

Functional Baseline Requirements and Data Elements for Records Management Application Software

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Executive Summary

This report provides an update on progress in specifying testable functional requirements and data elements for a Records Management Application (RMA). The proposed requirements and data elements can be used to support the management of information assets as records. The requirements are of three types—functional, information, and system management. Other requirements that need to be developed are those for interoperability with office applications, including electronic mail, and compliance with Federal and DoD standards. Also a formal plan to ensure their testability is necessary.

This report is the second published in support of initiatives four, five, and six identified from the DoD Records Management Business Process Reengineering effort of 1993-1994. These proposed requirements and data elements support the 1) Development of standard DoD functional and automated system requirements for managing information as records, 2) Incorporate records management requirements into Automated Information Systems development and redesign, and 3) Develop standard DoD system requirements for voice and email records.

The first report published in July 1995 “Baseline Requirements for DoD Records Management”¹ is the cornerstone for specifying testable functional requirements and data elements for an RMA. This initial attempt at identifying requirements for an RMA and assigning data elements to each requirement was received positively by participating Federal Agencies, DoD Agencies and the software vendor community. However, feedback established the need to clarify the original requirements presented in July 1995.

Several follow-in activities are still necessary to ensure that standards are in place for the management of information assets as records. Follow-on steps include 1) The development of a test plan for the functional baseline requirements, and 2) Inclusion of functional baseline requirements in government owned and developed software.

The findings in this report are not to be construed as an official Department of Defense position unless so designated by other authorized documents.

Citation of manufacturer's or trade names does not constitute an official endorsement or approval of the use thereof.

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¹ Underwood, Kindl, Prescott, Baseline Requirements for DoD Records Management Application Software, July 24, 1995.

Preface

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1. Introduction

1.1 Background

In August 1993 a Department of Defense (DoD) Records Management (RM) Business Process Reengineering (BPR) effort was initiated with the Air Force as Executive Agent. The original scope of the effort was to model, using IDEF² methodology, the activities and data that comprise the MANAGE RECORDS process. The perspective or viewpoint was that of an action officer/analyst.³

The original set of records management requirements identified in December 1993, the *47 Functional Requirements*,⁴ was a result of the business process reengineering effort of August 1993 to July 1994. The *47 Functional Requirements* were based on the December 1993 function model (also known as an activity model). A team of technical experts was assembled to review the outline of functional requirements, refine it, and develop a statement of functional requirements including technical considerations.⁵

The BPR effort identified six opportunities for improving records management in DoD, one of which was to “Develop standard DoD functional and automated system requirements for records management.”⁶ A DoD Records Management Task Force was established in January 1995 to pursue the recommendations of the DoD RM BPR effort.

In May 1995, the Army Research Laboratory (ARL), Software Technology Branch, and Artificial Intelligence Atlanta, Inc., under contract to the DoD Records Management Task Force, were asked to consolidate the DoD RM BPR *47 Functional Requirements* with the technical team's work. This also included refining the *47 Functional Requirements* into a set of testable requirements. The results of prior work on requirements were consolidated.⁷ This report proposes a set of testable functional requirements and data elements that can be used to ensure that records management applications meet an agreed upon set of standards for the management of information assets as records.

² FIPS 183, Integration Definition for Function Modeling (IDEF0), December 21, 1993

FIPS 184, Integration Definition for Information Modeling (IDEFIX), December 21, 1993.

³ Department of Defense Records Management Functional Process Improvement Scoping Report, October 1, 1993.

⁴ Department of Defense Records Management Functional Process Improvement TO-BE Report, January 14, 1994.

⁵ Department of Defense Records Management Functional Process Improvement Technical Team 6 Report, April 20, 1994.

⁶ Department of Defense Records Management Business Process Reengineering, Compendium Report, August 1994.

⁷ M. Kindl and W. Underwood. Consolidated Requirements for DoD Electronic Records Management Software. Army Research Laboratory, Software Technology Branch, June 1995.

