list); (c) Cc: (recipient list); (d) Subject; (e) Message body; (f) Document type (set to e-mail); (g) Attachment file name(s) and path names(s); (h) Sender's File Number; (i) Subject Code; (j) Security classification level (open, restricted, confidential, secret); (k) Date of message creation; (l) Time of message creation; (m) Date of e-mail receipt; (n) Time of e-mail receipt.
RM132	Distribution list - The Interface shall provide a facility to capture resolved distribution lists (i.e., the full e-mail address of the actual recipient) rather than the distribution list name itself. The Interface shall provide a configuration option (for designated individual use only) to limit the number of characters available for storing recipient addresses.
RM133	Automatic capture of attachments - The Interface shall provide a facility for automatically capturing e-mail message attachments (sent and received).
RM134	Transfer of data elements - Some e-mail data elements shall be transferred to RMS

	Description of Requirements
	Document Metadata and other data elements shall be entered into the formatted header that forms part of the e-mail Message Copy.
RM135	Attachment name - E-mail attachments shall use Document Name and not system generated name that may or may not be arbitrary filename.
RM136	Folder filing properties - The Interface provides facilities to identify certain e-mail folders to have filing properties such that documents placed in such filing-enabled e-mail folders shall be filed.
RM137	Ensuring filing - The Interface shall provide facilities to provide a method to ensure that messages placed in filing-enabled e-mail folders shall be filed.
RM138	Linking/mapping filing folders - The Interface shall provide facilities to link/map filing-enabled e-mail folders to previously defined RMS folders (i.e., file titles in specified RMS repositories) such that an e-mail message placed within the filing-enabled e-mail folder will be filed in the corresponding RMS file title (i.e., under the corresponding file classification number) within the RMS repository.
RM139	Check-Out/Check-In - The Interface shall pass any information required by RMS to manage its Check-out and Check-in functions for all filed attachments. 
RM140	Document history - The Interface shall pass any information required by RMS to update the RMS Document History for all filed messages and filed attachments. 
RM141	User Directories – The system shall provide a facility to read and integrate the e-mail

	Description of Requirements
	user directory data into the RMS user directory.
RM142	Full-text searching and viewing - All e-mail messages shall be searchable using full-text tool regardless of format. The message should also be readable using the internal viewer.
RM143	Saving message and attachments - The Interface shall allow the option to save message and attachments and all related message information as one object.
RM144	Links - When a message is saved as multiple objects, a bi-directional link shall be established between the message and attachments.
RM145	Saving attachments independently - The user shall be able to save an attachment independently from the message at the discretion of the user.

Records Maintenance Management

Records Maintenance Management is the area of management where records are organized and maintained. This specification involved the three process of records maintenance:

i) Analysis
ii) Migration
iii) Monitor

	Description of Requirements
	a. Analysis
RM146	Analysis design should be modular and reusable, and allow modules addition and deletion without major changes to the program.
RM147	Analysis should save and restart analysis procedures in the same state as at the exit time.
RM148	Analysis should provide a standard mechanism to store information and operations executed in each analysis procedure (i.e. information about a dataset, selection cuts, calibration data used - if attributes were re-calculated in an analysis job) to allow their recalculations with identical results
RM149	Analysis should provide a standard mechanism to store information on any errors encountered in any data manipulation (i.e. fitting, mathematical manipulations, display). The information should be stored in an object generated by the data operations.
RM150	Analysis should provide a standard mechanism to append information on the data related to an analysis (for example - criteria used to select data and conditions used to collect data) to the analysis results.
RM151	Analysis should provide a standard mechanism to store and view results of the preliminary, the intermediate, and the final stage of analysis.
RM152	Analysis should allow viewing of results in the interactive form and a possibility to save them, if needed, in a standard format for possible inclusion in informal and formal publications.
RM153	Analysis should display one or more events simultaneously.
RM154	Analysis should make it possible to plot, graph and represent graphically in other ways results from simple and multiple data sets.
RM155	Analysis should be easy enough to learn its basic functionality's in a short time (few hours).
RM156	Analysis should allow reading different input data formats and writing different output data formats. Conversion routines should be available to the read/write objects in

	Description of Requirements
	various formats for easy interfacing with outside software packages.
RM157	Analysis should provide a variety of mathematical manipulation packages as well as a graphical display packages.
RM158	Analysis should provide a default (native) mathematical manipulation and graphical display packages.
RM159	Analysis should apply standards to data representations, printing files (i.e. postscript format), graphical outputs (i.e. wrl, gif, ps), interfaces (i.e. GUI requirements). The standards should be either industrial or internal (CERN-wide, for example) and should be strictly applied.
RM160	Analysis response time should be reasonably fast.
	b. Migration
RM161	Identify the migration strategy o Count of data structures o Interfaces involved in migration o Data sources (including word processing documents, spreadsheets, raw text files, etc.
RM162	Develop methods for transferring the information intact to another medium (migrating) or republishing the information in another form on a new medium (harvesting)
RM163	Have the capability to extract the records from the Departmental Repository and store in the Archives Repository.
RM164	Establish an environmentally controlled storage facility
RM165	Develop criteria and establish a monitoring process for regular review of optical disks
RM166	Develop criteria for dealing with hardware and software obsolescence
RM167	Develop, support, and use disk production standards that will permit preservation and access well into the future
RM168	Implement storage and use practices that will prolong the lifespan of optical disks
RM169	Store all parts of an optical package together
	c. Monitor
RM170	Maintenance of file history – The system shall maintain charge in/out history for files, volumes, documents and secondary storage containers.
RM171	Statistics/Management information - The system shall provide the capability to compile statistics and produce management information such as the number of times a document is accessed/processed/updated as well as the number of documents accessed by organizations/groups.
RM172	Revisions to documents – The system shall maintain and provide reports on revisions to documents, access to documents, and changes to document status.

Records Usage and Access Management

Records Usage and Access Management is the area of management that handles the usage and access management of records in the public office.

a) Search and Display

An integral part of an ERMS is the ability for the user to retrieve files and records. This includes searching for them when precise details are not known, and rendering them. Rendering is producing a representation on-screen ("displaying") or printing; it may also imply playing audio and/or video.

Accessing files and records, and then viewing records will require a flexible and broad range of searching, retrieval and rendering functions to meet the demands of the different types of user. Although this can be thought of as not being classically a records management function, the required functionality is described here on the grounds that an ERMS without good retrieval facilities is of limited value.

Searching is the process of identification of records or files through user-defined parameters for the purpose of confirming, locating, accessing and retrieving records, files and/or their metadata.

The ERMS search and navigation tools to locate metadata, records, volumes or files requires a range of searching techniques for the sophisticated "research" user and support for the casual and less "computer literate" operator.

An ERMS may contain records with different formats and structures. The user requires generic viewing facilities that will accommodate displaying, rendering and printing a range of formats.

b) Access Method

All of the features and functionality in this specification must be subject to access controls as described elsewhere in this specification, including security controls. In other words, the ERMS must never present information to any user which that user is not entitled to receive. To avoid complexity, this is assumed and is not repeated in each detailed requirement.

Organizations must be able to control who is permitted to access records and in what circumstances, as records may contain personal, commercial or operationally sensitive data. The restrictions on access may also need to be applied to external users. For example, in some countries where freedom of information legislation permits access to selected public records, customers may wish to view records.

Any access to records, and all other activities involving them and related documents or data may also need to be stored in the audit trail to ensure legal admissibility and to assist in data recovery.

Security of records also includes the ability to protect them from system failure by means of backup, and the ability to recover the records from backups.

Organizations generally need to control access to their records. Typically, they need to limit or permit access to specific records and files by user and/or by group of

users. Where matters of national security are involved, they may also take users' security clearances into account.

The setting of these access rights must be limited to certain roles. Note however that this role is only implementing, from a system perspective, decisions taken by more senior management. Such decisions are typically based on laws and regulations, such as information laws, data security laws, archival laws and industry regulations.

c) Reporting

This section gives outline requirements only; it is not appropriate to attempt to reproduce here the requirements for a comprehensive report writing sub-system. In any implementation, requirements for the amount and complexity of reporting will be determined by the size, complexity and levels of change to the classification scheme, the amount and nature of the records, and the user base.

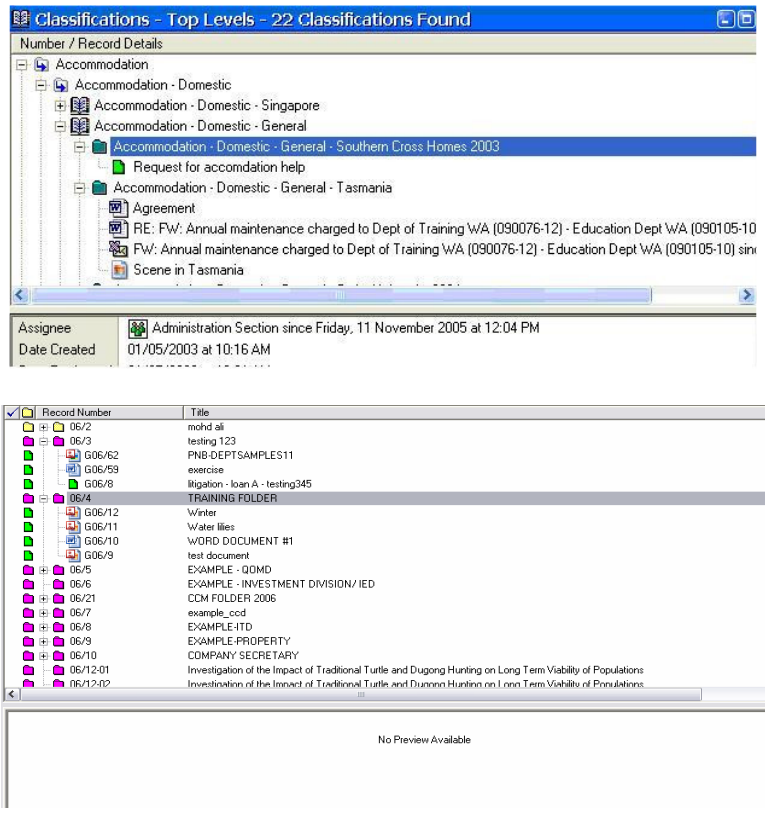
d) Audit trails

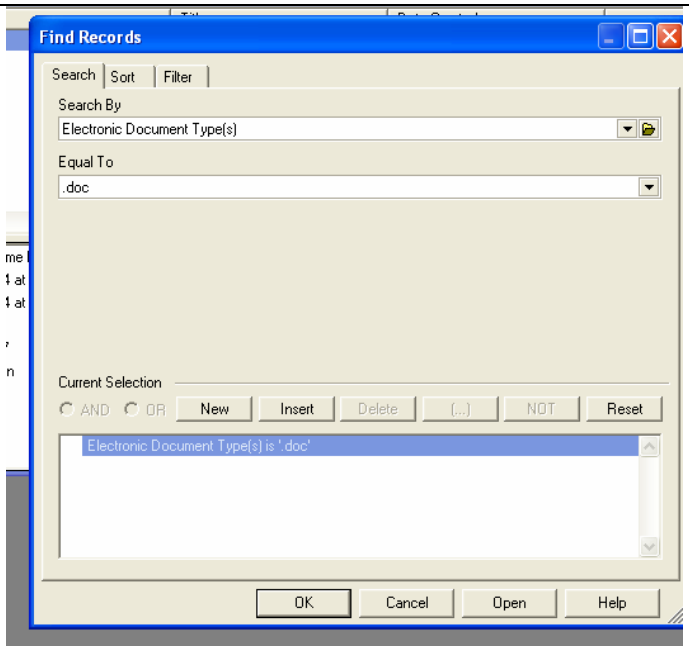
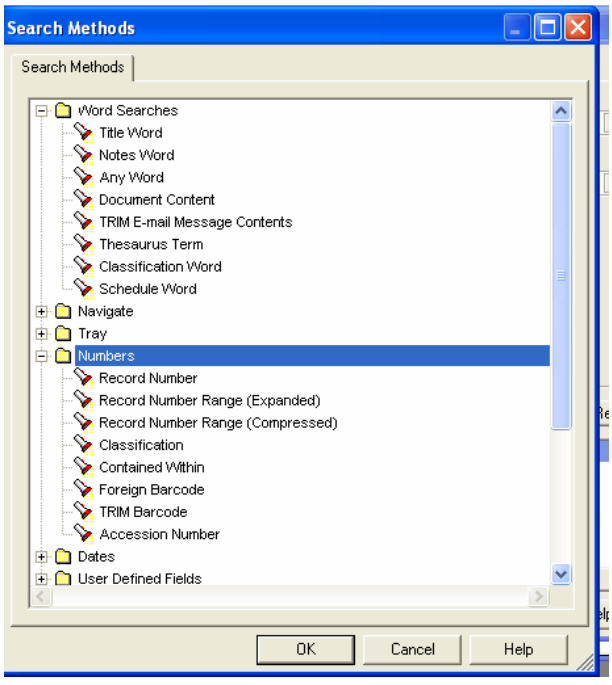
An audit trail is a record of actions taken which involve the ERMS. This includes actions taken by users or Administrators, or actions initiated automatically by the ERMS as a result of system parameters. The audit trail for records can be viewed as metadata of the records (because it consists of information describing some aspects of the records' history), though this is not essential.

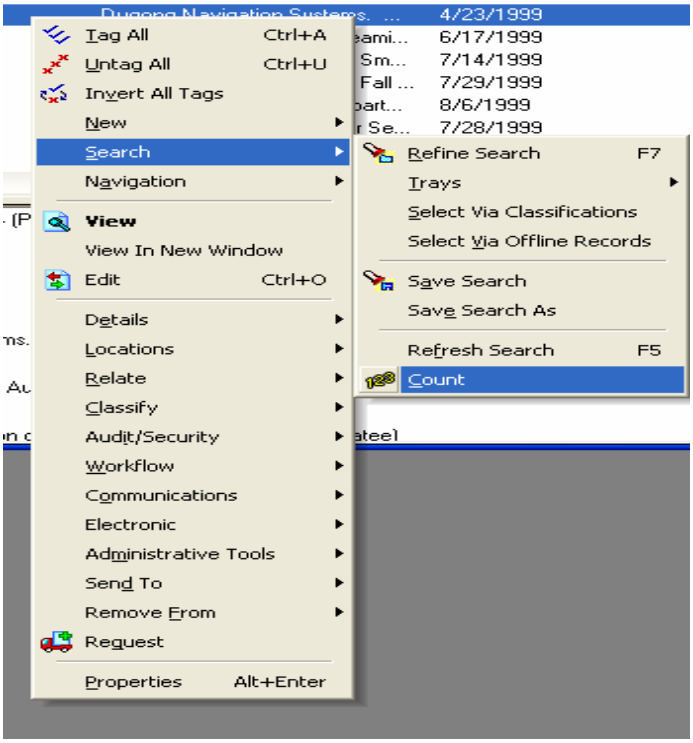
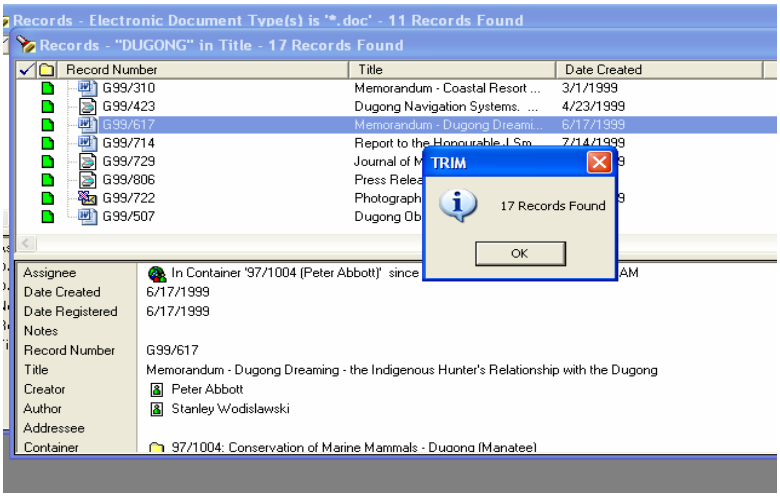
The ERMS must be capable of management and control of electronic records according to the standards necessary for compliance with requirements for legal admissibility and security, and must be capable of demonstrating this compliance. The audit trail is a key factor in meeting these requirements by maintaining a complete record of all the actions on every record.

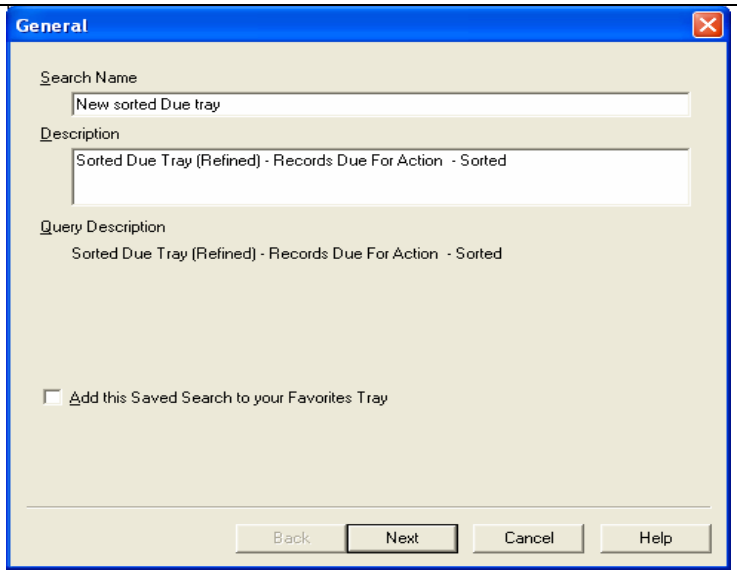
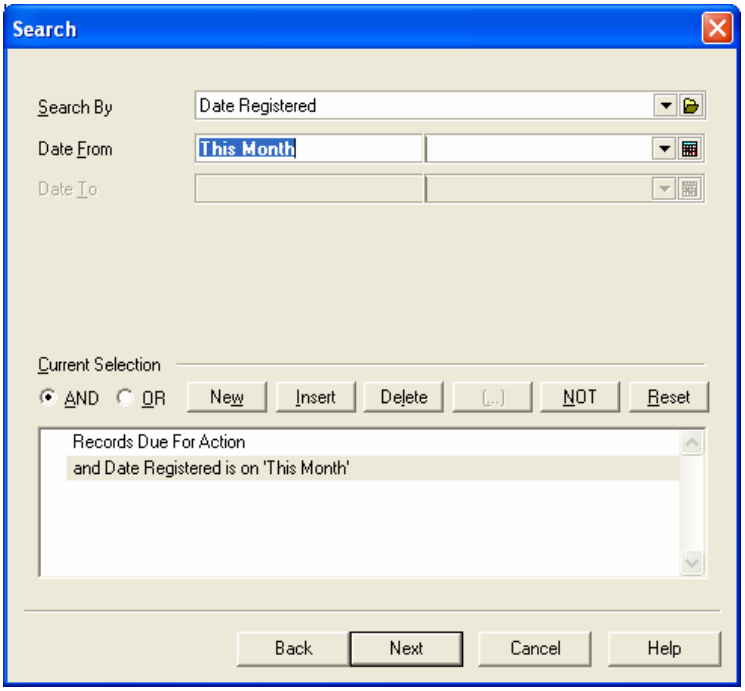
The volume of audit trail information can become large if all actions are audited. Consequently, in some implementations, management may decide that the selected actions need not be audited; and in most cases, the on-line audit trail is periodically moved to off-line storage, and is subject to deletion if and when the relevant records are disposed of. These are matters of management policy and/or legal/regulatory requirements; thus this specification includes system requirements to allow these actions, but does not establish the extent to which they are used.

