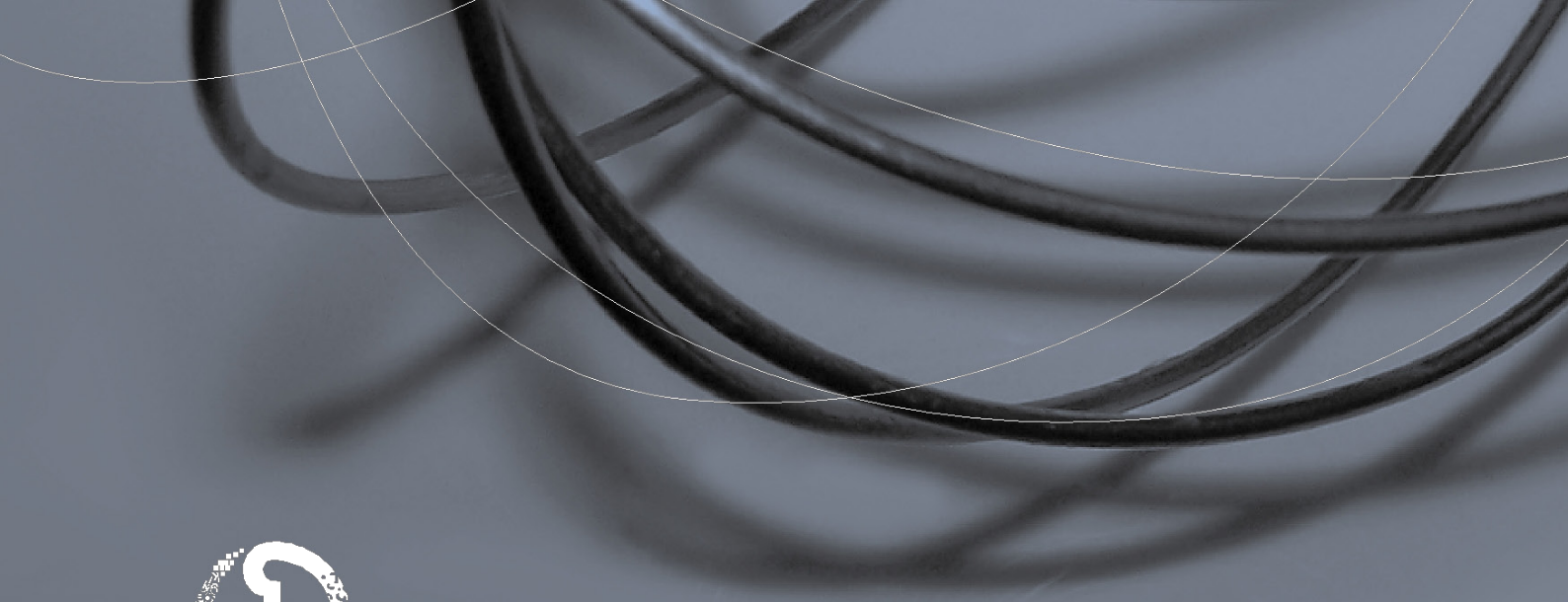

ICA

International Council
on Archives

Principles and Functional Requirements

for Records in Electronic Office Environments

Module 2

Guidelines and Functional Requirements for Electronic Records Management Systems

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1 INTRODUCTION

Good management of records and information is fundamental to a well-functioning organisation since it supports business activity and provides a basis for efficient service delivery. It also provides the mechanism whereby both the private and public sectors can account for their decisions and actions. Records provide evidence for the public to confirm or claim their public rights and entitlements, as well as providing individuals with evidence to justify government decisions and a mechanism whereby they can have trust in private enterprise. Moreover, good records management is simply good business practice.

Records management systems facilitate:

- efficiency, by making information readily available when needed for decision-making and operational activities;
- sound use of financial resources, by allowing timely disposal of non-current records;
- accountability, by enabling the creation of a complete and authoritative record of official activities;
- compliance, by demonstrating that legal requirements have been met; and
- risk mitigation, by managing the risks associated with illegal loss or destruction of records, and from inappropriate or unauthorised access to records.

1.2 Scope

A fundamental underlying principle is the distinction between business information systems (business systems) and electronic records management systems. Business systems contain data that is commonly subject to constant updates (dynamic), able to be transformed (manipulable) and only contain current data (non-redundant). By contrast, electronic records management systems contain data that is not dynamically linked to business activity (fixed), unable to be altered (inviolable), and may be non- current (redundant). Therefore business systems are beyond the scope of this Module (see *Module 3: Guidelines and Functional Requirements for Records in Business Systems*). The records within an electronic records management system are, however, still dynamic in the sense that they can be (re)used in new business activity/contexts, so new metadata will be added through the ongoing use of the record content. It is more appropriate to speak about a framework for the systematic and structured management of records; records management systems link records to business activities, retain records of past actions, and fix the content and structure of records over time.

The scope of this Module is limited to products that are usually termed 'electronic records management systems'. It does not seek to set requirements for records still in use within business systems. Digital objects created by email, word processing, spreadsheet and imaging applications (such as text documents, and still and moving images), where they are identified to be of business value, should be managed within

electronic records management systems that meet the functional requirements in this Module. Records managed by an electronic records management system may be stored on a variety of different media formats, and may be managed in hybrid record aggregations that include both electronic and non-electronic elements.

This Module does not attempt to include requirements that are not specific to, or necessary for, records management, for example, general system management and design requirements. Nor does it include requirements common to all software applications, such as the performance, scalability and usability of the application. Given the target audience of this document, it also assumes a level of knowledge about developing design specifications, procurement and evaluation processes, and therefore these issues are not covered in this Module. Although not included in this Module's requirements, the importance of non-records management functional requirements for records management systems is recognised through their inclusion in the high-level model outlined in Section 2.3: Overview of functional requirements.

Specifications for the long-term preservation of electronic records are also beyond the scope of this Module as this issue should be addressed separately by a dedicated strategy for digital preservation or 'electronic archiving'. These electronic archiving considerations transcend the life of systems and are system independent; they need to be assessed in a specific longer-term strategic framework. However, recognition of the need to maintain records for as long as they are required must be addressed, and potential migration or format obsolescence issues should also be considered. Specific policies and procedures for these should be developed to support the longevity of records for permanent or long-term retention.

1.2 Purpose

This Module articulates a set of functional requirements for electronic records management systems. These requirements apply to records irrespective of the media in which they were created and stored. They are intended to:

- explain processes and requirements for identifying and managing records in electronic records management systems;
- develop requirements for records management functionality to be included in a design specification when building, upgrading or purchasing electronic records management systems software;
- inform records management functional requirements in the selection of commercially available electronic records management systems; and
- review the records management functionality or assess compliance of existing electronic records management systems.

This Module has been developed as part of an International Council on Archives project designed to:

- assist organisations to improve electronic records management practices;
- reduce the duplication of effort and associated costs in identifying a minimum level of records management functionality for electronic records management systems; and

- establish greater standardisation of records management requirements for software vendors across different jurisdictions.

1.4 Audience

The primary audience for this document is staff responsible for designing, reviewing and/or implementing electronic records management systems in organisations – whether those systems are commercial off-the-shelf electronic records management software applications, or custom-built applications. This Module primarily addresses the requirements of organisational records managers or system procurement project leaders, but will be relevant for jurisdictional standard-setters and the wider records management community. Another key audience is software vendors and developers who market and/or develop electronic records management system products. This Module is intended to inform their decision-making when designing records management functionality within electronic records management products.

Given the primary target audience for this document, the authors have tried to minimise the use of specific records management terminology. Where the use of such terminology is necessary, definitions can be found in the Glossary at Appendix A.

1.4 Related standards

Under its Electronic Records and Automation Priority Area, the International Council on Archives has developed a suite of guidelines and functional requirements as part of the Principles and Functional Requirements for Records in Electronic Office Environments project:

- *Module 1: Overview and Statement of Principles*;
- *Module 2: Guidelines and Functional Requirements for Records in Electronic Office Environments;* and
- *Module 3: Guidelines and Functional Requirements for Records in Business Systems.*

This document forms Module 2 of the project. It has been developed with the support of the Australasian Digital Recordkeeping Initiative.