1.2 Defense Message System (DMS)

The Allied Communications Plan (ACP) 123 specifies a content type (P772) adequate for military messaging. It has been adopted by the several NATO and other US allied nations. A US supplement to the ACP 123 will specify extensions that are necessary for DoD messaging.

The US supplement to the ACP 123 proposes records management interoperability and protocol requirements for interface between an RMA and DMS. These interoperability and protocol requirements are reflected in the baseline DMS requirements.⁸ Among these features are the concept of a Records Management User Agent interfaced to a records management application that could receive and file records sent as messages and respond to request for records by transmitting them via the DMS. Other features include the use of distribution code parameters in the header for recording classification code and message type.

1.3 Archival and Information Science

The DoD RM Task Force scope of work was broadened to include consideration of research in Archival Science addressing requirements for electronic recordkeeping. The University of British Columbia has a project addressing “The Preservation of the Integrity of Electronic Records,” funded by the Social Sciences and Humanities Research Council of Canada. They are addressing the application of Archival Science and Diplomats⁹ to the derivation of functional and information requirements for electronic recordkeeping that preserve the authenticity and reliability of electronic records.¹⁰

The University of Pittsburgh has a “Recordkeeping Functional Requirements” project, funded by the National Historical Publications and Records Commission. Their formulation of requirements for recordkeeping has focused on the evidentiary nature of records, and thus the need for preserving reliable, authentic, complete, and accessible records.¹¹

Discussions have been held with the staff of both projects and their technical publications have been reviewed. The BPR effort expressed the need to preserve the integrity of electronic records. These researchers provide insight as to how to do so.

An Archival constraint has been imposed on the DoD functional model of MANAGE RECORDS. Authentic and reliable records must be captured and preserved. The refinement of this constraint into functional requirements will result from further collaborative efforts with the aforementioned researchers in Archival and Information Science.

⁸ ACP 123 US SUPP-1 (Draft #2), Common Messaging Strategy and Procedures, March 23, 1995.

⁹ L. Duranti. Diplomats: New Uses for an Old Science, *Archivaria* (1988-1992), Part I, 28:7-27; Part II, 29:4-17; Part III, 30:4-20; Part IV, 31:10-25; Part V, 32:6-24; Part VI, 33:6-24. Summer 1995, 39.

¹⁰ L. Duranti. Reliability and Authenticity: The Concepts and their Implications. *Archivaria*, Summer 1995, 39.

¹¹ D. Bearman. Functional Requirements for Recordkeeping, in *Electronic Evidence: Strategies for Managing Records in Contemporary Organizations*. Pittsburgh: Archives & Museum Informatics, 1994.

1.4 The DoD Record Management Process and System

The DoD FONDS¹² consist of all DoD military departments (hereafter referred to as service) and DoD agency records. The FONDS is the total information assets of the DoD stored as records. The FONDS of a DoD service or agency are the aggregated total records of that service or agency. The FONDS for a service or agency are made up of the records in offices, or organizations, in that service or agency. The records in an office include current year files, prior year files that are maintained in the current files areas of offices, records transferred to record holding areas (RHAs), and records retired to Federal Record Centers (FRCs). Finally, they include an increasing number of electronic records that represent DoD mission and administrative transactions that are accumulating, but may not be filed in or managed as part of the organizational files.

The current DoD records management system consists of manual processes and procedures to create agency file plans and record schedules, to create office file plans, to file and retrieve records based on these agency file plans, to manually dispose of records according to the records schedule, to transfer records to records holding areas and Federal Records Centers, and to sometimes request return of these records when they are needed for reference.

The initial improvements in the DoD records management process and system are in terms of a Records Management Application (RMA) to support records management functions in DoD offices and organizations for both electronic and non-electronic records. Thus, a distinction is drawn between the entire DoD Records Management System and the RMAs to be used.

1.5 Testable Requirements for a DoD RMA

Testable requirements for records management are of three types—functional, informational, and system management. These are specified in this report. In addition there are requirements for compliance with DoD information system standards, and for interoperability. These are specified by other DoD agencies such as the Defense Information Systems Agency (DISA) and organizations of DISA such as the Joint Interoperability Test Command, and Defense Message System Program Management Office.