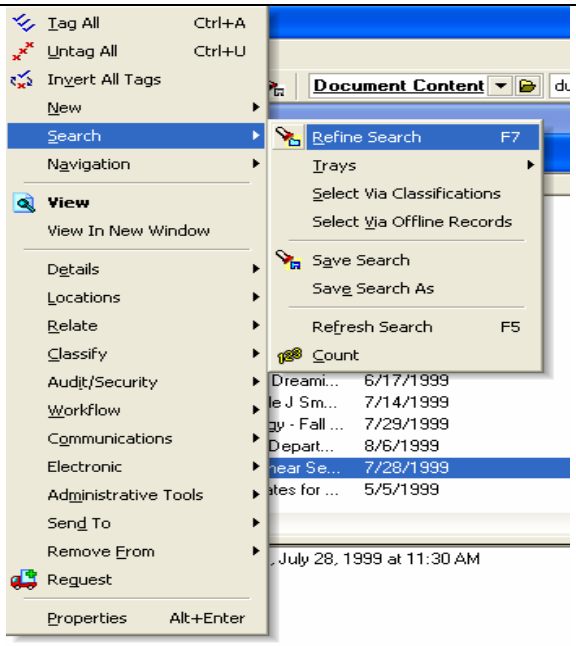
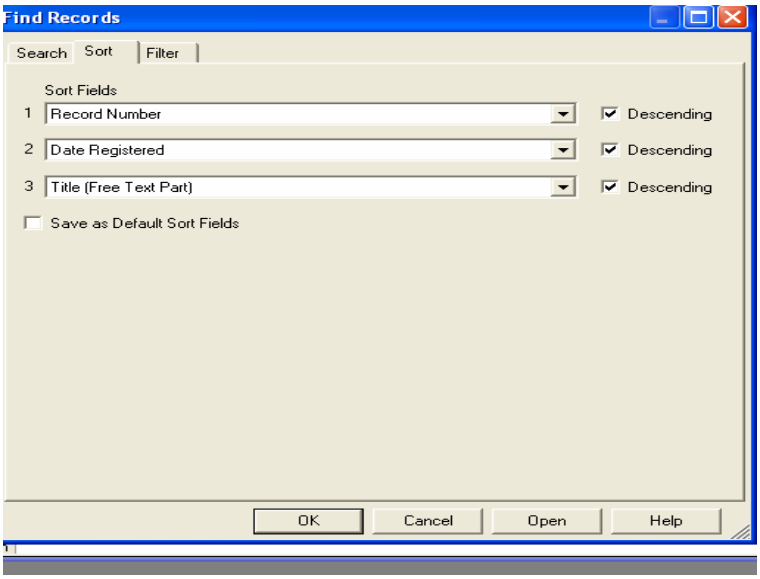
	Description of Requirements
	a. Search
RM173	The ERMS must provide a flexible range of functions that operate on the metadata related to every level of record aggregation (file, class) and on the contents of the records through user-defined parameters for the purpose of locating, accessing and retrieving records and/or metadata either individually or in aggregation.
RM174	The ERMS search facilities should be integrated and should, to users, appear the same for all levels of the classification scheme.
RM175	In the case of files, the ERMS should present seamless functionality across searches for electronic files, hybrid files and physical files.
RM176	The ERMS must allow all record, volume and file metadata to be searchable.
RM177	The ERMS must allow the text contents of records to be searchable.
RM178	The ERMS must allow the user to set up a single search request with combinations of metadata and/or record content.
RM179	The ERMS must allow Administrators to configure and change the search fields including:

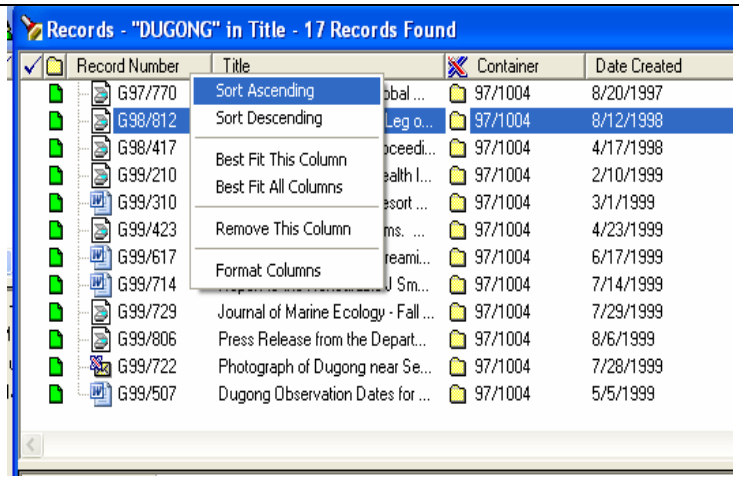
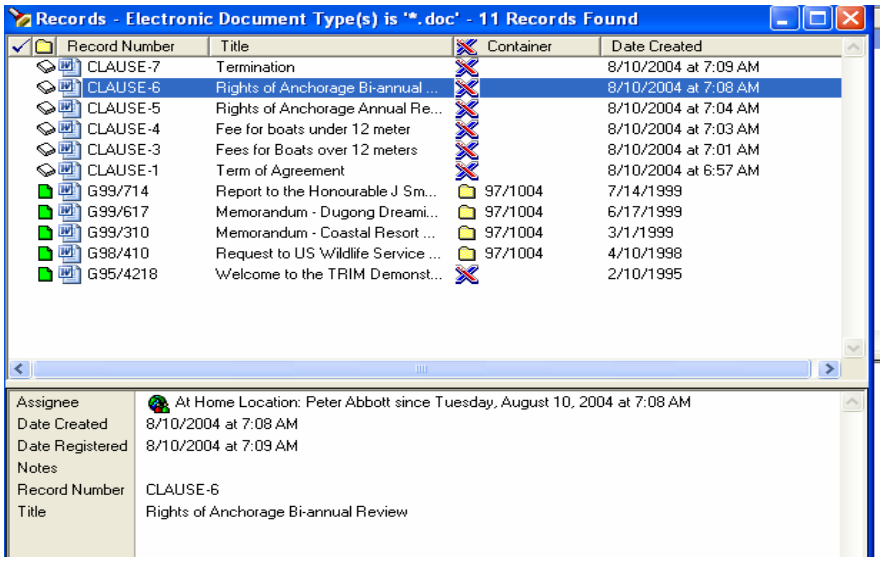
	Description of Requirements
	○ Specify any element of record, volume and file metadata, and optionally full record content as search fields; ○ Change the search field configuration.
RM180	The ERMS must provide searching tools that cover the following techniques: ○ Free text searching of combinations of record and file metadata elements and record content; ○ Boolean searching of metadata elements
RM181	The ERMS should provide the free text and metadata searching in an integrated and consistent manner.
RM182	The ERMS should provide concept searching by the use of a thesaurus incorporated as an on-line index
RM183	The ERMS must provide for "wild card" searching of metadata that allows for forward, backward and embedded expansion
RM184	The ERMS should provide word proximity searching that can specify that a word has to appear within a given distance of another word in the record to qualify as a hit.
RM185	Where a graphical user interface is employed, the ERMS must provide browsing mechanisms that provides graphical or other display browsing techniques at both the class and file level. 
RM186	The ERMS must allow searching within an electronic file (at any level in the classification scheme hierarchy) or across files.

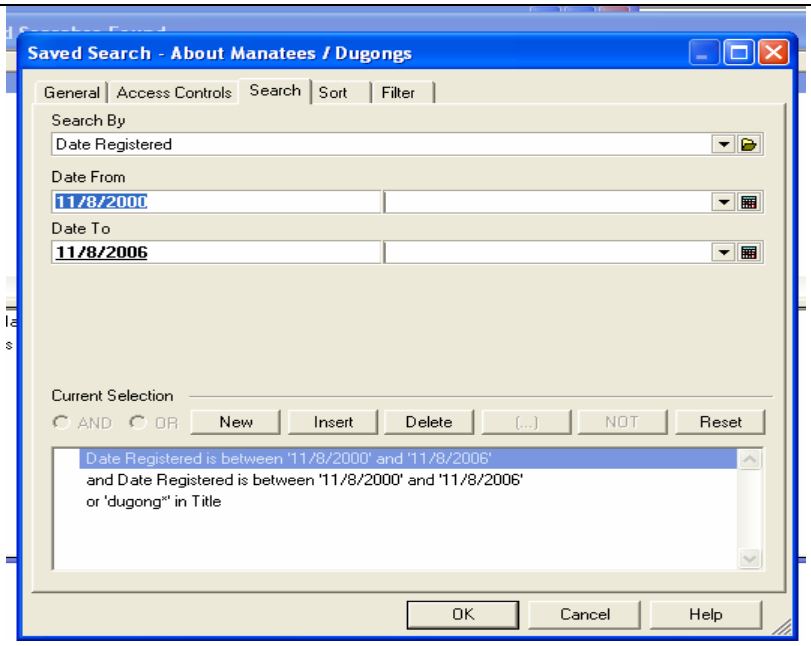
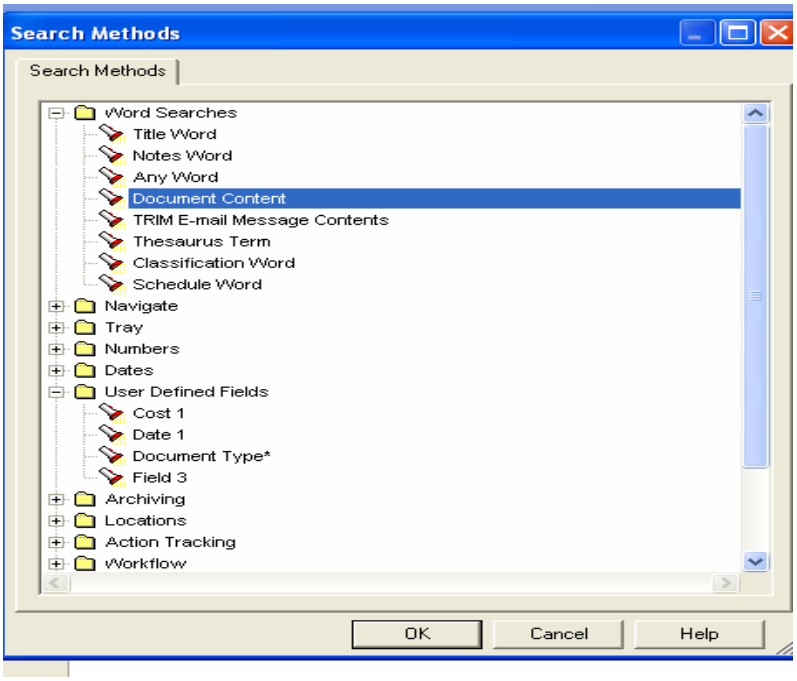
	Description of Requirements
	
RM187	The ERMS must be able to search for and retrieve a complete electronic file, or file volume, and all its contents and contextual metadata, and render all, and only, those entries in the context of that file as a discrete group and in a single retrieval process.
RM188	The ERMS must be able to search for, retrieve and render an electronic file by all implemented naming principles, including: ○ File name; ○ File identifier (classification code). 
RM189	The ERMS must display the total number of hits from a search on the user's screen and must allow the user to then display the search results (the "hit list")

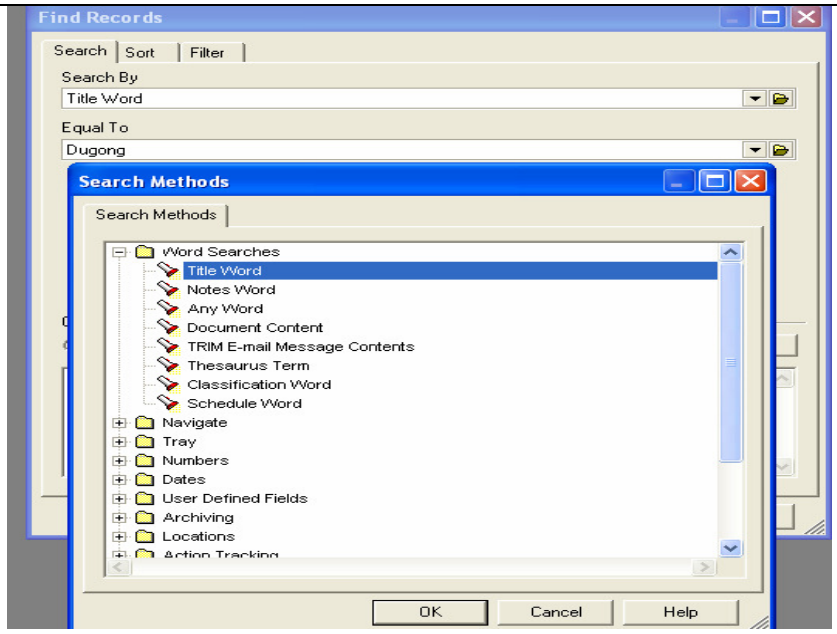
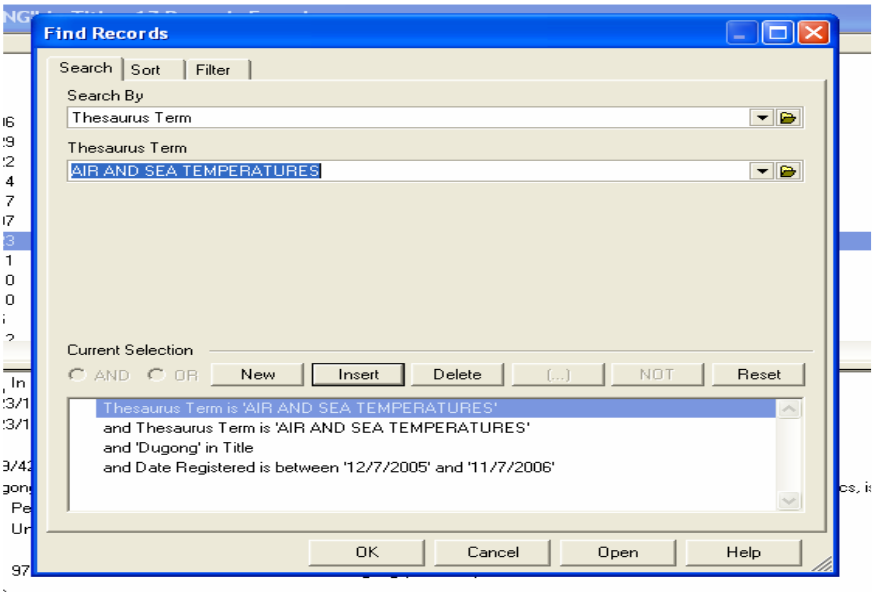
	Description of Requirements
	 
RM190	The ERMS must allow records
RM191	The ERMS should allow the metadata of any object (such as record as record, volume, file or class) to be searched using the techniques in this section whether the object itself is in electronic form or not, and regardless of whether the object is stored on-line, near-line or off-line.
RM192	The ERMS should allow users to save and re-use queries.

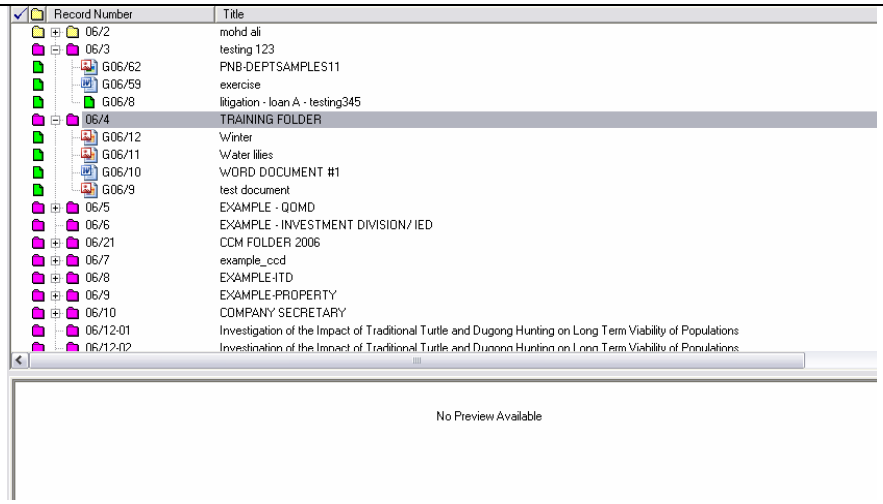
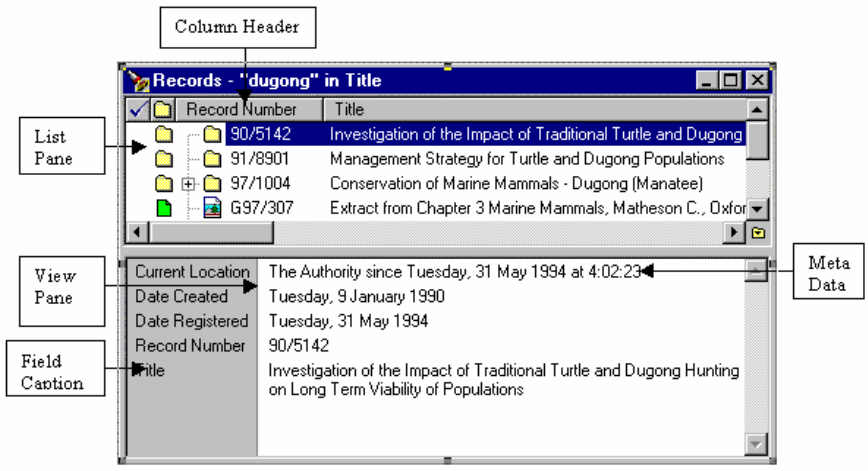
	Description of Requirements
	 
RM193	The ERMS should allow users to refine (i.e. narrow) searches.

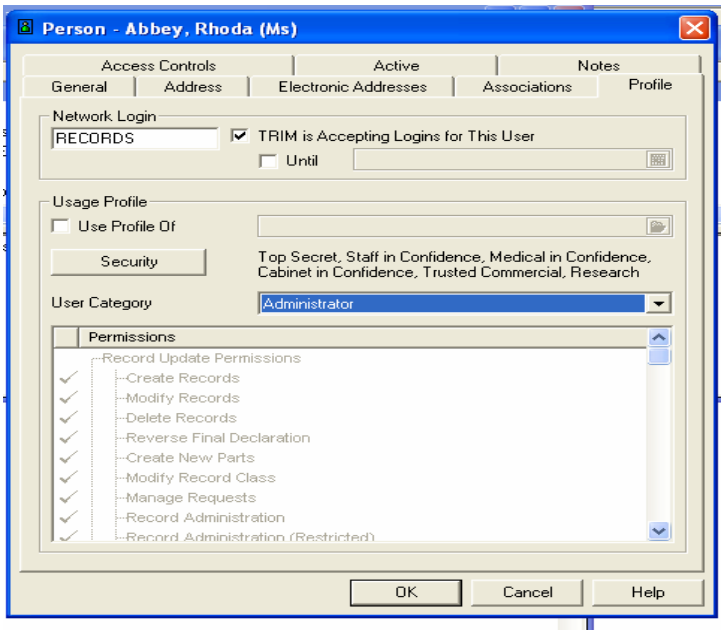
	Description of Requirements
	
RM194	The ERMS should allow the use of named time intervals in search requests, e.g. “last week”, “this month”.
RM195	The ERMS must allow users to retrieve files and records directly by a unique identifier.
RM196	The ERMS should provide display formats configurable by users or Administrators for search results, including such features and functions as: o Select the order in which the search results are presented; o Specify the number of hits displayed on the screen per view from the search; o Set the maximum number of hits for a search; o Save the search results; o Choose which metadata fields are displayed in search result lists.
RM197	The ERMS should provide relevance ranking of the search results. 

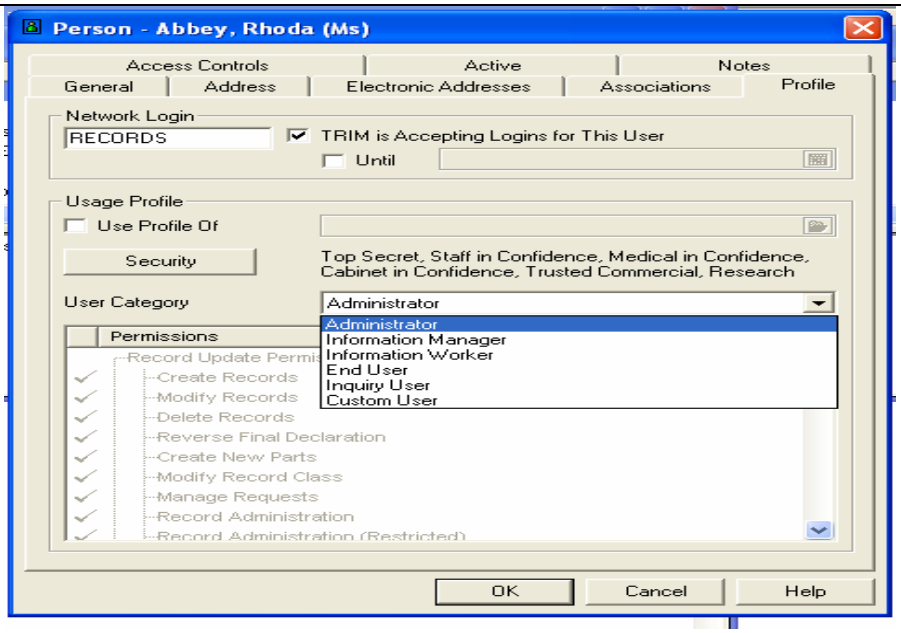
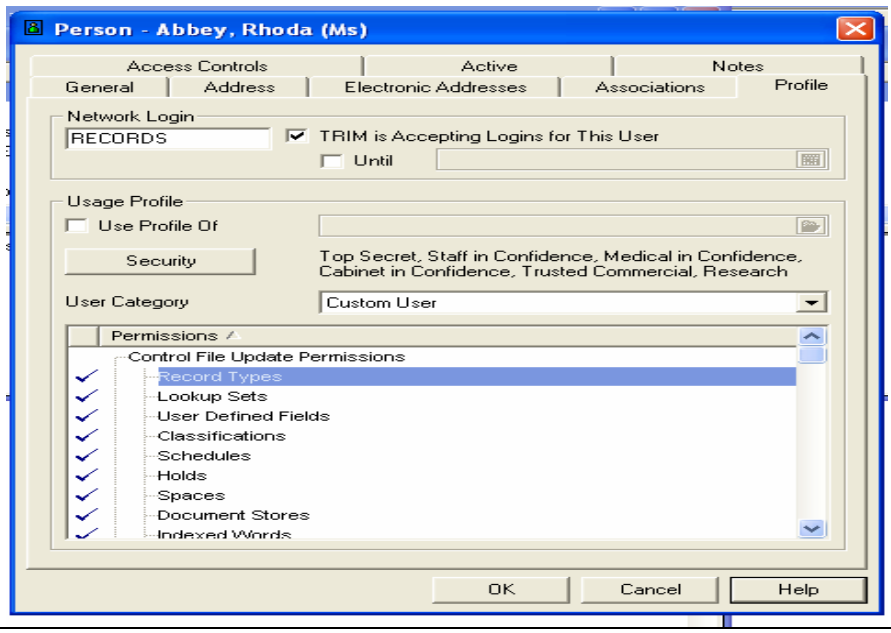
	Description of Requirements
	
RM198	When viewing or working with a record or aggregation (e.g. file or class) of records, whether as the result of a search or not, a user should be able to use ERMS features to find information about the next-higher level of aggregation of records easily and without leaving or closing the record.
RM199	No ERMS search or retrieval function must ever reveal to a user any information (metadata or record content) which the access and security controls
RM200	The ERMS should include the ability to control access to records based on intellectual property restrictions, and generate charging data for such accesses.
RM201	The ERMS should be capable of supporting the integration, within the design architecture of ERMS, of a different search engine from the one with which it is routinely supplied.
RM202	The ERMS must be able to search for, retrieve and list a set of electronic records taken from many different folders, by specifying values to be searched for in electronic record metadata or content. 
RM203	The ERMS should support saved searches which can be run with varying parameters, including dates and date ranges.

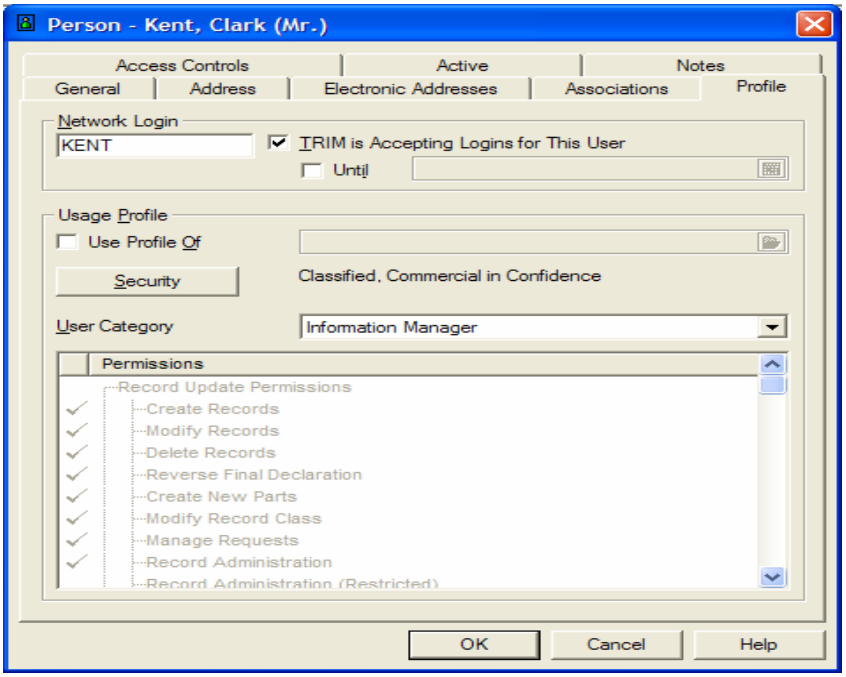
	Description of Requirements
	
RM204	The ERMS must present an integrated interface for searching both metadata and record content. 
RM205	The ERMS must allow search terms to be qualified by specifying a metadata element, or record content, as source.