While it is intended to serve as a stand-alone resource, for a broader understanding of the context and principles that have informed its development, readers should refer to *Module 1: Overview and Statement of Principles*. For details of appropriate functional requirements for (line of) business (information) systems, readers should refer to *Module 3: Guidelines and Functional Requirements for Records in Business Systems*.

Readers of this document should also take note of any relevant jurisdiction-specific standards and specifications.

Note: this module is not intended to over-ride any local or jurisdiction-specific legislation standards or requirements.

The requirements in this Module are aligned with the records management principles in ISO 15489 Information and Documentation – Records Management – Part 1: General, which sets out the records management requirements that also apply

when records are captured and managed within electronic records management systems.

The reference metadata standard for these requirements is ISO 23081 – 1: 2006, Information and Documentation – Records Management Processes – Metadata for Records, Part 1 – Principles. The high-level metadata element set found in ISO/TS 23081 – 2: 2007, Information and Documentation – Records Management Processes – Metadata for Records, Part 2 – Conceptual and Implementation Issues provides the basis for the requirements in this Module.

The requirements presented in this Module are core, high-level and generic requirements for records. Readers seeking guidance in other areas of software functionality not addressed in this Module can refer to other more detailed specifications such as US DoD 5015.2 and MoReq2.

1.5 Terminology

Many of the terms used in this document have differing definitions across disciplines. For example, the term 'archive' may mean a storage of little-used data in a database to an IT audience, whereas it means the retention of fixed appraised information no longer retained for current business use within the records management discipline. It is therefore important that this document is read in conjunction with the Glossary at Appendix A. A number of the central concepts used in this document are also outlined below, to avoid misinterpretation:

- **Records –** information created, received and maintained as evidence and information by an organisation or person, in pursuance of legal obligations or in the transaction of business. [1] They provide evidence of business transactions and can exist in any format.
- **Records management –** the control of the creation, receipt, maintenance, use and disposal of records in accordance with professional and international standards of practice. Records management is distinct from document management, which is typically concerned with the provision of access, collaborative working and version control of documents, rather than the management of authenticity, reliability, integrity and useability over time.
- **Electronic records management systems** (commonly referred to as EDRMS or ERMS) – systems specifically designed to manage the maintenance and disposition of records. They maintain the content, context, structure and links between records to enable their accessibility and support their value as evidence. Electronic records management systems are distinguished from business systems, for the purpose of this document, because their primary function is the management of records.
- **Business systems –** automated systems that create or manage data about an organisation's activities (for the purpose of this document). They include applications whose primary purpose is to facilitate transactions between an organisational unit and its customers, for example, an e-commerce system, client-relationship management system, purpose-built or customised

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2 International Standard on Records Management, ISO 15489.

database, and finance or human resources systems. Business systems typically contain dynamic data that is commonly subject to constant updates (timely), able to be transformed (manipulable) and holds current data (non- redundant). For the purpose of this document, business systems exclude electronic records management systems.

- **System –** use of the term 'system' in this document refers to a computer or IT system. This is in contrast to the records management understanding of the term, which encompasses the broader aspects of people, policies, procedures and practices. While the focus of this Module is primarily electronic records management systems software, organisations will need to pay attention to wider aspects of records management frameworks, policies and tools to ensure records can be appropriately managed. For example, fundamental records management tools, such as disposition authorities and information security classifications, must be in place and operate within an established records management culture within the organisation. A system may comprise more than one application and include plug-ins.
- **Records management metadata –** an inextricable part of records management, serving a variety of functions and purposes. In a records management context, metadata is defined as data describing the context, content and structure of records and their management through time (ISO 15489 – 1: 2001, 3.12). As such, metadata is structured or semi-structured information that enables the creation, registration, classification, access, preservation and disposition of records through time and within and across domains. Records management metadata can be used to identify, authenticate and contextualise records and the people, processes and systems that create, manage, maintain and use them, and the policies that govern them. Initially, metadata defines the record at its point of capture, fixing the record into its business context and establishing management control over it. During the existence of records or their aggregates, new layers of metadata will be added because of new roles in other business or usage contexts. This means that metadata continues to accrue information relating to the context of the records management and the business processes in which the records are used, and to structural changes to the record or its appearance.

  Metadata can be sourced or re-used by multiple systems and for multiple purposes. Metadata applied to records during their active life may also continue to apply when the records cease to be required for current business purposes but are retained for ongoing research or other values. The purpose of records management metadata is to ensure authenticity, reliability, usability and integrity over time, and to enable the management and understanding of information objects, whether these are physical, analogue or electronic. However, metadata also needs to be managed as a record or as a component of a record.

  Records management has always involved the management of metadata. However, the electronic environment requires a different expression of traditional requirements and different mechanisms for identifying, capturing, attributing and using metadata. In the electronic environment, authoritative

records are those accompanied by metadata defining their critical characteristics. These characteristics must be explicitly documented rather than being implicit, as in some paper-based processes.

1.6 Structure

This document is divided into four main parts:

- **Part 1**: **Introduction** – explains the scope, purpose, audience and structure of the document.
- **Part 2**: **Guidelines** – provides an overview of the module's conceptual basis and presents a high-level model of electronic records management system functionality. This section provides background information on the importance of records management, describes key terms and concepts, and outlines the framework of Part 3: Functional requirements. It also outlines some of the issues and processes to be considered when reviewing, designing or purchasing electronic records management systems.
- **Part 3**: **Functional requirements** – provides a tabulation of the records management functional requirements that define the characteristics of an electronic records management system, and forms the records management functional requirements for systems assessment.
- **Part 4**: **Appendices** – provides a glossary of key terms, additional readings and a sample checklist of requirements for reviewing an existing electronic records management system.

2 GUIDELINES

2.1 What are records and why are they important?

Records are a valuable business asset. One of the key ways organisations are held accountable for their actions is through evidence of business transactions in the form of records. Records are 'information created, received, and maintained as evidence and information, by an organisation or person, in pursuance of legal obligations or in the transaction of business.' [2] They must be retained for a period of time that is in line with an authorised retention schedule or disposition authority, sometimes referred to as a 'disposition'.

A record is not just a collection of data, but is the consequence or product of an event and therefore linked to business activities. A distinguishing feature of records is that their content must exist in a fixed form, that is, be a fixed representation of the business transaction. Managing records in business systems, which contain data that is frequently updated and dynamic, is particularly challenging and may provide a rationale for implementing a separate electronic records management system. Records comprise not only content but also information about the context and structure of the record. Records management metadata 'identifies, authenticates and contextualises records and the people, processes and systems that create, manage, maintain and use them and the policies that govern them.' [3] It allows records to be located, rendered and understood in a meaningful way. ISO/TS 23081 – 2 provides a generic statement of records management metadata elements. Organisations may also have jurisdiction-specific elements sets to which they must adhere.

An appropriately managed record will provide a basis for:

- transparent, informed and quality decision-making and planning;
- an information resource that can be used to demonstrate and account for organisational activities; and
- consistency, continuity and efficiency in administration and management.

The International Standard on Records Management, ISO 15489, provides best- practice guidance on how records should be managed to ensure they are authentic, reliable, complete, unaltered and usable. Organisations that do not employ an electronic records management system may risk loss of key evidence of their business activities, thereby resulting in a lack of corporate memory, inefficiency and an inability to meet accountability and legislative requirements. The risks of not implementing an electronic records management system are:

- failure to meet legislative and regulatory requirements;

2 International Standard on Records Management, ISO 15489.

3 International Standard on Information and Documentation – Records Management Processes – Metadata for Records, ISO 23081.

- embarrassment to your chief executive, the government and/or private individuals, especially if inability to manage information competently is highlighted in the media;
- poor strategic planning and poor decisions based on inaccurate information;
- business critical information not accessible for the conduct of business, dispute resolution, legal challenge or evidential purposes;
- loss of credibility, lowered public confidence, or financial or legislative penalties through inability to produce records or provide evidence of business activity when required in a timely manner;
- inability to provide evidence of the organisation's activities or undertakings with external agencies, clients or contractors;
- inconsistent and inefficient conduct of business;
- inability to exploit organisational information and knowledge to full potential;
- unlawful disposal of records and inability to fully exploit corporate knowledge and data;
- duplication of effort, and poor resource and asset management;
- reduced capability of demonstrating good performance and any increased efficiencies or improved service delivery; and
- organisational embarrassment and damage to reputation.