1.6 Testability

When an organization requests proposals to purchase records management software or ensure government developed software meets records management functional requirements, it needs to be sure that the responses can be tested to determine satisfaction of requirements. Chapter 2 identifies functional requirements in plain language that can be used to test an RMA. Chapter 3 provides a side by side view relating functional requirements to data elements.

¹² The whole of the records that every organization or physical or juridical person accumulates by reason of its function or activity.

1.7 Scope

This report proposes testable functional requirements and data elements for an RMA to be used in the management of information assets as records. However, these requirements and data elements are neither complete nor sufficient to define all mission specific needs for every organization. Although these requirements are not written to address managing security classified records, Freedom of Information Act (FOIA) or the Privacy Act, they are applicable and can be used in support of these functions.

2. RMA Functional Requirements. This section specifies the functions that the RMA shall perform. The requirements are presented in plain language to allow maximum flexibility in software development while ensuring responses can be tested. They are intended to provide a constraint and to bind the requirement to ensure standardization but are not intended to specify data type format.

There are two generic constraints on the Records Management Application. The first specifies the domain of the application.

*The RMA shall manage all organizational records regardless of storage media or other characteristics.*¹³

A second specifies the primary function of the application.

*The RMA shall implement records management procedures to ensure the capture and preservation of authentic and reliable records.*¹⁴

The original statement of requirements of the DoD RM BPR effort identified seven requirements associated with the general process MAINTAIN RECORD. The authors interpretation of those seven requirements has resulted in their being associated with more specific functions.

2.1 Making Records

1. The RMA shall assign a unique record identifier to each record, both electronic and non-electronic.¹⁵

¹³ DoD policy defines the term "organizational record" and distinguishes between record and non-record material as follows: "Records [include] all books, papers, maps, photographs, machine-readable materials, or other documentary materials (regardless of physical form or characteristics) [record material] . . . Not included are library and museum material made or acquired solely for reference or exhibition purposes, extra copies of documents preserved only for convenience of reference, and stocks of publications and processed documents [non-record material]." [DoD Directive 5015.2, Records Management Program (Change 1) 3 April 1992].

¹⁴ This requirement derives from the definition of record, and discussions with researchers in Archival Science.

¹⁵ This requirement satisfies the generic constraint to manage all organizational records regardless of media.

2. The RMA shall store a record with all its attachments.¹⁶
3. The RMA shall identify the media type, record format and identify the physical location of all records, both electronic and non-electronic. For some records (usually non-electronic) the RMA shall require the user to indicate the media type, record format, and location.

2.2 Classifying Records and Assigning Disposition

1. The 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.¹⁷
2. The RMA shall provide the capability to assign a record classification code to each record.¹⁸
3. The RMA shall provide the capability to assign a record category disposition instruction in the form of text.¹⁹
4. The RMA shall provide the capability to allow authorized individual(s) to add a record category and to suspend disposition of a record category.

2.3 Indexing Records

For all records, regardless of media, the RMA shall uniformly create and maintain indexes for the following information:²⁰

Record identifier	Date of the record
Classification code	Addressee(s)
Creating organization	Location of the record
Creating individual	Media type
Subject	Record format ²¹

¹⁶ The requirement also supports case files. A case file, e.g., project, transaction, personnel, is also a record.

¹⁷ This capability is required for convenience of retrieval and for inspection of record management procedures in an organization.

¹⁸ Used to establish the functional context of a record. It also assures that a record is in the proper record series for disposition and is used in retrieval.

¹⁹ NARA requires that agencies identify categories of records that they create, receive and maintain. Also that they establish a period for retention based on the value of the information in the records. Disposition instructions specify the retention period.

²⁰ This is a minimal set of attributes for retrieval of records, regardless of media.

²¹ This is an additional item added to the index list. This item includes the identification of the originating application and version number (e.g. WordPerfect 5.2, Microsoft Excel 4.0).