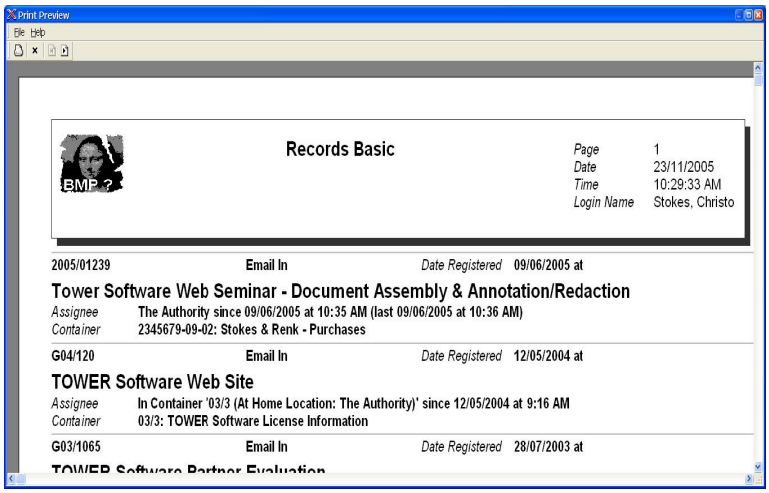
	Description of Requirements
	
RM206	The ERMS must be capable of constructing searches by combining multiple terms, from multiple sources. 
	b. Display
RM207	The ERMS must render records that the search request has retrieved.
RM208	The ERMS should render records that the search request has retrieved without loading the associated application software.
RM209	The ERMS should be able to render all the types of electronic records specified by the organization in a manner that preserves the information of the records (e.g. all the features of visual presentation and layout produced by the generating application package), and which renders all components of an electronic record together.
RM210	The ERMS must enable the contents of any or all of the folders or records in a set of search results to be directly displayed without requiring a further search, or reentry of data already retrieved.

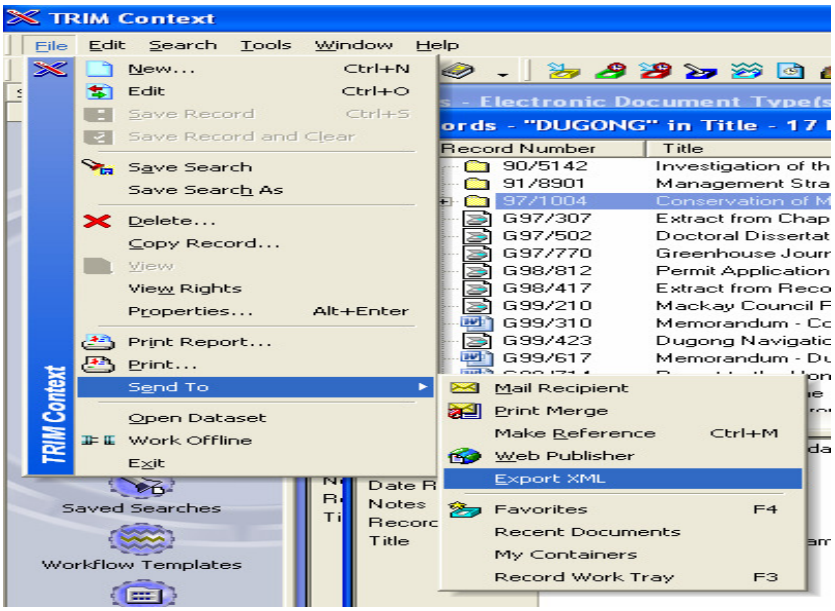
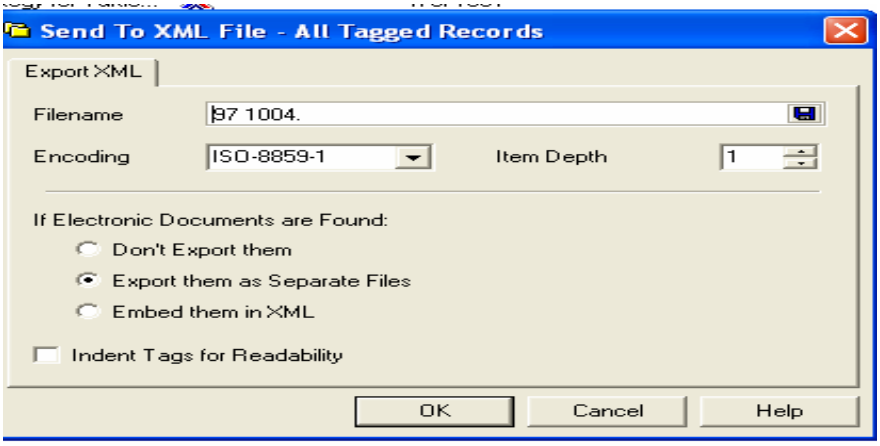
	Description of Requirements
	
RM211	The ERMS must routinely be able to display the content of all the types of electronic records which it is able to capture, in a manner that: ○ Shows all the features of visual presentation and layout as rendered by the ○ Generating application package ○ Displays all components of an electronic record together as a unit
RM212	The ERMS must provide viewing mechanisms capable of displaying all the types of electronic records, which it is able to capture, even though the generating application is not present.
RM213	The ERMS must support simultaneous retrieval and display of classes, folders and records by multiple users.
RM214	The ERMS must be capable of displaying all available metadata associated with a folder or electronic record on request. 
RM215	The ERMS must be able to print all types of electronic records which it is able to capture, and which are printable, in the same manner as they are displayed on screen within the ERMS, without use of 'screen-dumping' or 'snapshots'.
RM216	The ERMS should allow all the records in a folder or a part (which are printable) to be printed in one operation.
	c. Access Method
RM217	Organizations generally need to control access to their records. Typically, they need to limit or permit access to specific records and files by user and/or by group of

	Description of Requirements
	users. Where matters of national security are involved, they may also take users' security clearances into account.
RM218	The ERMS must allow the Administrator to limit access to records
RM219	The ERMS must allow the Administrator to attach to the user profile attributes which determine the features, metadata fields, records or files to which the user has access. The attributes of the profile will:- o Prohibit access to the ERMS without an accepted authentication mechanism attributed to the user profile; o Restrict user access to specific files or records; o Restrict user access to specific classes of the classification scheme; o Restrict user access according to the user's security clearance; o Restrict users access to particular features (e.g. read, up-date and/or delete specific metadata fields); o Deny access after a specified date; o Allocate the user to a group or groups. 
RM220	The ERMS must be able to provide the same control functions for roles as for users.

	Description of Requirements
	
RM221	This feature allows the Administrators to manage and maintain a limited set of role access rights rather than a larger number of individual users. Examples of roles might include Manager, Claims Processing Clerk, Security Analyst, and Database Administrator. 
RM222	The ERMS must be able to set up groups of users that are associated with a set of files or records.
RM223	The ERMS must allow a user to be a member of more than one group.
RM224	The ERMS must allow only Administrators to set up user profiles and allocate users to groups.
RM225	The ERMS must provide an authentication mechanism which controls access to the ERMS and which validates each user attempting access at the start of each user session, linking the user.
RM226	The ERMS should enable configuration of an access mechanism which supports

	Description of Requirements
	access to the ERM system by an integrated network log.
RM227	The ERMS must allow: o New users to be defined and identified o Existing users to be marked as inactive, with the effect of barring that user from subsequent entry to the ERMS o Existing users to be deleted by an Administrator at any time 
	d. Presentation
RM228	The ERMS should provide facilities for the presentation of folder metadata, records and record metadata to a destination external to the ERMS, in a form suitable for electronic publication.
RM229	The ERMS should support the selection and presentation of: o Whole classes, including selected elements of class metadata and a list of folders which that class contains o Whole folders, including selected elements of folder metadata, and a list of record titles which that folder contains o Specified electronic records, including record content and selected elements of record metadata o Specified extracts, including record content and selected elements of metadata, but without the record to which the extract is related.
RM230	Where the ERMS is capable of presentation of classes, folders and records, these must be able to be rendered in one or more of: o An XML format suitable for publication o A non-proprietary HTML format suitable for publication o An e-GIF approved format suitable for publication.
RM231	The ERMS should allow an e-mail retrieved by browsing or searching to be copied to a compatible e-mail application, for transmission in a manner normally achieved by that application.
	e. Audit
RM232	The ERMS must record the date and time (to the nearest minute) of declaration as a metadata element attached to the record; this data should in addition be recorded in the audit trail.

	Description of Requirements
RM233	The ERMS should be able to include a copy of audit trail data that is associated with records, parts and folders as part of the export or transfer process; and must then exclude non-relevant audit trail data.
	f. Reporting
RM234	The ERMS must provide a reporting capability, for Administrators and other authorized users, to provide management and statistical reports on activity and status within the ERMS. 
RM235	The ERMS should be capable of storing standard reports requests and formats, which can be run specifying varying parameters, but without additional design alteration, including parameters for: ○ Specific dates and date ranges ○ Specific users or groups of users
	g. Support
RM236	The ERMS must be able to support the export of metadata in an XML format as defined by the electronic records management metadata standard schema, as versions become available through the GovTalk site (www.govtalk.gov.uk), and in accordance with the schedule for compliance.

	Description of Requirements
	 

Records Disposition Management

Records Disposition Management is the area of management that handles the disposal of records. It also conducts reviews on records to ensure that certain criteria are met before the records are disposed. This will be for both the operational and archival records.

A fundamental aspect of records management is the use of retention schedules to govern the removal of records from operational systems. Retention schedules define how long the records have to be kept by the ERMS, and how they may be disposed of.

Review is the process of checking files, once they have reached the date or event specified by a retention schedule, to decide whether they are to be retained, transferred to another system, or destroyed. The reviewer may consider metadata, contents, or both. In some environments, the retention schedules are used to govern disposition without a review.

The disposition of certain records is subject to laws and regulations. Reviews must be performed in a way which is consistent with these laws and regulations, and where relevant in co-operation with responsible archival authorities.

Organizations may need to move records from their ERMS to other locations or systems. This is referred to here as "transfer". Note that the term transfer is used even though only a copy is sent to the other location or system. Reasons for transfer may include:

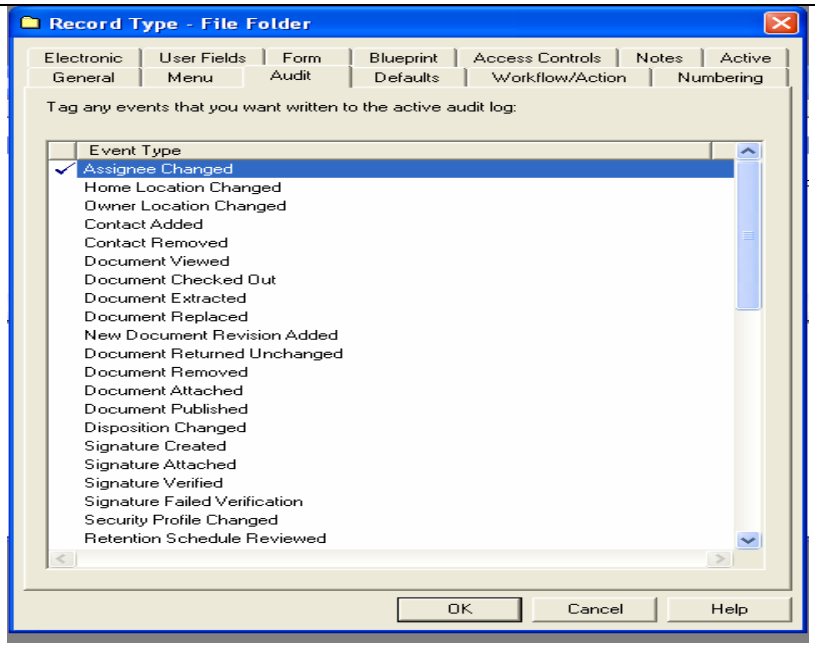
- permanent preservation of the documents for legal, administrative or research reasons;
- to use outside services for the medium term or long term management of the records.

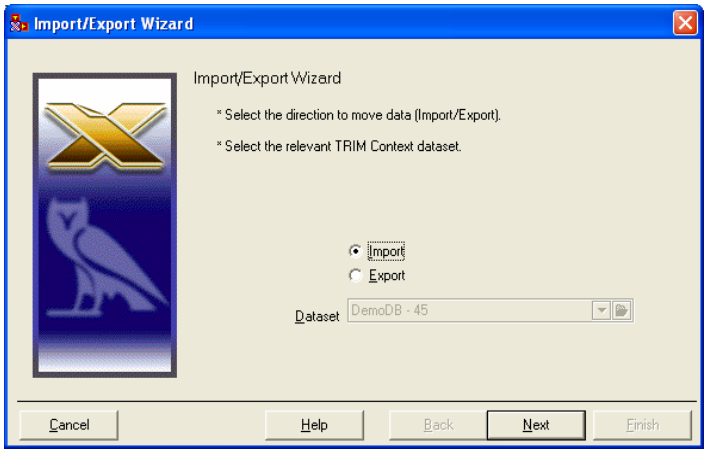
This action often results in the records being transferred to a different ERMS environment. Note that in some cases the records originally residing in the ERMS will be deleted from it after transfer, while in other cases they will be retained.

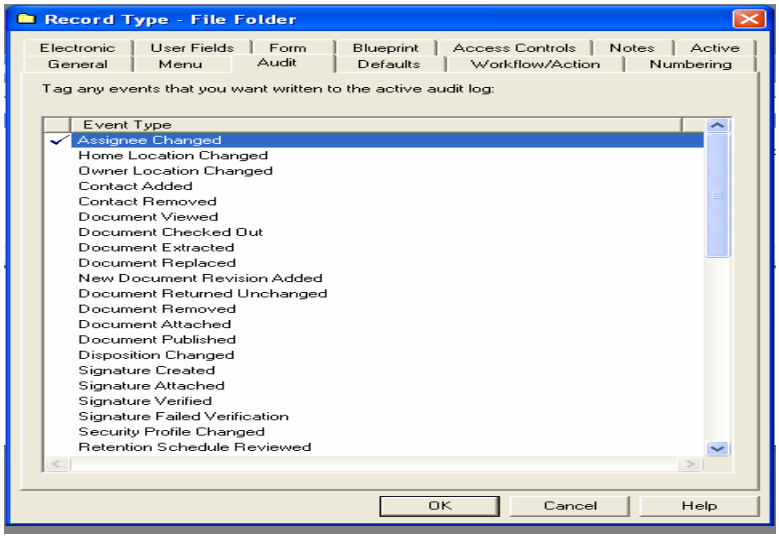
In other circumstances, the organization will need to export the records, that is move a copy to another location or system while retaining the records. In yet other circumstances it will need to destroy the records.

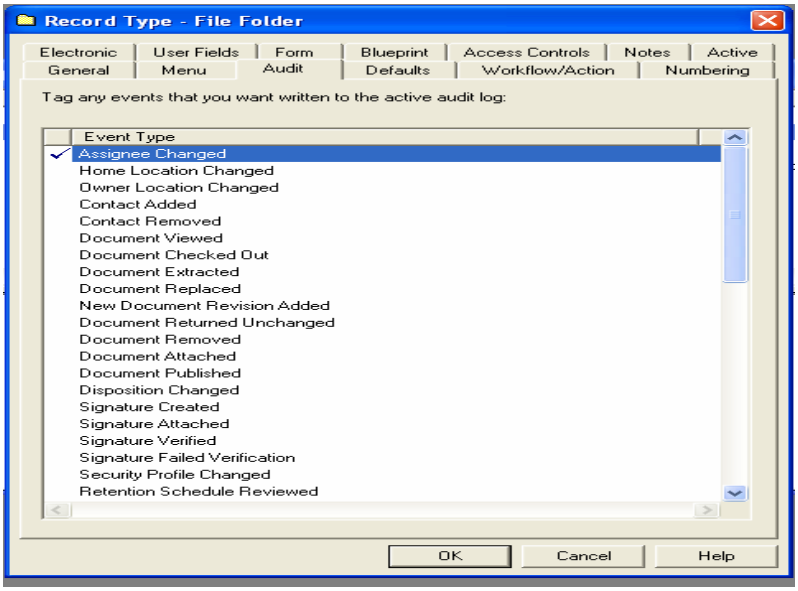
In any event, the requirement is to execute the transfer, export or destruction in a controlled manner. In all cases, the metadata and audit trails must be considered at the same time as the records they relate to.

	Description of Requirements
	a. Execute Disposition Rule
RM237	The ERMS must automatically track the commencement and progress of retention periods, on all folders and records which have been allocated disposal schedules, in order to determine effective disposition dates.
RM238	The ERMS must ensure that the all actions required by a disposal schedule are applied to all the contents of the folder as a whole, unless a separate disposal schedule for one of its constituent records has been allocated, by use of a specific record_type which allows this action.
RM239	The ERMS must always seek confirmation before implementing disposal actions.
RM240	The ERMS should seek confirmation of irreversible actions twice before proceeding.
RM241	The ERMS must ensure that all functions of the disposal management mechanism are restricted to authorized users.
RM242	The ERMS must ensure that, in normal operational conditions, a disposal schedule allocated to any folder is triggered by the system date, and can only become effective in real time (i.e. that the disposal schedule cannot be triggered by artificially advancing the current date within the disposal management mechanism).
RM243	Where the contents of a metadata field are used by a disposal schedule to determine a disposal date, the ERMS must be capable of tracking any changes made to the contents of that field and re-determining the disposal date once a change is made, after initial allocation of the schedule.

	Description of Requirements
	
RM244	When processing a folder which is allocated a disposal schedule that uses the opening or closing date of a part as the event type which triggers the schedule, the ERMS must apply the disposal action to the specific part which was opened or closed (and thereby triggered the event), and must not apply the disposal action to any other parts in the folder, or to the whole folder.
RM245	The ERMS must be capable of identifying folders and records which have a disposal hold placed on them, so that any disposal action is not carried out while the hold is in force.
	b. Dispose
RM246	The ERMS must seek confirmation of destruction from an authorized user as a mandatory step in the disposal process, before any action is taken on folders, parts or records; and enable cancellation of the disposal process at this point if confirmation is not given.
RM247	The ERMS must ensure that any function to delete records, parts or folders on an ad hoc basis (outside of the disposal process) is restricted to only the highest level of Administrator.
RM248	The ERMS must distinguish between an ad hoc delete function, and the destruction function within the disposal process, so that each can be individually and discretely allocated to differing sets of authorized users as separate functions.
RM249	Where records are stored on re-writeable media, the ERMS must enable the complete obliteration of records, parts, folders, and groups of folders that have been so scheduled and confirmed, so that they cannot be restored by operating system features or by specialist data recovery facilities.
RM250	Where records are stored on write-once media, the ERMS must prevent access to them so that access cannot be restored by normal use of the ERMS, by standard operating system utilities, or by any other application.
RM251	The ERMS should be capable of retaining a minimum set of metadata associated with destroyed folders, as specified in the accompanying records management metadata standard.
RM252	Where destruction is initiated from a higher level in the hierarchy, the ERMS should ensure that the correct minimum metadata is retained for all destroyed folders.
RM253	Where a folder is deleted by an Administrator, the ERMS should ensure that the

	Description of Requirements
	correct minimum metadata is retained; and that the Administrator has an opportunity to enter the reason for destruction in an appropriate metadata field.
RM254	The ERMS should provide a facility for an Administrator to optionally archive and then delete minimum metadata for destroyed folders.
RM255	Where a pointer system is used, the ERMS must maintain complete referential integrity following all destruction processes, consistent with all the requirements in this section.
RM256	The ERMS must ensure that when a destruction process is applied to any record for which the ERMS also stores alternative renditions, all renditions of the record are also destroyed
	c. Package
RM257	The ERMS must be able to export electronic folders, folder and class metadata, all their constituent electronic records and the record metadata, for import to another ERMS, or for transfer to the Public Record Office for permanent preservation. 
RM258	Whenever the ERMS exports any class, folder, or part, the ERMS must be able to export: o All folders which qualify under the disposal action o All parts in the folder(s) which are to be exported o All records in all folders and parts which are to be exported o All metadata associated with folders, parts and records which are to be exported.
RM259	The ERMS must be able to export whole electronic folders, and groups of folders, and all associated records in one sequence of operations, such that: o The content and appearance of the electronic records are not degraded o All components of an electronic record, when the record consists of more than one component, are exported as an integral unit; for example, an e-mail o Message with associated file attachment o All metadata associated with an electronic record is clearly linked to the record to which it belongs, so that the correct metadata can be re-associated with the correct record in the receiving system o All structural links between records, parts, folders and classes are retained in such a way that the structure of all linked components qualifying for export can be re-built in a receiving system.
RM260	The ERMS must be able to export and transfer records that are associated with more than one folder, where this is achieved by means of a pointer, ensuring that: o In a folder to be exported, a physical rather than virtual instance of the record is exported, resulting in an exported record not an exported pointer o In a folder that is not to be exported, the evident association of the record with

	Description of Requirements
	that folder, and access to the content of the record, remains unaltered ○ Where associated with two or more folders qualifying for export, all associations between the record and all exported folders are retained in the exported data.
RM261	The ERMS should be able to include a copy of audit trail data that is associated with records 
RM262	The ERMS must be able to export metadata for folders
RM263	The ERMS must be able to support the export of metadata in an XML format as defined by the electronic records management metadata standard schema
RM264	The ERMS must also be able to export records: ○ In their native format, or a current format to which they been migrated and in order of preference: ○ In an XML format which falls within the UK e-GIF framework, where possible ○ In a rendition, which is consistent with the range of formats currently specified in the e-GIF set, where an XML format is not available.
RM265	Such renditions may be achieved by: ○ Capturing an appropriate rendition as part of the record capture process ○ Rendering the record as part of the export process ○ Exporting directly to another package, which is capable of rendering the record within a controlled environment.
RM266	The ERMS must be able to export all types of records which it is able to capture
RM267	The ERMS should be able to export all folders
RM268	The ERMS must produce a report detailing any failure completely to export or transfer any element of electronic records
RM269	The ERMS must enable folders
RM270	The ERMS must support a two-stage transfer process, consisting of: ○ Export of qualifying folders, part and records from the system ○ Subsequent destruction of the exported folders, parts and records following confirmation of export
RM271	The ERMS must retain intact all electronic folders, parts and records that have been exported in the transfer process, at least until confirmation of a successful export (i.e. pause the second stage of the process until confirmation of successful import to the recipient system following the first stage).
	d. Audit
RM272	The ERMS should be able to include a copy of audit trail data that is associated with

	Description of Requirements
	records, parts and folders as part of the export or transfer process; and must then exclude non-relevant audit trail data.
RM273	In particular, the ERMS must be capable of recording information in the audit trail about the following events:- o Re-allocation of a disposal schedule to an object, identifying both previous and reallocated schedules o Separately, deletion or destruction actions carried out on an electronic folder or electronic record, by all users including an Administrator. 
RM274	ERMS should be able to export an audit trail, or parts of an audit trail, for specified electronic records, electronic folders and groups of folders, in such a way that the exported data can be stored as a record.
	e. Reporting
RM275	The ERMS must support reporting and analysis tools for the management of retention and disposal schedules, including: o Folders and records with disposal schedules which will come into force over a given period of time, providing quantitative reports on the volume and type of records o Statistics of review decisions made over a given period a list of all disposal schedules that are currently defined in the disposal schedule rule base o A list of all classes and electronic folders to which a specified disposal schedule is currently allocated o All disposal schedules which are currently allocated to a class, groups of classes, or group of folders o All disposal schedules which are currently allocated to a record created as a specific record_type o A list of all folders for which a specified disposal action will be required over a given period
RM276	The ERMS must be capable of producing reports documenting the outcome of the export process which list classes and folders successfully exported as a record of a specific export action.
RM277	The ERMS must be capable of producing reports documenting the outcome of the destruction process, which list classes and folders successfully destroyed.

