A Comparative Analysis of the DoD 5015.2 Standard "Mandatory Requirements" and the RMSC Program Office Technical Report July 20, 2005

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ABSTRACT

DoD 5015.2-STD, *Design Criteria Standard for Electronic Records Management Applications*, Version 2, dated June 19, 2002 specifies mandatory requirements for a Records Management Application (RMA). Very often the statements of DoD 5015.2 requirements include functional as well as nonfunctional requirements, e.g., statutory or regulatory, user interface, access control, or metadata requirements. The mandatory requirements were analyzed to distinguish functional from nonfunctional requirements. Sixty-eight paragraphs were found to contain a total of 116 functional requirements. Non-functional metadata requirements were also clearly identified.

The RMSC Technical Report "Functional Requirements and Attributes for Records Management in a Component-Based Architecture" dated July 20, 2005 specifies seven service components, 22 use cases and 101 functional requirements for records management in the Federal Enterprise Architecture (FEA). Those paragraphs of DoD 5015.2 that contained functional requirements were compared to the Records Management Service Component (RMSC) functional requirements. Thirty-three of the 68 paragraphs in DoD 5015.2 that contain functional requirements were found to correspond to 49 of the 101 functional requirements of the RMSC Technical Report. These include requirements for the activities of Implementing File Plans, Scheduling Records, Declaring and Filing records, Filing E-mail Messages, Screening Records, Freezing and Unfreezing Records, Transferring Records, Destroying Records and System Audit. The RMSC Technical Report does not specifically address Vital Records Management, but it includes functionality that could support this activity. Ten of the 68 paragraphs in DoD 5015.2 that contain functional requirements Specified requirements for Searching for and Retrieving Records. The RMSC project did not include within its scope the development of functional requirements for the activity of Searching for and Retrieving Records because it was assumed these services would be provides by other components of the computing environment. Most of the non-matches are accounted for by the difference in levels of abstraction and the scope of the DoD Standard and the RMSC Technical Report.

The RMSC Technical report also addressed functional requirements and attributes (data elements or metadata) for Provenance (Record Creators, Organizations, and Recordkeepers), which is essential for determining the authenticity of e-records. DoD 5015.2 does not address functional requirements for Provenance. The DoD 5015.2 STD does address functional requirements for managing security classified records and declassification of such records. This activity was not within the scope of work of the RMSC project.

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1. Introduction

1.1 Background

The Records Management Service Components (RMSC) Program Office of the National Archives and Records Administration (NARA) is supporting Federal Chief Information Officers in developing records management service components for the Federal Enterprise (Service-Oriented) Architecture. A set of service components for Records Management Service Components has been defined [1]. Georgia Tech Research Institute is supporting the RMSC Program Office of NARA in the analysis and comparison of the RMSC functional requirements and attributes with other records management models and specifications.

1.2 Purpose

The purpose of this report is:

(1) to present the results of an analysis of the DoD 5015.2 mandatory requirements for an RMA [2] to determine those requirements that are functional or metadata requirements and those that are nonfunctional, non-metadata requirements, and
(2) to present a matrix comparing the DoD mandatory requirements with the RMSC use cases and functional requirements developed by NARA's RMSC program [1].

1.3 Scope

Section 2 of this report discusses the differences between functional, metadata and other software requirements. Section 3 identifies those mandatory requirements for an RMA that are functional requirements, metadata requirements and other requirements. Section 4 identifies RMSC Technical Report functional requirements that correspond to DoD RMA functional requirements. Section 5 discusses the RMSC Service components in greater detail and beginning with the RMSC Functional requirements shows the corresponding DoD functional and metadata requirements. Section 6 summarizes the results of this study.

2. Functional and Metadata System Requirements

The RMSC Technical Report states in a footnote in Appendix A that "DoD 5015.2-STD, Design Criteria Standard for Electronic Records Management Applications, addresses design criteria and not functional requirements for RMA's…" However, DoD 5015.2 states in its Foreword that "It [This standard] sets forth mandatory baseline functional

requirements for Records Management Application (RMA) software used by the DoD Components in the implementation of their records management programs; defines required system interfaces and search criteria to be supported by the RMAs; and describes the minimum records management requirements that must be met, based on current National Archives and Records Administration (NARA) regulations."

The author of a well-known text on software requirements specification defines a functional requirement as follows: "A *functional* (behavioral) *requirement* specifies the *inputs* (*stimuli*) to the system, the *outputs* (*responses*) from the system, and behavioral relationships between them." [3]

It is the opinion of the authors of this report that both the RMSC Technical Report and DoD 5015.2 specify functional requirements. The difference is that the RMSC Technical report specifies functional requirements in a more formal manner, specifying the inputs, outputs and behavioral relationships, while the DoD specification expresses functional requirements in natural language. It is difficult to use natural language to specify functional requirements in an unambiguous manner. As a matter of fact, the author of a study of requirements specification has concluded: "There is no known way in which all the required details of functionality can be extracted from natural language text with any degree of certainty." [9]

The Joint Interoperability Test Command (JITC) has constructed test cases and test procedures related to the DoD 5015.2 requirements for a RMA to assess whether a Records Management Application actually meets the requirements [10, 11]. To unambiguously understand the functional requirements for an RMA one needs to consider not only DoD 5015.2, but also the test procedures and test cases.

We define a metadata requirement as follows.[1] A *metadata requirement* specifies

(1) a class of objects, names of the attributes of the objects in that class, the data type and constraints on values of each attribute, and provides a definition of the attribute,
(2) whether an attribute is mandatory or optional, and
(3) relationships between objects in the same or different classes.

In this paper, the following notation will be used to characterize classes of objects or relationships between objects.

Name of Relation or Class (attribute$_1$, attribute$_2$,…, attribute$_n$)

For example, the following represents the attributes of the class Record Folder.

Record Folder (Folder Name, Folder-Unique Identifier, Location, Vital Record Indicator, Vital Record Review and Update Cycle Period, Supplemental Marking List)

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[1] Metadata requirements are sometimes referred to in the literature as data requirements.

The metadata of the RMSC technical report are expressed as attributes (also called data elements). The notation used for attributes is class-name_property-name. For example, in Agency_Official_Name, the class name is Agency and the property name is Official_Name.

Non-functional requirements are requirements that are not specifically concerned with the functionality of a system. They place restrictions on the product being developed and the development process, and they specify external constraints that the product must meet. Non-functional requirements include statutory or regulatory, security, access control, user interface, interoperability, database integrity, and reliability requirements [5, p. 187]. *Implementation requirements* are a subset of non-functional requirements that deal with the implementation of the system and include implementation policy (directives), user interface requirements and database integrity requirements.

Statutory or regulatory requirements are requirements external to the system that are required by a legislative or regulatory authority.

Security requirements are a specification of the required availability of information to authorized users, the prevention of unauthorized disclosure of information (confidentiality), and the prevention of the unauthorized amendment or deletion of information.

Access control requirements are a specification of mechanisms for granting access privileges, providing access to authorized users and preventing access to unauthorized users.

User interface requirements are a specification of an interface between the software and one part of its environment, the user.

Interoperability requirements are a specification of an interface between the software and the parts of the environment other than the user, e.g., other software.

Database integrity requirements are a specification of the internal controls for a database to ensure that users can trust the data stored in the database.

System reliability requirements are a specification of the capabilities a software and hardware system must have to behave consistently in a user-acceptable manner.

Other types of nonfunctional requirements (or constraints) include Executive Orders, Agency Directives, Guidance and Standards, and National or Industry Standards relevant to the design and operation of the system.

3. DoD 5015.2 Requirements Expressed as Functional and Nonfunctional Requirements

In this section, we analyze each of the DOD 5015.2 mandatory requirements for a Records Management Application (RMA) and indicate whether it is a functional requirement, a non-functional requirement or includes elements of both. The results of this analysis are shown in tables with three columns. The first column shows the mandatory requirements. The second column shows an expression of the functional requirement, if there is one or more. The third column shows the nonfunctional requirements if there are any.

Throughout the DoD 5015.2 STD, the phrase "…shall allow only authorized individuals [users] …" appears. This is indicative of an access privilege either to a function of an RMA or its metadata.

3.1 Implementing File Plans

A *file plan* is "A document containing the identifying number, title, description, and disposition authority of files held or used in an office [2]."

A *record category* is "A description of a particular set of records within a file plan. Each category has retention and disposition data associated with it, applied to all record folders and records within the category [2]."

DoD 5015.2 specifies a file plan as a set of Record Categories ordered by Record Category identifier. "Table C2.T1. File Plan Components" of DoD 5015.2 specifies the attributes (File Plan Components) of a Record Category. Those attributes are

> Record Category (Record Category Name, Record Category Identifier, Record Category Description, Disposition Instructions, Disposition Authority, Permanent Record Indicator, Vital Record Indicator, Vital Record Review and Update Cycle Period)

Table C2.T1 also contains "User Definable Fields," but that is not an actual attribute of record category. The actual attributes are the fields (attributes) that the user(s) define.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its	The system shall provide the capability to create a record category containing a record category id, record category name, and record category description. The system shall provide the	Access Control. Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Metadata requirement:

higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1. Mandatory in the Structure column indicates that the field must be present and available to the user either as read/write or as read only depending upon the kind of data being stored. Mandatory in the Data Collection Required by User column indicates that RMAs shall ensure population of the associated data structure with non-null values. For fields that are not mandatory in the Data Collection column, RMAs shall behave in a predictable manner as a result of queries or other operations when the fields are not populated. The file plan components should be organized into logical sets that, when populated, will provide all the file plan references necessary to properly annotate (file) a record.	capability to find and edit a record category. The system shall provide the capability to delete a record category. The system shall provide the capability to create a record subcategory of a record category.	hasSubcategory (record category identifier (i), record category identifier (j))

Requirement C2.2.1.2 can be broken into two requirements that are examples of non-functional requirements, most obviously since the requirement contains the words "constrained" and mentions a specific user interface implementation: selection lists. Functional requirements capture the behavior of a system, not the specifics of the user interface of the system.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.1.2. RMAs shall provide the capability for authorized individuals to designate the metadata fields that are To be constrained to selection lists. RMAs shall provide the capability for authorized individuals to create and maintain selection lists (e.g., drop-down lists) for metadata items that are constrained to a pre-defined set of data.		User Interface Requirement, Access Control Requirement

"A record folder is an extension to the file plan either as a static structure or an aggregate gathering of records.   It is used to manage case records and to break other records into periods supporting retention and disposition [2]."

Table C2.T2. Record Folder Components of DoD 5015.2 shows the attributes (components) of Record Folders. Those attributes are:

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Record Folder (Folder Name, Folder-Unique Identifier, Location, Vital Record Indicator, Vital Record Review and Update Cycle Period, Supplemental Marking List)

Record Folder attributes can also contain user definable fields (attributes).

The definition of record folder (see above) and DoD 5015.2 functional requirements for scheduling records, such as paragraphs C2.2.2.5 and C2.2.2.6, imply that Record Folders may optionally contain another attribute: Disposition Instructions.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.1.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record folder components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level file plan component identifier(s). See references (t) and (y). Mandatory record folder components are shown in Table C2.T2. Mandatory in the Structure column indicates that the field shall be present and available to the user either as read/write or as read only depending upon the kind of data being stored. Mandatory in the Data Collection Required by User column indicates that RMAs shall ensure population of the associated data structure with non-null values. For fields that are not mandatory in the Data Collection column, RMAs shall behave in a predictable manner as a result of queries or other operations when the fields are not populated.	The RMA shall provide the capability to create a record folder including its components and identifiers. The RMA shall provide the capability to edit record folder. The RMA shall provide the capability to a delete record folder. Each component identifier shall be linked to its associated component and to its higher-level file plan component identifier(s).	Access Control requirement, Statutory and Regulatory requirement: references (t) and (y). Metadata Requirement: Folder-RecordCategoryAssociation (unique folder identifier, Record category identifier)

View is a "Function that allows the user to look at the metadata and content of a record in a viewer or other application [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.1.4. RMAs shall ensure that identifiers (e.g., folder identifiers, record category identifiers) are unique so that ambiguous assignments, links, or associations cannot occur.		Metadata requirement
C2.2.1.5. RMAs shall provide the capability to allow only an authorized individual to define and attach user-defined business rules and/or access logic to any metadata field including user-defined fields		Access Control

| C2.2.1.6. RMAs shall provide the capability to sort, view, save, and print user-selected portions of the file plan, including record folders. See reference (z). | RMAs shall provide the capability to sort the file plan.

RMAs shall provide the capability to view the file plan.

RMAs shall provide the capability to save the file plan.

RMAs shall provide the capability to print the file plan. | |

3.2 Scheduling Records

Requirement C2.2.1.1 provides for the creation, editing and deletion of the following attributes of a record category: Disposition Instructions, Disposition Authority, and Permanent Record Indicator. Requirement C2.2.2.3 defines the following subcomponents of the record category attribute "Disposition Instruction."

> Retention Period,
> Disposition Action,
> Interim Transfer or Accession Location

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.2.1. RMAs shall provide the capability for only authorized individuals to view, create, edit, and delete disposition schedule components of record categories.	The RMA shall provide the capability to view disposition schedule components of record categories. The RMA shall provide the capability to create disposition schedule components of record categories. The RMA shall provide the capability to find and edit disposition schedule components of record categories. The RMA shall provide the capability to delete disposition schedule components of record categories.	Access Control
C2.2.2.2. RMAs shall provide the capability for defining multiple phases (e.g., transfer to inactive on-site storage, transfer to off-site storage) within a disposition schedule.	The RMA shall provide the capability to edit multiple phases within a disposition schedule.	Metadata requirement: values of disposition instruction
C2.2.2.3. RMAs shall provide the capability for only authorized individuals to define the cutoff criteria and, for each life-cycle phase, the following disposition components for a	The RMA shall provide the capability to edit the cutoff criteria and disposition components for a record category.	Access Control, Metadata requirement: Record Category (Disposition Instruction, Retention

record category: C2.2.2.3.1. Retention Period (e.g., fiscal year). C2.2.2.3.2. Disposition Action (interim transfer, accession, permanent, or destroy). C2.2.2.3.3. Interim Transfer or Accession Location (if applicable).		Period, Disposition Action, Interim Transfer or Accession Location)
C2.2.2.4. RMAs shall, as a minimum, be capable of scheduling and rescheduling each of the following three types of cutoff and disposition instructions. See reference (d). C2.2.2.4.1. Time Dispositions, where records are eligible for disposition immediately after the conclusion of a fixed period of time following user-defined cutoff (e.g., days, months, years). C2.2.2.4.2. Event Dispositions, where records are eligible for disposition immediately after a specified event takes place (i.e., event acts as cutoff and there is no retention period). C2.2.2.4.3. Time-Event Dispositions, where the timed retention periods are triggered after a specified event takes place (i.e., event makes the record folder eligible for closing and/or cutoff and there is a retention period).	The RMA shall, as a minimum, be capable of scheduling and rescheduling cutoff and disposition instructions of three types: Time Dispositions, Event Dispositions and Time-Event Dispositions.	NARA Guidelines: reference (d). Metadata requirement: values of the disposition instruction attribute
C2.2.2.5. RMAs shall provide the capability to automatically calculate the complete life cycle, including intermediate phases, of record folders and records not in folders. See reference (d).	The RMA shall provide the capability to calculate the complete life cycle, including intermediate phases, of record folders and records.	NARA guideline: reference (d). Metadata requirement: Disposition Instruction as an attribute of Record Folder
C2.2.2.6. RMAs shall provide the capability for rescheduling dispositions of record folders and/or records (those not in folders) during any phase of their life cycle if an authorized individual changes the disposition instructions. This requirement includes the capability to change the cutoff criteria of disposition instructions and to change the retention period associated with a disposition.	The RMA shall provide the capability to reschedule dispositions of record folders and records in event of disposition instruction changes. [2]	Access Control
C2.2.2.7. The RMA shall provide recalculation of the record life cycle based on changes to any life-cycle date	The RMA shall provide recalculation of the record life cycle in event of change in life-cycle date and file	

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[2] DOD5015.2 requirement C2.2.2.6 is interpreted to mean that the disposition instruction attribute of a record category containing folders or records can be edited.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
and set the filing status (i.e., open, closed) of the folder according to the business rules associated with date change(s).	status according to the business rules associated with date change(s).	

3.3 Declaring and Filing Records

The term *file*, "When used as a verb, this term is used to define the act of assigning and storing records in accordance with the file plan [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.3.1. RMAs shall provide the capability to associate the attributes of one or more record folder(s) to a record or for categories to be managed at the record level provide the capability to associate a record category to a record. See reference (y).	The RMA shall provide the capability to associate a record folder to a record. The RMA shall provide the capability to associate a record category to a record.	Regulatory requirement: reference (y), metadata requirement: FolderRecord Association (unique folder identifier, unique record identifier), recordcategory-recordassociation (record category identifier, unique record identifier)

A *record* is "Information, regardless of medium, detailing business transactions. Records include all books, papers, maps, photographs, machine-readable materials, and other documentary materials, regardless of physical form or characteristics. Records are made or received by an Agency of the United States Government under Federal law or in connection with the transaction of public business. Records are preserved or appropriate for preservation by that Agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the value of data in the record. See reference (j). [2]."

Mandatory record metadata components (attributes) for records are shown in Table C2.T3 of DoD 5015.2. Those attributes are:

> Record (Unique Record Identifier, Supplemental Marking List, Subject or Title, Media Type, Format, Date Filed, Publication Date, Date Received, Author or Originator, Addressee(s), Other Addressee(s), Originating Organization, Location, Vital Record Indicator, Vital Record Review and Update Cycle Period)

Table C2.T3 also indicates that a record can have user-defined fields.

DoD 5015.2 **Mandatory RMA Requirement**	**Functional Requirement**	**Nonfunctional Requirement**
C2.2.3.2. Mandatory record metadata components are shown in Table C2.T3. Mandatory in the Structure column indicates that the field shall be present and available to the user either as read/write or as read only depending upon the kind of data being stored. Mandatory in the Data Collection Required column indicates that RMAs shall ensure population of the associated data structure with non-null values. For fields that are not mandatory in the Data Collection column, RMAs shall behave in a predictable manner as a result of queries or other operations when the fields are not populated.		Metadata requirement

The verb *create* is "In electronic records, the action or result of filing a new record and its associated metadata [2]."

The term *edit* refers to a "Function that allows the user to change an existing record's metadata [2]."

The term *delete* refers to "The process of permanently removing, erasing, or obliterating recorded information from a medium, especially a reusable magnetic disk or tape [2]."