2.4 Storing Records

1. The RMA shall maintain the integrity of a record as it was received and stored. The RMA shall not change the format of the record.²²
2. The RMA shall provide the capability to identify vital records.²³

2.5 Screening Records

1. The RMA shall provide output for viewing, saving, and printing of record categories for screening based on both disposition instruction and category to handle event-driven initiation of disposition.
2. The RMA shall notify authorized individual(s) of required disposition actions based on both the category and the disposition instruction.

2.6 Retrieving Records

1. The RMA shall provide the capability to request records using the indexes specified in paragraph 2.3.3 as retrieval criteria.
2. The RMA will present the user a list of records meeting retrieval criteria. The RMA shall notify the user, if there are no records meeting the retrieval criteria.
3. The RMA shall provide record copies in the format in which they are stored.²⁴

2.7 Copying Records²⁵

1. The RMA shall never allow modification of the stored organizational record.

²² For example, a Microsoft Word document will be stored in Microsoft Word format. RM policy can allow the conversion of the format outside of the RMA.

²³ Vital records are 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 interest of that organization and of the individuals directly affected by its activities.

²⁴ It is only essential that the record be maintained and retrieved in the format in which it was stored. A viewer for the office application that created the record can be used to present it.

²⁵ This is a new process. It was implicit in the statement of the *47 Functional Requirements*.

2. The RMA shall provide the capability to copy a record or records in a category into a user work space for viewing, revision (of copy), information copies, and conversion of format or medium.²⁶

2.8 Transferring Records

1. The RMA shall identify record categories eligible for transfer, and present them to the authorized individual for approval. The identification is on the basis of its assigned disposition.

2. For a record category approved for transfer, the RMA shall output the associated records and related indexes. The RMA shall delete the record category, records, and related indexes in accordance with approved DoD standards outlining the destruction of electronic records.²⁷

2.9 Destruction of Records

1. The RMA shall identify record categories eligible for destruction using the disposition of the record category and present them to an authorized individual.

2. If an individual authorized to destroy records attempts to destroy records that are not eligible for destruction, the RMA shall notify the individual that the records are not eligible for destruction, and not allow destruction. This is a safeguard to prevent accidental or willful destruction of records, record categories, and related indexes ineligible for destruction.

3. The RMA shall require a second confirmation of the destruction operation.²⁸

4. The RMA shall ensure that record categories that are approved for destruction are removed from the records repository in accordance with DoD standards.

²⁶ Since a record cannot be modified, this function supports copying the record to make revisions or to create copies. The conversion of records to a standardized interchange format, e.g., SGML, ASCII, RTF, can be performed on the copy external to the RMA. Converting records from one storage media to another is for the purpose of overcoming technology obsolescence, compacting the organizational records, or for transfer of the records.

²⁷ 36 CFR §1234.30(b) (also FIRMR Bulletin B-1 ¶14). "Transfer a copy of the electronic records and any related documentation and indexes to the National Archives at the time specified in the disposition schedule." The record can be converted outside of the RMA to the medium and format required by the FRC or National Archives.

²⁸ This is a safeguard to prevent accidental destruction of records. This prevents the deletion of a record due to accidental selection of the retrieval operation.

3. RMA Data Requirements. Functional baseline requirements are supported through the identification of data elements and their subsequent standardization. Stabilizing data format and context ensures long term understanding and management of information assets contained in records. Proposed data element names and their relationship to functional baseline requirements are provided. Structure and format for approved data elements are contained in the Defense Data Dictionary System (DDDS) maintained by DISA at the Center for Software, 5600 Columbia Pike, Falls Church, VA 22014.

FUNCTIONAL REQUIREMENT

PROPOSED DATA ELEMENT(S)

3.1 Making Records

3.1 Making Records Data Elements.

1. The RMA shall assign a unique record identifier to each record, both electronic and non-electronic.

1. RECORD_Identifier

2. The RMA shall store a record with all its attachments.

2. RECORD-ASSOCIATION²⁹

3. The RMA shall identify the media type, record format and identify the physical location of all records, both electronic and non-electronic. For some records (usually non-electronic) the RMA shall require the user to indicate the media type, record format, and location.