Acquisition Management

Acquisition Management is the area where records acquisition are planned, executed and monitored to ensure compliance to the ANM's Act for the purpose. Acquisition Management involved the three main functions that is :

i) Ingest
ii) Index
iii) Import and Export Package

	Description of Requirements
	a. Ingest
RM278	There will be a continuum of processes needed for each project / collection with which we deal. Regardless of ingest mechanism, the process will include: o Analysis of a test file, to determine: ▪ whether standard format ▪ if not, what cross walking or pre-processing might be needed ▪ setting default element values if important values missing o Setting up, with the project / collection technical staff, a regular method for updating o Automated and manual processes to track file movements, handles, ingest of files, testing and ongoing sampling of data (probably a separate database will be needed for this)
RM279	Processes we set up will necessarily need to be somewhat manual at first, but should be designed to ramp up to automated management of large files, using similar strategies and structures.
	b. Index
RM280	Use the complete title of the database as it is most widely known. This title should serve to distinguish this database from all other databases owned by the agency.
RM281	At minimum, record the name of the office or work unit at the specific level within the organization's hierarchy that has responsibility for the contents of the database -- the database owner.
RM282	It is highly recommended that the full, hierarchical name of the owner be used. As per the example, such a name begins with the top level agency, followed by the immediate subdivision, followed by the next subdivision of the first, until the actual work unit is reached. Each name in the hierarchical chain is separated by a forward stroke ("/").
RM283	The contents of this field should contain enough descriptive information to enable the reader to determine whether or not the database warrants contacting the owner for further information.
RM284	The abstract may include (but is not limited to) a discussion of the information content (including data coverage, persons, events, and topics), forms of information, time span, and geographical coverage.
	c. Import and Export Package
RM285	The Transfer of the package will be in three different environment: o Online. o Offline. o Online Real Time.
RM286	The ERMS must be able to export electronic folders, folder and class metadata, all their constituent electronic records and the record metadata, for import to another ERMS, or for transfer to the Public Record Office for permanent preservation.

	Description of Requirements
	
RM287	Whenever the ERMS exports any class, folder, or part, the ERMS must be able to export: o All folders which qualify under the disposal action o All parts in the folder(s) which are to be exported o All records in all folders and parts which are to be exported o All metadata associated with folders, parts and records which are to be exported
RM288	The ERMS must be able to export whole electronic folders, and groups of folders, and all associated records in one sequence of operations, such that: o The content and appearance of the electronic records are not degraded o All components of an electronic record, when the record consists of more than one component, are exported as an integral unit; for example, an e-mail o Message with associated file attachment o All metadata associated with an electronic record is clearly linked to the record to which it belongs, so that the correct metadata can be re-associated with the correct record in the receiving system o All structural links between records, parts, folders and classes are retained in such a way that the structure of all linked components qualifying for export can be re-built in a receiving system.
RM289	The ERMS must be able to export and transfer records that are associated with more than one folder, where this is achieved by means of a pointer, ensuring that: o In a folder to be exported, a physical rather than virtual instance of the record is exported, resulting in an exported record not an exported pointer o In a folder that is not to be exported, the evident association of the record with that folder, and access to the content of the record, remains unaltered o Where associated with two or more folders qualifying for export, all associations between the record and all exported folders are retained in the exported data
RM290	The ERMS should be able to include a copy of audit trail data that is associated with records
RM291	The ERMS must be able to export metadata for folders
RM292	The ERMS must be able to support the export of metadata in an XML format as defined by the electronic records management metadata standard schema
RM293	The ERMS must also be able to export records: o In their native format, or a current format to which they been migrated and in order of preference: o In an XML format which falls within the UK e-GIF framework, where possible o In a rendition, which is consistent with the range of formats currently specified in the e-GIF set, where an XML format is not available.

	Description of Requirements
RM294	Such renditions may be achieved by: o Capturing an appropriate rendition as part of the record capture process o Rendering the record as part of the export process o Exporting directly to another package, which is capable of rendering the record within a controlled environment.
RM295	The ERMS must be able to export all types of records which it is able to capture
RM296	The ERMS should be able to export all folders
RM297	The ERMS must produce a report detailing any failure completely to export or transfer any element of electronic records
RM298	The ERMS must enable folders parts and records to be exported more than once.
RM299	The ERMS must support a two-stage transfer process, consisting of: o Export of qualifying folders, part and records from the system o Subsequent destruction of the exported folders, parts and records following confirmation of export.
RM300	The ERMS must retain intact all electronic folders, parts and records that have been exported in the transfer process, at least until confirmation of a successful export (i.e. pause the second stage of the process until confirmation of successful import to the recipient system following the first stage).

Records Organization

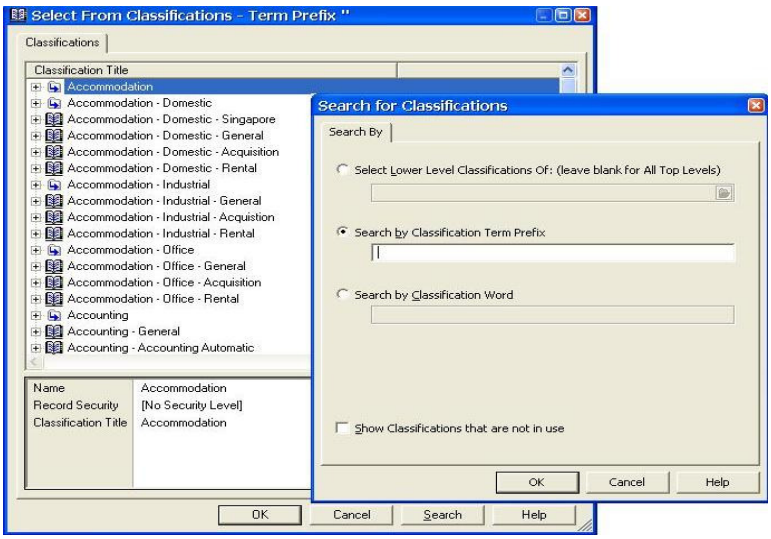
Once the record have been appraised and captured, it would then need to be organized. This is where records are registered, descriptions of the records are captured and the records are classified according to the specified classification schemes. Finally, the records are secured by means of encryption or any other means to ensure its authenticity, integrity and reliability are not compromised. This process will need to happen both within Arkib Negara Malaysia as well as within the public office.

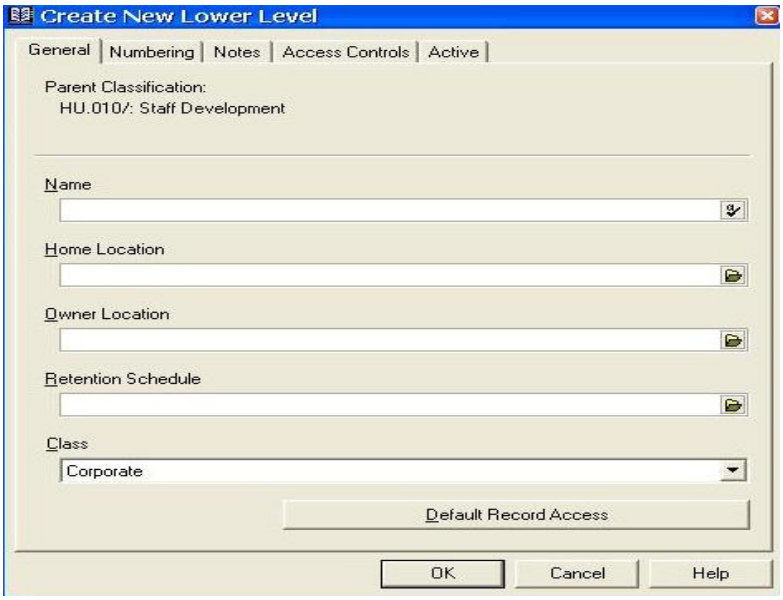
Within the public office, the records management system would need to provide the functionalities as described above. At the point of disposal, records that have been identified as archival value records will then be transferred to Arkib Negara Malaysia through a disposal process while records that are not of archival value will be disposed with the permission from Arkib Negara Malaysia.

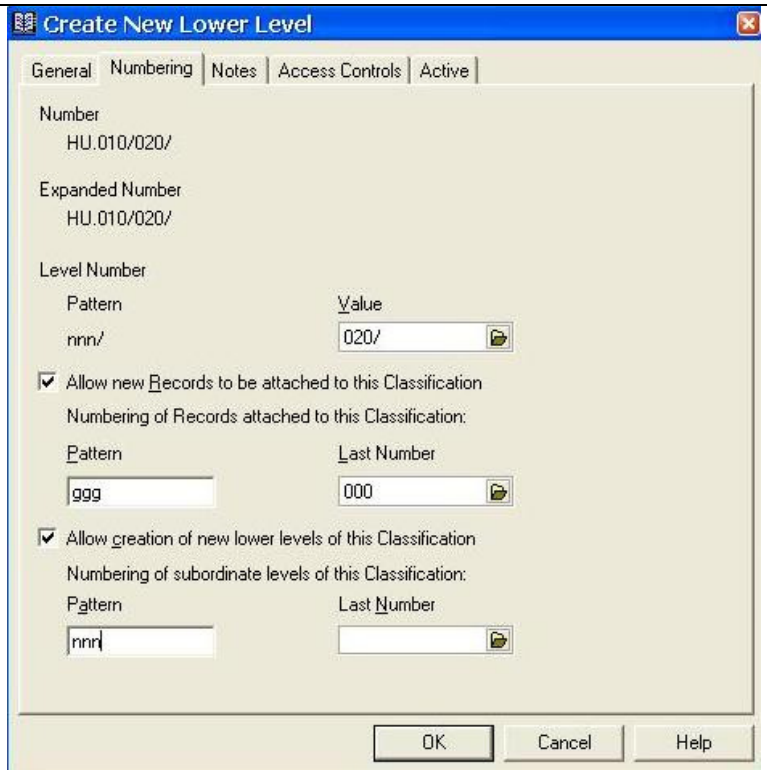
Within Arkib Negara Malaysia, the organization of archival value records takes a different perspective. They will be organized based on Arkib Negara Malaysia's archives management classification scheme.

Standard on Metadata Elements and Refinements is required to define the elements, refinements and encoding schemas to be used by the Government employees when creating metadata for their information resources or designing search systems for information systems.

Once records have been organized, it is stored. In the process of appraisal, organize and store, the metadata or these descriptive information is being captured at all times. For example, during the capture process, the record creation date, the purpose of the creation and etc. is captured. This metadata information would mainly be generated or updated within the public office environment when the records are used and a number of subsequent transactions would normally occur. *Within Arkib Negara Malaysia*, the metadata would typically contain information regarding to the preservation activities of the particular record.

Metadata and Classification Scheme	
1.	The Electronic Records Management System (ERMS) must support and be compatible with the Public Office's classification scheme.
2.	The ERMS must be able to support a classification scheme, which can represent files as being organized in a hierarchy with a minimum of three levels. Three levels are suggested here as a minimum; more levels will be needed in some environments.
3.	The ERMS should not limit the number of levels in the classification scheme hierarchy.
4.	The ERMS must allow the naming mechanism(s) to be defined at configuration time.
5.	The ERMS must support the initial construction of a classification scheme at configuration time in readiness for the capture or importation of electronic records.
6.	When the ERMS is designed to employ a graphical user interface, it must support browsing and graphical navigation of the files and classification scheme structure; and the selection, retrieval and display of electronic files and their contents through this mechanism. 
7.	The ERMS should support the definition and simultaneous use of multiple classification schemes. This may be required, for example, following the merger of two organizations. It is not intended for routine use.
8.	The ERMS should support a distributed classification scheme, which can be maintained across a network of electronic record repositories. 
9.	The ERMS must support the initial construction of a business classification scheme within the ERMS, in preparation for the creation of folders and before the receipt of electronic records.
10.	The ERMS must allow an authorized user to add new classes to the classification scheme, except where folders have already been created under an existing class; in which case, the ERMS must be capable of preventing the addition of new descendant classes to that existing class.

	
11.	The ERMS must not, by its own architecture or design, impose any practical limit on the number of classes that can be created at any point within the classification scheme, or within the entire ERMS.
12.	The ERMS must enable a whole class, including all classes, folders, parts, and records which fall under that class, to be relocated to another point in the classification scheme, retaining a history of their status prior to re-classification in metadata elements.
13.	The ERMS should enable an authorized user to mark an empty class as inactive and prevent any new folders being allocated to that class and its descendant classes.
14.	The ERMS should allow an Administrator to delete an empty class.
15.	Where the ERMS allows deletion of a class, it must prevent deletion of a class that is not empty, until such time as all folders in that class, and its descendant classes, have been disposed of, and all minimum metadata retained following destruction of folders has been deleted
E-File Plan	
16.	The Electronic Records Management System (ERMS) must support metadata for files and classes in the classification scheme; and after a record has been captured, ERMS must restrict the ability to add to or amend its metadata to Administrators.
17.	The ERMS must provide at least two naming mechanisms for electronic files and classes in the classification scheme.
18.	A mechanism for allocating a structured numeric or alphanumeric reference to each electronic file.

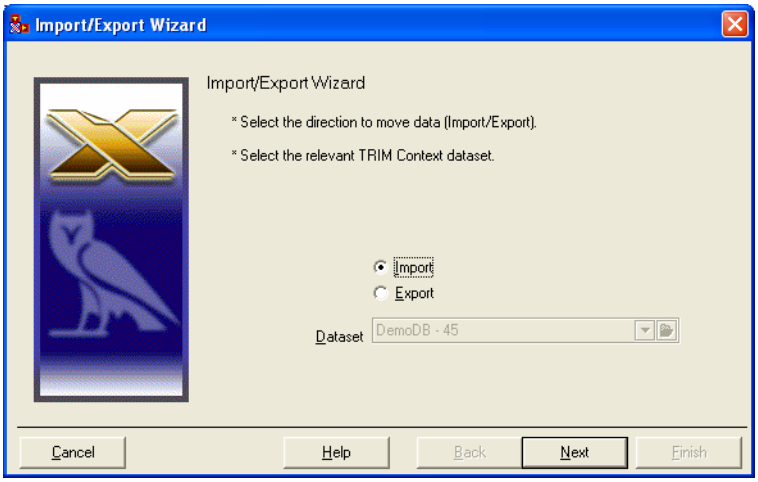
	
19.	A mechanism to allocate a textual file title for each electronic file.
20.	The ERMS must allow Administrators to add (open) files at the lowest level of any class in the classification scheme.
21.	The ERMS must record the opening date of a new class or file within the file's metadata.
22.	Whenever a new class or file is opened, the ERMS must automatically include in its metadata those attributes, which derive from its position in the classification scheme (e.g. name, classification code).
23.	The ERMS should support an optional class and file naming mechanism that is based on controlled vocabulary terms and relationships drawn from an ISO 2788-compliant or ISO 5964-compliant thesaurus and the linking of the thesaurus to the classification scheme.
24.	The ERMS should support an optional class and file naming mechanism, which includes names (e.g. persons' names) and/or dates (e.g. dates of birth) as file names, including validation of the names against a list.
25.	The ERMS must not impose any practical limit on the number of classes or files which can be defined.
26.	The ERMS must allow the automatic creation and maintenance of a list, or repersitory, of files.
27.	The ERMS must allow both naming capabilities to be applied separately or together in the same application at the same time.
28.	The ERMS must allow the pattern of naming used by the naming capabilities to be configured by an Administrator.
29.	The ERMS must allow repetition, at different points in the classification scheme, of a class text name, which represents only one segment of the class name.
30.	The ERMS must ensure that the complete text name of each class (all segments of the name) is unique within the file plan.
31.	The ERMS should support a capability to import a structured assembly of classes and their metadata from an existing classification scheme or file plan in a bulk operation.
32.	The ERMS should support inheritance of metadata by lower levels of the classification scheme so that, by default, a change in the attributes of a class may be reflected in the

	inherited attributes of all classes descendent from that point in the scheme (retrospective inheritance).
Cabinet / Folder Management	
33.	The Electronic Records Management System (ERMS) must enable recording of the opening date of a folder, which is a different attribute from, and may be chronologically earlier than, the physical creation date of the folder; this date is to be actively used by disposal functionality. The opening date should automatically be defaulted to the creation date, but must be amendable by an authorized user.
34.	The ERMS must be capable of configuration so that the ability to create new folders within an existing class can be controlled according to user role.
35.	ERMS must be able to close a folder and ensure that no new records or parts can be added to that closed folder, whilst leaving unchanged the ability to retrieve and view those records already added.
36.	The ERMS must be able to restrict the ability to close a folder to an authorized user.
37.	The ERMS must automatically record the closing date of the folder and this date is to be actively used by disposal functionality.
38.	The ERMS must allow an authorized user to open a previously closed folder for the addition of records and the creation of a new part if necessary; and subsequently to close that folder again; this action will not automatically change the closing date of the folder held as a metadata attribute.
39.	The ERMS must ensure that a folder (which may be segmented into parts) can only contain electronic records (and markers representing physical records where used).
40.	The ERMS must prevent the destruction or deletion of an electronic folder and any of its records and metadata at all times, with the exceptions of: • Destruction in accordance with a disposal schedule • Deletion by an Administrator as part of an audited procedure
41.	The ERMS must allow an electronic folder or group of folders, and all parts and records which fall under that folder or folders, to be re-classified, by an authorized user, to a different point in the classification scheme, and should retain a history of their location prior to re-classification.
42.	The ERMS must ensure that all electronic records and part(s) remain correctly allocated following the relocation of a folder or group of folders, so that all previous structural links between records, parts, and folders are retained.
43.	The ERMS should allow all relevant folder and record metadata attributes which are determined by the point in the classification scheme (including those determined by inheritance) to be, optionally, automatically updated following the re-location of a folder.
44.	The ERMS should allow an authorized user to add the reasons for reclassification of a class, folder or record to the item(s) reclassified, once for all those re-classified in one operation.
45.	The ERMS may support the creation of relational links between folders, which are classified in different parts of the scheme or file plan.

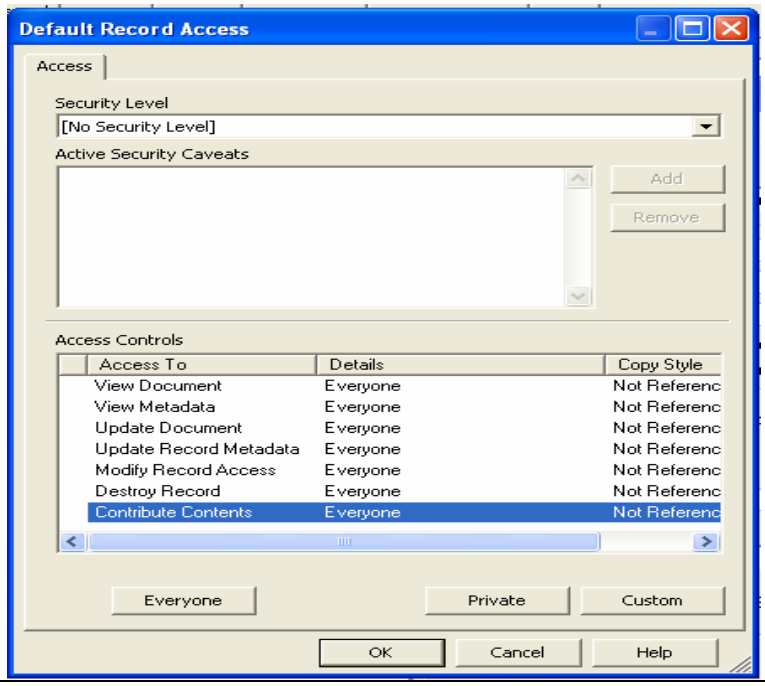
Organization and Use: This component includes the logical structuring of stored documents and associated information (naming, profiling and describing), the management of the filing and file handling process, the retrieval of information by end users based on pre-established indices and the ultimate usage of the information (viewing, editing, printing, etc).

File Classification System: Provides the capability to organize and classify both electronic and non-electronic information within a structured subject file classification hierarchy based on function and subject.

	Description of Requirements
RM301	File classification scheme – The system shall support pre-defined file classification schemes in hierarchical structure with at least 4 levels.
RM302	Classify information – The system shall provide the capability to classify information for documents and files and capture file titles and numbers in hierarchical structure with fill file number validation.
RM303	Add, modify and delete file numbers/titles as a single set – A designated individual shall be able to add, modify and delete file numbers/titles as a single set and globally including prompts to confirm the action and messages if the action will affect other levels in the hierarchy or other related records.
RM304	Transfer to central database - The system provides the capability to transfer the file classification scheme and all associated data from a local RMS site to a central file classification database.



	Description of Requirements
RM305	Restrict creation - The system shall provide the capability to restrict the creation of new files to designated individuals.



	Description of Requirements
RM306	File description - A designated individual shall be able to establish a description of each file including title, description, function/activity, organization, cross-reference number, subject officer, physical location and recording medium and more detailed or deferring information at the different file levels or for volumes and enclosures including file title, keywords, previous file number, cross-reference number and file dates (open, closed), vital record identifier and status, security level, warning message, and retention period, disposal action and disposal authority.

Profiling: Provides the capability to associate document metadata to both electronic and non-electronic documents. This shall also include the capability to profile other media such as microfilm, video, film, etc.

	Description of Requirements
RM307	Core Document Metadata Schema - The system shall provide the capability to define a specific set of document metadata fields and their associated values, which shall be common to all document metadata Schema used by RMS and to restrict the update of metadata to a designated individual.
RM308	Document & User/group metadata - The system shall provide a facility to build, maintain and manage the metadata associated with individual documents and each RMS user.
RM309	Importing user metadata – The technical architecture allows user metadata to be populated within RMS by importing relevant data from automated user accounts files maintained for LAN or e-mail administration.
RM310	Profiling non-electronic documents – The user shall be able to profile non-electronic documents including title, file number, keywords, topic, sender, addressee, related file number, date of document, and date of receipt.

Document Metadata Updates and Values:

	Description of Requirements
RM311	Automatically capture and provide metadata - The system shall provide the capability to capture and provide core document metadata automatically.