The benefits of good recordkeeping include:

- protection and support in litigation, including the management of risks associated with the existence or lack of evidence of organisational activity;
- protection of the interests of the organisation and the rights of employees, clients, and present and future stakeholders;
- improved security of business records and robust management of commercial-in-confidence, personally sensitive or confidential information;
- the ability to deliver services in an efficient and consistent manner;
- ability to support current and future research and development activities;
- improved comprehensiveness and reliability of corporate memory;
- availability of relevant business activity records when required to support well-informed decision-making and policy development;
- reduced risk of data loss or accidental destruction of records;
- reliable performance measurement of business outputs;
- increased public and/or client confidence in the integrity of an organisation's activities; and
- identification of vital records for disaster planning, so that organisations can continue to function in the event of severe disruption.

Authoritative and credible recordkeeping is an essential component of good governance and for underpinning reliable and consistent business practice and service delivery.

2.2 Characteristics of electronic records and electronic records management systems

Once records have been created, they must be managed and maintained for as long as required to ensure they have the following characteristics: [4]

- **Authenticity** – the record can be proven to be what it purports to be, to have been created or sent by the person that created or sent it, and to have been created or sent at the time it is purported to have occurred.
- **Reliability** – the record can be trusted as a full and accurate representation of the transaction(s) to which they attest, and can be depended on in the course of subsequent transactions.
- **Integrity** – the record is complete and unaltered, and protected against unauthorised alteration. This characteristic is also referred to as 'inviolability'.
- **Usability** – the record can be located, retrieved, preserved and interpreted.

Typically, electronic records management systems have the following attributes that seek to ensure these characteristics are maintained:

- **Creating records in context** – electronic records management systems enable organisations to capture evidence of their business activity. This involves identifying a set of electronic information to serve as the evidential record comprising both content and context. So, in order for information to have the capability of functioning as a record, it is necessary to augment that content information with additional data (that is, metadata) that places it in the context of the business operations and computing environment in which it was created.

- **Managing and maintaining records** – electronic records have to be actively managed as evidence of business activity, and to maintain their authenticity, reliability, integrity and usability. Maintenance of this evidence, as records, is necessary for operational viability and accountability of the organisation.
- **Maintaining records for as long as they are required** – records must be retained for a period of time that is in accordance with authorised legislative and jurisdictional requirements. Decisions about how long records must be retained are defined in disposition/disposal policies and rules. There will be some records that must be retained permanently while others will be required to be retained for varying periods or have a maximum retention period (for example, for privacy or data-protection legislative purposes).

  Records have to be able to be disposed of in a managed, systematic and auditable way. A hallmark of appropriate records management is the retention and appropriate disposition of records according to specified rules.

5 These are taken from ISO 15489.1 Records Management, Section 7.2 Characteristics of records.

Systems need to be able to delete records in a systematic, auditable and accountable way in line with operational and juridical requirements. Organisations will need to meet the policies and procedures of their local jurisdictional authority for identifying, retaining and disposing of records.

- **Records management metadata can be configured** – to be meaningful as evidence of a business process, records must be linked to the context of their creation and use. To do this, the record must be associated with metadata about the business context in a classification structure. In addition to this 'classification' metadata, other metadata that should be captured at the point of creation includes:

  – identifier; – date of

  creation;

  – creator/author/person responsible; and – the

  business being conducted.

  Much of this information can be automatically generated. In this Module, integration of metadata for managing records is addressed at a relatively high level. Rather than specifically detailing every metadata element required, the functional requirements set instead provides broad references to the need to have functionality that is capable of creating, capturing and maintaining adequate metadata elements. It is expected that each organisation will capture records management metadata in line with an identified records management metadata standard, in accordance with organisational and/or jurisdictional requirements, and/or be consistent with ISO 23081 – 1: 2006, Information and Documentation – Records Management Processes – Metadata for Records, Part 1 – Principles; and ISO/TS 23081 – 2: 2007, Information and Documentation – Records Management Processes – Metadata for Records, Part 2 – Conceptual and Implementation Issues.

- **Records can be reassigned or reclassified, closed and if required, duplicated and extracted** – the identification of needs for records should establish at what point in the process a record should be created. Any further processes that happen to the record after this point must result in the creation of a new record or the recorded augmentation/versioning of the existing record, rather than alteration to it. This means that content and metadata that need to be kept to record previous decisions or processes cannot be overwritten, but that new content or metadata can be added.

  It is important to ensure that the system is not 'locked down' to such an extent that simple mistakes (such as mistyping a name) cannot be corrected – although permission for changes may be restricted to a system administrator or prevented by the system in exceptional circumstances, such as pending legal action.

- **Reports can be undertaken** – on records and the management thereof.

- **Security processes can be put in place** – normal systems controls over access and security support the maintenance of authenticity, reliability, integrity and usability, and therefore should be appropriately documented.

A risk assessment can inform business decisions as to how rigorous the controls need to be. For example, in a high-risk environment, it may be necessary to prove exactly what happened, when and by whom. This links to systems permissions and audit logging, to prove that approved actions are undertaken by authorised users. User requirements should be assigned at appropriate levels of access by an administrator.

Table 1: System levels of access

User	Any person with permission to access the electronic records management system. That is, anyone who creates, receives, reviews and/or uses records stored in the system. This is the standard level of access that most employees of an organisation will possess.
Authorised user	A user with special access permissions that allow additional access to, and/or control over, records contained in the electronic records management system. Authorised users may in some instances be assigned permissions to undertake tasks similar to those of the system administrator, such as the ability to close and re-open records, create extracts of records and edit record metadata. The powers assigned to authorised users will vary depending on the business needs of the organisation and the level of responsibility allotted to the authorised user.
Records administrator (or records manager)	A system administrator, usually the records manager, with designated responsibility for configuring, monitoring and managing the electronic records management system content and its use.
System administrator (IT)	A person with responsibility for assigning and removing the permissions allocated to users and authorised users.

2.2.1 Supporting import, export and interoperability

The ability to import and export records, and interoperability with other systems, is frequently required functionality. Records may need to be exported to other organisations in the event of mergers or government re-organisational changes.

Many records may need to be retained for longer than the lifespan of the software system itself, and therefore there is a need to be able to export records when transitioning to a new electronic records management system. There may also be a need to import records from business systems, particularly in collaborative business environments.

For ease of import and export, use of open formats and industry standards will increase levels of interoperability and reduce the cost and difficulty of any import/export process.

This functionality must be addressed at the planning stages as part of the business requirements.

2.2.2 Authentication, encryption and technological protection measures

These issues have an impact on the reliability of records issue. Electronic records management systems must allow records to be effectively managed when they have been subject to technological protection measures, electronic signatures and electronic watermarks (digital rights management). They should give particular

consideration to the ongoing maintenance of records that have been subject to encryption and digital signatures. While encryption and digital signatures have a valuable role to play in ensuring the authenticity and integrity of records in transmission, they also present risks to the ongoing useability of the record as decryption keys and public keys for digital signatures may expire while the record is still required. For this reason, storing records in encrypted form is not recommended. Metadata can record the encryption and decryption processes and attest to the successful decryption of records.

If digital signatures are used as a means of protecting the authenticity and integrity of records, key management must be considered. Information about the digital signature and its validation should be recorded within the metadata.

2.3 Overview of functional requirements

This section identifies and briefly describes the functional requirements using a high-level model that clusters the requirements to highlight their inter-relationships (Figure 1). The model is primarily intended to provide an overview for readers who are not records management professionals.

Requirements for the long-term preservation of records, requirements common to all software applications and non-records management functionality are not detailed in this Module, but are indicated in the high-level model (solid grey shading). Potential integration points with IT architecture and other software applications are shown in the model as system inputs.