3. RECORD_Media_Code and
RECORD_Format_Code and
RECORD_Location

3.2 Classifying Records and Assigning Disposition

3.2 Classifying Records and Assigning Disposition Data Elements

1. The RMA shall provide the capability to create organizational record categories and to output, for viewing, saving and printing, a list of current organizational record categories.

1. RECORD-CATEGORY

²⁹ Supports case files. A case file, e.g., project, transaction, personnel, is also a record. The RECORD-ASSOCIATION entity has a parent record and child records.

2. The RMA shall provide the capability to assign a record classification code to each record.

3. The RMA shall provide the capability to assign a record category disposition instruction in the form of text.

4. The RMA shall provide the capability to allow authorized individual(s) to add a record category and to suspend disposition of a record category.

3.3 Indexing Records

For all records, regardless of media, the RMA shall uniformly create and maintain indexes for the following information.

Record identifier
Classification code
Creating individual
Creating organization
Subject
Media type
Date of the record
Addressee(s)
Location of the record
Record format

3.4 Store Records

1. The RMA shall maintain the integrity of a record as it was received and stored. The RMA shall not change the format of the record.

2. RECORD_Classification_Code³⁰

3. RECORD-CATEGORY_Disposition_Instruction_Text

4. RECORD-CATEGORY and
RECORD-CATEGORY_Disposition_Instruction_Text

3.3 Indexing Records Data Elements

RECORD_Identifier
RECORD_Classification_Code
RECORD_Creating_Individual_Text
RECORD_Creating_Organization_Text
RECORD_Subject_Text
RECORD_Media_Code
RECORD_Created_Date
RECORD_Addressee_Text
RECORD_Location
RECORD_Format_Code

3.4 Storing Records Data Elements

1. RECORD_Format_Code

³⁰ Used to establish the functional context of a record. It also assures that a record is in the proper record series for disposition and is used in retrieval.

2. The RMA shall provide the capability to identify vital records.

3.5 Screening Records

1. The RMA shall provide output for viewing, saving, and printing of record categories for screening based on their disposition instruction or category

2. The RMA shall notify authorized individual(s) of required disposition actions based on the record category disposition instruction.

3.6 Retrieving Records

1. The RMA shall provide the capability to request records using the indexes as retrieval criteria.

2. The RMA will present the user a list of records meeting retrieval criteria. The RMA shall notify the user, if there are no records meeting the retrieval criteria.

3. The RMA shall provide records in the format in which they are stored.

3.7 Copying Records

1. The RMA shall never allow modification of the stored organizational record.

2. The RMA shall provide the capability to copy a record or record-category into a user work space for uses such as viewing, revision (of copy), information copies, and conversion of format or medium.

2. RECORD-CATEGORY_Vital_Record_Code

3.5 Screening Records Data Elements

1. RECORD-CATEGORY and
RECORD-CATEGORY_Disposition_Instruction_Text
and
RECORD-CATEGORY_Status_Code

2. RECORD-CATEGORY_Disposition_Instruction_Text

3.6 Retrieving Records Data Elements

1. See 3.3

2. Not identified

3. Not identified

3.7 Copying Records Data Elements

1. Not identified

2. Not identified

3.8 Transferring Records

1. The RMA shall identify record categories eligible for transfer, and present these to the authorized individual for approval. The identification is on the basis of its assigned disposition.
2. For a record category approved for transfer, the RMA shall output the associated records and related indexes. It shall delete the record category, records, and related indexes in accordance with DoD standards.

3.9 Destruction of Records

1. The RMA shall identify record categories eligible for destruction using the disposition of the record category and present them to an authorized individual.
2. If an individual authorized to destroy records attempts to destroy records that are not eligible for destruction, the RMA shall notify them that the records are not eligible for destruction, and not allow their destruction. This is a safeguard to prevent accidental or willful destruction of records, record categories, and related indexes not eligible for destruction.
3. The RMA shall require a second confirmation of the deletion operation

4. The RMA shall ensure that record categories that are approved for destruction are deleted from the records repository in accordance with DoD standards.