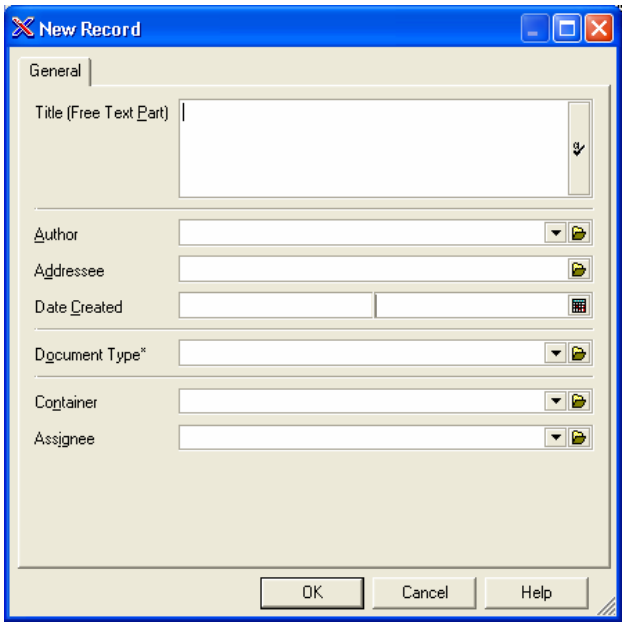
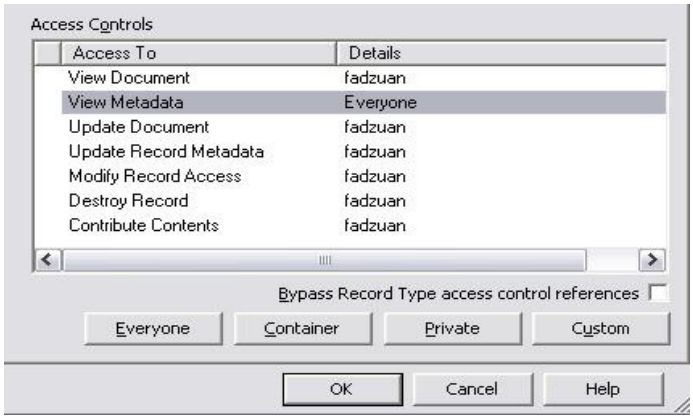
Full-Text Indexing:

	Description of Requirements
RM312	Indexing - The system shall provide a mechanism to index the text of stored electronic documents in a real-time mode, on a timed "batch processing basis", or upon system administrator request.

Global Modifications:

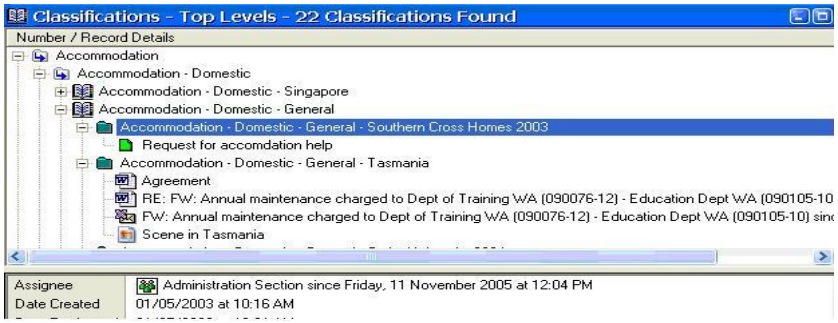
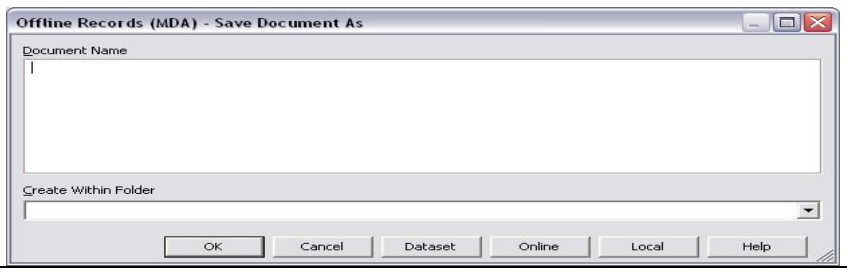
	Description of Requirements
RM313	Global changes to metadata – A designated individual is able to perform global changes to the document metadata based on modifications to values within the file classification system, the removal or amendment of keywords, the removal or reassignment of system users (e.g., authors) or the removal or re-assignment of business functions.

Filing: Provides a facility, which enables users to file documents and associated document metadata within a selected document repository.

	Description of Requirements
RM314	Option to file - The user is provided with the option of filing a document in a selected document repository or filing it in the user's work space (outside the RMS environment).
RM315	Personal repository access list - The user is able to create a personal list of repositories to file into and from which documents can be viewed and/or retrieved.
RM316	Matching document metadata schema to repository - The system provides the user with the document metadata schema, on the profiling screen, that matches the selected repository. 
RM317	Insertion of file number/title – The user is able to insert (copy/paste) a selected file number/title into the authoring tool that is currently using the RMS capability.
RM318	Cross-referencing – The user is able to cross-reference a document to more than one file number.
RM319	Restricting access rights across the bureau or department - The system provides facilities to ensure that "write and modify rights" shall be restricted to designated individuals. 

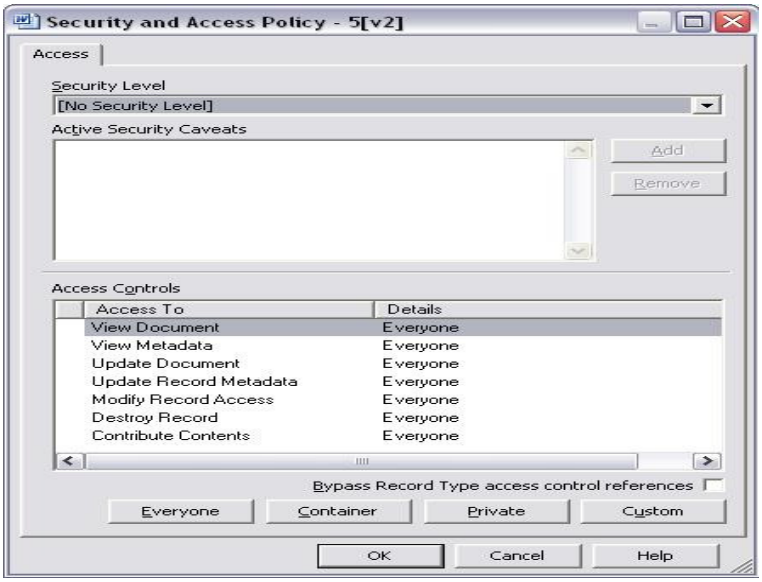
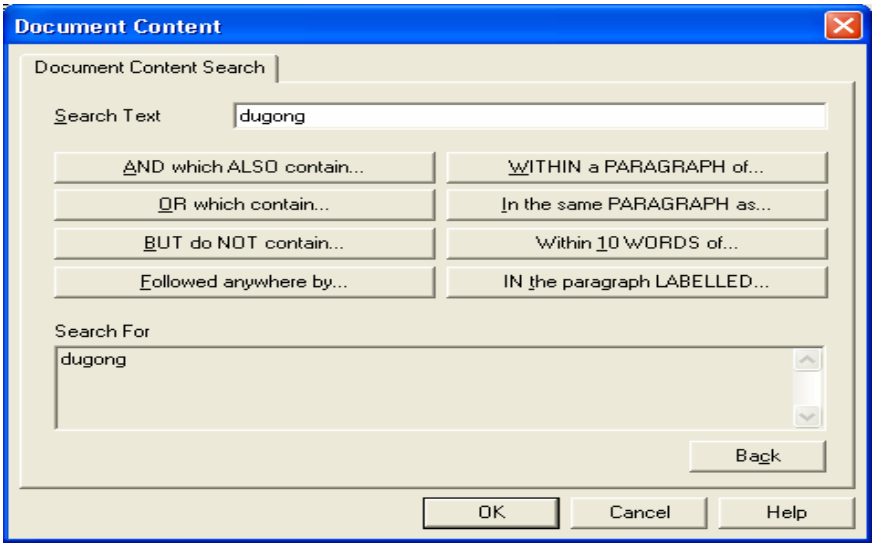
	Description of Requirements
RM320	Drill-down capability - The system shall provide the capability to navigate the file classification scheme or file repository using a drill-down method. The drill-down method shall also permit horizontal navigation without having to go back to the top of the hierarchy and the ability to populate the file number/title document metadata fields with a "select and click". 
RM321	Retrace navigation - The system provides the capability to navigate the file classification scheme and file repository by retracing the drill-down path and by a "pop-to-top" from anywhere in the structure. 

Managing the Filing Process:

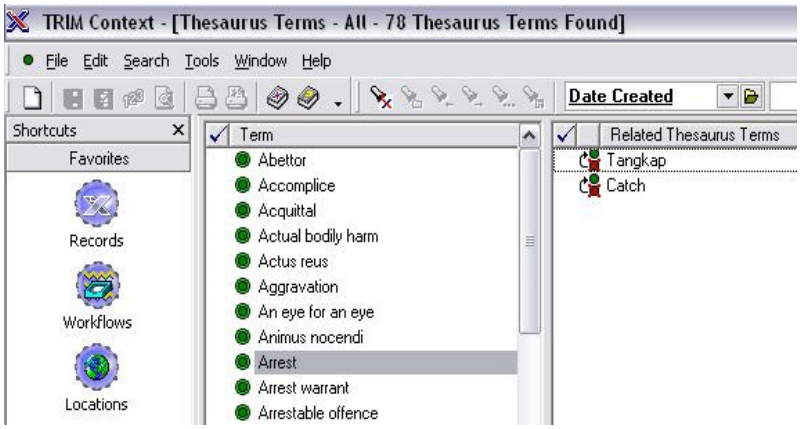
	Description of Requirements
RM322	Viewing the file classification scheme and file repository - The system shall allow each user to view either the full file classification scheme and file repository or only a specific selection of file titles/numbers as an individualized custom view. 
RM323	Third party filing – The user shall be able to file documents directly or to designate the document as a "file-and-send" for filing by a designated individual. 

	Description of Requirements
RM324	Reserve and charge out of paper files & attachments – The user shall be able to reserve and charge-out paper records, volumes and other secondary storage containers, with automatic client look-up and capture.
RM325	Automatic calculation of recall dates - The system shall perform automatic calculation of recall dates for charge-outs with the ability to override. 
RM326	Bring-up (BU) – A designated individual shall be able to BU files, volumes, enclosures, and/or documents to be sent to users on a specified date. Although multiple users can request a BU for an item on a specific date, only one request for this item can be granted for modification/editing. 
RM327	File labels – A designated individual shall be able to generate labels (single or multiple) for physical files, volumes, enclosures and secondary storage containers, when requested, or automatically upon creation of the file/volume, etc.

Retrieval: Provides a retrieval facility that allows the user to access information. This module allows users to perform requests and retrieve documents in an intuitive manner from one or more selected repositories.

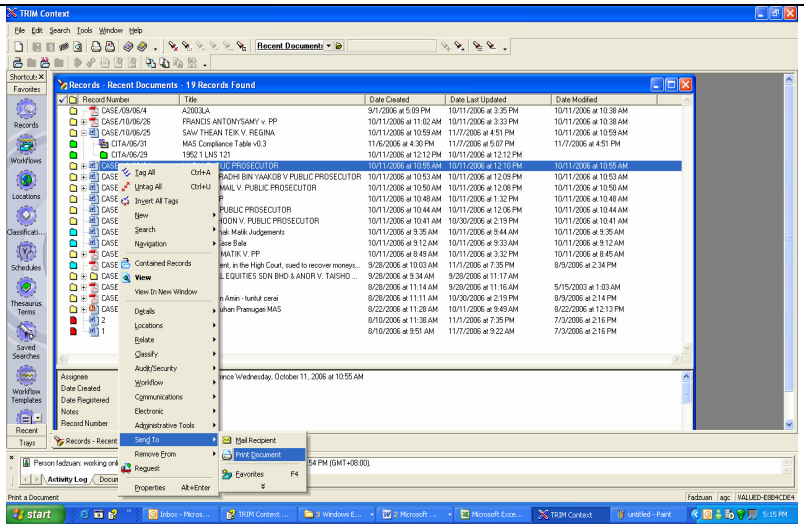
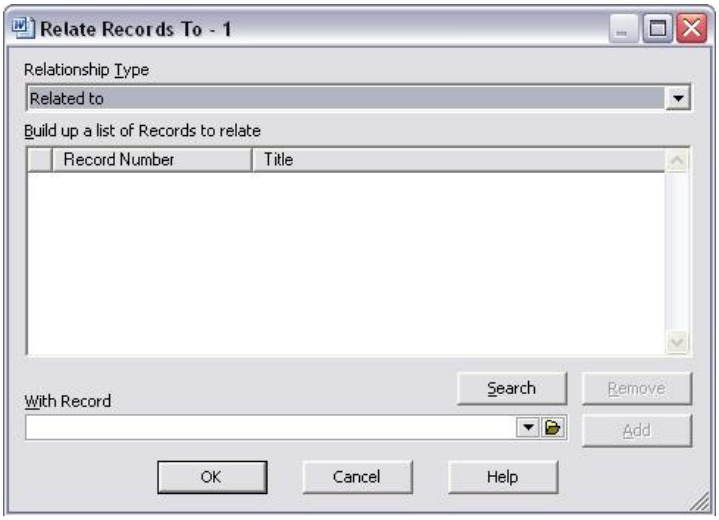
	Description of Requirements
RM328	Multiple repository search – The user is able to select one or more document repositories prior to invoking a document search and to present the search results from the selected repositories in a combined manner showing the source repository.
RM329	Matching document metadata schema to document repository - If the selected repositories do not use the same document metadata schema, then the document metadata schema shall default to the "Core Document Metadata Schema".
RM330	Bureau or department-wide repository access rights - RMS provides facilities to ensure that "read, write and modify rights" are restricted to designated individuals. 
RM331	Document metadata search – The user shall be able to search by one or a combination of any document metadata field profiled, including text descriptions.
RM332	Full-text search – The user shall be able to search on document contents. Text retrieval capabilities of the system shall include intelligent search, such as Boolean and fuzzy search. All searching shall be case insensitive as default, while also allowing case-sensitive searches. 

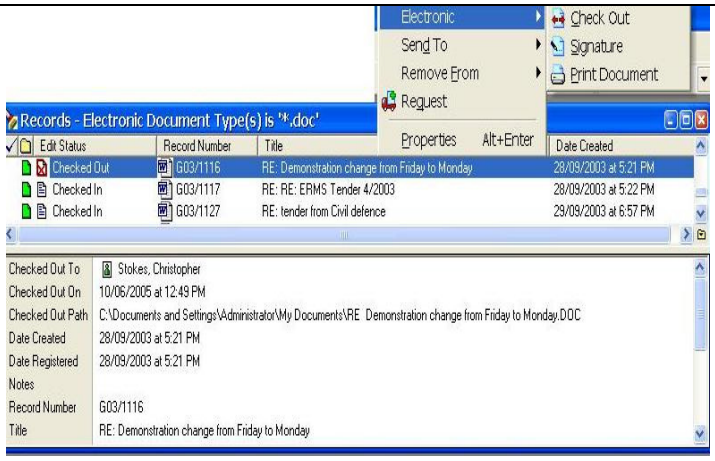
Thesaurus Search: Demonstrates the capability of integrating a thesaurus (custom built or commercially acquired) within the search engine. This capability includes the ability to:

	Description of Requirements
RM333	Simultaneous thesaurus search in English or Bahasa Malaysia– The user is able to perform thesaurus searches on the contents of documents using either Bahasa Malaysia or English terminology. This could include the execution of separate searches using either a Bahasa Malaysia or English interface.
RM334	Selecting thesaurus terms - The system provides the ability to select a term in either Bahasa Malaysia or English. A single search would then be performed using the terms provided.  

Retrieval Presentation:

	Description of Requirements
RM335	Retrieval of document(s) - The technical architecture shall provide a facility to retrieve electronic documents and associated attachments from any document repository (or a collection of documents) managed by RMS informing user of location of document (e.g. online, offline, etc.)
RM336	View without launching – The system shall include the capability to view electronic documents without launching the native or originating application.

	Description of Requirements
	
RM337	Hit list - The system allows the user to view, retrieve or print electronic documents from a customizable hit list.
RM338	Attached/Linked Documents – The user is able to select and retrieve one or more documents from an attached/linked multiple electronic documents (a single "virtual document"). 
RM339	Most recent version of document - The system shall provide a mechanism that ensures that the default retrieval strategy shall always retrieve only the most recent version of a document. The system shall provide a facility for the retrieval of any or all earlier versions of an electronic document as requested by the user.
RM340	List of last edited/profiled documents - The system shall provide each user with a list of the most recently edited or profiled documents at the desktop.

	Description of Requirements
	

Check-in/Check-out and Editing of Electronic Documents:

	Description of Requirements
RM341	Checking-in/out documents – The user shall be able to check-in and check-out electronic documents.
RM342	Block from editing – The system shall prevent other users from modifying a checked-out document but allows viewing access by those users.
RM343	Notification - The system shall provide notification, when a user attempts to access a file that has been checked-out.
RM344	Check-in without launching - The system provides the capability to check-in a document without having to launch the native application.
RM345	Application of choice – The system allows the administrator to specify a default "application, and its version, of choice" for editing sessions, where a file format is supported by multiple applications (e.g. *.BMP is supported by a number of graphics editors).
RM346	Launching a second document - The system shall provide the capability to open additional documents into an existing instance of an application (e.g. if MS Word is launched by a retrieved file, a second file shall simply add another document window to MS Word and not start another copy of the application).

Storage and Protection

Once records have been organized, it is stored. The storing process involves records to be kept in a digital repository. The digital repository used must ensure that the media used, content, context and structure of the records are always reliable so that the records that are accessible in its original state maintaining its content, context and structure as well as its integrity and authenticity. This is done via a quality control process of continuously testing the media and the content for reliability. If for any reason the media or the content is suspected to have degraded, then a migration needs to take place to move these records onto a new media.

Record Management System (RMS) shall provide automated facilities to store and protect documents, document indices, document metadata, other associated

metadata and all other information required to manage information in RMS. The storage facility must be flexible, expandable and scalable.

Repositories:

	Description of Requirements
RM347	Centralized and multiple repositories – The technical architecture shall provide, apart from a centralized repository, multiple repositories to store all documents, attachments and document metadata. These repositories may be physically located in different buildings or locations.
RM348	Replicated repositories – The technical architecture provides replicated repositories, which are duplicates of a repository that can be distributed to different geographical locations.

Classes of Storage:

	Description of Requirements
RM349	Active and inactive storage – The system shall provide a mechanism to allow immediate access for documents, attachments and associated document metadata and document indexes in active (daily/constant) functional use (active-online); secondary storage for documents and attachments that are no longer in constant use but may be required from time to time (active-offline); and secondary storage for inactive documents and attachments that are no longer in constant use but may be required at some future time (inactive).

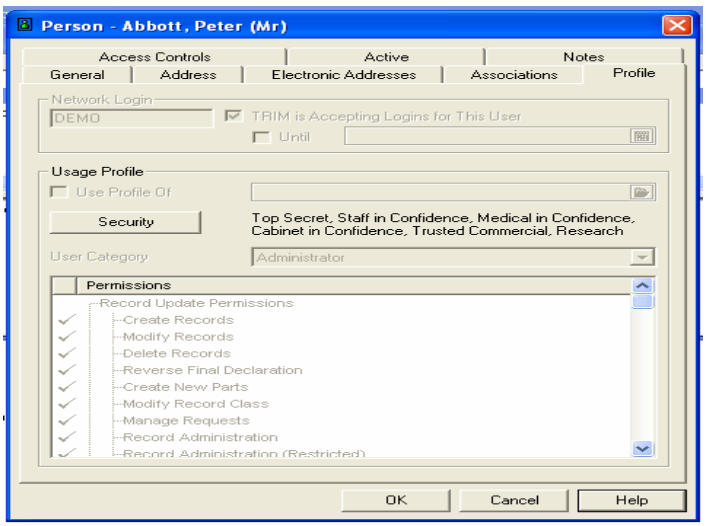
Vital Records:

	Description of Requirements
RM350	Replicating vital records – The system shall provide the capability to replicate vital records onto other storage media for off-site transfer.

Storage Format:

	Description of Requirements
RM351	Native storage format - The system shall retain documents in the native or originating format and software version.
RM352	New software versions – The system shall automatically update the document metadata to reflect the new software version when a document has been saved to a new version.

User/Group Profiles:

	Description of Requirements
RM353	Individual user profiles - The system shall provide an individual profile for each RMS user and a facility for managing "permissions" associated with read, write, modify, delete, and disposal rights and restricting those permissions to designated individuals. Controls all permissions at the group, document and file classification scheme level. 
RM354	Individual profile inheriting metadata - The facility shall be constructed such that an individual profile shall inherit some characteristics of parent organization/group profiles.

Security:

	Description of Requirements
RM355	The system should provide a strong encryption feature for meeting the requirements for handling of Government classified information.
RM356	Integrity – The system and technical architecture of the RMS should have its own self-contained security system and shall protect the integrity of information within the RMS environment throughout each stage of the life cycle.
RM357	Security audit log - The system shall provide an audit log showing changes made to

	the security parameters.
RM358	Protection against unauthorized access – The system shall secure and/or hide from the end user, the user ID and password information used for access to RMS and prevents unauthorized access to all system tables.
RM359	Password level security - The system shall use the same password facility as the LAN. RMS shall not impose the use of additional passwords to gain access to the system.

Retention and Disposal

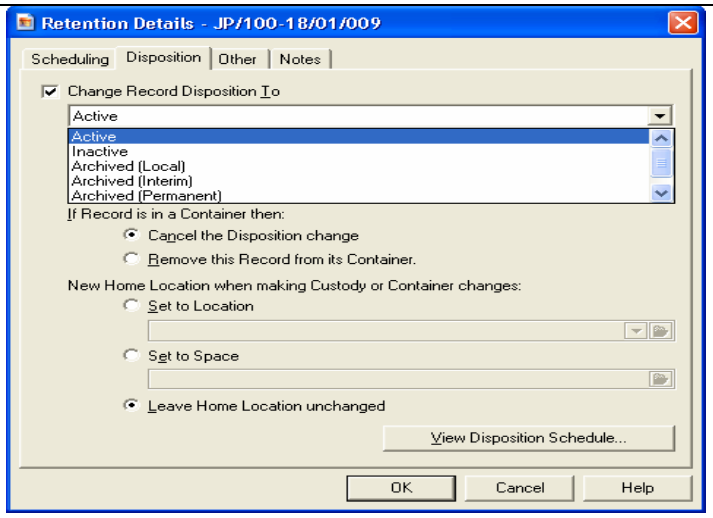
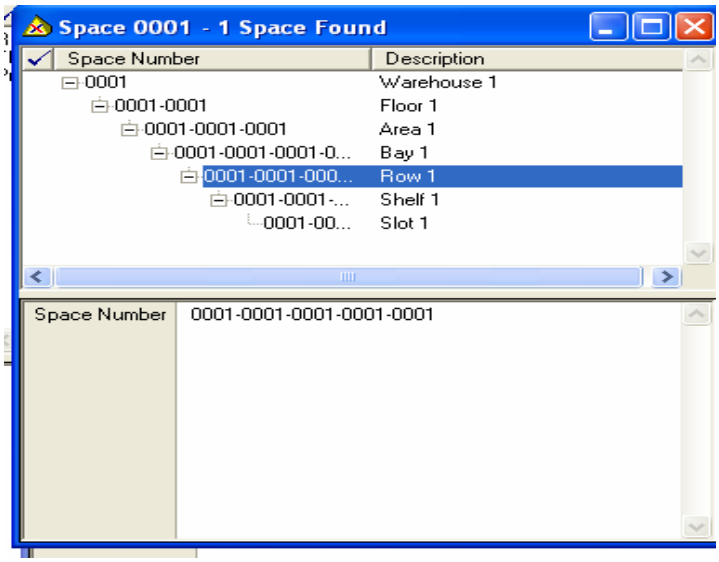
This is the area that handles the disposal of records. Reviews are conducted on records to ensure that certain criteria are met before the records are disposed. This will be for both the operational and archival records. The Records Disposal Management is responsible to ensure that the disposal process is carried as required by ARKIB Negara Malaysia's policy and that the appropriate destruction process is applied for records that can be destroyed. As for the records that are of archival value, prior to transferring to Arkib Negara Malaysia, these records are 'packaged' according to the ARKIB Negara Malaysia technical requirements to ensure that these records can be maintained in the archives management system for future access by the public.