DoD 5015.2 **Mandatory RMA Requirement**	**Functional Requirement**	**Nonfunctional Requirement**
C2.2.3.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record metadata components, and their associated selection lists.	The RMA shall provide the capability to create record metadata components. The RMA shall provide the capability to edit record metadata components. The RMA shall provide the capability to delete record metadata components.	Access Control, User Interface requirement
C2.2.3.4. RMAs shall provide the capability for authorized individuals to select where data collection for optional metadata fields is mandatory for a given organization.	The RMA shall provide the capability to indicate whether the record optional metadata fields are mandatory.	Access Control
C2.2.3.5. RMAs shall assign a unique computer-generated record identifier for each record they manage regardless of where that record is stored. See reference (z).	The RMA shall assign a unique computer-generated record identifier for each record.	Metadata requirement
C2.2.3.6. RMAs shall provide the capability to create, view, save, and	The RMA shall provide the capability to create record	

print the complete record metadata, or user-specified portions thereof, in user-selectable order. See reference (z).	metadata. The RMA shall provide the capability to view record metadata. The RMA shall provide the capability to save record metadata. The RMA shall provide the capability to print the complete record metadata or user specified portions thereof in user-selectable order.	
C2.2.3.7. RMAs shall provide the capability for authorized individuals to arrange record metadata components and user-defined record components on data entry screens to be used for filing.		Access Control, User interface
C2.2.3.8. RMAs shall prevent subsequent changes to electronic records stored in its supported repositories. The content of the record, once filed, shall be preserved. See references (y) and (z).		Access Control, Regulatory requirement: references (y), integrity requirement
C2.2.3.9. RMAs shall not permit modification of the metadata fields indicated by this Standard as not editable.		Access control
C2.2.3.10. RMAs shall (for all records) capture, populate, and/or provide the user with the capability to populate the metadata elements before filing the record. RMAs shall ensure that fields designated mandatory for data collections are non-null before filing the record. See references (y) and (ah).	The RMA shall provide the capability to capture the metadata elements. The RMA shall provide the capability for the user to populate the metadata elements.	User interface requirement – non-null value checking, Regulatory requirements: references (y) and (ah).
C2.2.3.11. For records that are being filed via the user interface, RMAs shall provide the user with the capability to edit the record metadata prior to filing the record, except for data specifically identified in this Standard as not editable. For auto filing, RMAs shall provide the user the option of editing the record metadata prior to filing.	RMAs shall provide the user the option of editing the record metadata prior to filing.	User interface
C2.2.3.12. Dates captured electronically shall be valid dates as defined in paragraph C2.1.2. Where data entry/capture errors are detected, RMAs shall prompt the user to correct		Metadata requirement, user interface requirement

the error. These prompts shall provide guidance to the user in making corrective actions; for example, "Date format incorrect - use MM/DD/YYYY."		
C2.2.3.13. RMAs shall restrict the capability to only authorized individuals to define and add user-defined metadata fields (e.g., project number, budget line) for site-specific requirements. See reference (ah).	The RMA shall restrict the capability to create user-defined metadata fields for site-specific requirements.	Regulatory requirement: reference (ah). Access control
C2.2.3.14. RMAs shall provide the capability to view, save, or print the metadata associated with a specified record or set of records, or user-specified portions thereof, in user-selectable order.	The RMA shall provide the capability to view the metadata associated with a specified record or set of records. The RMA shall provide the capability to save the metadata associated with a specified record or set of records. The RMA shall provide the capability to print the metadata associated with a specified record or set of records.	
C2.2.3.15. RMAs shall provide the capability for only authorized individuals to limit the record folders and record categories presented to a user or workgroup. Based on these limits, RMAs shall present to users only those record categories or folders available to the user or workgroup for filing.		Access Control
C2.2.3.16. RMAs shall provide the capability for only authorized individuals to change a record folder or record category associated with a record.	The RMA shall provide the capability to disassociate a record from a record folder. The RMA shall provide the capability to associate a record with a record folder. The RMA shall provide the capability to disassociate a record from a record category. The RMA shall provide the capability to associate a record with a record category.	Access control
C2.2.3.17. RMAs shall provide a capability for referencing or linking and associating supporting and related records and related information, such as notes, marginalia, attachments, and electronic mail-return receipts, etc., to a specified	The RMA shall provide a capability for associating supporting and related records and related information to a specified record. The RMA shall provide a	Access control requirement, metadata requirement: Recordrecordassociation (record unique identifier (i), record unique identifier (j))

| record. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z). | capability for disassociating supporting and related records and related information from a specified record. | |
| C2.2.3.18. RMAs shall provide the capability to link original superseded records to their successor records. | The RMA shall provide the capability to link original superseded records to their successor records. | Metadata requirement: Supersedes (record unique identifier (i), record unique identifier (j)) |

In requirement C2.2.3.19 the term *rendition* refers to "Replication that provides the same content but differs from the reference because of storage format, or storage medium [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.3.19. RMAs shall provide the capability to support multiple renditions of a record. These shall be associated and linked.	The RMA shall provide the capability to support multiple renditions of a record. The RMA shall provide the capability to support multiple renditions of a record to be linked.	Metadata requirement: Rendition (record unique identifier (i), record unique identifier (j)))
C2.2.3.20. RMAs shall provide the capability to increment versions of records when filing. RMAs shall associate and link the versions.	The RMA shall provide the capability to increment versions of records when filing. The RMA shall provide the capability to associate record versions.	Metadata requirement: version of (unique record identifier (i), unique record identifier), record has an optional attribute: version
C2.2.3.21. RMAs shall link the record metadata to the record so that it can be accessed for display, export, etc. See 36 CFR 1234.32 (reference (ai)).	The RMA shall link the record metadata to the record.	Regulatory requirement: See 36 CFR 1234.32 (reference (ai)).
C2.2.3.22. RMAs shall provide the capability for only authorized individuals to modify the metadata of stored records. However, RMAs shall not allow the editing of metadata fields that have been specifically identified in this Standard as not editable.	The RMA shall provide the capability to modify the metadata of stored records.	Access Control

In requirement C2.2.3.23, the term *data integrity* seems to refer to a specification of the internal controls on the database used to implement the RMA to insure that the users can trust the data stored in the database. While DoD 5015.2 does not specify exactly what these controls are, these controls would probably include key integrity and domain integrity. *Key integrity* refers to ensuring that every table has a primary key that uniquely identified each record in the table. *Domain integrity* refers to ensuring that no attribute in a table tasks on a value that outside the range (domain) of legal values.

Data integrity in requirement C2.2.3.23 probably does not refer to the concept of *data integrity* that is the property whereby data has not been altered in an unauthorized manner since the time it was created, transmitted, or stored by an authorized source. This control would be implemented by computing checksums or hash codes for values of attributes as well as records. This concept of data integrity is a key component of ensuring the authenticity of electronic records maintained in a RMA, and is addressed in paragraph C2.2.3.8.

In requirement C2.2.3.23, the term *referential integrity* refers to "Ensuring that all references are updated or deleted as necessary when a key reference is changed in a database environment [2]. The term relational integrity refers to "Ensuring that "children" in a database or hierarchical structure are updated or deleted appropriately as actions are taken on the "parent."   Maintaining relational integrity prevents "orphans" [2]." *Data integrity* is the property whereby data has not been altered in an unauthorized manner since the time it was created, transmitted, or stored by an authorized source.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.3.23. RMAs shall enforce data integrity, referential integrity, and relational integrity.	.	Database integrity requirements: data integrity, referential integrity, relational integrity
C2.2.3.24. RMAs shall provide the capability to automatically synchronize multiple databases and repositories.		Interoperability requirement
C2.2.3.25. RMAs shall provide the capability for users to create and maintain shortened "quick-pick" lists from the authorized lists.		User interface
C2.2.3.26. RMAs shall provide the capability for users to create and maintain templates that automatically populate commonly used data into record metadata fields.		User interface

3.4 Filing Electronic Mail Messages (E-mail)

An electronic mail message is "A document created or received via an electronic mail system, including brief notes, formal or substantive narrative documents, and any attachments, such as word processing and other electronic documents, which may be transmitted with the message [2]."

Transmission data is "Information in electronic mail systems regarding the date and time messages were sent or forwarded by the author or originator.   If this data is provided by the electronic mail system, it is required as part of the record for documents that are transmitted and received via electronic mail [2]."

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DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.4.1. RMAs shall treat email messages the same as any other record, and these shall be subject to all requirements of this Standard. See 32 CFR 1222.32 and 36 CFR 1234.24, references (aj) and (ak).		Regulatory requirement: 32 CFR 1222.32 and 36 CFR 1234.24, references (aj) and (ak). Interoperability Requirement
C2.2.4.2. RMAs shall capture and automatically store the transmission and receipt data identified in Table C2.T4. if available from the e-mail system, as part of the record metadata when an e-mail message is filed as a record. See reference (ak). RMAs shall provide the capability for editing Subject or Title, Author or Originator, Addressee(s), and the Other Addressee(s) metadata fields prior to filing. All other fields shall not be editable.	The RMA shall capture and automatically store the transmission and receipt data as part of the record metadata when an e-mail message is filed as a record. The RMA shall provide the capability for editing Subject or Title, Author or Originator, Addressee(s), and the Other Addressee(s) metadata fields prior to filing.	Regulatory requirement: reference (ak). Interoperability Requirement

TABLE C2.T4. Transmission and Receipt Data	
Transmission and Receipt Data	Record Metadata Mapping
The intelligent name of the sender.[3]	The RMA shall automatically enter this data into the Author
The intelligent name of all primary addressees (or distribution lists).	The RMA shall automatically enter this data into the Addressee(s) data field of the record metadata (paragraph C2.T3.10.).
The intelligent name of all other addressees (or distribution lists).	The RMA shall automatically enter this data into the Other Addressee(s) data field (paragraph C2.T3.11.).
The date and time the message was sent.	The RMA shall automatically enter this data into the Publication Date data field (paragraph C2.T3.7.).
For messages received, the date and time the message	The RMA shall automatically enter this data (if available)

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[3] Intelligent names are clear, uncoded, identifications of the individual.

was received (if available).	into the Date Received data field (paragraph C2.T3.8.).
The subject of the message.	The RMA shall automatically enter this data into the Subject or Title data field of the record metadata (paragraph C2.T3.3.).

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.4.3. RMAs shall provide the user the option of filing email and all its attachment(s) as a single record, or filing selected email item(s) as individual record(s), or to do both. When the attachment(s) is (are) filed as individual record(s), the user shall be provided the capability to enter the metadata required in table C2.T3. See reference (ak).	The RMA shall provide the capability to file an email as an individual record. The RMA shall provide the capability to file portions of an email as separate records.	Regulatory requirement: reference (ak).

3.5 *Storing Records.*

A *repository for electronic records* is "A direct access device on which the electronic records and associated metadata are stored [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.5.1. RMAs shall provide at least one portal that provides access to all associated repositories and databases storing electronic records and their metadata.		User interface
C2.2.5.2. The RMAs shall prevent unauthorized access to the repository (ies). See 36 CFR 1222.50 and 44 U.S.C. 3105 (references (y) and (al)).		Statutory and Regulatory requirement: 36 CFR 1222.50 and 44 U.S.C. 3105 (references (y) and (al)). Access Control
C2.2.5.3. RMAs shall manage and preserve any record in any supported repository, regardless of its format or structure, so that, when retrieved, it can be reproduced, viewed, and manipulated in the same manner as the original. See references (y), (z), and (ah).		Statutory and Regulatory requirements: references (y), and (ah) Maintainability (preservation) requirement

| C2.2.5.4. RMAs shall allow only authorized individuals to move or delete records from the repository. See 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)). | RMAs shall provide the capability to move or delete records from the repository. | Regulatory requirement: 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)). Access Control requirement |

3.6 *Retention and Vital Records Management*

The term *disposition* refers to "Those actions taken regarding Federal records after they are no longer required to conduct current Agency business [2]."

Vital records are "Essential Agency records needed to meet operational responsibilities under national security emergencies or other emergency or disaster conditions (emergency operating records) or to protect the legal and financial rights of the Government and those affected by Government activities (legal and financial rights records). They are subject to periodic review and update. Emergency operating records are the type of vital records essential to the continued functioning or reconstitution of an organization during and after an emergency. Included are emergency plans and directive(s), orders of succession, delegations of authority, staffing assignments, selected program records needed to continue the most critical Agency operations, and related policy or procedural records assisting Agency staff in conducting operations under emergency conditions and for resuming normal operations after an emergency. Legal and financial rights records are those essential to protecting the legal and financial rights of the Government and of the individuals directly affected by its activities. Examples include accounts receivable records, social security records, payroll records, retirement records, and insurance records. These records were formerly defined as "rights-and-interests" records [2]."

3.6.1 Screening Records

Screening is "Aggregating and reviewing records for management and disposition purposes [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing list(s) of record folders and/or records (regardless of media) based on any combination of the following: C2.2.6.1.1.1. Disposition Action Date. C2.2.6.1.1.2. Disposition Action. C2.2.6.1.1.3. Location. C2.2.6.1.1.4. Transfer or Accession Location.	The RMA shall provide capability to sort record folders and records. The RMA shall provide capability to view record folders and records. The RMA shall provide capability to save record folders and records. The RMA shall provide the capability	Metadata Requirement: Disposition Action Date

C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date. C2.2.6.1.1.6. Record Category Identifier. C2.2.6.1.1.7. Folder Unique Identifier. C2.2.6.1.1.8. User Definable Fields.	to print record folders and records.	
C2.2.6.1.2. RMAs shall provide for sorting, viewing, saving, and printing life-cycle information, eligibility dates, and events of user-selected record folders and records.	The RMA shall provide the capability to sort life-cycle information, eligibility dates, and events of record folders and records. The RMA shall provide the capability to for view life-cycle information, eligibility dates, and events of record folders and records. The RMA shall provide the capability to for save life-cycle information, eligibility dates, and events of record folders and records. The RMA shall provide the capability to print life-cycle information, eligibility dates, and events of record folders and records.	
C2.2.6.1.3. RMAs shall allow the user to select and order the columns presented in the screening result list(s).		User Interface requirement
C2.2.6.1.4. RMAs shall provide authorized individuals with the capability to indicate when the specified event has occurred for records and record folders with event-and time-event-driven dispositions.	The RMA shall provide the capability to indicate when disposition related events have occurred.	Access Control
C2.2.6.1.5. RMAs shall provide for sorting, viewing, saving, and printing lists and partial lists of record folders and/or records that have no assigned disposition.	The RMA shall provide the capability to sort lists of record folders and records that have no assigned disposition. The RMA shall provide the capability to view lists of record folders and records that have no assigned disposition. The RMA shall provide the capability to save lists of record folders and records that have no assigned disposition. The RMA shall provide the capability to print lists of record folders and records that have no assigned disposition.	

3.6.2 Closing Record Folders

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.2.1. RMAs shall provide a capability for authorized individuals to close record folders to further filing after the specified event occurs.	The RMA shall provide a capability to close record folders to further filing.	Access Control
C2.2.6.2.2. RMAs shall provide the capability only to authorized individuals to add records to a previously closed record folder or to reopen a previously closed record folder for additional public filing.	The RMA shall provide the capability to add records to a previously closed record folder.	Access Control

3.6.3 Cutting Off Record Folders

"To cut off records in a file means to break, or end, them at regular intervals to permit their disposal or transfer in complete blocks and, for correspondence files, to permit the establishment of new files. Cutoffs are needed before disposition instructions can be applied because retention periods usually begin with the cutoff, not with the creation or receipt, of the records. In other words, the retention period normally does not start until the records have been cut off. Cutoffs involve ending input to old files and starting input to new ones at regular intervals [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.3.1. RMAs shall be capable of implementing cutoff instructions for scheduled and unscheduled record folders. RMAs shall identify record folders eligible for cutoff, and present them only to the authorized individual for cutoff approval. The cutting off of a folder shall start the first phase of its life cycle controlled by the records schedule. See reference (z).	The RMA shall identify record folders eligible for cutoff and present them only to the authorized individual for cutoff approval.	Access control
C2.2.6.3.2. RMAs shall provide the capability to only authorized individuals to add records or make other alterations to record folders that have been cut off.	The RMA shall provide the capability to add records to record folders that have been cut off.	Access Control

3.6.4 Freezing/Unfreezing Records

The term *freeze* refers to "The suspension or extension of the disposition of temporary records that cannot be destroyed on schedule because of special circumstances, such as a court order or an investigation. A freeze requires a temporary extension of the approved retention period [2]."

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DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.4.1. RMAs shall provide the capability for only authorized individuals to extend or suspend (freeze) the retention period of record folders or records beyond their scheduled disposition. See 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)).	The RMA shall provide the capability to suspend (freeze) the retention period of record folders beyond their scheduled disposition. The RMA shall provide the capability to suspend (freeze) the retention period of records beyond their scheduled disposition.	Statutory and Regulatory requirement: 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)). Access control
C2.2.6.4.2. RMAs shall provide a field for authorized individuals to enter the reason for freezing a record or record folder.	The RMA shall provide a field to enter the reason for freezing a record. The RMA shall provide a field to enter the reason for freezing a record folder.	Access control. Metadata Requirement: Folder (Suspense Reason) Record (Suspense Reason)
C2.2.6.4.3. RMAs shall identify record folders and/or records that have been frozen and provide authorized individuals with the capability to unfreeze them.	The RMA shall provide the capability to identify record folders that have been frozen. The RMA shall provide the capability to identify records that have been frozen. The RMA shall provide the capability to unfreeze frozen record folders. The RMA shall provide the capability to unfreeze frozen records.	Access control
C2.2.6.4.4. RMAs shall allow authorized individuals to search, update, and view the reason for freezing a record or record folder.	The RMA shall provide the capability to search the reason for freezing a record or record folder. The RMA shall provide the capability to edit the reason for freezing a record or record folder. The RMA shall provide the capability to view the reason for freezing a record or record folder.	Access Control

3.6.5 Transferring Records

The term *transfer* refers to "The act or process of moving records from one location to another, especially from the office space in which the record is used to Agency storage facilities or FRCs, from one Federal Agency to another, or from office or storage space to the National Archives for permanent preservation. Transfer does not relieve the owning organization of legal and management responsibilities for non-permanent records. Accessioning permanent records to NARA does transfer legal ownership and responsibility for the records to NARA [2]."