3.8 Transferring Records Data Element

1. RECORD-CATEGORY and RECORD-CATEGORY_Disposition_Instruction_Text and RECORD-CATEGORY_Status_Code
2. RECORD-CATEGORY

3.9 Destruction of Records Data Elements

1. RECORD-CATEGORY_Disposition_Instruction_Text
2. Not identified
3. Not identified
4. RECORD-CATEGORY

3.10 Data Element Definitions

RECORD

The information documenting the transaction of business.

RECORD_Addressee_Text (New)

The name of the organization or individual to whom a record is addressed.

RECORD_Classification_Code (New)

Code associated with a record indicating the file in which it should be filed. The classification code is a RECORD-CATEGORY_Code.

RECORD_Created_Date

The date the information becomes a RECORD.

RECORD_Creating_Organization_Text (New)

The name of the organization that created the RECORD.

RECORD_Creating_Individual_Text (New)

The name of the individual in an organization that created the RECORD.

RECORD_Format_Code (New)

Codes indicating logical structure of the record.

RECORD_Identifier

A system generated, 10-digit sequential number prefixed by the 4-digit calendar year that uniquely identifies a RECORD.

RECORD_Location (New)

A pointer to the record that contains information other than the attributes that uniquely identify the record or serve other records management purposes. Examples: an operating system path-file name, the location of a file cabinet, the location of a magnetic tape rack.

RECORD_Media_Code

The code that represents the media of a RECORD.

RECORD_Subject_Text

The text that describes the transaction or subject of a RECORD.

RECORD-ASSOCIATION (New)

An associative relation that provides for attachment and case file relationships. (Replaces RECORD-ATTACHMENT and ATTACHMENT)

RECORD_Identifier<p> (New)

Identifier for the parent RECORD in a RECORD-ASSOCIATION.

RECORD-Identifier<c> (New)

Identifier for the child RECORD in a RECORD-ASSOCIATION.

RECORD-ASSOCIATION_Reason_Code (New)

The reason for the RECORD-ASSOCIATION, i.e., case or attachment

RECORD-CATEGORY

One of the levels in a file plan.

RECORD-CATEGORY_Code

Code assigned to a RECORD-CATEGORY

RECORD-CATEGORY_Description_Text

The text of the description of a RECORD-CATEGORY.

RECORD-CATEGORY_Disposition_Instruction_Text

The instructions for the disposition of a RECORD-CATEGORY.

RECORD-CATEGORY_Status_Code

Values of this data element are used for event-driven disposition.

RECORD-CATEGORY_Title_Text

The title of a RECORD-CATEGORY

RECORD-CATEGORY_Vital_Record_Code

Code that indicates whether a RECORD-CATEGORY contains vital records.

4. System Management Requirements. The capabilities described in this section are typically provided by the operating system (OS) or a database management system (DBMS). However, the requirements for records management may necessitate the integration or interface of the OS or DBMS capabilities with control functions in the RMA.

4.1 Restricting Access to Records³¹

1. Access to record categories shall be restricted by assigning privileges at the record category or record file level based on user account identification. The types of privilege shall include read and write.³²
2. The capability shall be provided for restricting access to transfer and destroy functions based on user account identification.³³

4.2 Storage Availability and Monitoring

The RMA will require sufficient storage space for storing records with related record indexes, and maintaining associated audit logs. The system management functions shall provide for the monitoring of available storage space. The storage statistics shall provide a detailed accounting of the amount of storage consumed by RMA processes, data and records. The system management function shall notify authorized individual(s) of the need for corrective action in the event of critically low storage space.