Individual requirements in Part 3: Functional requirements are grouped according to the clusters in the high-level model:

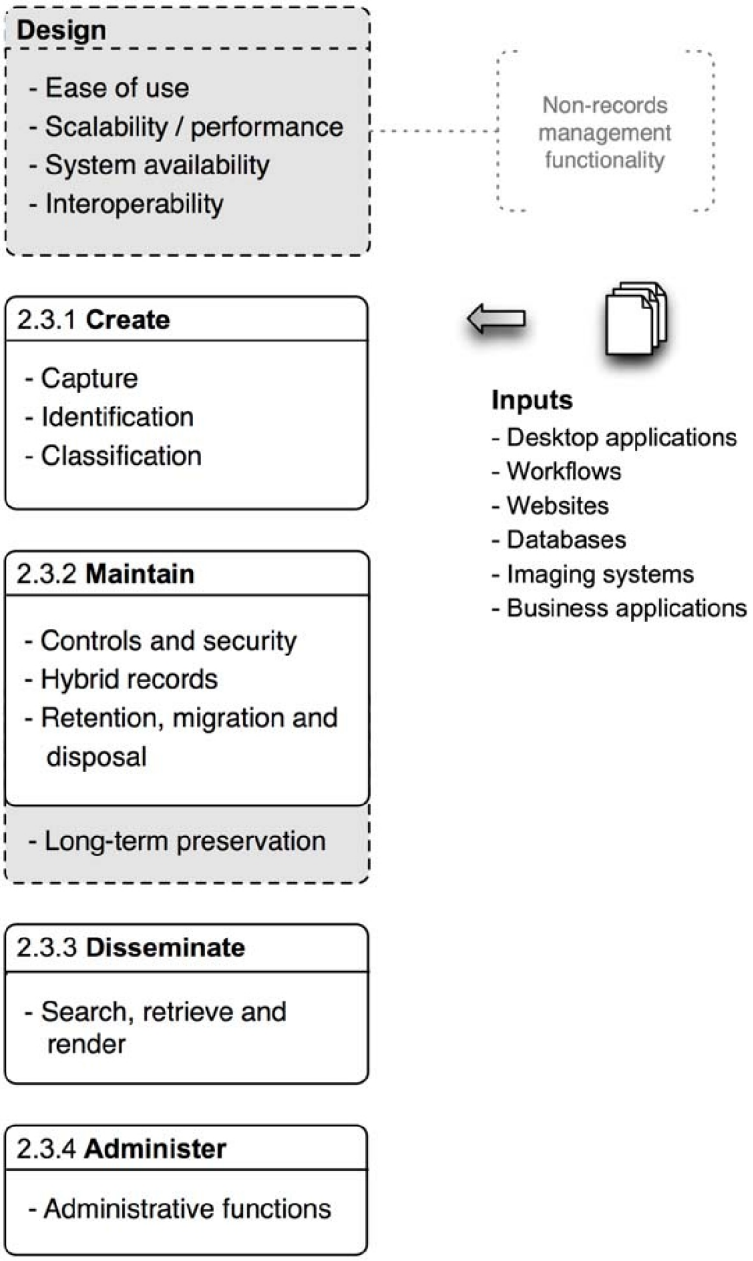
• create •

maintain •

disseminate •

administer.

Figure 1: Model of high-level functional requirements for electronic records management systems



Notes:

- Solid grey shading indicates functionality not detailed in Part 3: Functional requirements.
- This model depicts the functional requirements that are the components of electronic records management systems. It does not depict the sequence of work processes that electronic records management systems perform.

2.3.1 Create

Capture

Electronic records management systems uniquely capture, classify and identify records to ensure that their content, structure and context of creation are fixed in time and space. These records management processes facilitate the making of complete, authentic and usable records. There should be functionality to create a new record by reusing the content, structure and context of records once captured. While version/document control is beyond the scope of this Module it may also provide some of this functionality.

Records aggregations

Aggregations of electronic records are accumulations of related electronic record entities that, when combined, may exist at a level above that of a singular electronic record object, for example, a file. Aggregations represent relationships that exist between related electronic records and the system or environment in which they were created, and are recorded in their metadata links and/or other associations. These aggregations are typically controlled within a classification scheme in an electronic records management system.

Electronic records management systems may contain aggregations of records, records that are not aggregated, or both. Records aggregations structure related electronic records and support their management and usability. They may be at more than one level, and may have multiple relationships within separate aggregations.

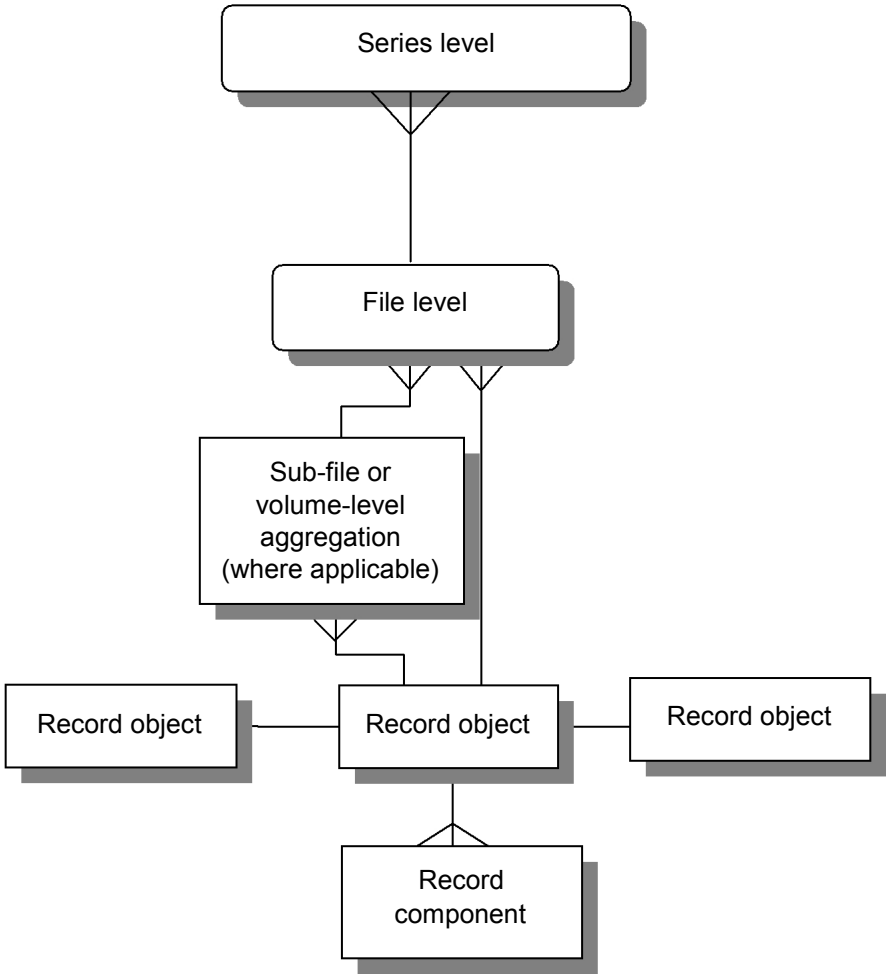
Aggregations of electronic records may reflect relationships such as shared characteristics or attributes, or the existence of sequential relationships between related electronic records. The nature of the relationship between the electronic records of a particular aggregation will vary depending on factors such as their purpose and structure, and the content and format of the records themselves.

For example, an aggregation of electronic records may collectively constitute a narrative of events (that is, a series of connected business transactions), in which the records may have a sequential relationship. Any such sequential relationship between electronic records can be determined through the metadata elements associated with the records, such as titles, dates, author, container number (where applicable), and other such attributes. Where these relationships exist between records imported or extracted from external business systems, the electronic records management system should be capable of identifying, capturing, documenting and preserving them.

These aggregations may be formal, structured relationships (for example, digital files containing related digital documents), or may exist as less formalised, tightly bound metadata relationships recognised as establishing links between related records within an aggregation.

The aggregations must be fixed and maintained over time. Any change to an aggregation must be logged with an explanation. Aggregation for the management of records purposes should not be confused with, or replaced by, the generation of multiple, different aggregations in response to search requests or report queries.