Schedules:

	Description of Requirements
RM360	Retention and disposal schedules – A designated individual shall be able to create, maintain, modify and manage retention and disposal schedules indicating the period of time documents are to be retained in an active and inactive state; and to create, maintain, modify and manage a listing with instructions for the authorized disposition of documents such as destruction, transfer to another government institutions (such as the Public Records Office), or transfer outside government.

Application:

	Description of Requirements
RM361	Association to document metadata – The system shall link the retention period and disposal action, through the file classification scheme, to the document metadata of any document or file.
RM362	Changing defaulted document and file designations – A designated individual shall be able to change defaulted retention and disposal designations for individual documents and files at any level of the file classification scheme in order to support disposal exceptions.
RM363	Changing record status - The system shall provide on-line assistance and an enabling mechanism to change record status between active, inactive and archival storage.

	Description of Requirements
	
RM364	Information on inactive and archival storage – A designated individual shall be able to capture and manage information including record metadata for bulk secondary storage (e.g. boxes, digital media and canisters), including container number, title, location, list of records in container, related files and related volumes (if applicable). 
RM365	Bulk unload and load – A designated individual shall be able to migrate or copy an entire repository or portions of a document repository to other RMS document repositories.

Authorized Destruction of Records:

	Description of Requirements
RM366	Identifying records for destruction - The system shall provide a means to identify all official records due for destruction, within the workgroup according to their authorized disposal schedules.
RM367	Deleting records – The system shall provide a means to delete a record and its attachments from all repository media (including removable media) such that the record and its attachments cannot be reconstructed.

	Description of Requirements
RM368	Removing indexing information – The system shall provide a means to remove all indexing information pertaining to a destroyed document from Active or Inactive indexes including document metadata and full text indexes.

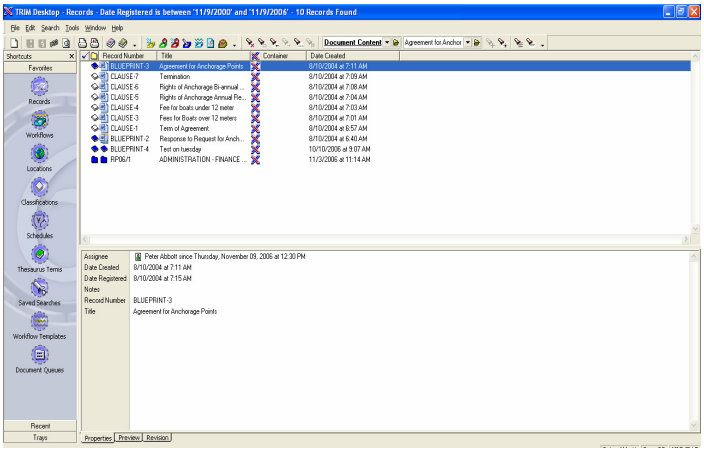
Auditing and reporting

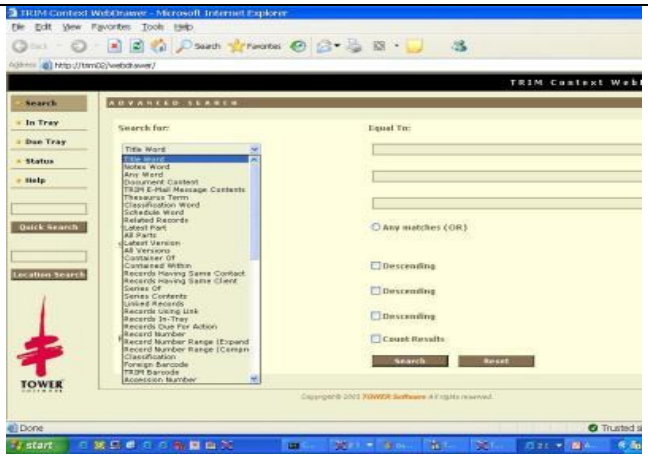
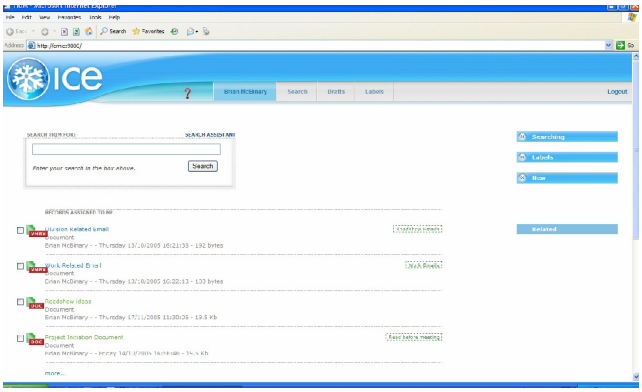
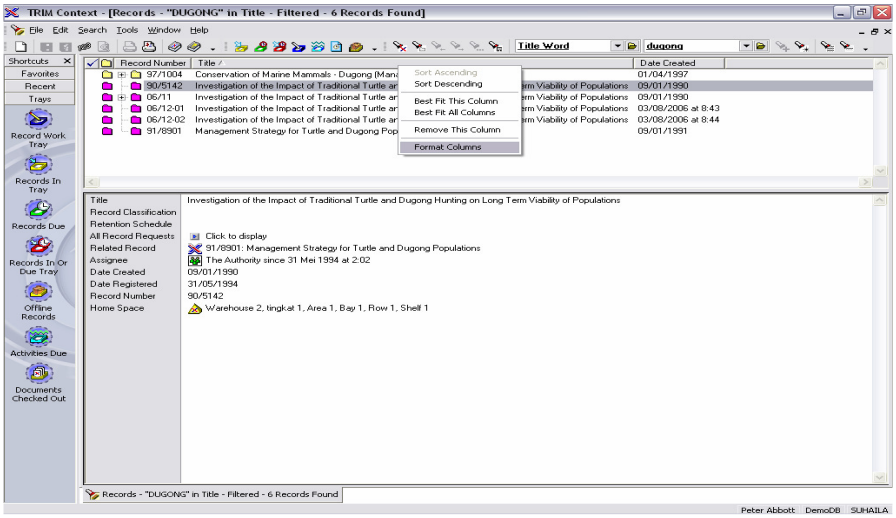
	Description of Requirements
RM369	Maintenance of file history – The system shall maintain charge in/out history for files, volumes, documents and secondary storage containers.
RM370	Statistics/Management information - The system shall provide the capability to compile statistics and produce management information such as the number of times a document is accessed/processed/updated as well as the number of documents accessed by organizations/groups.

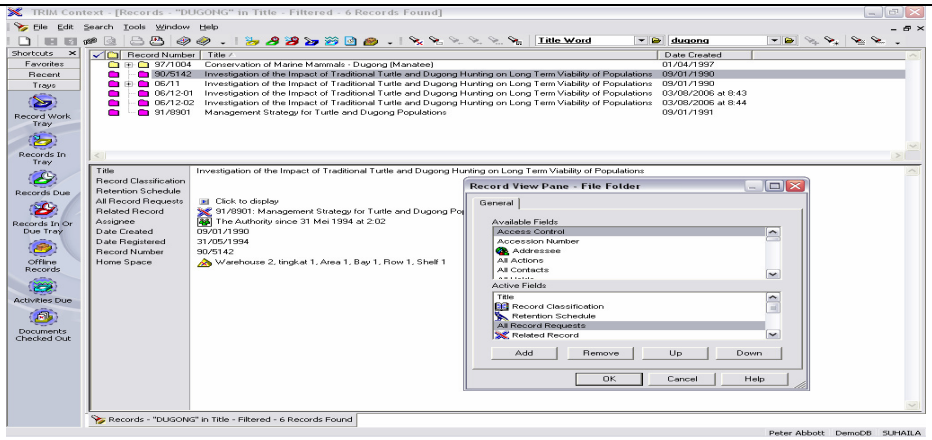
Document Activity Log: The system maintains a Document Activity Log/Audit Trail that records and provides information on all information transactions.

	Description of Requirements
RM371	Revisions to documents – The system shall maintain and provide reports on revisions to documents, access to documents, and changes to document status.

Interface and Desktop Design

	Description of Requirements
RM372	Interface – The technical architecture shall provide a Graphical User Interface (GUI) interface or a web-enabled interface. 

	 
RM373	Personalized desktop – A designated individual shall be able to use a tool-set for customization of the desktop and document metadata fields. As a minimum, this shall include the ability to hide or display document metadata fields, add coded buttons and size windows. 

On-line Help Facilities:

	Description of Requirements
RM374	Revising on-line help – A designated individual is able to access, revise or make additions to on-line help facilities. This includes the capability to load, maintain and retrieve custom process rules pertaining to using and administering RMS.

Language Requirements:

	Description of Requirements
RM375	Bahasa Malaysia- All software applications, utilities, viewers, drivers, APIs, etc. that deal with text shall be capable to change to Bahasa Malaysia.

Date Configuration:

	Description of Requirements
RM376	Year 2000 compliance – The system shall conform to Year 2000 standard and requirements, meaning that neither performance nor functionality is affected prior to, during or after Year 2000. In particular, the system shall fulfill the following- No value for current date will cause any interruption in operation; Date-based functionality much behave consistently for dates, prior to, during and after Year 2000; In all interfaces and data storage, the century in any date must be specified either explicitly or by unambiguous algorithms or inferencing rules; and Year 2000 must be recognized as a leap year.

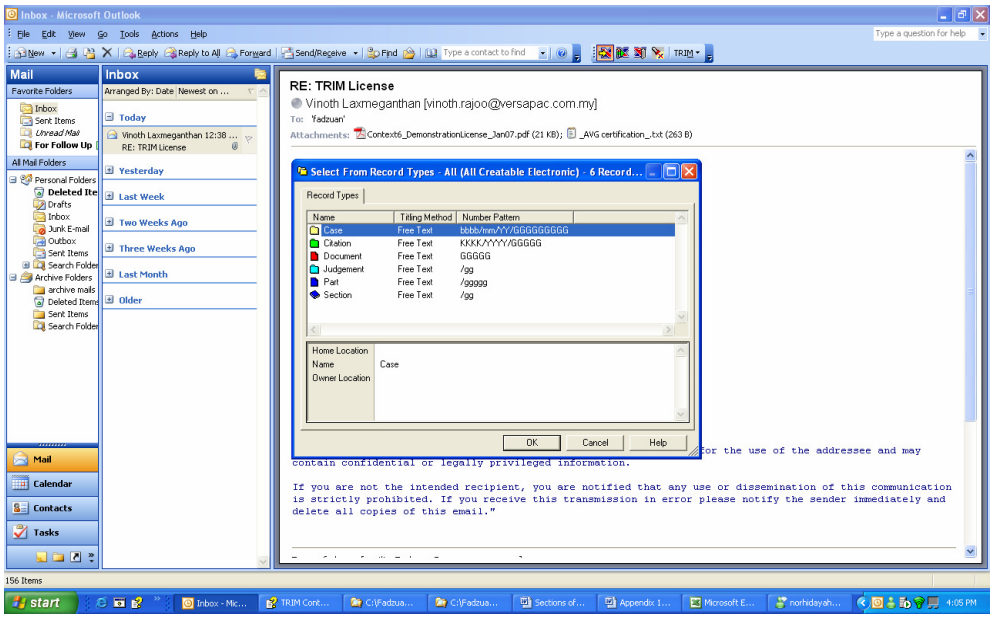
Application Program Interface

Integration:

	Description of Requirements
RM377	The system shall provide application program interfaces that allow integration with common computer applications such as office automation applications, workflow applications, and electronic-form/correspondence tracking software.

Electronic Mail Integration:

	Description of Requirements
RM378	The system shall allow integration with messaging software such as Lotus Notes. The user shall be able to- transfer e-mail messages, their associated metadata and attachments between messaging software such as Lotus Note and the system such that e-mail messages can be filed in an RMS repository; and initiate mailing RMS-filed documents from an RMS repository as attachments to an e-mail message.



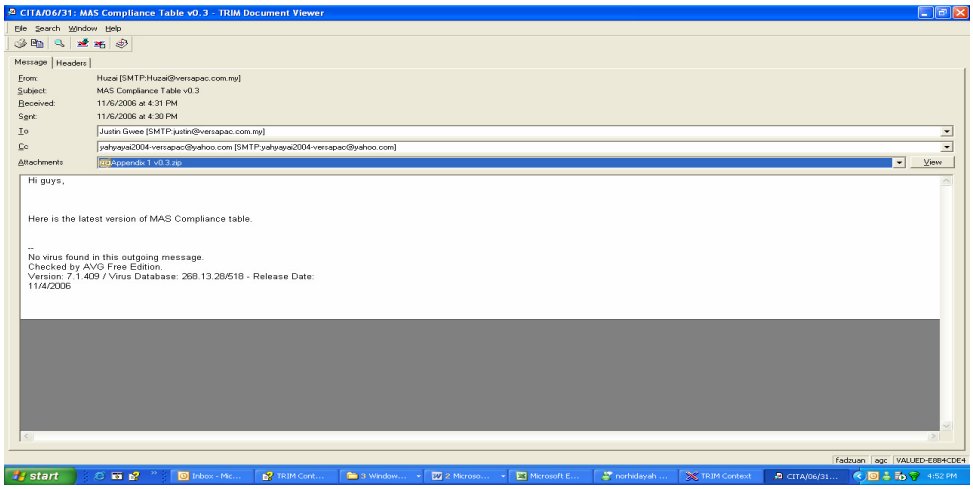
Filing Activation from E-mail Client - The interface shall have facilities to allow filing of sent or received e-mail messages and their attachments from a folder, or from a selected message. In addition, the Interface shall have two methods for activating the filing process:

	Description of Requirements
RM379	Support of both user activation and forced activation filing – The user shall be able to file by user activation through a specific action (User Decided Filing) and forced activation where the filing process is automatically initiated upon receipt or sending of a message (Forced Filing).
RM380	Configuring filing activation - The Interface shall provide a facility to configure the Filing Activation on a user basis and on a workgroup basis.

Selection of E-Mail Messages for Filing: The interface should have facilities to select e-mail messages and their attachments for filing by:

	Description of Requirements
RM381	Filing from a list or folder – The user shall be able to select for filing a message from an e-mail Client message list and/or message folder.
RM382	Filing from current view - The user is able to select for filing the message currently being viewed in the e-mail client.
RM383	Filing single or multiple selections – The user shall be able to select for filing single or multiple messages with one selection.

Capture of E-Mail Message/Capture of E-Mail Data Elements:

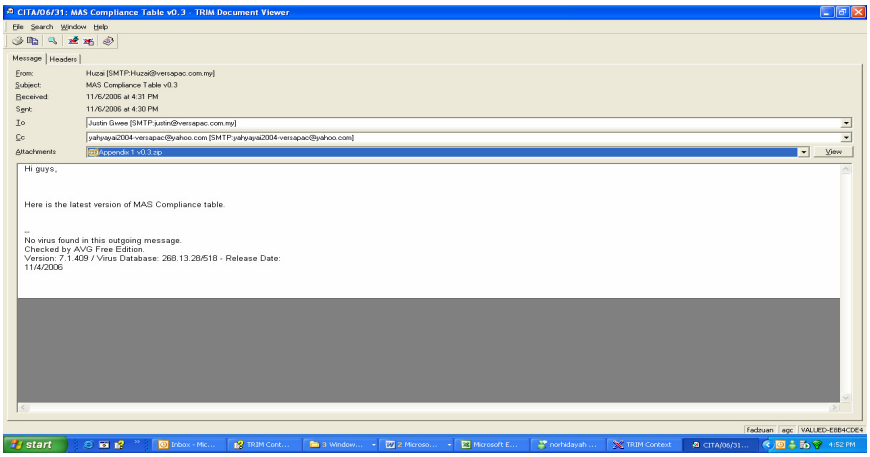
	Description of Requirements
RM384	Automatically capturing data elements - The Interface shall provide a facility for automatically capturing the following e-mail data elements from the e-mail message and populating the Document Metadata of the e-mail Message Copy that is to be filed as an RMS document: (a) From: (sender/author); (b) To: (recipient list); (c) Cc: (recipient list); (d) Subject; (e) Message body; (f) Document type (set to e-mail); (g) Attachment file name(s) and path names(s); (h) Sender's File Number; (i) Subject Code; (j) Security classification level (open, restricted, confidential, secret); (k) Date of message creation; (l) Time of message creation; (m) Date of e-mail receipt; (n) Time of e-mail receipt. 
RM385	Distribution list - The Interface shall provide a facility to capture resolved distribution lists (i.e., the full e-mail address of the actual recipient) rather than the distribution list name itself. The Interface shall provide a configuration option (for designated individual use only) to limit the number of characters available for storing recipient addresses.

Capture of E-Mail Message/Capture of Attachments:

	Description of Requirements
RM386	Automatic capture of attachments - The Interface shall provide a facility for automatically capturing e-mail message attachments (sent and received). 

Storage Locations for E-Mail Data Elements:

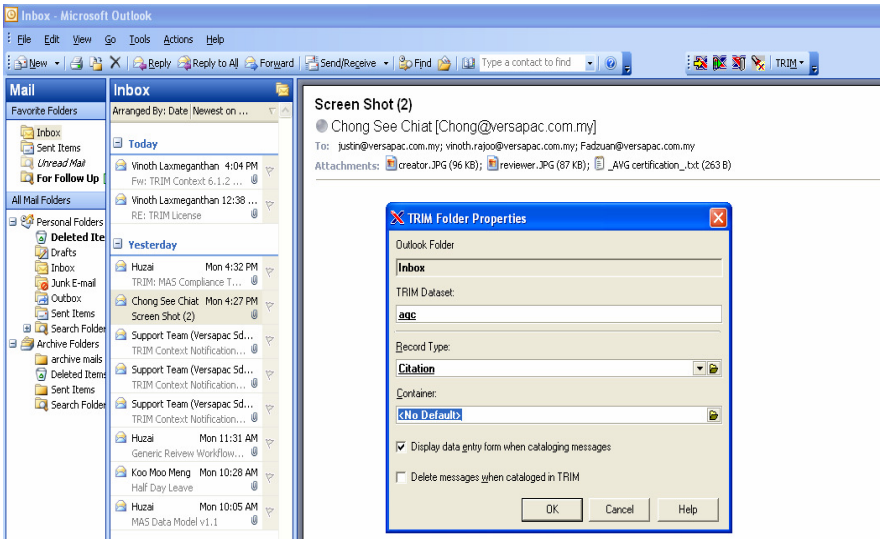
	Description of Requirements
RM387	Transfer of data elements - Some e-mail data elements shall be transferred to RMS Document Metadata and other data elements shall be entered into the formatted header that forms part of the e-mail Message Copy.

Sending Attachments from E-Mail Client:

	Description of Requirements
RM388	Attachment name - E-mail attachments shall use Document Name and not system generated name that may or may not be arbitrary filename.

Folder Filing:

	Description of Requirements
RM389	Folder filing properties - The Interface provides facilities to identify certain e-mail folders to have filing properties such that documents placed in such filing-enabled e-mail folders shall be filed. 
RM390	Ensuring filing - The Interface shall provide facilities to provide a method to ensure that messages placed in filing-enabled e-mail folders shall be filed.
RM391	Linking/mapping filing folders - The Interface shall provide facilities to link/map filing-enabled e-mail folders to previously defined RMS folders (i.e., file titles in specified RMS repositories) such that an e-mail message placed within the filing-enabled e-mail

	folder will be filed in the corresponding RMS file title (i.e., under the corresponding file classification number) within the RMS repository.

Check-Out/Check-In:

	Description of Requirements
RM392	Check-Out/Check-In - The Interface shall pass any information required by RMS to manage its Check-out and Check-in functions for all filed attachments.

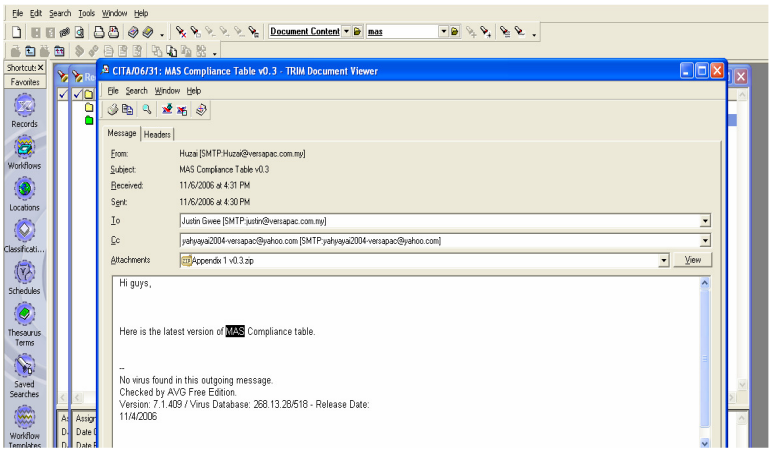
Document History:

	Description of Requirements
RM393	Document history - The Interface shall pass any information required by RMS to update the RMS Document History for all filed messages and filed attachments.

User Directories:

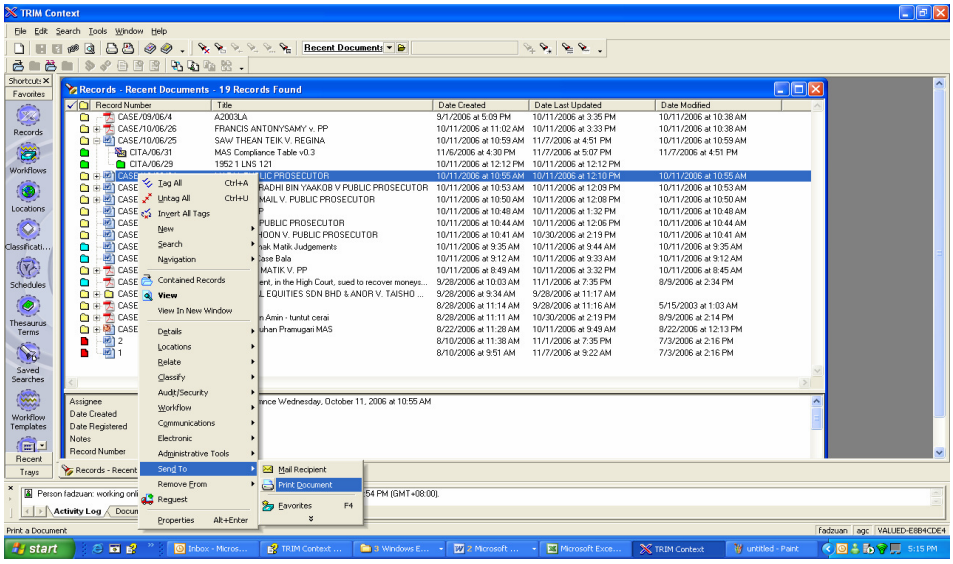
	Description of Requirements
RM394	User Directories – The system shall provide a facility to read and integrate the e-mail user directory data into the RMS user directory.