4.3 Audit Information Management

1. Audit utilities provide a detailed account of records capture and preservation activities to assure the reliability and authenticity of a record. There is an audit requirement to make a copy of the unique record identifiers used during a calendar year when a new sequence of record identifiers will be created for the next calendar year.
2. Audit utilities will provide a detailed record of transfer and destruction activities to facilitate reconstruction, review, and examination of the events surrounding or leading to mishandling of records, possible compromise of sensitive information, or denial of service. All stored audit data shall be maintained as a record in accordance with approved policies and procedures.
3. The following information shall be logged for unauthorized attempts to access records:

Record identifier
Record category
User account identifier.
Date and time

³¹ This is a new process in the DoD RM function model. It was implicit in the statement of the 47 *Functional Requirements*.

³² This requirement shall be implemented using the features of the operating system or a DBMS which manages the RMA metadata. Write privileges are used to restrict filing, read privileges are used to restrict retrieval. User account ID is not a data element. There are certain record categories in which only certain office positions should be allowed to file records, for instance, officer supervisory files.

³³ This requirement can also be implemented using the features of a DBMS or operating system.

4. The following information shall be reported on demand:

- Total number of records captured
- Number of records captured by record classification code
- Number of accesses by record classification code

5. The following information shall be logged for deletions:

- Record identifier
- Record category
- User account identifier.

4.4 System Backup and Recovery

1. The purpose of these requirements is to specify the capabilities which must be provided to reduce exposure to loss of records due to system failure, operator error, disaster, or willful destruction. This is accomplished through automatic backup and recovery operations.

2. The OS/DBMS shall provide access restriction capability to properly authorized personnel for the specification of backup/audit options.

3. The capability shall be provided to produce periodic backup copies of all records managed by the RMA at intervals specified by authorized users.

4. The capability shall be provided to create and maintain an audit trail of changes to the records repository managed by the RMA. The RMA shall produce duplicate (replicated) audit trails as a minimum on physically different devices. The audit shall contain all changes made to any records managed by the RMA and all control information necessary to provide the recovery capabilities specified in item 5 below. The capabilities described above shall be provided in a configuration that allows the user to enable/disable these capabilities.

5. Backup copies and audit trails shall contain only that information necessary to recover in the event of system failure and/or record loss.³⁴

6. The following recovery capabilities shall be provided:

6.1. Following any system failure, the backup and recovery procedures shall provide the capability to complete updates (records and any control information such as indexes required to access the records) in the audit, ensure these are reflected in the RMA files, and assure that any partial updates to the RMA files are backed out. Also, any user whose updates are incompletely

³⁴ This requirement implies that a backup copy of records is not a system backup that might include system programs, operating system files, etc.

recovered, shall, upon next use of the application, be notified that a recovery has been executed. The RMA shall also provide the option to continue processing using all in-progress data not reflected in RMA files.

6.2. The capability shall be provided to rebuild forward from any backup copy, using the backup copy and all subsequent audit trails.³⁵

7. The creation and deletion of backup copies shall be managed through provision of the following capabilities:

7.1. Provide authorized users the ability to specify the number of backup copies to be managed by the application.

7.2. Assure deletion of the oldest backup copy upon successful creation of a new backup copy in accordance with DoD policy.

7.3. Assure deletion of any audits created earlier than the oldest backup copy maintained in accordance with DoD policy.

³⁵ This capability is typically used to recover from storage media contamination or failures.

Appendix: Definitions. This section defines terms used in the specification of RMA software requirements. Sources of the definitions are:

1. L. Duranti, Reliability and Authenticity: The Concepts and their Implications. *Archivaria*, Summer 1995.
2. National Archives and Records Administration. *A Federal Records Management Glossary*, 1993, Second Edition.
3. ACP 123 US SUPP-1 (Draft #2) Common Messaging Strategy and Procedures, February, 1995.
4. Department of Defense Standardization Records Management Implementation, Update 1, June 10, 1995.

Lack of a reference indicates that the definition is unique to this report.

Authentic Record. A record than can be proven to be genuine based on its mode, form, state of transmission and manner of preservation and custody [1].

Classification Code. A code assigned to a record based on a classification scheme.