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The term *copy* means "In electronic records, the action or result of reading data from a source (RMA's repository), leaving the source data unchanged, and writing the same data elsewhere on a medium that may differ from the source (user workspace or other device) [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.5.1. RMAs shall identify and present those record folders and records eligible for interim transfer and/or accession. See references (p) and (z).	The RMA shall identify and present those record folders and records eligible for interim transfer and/or accession.	Statutory requirement: See references (p)
C2.2.6.5.2. RMAs shall, for records approved for interim transfer or accession and that are stored in the RMA's supported repository (ies), copy the pertinent records and associated metadata of the records and their folders to a user-specified filename, path, or device. For permanent records to be accessioned to the National Archives, the accessioning file(s) shall be made to conform to one of the formats and media specified in 36 CFR 1228.270.2 See references (z), (ai), and (ap). See requirement C2.2.10.5.	The RMA shall, for records approved for interim transfer or accession and that are stored in the RMA's supported repository, copy the pertinent records and associated metadata of the records and their folders to a user-specified filename, path, or device.	Regulatory requirement: (ai), and 36 CFR 1228.270.2 (ap).
C2.2.6.5.3. RMAs shall, for records approved for accession and that are not stored in an RMA supported repository, copy the associated metadata for the records and their folders to a user-specified filename, path, or device. For permanent records to be accessioned to the National Archives, the metadata shall be made to conform to one of the formats and media specified in reference (ap).	The RMA shall, for records approved for accession and that are not stored in an RMA supported repository, copy the associated metadata for the records and their folders to a user-specified filename, path, or device.	Regulatory requirement: Reference (ap)
C2.2.6.5.4. RMAs shall, for records approved for interim transfer or accession, provide the capability for only authorized individuals to delete the records and/or related metadata after successful transfer has been confirmed. RMAs shall provide the capability to allow the organization to retain the metadata for records that were transferred or accessioned.	The RMA shall, for records approved for interim transfer or accession, provide the capability to delete the records and related metadata after successful transfer has been confirmed. The RMA shall provide the capability to allow the organization to retain the metadata for records that were transferred or accessioned.	Access control
C2.2.6.5.5. RMAs shall provide documentation of transfer activities. This documentation shall be stored as records.	The RMA shall provide documentation of transfer activities.	

3.6.6 Destroying Records

Destruction is, "In records management, the primary type of disposal action.   Methods of destroying records include selling or salvaging the record medium and burning, pulping, shredding, macerating, or discarding it with other waste materials [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.6.1. RMAs shall identify and present the record folders and records, including record metadata, that are eligible for destruction, as a result of reaching that phase in their life cycle. Records assigned more than one disposition must be retained and linked to the Record Folder (Category) with the longest retention period. Links to Record Folders (Categories) with shorter retention periods should be removed as they become due. See references (h), (z), and (ai).	The RMA shall identify and present the record folders and records, including record metadata that are eligible for destruction.	Regulatory requirement: references (h) and (ai).
C2.2.6.6.2. RMAs shall, for records approved for destruction, present a second confirmation requiring authorized individuals to confirm the delete command, before the destruction operation is executed. See references (z) and (al).	The RMA shall, for records approved for destruction, present a second confirmation requiring authorized individuals to confirm the delete command, before the destruction operation is executed.	Access Control, Statutory requirement: reference (al). User Interface
C2.2.6.6.3. RMAs shall delete electronic records approved for destruction in a manner such that the records cannot be physically reconstructed. See 36 CFR 1234.34 (reference (aq)).	The RMA shall delete electronic records approved for destruction in a manner such that the records cannot be physically reconstructed.	Regulatory requirement: 36 CFR 1234.34 (reference (aq)).
C2.2.6.6.4. RMAs shall provide an option allowing the organization to select whether to retain or delete the metadata of destroyed records.	The RMA shall provide an option allowing the organization to select whether to retain or delete the metadata of destroyed records.	
C2.2.6.6.5. RMAs shall restrict the records destruction commands to authorized individuals. See references (y) and (al).		Access Control. Statutory and Regulatory requirement: References (y) and (al).
C2.2.6.6.6. RMAs shall provide documentation of destruction activities. This documentation shall be stored as records.	RMAs shall provide documentation of destruction activities.	

3.6.7 Cycling Vital Records

The term *cycle*, in the context of vital records, means "The periodic replacement of obsolete copies of vital records with copies of current vital records. This may occur daily, weekly, quarterly, annually, or at other designated intervals as specified by regulation or by the records manager [2]."

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.7.1. RMAs shall provide the capability for authorized individuals to enter the Vital Records Review and Update Cycle Period when creating or updating the file plan.	RMAs shall provide the capability to enter the Vital Records Review and Update Cycle Period.	Access Control
C2.2.6.7.2. RMAs shall provide the capability to enter the date when the records associated with a vital records folder have been reviewed and updated.	RMAs shall provide the capability to enter the date when the records associated with a vital records folder have been reviewed and updated.	
C2.2.6.7.3. RMAs shall provide a means for identifying and aggregating vital records due for cycling.	RMAs shall provide a means for identifying and aggregating vital records due for cycling.	
C2.2.6.7.4. RMAs shall provide a means for identifying and aggregating vital records by previous cycle dates.	RMAs shall provide a means for identifying and aggregating vital records by previous cycle dates.	

3.6.8 Searching for and Retrieving Records

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.6.8.1. RMAs shall allow users to browse the records stored in the file plan based on their user access permissions.	RMAs shall allow users to view the file plan.	Access Control User Interface
C2.2.6.8.2. RMAs shall allow searches using any combination of the record and/or folder metadata elements. See reference (z).	RMAs shall support searches using any combination of the record and/or folder metadata elements.	
C2.2.6.8.3. RMAs shall allow the user to specify partial matches and shall allow designation of "wild card" fields or characters.	RMAs shall allow the user to specify partial matches and shall allow designation of "wild card" fields or characters.	
C2.2.6.8.4. RMAs shall allow searches using Boolean and relational operators: "and," "and not," "or," "greater than" (>), "less than" (<), "equal to" (=), and "not equal to" (< >), and provide a mechanism to override the default (standard) order of precedence.	RMAs shall allow searches using Boolean and relational operators: "and," "and not," "or," "greater than" (>), "less than" (<), "equal to" (=), and "not equal to" (< >), and provide a mechanism to override the default	
C2.2.6.8.5. RMAs shall present the user a list of records and/or folders meeting	RMAs shall retrieve a list of records and/or folders meeting the retrieval	User interface

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
the retrieval criteria, or notify the user if there are no records and/or folders meeting the retrieval criteria. RMAs shall allow the user to select and order the columns presented in the search results list for viewing, transmitting, printing, etc. See reference (z).	criteria, or notify the user if there are no records and/or folders meeting the retrieval criteria.	
C2.2.6.8.6. RMAs shall allow users the ability to search for null or undefined values.	RMAs shall allow users the ability to search for null or undefined values.	
C2.2.6.8.7. RMAs shall provide to the user's workspace (filename, location, or path name specified by the user) copies of electronic records, selected from the list of records meeting the retrieval criteria, in the format in which they were provided to the RMA for filing. See reference (z).	RMAs shall provide to the user's workspace (filename, location, or path name specified by the user) copies of electronic records, selected from the list of records meeting the retrieval criteria, in the format in which they were provided to the RMA for filing.	
C2.2.6.8.8. RMAs shall provide the capability for filed e-mail records to be retrieved back into a compatible e-mail application for viewing, forwarding, replying, and any other action within the capability of the e-mail application.		Interoperability Requirement
C2.2.6.8.9. When the user selects a record for retrieval, RMAs shall present a list of available versions, defaulting to the latest version of the record for retrieval, but allow the user to select and retrieve any version.	When the user selects a record for retrieval, RMAs shall present a list of available versions, defaulting to the latest version of the record for retrieval, but allow the user to select and retrieve any version.	
C2.2.6.8.10. RMAs shall allow users to select any number of records, and their metadata, for retrieval from the search results list.	RMAs shall allow users to select any number of records, and their metadata, for retrieval from the search results list.	
C2.2.6.8.11. RMAs shall allow the user to abort a search.	RMAs shall allow the user to abort a search.	

3.7 Access Controls

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.7.1. The RMA, in conjunction with its operating environment, shall use identification and authentication measures that allow only authorized person's access to the RMA. At a minimum, the RMA will implement identification and authentication measures that require the following (see E.O. 12958, DoD Directive 5200.28, and E.O. 12968 (references (c), (ar), and (as))): C2.2.7.1.1. Userid. C2.2.7.1.2. Password. (RMAs shall provide		E.O. 12958, DoD Directive 5200.28, and E.O. 12968 (references (c), (ar), and (as)) Access Control

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the capability for authorized users to define the minimum length of the Password field.) C2.2.7.1.3. Alternative methods, such as Biometrics, Common Access Cards (CAC), or Public Key Infrastructure (PKI), in lieu of or in conjunction with the above, are acceptable. If used in lieu of, the alternative must provide at least as much security.		
C2.2.7.2. RMAs shall provide the capability for only individuals with Application Administrator access to authorize access capabilities to any combination of the items identified in Table C2.T5. to individuals and to groups.		Access Control
C2.2.7.3. RMAs shall provide the capability to define different groups of users with different access privileges. RMAs shall control access to file plan components, record folders, and records based on group membership as well as user account information. At a minimum, access shall be restricted to appropriate portions of the file plan for purposes of filing and/or searching/retrieving. See references (z) and (am).		Regulatory requirement: (am). Access Control
C2.2.7.4. If the RMA provides a web user interface, it shall provide 128-bit encryption and be PKI-enabled, as well as provide all the mandatory access controls.		Security requirement Access Control
C2.2.7.5. RMAs shall support simultaneous multiple-user access to all components of the RMA, the metadata, and the records.		Multi-User requirement

3.8 System Audits

An *audit trail* is "An electronic means of tracking interactions with records within an electronic system so that any access to the record within the electronic system can be documented as it occurs or afterward. May be used to identify unauthorized actions in relation to the records, e.g., modification, deletion, or addition [2]."

An audit trail for an RMA can be implemented in conjunction with the audit capabilities of an operating system and/or database management system, but records management system audit can still be considered a functional requirement of the RMA. The inputs are actions, date, time and user identifiers for actions performed on RMA objects and the outputs are a record of this information in a RMA log.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time,	The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions,	Executive Order and DoD directive:

unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.1. User Accounts. C2.2.8.1.2. User Groups. C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata elements. C2.2.8.1.5. File plan components. These actions include retrieving, creating, deleting, searching, and editing actions. See references (c) and (ar). Logging of searching and retrieving actions are not required for User Accounts and User Groups.	date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.1. User Accounts. C2.2.8.1.2. User Groups. C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata elements. C2.2.8.1.5. File plan components. These actions include retrieving, creating, deleting, searching, and editing actions.	references (c) and (ar).
C2.2.8.2. The RMA shall provide a capability whereby only authorized individuals can determine which of the objects and specified actions listed in subparagraph C2.2.8.1. are audited. See reference (c).	The RMA shall provide a capability whereby individuals can determine which of the objects and specified actions listed in subparagraph C2.2.8.1. are audited.	Executive Order: reference (c). Access Control
C2.2.8.3. The RMA, in conjunction with its operating environment, shall provide audit analysis functionality whereby an authorized individual can set up specialized reports to: C2.2.8.3.1. Determine what level of access a user has and to track a user's actions. These are the specified actions listed in subparagraph C2.2.8.1. See references(c) and (z). C2.2.8.3.2. Facilitate reconstruction, review, and examination of the events surrounding or leading to mishandling of records, possible compromise of sensitive information, or denial of service.	The RMA, in conjunction with its operating environment, shall provide audit analysis functionality whereby an authorized individual can set up specialized reports to determine what level of access a user has and to track a user's actions. These are the specified actions listed in subparagraph C2.2.8.1.2. The RMA, in conjunction with its operating environment, shall provide audit analysis functionality whereby an authorized individual can set up specialized reports 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.	Executive Order: reference (c)
C2.2.8.4. RMAs shall provide the capability to file the audit data as a record. See reference (z).	RMAs shall provide the capability to file the audit data as a record.	
C2.2.8.5. The RMA, in conjunction with its operating environment, shall allow only authorized individuals to export and/or backup and remove audit files from the system.		Access Control
C2.2.8.6. The RMA, in conjunction with its operating environment, shall not allow audit logs to be edited.		Access control

3.9 System Management Requirements

"The following functions are typically provided by the operating system or by a database management system.   These functions are also considered requirements to ensure the integrity and protection of organizational records.   They shall be implemented as part of the overall records management system even though they may be performed externally to an RMA [2]."

It was concluded that none of the DoD 5015.2 System Management Requirements are functional requirements for records management, since they can be provided by a data management system or operating system.

DoD 5015.2 Mandatory RMA Requirement	Functional Requirement	Nonfunctional Requirement
C2.2.9.1. Backup of Stored Records. The RMA system shall provide the capability to automatically create backup or redundant copies of the records and their metadata. See references (z), (ag) and (am).		Regulatory Requirements (ag) and (am).
C2.2.9.2. Storage of Backup Copies. The method used to back up RMA database files shall provide copies of the records and their metadata that can be stored off-line and at separate location(s) to safeguard against loss due to system failure, operator error, natural disaster, or willful destruction. See 36 CFR 1234.30 (reference (at)).		Regulatory requirement: See 36 CFR 1234.30 (reference (at)). Reliability requirement
C2.2.9.3. Recovery/Rollback Capability. Following any system failure, the backup and recovery procedures provided by the system shall: C2.2.9.3.1. Ensure data integrity by providing the capability to compile updates (records, metadata, and any other information required to access the records) to RMAs. C2.2.9.3.2. Ensure these updates are reflected in RMA files, and ensuring that any partial updates to RMA files are separately identified. Also, any user whose updates are incompletely recovered, shall, upon next use of the application, be notified that a recovery has been attempted. RMAs shall also provide the option to continue processing using all in-progress data not reflected in RMA files. See references (z) and (am).		Regulatory Requirement: reference (am). Reliability requirement Database integrity requirement
C2.2.9.4. Rebuild Capability. The system shall provide the capability to rebuild from any backup copy, using the backup copy and all subsequent system audit trails. See reference (z).		Reliability requirement
C2.2.9.5. Storage Availability and Monitoring. The system shall provide for		Reliability requirement

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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 shall notify individuals of the need for corrective action in the event of critically low storage space. See reference (z).		
C2.2.9.6. Safeguarding. The RMA, in conjunction with its operating environment, shall have the capability to activate a keyboard lockout feature and a screen-blanking feature. See reference (c).		Executive Order: reference (c). Security requirement

In summary, the DoD 5015.2 mandatory requirements for a Records Management Application (RMA) were analyzed to distinguish requirements that are functional from those that are "metadata" or some other type of requirement. In DoD 5015.2, sixty-five paragraphs were found to contain a total of 110 functional requirements. Very often the statement of DoD 5015.2 functional requirements include other requirements, e.g., statutory or regulatory, user interface, access control, or metadata requirements. These were clearly identified. A few additional metadata requirements were identified that are not explicitly stated as metadata requirements. They are primarily relationships among records, records and folders, and records and record categories.

4. Mapping DoD 5015.2 Requirements to RMSC Use Cases

The National Archives and Records Administration (NARA) endorsed version 2 of the Department of Defense Electronic Records Management Software Application Design Criteria Standard (DoD 5015.2-STD, June 2002) for use by all Federal agencies [12]. This endorsement, which expired January 31, 2005, meant that NARA recommends "that agencies use the DoD standard and the DoD-certified products as a baseline when selecting an RMA to manage the agency's electronic records. NARA has evaluated the DoD standard for recordkeeping functionality and has determined that DoD-certified products comply with the relevant provisions of the Federal Records Act and NARA regulations with respect to the creation, maintenance and use, and disposition of Federal records."

NARA has also pointed out that DoD 5015.2 does not represent the only approach to managing electronic records.

> "In our previous endorsement of 5015.2, NARA stated that the functional requirements specified in 5015.2 represent "one approach to managing electronic records." Based on NARA's review of the testing procedures, NARA now can say that software that has been certified by JITC represents 'one approach to managing electronic records', …" [13].

Given NARA's evaluation of the recordkeeping functionality of the DoD standard, it is reasonable to consider how the functional requirements of the DoD standard compare with the functional requirements for Records Management Service Components. In making this comparison, one must keep in mind that the DoD specification and RMSC specification while both addressing functional requirements for records management do not have exactly the same scope. For instance, the RMSC Technical Report states in a footnote to Appendix A that the following elements were outside the scope of their work. "format (e.g., pdf, tif, doc, etc.), storage methods and media, systems management, maintenance, backup, recovery, etc., and privacy considerations, regulation, laws, etc."

In making this comparison, one must also keep in mind that the DoD functional requirements for an RMA are stated in natural language, while the RMSC functional requirements are stated formally in terms of inputs, outputs and behavioral relationships between the two. It is not always easy to state unambiguously the meaning of the DoD functional requirement without reference to the test cases and test procedures used by JTIC to assess and evaluate compliance with the DoD standard.

The DoD 5015.2 standard mixes the statement of access privileges with the statement of functional requirements. The RMSC Technical Report does not. Instead, for each use case, it specifies the Actor(s) as Users, where User is defined as "an individual authorized to use the system." There are at least two classes of users, records managers and record creators/users. It might we better that the RMSC Technical report specify that the user is the individual authorized to access the functions specified in the use case.

The following Table shows in the first column the DoD 5015.2 paragraphs specifying functional requirements. In the second column are shown the corresponding RMSC Service Component (SC), Use Case (UC), and Functional Requirement (FR). The third column shows the corresponding DoD 5015.2 Reference. When there is a correspondence in the functional requirements of DoD 5015.2 and the RMSC TR functional requirements, the non-functional references for the DoD 5015.2 functional requirement also apply to the RMSC functional requirement. The requirements of DoD 5015.2 are considered to correspond to the functional requirement of the use cases of the RMSC Component, if the requirements refer to similar data elements (attributes), or the functional requirements are accomplishing the same result.

4.1 Implementing File Plans

DoD 5015.2 has three paragraphs specifying functional requirements associated with the activity of implementing file plans. There are RMSC functional requirements corresponding in whole or in part to each of these three RMA paragraphs.

Paragraph C2.2.2.1 of DoD 5015.2 specifies the functional capability to create, edit and delete record categories components of a file plan.

A *file plan* is "A document containing the identifying number, title, description, and disposition authority of files held or used in an office [2]."

A *record category* is "A description of a particular set of records within a file plan.   Each category has retention and disposition data associated with it, applied to all record folders and records within the category [2]."