Figure 2: Aggregation of records



Identification (registration)

To verify their existence within the system, every record and associated aggregation must have a unique identifier persistently linked to it. This allows the user to locate records and helps them to distinguish between versions.

Classification

Within electronic records management systems implementations, aggregations are often used to enable inheritance of characteristics to records created or related at a lower level of aggregation. Typically in electronic records management systems, information is managed as record objects, and aggregates these objects into a set of series or files. Agencies should take into account their own business needs when determining suitable records aggregations (for example, by function, activity or transaction) within their agency. Within a business classification scheme, a record's contextual characteristics are attributed through structuring them according to identifiable business processes.

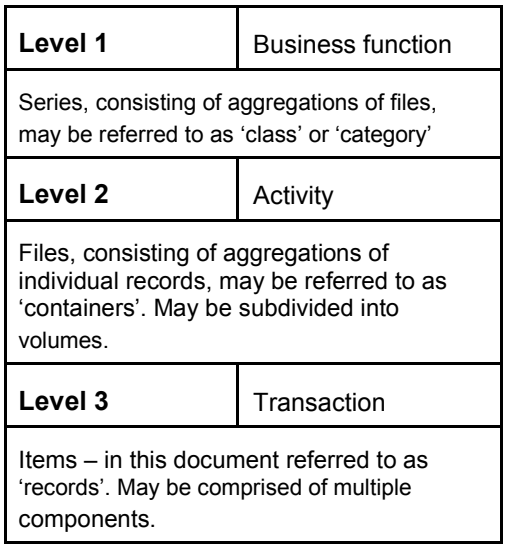
Subject-based classification schemes will allow records relating to broad subject areas to be grouped together, that is, the transactions and activities that occurred under a single subject, such as a particular property or client. However, under subject-based classification, the focus is on what the item or object is about, rather than on the purpose or activity that the record was created to document. Therefore, the context of the business activity can become disassociated, making disposal actions over subject- based files more difficult as they will contain records with differing retention periods.

Functional classification schemes are based on an analysis of the unique business functions and activities of an organisation, and are independent of the organisation's administrative structure. This makes functional classification more flexible and stable as business units and structures are likely to change over time. This system breaks down traditional organisational information silos and enables easier retention and disposal.

Business classification scheme

A business classification scheme is a conceptual hierarchical classification tool that can facilitate the capture, titling, retrieval, maintenance and disposition of records. It defines the way in which records are grouped together (aggregated) and linked to the business context in which they were created or transmitted. For example, individual records in an organisation-wide electronic records management system may be aggregated into series with their constituent record parts and contextual metadata, or may be subsequently aggregated into files. (Note that these terms are indicative only. Different electronic records management systems employ different terminology.) Records are often aggregated at three levels of granularity according to a three-tiered functional classification scheme as follows:

Figure 3: Three-tiered functional classification scheme



Note: This is a basic model. Aggregation to more than three levels may be necessary depending on the business processes described, or for clearer definition of complex topics.

The record (object) is located at the very bottom of the aggregation hierarchy. Some metadata values may be inherited from a higher layer of aggregation by all those

files or objects located below. Regardless of how many levels of aggregation below series or file level are implemented, each level should be consistent with the metadata requirements for the higher aggregation level.

2.3.2 Maintain

Managing authentic and reliable records

Records captured into electronic records management systems must be actively maintained to ensure their continued accessibility. Establishing appropriate security controls, building in disposal outcomes and enabling the management of hybrid records facilitate comprehensive, authentic, useable, tamper-proof and appropriately disposed records.

Controls and security

Records captured into an electronic records management system must be protected against intentional or accidental alteration of their content, structure and context throughout their life to retain their authenticity. Electronic records management systems must control access to, or alteration of, metadata. Location tracking, access controls and control over any alteration of records ensure the authenticity of records in an electronic records management system.

Hybrid records management

Agencies typically manage records that span a range of electronic and non-electronic media. Electronic records management systems must be able to ingest and maintain records management metadata relating to non-electronic records as well as electronic records and any associated records management metadata. Essentially, contextually related records regardless of whether they are in electronic or non-electronic format must be managed and subject to the same records management processes within their aggregations.

To facilitate hybrid records management functionality, the electronic records management system must be able to capture and maintain metadata relating to physical records. This requires the creation of markers that are metadata profiles of records physically held outside the business system. Markers contain metadata required by the business system to locate and manage physical records and allocate system management controls to them. A marker may denote a physical record, such as a plan or paper file, or an electronic record or aggregation of electronic records stored on removable media, such as a CD-ROM or magnetic tape.

Retention and disposal

Disposition authorities are policies that authorise the disposal of records, whether by destruction, transfer of control or applying a review period. Disposition/disposal authorities consist of disposal actions and retention periods for aggregations of records that may have a legislative or organisational use/requirement source. Organisations should review disposal actions when the relevant retention periods have expired.

Records are often transferred between electronic records management systems for a range of reasons other than disposal, for example, migration to a new electronic records management system as a result of a technology refresh or an organisational restructure. In all cases, where there is transfer of records (whether this involves movement to another electronic records management system or not) and/or subsequent destruction of records from the original electronic records management system, any existing records management metadata and point of capture metadata must be considered at the same time as the records to which they relate.

2.3.3 Disseminate

An electronic records management system must be able to search for, retrieve and render the records that it maintains. These functions facilitate useable records.

Searching is the process of identifying records or aggregations through user-defined parameters so that the records, aggregations and/or their associated records management metadata can be retrieved. Search and navigation tools are required to locate records, aggregations or records management metadata by employing a range of searching techniques to cater for novice and sophisticated users. Retrieving is the process of preparing the located records for rendering and viewing.

Rendering is the production of a human-readable representation of a record, usually to a visual display screen or in hardcopy format. Electronic records management systems typically contain records in a range of file formats. The user must be able to have human-readable access to records stored in all these formats through an appropriate rendering interface. Where it is meaningful to print a hardcopy of a record, the electronic records management system must provide functionality to allow all users to obtain printed copies of records and their records management metadata where appropriate.

2.3.4 Administer

As with most software applications, there is a need for a system administrator to undertake system maintenance and other support functions, such as maintenance of access groups and updating of the business classification system. Administration facilitates useable records, reliable systems, systematic practices and the routine application of records management procedures. This Module only refers to management of records administration that must be controlled and auditable to ensure the integrity, authenticity and reliability of the records.

2.4 Using the functional requirements set

Part 3 lists the set of functional requirements for the management of records in electronic systems. They are grouped according to the clusters from the high-level model in Figure 1**.**

2.4.1 Key outcomes

The functional requirements focus on the outcomes required to ensure records are managed appropriately, regardless of the type of electronic records management system employed. As the functional requirements provide a high-level description of

records management functionality rather than detailed specifications, it is recognised that the techniques and strategies to achieve the outcomes will depend on the type of system being used. It is intended that each organisation should tailor the functional requirements to meet its individual business needs.

2.4.2 Obligation levels

The keywords 'must', 'should' and 'may' that appear in the requirements in Part 3 indicate the relative importance of each requirement. These keywords are to be interpreted as follows:

- Must – requirements that use 'must' are necessary an absolute requirement for compliance with the requirement.
- Should – requirements that use 'should' may be ignored if a valid reason exists, but the full implications of this must be understood and carefully considered before choosing a different course.
- May – requirements that use 'may' are truly optional and may be incorporated or omitted as appropriate.

This document reflects international consensus; the requirements and obligation levels are not jurisdictionally specific or legally binding. Users should asses their own legislative environmental issues, business requirements and risk assessments where appropriate.

2.4.3 Risk and feasibility of not meeting the requirements

Risk is an important factor that should be considered in the management of records and applying these obligation levels and requirements. Possible risks may include adverse publicity, inefficient business activity, impaired ability to deliver services and a reduction in the organisation's capacity to prosecute or defend allegations.

There is a wide range of requirements to show evidence of business processes. If there are any requirements that an organisation is considering not meeting, a risk and feasibility analysis can help determine an appropriate course of action, and ensure accountability in decision-making.

Organisations may have jurisdiction-specific risk management frameworks in place that define different levels of risk, which can be used to prioritise the identified requirements for evidence.