Storing, Accessing, Viewing Messages and Attachments:

	Description of Requirements
RM395	Full-text searching and viewing - All e-mail messages shall be searchable using full-text tool regardless of format. The message should also be readable using the internal viewer. 
RM396	Saving message and attachments - The Interface shall allow the option to save message and attachments and all related message information as one object.
RM397	Links - When a message is saved as multiple objects, a bi-directional link shall be established between the message and attachments.
RM398	Saving attachments independently - The user shall be able to save an attachment independently from the message at the discretion of the user.

Additional Functional Requirements

	Description of Requirements
RM399	Distribution by user determined lists - The user shall be able to file a single document in multiple repositories based on user-determined lists.
RM400	Exporting - The user shall be able to select sets of documents from repositories and export the set and associated metadata to a repository or to offline storage.
RM401	User notification - When filing a document, a user will be able to designate other users to be notified of the presence of document or file.
RM402	Printing without launching native application - The user shall have the capability to print a document or a group of documents from a search list without launching the native application. 

F. MULTIMEDIA REPOSITORY SYSTEM SPECIFICATIONS (FUNCTIONAL)

Multimedia repository is a repository system that will store any multimedia resources, which are not necessarily related to records in other modules (e.g. minutes of meetings, planning papers, etc.). The repository should support all media types, including images, videos, audios, word processing documents, spreadsheets, and presentations, in fact, any on-line, near-line or off-line resource.

The repository should allow reference to and / or integration with other application systems, including the central object catalogue. The system should allow multimedia data / objects to be associated with the metadata / information it stores. For example, a Microsoft Word research document concerning a digital image object should be able to be associated with the object. Similarly, a copy of the loan document in Microsoft Word format, and a scanned image of the document signatures, for verification purposes, can be associated directly with the loan. When the object or loan information is viewed, a multimedia data view tab should be available. By selecting the tab, thumbnail views of images are provided. The user should then be able to select an expanded format, which shows a complete view of the image. Additionally, all multimedia data elements should be able to be viewed via any suitable external viewing program (helper application) of the user's choice.

The repository should be extensible providing support not only for basic multimedia types (images, audio and video) but also for complex / compound objects (Word documents, with embedded Excel spreadsheets, etc). An external viewer program may be associated with a document type and so adding a new media format is as installing an appropriate viewer program on the client PC. If the format of the multimedia resource is textual in nature (and a suitable viewer is defined) then the content of the document is fully indexed enabling full text retrieval.

	Description of Requirements
	a. Content Creation
MR1	Asset Management: Allow multiple users to edit content and make changes
MR2	Editing Tools: Text based editor with spell-check capabilities; ability to consolidate changes from multiple editors; ability to edit within the system as well as external to the system (i.e., in MS Word). If editing is to be done within original application, the application should be integrated with the CMS.
MR3	Allow Multiple Content Sources: Text; Graphic; Database; Multimedia or other. Please name it.
MR4	Creation templates: Ability to use standard and customized templates for content creation within system.
MR5	Publishing Templates: Standard templates for presentation of material available, as well as ability to customize.
MR6	Word Templates: Accommodate storage, display of MS Word or other Templates. Please name it.
MR7	Content Creation: Generate PDF. Ability to generate PDF format as needed
MR8	Check in/Check out Feature: Ability to check content/document out for editing. Ability to

	Description of Requirements
	track who has documents checked out. Block editing of same document already in edit mode.
MR9	Separation of Content and Presentation: Ability to separate the creation and presentation of content through use of templates.
MR10	Content Reuse: Ability to reuse content in multiple templates/documents
MR11	Collaboration System Features: Allow users to work together on content/document
MR12	Attach comments to specific text: Ability to attach comments during the editing process to specific areas of text as well as to the document as a whole.
MR13	Archiving: Must allow for archiving of content.
MR14	Version Control: Application of version control by content creator. Save past versions in system so that we can roll back if necessary. Track date and time of changes. Prefer ability to keep comment log.
MR15	Track changes between versions: Ability to identify and compare changes between document versions.
MR16	Self-service authoring for non-technical content providers: Content authors should be able to quickly create materials using standard desktop applications.
	b. Workflow
MR17	Integration-messaging: Integration of other channels of communication into workflow, i.e., email notifications.
MR18	Workflow process: Ability to define multiple steps involving various content types, cross-departmental staff and required actions. Include triggers by date (automatic notification to update or archive content) and by actions (creation, deletion, editing, etc.)
MR19	Parallel and sequential workflow: Ability to allow multiple users to edit content at the same time, and also provide a sequential based workflow.
MR20	Workflow Queues: ability to show what content is in what state for a particular user id and what content is in what state for groups of users.
MR21	Comments: Ability to attach comments to a workflow stage
	c. Metadata and Search
MR22	Metadata management: A native or integrated metadata management tool. Ability to change and add metadata fields. Global search and replace for metadata fields Ability to export metadata lists.
MR23	Thesaurus support: Predetermined thesaurus/controlled vocabulary to be used in search that must be accommodated.
MR24	Cross-References: System must support a cross-reference or synonym function to relate terms from thesaurus
MR25	Drill down: Must provide drill down interface based on hierarchy.
MR26	Limited search: Ability to limit scope of search functions to selected topics from hierarchy (combines drill down and search functionality).
MR27	Fuzzy Searching: Ability of system to recognize misspellings and to suggest alternatives
MR28	Attribute Searching: Must be able to search metadata as well as provide text word searching, therefore metadata must be stored in such as way as to accommodate search engine access.
MR29	Administrator control of taxonomy: Designed a hierarchy of topics and a thesaurus. These will be controlled by the administrator and not changeable by users.
MR30	Taxonomy: Must support multiple hierarchies for documents. Topics maybe repeated within hierarchy and this must be supported by system. Documents may be linked to

	Description of Requirements
	multiple locations.
MR31	Provide access to external information sources: Must be able to provide links to external websites and print content that has listing within the system, i.e., through a catalog
MR32	Relate Document: Ability to relate documents within system
	d. User Interface
MR33	Browser based: Need web based interface for user access to system
MR34	GUI Administration features: All configurations, setup, scheduling and other admin functions accessible through a GUI.
MR35	Customizable interface: Ability to customize the user interface as needed.
MR36	Personalization: Personalize according to user group roles, i.e., internal searcher, external searcher, editors
	e. Reporting & Administration
MR37	Reporting Tools: Include performance, workflow, log file analysis; session analysis. Ability to create custom reports as needed.
MR38	Audit Trail: Provide audit trail for system activity, including workflow and revision history.
MR39	Link Checking: Automatic link checking and validation for internal and external links.
MR40	Content Caching: Provide better response time by allowing caching of content.
	f. Security
MR41	Role Based Security: Provide security according to user role. Combine with document level security to accommodate different editing/author teams.
MR42	Document Level Security: Allow security to the document level.
MR43	Integrated Authentication: Provide a user authentication mechanism. Active directory integration preferred.
MR44	Security: Compatibility with Security technology, for example SSL.

G. ENTERPRISE CONTENT MANAGEMENT SYSTEM SPECIFICATIONS (TECHNICAL)

A content management system (CMS) is a system used to manage the content of a enterprise. Typically, a CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). The CMA element allows the content manager or author to manage the creation, modification, and removal of content from the system without needing the expertise of a Webmaster. The CDA element uses and compiles that information to update the system. The features of a CMS system vary, but most include Web-based publishing, format management, revision control, and indexing, search, and retrieval.

A content management system (CMS) supports the creation, management, distribution, publishing, and discovery of the records. It covers the complete lifecycle of the pages on the system, from providing simple tools to create the content, through to publishing, and finally to archiving. It also provides the ability to manage the structure of the system, the appearance of the published pages, and the navigation provided to the users.

	Description of Requirements
	a. All Software Modules
CMS1	All software modules of the proposed CMS solution must have a general release date prior to the date of the Supplier proposal.
CMS2	Prompt for document metadata - The system shall prompt the user for document metadata at the time of creating, saving or closing a document and at the time of sending an e-mail.
	b. Architecture
CMS3	The architecture of the product must support a three-tiered architecture: the logical and physical separation of metadata storage from document repository storage, and the separation of client processes, server processes and interfacing processes.
CMS4	The architecture of the product must support creation of multiple, distributed repositories and transparent access to multiple, distributed document repositories from any client.
CMS5	Highly integrated product architecture with tightly integrated back-end application server is very desirable.
CMS6	Highly integrated product architecture with tightly integrated back-end application server is very desirable.
CMS7	The proposed CMS must be scalable to the number of users, retrieval volume and document storage. Please provide method of sizing used in determining the CMS platform.
CMS8	The proposed CMS must support access to repositories and workflow functionality over the Internet and the County intranet (WAN).
CMS9	The proposed CMS solution must support the estimated volume of transactions and documents through such features as server replication and clustering or equivalent.
CMS10	The proposed CMS must support fail-over back-up and recovery capabilities.
CMS11	The proposed CMS must support various data storage platforms. Please name.
CMS12	The proposed CMS must support RDBMS. Please name.
	c. Desktop Client

	Description of Requirements
CMS13	The proposed CMS must support Windows NT and WIN 2000 clients.
CMS14	The proposed CMS must support access to the document repositories and workflow functionality through Internet Explorer, Netscape Navigator and other industry-standard browsers.
	d. Security / Access
CMS15	The proposed CMS must support very granular access and security restrictions, including the creation of groups of users with specific document manipulation rights (add documents, delete, view, print, etc.) to designated types of documents (index field) groups of documents (index field) and specific individual documents.
CMS16	Access restrictions must be configurable at the case file (collection of documents) and document (multiple pages) levels.
CMS17	The proposed CMS must permit the security/access restrictions on documents and groups to be modified, and to add/delete members to/from a group.
CMS18	A security/access group must be able to be configured for a single individual, multiple specific users, all users and other membership parameters.
CMS19	A user must be able to belong to more than one group for purposes of document access. It is desirable the proposed CMS solution hide from view the existence of any documents the current user is not permitted access to.
	e. Image Capture
CMS20	The proposed CMS must support appropriate scanners for the page volumes, but the scanners must be capable of scanning a minimum of 80 ppm.
CMS21	The proposed CMS must support the following file formats/compression formats: TIFF multi-page files G3 and G4 compression, JPEG, GIF, XML and PDF.
CMS22	The proposed CMS must support the deletion and re-scanning of pages/documents before committing to disk.
CMS23	The proposed CMS solution must support various image enhancement and clean-up techniques such as de-skew, de-speckle and darkening/lightening.
CMS24	The proposed CMS solution must support image capture at different dpi
CMS25	The proposed CMS solution must support bi-tonal and gray-scale image scanning. Color scanning is not required at this time.
CMS26	The proposed CMS must support imaging of 8-1/2” x 11” and legal size, single-sided or double-sided pages (duplex on demand).
	f. Image Capture Indexing
CMS27	The proposed CMS must support automatic indexing through bar code recognition for interleaved 3 of 9.
	g. Document Management
CMS28	The proposed CMS product must support a hierarchical organization of documents in folders and subfolders.
CMS29	The proposed CMS solution must be able to produce an audit trail for various document activities such as add, delete, view, print, etc.
CMS30	The proposed CMS solution must support concurrent read/print access to documents by multiple users.
CMS31	The proposed CMS solution must provide the capability to restrict document manipulation functions (add, delete, modify) to certain users based on user-selectable parameters (e.g., case type and document type).
CMS32	The proposed CMS solution must support digitally signed objects.
CMS33	The CMS solution must have the capability to rendition documents from MS Word to PDF format or other. Please name.
CMS34	The CMS solution must provide the capability to any user to view or “play” any electronic object types stored in the repository.
CMS35	The proposed CMS product must provide convenient page viewing features such as

	Description of Requirements
	rotate, zoom, go to "n" page; book marks, etc.
CMS36	The CMS solution must support XML documents or other format. Please name.
CMS37	It is desirable for the CMS solution to store documents up to 1,000 pages in length.
CMS38	It is desirable for the CMS solution to be able to catalogue documents that are stored off-line.
CMS39	The CMS solution must provide creation, viewing and printing of annotations on documents, pages and folders.
CMS40	It is desirable for the CMS solution NOT to store annotations in image headers.
CMS41	The CMS solution must restrict access to annotations to authorized users.
	h. Records Management
CMS42	The proposed CMS shall provide automatic migration of documents between storage platforms as part of the archiving and document lifecycle management process based on triggering events initiated from another system.
	i. Workflow
CMS43	The proposed CMS must support rules-based production workflow routing to process documents through electronic queues.
CMS44	The proposed CMS must support split screen viewing (a document in one window and another application screen in a second window).
CMS45	The proposed CMS should provide the capability of routing documents based on user decisions.
CMS46	It is desirable for the proposed CMS to maintain a log of actions that have been taken on a document (e.g. the routing sequence, notes about problems in processing a document, people who need to review the document and other annotations).
CMS47	The workflow system must support a "universal inbox" which is accessible concurrently by multiple users and secure inboxes (access restricted to specific users).
CMS48	The workflow system must support the generation of workflow statistics and status of work items reports.
CMS49	The workflow system must support conditional (if .. then …) logical routing and rendezvous (wait for another action to occur before processing document to a work queue).
CMS50	It is desirable for the workflow system to support parallel routing (routing for the same document to more than one inbox at the same time).
CMS51	Workflow processes must be able to be accessed and executed over the County intranet, via dial-up access and over the Internet by browser-based clients using Internet Explorer.
CMS52	Workflow processes should be able to be created by trained end-users through graphical tools, using such techniques as "drag and drop".
CMS53	The workflow solution must support inter-agency workflow processes.
	j. System Administration
CMS54	Systems administration uses graphical tools.
CMS55	Systems administration functions leverage Windows NT services such as User IDs, passwords and security levels.
CMS56	Remote systems administration over an intranet is a feature of the proposed CMS.
	k. Fax
CMS57	The proposed CMS solution must be capable of importing and exporting documents to/from the document repository.
	l. Printer
CMS58	The proposed CMS solution must have high volume, high speed print capabilities to generate 10,000+ pages per day from the records management center at CSC.
CMS59	The proposed CMS solution must be able to send print jobs to network printers and to

	Description of Requirements
	print from individual printers attached to workstations.
	m. Web Publishing
CMS60	The proposed CMS solution must be able to send print jobs to network printers and to print from individual printers attached to workstations.
CMS61	The CMS solution must allow browser-based users to enter information over the Internet into forms, and for forms-based information to propagate through the system using the product's workflow or other capabilities.
CMS62	The CMS solution must facilitate browser-based users to search for and retrieve, download and print documents in the repository. The feature will be used in future Phases, but must be present to be used later.
	n. System
CMS63	The CMS solution must be Year 2000 compliant and free from any date-related malfunctions.
CMS64	The CMS solution must support mirrored drives.
CMS65	The CMS capabilities must include back-up capabilities for the document repository and database(s).

H. COLLABORATION MANAGEMENT SYSTEM SPECIFICATIONS (FUNCTIONAL)

Collaboration between information management, records management, e-business, website management, IT and line of business staff is important. The skills, knowledge and experience of all areas are required for public offices to meet the challenges of electronic records. As such, responsibility for electronic records is shared across the organization. The Collaboration System is a virtual workplace for a group of identified users working together on an area such as light discussion, coordinating works, collaborate or joint author work, and maintain team's reference document.

Component Process

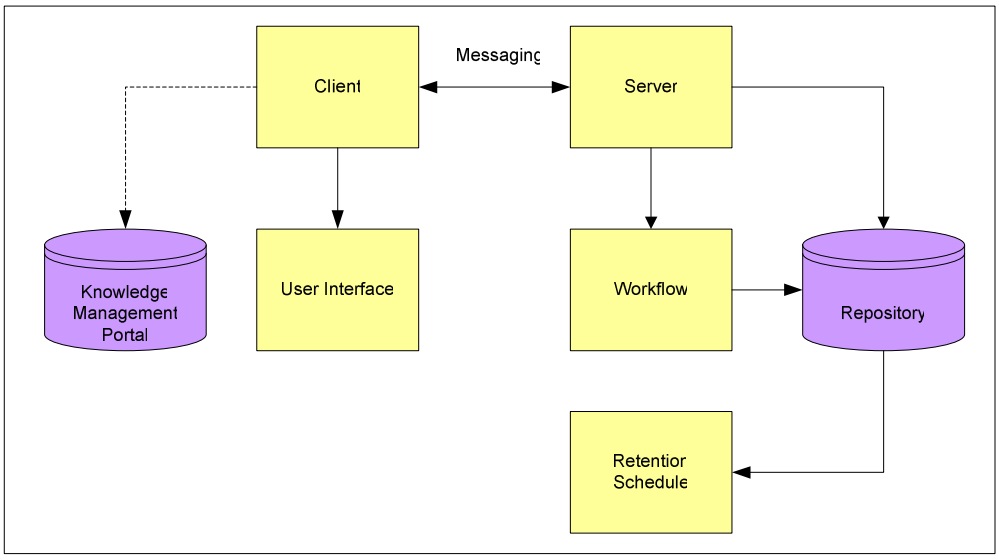


Figure 7: Component Process For Collaboration Management

The diagram above shows the Component Process for Collaboration System. Below are the descriptions for the component process:

- The Client and Server have the capability to instantly escalate messages.
- The Client is allowed to create new documents and edit the existing documents.
    - The Client have the capability to extract relevant information from the Knowledge Management Portal
- The Server provides a central secure document repository for storing all the created documents.
    - The repository is protected from unauthorized users

- Multimedia Support: Support for MPEG, JPEG, AVI, Flash TM QuickTime TM, GIF, WAV, AU and MS Windows bitmap

- The Workflow:
  - Have the capability to route the information to specific participants before posting it for general consumption and can be used to indicate when and where that information will be posted
  - The required approval document will trigger the email system and send it to the identified person for approval
  - Document status/electronic approval – The user can electronically designate a document as being finalized (authorized by a named authority) thereby protecting the document from modification
  - The results of the approval will trigger the email system to notify the identified person

- The Retention Schedule identifies the life span for a particular documents
  - A designated individual is able to create, maintain, modify and manage retention and disposal schedules indicating the period of time documents are to be retained in an active and inactive state; and to create, maintain, modify and manage a listing with instructions for the authorized Disposal of documents such as destruction, transfer to another government institutions (such as ANM), or transfer outside government.

- The Client has the capability to view the contents in the repository through friendly user interface
  - Multiple repository search – The user is able to select one or more document repositories prior to invoking a document search and to present the search results from the selected repositories in a combined manner showing the source repository.

IT Process Flow

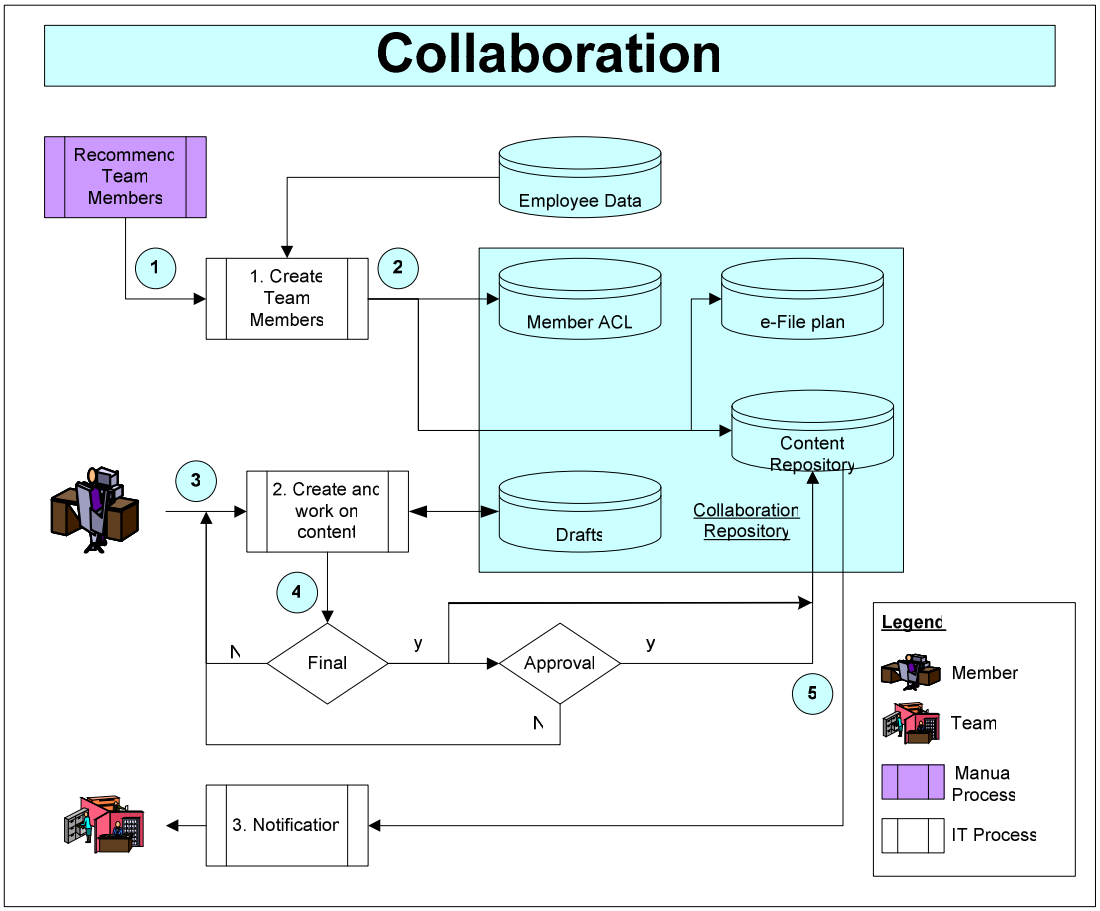


Figure 8: IT Process Flow for Collaboration Management

Description of the IT Process Flow:

1. The administrator will create the team based on the recommended team members provided by the unit's management. This process will create:

   - Member Action Control list based on any existing employee data mapped against the role of the member
   - e-File Plan to store the various rules related to the content including workflow and process flow
   - Draft repository for the content to allow team members a shared area to store their respective work-in-progress
   - Content Repository to host the various contents that is approved for distribution

2. The administrator will sign-off the various workflow and processes flow to the various team approval committee.

3. Team Members start creating content and work on the content in the shared drive repository.

4. When the content is ready for distribution, and the team member declares the content as a record, the application will check across the e-file plan for the content file plan i.e. whether the content requires an approval for distribution.