The RMSC TR utilizes the concept of a categorization schema. A categorization schema is "any scheme developed or used by an agency to organize records. This may include a diagrammatic representation or outline of the descriptive classification assigned to records or records disposition codes."[1]

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T.1.1 Record Category Name C2.T.1.2 Record Category Identifier C@.T1.3Record Category Description C2.T1.4. Disposition Instructions C2.T1.5. Disposition Authority C2.T.1.6 Permanent Record Indicator C2.T.1.7 Vital Record Indicator C2.T.1.8 Vital Record Review and Update Cycle Period C2.T.1.9 User Defined Fields	SC: Disposition Component UC: Disposition Establish Use Case FR: 1. The *Disposition Component* shall provide the capability to populate associate a Disposition_Authority_Current attribute producing a populated Disposition_Authority_Current attribute. FR: 3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Current attribute. UC: Disposition First Update Use Case FR: 1. The *Disposition Component* shall provide the capability to populate the Disposition_Authority_Previous (n) attribute using data from the Disposition_Authority_Current attribute producing a populated Disposition_Authority_Previous (n) attribute when the Disposition_Authority_Current attribute is changed. FR: 3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Previous (n) attribute using data from the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Previous (n) attribute when the Disposition_Instruction_Current attribute is changed. UC Disposition Subsequent Update Use Case FR: 1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Previous (n+1)	Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Regulatory requirement: 36 CFR 1228.24 (reference (aa)

| | attribute using data from the Disposition_Authority_Previous (n) attribute producing a populated Disposition_Authority_Previous (n+1) attribute when a Disposition_Authority_Previous (n) attribute is changed. FR: 3. The *Disposition Component* shall provide the capability to populate a Disposition_Instruction_Previous (n+1) attribute using data from the Disposition_Instruction_Previous (n) attribute producing a populated Disposition_Instruction_Previous (n+1) attribute when a Disposition_Instruction_Previous (n) attribute is changed. | |

In the opinion of the authors of this report, the Case File Component of the RMSC specification is accomplishing a similar function to the folder entity (relation, class) in DoD 5015.2. This is debatable. The rationale is that both have unique identifiers, both have descriptions (or names), and both have parts.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.1.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record folder components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level file plan component identifier(s). See references (t) and (y). C2.T2. Record Folder Components C2.T2.1.1. Folder Name	SC: Case File Component UC: Case File Record Capture Use Case FR: 1. The *Case File Component* shall provide the capability to populate the Case_File_Record_Unique_Identifier attribute when a Declared Record Case File is set aside producing a populated Case_File_Record_Unique_Identifier attribute. FR: 3. The *Case File Component* shall provide the capability to populate a Case_File_Record_Description attribute when a Case_File_Record_Unique_Identifier attribute is populated producing a populated Case_File_Record_Description attribute. UC: Case File Part Associate Use Case FR: 1. The *Case File Component* shall provide the capability to populate a Case_File_Part_Association_Unique_Identif ier attribute creating a unique relationship between a Case File Part and the Case File producing a populated Case_File_Part_Association_Unique_Identif ier attribute.	Statutory and regulatory requirement: references (t) and (y).
C2.2.1.6. RMAs shall provide the capability to sort, view, save, and print user-selected portions of the file plan, including record folders.	SC: Case File Component UC: Case File Record Capture Use Case FR: 4. The *Case File Component* shall provide the capability to make available for	

	output all data populating the attributes created by the *Case File Record Capture Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Case File Part Associate Use Case FR: 3. The *Case File Component* shall provide the capability to make available for output all data populating the attributes created the *Case File Part Associate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	
See reference (z).		

4.2 Scheduling Records

DoD 5015.2 has seven paragraphs specifying functional requirements for scheduling records. There are six RMSC functional requirements corresponding to five of the paragraphs specifying RMA functional requirements.

In DoD 5015.2 disposition instructions are a component (attribute) of Record Categories and Record Folders. In the RMSC Technical Report, Disposition Instructions are an attribute of records. The RMSC TR defines *Disposition Instructions* as "Mandatory and specific instructions derived from a Disposition Authority that guide the retention and disposal of a record, including retention periods, dates for action, etc." In establishing the correspondences of paragraphs C2.2.2.2, C2.2.2.3, C2.2.2.4 and C2.2.2.5 to RMSC TR functional requirements, the authors are assuming that disposition instructions also include multiple phases, cutoff criteria, interim transfer or accession location, and Time, Event, and Time-event dispositions and disposition instructions for the complete life-cycle of records.

Paragraphs C2.2.2.5 and C2.2.2.6 might seem to imply that in a RMA disposition is managed at the record as well as the folder level. But this is not the case. When the disposition of "records that are not in folders" is managed, the records are in (associated with) a records category and the disposition instructions are an attribute of the record category. Of course, the records inherit the disposition of the records category with which they are associated.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.2.1. RMAs shall provide the capability for only authorized individuals to view, create, edit, and delete disposition schedule components of record categories.	*Comment: The RMSC TR does not have disposition schedule components/attributes for record categories*	
C2.2.2.2. RMAs shall provide the capability for defining multiple phases	SC: Disposition Component UC: Disposition Establish Use Case	

(e.g., transfer to inactive on-site storage, transfer to off-site storage) within a disposition schedule. *Comment: DoD 5015.2 does not include disposition schedules, only disposition schedule components of file plans. So the DoD requirements is poorly stated. The last phrase of this requirement should probably be "disposition schedule component of a file plan."*	FR: 3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Current attribute.	
C2.2.2.3. RMAs shall provide the capability for only authorized individuals to define the cutoff criteria and, for each life-cycle phase, the following disposition components for a record category: C2.2.2.3.1. Retention Period (e.g., fiscal year). C2.2.2.3.2. Disposition Action (interim transfer, accession, permanent, or destroy). C2.2.2.3.3. Interim Transfer or Accession Location (if applicable).	SC: Disposition Component UC: Disposition Establish Use Case FR: 3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Current attribute. FR: 4. The *Disposition Component* shall provide the capability to populate a Disposition_Instruction_Current_Date when a Disposition_Instruction_Current attribute is populated using the System Date producing a populated Disposition_Instruction_Current_Date attribute.	
C2.2.2.4. RMAs shall, as a minimum, be capable of scheduling and rescheduling each of the following three types of cutoff and disposition instructions. See reference (d). C2.2.2.4.1. Time Dispositions, where records are eligible for disposition immediately after the conclusion of a fixed period of time following user-defined cutoff (e.g., days, months, years). C2.2.2.4.2. Event Dispositions, where records are eligible for disposition immediately after a specified event takes place (i.e., event acts as cutoff and there is no retention period). C2.2.2.4.3. Time-Event Dispositions, where the timed retention periods are triggered after a specified event takes place (i.e., event makes the record folder eligible for closing and/or cutoff and there is a retention period).	SC: Disposition Component UC: Disposition Establish Use Case FR: 3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Current attribute.	NARA Guidelines: reference (d).
C2.2.2.5. RMAs shall provide the capability to automatically calculate the complete life cycle, including intermediate phases, of record folders	SC: Disposition Component UC: Disposition Establish Use Case FR: 3. The *Disposition Component* shall provide the capability to	NARA guideline: reference (d).

and records not in folders. See reference (d).	populate the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Current attribute.	
C2.2.2.6. RMAs shall provide the capability for rescheduling dispositions of record folders and/or records (those not in folders) during any phase of their life cycle if an authorized individual changes the disposition instructions. This requirement includes the capability to change the cutoff criteria of disposition instructions and to change the retention period associated with a disposition.	SC: Disposition Component UC: Disposition First Update Use Case FR: 3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Previous (n) attribute using data from the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Previous (n) attribute when the Disposition_Instruction_Current attribute is changed FR: 4. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Previous_Date (n) attribute using data from the Disposition_Instruction_Current_Date attribute producing a populated Disposition_Instruction_Previous_Date (n) when the Disposition_Instruction_Current_Date is changed. UC: Disposition Subsequent Update Use Case FR: 3. The *Disposition Component* shall provide the capability to populate a Disposition_Instruction_Previous (n+1) attribute using data from the Disposition_Instruction_Previous (n) attribute producing a populated Disposition_Instruction_Previous (n+1) attribute when a Disposition_Instruction_Previous (n) attribute is changed. FR: 4. The *Disposition Component* shall provide the capability to populate a Disposition_Instruction_Previous_Date (n+1) attribute using data from the Disposition_Instruction_Previous_Date (n) attribute producing a populated Disposition_Instruction_Previous_Date (n+1) when a Disposition_Instruction_Previous_Date (n) is changed.	

C2.2.2.7. The RMA shall provide recalculation of the record life cycle based on changes to any life-cycle date and set the filing status (i.e., open, closed) of the folder according to the business rules associated with date change(s).		

4.3 Declaring and Filing Records

Seventeen paragraphs of DoD 5015.2 state functional requirements for declaring and filing records. The RMSC Technical Report specifies functional requirements corresponding to thirteen of the DoD 5015.2 paragraphs. The RMSC Technical report does not address implementation specific requirements such as user-definable metadata fields, mandatory and optional metadata fields, user interface and autofiling. Hence, there are no RMSC functional requirements corresponding to DoD 5015.2 paragraphs C2.2.3.4, C2.2.3.11 and C2.2.3.13.

Paragraph C2.2.3.1 of DoD 5015.2 states:

> "RMAs shall provide the capability to associate the attributes of one or more record folder(s) to a record or for categories to be managed at the record level provide the capability to associate a record category to a record."

This requirement is poorly stated. It may give the impression that Disposition Instructions are an attribute of Records. A better statement might be:

> "RMAs shall provide the capability to associate the attributes of one or more record folder(s) to a record or for records to be managed at the record category level provide the capability to associate a record category to a record."

As discussed in section 3.3 of this report, record folders are associated with a record by a relation

> FolderRecordAssociation (unique folder identifier, unique record identifier),

and record categories are associated with records by a relation

> RecordCategory-RecordAssociation(record category identifier, unique record identifier).

Then the Disposition Instruction attributes for a Folder and for a Record Category are associated with the associated Records.

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DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.3.1. RMAs shall provide the capability to associate the attributes of one or more record folder(s) to a record or for categories to be managed at the record level provide the capability to associate a record category to a record. See reference (y).	SC: Archival Bond Component UC: Archival Bond Establish Use Case FR: 1. The *Archival Bond Component* shall provide the capability to populate a Record_Category_Current attribute producing a populated Record_Category_Current attribute. If there is more than one record category to be assigned to a record, then Populate the Record_Category_Current (b…∞) Where "a" was the first instance in the [Footnote: Main Flow and (b…∞) in the Sub Flow indicates there is no limit to the number of case files a "part" can be associated.]	Statutory requirement: reference (y).
C2.2.3.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record metadata components, and their associated selection lists.	SC: Records Capture Component UC: Records Capture Use Case FR: 1. The *Record Capture Component* shall provide the capability to populate the Record_Creator_Unique_Identifier attribute when a Declared Record is set aside producing a populated Record_Creator_Unique_Identifier attribute. FR: 3. The *Record Capture Component* shall provide the capability to populate the Record_Capture_Date attribute using the System Date when a Declared Record is set aside producing a populated Record_Capture_Date attribute.	
C2.2.3.4. RMAs shall provide the capability for authorized individuals to select where data collection for optional metadata fields is mandatory for a given organization.	*Comment: The RMSC Technical report does not address mandatory and optional metadata fields.*	
C2.2.3.5. RMAs shall assign a unique computer-generated record identifier for each record they manage regardless of where that record is stored. See reference (z).	SC: Records Capture Component UC: Records Capture Use Case FR: 2. The *Record Capture Component* shall provide the capability to populate the Record_Unique_Identifier attribute when a Declared Record is set aside producing a populated Record_Unique_Identifier attribute.	Reference (z).
C2.2.3.6. RMAs shall provide the capability to create, view, save, and print the complete record metadata, or user-specified portions thereof, in user-selectable order. See reference (z).	SC: Records Capture Component UC: Records Capture Use Case FR: 4. The *Record Capture Component* shall provide the capability to make available for output all data populating the attributes created by the *Record Capture Use Case*. SC: Archival Bond Component UC: Archival Bond Establish Use Case	Reference (z).

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	FR: 3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created by the *Archival Bond Establish Use Case*.	
C2.2.3.10. RMAs shall (for all records) capture, populate, and/or provide the user with the capability to populate the metadata elements before filing the record. RMAs shall ensure that fields designated mandatory for data collections are non-null before filing the record. See references (y) and (ah).	SC: Record Capture Component UC: Records Capture Use Case FR: 1. The *Record Capture Component* shall provide the capability to populate the Record_Creator_Unique_Identifier attribute when a Declared Record is set aside producing a populated Record_Creator_Unique_Identifier attribute.	Regulatory Requirements: references (y) and (ah)
C2.2.3.11. For records that are being filed via the user interface, RMAs shall provide the user with the capability to edit the record metadata prior to filing the record, except for data specifically identified in this Standard as not editable. For auto filing, RMAs shall provide the user the option of editing the record metadata prior to filing.	*Comment: The RMSC TR does not discuss the user interface and auto filing.*	
C2.2.3.13. RMAs shall restrict the capability to only authorized individuals to define and add user-defined metadata fields (e.g., project number, budget line) for site-specific requirements. See reference (ah).	*Comment: The RMSC Technical Report does not discuss user-defined metadata fields.*	Regulatory Requirement: reference (ah)
C2.2.3.14. RMAs shall provide the capability to view, save, or print the metadata associated with a specified record or set of records, or user-specified portions thereof, in user-selectable order.	SC: Disposition Component UC: Disposition Establish Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition First Update Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition First Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition Subsequent Update Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes	

	created in the *Disposition Subsequent Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	
C2.2.3.16. RMAs shall provide the capability for only authorized individuals to change a record folder or record category associated with a record.	SC: Archival Bond Component UC: Archival Bond First Update Use Case FR: 1. The *Archival Bond Component* shall provide the capability upon the change of data in the Record_Category_Current attribute to populate a Record_Category_Previous (n) attribute using the data being changed in the Record_Category_Current attribute producing a populated Record_Category_Previous (n) attribute. [Footnote: *(n)* indicates the first instance of change in archival bond.] UC: Archival Bond Subsequent Update Use Case FR: 1. The *Archival Bond Component* shall provide the capability upon the change of data in the Record_Category_Previous (n) attribute to populate a Record_Category_Previous (n+1) attribute using the data being changed in the Record_Category_Previous (n) attribute producing a populated Record_Category_Previous (n+1) attribute.	
C2.2.3.17. RMAs shall provide a capability for referencing or linking and associating supporting and related records and related information, such as notes, marginalia, attachments, and electronic mail-return receipts, etc., to a specified record. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z).	SC: Archival Bond Component UC: First Update Use Case FR: 3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created the *Archival Bond First Update Use Case*. UC: Subsequent Update Use Case FR: 3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created the *Archival Bond Subsequent Update Use Case.* SC: Reference Component UC: Associate Use Case FR: 1. The *Reference Component* shall provide the capability to create an association between one record and one other record by populating a Record_Association_Identifier (n) attribute producing a populated Record_Association_Identifier (n) attribute. FR: 4. The *Reference Component* shall provide the capability to create an association between one record and one	Reference (z).

	other record by populating a Record_Association_Identifier (n+1) attribute producing a populated Record_Association_Identifier (n+1) attribute. FR: 7. The Reference Component shall provide the capability to make available for output all data populating the attributes created by the Reference Associate Use Case. UC: Disassociate Use Case FR: 1. The *Reference Component* shall provide the capability to change a populated Record_Association_Identifier (n) attribute to "null" value upon the termination of the association producing a "null" value Record_Association_Identifier (n) attribute. FR: 4. The *Reference Component* shall provide the capability to change a populated Record_Association_Identifier (n+1) attribute to "null" value upon the termination of an association producing a "null" value Record_Association_Identifier (n+1) attribute. FR: 7. The *Reference Component* shall provide the capability to make available for output all data populating the attributes created by the *Reference Disassociate Use Case*.	
C2.2.3.18. RMAs shall provide the capability to link original superseded records to their successor records.	SC: Reference Component UC: Associate Use Case FR: 2. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n) attribute for each instance of Record_Association_Identifier (n) when the Record_Association_Identifier (n) attribute is populated producing a populated Record_Association_Description (n) attribute. FR: 5. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n+1) attribute for each instance of Record_Association_Identifier (n+1) when the Record_Association_Identifier (n+1) attribute is populated producing a populated Record_Association_Description (n+1) attribute. UC: Disassociate Use Case FR: 2. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n) attribute to "null" value upon the change of	

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	its associated Record_Association_Identifier (n) attribute to "null" value producing a "null" value Record_Association_Description (n) attribute FR: 5. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n+1) attribute to "null" value upon the change of its associated Record_Association_Identifier (n+1) attribute to "null" value producing a "null" value Record_Association_Description (n+1) attribute.
C2.2.3.19. RMAs shall provide the capability to support multiple renditions of a record. These shall be associated and linked.	SC: Reference Component UC: Associate Use Case FR: 2. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n) attribute for each instance of Record_Association_Identifier (n) when the Record_Association_Identifier (n) attribute is populated producing a populated Record_Association_Description (n) attribute. FR: 5. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n+1) attribute for each instance of Record_Association_Identifier (n+1) when the Record_Association_Identifier (n+1) attribute is populated producing a populated Record_Association_Description (n+1) attribute. UC: Disassociate Use Case FR: 2. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n) attribute to "null" value upon the change of its associated Record_Association_Identifier (n) attribute to "null" value producing a "null" value Record_Association_Description (n) attribute FR: 5. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n+1) attribute to "null" value upon the change of its associated Record_Association_Identifier (n+1) attribute to "null" value producing a "null" value Record_Association_Description (n+1) attribute.
C2.2.3.20. RMAs shall provide the capability to increment versions of	SC: Reference Component UC: Associate Use Case

records when filing. RMAs shall associate and link the versions.	FR: 2. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n) attribute for each instance of Record_Association_Identifier (n) when the Record_Association_Identifier (n) attribute is populated producing a populated Record_Association_Description (n) attribute. FR: 5. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n+1) attribute for each instance of Record_Association_Identifier (n+1) when the Record_Association_Identifier (n+1) attribute is populated producing a populated Record_Association_Description (n+1) attribute. UC: Disassociate Use Case FR: 2. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n) attribute to "null" value upon the change of its associated Record_Association_Identifier (n) attribute to "null" value producing a "null" value Record_Association_Description (n) attribute FR: 5. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n+1) attribute to "null" value upon the change of its associated ecord_Association_Identifier (n+1) attribute to "null" value producing a "null" value ecord_Association_Description (n+1) attribute.	
C2.2.3.21. RMAs shall link the record metadata to the record so that it can be accessed for display, export, etc. See 36 CFR 1234.32 (reference (ai)).	SC: Records Capture Component UC: Records Capture Use Case FR: 4. The *Record Capture Component* shall provide the capability to make available for output all data populating the attributes created by the *Record Capture Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	Regulatory requirement: 36 CFR 1234.32 (reference (ai)).
C2.2.3.22. RMAs shall provide the capability for only authorized individuals to modify the metadata of stored records. However, RMAs shall not allow the editing of metadata fields that have been specifically identified in this Standard as not editable.	.	