A feasibility analysis can help organisations to consider, in a structured way, the financial, technical, legal or operational capacity of the organisation.

3 FUNCTIONAL REQUIREMENTS

This part presents the set of functional requirements for electronic systems. They are divided into four sections according to key records management concepts and processes as outlined in Part 2: Guidelines:

• create •

maintain •

disseminate •

administer.

The functional requirements are focused on the outcomes required to ensure records are managed appropriately. They do not specify particular processes, as it is recognised that the techniques and strategies to achieve the outcomes will depend on the organisation and electronic records management system being used. The introductory text to each section provides summary information regarding the records management concept and the overarching aim of the subsequent requirements.

While they do not cover common system management and design requirements, such as interoperability, scalability and performance, it is acknowledged that such processes also support the recordkeeping functionality of the system. The functional requirements assume that a basic records management framework is in place, such as policies, procedures, and business retention and classification.

CREATE

3.1 Capture

Records are created in a diverse range of formats, may comprise multiple individual objects (compound records), and are transmitted by a wide range of communication channels (workflows, email, postal mail). Electronic records management systems must capture the content, structure and context of records to ensure they are reliable and authentic representations of the business activities or transactions in which they were created or transmitted. This is known as 'point of capture' metadata and should in itself be captured as a record; it should not be possible to alter any of these metadata features without changes being tracked and auditable.

3.1.1 Capture processes

The electronic records management system **must**:

1	Enable integration with business applications so that transactional records created by those applications can be captured within the electronic records management system (including email, see Requirements 21–25).
2	Indicate when an individual record is captured within the electronic records management system.

3	Prevent the alteration of the content of any record by any user or administrator during the process of records capture. See also Requirements 88 and 89.
4	Prevent the destruction or deletion of any record by any user, including an administrator, with the exceptions of: • destruction in accordance with a disposition authority (see Section 3.6: Retention and disposal); and • authorised deletion by an administrator (see Section 3.8: Administration).
5	Support manual naming of electronic records, and allow this name to be different from the existing file name (including email subject lines used to construct record titles). If the existing filename is taken by default, the electronic records management system must allow this name to be amended at the time of capture.
6	Allow an administrator to alter the metadata of a record within the system if required, to allow finalisation/correction of the record profile. Any such action must be captured in a records management metadata.
7	Any revision or alteration of the records management/capture metadata must be captured as additional records management metadata.
8	Alert a user to any failure to successfully capture a record.
9	Be able, where possible and appropriate, to provide a warning if an attempt is made to capture a record that is incomplete or inconsistent in a way which will compromise its future apparent authenticity.

3.1.2 Point of capture metadata

To be meaningful as evidence of a business process, records must be linked to the context of their creation and use. In order to do this, the record must be associated with metadata about the business context in which it was created and its point of capture into the system

Much of this information can be automatically generated by the system. It is expected that each organisation will capture records management metadata in line with an identified records management metadata standard (compliant with ISO 23081), and organisational and/or jurisdictional requirements.

The electronic records management system **must**:

10	Support the use of persistent metadata for records.
11	Acquire metadata elements for each record and persistently link them to the record over time.
12	Ensure that the values for metadata elements conform to specified encoding schemes.
13	Allow the administrator to pre-define (and re-define) the metadata elements associated with each record, including whether each element is mandatory or optional.
14	Allow all metadata for every record to be viewed by users, subject to access rights for individuals or groups of users.
15	Automatically capture the date and time of capture of each record as metadata elements linked to each record.

16	Support automatic extraction or migration of metadata from: • the software application that created the record; • an operating system or line of business system; • an electronic records management system; and • the file header, including file format metadata, of each record and its constituent components captured into the system.
17	Prevent the alteration of metadata captured in Requirement 16, unless authorised by the system administrator.
18	Allow entry of additional metadata by users during record capture and/or a later stage of processing by the user.
19	Ensure that only authorised users and administrators can change the content of records management metadata elements.
20	Allocate an identifier, unique within the system, to each record at point of capture automatically.

3.1.3 Aggregation of electronic records

Aggregations of electronic records are accumulations of related electronic record entities that when combined may exist at a level above that of a singular electronic record object, for example, a file or series. These relationships are reflected in the metadata links and associations that exist between the related electronic records, and between the electronic records and the system. For example, an aggregation of electronic records may collectively constitute a narrative of events (that is, a series of connected business transactions), in which the records may have a sequential relationship. Any such sequential relationship between electronic records can be determined through the metadata elements associated with the records, such as titles, dates, author, container number (where applicable), and other attributes. Where these relationships exist between records controlled by the electronic records management system, the system should be capable of identifying, capturing, documenting and maintaining or systematically disposing of them.

The electronic records management system **must**:

21	Ensure that all records captured within the electronic records management system are associated with at least one aggregation.
22	Manage the integrity of all markers or other reference tags to records (where used), ensuring that: • following a marker, whichever aggregation that the marker record is located in, will always result in correct retrieval of the record; and • any change in location of a record also redirects any marker that references that record.
23	Not impose any practical limit on the number of records that can be captured in an aggregation, or on the number of records that can be stored in the electronic records management system. However, the system may permit the administrator to set limitations on the quantity of items within an aggregation if required for business purposes.

24	Allow users to choose at least one of the following where an electronic object has more than one manifestation: • register all manifestations of the object as one record; • register one manifestation of the object as a record; or • register each manifestation of the object as a discrete record.

The electronic records management system **should**:

25	Support the ability to assign records to multiple aggregations without their duplication. [5]

3.1.4 Bulk importing

Records and their metadata may be captured into an electronic records management system in bulk in a number of ways, for example, from another electronic records management system or as a bulk transfer from an electronic document management system or workflow application. The electronic records management system must be able to accept these, and must include features to manage the bulk capture process.

The electronic records management system **must**:

26	Be able to capture in bulk records exported from other systems, including capture of: • electronic records in their existing format, without degradation of content or structure, retaining any contextual relationships between the components of any individual record; • electronic records and all associated records management metadata, retaining the correct contextual relationships between individual records and their metadata attributes; and • the structure of aggregations to which the records are assigned, and all associated records management metadata, retaining the correct relationship between records and aggregations. [6]
27	Be able to import any directly associated event history metadata with the record and/or aggregation, retaining this securely within the imported structure.

3.1.5 Electronic document formats

Electronic records management systems will have to deal with a range of formats, both common applications and often business-specific formats. The electronic records management system must have the functionality to deal with the formats that you commonly use or are common to your business environment. This will vary across systems and organisations.

For ease of migration and export, use of open formats and industry standards will increase levels of interoperability and reduce the cost and difficulty of maintaining records effectively.

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5 For example, an invoice might be added to a supplier file by one user and to a product file by another. This could be achieved by using a marker system.

6 For example, maintaining a persistent embedded metadata record of the original classification schema.

The electronic records management system **must**:

28	Support the capture of records created in native file formats from commonly used software applications such as: • standard office applications (word processing, spread-sheeting, presentation, simple databases); • email client applications; • imaging applications; and • web authoring tools.
29	Be able to extend the range of file formats supported as new file formats are introduced for business purposes or for archival retention (for example, PDF/A). [7]

3.1.6 Compound records

Electronic records will comprise at least one component. An electronic record such as a text document will usually be a discrete record and comprise a single record object. Electronic records that comprise more than one component or multiple record objects, for example, a large technical report with dynamic links to diagrams and spreadsheets, may be referred to as 'compound records'.

The nature of the components that comprise a given electronic record will vary. A component may be an electronic object, such as an electronic document, or a data element, such as an entry in a database. For example, a component of an electronic record in a system that encompasses the management of documents may consist of a single word-processed document, while components forming an electronic record in a human resource management system may comprise a number of closely linked data entries in a database (such as all data entered in connection with a single staff member's personnel profile). These compound records should not be confused with internal record components or elements, such as a record object and its metadata or physical document and its marker.

The electronic records management system **must**:

30	Capture compound electronic records (records comprising more than one component) so that: • the relationship between the constituent components of each compound record is retained; • the structural integrity of each compound record is retained; and • each compound record is retrieved, displayed and managed as a single unit.
31	Be able to capture compound records easily, preferably with one action, for example, a single click.