Complete Records. Records that have all the elements of forms required by the organization, specifically features of content articulation and annotation [1].

Disposition Instructions. Directions for cutting off records and carrying out their disposition in compliance with NARA's regulations [2]. There are two types of disposition instructions – Generic and Specific. *Generic Disposition Instructions* indicate a retention period. *Specific Disposition instructions* indicate cutoff, retirement, and transfer dates. For temporary records, specific disposition instructions indicate destruction dates.

File. An aggregation of records, usually within a series, brought together because they relate to the same subject, activity or transaction.

File Plan. The records classification scheme for an agency.

Fonds. \f oⁿ(z)\ The whole of the documents that every organization accumulates by reason of its function or activity.

Index. A data base entity used to order values of a data element and point to records in another data base entity.

Individual Messaging. Individual messaging consists of communications between individual DoD personnel within administrative channels, both internal and external to the specific organizational elements. An individual message is an appropriately marked military message [3].

Interoperability. A condition that exists when the distinctions between information systems are not a barrier to accomplishing a task that spans multiple systems.

Juridical Person. A succession (e.g. position) or collection (e.g. organization) of physical persons.

Metadata. Information about data.

Military Message (MM). An information object supported by ACP 123 that is used to convey messages between military organizations. Any message identified with the content type P772 is a MM [3].

Office Application. Software packages that perform a variety of office support functions, such as word processing, desktop publishing, spreadsheet calculations, electronic mail, facsimile transmission and receipt, document imaging, optical character recognition (OCR), work flow and data management. These applications are generally those used to generate, convert, transmit or receive business documents.

Open Systems Interconnection (OSI). A family of standards promulgated by the International Organization for Standardization (ISO) and adhering to a specific model that promotes interoperability.

Organizational Messaging. Organizational messaging consists of communications between DoD organizations. An organizational message is an appropriately marked MM sent on behalf of an organization, in the name of that organization, that establishes a formal commitment on the part of that organization, and that has been formally released in accordance with the originating organization's policies [3].

Organizational Record. An organizational record is any information that has been produced by an organization and is therefore subject to records management restrictions in accordance with applicable laws. Information produced by an individual may also be considered an organizational record if the information has been determined to pertain to the business of the individual's organization [3].

Record Category. One of the levels in a file plan, e.g., Group, Subgroup, Series, File.

Record Identifier. A sequentially-assigned, system-generated, unique number used to identify a particular record.[4]

Records Management Application (RMA). Software used by an organization to manage its records. Its primary management functions are: classifying and locating records, storing and retrieving records, and disposing of records.

Records Schedule. A schedule that associates disposition instructions with record series.

Record Series. A record category to which a disposition instruction has been assigned.

Records Transmittal and Receipt. A standard form (SF 135) used for transferring records to an RHA or retiring them to an FRC.

Reliable Records. Records that can be trusted due to their degree of completeness and the degree of control exercised on their creation procedures and/or the author's reliability [1].

Retention Period. The length of time that records are to be kept [2].

Usable Record. A record that is retrievable. Also called an accessible record [1].

Vital Records. 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 interest of that organization and of the individuals directly affected by its activities [2].

Working Papers. Documents such as rough notes, calculations, or drafts assembled or created and used to prepare or analyze other documents [2].

Working Record. Any information produced by an individual user that has not otherwise been designated as an organizational record [3].

X.400 Interpersonal Message System (IPMS). The international civilian standard for electronic mail messaging – the P22 content type. This is the content type used in virtually all vendor supplied e-mail packages, and the primary content type used in e-mail communications on the Internet. Of the 93 Elements of Service in the P22 Content Type, only 21 are mandatory for support by all applications. Of the remaining 72 optional Elements of Service, some of which are needed for DMS requirements satisfaction, there is no requirement for vendors to implement any of them. The result is that of the array of commercial products on the market that implement X.400 P22, full interoperability among the products is largely non-existent. Implementation of content type P772 in the Defense Messaging System will remedy this deficiency [3].