4.4 Filing Electronic Mail Messages (E-mail)

In DoD 5015.2, there are two paragraphs addressing functional requirements filing e-mail messages. The RMSC TR has two functional requirements corresponding to the functional requirement of one of these paragraphs, the capability to associate attachments with e-mail messages.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.4.2. RMAs shall capture and automatically store the transmission and receipt data identified in Table C2.T4. if available from the e-mail system, as part of the record metadata when an e-mail message is filed as a record. See reference (ak). RMAs shall provide the capability for editing Subject or Title, Author or Originator, Addressee(s), and the Other Addressee(s) metadata fields prior to filing. All other fields shall not be editable.	*Comment: The capture of the transmission and receipt data of email and the automatic mapping of it to records metadata is not discussed in the RMSC TR, but could be implemented within the framework.*	Regulatory Requirement. Reference (ak)
C2.2.4.3. RMAs shall provide the user the option of filing email and all its attachment(s) as a single record, or filing selected email item(s) as individual record(s), or to do both. When the attachment(s) is (are) filed as individual record(s), the user shall be provided the capability to enter the metadata required in table C2.T3. See reference (ak).	SC: Reference Component UC: Reference Associate Use Case FR: 1. The *Reference Component* shall provide the capability to create an association between one record and one other record by populating a Record_Association_Identifier (n) attribute producing a populated Record_Association_Identifier (n) attribute. FR: 2. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n) attribute for each instance of Record_Association_Identifier (n) when the Record_Association_Identifier (n) attribute is populated producing a populated Record_Association_Description (n) attribute.	Regulatory Requirement. Reference (ak)

4.5 Storing Records.

There is only one paragraph of DoD 5015.2 that might be considered a functional requirement regarding the storage of records. The RMSC technical report specifies that if records are scheduled for transfer or destruction on the current date then it must be possible to transfer (move) or destroy (delete) them.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.5.4. RMAs shall allow only authorized individuals to move or delete records from the repository. See 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)).	SC: Disposition Service Component UC: Disposition Enable Use Case FR: 1. The *Disposition Component* shall provide the capability to populate a Record_Scheduled_Transfer_Available attribute when the populated Disposition_Instruction_Established_Current and Disposition_Instruction_Established_Current_Date attributes indicate a transfer action is to be executed producing a populated Record_Scheduled_Transfer_Available attribute. SC: Disposition Service Component UC: Disposition Enable Use Case FR: 1. The *Disposition Component* shall provide the capability to populate the Record_Scheduled_Destruction_Available attribute when the populated Disposition_Instruction_Current and Disposition_Instruction_Current_Date attributes indicate a destruction action is required producing a populated Record_Scheduled_Destruction_Available attribute.	Regulatory requirement: 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)).

4.6 *Retention and Vital Records Management*

4.6.1 Screening Records

There are four paragraphs in DoD 5015.2 that address functional requirements supporting the screening of records. There are RMSC functional requirements corresponding to three of these paragraphs relating to screening for disposition, but not for vital records.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing list(s) of record folders and/or records (regardless of media) based on any combination of the following: C2.2.6.1.1.1. Disposition Action Date. C2.2.6.1.1.2. Disposition Action. C2.2.6.1.1.3. Location. C2.2.6.1.1.4. Transfer or Accession Location. C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date.	SC: Disposition Component UC: Disposition Establish Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition First Update Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for	

C2.2.6.1.1.6. Record Category Identifier. C2.2.6.1.1.7. Folder Unique Identifier. C2.2.6.1.1.8. User Definable Fields.	output all data populating the attributes created by the *Disposition First Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition Subsequent Update Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created in the *Disposition Subsequent Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition Enable Transfer Use Case FR: 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Transfer Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition Enable Destruction Use Case FR: 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Destruction Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	
C2.2.6.1.2. RMAs shall provide for sorting, viewing, saving, and printing life-cycle information, eligibility dates, and events of user-selected record folders and records.	SC: Disposition Component UC: Disposition Enable Transfer Use Case FR: 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Transfer Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition Enable Destruction Use Case FR: 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Destruction Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	
C2.2.6.1.4. RMAs shall provide authorized individuals with the capability to indicate when the		

specified event has occurred for records and record folders with event-and time-event-driven dispositions.		
C2.2.6.1.5. RMAs shall provide for sorting, viewing, saving, and printing lists and partial lists of record folders and/or records that have no assigned disposition.	SC: Disposition Component UC: Disposition Establish Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	

4.6.2 Closing Record Folders

DoD 5015.2 has two paragraphs that address functional requirements for closing record folders. The RMSC Technical report does not address closing of record folders.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.2.1. RMAs shall provide a capability for authorized individuals to close record folders to further filing after the specified event occurs.		
C2.2.6.2.2. RMAs shall provide the capability only to authorized individuals to add records to a previously closed record folder or to reopen a previously closed record folder for additional public filing.		

4.6.3 Cutting Off Record Folders

DoD 5015.2 has two functional requirements for cutting off record folders. The RMSC does not discuss cut off of record folders, so there are no corresponding RMSC functional requirements. The comments of section 4.6.1 apply here as well.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.3.1. RMAs shall be capable of implementing cutoff instructions for scheduled and unscheduled record folders. RMAs shall identify record folders eligible for cutoff, and present them only to the authorized individual for cutoff approval. The cutting off of a folder shall start the first phase of its life cycle controlled by the records schedule. See reference (z).		
C2.2.6.3.2. RMAs shall provide the capability to only authorized individuals to add records or make other alterations to record folders that have been cut off.		

4.6.4 Freezing/Unfreezing Records

There are four paragraphs in DoD 5015.2 that address functional requirements for freezing/unfreezing records. There are RMSC functional requirements corresponding to each of these four DoD 5015.2 paragraphs.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.4.1. RMAs shall provide the capability for only authorized individuals to extend or suspend (freeze) the retention period of record folders or records beyond their scheduled disposition. See 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)).	SC: Disposition Component UC: Disposition Suspend Use Case FR: 1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend (n) attribute producing a populated Disposition_Authority_Suspend (n) attribute. FR: 3. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend (n+1) attribute producing a populated Disposition_Authority_Suspend (n+1) attribute.	Statutory and Regulatory requirement: 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)).
C2.2.6.4.2. RMAs shall provide a field for authorized individuals to enter the reason for freezing a record or record folder.	SC: Disposition Component UC: Disposition Suspend Use Case FR: 1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend (n) attribute producing a populated Disposition_Authority_Suspend (n) attribute. FR: 3. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend (n+1) attribute producing a populated Disposition_Authority_Suspend (n+1) attribute.	

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C2.2.6.4.3. RMAs shall identify record folders and/or records that have been frozen and provide authorized individuals with the capability to unfreeze them.	SC: Disposition Component UC: Disposition Reinstate Use Case FR: 1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend_Revocation (n) attribute producing a populated Disposition_Authority_Suspend_Revocation (n). FR: 2. The *Disposition Component* shall provide the capability to associate a populated Disposition_Authority_Suspend_Revocation (n) attribute to its corresponding Disposition_Authority_Suspend (n) attribute by producing a populated Disposition_Authority_Suspend_Revocation_ Association (n) attribute. FR: 4. The *Disposition Component* shall provide the capability to associate a populated Disposition_Authority_Suspend_Revocation (n) attribute to its corresponding Disposition_Authority_Suspend (n) attribute by producing a populated Disposition_Authority_Suspend_Revocation_ Association (n) attribute. FR: 5. The *Disposition Component* shall provide the capability to associate a populated Disposition_Authority_Suspend_Revocation (n+1) attribute to its corresponding Disposition_Authority_Suspend (n+1) attribute by producing a populated Disposition_Authority_Suspend_Revocation_ Association (n+1) attribute.	
C2.2.6.4.4. RMAs shall allow authorized individuals to search, update, and view the reason for freezing a record or record folder.	SC: Disposition Component UC: Disposition Suspend Use Case FR: 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Suspend Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: Disposition Reinstate Use Case FR: 7. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Reinstate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	

4.6.5 Transferring Records

DoD 5015.2 has five paragraphs that state functional requirements for transferring records. The RMSC Technical Report specifies similar functional requirements for two of these five DoD functional requirements.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD Reference
C2.2.6.5.1. RMAs shall identify and present those record folders and records eligible for interim transfer and/or accession. See references (p) and (z).	SC: Disposition Component UC: Disposition Enable Transfer Use Case FR: 1. The *Disposition Component* shall provide the capability to populate a Record_Scheduled_Transfer_Available attribute when the populated Disposition_Instruction_Established_Current and Disposition_Instruction_Established_Current_Date attributes indicate a transfer action is to be executed producing a populated Record_Scheduled_Transfer_Available attribute.	
C2.2.6.5.2. RMAs shall, for records approved for interim transfer or accession and that are stored in the RMA's supported repository (ies), copy the pertinent records and associated metadata of the records and their folders to a user-specified filename, path, or device. For permanent records to be accessioned to the National Archives, the accessioning file(s) shall be made to conform to one of the formats and media specified in 36 CFR 1228.270.2 See references (z), (ai), and (ap). See requirement C2.2.10.5.		Regulatory requirement: (ai), and 36 CFR 1228.270.2 (ap).
C2.2.6.5.3. RMAs shall, for records approved for accession and that are not stored in an RMA supported repository, copy the associated metadata for the records and their folders to a user-specified filename, path, or device. For permanent records to be accessioned to the National Archives, the metadata shall be made to conform to one of the formats and media specified in reference (ap).		Regulatory requirement: Reference (ap)
C2.2.6.5.4. RMAs shall, for records approved for interim transfer or accession, provide the capability for only authorized individuals to delete the records		

DoD 5015.2 Functional Requirement		
and/or related metadata after successful transfer has been confirmed. RMAs shall provide the capability to allow the organization to retain the metadata for records that were transferred or accessioned.		
C2.2.6.5.5. RMAs shall provide documentation of transfer activities. This documentation shall be stored as records.	SC: Disposition Component UC: Disposition Enable Transfer Use Case FR: 2. The *Disposition Component* shall provide the capability to populate a Disposition_Action_History attribute upon the transfer of a Scheduled Record producing a populated Disposition_Action_History attribute. FR: 3. The *Disposition Component* shall provide the capability to populate Disposition_Action_History_Date attribute using the System Date populating the Disposition_Action_History_Date attribute when a Disposition_Action_History attribute is populated. FR: 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Transfer Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	

4.6.6 Destroying Records

DoD 5015.2 specifies five functional requirements supporting the destruction of records. The RMSC Technical report specifies functional requirements corresponding to two of these five RMA functional requirements.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.6.1. RMAs shall identify and present the record folders and records, including record metadata, that are eligible for destruction, as a result of reaching that phase in their life cycle.	SC: Disposition Component UC: Disposition Enable Destruction Use Case FR: 1. The *Disposition Component* shall provide the capability to populate the Record_Scheduled_Destruction_Available attribute when the populated Disposition_Instruction_Current and Disposition_Instruction_Current_Date attributes indicate a destruction action is required producing a populated Record_Scheduled_Destruction_Available attribute.	Regulatory requirement: references (h) and (ai).
C2.2.6.6.2. RMAs shall, for records approved for destruction, present a second confirmation requiring authorized individuals to confirm		Access Control, Statutory requirement: reference (al).

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the delete command, before the destruction operation is executed. See references (z) and (al).		
C2.2.6.6.3. RMAs shall delete electronic records approved for destruction in a manner such that the records cannot be physically reconstructed. See 36 CFR 1234.34 (reference (aq)).		Regulatory requirement: 36 CFR 1234.34 (reference (aq)).
C2.2.6.6.4. RMAs shall provide an option allowing the organization to select whether to retain or delete the metadata of destroyed records.		
C2.2.6.6.6. RMAs shall provide documentation of destruction activities. This documentation shall be stored as records.	SC: Disposition Component UC: Disposition Enable Destruction Use Case FR: 2. The *Disposition Component* shall provide the capability to populate the Disposition_Action_History attribute upon the destruction of the Scheduled Record producing a populated Disposition_Action_History attribute. FR: 3. The *Disposition Component* shall provide the capability to populate Disposition_Action_History_Date attribute using the System Date when the Disposition_Action_History attribute is populated. FR: 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Destruction Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	

4.6.7 Cycling Vital Records

DoD 5015.2 specifies four functional requirements for cycling vital records. Vital records are not mentioned in the RMSC Technical report. However, since in the RMSC Technical Report, multiple record categories can be assigned to a record, vital records could be identified by assigning them to record category named "Vital Records." However, it would still be necessary to indicate the cycle period for subclasses of vital records with different cycle periods, e.g., daily weekly, quarterly or annually. Of course, one could create vital record categories corresponding to each cycle period, e.g., Vital Record-Cycle Quarterly.

The multi-categorization scheme of the RMSC Technical report may be able to address Vital Records Management. However, until just how this can be accomplished is specified in detail, the authors of this paper cannot establish a correspondence between

the DoD 5015.2 functional requirements for cycling vital records and the functional requirements of the RMSC Technical report.

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.7.1. RMAs shall provide the capability for authorized individuals to enter the Vital Records Review and Update Cycle Period when creating or updating the file plan.		
C2.2.6.7.2. RMAs shall provide the capability to enter the date when the records associated with a vital records folder have been reviewed and updated.		
C2.2.6.7.3. RMAs shall provide a means for identifying and aggregating vital records due for cycling.		
C2.2.6.7.4. RMAs shall provide a means for identifying and aggregating vital records by previous cycle dates.		

4.6.8 Searching for and Retrieving Records

DoD 5015.2 specifies functional requirements for searching for and retrieving records in ten paragraphs. The RMSC project considered search for and retrieval of records not to be records management functions, but functions to be carried out by other services available within the electronic environment. Hence, there are no RMSC functional requirements corresponding to these DoD 5015.2 requirements.

> "Two activities identified as core records management activities in the previous workshops, Search Repository and Retrieve Record, were eliminated due to the wide availability of search and retrieve services and components in the marketplace. Participants understand that records management has requirements for these services but felt it was not necessary to develop use case for them."[4]

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.6.8.1. RMAs shall allow users to browse the records stored in the file plan based on their user access permissions.		
C2.2.6.8.2. RMAs shall allow searches using any combination of the record and/or folder metadata elements. See reference (z).		

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[4] Records Management Service Components Use Case Development Workshop Report – Session 7, May 2-3, 9-10, 2005

C2.2.6.8.3. RMAs shall allow the user to specify partial matches and shall allow designation of "wild card" fields or characters.		
C2.2.6.8.4. RMAs shall allow searches using Boolean and relational operators: "and," "and not," "or," "greater than" (>), "less than" (<), "equal to" (=), and "not equal to" (< >), and provide a mechanism to override the default (standard) order of precedence.		
C2.2.6.8.5. RMAs shall present the user a list of records and/or folders meeting the retrieval criteria, or notify the user if there are no records and/or folders meeting the retrieval criteria. RMAs shall allow the user to select and order the columns presented in the search results list for viewing, transmitting, printing, etc. See reference (z).		
C2.2.6.8.6. RMAs shall allow users the ability to search for null or undefined values.		
C2.2.6.8.7. RMAs shall provide to the user's workspace (filename, location, or path name specified by the user) copies of electronic records, selected from the list of records meeting the retrieval criteria, in the format in which they were provided to the RMA for filing. See reference (z).		
C2.2.6.8.9. When the user selects a record for retrieval, RMAs shall present a list of available versions, defaulting to the latest version of the record for retrieval, but allow the user to select and retrieve any version.		
C2.2.6.8.10. RMAs shall allow users to select any number of records, and their metadata, for retrieval from the search results list.		
C2.2.6.8.11. RMAs shall allow the user to abort a search.		

In summary, of the 65 paragraphs of DoD 5015.2 that specify functional requirements for a RMA, 31 of the functional requirements correspond to six of the seven RMSC service components, 17 of the use cases and 67 of the 101 RMSC functional requirements.

4.7 Access Controls

Some of the DoD 5015.2 functional requirements for access control can be implemented in the Records Management Application. However, in a service-oriented architecture,

such as the Federal Enterprise Architecture, those access controls could be implemented by an access control service that applies not just to functions of records management services, but to other types of services. Those access control services could then be combined with the names of names of records management functions, and the access privileges to be assigned to different roles to produce access control functions for records management services.

4.8 System Audits

There are four paragraphs in DoD 5015.2 that specify functional requirements for System Audit. The RMSC TR has many functional requirements corresponding to the first of these paragraphs.

Each use case in the in the RMSC Technical Report has a functional requirement that specifies the service component of which it is a part "shall provide the capability to make available for output all data populating the attributes created by the use case." Furthermore, in a footnote it is stated that "This requirement supports printing, viewing, saving, report writing, audit, etc."

The first functional system audit requirement in DoD 5015.2 [C2.2.8.1.] corresponds to a functional requirement in each use case of the RMSC Technical report, with the exception of the use cases for Provenance. There is not a correspondence there because DoD 5015.2 has no functional requirements or attributes for Provenance.

Thirty of the seventy attributes specified in the RMSC Technical Report have dates as values. Those thirty attributes are associated with thirty of the other forty attributes. There are so many dates in the RMSC attributes that the values of these attributes almost seem to make up an audit log. These thirty attributes are listed below.

> Record_Capture_Date
> Agency_Official_Name_Current_Date
> Agency_Official_Name_(superordinate a…∞)_Current_Date
> Recordkeeper_Current_Date
> Agency_Official_Name_Previous_Date (n)
> Agency_Official_Name (superordinate a…∞)_Previous_Date (n)
> Agency_Official_Name_Previous_Date (n+1)
> Agency_Official_Name (superordinate a…∞) _Previous_Date (n+1)
> Record_Keeper_Previous_Date (n)
> Record_Keeper_Previous_Date (n+1)
> Record_Category_Current_Date
> Record_Category_Current_Date(b…∞)
> Record_Category_Previous_Date (n)
> Record_Category_Previous_Date (n+1)
> Authenticity_Original_Date
> Case_File_Record_Capture_Date

Case_File_Part_Association_Date
Disposition_Authority_Current_Date
Disposition_Instruction_Current_Date
Disposition_Authority_Previous_Date (n)
Disposition_Instruction_Previous_Date (n)
Disposition_Authority_Previous_Date (n+1)
Disposition_Instruction_Previous_Date (n+1)
Disposition_Authority_Suspend_Date (n)
Disposition_Authority_Suspend_Date (n+1)
Disposition_Authority_Suspend_Revocation_Date (n)
Disposition_Authority_Suspend_Revocation_Date (n)
Disposition_Action_History_Date
Record_Association_Date (n)
Record_Association_Date (n+1)

In contrast, The DoD only has four attributes (data elements) in its metadata that have dates as values

Date Filed
Publication Date
Date Received
Disposition Action Date

DoD 5015.2 Functional Requirement	RMSC Service Component, Use Case, Functional Requirement	DoD 5015.2 Reference
C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.1. User Accounts. C2.2.8.1.2. User Groups. C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata elements. C2.2.8.1.5. File plan components. These actions include retrieving, creating, deleting, searching, and editing actions. See references (c) and (ar). Logging of searching and retrieving actions are not required for User Accounts and User Groups.	SC: Record Capture Component UC: *Record Capture Use Case*. FR 4. The *Record Capture Component* shall provide the capability to make available for output all data populating the attributes created by the *Record Capture Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] SC: Archival Bond Component UC: *Archival Bond Establish Use Case*. FR 3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created by the *Archival Bond Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: *Archival Bond First Update Use Case*. FR 3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created the *Archival Bond First Update Use Case*. [FN: This	Executive Order and DoD directive: references (c) and (ar).

requirement supports printing, viewing, saving, report writing, audit, etc.]
UC: *Archival Bond Subsequent Update Use Case.*
FR 3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created the *Archival Bond Subsequent Update Use Case.* [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

SC: Case File Component
UC: *Case File Record Capture Use Case.*
FR 4. The *Case File Component* shall provide the capability to make available for output all data populating the attributes created by the *Case File Record Capture Use Case.* [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]
UC: *Case File Part Associate Use Case.*
FR 3. The *Case File Component* shall provide the capability to make available for output all data populating the attributes created the *Case File Part Associate Use Case.* [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

SC: Disposition Component
UC: *Disposition Establish Use Case.*
FR 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Establish Use Case.* [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]
UC: *Disposition First Update Use Case.*
FR 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition First Update Use Case.* [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]
UC: *Disposition First Update Use Case.*
FR 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created in the *Disposition Subsequent Update Use Case.* [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]
UC: *Disposition Suspend Use Case*

	FR 5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Suspend Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: *Disposition Reinstate Use Case*. FR 7. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Reinstate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: *Disposition Enable Transfer Use Case*. FR 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Transfer Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: *Disposition Enable Destruction Use Case*. FR 4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Destruction Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] SC: Reference Component UC: Reference Associate Use Case. FR 7. The Reference Component shall provide the capability to make available for output all data populating the attributes created by the Reference Associate Use Case. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] UC: *Reference Disassociate Use Case*. FR 7. The *Reference Component* shall provide the capability to make available for output all data populating the attributes created by the *Reference Disassociate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	
C2.2.8.2. The RMA shall provide a capability whereby only authorized individuals can determine which of the objects and specified actions listed in subparagraph C2.2.8.1. are audited. See		

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reference (c).		
C2.2.8.3. The RMA, in conjunction with its operating environment, shall provide audit analysis functionality whereby an authorized individual can set up specialized reports to:		
C2.2.8.3.1. Determine what level of access a user has and to track a user's actions. These are the specified actions listed in subparagraph C2.2.8.1. See references(c) and (z).		
C2.2.8.3.2. Facilitate reconstruction, review, and examination of the events surrounding or leading to mishandling of records, possible compromise of sensitive information, or denial of service.		
C2.2.8.4. RMAs shall provide the capability to file the audit data as a record. See reference (z).		