7 It is not always possible to capture specialised records (or those from specialised systems) with an electronic records management system; however, this risk should be mitigated against. Strategies for normalisation of formats for capture or a process of capturing the entire system should be considered. Where this is not possible, building records management capability into the business information system should be considered.

3.1.7 Email

Email is used for sending both simple messages and documents (as attachments), within and between organisations. The characteristics of email can make it difficult to track and register. Organisations must provide users with the capability of capturing selected email messages and attachments.

The electronic records management system **must**:

32	Allow users to capture emails (text and attachments) as single records as well as individual records linked by metadata.
33	Allow individual users to capture email messages (and attachments) from within their email application.
34	Allow users to choose whether to capture emails with attachments as: • email text only; • email text with attachments; or • attachments only. [8]
35	Ensure the capture of email transmission data as metadata persistently linked to the email record.
36	Ensure that the text of an email and its transmission details cannot be amended in any way once the email has been captured. Nor should the subject line of the email itself be changeable, although the title of the record may be edited for easier access through, for example, keywords or by file-naming conventions.
37	Ensure that a human-readable version of an email message address is also captured, where one exists. [9]

3.2 Identification

To verify their existence within a system, every record and associated aggregation must have a unique identifier persistently linked to it. This allows to the user to locate records and helps them to distinguish between versions.

The electronic records management system **must**:

38	Associate each of the following with a unique identifier: • record; • record extract; and • aggregation.
39	Require all identifiers to be unique and unduplicated within the entire electronic records management system.
40	Be able to store the unique identifiers as metadata elements of the entities to which they refer.
41	*Either*: Generate unique identifiers automatically, and prevent users from inputting the unique identifier manually and from subsequently modifying it (for example, a sequential number) .

8 It is essential that these processes are recorded and embedded within the metadata of the records. The user must be alerted to the existence of the related items.

9 For example, for 'Samuel Johnson' <samjo@worldintnet.org> – 'Samuel Johnson' is the human- readable version of the email address samjo@worldintnet.org.

42	*Or*: Allow users to input a unique identifier, but validate that it is unique before it is accepted (for example, an account number).
43	Allow the format of the unique identifier to be specified at configuration time. [10]

Where unique identifiers are automatically generated, the electronic records management system **should**:

44	Allow the administrator to specify at configuration time the starting number (for example, 1, 10, 100) and increment (for example, 1, 10) to be used in all cases.

3.3 Classification

3.3.1 Establishing a classification scheme

A records classification scheme is a hierarchical classification tool that can facilitate the capture, titling, retrieval, maintenance and disposal of records. A classification scheme lies at the heart of any electronic records management system since it defines the way in which individual electronic records are grouped together (aggregated) and linked to the business context in which they were created or transmitted. By aggregating records, many of the records management processes described below can be carried out quickly and efficiently.

The electronic records management system **must**:

45	Support and be compatible with the organisational classification scheme.
46	Be able to support a classification scheme that can represent aggregations (at the function, activity, transaction level) as being organised in a hierarchy with a **minimum** of three levels.
47	Allow the inheritance of values from a classification scheme.
48	Allow naming conventions or thesauri to be defined at the time the electronic records management system is configured.
49	Support the initial and ongoing construction of a classification scheme.
50	Allow administrators to create new aggregations at any level within any existing aggregation.
51	Not limit the number of levels in the classification scheme hierarchy unless set by an administrator.
52	Support the definition of different record types that are associated with a specified set of metadata to be applied at capture.
53	Support the allocation of unique identifiers to records within the classification structure

10 The identifier may be numeric or alphanumeric, or may include the concatenated identifiers of the volume and electronic aggregations above the record in the classification scheme.

Where the unique identifiers are based on sequential numbering, the electronic records management system **should**:

54	Have the capacity to automatically generate the next sequential number within the classification scheme for each new electronic aggregation. [11]

The electronic records management system **may**:

55	Support a distributed classification scheme that can be maintained across a network of electronic record repositories.

Where the electronic records management system employs a graphical user interface, it **must**:

56	Support browsing and graphical navigation of the aggregations and classification scheme structure, and the selection, retrieval and display of electronic aggregations and their contents through this mechanism.

The electronic records management system **should**:

57	Support the definition and simultaneous use of multiple classification schemes. This may be required, for example, following the merger of two organisations or migration of legacy systems. It is not intended for routine use.

3.3.2 Classification levels

The electronic records management system **must**:

58	Support metadata for levels within the classification scheme.
59	Provide at least two naming mechanisms for records in the classification scheme: • a mechanism for allocating a structured alpha, numeric or alphanumeric reference code (that is, an identifier which is unique within the classification scheme) to each classification level; and • a mechanism to allocate a textual title for each electronic aggregation. It must be possible to apply both identifiers separately or together.
60	Allow only authorised users to create new classifications at the highest level in the classification scheme (for example, at the business function level).
61	Record the date of opening of a new aggregation within its associated records management metadata.
62	Automatically include in the records management metadata of each new aggregation those attributes that derive from its position in the classification scheme (for example, name, classification code). [12]

11 For example, if the following aggregations are within a classification scheme:

- 900 - 23 - 01 Manufacturing : Order Processing : Sales Order Validation;
- 900 - 23 - 02 Manufacturing : Order Processing : Invoicing;
- 900 - 23 - 03 Manufacturing : Order Processing : Credit Note Processing;

and the administrator adds a new aggregation to the 'Order Processing' aggregation, the electronic records management system should automatically assign it the reference 900 - 23 - 04. Likewise, if the administrator adds a new class to the 'Manufacturing' aggregation, the electronic records management system should automatically assign it the reference 900 - 24.

63	Allow the automatic creation and maintenance of a list of classification levels.

The electronic records management system **should**:

64	Support a naming mechanism that is based on controlled vocabulary terms and relationships drawn (where appropriate) from an ISO 2788-compliant or ISO 5964-compliant thesaurus and support the linking of the thesaurus to the classification scheme.
65	Support an optional aggregation naming mechanism that includes names (for example, people's names) and/or dates (for example, dates of birth) as file names, including validation of the names against a list.
66	Support the allocation of controlled vocabulary terms compliant with ISO 2788 or ISO 5964 as records management metadata, in addition to the other requirements in this section.

3.3.3 Classification processes

The electronic records management system **must**:

67	Allow an electronic aggregation (including volumes) to be relocated to a different position in the classification scheme, and ensure that all electronic records already allocated remain allocated to the aggregations (including volumes) being relocated. [13]
68	Allow an electronic record to be reclassified to a different volume of an electronic aggregation.[14]
69	Restrict to authorised users the ability to move aggregations (including volumes) and individual records.
70	Keep a clear history of the location of reclassified aggregations (including volumes) prior to their reclassification, so that their entire history can be determined easily. [15]
71	Prevent the deletion of an electronic aggregation or any part of its contents at all times, with the exceptions of: • destruction in accordance with a disposal authority; and • deletion by an administrator as part of an audited procedure.
72	Allow an electronic aggregation to be closed by a specific administrator procedure, and restrict this function to an administrator.
73	Record the date of closing of a volume in the volume's records management metadata.
74	Maintain internal integrity (relational integrity or otherwise) at all times, regardless of: • maintenance activities; • other user actions; and • failure of system components. [16]

12 For example, if a file is in a hierarchical path: 'Regional plan development : Public consultation : Public submissions' and the administrator adds a new file named 'Formal objections' at the same level as the 'Public submissions' file, then it must automatically inherit the prefix 'Regional plan development : Public consultation'.

13 This facility is intended for exceptional circumstances only, such as organisational mergers or other re-organisation, or to correct clerical errors. This requirement must be read together with Requirements 71, 72 and 80.

14 This facility is intended for exceptional circumstances only, such as to correct clerical errors. This requirement must be read together with Requirements 71, 72 and 80.

15 At a minimum, this must be stored in the metadata. It may also be desirable to record it elsewhere, for example, in the records management metadata of the object(s) being moved.