5. If the content requires an approval and the approval is given the content will be stored in the content repository and a notification sent out to respective team members that is allowed to view the content. The content will then be registered with a retention schedule based on the e-file plan.

Collaboration System (CS) Requirements

Refer to the below table for the Collaboration System Requirements.

	Description of Requirements
	a. Correction and Creation
CS1	The Collaboration System must allow the users to create new documents and edit the existing documents.
CS2	The Collaboration System must provide a central secure document repository for storing all the created documents.
CS3	Version control – The user shall have the option whether to create a new version, replace the existing version (provided the document has not been finalized) or create a new document. New versions shall be automatically linked to the original document and higher or lower versions of the document.
CS4	Linking document attachments - The user is able to attach/link multiple electronic documents to form a single "virtual document" which is subsequently managed as a single entity to ensure its integrity.
CS5	Profiling documents with attached images – The user shall be able to profile an original hardcopy document and to attach its image as electronic attachments.
CS6	Launching of applications – The system shall launch the authoring applications (i.e. associated or generic viewer) from within the document retrieval function of the Collaboration System for the purpose of creating, editing or viewing a document.
	b. Instant Messaging
CS7	Secure communication (including message encryption)
CS8	The ability to instantly escalate Instant Messages to conferences and web Collaboration sessions
CS9	Easy to use Instant Messaging client
CS10	No desktop client software beyond a standard web browser
CS11	The Instant Messaging user has the capability to present documents to session participants through their browser.
CS12	Have the capability to identify the status of the team members, whether they are “Away”, “Out to Lunch”, “Busy” or “On the Phone”. (This enables users to see instantly the availability of other Team Members in joining the conference / Meeting)
	c. Paging
CS13	Provides the capability to have hundred of users collaborating together in a single session simultaneously.
CS14	Allow users to leave and rejoin sessions.
CS15	Provide the capability for the users to schedule and hold online meeting with identified team

	members / participants.
CS16	Automate alert / notification to users on the meeting schedule.
CS17	Prepare and display presentation slides for other participants during the online meeting through shared web browser. (Communication with other participants is provided through audio/video links and chat application)
CS18	Provide whiteboard tool that can be used to clarify meeting issues.
CS19	Users have an option to share their screens or selected applications. (All users have access to the list of meeting participants)
	d. Security
CS20	Individual user profiles – The system shall provide an individual profile for each Collaboration System user and a facility for managing "permission" associated with read, write, modify, delete and disposal rights and restriction those permissions to designated individuals. Controls all permission at the group, document and file classification scheme.
CS21	Document status/electronic approval – The user can electronically designate a document as being finalized (authorized by a named authority) thereby protecting the document from modification.
CS22	Restrict creation - The system shall provide the capability to restrict the creation of new files to designated users.
CS23	The system should provide a strong encryption feature for meeting the requirements for handling of Government classified information.
CS24	Integrity – The system and technical architecture of the Collaboration System should have its own self-contained security system and shall protect the integrity of information within the Collaboration System environment throughout each stage of the life cycle.
CS25	Security audit log - The system shall provide an audit log showing changes made to the security parameters.
CS26	Protection against unauthorized access – The system shall secure and/or hide from the end user, the user ID and password information used for access to Collaboration System and prevents unauthorized access to all system tables.
CS27	Password level security - The system shall use the same password facility as the LAN. Collaboration System shall not impose the use of additional passwords to gain access to the system.
	f. Retention and Disposal
CS28	Retention and disposal schedules – A designated individual shall be able to create, maintain, modify and manage retention and disposal schedules indicating the period of time documents are to be retained in an active and inactive state; and to create, maintain, modify and manage a listing with instructions for the authorized Disposal of documents such as destruction, transfer to another government institutions (such as ANM), or transfer outside government.
CS29	Changing defaulted document and file designations – A designated individual shall be able to change defaulted retention and disposal designations for individual documents in order to support disposal exceptions.
CS30	Changing document status - The system shall provide on-line assistance and an enabling mechanism to change documents status between active, inactive and archival storage.
CS31	Identifying document for destruction - The system shall provide a means to identify all official documents due for destruction, within the workgroup according to their authorized disposal schedules.
CS32	Deleting documents – The system shall provide a means to delete a document and its attachments from all repository media (including removable media) such that the document and its attachments cannot be reconstructed.
	g. Retrieval
CS33	Multiple repository search – The user is able to select one or more document repositories prior to invoking a document search and to present the search results from the selected repositories in a combined manner showing the source repository.

CS34	Full-text search – The user shall be able to search on document contents. Text retrieval capabilities of the system shall include intelligent search, such as Boolean and fuzzy search. All searching shall be case insensitive as default, while also allowing case-sensitive searches.
CS35	Bureau or department-wide repository access rights – Collaboration System provides facilities to ensure that "read, write and modify rights" are restricted to designated individuals.
CS36	Bookmarks for frequently used / common documents in the Collaboration System.
	h. Thesaurus search
CS37	Simultaneous thesaurus search in English or Bahasa Malaysia – The user is able to perform thesaurus searches on the document contents using either Bahasa Malaysia or English terminology. This could include the execution of separate searches using either a Bahasa Malaysia or English interface.
CS38	Selecting thesaurus terms - The system provides the ability to select a term in either Bahasa Malaysia or English. A single search would then be performed using the terms provided.
	i. Retrieval Presentation
CS39	Retrieval of document(s) - The technical architecture shall provide a facility to retrieve electronic documents and associated attachments from any document repository (or a collection of documents) informing user on location of document (e.g. online, offline, etc.)
CS40	View without launching – The system shall include the capability to view electronic documents without launching the native or originating application.
CS41	Hit list - The system allows the user to view, retrieve or print electronic documents from a customizable hit list.
CS42	Attached/Linked Documents – The user is able to select and retrieve one or more documents from an attached/linked multiple electronic documents (a single "virtual document").
CS43	Most recent version of document - The system shall provide a mechanism that ensures that the default retrieval strategy shall always retrieve only the most recent version of a document. The system shall provide a facility for the retrieval of any or all earlier versions of an electronic document as requested by the user.
CS44	List of last edited/profiled documents - The system shall provide each user with a list of the most recently edited or profiled documents at the desktop.
	j. Check-in/Check-out and Editing of Electronic Documents
CS45	Checking-in/out documents – The user shall be able to check-in and check-out electronic documents.
CS46	Block from editing – The system shall prevent other users from modifying a checked-out document but allows viewing access by those users.
CS47	Notification - The system shall provide notification, when a user attempts to access a file that has been checked-out.
CS48	Check-in without launching - The system provides the capability to check-in a document without having to launch the native application.
CS49	Application of choice – The system allows the administrator to specify a default "application, and its version, of choice" for editing sessions, where a file format is supported by multiple applications (e.g. *.BMP is supported by a number of graphics editors).
CS50	Launching a second document - The system shall provide the capability to open additional documents into an existing instance of an application (e.g. if MS Word is launched by a retrieved file, a second file shall simply add another document window to MS Word and not start another copy of the application).
	k. Auditing
CS51	Maintenance of file history – The system shall maintain charge in / out history for files, volumes, documents and secondary storage containers.
CS52	Statistics / Management information - The system shall provide the capability to compile statistics and produce management information such as the number of times a document is accessed/processed/updated as well as the number of documents accessed by organizations/groups.

CS53	Revision to documents – The system shall maintain and provide reports on revisions to document, access to document and change to document status.
	l. Interface
CS54	Interface – The technical architecture shall provide a Graphical User Interface (GUI) interface or a web-enabled interface.
CS55	Revising on-line help – A designated individual is able to access, revise or make additions to on-line help facilities. This includes the capability to load, maintain and retrieve custom process rules pertaining to using and administering the Collaboration System.
CS56	Bahasa Malaysia - All software applications, utilities, viewers, drivers, APIs, etc. that deal with text shall has the capability to be changed to Bahasa Malaysia.
	m. Workflow
CS57	Have the capability to route the information to specific participants before posting it for general consumption and can be used to indicate when and where that information will be posted.
CS58	The required approval document will trigger the email system and send it to the identified person for approval.
CS59	Document status/electronic approval – The user can electronically designate a document as being finalized (authorized by a named authority) thereby protecting the document from modification.
CS60	The results of the approval will trigger the email system to notify the identified person.
	n. Email System
CS61	The system shall allow integration with messaging software such as Lotus Notes. The user shall be able to (a) transfer e-mail messages, their associated documents and attachments between messaging software such as Lotus Note and the system such that e-mail messages can be filed in an Collaboration System repository; and (b) initiate mailing Collaboration System-filed documents from a Collaboration System repository as attachments to an e-mail message.
CS62	Automatic capture of attachments - The Interface shall provide a facility for automatically capturing e-mail message attachments (sent and received).
CS63	Attachment name - E-mail attachments shall use Document Name and not system generated name that may or may not be arbitrary filename.
	p. Replication
CS64	Provide the capability for users to work with the document offline and synchronize automatically when the users are online.
CS65	Replicated repositories – The technical architecture provides replicated repositories, which are duplicates of a repository that can be distributed to different geographical locations.
	q. Knowledge Management
CS66	Have the capability to support the concept of a “group memory”. (Store the intellectual capital and can be reuse by other users)
CS67	The capability to reuse the knowledge and best practices adopted by the users in the Collaboration System.
CS68	Bookmark for frequently used knowledge and best practices adopted by the users in the Collaboration System.
	r. Tracking
CS69	Provide the capability for the users to view and track the status and milestones of the task.
CS70	Provide the capability to alert and notify the users regarding the expiring of due date.
	s. Multimedia Support
CS71	Provide the capability to support for MPEG, JPEG, AVI, Flash TM QuickTime TM, GIF, WAV, AU and MS Windows bitmap.
	t. Virtual Briefcase
CS72	Provide a virtual workplace / environment for users to view, edit and create information / documents.

CS73	Provide a “virtual room” construct to provide multiple shared virtual spaces for collaborative use of researching, planning, communications and analysis tools.
	u. Additional Functional Requirements
CS74	Provide the capability for users to add in comments / suggestions to the working documents. (Only for authorized users)
	v. Notification Process *delivers real-time alerts of significant enterprise events via remote notification technologies, such as pagers, cell phones, electronic mail, and other custom notification techniques*
CS75	Notification allows users to send messages in respond to various events during a process. For example, ability to notify a system operator by pager if the process fails or e-mail a report produced by the process if it succeeds.
CS76	Notification should be able to offer a wide range of options for sending status messages for the process, including the ability to send files produced by the process.
CS77	The format for the email notification should include the title of the event.
CS78	For an expired deadline or if a workflow was fulfilled successfully, notification process should be triggered to notify the respective team members.
CS79	Email notification should be categorized in at least two categories such as Urgent email and Normal email.
CS80	The Notification should allow the users to customize the audit trails of the notification process to meet the demanding requirements. In addition, integral graphs detail every aspect of the notification process, and provide historical reporting for use in capacity planning.
CS81	The Notification system must be easy to use, has a point and click interface, and can be used to define notification escalation chains. When an action fires, the notification will continue to escalate at the specified time intervals, until the desired individual responds to the event.

APPENDIX A

Glossary of Terms

Term	Definition
Acquisition	The act of receiving records from one organization and transferring custody and processing of those particular records to the receiving organization.
Acquisition Management	The area of management where records acquisition is planned, executed and monitored; to ensure compliance to the ARKIB Negara Malaysia Act for the purpose of preservation.
Agency	A generic title for any public sector institution forming part of the national or local executive, judiciary or legislature that creates records and has its own record management system. In legislation the equivalent term may be public office.
Archival record	A record, or record series, which has been designated by the State Archivist to have historical administrative, fiscal, legal, intrinsic, evidential, or informational value. At the end of the Retention Period, such records should be transferred to the Archives for preservation.
Archival value	The determination in appraisal that records is worthy of permanent preservation by an archival institution.
Archives	Records, which are preserved for their permanent and enduring national and historical value or both.
Archives Management	The area of management concerned with maintenance and use of archives / life cycle management.
Archiving	1. The process of creating and transferring computer files or records (or a backup copy of computer files), for long-term storage. 2. Transferring records from a State Agency to the State Archivist.
Appraisal	A process by which decisions on the retention, disposal or transfer of records are taken.
Appraisal Agreement	A legal document that binds ARKIB and the Public Office with respect to the details of the records appraisal process.
Appraisal Management	The area of management that appraises the operational and archival value of records within the agencies.
Audit	The process of reviewing, verifying, evaluating and reporting by an independent person(s) on the adequacy of a unit of analysis against a predetermined set of criteria. In the case of a business systems analysis project, the criteria for the audit derive from implementation objectives.
Audit Trail	A record, or series of records, which allows the processing carried out by a computer or clerical system to be accurately identified, as well as verifying the authenticity of such amendments, including details of the users who created and authorized the amendment(s).
Audit and Quality Management	The area of management that ensures compliance accordance to policies and procedures that is in place by ARKIB Negara Malaysia.
Backup	1. The process of duplicating information primarily for protection in case the original is lost or destroyed. 2. A copy of the record.
Capture	Capturing the record within the electronic environment involves management of the interface between the record management system and the applications, such as word processors or e-mail clients, which are used to create or receive records. Systemic capture requires both a technical interface and a set of rules or procedures, which govern its behaviour and successful application within the organization.
Change	A series of activities specifically designed to develop and to enable

Term	Definition
Management and Communication	impacted people to work confidently in their jobs in order to achieve the desired business objective while concurrently undergoing the change process.
Classify	The activity of identifying and arranging records and archives in categories according to logically structured conventions, methods and procedural rules represented in a classification system.
Classification	The process of identifying and arranging records and archives in categories according to logically structured conventions, methods and procedural rules represented in a classification system.
Collaboration	The Collaboration System is a virtual workplace for a group of identified users working together on an area such as Light discussion, Coordinating works, Collaborate or joint author work, and Maintain team's reference document.
Content	The information conveyed by documentary material.
Context	The organizational, functional, and operational circumstances in which documentary material is created and/or received and used.
Contextualize	The ability to develop and document the inter-relationship of content between records.
Conversion	Conversion means the automatic importing or exporting of electronic records from one software environment to another with little or no loss in structure or no loss in context or content though the underlying bit stream is altered. Conversion differs reformatting in that it occurs within the framework of a software application environment within which the records were created or maintained, or within the target application software.
Create	To generate a record.
Customer Relationship and Consultation Management	An operational process solution that can enhance an organization's ability to see the differences in customer and prospects needs and behaviour based upon the customer's value and priorities. It encompasses marketing and customer service, and focuses on customer experience with the organization.
Data	Groups of characters that represent a specific value or condition. Data provide the building blocks of information.
Describe	Process whereby records are being identified and classified.
Description	The process of capturing, analyzing, organizing and recording information that serves to identify manage, locate and explain archives and the contexts and records systems that produced them.
Disposition / Disposal	Includes the deletion or destruction of records from record management systems, the migration or transmission of records between record management systems, and the transfer of custody or ownership of records to an archive or repository for permanent preservation. Disposal actions (including destruction) should always be documented, preferably by the record management system itself.
Disposal Schedule Validation	Validating the record with the disposal schedule to determine whether or not a record have reached its disposal status.
e-File plan	File plan are used to organize and categorize information holdings. A file plan consists of a collection of different types of objects, which have names like Prefix, File, Section, Folder, Volume, Primary, Secondary etc. This allows records to be efficiently located based on the categories of information to which they belong.
e-Records	*See Electronic Records*
Electronic mail (e-mail)	A system that enables users to compose, transmit, receive and manage electronic messages and images across networks and through gateways connecting to other local area networks.
Electronic Records	Computerized versions of traditional paper records created and

Term	Definition
	kept by agencies. Sources of electronic records range from desktop applications such as Word, Excel, and e-mail, to corporate applications such as financial systems, HR systems and corporate databases.
Electronic Records Management	Applying records management principles to electronic records that are located on disks, tapes, or any form of magnetic or optical media.
File Classification System	A logical and systematic arrangement for classifying records into subject groups or categories based on some definition scheme of natural relationships representing numbers, letters, or key words for identification.
File name	The name given to a group or series of related documents contained in a file folder. Also used to denote the name of an electronic file.
Guidelines	A set of rules or principles to provide guidance to enable user to carry out certain work processes.
Inactive record	Records no longer needed at a particular time for the conduct of current business.
Information and Communication Technology (ICT) Standards Management	Standards as defined by MAMPU.
Integrity	The integrity of a record refers to its being complete and unaltered.
Internet	The vast network of computer systems that enable worldwide connectivity among users and computers.
Jadual Pemisahan Rekod (Record Retention Schedule)	A document describing the recurring records of a public office, institution or administrative unit, specifying those records to be preserved as having archival value and authorizing on a continuing basis and after the lapse of specified retention periods or the occurrence of specified actions or events, the destruction of the remaining records.
Metadata	Information about individual records and the record assemblies in which they reside (for example, their context and relationship with other records).
Metadata – Contextualization:	A comprehensive detail of a data which relates one record to another.
Migrate	Act of moving records from one system to another, while maintaining the records' authenticity, integrity, reliability and usability.
Migration	Process of moving records from one system to another, while maintaining the records' authenticity, integrity, reliability and usability.
Organize	Setting up a system of directories, which is based on a simple but logical structure which meets the needs of the organization and how it operates?
Permanent record	A record that has sufficient historical or other value to warrant its continued preservation by the Federal Government beyond the time it is needed for administrative, legal, or fiscal purposes.
Physical record	A record whose characteristics depend on the manner or form in which it is stored, retrieved, or moved. A physical record may contain one or several logical records or a part of a logical record.
Policy	A formal statement of direction or guidance as to how an organization will carry out its mandate, function or activities, motivated by determined interests or programmes.
Preservation	A broad term covering the range of activities carried out to make sure that records can be retained and remain accessible for as long as they are needed. This includes environmental control, security, storage, handling or processing, migration strategies and

Term	Definition
	disaster preparedness.
Procedures	A process or series of acts especially of a practical or mechanical nature involved in a particular form of work.
Public Archives	Public records which are specified by the Director General as being of permanent and enduring national or historical value or both; and which have been transferred to the National Archives or such other place as the Director General may from time to time direct; and any private records or other material which are specified by the Director General as being of permanent and enduring national or historical value or both acquired for the National Archives by the Director General.
Public Records	Any paper, written or printed book, document or drawing, map or plan, photograph or microfilm, sound-recording or similar device, that has been made or received by any official, officer, board, commission, agency, authority, district, institution or other instrumentality of government, in connection with the transaction of public business and has been retained by an agency as evidence of its activities or because of the information contained therein.
Quality Control	A process to ensure all standards are being followed through Reliability testing and Disposition Testing. See Reliability testing and Disposition Testing.
Records Appraisal	The process of evaluating record based on their current operational, regulatory, legal, fiscal and historical significance, their informational value, arrangement and their relationship to other records.
Records Audit	Conducting a periodic inspection to verify that an operation is in compliance with the records management program.
Records Centre	A low-cost centralized area for housing and servicing inactive or semi-active records whose reference rates does not warrant their retention in a prime office space.
Records Creation and Capture Management	The area of management that encompasses creation of records, the identification and classification of these records and execution of record capture activities.
Records Disposal	After records have reached the end of their retention period in active and/or inactive storage, they may be transferred to an archive for retention or be destroyed.
Records Disposal Management	The area management that handles the Disposal of records. It also conducts reviews on records to ensure that certain criteria are met before the records are disposed. This will be for both the operational and archival records.
Records Maintenance Management	The area of management whereby the records are organized and maintained, to include the need for records preservation.
Records Management	The efficient and effective management and control of the creation, maintenance, use, and disposal of records, files, and forms.
Records Manager	The individual within the organization who is responsible for systematically managing the recorded information generated and received by the organization.
Records Lifecycle	An archival concept that describes the lifespan of a record, from its creation or receipt to its final Disposal. The records lifecycle is divided into the following stages or phases: creation/receipt, maintenance and use, retirement, final disposal, and continuing use.
Records Usage and Access Management	The area of management that handles the usage and access of the operational records that includes identifying and monitoring records usage and access.

Term	Definition
Recovery	The process of recovering electronic data or documents, without loss, from a corrupted state caused by system or other errors.
Register	The process of accepting a record and to document its acceptance.
Repository	A place where archived records are preserved and made available for consultation.
Retention period	The time period records must be kept according to operational, legal, regulatory, and fiscal requirements.
Retrieve/Retrieval	1. Process of locating and withdrawing a record from a filing system or records centre. 2. The action of accessing information from stored data on a computer system.
Security	Protection standards and practices imposed a record.
Stakeholders	Any individual or group affected by and who are capable of influencing the success of the project.
Standards	Complex of established norms aiming to make the characteristic of a product, process or service uniformed within or across a sector, country or system.
Standards and Process Management	An area of management whereby standards and processes are continuously developed, reviewed and improved based on current trends and best practices, and ARKIB Negara Malaysia's requirements.
Storage / Store	Physical or digital repository for the records.
Structure	The physical or logical form of a documentary material or a set of documentary material.
Structured Environment	Environment in which business processes are typically highly structured, well-established tools and techniques are employed to develop application systems supporting the processes and accountability for the design, development and maintenance of systems (including the integrity of the data generated in the systems) has been assigned.
Transfer	The process of changing the physical custody of archives, generally without changing the legal title of the material.
Unstructured Environment	Environment in which business processes and workflow are not clearly defined, the user has relative autonomy over what information is created, sent and stored (e.g. as e-mail and attachments) and accountability for record management is unclear. This is the world of e-mail and other electronic documents that are generated without the benefit of structured work processes or rules of the road. Typically, it is a user driven world where the user has autonomy concerning what gets created, how it is transmitted and how it is stored and otherwise managed. The absence of workflow within which records/documents (regardless of their physical form) can be placed in a context presents a substantial challenge from a record management perspective. Electronic record management solutions tend to be derived from the world of paper based records management.
Usability	A useable record is one, which can be located, retrieved, presented and interpreted.
Usage	The ability of using and recreating the records via a particular business process.
Vital record	Records essential to the continued functioning or reconstitution of an organization during and after an emergency and also those records essential to protecting the rights and interests of that organization and of the individuals directly affected by its activities. Sometimes called essential records. Recommended that there be duplicates located off-site.

Term	Definition
Web Environment	Rapidly evolving environment in which, in the earliest stages of web site evolution, organizations find themselves 'publishing' content onto the web (the issues in this environment tend to be derived from the world of communications, publishing, marketing and library services). But in this era of E-Government, they are also finding themselves managing information that has emerged from defined work processes such as those connected with the development of policy (e.g. the preparation of various drafts of a consultation document placed on the web site or the handling of enquiries placed via the e-mail facility featured on most web sites – similar to 'correspondence management'). Pursuant to the E-Government agendas established by many countries around the world, many are evolving even further by turning their web sites into gateways or portals in order to support on-line transaction processing (e.g. e-filing of tax returns).

Table 2: Glossary of Terms