5. Mapping RMSC Use Cases to DoD 5015.2 Requirements

The RMSC Technical Report [1] identifies seven records management service components, twenty-two use cases and 101 functional requirements. We analyzed the use cases and functional requirements of each component to identify the correspondence of their functional requirements to the functional requirements for a RMA as specified in DoD 5015.2.

5.1 Records Capture Component

In The RMSC technical report [1], *Record Creator* is defined as "An individual, application, or system procedure in an electronic environment specifically designed in accordance with the business rules to carry out the legal authorities of the organization to which the individual, application, or system procedure belongs [1, p.2]. This seems to be the same as the *author or originator* defined in DoD 5015.2 "The author of a document is the person, office or designated position responsible for its creation or issuance.   The author or originator is usually indicated on the letterhead or by signature.   For RMA purposes, the author or originator may be designated as a person, official title, office symbol, or code [2]."

Records Capture Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD Reference
1. The *Record Capture Component* shall provide the capability to populate the Record_Creator_Unique_Identifier attribute when a Declared Record is set	C2.2.3.2. Mandatory record metadata C2.2.3.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record	Regulatory Requirements: 36 CFR 1234.22 (reference (ah)

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| aside producing a populated Record_Creator_Unique_Identifier attribute. | metadata components, and their associated selection lists.

C2.2.3.10. RMAs shall (for all records) capture, populate, and/or provide the user with the capability to populate the metadata elements before filing the record. RMAs shall ensure that fields designated mandatory for data collections are non-null before filing the record. See references (y) and (ah). | and (y) |
|---|---|---|
| 2. The *Record Capture Component* shall provide the capability to populate the Record_Unique_Identifier attribute when a Declared Record is set aside producing a populated Record_Unique_Identifier attribute. | C2.2.3.5. RMAs shall assign a unique computer-generated record identifier for each record they manage regardless of where that record is stored. See reference (z). | Reference (z). |
| 3. The *Record Capture Component* shall provide the capability to populate the Record_Capture_Date attribute using the System Date when a Declared Record is set aside producing a populated Record_Capture_Date attribute. | C2.2.3.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record metadata components, and their associated selection lists.

Comment: FR 1 of the Capture Record Use Case is the Trigger for Capture Record Use Case FR 3 and therefore this is not the "Date Filed" but the date the document is "set aside" as a record. The evidence of when in time it was deemed a record. This is independent of its "filing" | Reference (z) |
| 4. The *Record Capture Component* shall provide the capability to make available for output all data populating the attributes created by the *Record Capture Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.] | C2.2.3.6. RMAs shall provide the capability to create, view, save, and print the complete record metadata, or user-specified portions thereof, in user-selectable order. See reference (z).

C2.2.3.21. RMAs shall link the record metadata to the record so that it can be accessed for display, export, etc. See 36 CFR 1234.32 (reference (ai)).

C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects:
C2.2.8.1.3. Records.
C2.2.8.1.4. Associated metadata | Reference (z) Regulatory requirement: See 36 CFR 1234.32 (reference (ai)). |

5.2 Provenance Component

The Provenance Component consists of the following use cases:

> Provenance Establish Use Case
> Provenance First Update Use Case
> Provenance Subsequent Update Use Case
> Provenance Record Keeper Subsequent Update Use Case
> Provenance Record Keeper First Update Use Case

The use cases of the Provenance component establish the person or system and the agency in which the record was created or received, the record keeper responsible for the record custody, and the date upon which that record keeper assumed that responsibility. They also maintain the information as to when there were name changes of the agency's official name and record keeper.

DoD 5015 does not have requirements that address provenance. Hence, there are no requirements in DoD 5015.2 corresponding to the use cases of the RMSC Provenance Component. Provenance is an important element in the establishment of the authenticity of e-records.

The functional requirements for the use cases in the Provenance component are shown below. "The *Provenance Establish Use Case* populates attributes of a Captured Record providing evidence of the context of creation and facilitates management of the record for business purposes – its Provenance [1]."

Provenance Establish Use Case Functional Requirement(s)
1. The Provenance Component shall provide the capability to populate the Agency_Official_Name_Current attribute producing a populated Agency_Official_Name_Current attribute.
2. The Provenance Component shall provide the capability to populate the Agency_Official_Name_Current_Date attribute when the Agency_Official_Name attribute is populated using the System Date producing a populated Official_Agency_Name_Current_Date attribute.
3. The Provenance Component shall provide the capability to populate the Agency_Official_Name_superordinate a…∞)_Current[5] attribute producing a populated Agency_Official_Name_(superordinate a…∞)_Current attribute.
4. The Provenance Establish Component shall provide the capability to populate the Agency_Official_Name_(superordinate a…∞)_Current_Date attribute when the Agency_Official_Name attribute is populated using the System Date producing a populated Official_Agency_Name (superordinate a…∞)_Current_Date attribute.

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[5] The infinity symbol -∞- recognizes different agencies will have different policy and procedures for implementing the level of provenance they require to evidence for their records. Allow for the association between any organizational element (from as granular a level as an individual) to those organizational elements superior to it - example: Individual: Agency: Bureau: Department.

5. The Provenance Establish Component shall provide the capability to populate the Recordkeeper_Current attribute upon the population of the Agency_Offical_Name_Current attribute producing a populated Recordkeeper_Current attribute.
6. The Provenance Establish Component shall provide the capability to populate the Recordkeeper_Current_Date using the data contained in the Agency_Official_Name_Current_Date attribute when the Agency_Offical_Name_Current attribute is populated producing a populated Recordkeeper_Current_Date attribute.
7. The Provenance Establish Component shall provide the capability to make available for output all data populating the attributes created by the *Provenance Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

"The ***Provenance First Update Use Case*** allows the collection of information about the circumstances of the record's management throughout its active use for business purposes. Provenance maintains information about the record currently responsible for the record custody, the date upon which that record keeper assumed that responsibility, and the identity and chronology of previous record keeper(s), if applicable [1]."

Provenance First Update Use Case **Functional Requirement(s)**
1. The *Provenance Component* shall provide the capability upon the change of the Agency_Offical_Name_Current to populate the Agency_Official_Name_Previous (n)2 attribute with data being changed from the Agency_Official_Name_Current attribute producing a populated Agency_Official_Name_Previous (n) attribute.
2. The *Provenance Component* shall provide the capability to populate the Agency_Official_Name_Previous_Date (n) attribute when the Agency_Official_Name_Previous (n) attribute is populated using the date from the Agency_Official_Name_Current_Date attribute producing a populated Agency_Official_ Name_Previous_Date (n) attribute.
3. The Provenance Component shall provide the capability upon the change of the Agency_Offical_Name_Current to populate the first instance of Agency_Official_Name(superordinate a…∞)_Previous (n)3 attribute with data from the Agency_Official_Name(superordinate a…∞)_Current attribute producing a populated Agency_Official_Name(superordinate a…∞)_Previous (n) attribute.
4. The Provenance Component shall provide the capability to populate a Agency_Official_Name (superordinate a…∞)_Previous_Date (n) attribute when a Agency_Official_Name(superordinate a…∞)_Previous (n) attribute is populated using the date from a Agency_Official_Name(superordinate a…∞)_Current_Date attribute producing a populated Agency_Official_Name(superordinate a…∞)_Previous_Date (n) attribute.
5. The Provenance Component shall provide the capability to make available for output all data populating the attributes created by the Provenance First Update Use Case. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

"The ***Provenance Subsequent Update Use Case*** continues the process of updating attributes of a Captured Record upon the second instance of change in provenance after the initial provenance was established [1]."

Provenance Subsequent Update Use Case Functional Requirement(s)
1. The ***Provenance Component*** shall provide the capability upon the change of the Agency_Official_Name_Previous (n)1 to populate an Agency_Official_Name_Previous (n+1) attribute with data from the Agency_Official_Name_Previous (n) attribute producing a populated Official_Agency_Name_Previous (n+1) attribute.
2. The ***Provenance Component*** shall provide the capability to populate a Agency_Official_Name_Previous_Date (n+1) attribute when a Agency_Official_Name_Previous (n+1) attribute is populated using the date from the Agency_Official_Name_Previous_Date (n) attribute producing a populated Agency_Official_ Name_Previous_Date (n+1) attribute.
3. The ***Provenance Component*** shall provide the capability upon the change of the Agency_Official_Name(superordinate a… ∞)_Previous (n)3 to populate a Agency_Official_Name(superordinate a…∞)_Previous (n+1) attribute with data from the Agency_Official_Name(superordinate a…∞)_Previous (n) attribute producing a populated Agency_Official_Name(superordinate a…∞)_Previous (n+1) attribute.
4. The Provenance Component shall provide the capability to populate a Agency_Official_Name (superordinate a…∞) _Previous_Date (n+1) attribute when a Agency_Official_Name(superordinate a…∞)_Previous (n+1) attribute is populated using the date from a Agency_Official_Name(superordinate a…∞)_Previous_Date (n+1) attribute producing a populated Agency_Official_ Name(superordinate a…∞)_Previous_Date (n+1) attribute.
5. The Provenance Component shall provide the capability to make available for output all data populating the attributes created the Provenance Subsequent Update Use Case. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

"The ***Provenance Record Keeper First Update Use Case*** updates attributes of a Captured Record providing continual evidence of provenance at the first instance of change in Record Keeper after the initial Record Keeper was established [1]."

Provenance Record Keeper First Update Use Case Functional Requirement(s)
1. The ***Provenance Component*** shall provide the capability upon the change of the Record_Keeper_Current attribute to populate Record_Keeper_Previous (n)2 attribute with data from the Record_Keeper_Current attribute producing a populated Record_Keeper_Previous (n) attribute.
2. The ***Provenance Component*** shall provide the capability upon the change in the Record_Keeper_Current_Date attribute to populate the Record_Keeper_Previous_Date (n) attribute with data from the Record_Keeper_Current_Date attribute producing a populated Record_Keeper_Previous_Date (n) attribute.
3. The Provenance Component shall provide the capability to make available for output all data populating the attributes created by the Provenance Record Keeper First Update Use Case. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

"The ***Provenance Record Keeper Subsequent Update Use Case*** continues the process of updating attributes of a Captured Record upon the second instance of change in Record Keeper after the initial Record Keeper was established [1]."

Provenance Record Keeper Subsequent Update Use Case **Functional Requirement(s)**
1. The *Provenance Component* shall provide the capability upon the change of the Record_Keeper_Previous (n)1 attribute to populate Record_Keeper_Previous (n+1)2 attribute with data from the Record_Keeper_Previous (n) attribute producing a populated Record_Keeper_Previous (n+1) attribute.
2. The *Provenance Component* shall provide the capability upon the change in the Record_Keeper_Previous_Date (n) attribute to populate a Record_Keeper_Previous_Date (n+1) attribute with data from the Record_Keeper_Previous_Date (n) attribute producing a populated Record_Keeper_Previous_Date (n+1) attribute.
3. The *Provenance Component* shall provide the capability to make available for output all data populating the attributes created the *Provenance Record Keeper Subsequent Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]

5.3 Archival Bond Component

An *archival bond* is "The relationship that links each record, incrementally, to the previous and subsequent ones and to all those which participate in the same activity" [6]. The purpose of the Archival Bond Establish use case is to assign a record to a record category, or to classify the record according to a file plan. Record categories in functional file plans reflect the business activities of an office. So assigning a record to a record category establishes the business context of the records. The record category identifier associated with a record is an important element of the archival bond. The RMSC *Archival Bond Establish* use case supports establishing this sort of archival bond.

"The ***Archival Bond Establish Use Case*** identifies the connection between one record that is evidence of a business act, transaction, or process, to one or more previous and subsequent records resulting from the same type business act, transaction, or process within a specific time period. The connection between like records is designated within this component by assignment of a record category – this implements the concept of Archival Bond. The accumulation of records within a category set provides evidence of the conduct of a business process or activity over time." [1].

Archival Bond Establish Use Case **Functional Requirement(s)**	DoD 5015.2 Requirement	DoD Reference
1. The *Archival Bond Component* shall provide the capability to populate a	C2.2.3.1. RMAs shall provide the capability to associate the attributes of	See reference (y).

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Record_Category_Current attribute producing a populated Record_Category_Current attribute. If there is more than one record category to be assigned to a record, then Populate the Record_Category_Current(b…∞) Where "a" was the first instance in the [Footnote: Main Flow and (b…∞) in the Sub Flow indicates there is no limit to the number of case files a "part" can be associated.]	one or more record folder(s) to a record or for categories to be managed at the record level provide the capability to associate a record category to a record. See reference (y).	
2. The *Archival Bond Component* shall provide the capability to populate a Record_Category_Current_Date attribute using the System Date when a Record_Category_Current attribute is populated producing a populated Record_Category_Current_Date attribute. If there is more than one record category to be assigned to a record, then Populate the Record_Category_Current_Date(b…∞)	*Comment: DoD 5015.2 requires the capability to create for a record the date filed and requires that it be created (C2.T3.6. Date Filed). However, it does not have a requirement for creating the date that a record was categorized or classified. "Date Filed" may be the same as Record_Category_Current_Date.*	
3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created by the *Archival Bond Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.3.6. RMAs shall provide the capability to create, view, save, and print the complete record metadata, or user-specified portions thereof, in user-selectable order. See reference (z). C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	See reference (z).

Paper records are not usually filed in multiple categories. In the case they are, it is usually a copy of the record that is filed in the second category. Alternatively, a note may be filed indicating that there is a relevant record that can be found in such and such folder in another record category.

The relationship of records in a record category is not the only archival bond relationship of a record to other records. The order of records in a record category or in a folder may also be a part of the archival bond. The relationship of outgoing correspondence in response to incoming correspondence is another relationship among records.

"The *Archival Bond First Update Use Case* updates attributes showing the connection between a record that is evidence of a business act, transaction, or process, to one or more previous and subsequent records resulting from the same type business act, transaction, or process within a specific time period. The connection between like records is designated

within this component by assignment of a record category. The accumulation of records within a category set provides evidence of the conduct of a business process or activity over time."[1]

Archival Bond First Update Use Case Functional Requirements	DoD 5015.2 Requirement	DoD Reference
1. The *Archival Bond Component* shall provide the capability upon the change of data in the Record_Category_Current attribute to populate a Record_Category_Previous (n) attribute using the data being changed in the Record_Category_Current attribute producing a populated Record_Category_Previous (n) attribute. [Footnote: *(n)* indicates the first instance of change in archival bond.]	C2.2.3.16. RMAs shall provide the capability for only authorized individuals to change a record folder or record category associated with a record.	
2. The *Archival Bond Component* shall provide the capability upon the change of data in the Record_Category_Current_Date attribute to populate a Record_Category_Previous (n)attribute using the data being changed in the Record_Category_Current_Date attribute producing a populated Record_Category_Previous_Date (n) attribute.	*Comment: DoD 5015.2 does not have a requirement for capturing the date a record is classified (categorized), it does not have a functional requirement or metadata for creating the previous date a record was categorized.*	
3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created the *Archival Bond First Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	*Comment: DoD 5015.2 does not have an explicit requirement for making available the linked records. However it is implicit in C2.2.3.17*. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z). *One could not change or delete links or associations unless they could be made available.* C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	See reference (z).

"The *Archival Bond Subsequent Update Use Case* continues the process of updating the connection between one record that is evidence of a business act, transaction, or process, to one or more previous and subsequent records resulting from the same type business act, transaction, or process within a specific time period. The connection between like records is designated within this component by assignment of a record category. The accumulation of records within a category set provides evidence of the conduct of a business process or activity over time [1]."

Archival Bond Subsequent Update Use Case Functional Requirements	DoD 5015.2 Requirement	DoD Reference
1. The *Archival Bond Component* shall provide the capability upon the change of data in the Record_Category_Previous (n) attribute to populate a Record_Category_Previous (n+1) attribute using the data being changed in the Record_Category_Previous (n) attribute producing a populated Record_Category_Previous (n+1) attribute.	C2.2.3.16. RMAs shall provide the capability for only authorized individuals to change a record folder or record category associated with a record.	
2. The *Archival Bond Component* shall provide the capability upon the change of data in the Record_Category_Previous_Date (n) attribute to populate a Record_Category_Previous_Date (n+1) attribute using the data being changed in the Record_Category_Previous_Date (n) attribute producing a populated Record_Category_Previous_Date (n+1) attribute.	*Comment: DoD 5015.2 does not have a requirement for capturing the date a record is classified (categorized), it does not have a functional requirement or metadata for creating the previous date a record was categorized.*	
3. The *Archival Bond Component* shall provide the capability to make available for output all data populating the attributes created the *Archival Bond Subsequent Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	*Comment: DoD 5015.2 does not have an explicit requirement for making available the linked records. However it is implicit in C2.2.3.17. RMAs shall allow only authorized individuals to change or delete links and associations.* *One could not change or delete links or associations unless they could be made available.* C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	

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5.4 Authenticity Component

The functional requirements of the use cases in the RMSC Authenticity component are shown below.

In the Authenticity Validation Use case, the value of the Authenticity_Original attribute is compared to the Authenticity_Current attribute to produce the value of the Authenticity_Validation attribute. The intention of these functional requirements may be to perform a data integrity check of the record to determine whether there have been any changes in the record. Indicating that this is for the purpose of a data integrity check and the kind of technologies that might implement the check is not inappropriate in a functional specification.

A method for determining the authenticity of a record might be, for example:

> If one can establish the Provenance of the record (i.e., Check record creator and custody) and there have been no unauthorized alternations of the record (checked by performing a data integrity check and checking the System audit log to see that there have been no unauthorized modifications, insertions or deletions to the record and its metadata), then conclude that the record is authentic.

The RMSC service components address authenticity by providing the capability to check the provenance of a record (Provenance component) and to check that there have been no unauthorized alternations (Authenticity Component, access privileges, and history of changes to record attributes). The DoD 5015.2 functional requirements address authenticity by requiring data integrity checks (para. C2.2.3.8), access controls, specifying access privileges, and requiring system audit logs. DoD 5015.2 does not require the capture of provenance data ((Record Creators, Organizations, and Recordkeepers) that is essential for determining the authenticity of e-records.

"The *Authenticity Establish Use Case* provides the initial benchmark that creates an Authenticated Record by which all subsequent validations of authenticity are made throughout the entire life cycle of the record." [1]

Authenticity Establish Use Case Functional Requirements	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Authenticity Component* shall provide the capability to populate an Authenticity_Original attribute producing a populated Authenticity_Original attribute.		
2. The *Authenticity Component* shall provide the capability to populate an Authenticity_Original_Date using the System Date attribute producing a populated Authenticity_Original_Date attribute.		

3. The *Authenticity Component* shall provide the capability to make available for output all data populating the attributes created the *Authenticity Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]		

"The ***Authenticity Validate Use Case*** verifies current authenticity of an Authenticated Record using the same method that established the record authenticity. This Use Case requires activities used to establish the record authenticity are repeated each time the record is accessed [1]."

Authenticity Validate Use Case Functional Requirements	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Authenticity Component* shall provide the capability to populate an Authenticity_Current attribute when a record is accessed producing a populated Authenticity_Current attribute.		
2. The *Authenticity Component* shall provide the capability to populate an Authenticity_Current attribute using the same methodology used to populate the Authenticity_Original attribute.		
3. The *Authenticity Component* shall provide the capability to populate an Authenticity_Validation attribute by comparing the data values in the populated Authenticity_Original attribute to the Authenticity_Current attribute producing a populated Authenticity_Validation attribute.		
4. The *Authenticity Component* shall provide the capability to populate the Authenticity_Validation attribute with the data only "same" or "not same"1 by comparing the data values in the populated Authenticity_Original attribute to the Authenticity_Current attribute producing a populated Authenticity_Validation attribute.		
5. The *Authenticity Component* shall provide the capability to make available for output all data populating the attributes created the *Authenticity Validate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]		

5.5 Case File Component

There are two common ways to implement case files in a File Plan. First, one can create a subcategory of a record category that contains case files, and name the subcategory with the name of the case. Then folders can be associated with the case and records with folders. This is appropriate for project case files, where there might be a proposal, requirements, designs, implementations, tests, users manual, etc. Secondly, if the records associated with a case do not need to be separated into individual folders the case can be defined by creating a folder for each case. This might be appropriate for dental records, training records, etc. DoD 5015.2 requirements support both of these methods of creating case files. The DoD requirements for an RMA are more general that the functional requirements of the case file component of the RMSC Technical Report, because they apply to folders as well as case files, while the requirements of the RMSC Technical Report applies only to case files.

The Case File component accomplishes functions similar to DoD 5015.2 functional requirements for Record Folders.

"The *Case File Record Capture Use Case* initiates records management activities for a Declared Case File Record by generating data for records management attributes in order to create a Case File that is a uniquely identifiable within the electronic environment – a Captured Case File Record [1]."

Case File Record Capture Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Case File Component* shall provide the capability to populate the Case_File_Record_Unique_Identifier attribute when a Declared Record Case File is set aside producing a populated Case_File_Record_Unique_Identifier attribute.	C2.2.1.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record folder components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level file plan component identifier(s). See references (t) and (y).	Statutory and regulatory requirement: references (t) and (y).
2. The *Case File Component* shall provide the capability to populate the Case_File_Record_Capture_Date attribute using the System Date when a Declared Record Case File is set aside producing a populated Case_File_Record_Capture_Date attribute.		
3. The *Case File Component* shall provide the capability to populate a Case_File_Record_Description attribute when a Case_File_Record_Unique_Identifier attribute is populated producing a	C2.2.1.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record folder components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-	

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	level file plan component identifier(s). C2.T2. Record Folder Components C2.T2.1.1. Folder Name	
4. The *Case File Component* shall provide the capability to make available for output all data populating the attributes created by the *Case File Record Capture Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.1.6. RMAs shall provide the capability to sort, view, save, and print user-selected portions of the file plan, including record folders. See reference (z). C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	.

"The ***Case File Part Associate Use Case*** provides for uniquely identifying relationships between a Case File and a Case File Part.1 A Case File is usually managed as a single record but may – by business policies or procedures – have different dispositions for each Case File Part within the Case File. A Case File at its point of final aggregation will usually be managed as a single record. The ***Case File Part Associate Use Case*** supports the concept of associating a single Case File Part to one or more Case Files [1]."

The functional requirements for this use case might be clearer if the attribute

Case_File_Part_Association_Unique_Identifier

had a subscript to indicate that a case file could have multiple parts.

Case File Part Associate Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Case File Component* shall provide the capability to populate a Case_File_Part_Association_Unique_Ident ifier attribute creating a unique relationship between a Case File Part and the Case File producing a populated Case_File_Part_Association_Unique_Ident ifier attribute.	C2.2.1.3. RMAs shall provide the capability for only authorized individuals to create, edit, and delete record folder components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level file plan component identifier(s). See references (t) and (y).	Statutory and regulatory requirement: references (t) and (y).
2. The *Case File Component* shall provide the capability to populate a Case_File_Part_Association_Date attribute using the System Date when a Case_File_Part_Association_Unique_Ident ifier attribute is populated producing a populated Case_File_Part_Association_Date attribute.		

3. The *Case File Component* shall provide the capability to make available for output all data populating the attributes created the *Case File Part Associate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.1.6. RMAs shall provide the capability to sort, view, save, and print user-selected portions of the file plan, including record folders. See reference (z). C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	

5.6 Disposition Component

All the use cases of the RMSC Disposition Component associate disposition authorities and instructions with individual records. Further, all disposition actions (e.g., Cutoff, transfer, destruction) are actions on individual records.

The DoD 5015.2 requirements for a RMA require that disposition authorities and instructions be associated with the record categories of an office file plan or with folders associated with record categories. This is the practice of virtually all agencies of the Federal Government.

"The *Disposition Establish Use Case* ensures a record is associated to a Disposition Instruction and a legitimate Disposition Authority allowing it to become a Scheduled Record. The *Disposition Establish Use Case* facilitates management of the Scheduled Record in accordance with the Disposition Authority [1]."

Disposition Establish Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate associate a Disposition_Authority_Current attribute producing a populated Disposition_Authority_Current attribute.	C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T1.5. Disposition Authority	Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)).
2. The *Disposition Component* shall		

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provide the capability to populate a Disposition_Authority_Current_Date using the System Date when a Disposition_Authority_Current attribute is populated producing a populated Disposition_Authority_Current_Date attribute.		
3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Current attribute.	C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T1.4. Disposition Instructions 36 CFR 1228.24 (reference (aa) C2.2.2.2. RMAs shall provide the capability for defining multiple phases (e.g., transfer to inactive on-site storage, transfer to off-site storage) within a disposition schedule. C2.2.2.3. RMAs shall provide the capability for only authorized individuals to define the cutoff criteria and, for each life-cycle phase, the following disposition components for a record category: C2.2.2.3.1. Retention Period (e.g., fiscal year). C2.2.2.3.2. Disposition Action (interim transfer, accession, permanent, or destroy). C2.2.2.3.3. Interim Transfer or Accession Location (if applicable). C2.2.2.4. RMAs shall, as a minimum, be capable of scheduling and rescheduling each of the following three types of cutoff and disposition instructions. See reference (d). C2.2.2.4.1. Time Dispositions, where records are eligible for disposition immediately after the conclusion of a fixed period of time following user-defined cutoff (e.g., days, months, years). C2.2.2.4.2. Event Dispositions, where records are eligible for disposition	Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Regulatory requirement 36 CFR 1228.24 (reference (aa) NARA Guidelines: reference (d)

	immediately after a specified event takes place (i.e., event acts as cutoff and there is no retention period). C2.2.2.4.3. Time-Event Dispositions, where the timed retention periods are triggered after a specified event takes place (i.e., event makes the record folder eligible for closing and/or cutoff and there is a retention period). C2.2.2.5. RMAs shall provide the capability to automatically calculate the complete life cycle, including intermediate phases, of record folders and records not in folders. See reference (d).	
4. The *Disposition Component* shall provide the capability to populate a Disposition_Instruction_Current_Date when a Disposition_Instruction_Current attribute is populated using the System Date producing a populated Disposition_Instruction_Current_Date attribute.	C2.2.2.3. RMAs shall provide the capability for only authorized individuals to define the cutoff criteria and, for each life-cycle phase, the following disposition components for a record category: C2.2.2.3.1. Retention Period (e.g., fiscal year). C2.2.2.3.2. Disposition Action (interim transfer, accession, permanent, or destroy). C2.2.2.3.3. Interim Transfer or Accession Location (if applicable).	
5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Establish Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.3.14. RMAs shall provide the capability to view, save, or print the metadata associated with a specified record or set of records, or user-specified portions thereof, in user-selectable order. C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing list(s) of record folders and/or records (regardless of media) based on any combination of the following: C2.2.6.1.1.1. Disposition Action Date. C2.2.6.1.1.2. Disposition Action. C2.2.6.1.1.3. Location. C2.2.6.1.1.4. Transfer or Accession Location. C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date. C2.2.6.1.1.6. Record Category Identifier. C2.2.6.1.1.7. Folder Unique Identifier. C2.2.6.1.1.8. User Definable Fields C2.2.6.1.5. RMAs shall provide for sorting, viewing, saving, and printing lists and partial lists of record folders and/or records that have no assigned	

	disposition..
	C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	

"The *Disposition First Update Use Case* allows the Disposition Authority and Disposition Instruction information to be kept current and tracks historical changes. This Use Case supports the business requirement to allow multiple dispositions to be assigned to a single record." [1]

DoD 5015.2 provides for creating, editing and deleting file plan components including disposition instructions and disposition authorities, and for rescheduling record folders and records in record categories. However, DoD 5015.2, unlike the RMSC TR, does not provide explicit requirements to track for historical purposes previous disposition changes, their authorities and the dates the changes were made. Hence, the correspondences indicated in the following table are only partial correspondences.

Disposition First Update Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate the Disposition_Authority_Previous (n) attribute using data from the Disposition_Authority_Current attribute producing a populated Disposition_Authority_Previous (n) attribute when the Disposition_Authority_Current attribute is changed.	C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T1.5. Disposition Authority	Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)).
2. The *Disposition Component* shall provide the capability to populate the Disposition_Authority_Previous_Date (n) attribute using data from the Disposition_Authority_Current_Date attribute producing a populated Disposition_Authority_Previous_Date (n) when the Disposition_Authority_Current_Date is changed.		

3. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Previous (n) attribute using data from the Disposition_Instruction_Current attribute producing a populated Disposition_Instruction_Previous (n) attribute when the Disposition_Instruction_Current attribute is changed.	C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T1.4. Disposition Instructions 36 CFR 1228.24 (reference (aa) C2.2.2.6. RMAs shall provide the capability for rescheduling dispositions of record folders and/or records (those not in folders) during any phase of their life cycle if an authorized individual changes the disposition instructions. This requirement includes the capability to change the cutoff criteria of disposition instructions and to change the retention period associated with a disposition.	Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Regulatory requirement 36 CFR 1228.24 (reference (aa)
4. The *Disposition Component* shall provide the capability to populate the Disposition_Instruction_Previous_Dat e (n) attribute using data from the Disposition_Instruction_Current_Date attribute producing a populated Disposition_Instruction_Previous_Dat e (n) when the Disposition_Instruction_Current_Date is changed.	C2.2.2.6. RMAs shall provide the capability for rescheduling dispositions of record folders and/or records (those not in folders) during any phase of their life cycle if an authorized individual changes the disposition instructions. This requirement includes the capability to change the cutoff criteria of disposition instructions and to change the retention period associated with a disposition.	
5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition First Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.3.14. RMAs shall provide the capability to view, save, or print the metadata associated with a specified record or set of records, or user-specified portions thereof, in user-selectable order. C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing list(s) of record folders and/or records (regardless of media) based on any combination of the following: C2.2.6.1.1.1. Disposition Action Date. C2.2.6.1.1.2. Disposition Action. C2.2.6.1.1.3. Location. C2.2.6.1.1.4. Transfer or Accession Location. C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date. C2.2.6.1.1.6. Record Category Identifier.	

| | C2.2.6.1.1.7. Folder Unique Identifier. C2.2.6.1.1.8. User Definable Fields. C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components | |

"The ***Disposition Subsequent Update Use Case*** ensures the Disposition Authority and Disposition Instruction information is current and tracks historical changes. This Use Case supports the business requirement to allow multiple dispositions to be assigned to a single record." [1].

DoD 5015.2 provides for creating, editing and deleting file plan components including disposition instructions and disposition authorities, and for rescheduling record folders and records in record categories. However, DoD 5015.2, unlike the RMSC TR, does not provide explicit requirements to track for historical purposes previous disposition changes, their authorities and the dates the changes were made. Hence, the correspondences indicated in the following table are only partial correspondences.

Disposition Subsequent Update Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Previous (n+1) attribute using data from the Disposition_Authority_Previous (n) attribute producing a populated Disposition_Authority_Previous (n+1) attribute when an Disposition_Authority_Previous (n) attribute is changed.	C2.2.1.1. RMAs shall provide the capability for only authorized individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T1.5. Disposition Authority	Statutory and Regulatory constraint: 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)).
2. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Previous_Date (n+1) attribute using data from the Disposition_Authority_Previous_Date (n) attribute producing a populated Disposition_Authority_Previous_Date (n+1) when the Disposition_Authority_Previous_Date (n) is changed.		
3. The *Disposition Component* shall provide the capability to populate a	C2.2.1.1. RMAs shall provide the capability for only authorized	Statutory and Regulatory constraint:

Disposition_Instruction_Previous (n+1) attribute using data from the Disposition_Instruction_Previous (n) attribute producing a populated Disposition_Instruction_Previous (n+1) attribute when a Disposition_Instruction_Previous (n) attribute is changed.	individuals to create, edit, and delete file plan components and their identifiers. Each component identifier shall be linked to its associated component and to its higher-level component identifier(s). See 44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Mandatory file plan components are shown in Table C2.T1 C2.T1.4. Disposition Instructions 36 CFR 1228.24 (reference (aa) C2.2.2.6. RMAs shall provide the capability for rescheduling dispositions of record folders and/or records (those not in folders) during any phase of their life cycle if an authorized individual changes the disposition instructions. This requirement includes the capability to change the cutoff criteria of disposition instructions and to change the retention period associated with a disposition.	44 U.S.C. 3303 and 36 CFR 1222.50 (references (x) and (y)). Regulatory requirement 36 CFR 1228.24 (reference (aa)
4. The *Disposition Component* shall provide the capability to populate a Disposition_Instruction_Previous_Dat e (n+1) attribute using data from the Disposition_Instruction_Previous_Dat e (n) attribute producing a populated Disposition_Instruction_Previous_Dat e (n+1) when a Disposition_Instruction_Previous_Dat e (n) is changed.	C2.2.2.6. RMAs shall provide the capability for rescheduling dispositions of record folders and/or records (those not in folders) during any phase of their life cycle if an authorized individual changes the disposition instructions. This requirement includes the capability to change the cutoff criteria of disposition instructions and to change the retention period associated with a disposition.	
5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created in the *Disposition Subsequent Update Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.3.14. RMAs shall provide the capability to view, save, or print the metadata associated with a specified record or set of records, or user-specified portions thereof, in user-selectable order. C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing list(s) of record folders and/or records (regardless of media) based on any combination of the following: C2.2.6.1.1.1. Disposition Action Date. C2.2.6.1.1.2. Disposition Action. C2.2.6.1.1.3. Location. C2.2.6.1.1.4. Transfer or Accession Location. C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date. C2.2.6.1.1.6. Record Category Identifier. C2.2.6.1.1.7. Folder Unique Identifier. C2.2.6.1.1.8. User Definable Fields.	

	C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	

"The ***Disposition Suspend Use Case*** prevents the execution of a Disposition Instruction. This component is operating in a business context where a Suspend Disposition Authority has been issued making any record affected by it becomes a Suspended Record." [1]

Disposition Suspend Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend (n) attribute producing a populated Disposition_Authority_Suspend (n) attribute.	C2.2.6.4.1. RMAs shall provide the capability for only authorized individuals to extend or suspend (freeze) the retention period of record folders or records beyond their scheduled disposition. See 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)). C2.2.6.4.2. RMAs shall provide a field for authorized individuals to enter the reason for freezing a record or record folder.	Statutory and Regulatory requirement: 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)).
2. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend_Date (n) attribute using the System Date producing a populated Disposition_Authority_Suspend_Date (n) attribute when a Disposition_Authority_Suspend (n) attribute is populated.		
3. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend (n+1) attribute producing a populated Disposition_Authority_Suspend (n+1) attribute.	C2.2.6.4.1. RMAs shall provide the capability for only authorized individuals to extend or suspend (freeze) the retention period of record folders or records beyond their scheduled disposition. See 44 U.S.C. 2909 and 36 CFR 1228.54 (references (an) and (ao)). C2.2.6.4.2. RMAs shall provide a field for authorized individuals to enter the reason for freezing a record or record folder.	
4. The *Disposition Component* shall provide the capability to populate a		

Disposition_Authority_Suspend_Da te (n+1) attribute using the System Date producing a populated Disposition_Authority_Suspend_Da te (n+1) attribute when a Disposition_Authority_Suspend (n+1) attribute is populated.		
5. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created by the *Disposition Suspend Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.6.4.4. RMAs shall allow authorized individuals to search, update, and view the reason for freezing a record or record folder. C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	

"The ***Disposition Reinstate Use Case*** provides for the release of a Suspend Disposition Authority by matching the Suspend Disposition Authority to a corresponding Revocation Order, enabling the current disposition assigned to the Scheduled Record to execute. This Use Case supports multiple instances of a suspension order and a corresponding revocation order for a single record." [1]

Disposition Reinstate Component Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend_Re vocation (n) attribute producing a populated Disposition_Authority_Suspend_Re vocation (n).	C2.2.6.4.3. RMAs shall identify record folders and/or records that have been frozen and provide authorized individuals with the capability to unfreeze them.	
2. The *Disposition Component* shall provide the capability to associate a populated Disposition_Authority_Suspend_Re vocation (n) attribute to its corresponding Disposition_Authority_Suspend (n) attribute by producing a populated Disposition_Authority_Suspend_Re vocation_Association (n) attribute.	C2.2.6.4.3. RMAs shall identify record folders and/or records that have been frozen and provide authorized individuals with the capability to unfreeze them.	
3. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend_Re vocation_Date (n) attribute producing a populated Disposition_Authority_Suspend_Re		

vocation_Date (n) of a Disposition_Authority_Suspend_Revocation (n) attribute.		
4. The *Disposition Component* shall provide the capability to associate a populated Disposition_Authority_Suspend_Revocation (n) attribute to its corresponding Disposition_Authority_Suspend (n) attribute by producing a populated Disposition_Authority_Suspend_Revocation_Association (n) attribute.	C2.2.6.4.3. RMAs shall identify record folders and/or records that have been frozen and provide authorized individuals with the capability to unfreeze them.	
5. The *Disposition Component* shall provide the capability to associate a populated Disposition_Authority_Suspend_Revocation (n+1) attribute to its corresponding Disposition_Authority_Suspend (n+1) attribute by producing a populated Disposition_Authority_Suspend_Revocation_Association (n+1) attribute.	C2.2.6.4.3. RMAs shall identify record folders and/or records that have been frozen and provide authorized individuals with the capability to unfreeze them.	
6. The *Disposition Component* shall provide the capability to populate a Disposition_Authority_Suspend_Revocation_Date (n+1) attribute producing a populated Disposition_Authority_Suspend_Revocation_Date (n+1) when a Disposition_Authority_Suspend_Revocation (n+1) is populated.		
7. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Reinstate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.6.4.4. RMAs shall allow authorized individuals to search, update, and view the reason for freezing a record or record folder. C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata C2.2.8.1.5. File plan components.	

"The *Disposition Enable Transfer Use Case* provides the capability to make a Scheduled Record available for transfer in accordance with the Disposition Instruction and tracks events related to records transfer." [1]

Disposition Enable Transfer Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate a Record_Scheduled_Transfer_Available attribute when the populated Disposition_Instruction_Established _Current[6] and Disposition_Instruction_Established _Current_Date attributes indicate a transfer action is to be executed producing a populated Record_Scheduled_Transfer_Available attribute.	C2.2.5.4. RMAs shall allow only authorized individuals to move or delete records from the repository. 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)). C2.2.6.5.1. RMAs shall identify and present those record folders and records eligible for interim transfer and/or accession. See references (p) and (z).	Regulatory requirement: 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)). Statutory requirement: See references (p)
2. The *Disposition Component* shall provide the capability to populate a Disposition_Action_History attribute upon the transfer of a Scheduled Record producing a populated Disposition_Action_History attribute.	C2.2.6.5.5. RMAs shall provide documentation of transfer activities. This documentation shall be stored as records.	
3. The *Disposition Component* shall provide the capability to populate Disposition_Action_History_Date attribute using the System Date populating the Disposition_Action_History_Date attribute when a Disposition_Action_History attribute is populated.	C2.2.6.5.5. RMAs shall provide documentation of transfer activities. This documentation shall be stored as records.	
4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Transfer Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	C2.2.6.5.5. RMAs shall provide documentation of transfer activities. This documentation shall be stored as records. C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing list(s) of record folders and/or records (regardless of media) based on any combination of the following: C2.2.6.1.1.1. Disposition Action Date. C2.2.6.1.1.2. Disposition Action. C2.2.6.1.1.3. Location. C2.2.6.1.1.4. Transfer or Accession Location. C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date. C2.2.6.1.1.6. Record Category Identifier. C2.2.6.1.1.7. Folder Unique Identifier. C2.2.6.1.1.8. User Definable Files C2.2.6.1.2. RMAs shall provide for sorting, viewing, saving, and printing life-	

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[6] Disposition_Instruction_Established_Current should probably be Disposition_Instruction_Current.

| | cycle information, eligibility dates, and events of user-selected record folders and records. | |
| | C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects:
C2.2.8.1.3. Records.
C2.2.8.1.4. Associated metadata
C2.2.8.1.5. File plan components. | |

"The *Disposition Enable Destruction Use Case* provides the capability to make a Scheduled Record available for destruction in accordance with the Disposition Instruction and tracks events related to records destruction." [1]

Disposition Enable Destruction Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD 5015.2 Reference
1. The *Disposition Component* shall provide the capability to populate the Record_Scheduled_Destruction_Available attribute when the populated Disposition_Instruction_Current and Disposition_Instruction_Current_Date attributes indicate a destruction action is required producing a populated Record_Scheduled_Destruction_Available attribute.	C2.2.5.4. RMAs shall allow only authorized individuals to move or delete records from the repository. C2.2.6.6.1. RMAs shall identify and present the record folders and records, including record metadata, that are eligible for destruction, as a result of reaching that phase in their life cycle.	Regulatory requirements: 36 CFR 1222.50 and 36 CFR 1234.28 (references (y) and (am)). references (h) and (ai).
2. The *Disposition Component* shall provide the capability to populate the Disposition_Action_History attribute upon the destruction of the Scheduled Record producing a populated Disposition_Action_History attribute.	C2.2.6.6.6. RMAs shall provide documentation of destruction activities. This documentation shall be stored as records.	
3. The *Disposition Component* shall provide the capability to populate Disposition_Action_History_Date attribute using the System Date when the Disposition_Action_History attribute is populated.	C2.2.6.6.6. RMAs shall provide documentation of destruction activities. This documentation shall be stored as records.	
4. The *Disposition Component* shall provide the capability to make available for output all data populating the attributes created the *Disposition Enable Destruction Use Case*. [FN: This requirement	C2.2.6.6.6. RMAs shall provide documentation of destruction activities. This documentation shall be stored as records. C2.2.6.1.1. RMAs shall provide for sorting, viewing, saving, and printing	

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| supports printing, viewing, saving, report writing, audit, etc.] | list(s) of record folders and/or records (regardless of media) based on any combination of the following:
C2.2.6.1.1.1. Disposition Action Date.
C2.2.6.1.1.2. Disposition Action.
C2.2.6.1.1.3. Location.
C2.2.6.1.1.4. Transfer or Accession Location.
C2.2.6.1.1.5. Vital Records Review and Update Cycle Period or Date.
C2.2.6.1.1.6. Record Category Identifier.
C2.2.6.1.1.7. Folder Unique Identifier.
C2.2.6.1.1.8. User Definable Fields.
C2.2.6.1.2. RMAs shall provide for sorting, viewing, saving, and printing life-cycle information, eligibility dates, and events of user-selected record folders and records.
C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects:
C2.2.8.1.3. Records.
C2.2.8.1.4. Associated metadata
C2.2.8.1.5. File plan components. | |

5.7 Reference Component

"The *Reference Associate Use Case* provides the ability to link records to other records related because of a business act or transaction. As an example, the *Reference Associate Use Case* supports linking a request for information with both the record used to respond to the information request and the records used to create the response. Additionally, the Use Case supports linking a redacted record used in a response with its originating record(s), providing context for redaction and allowing for consistent responses to similar requests." [1]

Reference Associate Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD Reference
1. The *Reference Component* shall provide the capability to create an association between one record and one other record by populating a Record_Association_Identifier (n) attribute producing a populated Record_Association_Identifier (n) attribute.	C2.2.3.17. RMAs shall provide a capability for referencing or linking and associating supporting and related records and related information, such as notes, marginalia, attachments, and electronic mail-return receipts, etc., to a specified record. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z). C2.2.4.3. RMAs shall provide the user the option of filing email and all its attachment(s) as a single record, or filing	See references (z) and (ak).

	selected email item(s) as individual record(s), or to do both. When the attachment(s) is (are) filed as individual record(s), the user shall be provided the capability to enter the metadata required in table C2.T3. See reference (ak).	
2. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n) attribute for each instance of Record_Association_Identifier (n) when the Record_Association_Identifier (n) attribute is populated producing a populated Record_Association_Description (n) attribute.	*Comment: DoD 5015.2 does not require that an RMA provide the capability to describe the type of association. However, the capability to support certain types of associations is required.* C2.2.3.18. RMAs shall provide the capability to link original superseded records to their successor records. C2.2.3.19. RMAs shall provide the capability to support multiple renditions of a record. These shall be associated and linked. C2.2.3.20. RMAs shall provide the capability to increment versions of records when filing. RMAs shall associate and link the versions. C2.2.4.3. RMAs shall provide the user the option of filing email and all its attachment(s) as a single record, or filing selected email item(s) as individual record(s), or to do both. When the attachment(s) is (are) filed as individual record(s), the user shall be provided the capability to enter the metadata required in table C2.T3. See reference (ak).	Reference (ak).
3. The *Reference Component* shall provide the capability to populate a Record_Association_Date (n) attribute using the System Date for each instance of Record_Association_Identifier (n) when the Record_Association_Identifier (n) attribute is populated producing a populated Record_Association_Date (n) attribute.	*Comment: DoD 5015.2 does not have the requirement that a RMA provide the capability to capture the date of the association.*	
4. The *Reference Component* shall provide the capability to create an association between one record and one other record by populating a Record_Association_Identifier (n+1) attribute producing a populated Record_Association_Identifier (n+1) attribute.	C2.2.3.17. RMAs shall provide a capability for referencing or linking and associating supporting and related records and related information, such as notes, marginalia, attachments, and electronic mail-return receipts, etc., to a specified record. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z).	
5. The *Reference Component* shall provide the capability to populate a Record_Association_Description (n+1) attribute for each instance of Record_Association_Identifier (n+1) when the Record_Association_Identifier (n+1) attribute is populated producing a	*Comment: DoD 5015.2 does not require that an RMA provide the capability to describe the type of association. However, the capability to support certain types of associations is required.*	

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populated Record_Association_Description (n+1) attribute.		
6. The Reference Component shall provide the capability to populate a Record_Association_Date (n+1) attribute using the System Date for each instance of Record_Association_Identifier (n+1) when the Record_Association_Identifier (n+1) attribute is populated producing a populated Record_Association_Date (n+1) attribute.	*Comment: DoD 5015.2 does not have the requirement that a RMA provide the capability to capture the date of the association.*	
7. The Reference Component shall provide the capability to make available for output all data populating the attributes created by the Reference Associate Use Case. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	*DoD 5015.2 does not have an explicit requirement for making available the linked records. However it is implicit in C2.2.3.17. RMAs shall allow only authorized individuals to change or delete links and associations.* *One could not change or delete links or associations unless they could be made available.* C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata	

"The *Reference Disassociate Use Case* provides the ability to un-link a record or records from another or other records that were related because of a business act, or transaction." [1]

Reference Disassociate Use Case Functional Requirement(s)	DoD 5015.2 Requirement	DoD Reference
1. The *Reference Component* shall provide the capability to change a populated Record_Association_Identifier (n)1 attribute to "null" value upon the termination of the association producing a "null" value Record_Association_Identifier (n) attribute.2	C2.2.3.17. RMAs shall provide a capability for referencing or linking and associating supporting and related records and related information, such as notes, marginalia, attachments, and electronic mail-return receipts, etc., to a specified record. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z).	See reference (z).
2. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n) attribute to "null" value upon the change of its associated Record_Association_Identifier (n)	*Comment: DoD 5015.2 does not require that an RMA provide the capability to describe the type of association. However, the capability to support certain types of associations and disassociations is required*	

attribute to "null" value producing a "null" value Record_Association_Description (n) attribute.		
3. The *Reference Component* shall provide the capability to change a populated Record_Association_Date (n) attribute to "null" value upon the change of its associated Record_Association_Identifier (n) attribute to "null" value producing a "null" value Record_Association_Date (n) attribute.	*Comment: DoD 5015.2 does not have the requirement that a RMA provide the capability to capture the date of an association and hence does not require the capability to change the date to null.*	
4. The *Reference Component* shall provide the capability to change a populated Record_Association_Identifier (n+1) attribute to "null" value upon the termination of an association producing a "null" value Record_Association_Identifier (n+1) attribute.	C2.2.3.17. RMAs shall provide a capability for referencing or linking and associating supporting and related records and related information, such as notes, marginalia, attachments, and electronic mail-return receipts, etc., to a specified record. RMAs shall allow only authorized individuals to change or delete links and associations. See reference (z).	
5. The *Reference Component* shall provide the capability to change a populated Record_Association_Description (n+1) attribute to "null" value upon the change of its associated Record_Association_Identifier (n+1) attribute to "null" value producing a "null" value Record_Association_Description (n+1) attribute.	*Comment: DoD 5015.2 does not require that an RMA provide the capability to describe the type of association. However, the capability to support certain types of associations and disassociations is required*	
6. The *Reference Component* shall provide the capability to change a populated Record_Association_Date (n+1) attribute to "null" value upon the change of its associated Record_Association_Identifier (n+1) attribute to "null" value producing a "null" value Record_Association_Date (n+1) attribute.	*Comment: DoD 5015.2 does not have the requirement that a RMA provide the capability to capture the date of the association. Hence the capability to nullify an association data is not required;.*	
7. The *Reference Component* shall provide the capability to make available for output all data populating the attributes created by the *Reference Disassociate Use Case*. [FN: This requirement supports printing, viewing, saving, report writing, audit, etc.]	*Comment: DoD 5015.2 does not have an explicit requirement for making available the linked records. However it is implicit in C2.2.3.17. RMAs shall allow only authorized individuals to change or delete links and associations. .* *One could not change or delete links or associations unless they could be made available.* C2.2.8.1. The RMA, in conjunction with its operating environment, shall provide an audit capability to log the actions, date, time, unique object identifier(s) and user	

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	identifier(s) for actions performed on the following RMA objects: C2.2.8.1.3. Records. C2.2.8.1.4. Associated metadata	

6. Conclusions

The DoD 5015.2 mandatory requirements for a Records Management Application (Section C2.2) were analyzed to distinguish requirements that are functional from those that are metadata or some other type of requirement. There were found to be 116 functional requirements stated in 68 paragraphs of DoD 5015.2 . Very often the statement of DoD 5015.2 functional requirements include other requirements, for example, statutory or regulatory, NARA Guidance, DoD Directives, user interface, access control, and metadata requirements. These nonfunctional requirements were explicitly identified.

Additional DoD 5015.2 metadata requirements were found that are implicit in the functional requirements but not explicitly stated in the metadata tables. They are shown in the following table.

Requirement Identifier	Additional Metadata Requirement
C2.2.1.1	HasSubcategory(record category identifier(i), record category identifier(j))
C2.2.1.3	Folder-RecordCategoryAssociation(unique folder identifier, Record category identifier)
C2.2.2.5	Record Folder(Disposition Instruction)
C2.2.2.3.1	Retention Period
C2.2.2.3.2	Disposition Action
C2.2.2.3.3	Interim Transfer or Accession Location
C2.2.3.1	FolderRecordAssociation(unique folder identifier(i), unique record identifier(j)), recordcategory-recordassociation(record category identifier, unique record identifier)
C2.2.3.17	Recordrecordassociation(record unique identifier(i), record unique identifier(j))
C2.2.3.18	Supersedes(record unique identifier(i), record unique identifier(j))
C2.2.3.19	Rendition(record unique identifier(i), record unique identifier(j)))
C2.2.3.20	Versionof(record unique identifier(i), record unique identifier(j)), record has an optional attribute: version
C2.2.6.1.1.1	Disposition Action Date
C2.2.6.1.1.3	Location
C2.2.6.4.2	Folder(Suspense Reason), Record(Suspense Reason)

The RMSC Technical Report "Functional Requirements and Attributes for Records Management in a Component-Based Architecture" dated July 20, 2005 specifies seven service components, 22 use cases and 101 functional requirements for records management in the Federal Enterprise Architecture. Those paragraphs of DoD 5015.2 that contained functional requirements were compared to the Records Management Service Component (RMSC) functional requirements. Thirty-three of the 68 paragraphs in DoD 5015.2 that contain functional requirements were found to correspond to 49 of the 101 functional requirements of the RMSC technical report. These include requirements for the activities of Implementing File Plans, Scheduling Records, Declaring and Filing records, Filing E-mail Messages, Screening Records, Freezing and Unfreezing Records, Transferring Records, Destroying Records and System Audit. The RMSC Technical Report does not specifically address Vital Records Management, but it includes functionality that could support this activity. The RMSC project did not include within its scope the development of functional requirements that appeared in DoD 5015.2 for the activity of Searching for and Retrieving Records.

The RMSC Technical report also addresses functional requirements and attributes (data elements) for Provenance (Record Creators, Organizations, and Recordkeepers) that is essential for determining the authenticity of e-records. DoD 5015.2 does not address functional requirements for Provenance.

The RMSC Technical Report and the DOD 5015.2 Standard each specify functions for managing electronic records at different levels of abstraction. Sometimes the RMSC TR specifies functions at a more general level than the DoD 5015.2 STD and sometimes the RMSC TR specifies the functional requirements at a more detailed level than the 5015.2 STD. This is the case even when both documents are addressing the same records management function (for example, categorization or disposition). The difference in levels of abstraction account for many of the "non-matches" in the mapping analysis presented here. If one adjusted the RMSC TR functional requirements "down" from general to more specific or the 5015.2 STD "up" from specific to general, or vice versa, the number of "matches" would undoubtedly increase.

It was pointed out in section 2 of this report that specifications of functional requirements that are stated in natural language are often imprecise and difficult understand. The test procedures and test cases developed by JITC for DoD 5015.2 contribute to a better understanding of the DoD 5015.2 specification. The same thing can be said for more formal specifications such as the RMSC TR. Test procedures and test cases for the RMSC specification, or prototypes exhibiting behaviors compliant with the specification, would contribute to a better understanding of the specification.

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Appendix A: DoD 5015.2 References

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(b) DoD 5015.2-STD, "Design Criteria Standards for Electronic Records Management Software Applications," November 24, 1997 (hereby canceled)

(c) Executive Order 12958, "Classified National Security Information," April 17, 1995

(d) National Archives and Records Administration, "Records Management Handbook - Disposition of Federal Records," 1996

(e) Title 36, Code of Federal Regulations, Part 1236.14, "Definitions," current edition

(f) Title 36, Code of Federal Regulations, Part 1234.2, "Definitions," current edition

(g) National Archives and Records Administration Guide, "Managing Electronic Records Instructional Guide, Appendix F, Glossary," 1990

(h) Title 36, Code of Federal Regulations, Part 1228.58, "Destruction of Temporary Records," current edition

(i) Title 36, Code of Federal Regulations, Part 1228.60, "Donation of Temporary Records," current edition

(j) Section 3301 of title 44, United States Code, "Definition of Records"

(k) Title 36, Code of Federal Regulations, Part 1220.14, "General Definitions," current edition

(l) Section 3511 of title 44, United States Code, "Establishment and Operation of Government Information Locator Service"

(m) Federal Information Processing Standard Publication 192, "Application Profile for the Government Information Locator Service," December 7, 1994

(n) Section 2901 of title 44, United States Code, "Definitions"

(o) Section 2902 of title 44, United States Code, "Objectives of Records Management"

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