75	Not allow any volume that has been temporarily re-opened to remain open after the administrator who opened it has logged off.
76	Allow users to create cross-references between related aggregations or between aggregations and individual records.
77	Provide reporting tools for the provision of statistics to the administrator on aspects of activity using the classification scheme, including the numbers of electronic aggregations (including volumes) or records created, closed or deleted within a given period, by user group or functional role.
78	Allow the authorised users to enter the reason for the reclassification of aggregations (including volumes) and individual records.
79	Be able to close a volume of an electronic aggregation automatically on fulfilment of specified criteria to be defined at configuration, including at least: • volumes delineated by an annual cut-off date (for example, end of the calendar year, financial year or other defined annual cycle); • the passage of time since a specified event (for example, the most recent addition of an electronic record to that volume); and • the number of electronic records within a volume. [17]
80	Be able to open a new volume of an electronic aggregation automatically on fulfilment of specified criteria to be defined at configuration.
81	Allow an administrator to lock or freeze aggregations to prevent relocation, deletion, closure or modification when circumstances require, for example, pending legal action.

3.3.4 Record volumes

This section includes requirements relating to the use of volumes, which are typically used to subdivide aggregations that might otherwise be unmanageably large. The requirements for volumes only apply to the aggregations at the activity level. They are intended to be primarily useful for physical files in hybrid systems.

Where the electronic records management system uses volumes, it **must**:

82	Allow administrators to add (open) electronic volumes to any electronic aggregation that is not closed.
83	Record the date of opening of a new volume in the volume's records management metadata.
84	Automatically include in the metadata of new volumes those attributes of its parent aggregation's records management metadata that assign context (for example, name, classification code).
85	Support the concept of open and closed volumes for electronic aggregations, as follows: • only the most recently created volume within an aggregation can be open; and • all other volumes within that aggregation must be closed (subject to temporary exceptions required by Requirement 68). [18]

16 That is, it must be impossible for a situation to arise where any user action or any software failure results in an inconsistency within the electronic records management system or its database.

17 Other criteria may be desirable in particular circumstances, for example, where the size of the volume reaches the capacity of storage media.

18 Note that the records in a volume can be accessed regardless of whether the volume is open or closed.

86	Prevent the user from adding electronic records to a closed volume (subject to the exceptions required by Requirement 68).
87	Allow an authorised user to add records to a closed file. [19]

MAINTAIN

3.4 Managing authentic and reliable records

3.4.1 Access and security

Organisations need to control access to their records. Typically, access to records and aggregations is limited to specific users and/or user groups. In addition to controlling access by user and user groups, some agencies will need to limit access further by using security classifications. This is achieved by allocating security classifications to aggregations and/or records. Users can then be allocated security clearances to permit selective access to aggregations or records at higher security categories.

Maintaining metadata of all records management actions undertaken by an electronic records management system and its users and administrators is essential to meeting requirements for legal admissibility. The volume of metadata information can become large if all actions are audited. Consequently, management may decide that some actions need not be audited. In most cases, the online metadata is periodically moved to offline storage and is disposed of at the same time as the records to which it relates, and a summary record retained. This process is also known as 'tracking'.

Over time, records and aggregations may be transferred from one storage medium or location to another (for example, migration), as their activity decreases and/or their use changes. A tracking feature is needed to record the change of location for both ease of access and to meet regulatory requirements.

The electronic records management system **must**:

88	Ensure that records are maintained complete and unaltered, except in circumstances such as court orders for amendments to record content and metadata, in which cases only system administrators may undertake such changes with appropriate authorisation.
89	Document any exceptional changes to records as described in Requirement 88 in relevant metadata.
90	Maintain the technical, structural and relational integrity of records and metadata in the system.

3.4.2 Access controls

The electronic records management system **must**:

91	Restrict access to system functions according to a user's role and strict system administration controls. [20]

19 This facility is intended to be used to rectify user error, for example, if a volume has been closed unintentionally.

3.4.3 Establishing security control

Normal systems controls over access and security support the maintenance of authenticity, reliability, integrity and usability, and therefore should be appropriately implemented.

A risk assessment can inform business decisions as to how rigorous the controls need to be. For example, in a high-risk environment, it may be necessary to prove exactly what happened, when and by whom. This links to systems permissions and audit logging, to prove that approved actions are undertaken by authorised people.

The electronic records management system **must**:

92	Allow only administrators to set up user profiles and allocate users to groups.
93	Allow the administrator to limit access to records, aggregations and records management metadata to specified users or user groups.
94	Allow the administrator to alter the security category of individual records. [21]
95	Allow changes to security attributes for groups or users (such as access rights, security level, privileges, initial password allocation and management) to be made only by the administrator.

3.4.4 Assigning security levels

The electronic records management system **must**:

96	Allow only the administrator to attach to the user profile attributes that determine the features, records management metadata fields, records or aggregations to which the user has access. The attributes of the profile will: • prohibit access to the electronic records management system without an accepted authentication mechanism attributed to the user profile; • restrict user access to specific records or aggregations; • restrict user access according to the user's security clearance; • restrict user access to particular features (for example, read, update and/or delete specific records management metadata fields); • deny access after a specified date; and • allocate the user to a group or groups. [22]
97	Be able to provide the same control functions for roles, as for users.[23]
98	Be able to set up groups of users that are associated with an aggregation.[24]
99	Allow a user to be a member of more than one group.

20 For example, an unauthorised user access attempt.

21 This is routinely required to reduce the level of protection given to records as their sensitivity decreases over time.

22 An example of an accepted authentication mechanism is a password.

23 This feature allows the administrator to manage and maintain a limited set of role access rights rather than a larger number of individual users. Examples of roles might include Manager, Claims Processing Officer, Security Analyst or Database Administrator.

24 Examples of groups might be Personnel or Sales Team.

If the electronic records management system maintains a list of aggregations, it **must**:

100	Be able to limit users' access to parts of the list (to be specified at the time of configuration).
101	Allow a user to stipulate which other users or groups can access records that the user is responsible for. [25]

3.4.5 Executing security controls

The electronic records management system **must**:

102	Allow the administrator, subject to Section 3.4.6: Security categories, to alter the security category of all records within an aggregation in one operation. The electronic records management system must provide a warning if the security classifications of any records are lowered, and await confirmation before completing the operation. [26]
103	Allow the administrator to change the security category of aggregations, subject to the requirements of Section 3.4.6: Security categories.
104	Record full details of any change to security category in the records management metadata of the record, volume or aggregation affected.
105	Provide one of the following responses (selectable at configuration time) whenever a user requests access to, or searches for, a record, volume or aggregation that they do not have the right to access: • display title and records management metadata; • display the existence of an aggregation or record (that is, display its file or record number) but not its title or other records management metadata; or • not display any record information or indicate its existence in any way. [27]
106	Never include, in a list of full text or other search results, any record that the user does not have the right to access. [28]

If the electronic records management system allows users to make unauthorised attempts to access aggregations (and their volumes) or records, it **must**:

107	Log all unauthorised attempts to access aggregations (and their volumes) or records in their respective unique metadata. [29]

25 This function should be granted to the user by the administrator according to the agency's policy.

26 This is routinely required to reduce the level of protection given to records as their sensitivity decreases over time.

27 These options are presented in order of increasing security. Note that the requirement in the third option (that is, the most stringent) implies that the electronic records management system must not include such records in any count of search results.

28 Note that if the first option of Requirement 103 is chosen, Requirement 104 may appear to be in conflict with it. This apparent conflict is intentional, for if this requirement is not present users may be able to use text searches to investigate the contents of documents to which they are not allowed access.

29 It will be acceptable for this feature to be controllable so that it only applies to administrator-specified security categories. Although the system should capture the location/interface and user or user log-in that attempted to gain access.

3.4.6 Security categories

The functional requirements in this section only apply to organisations that manage classified records within their electronic records management system. Please refer to your jurisdictional requirements and security requirements.

The electronic records management system **must**:

108	Allow security classifications to be assigned to records. [30]
109	Allow security classifications to be selected and assigned at system level for: • all levels of records aggregations (including volumes); and • individual records or record objects.
110	Allow access-permission security categorisation to be assigned: • at group level (be able to set up group access to specific aggregations, record classes security or clearance levels); • by organisational role; • at user level; and • in combination(s) of the above. [31]
111	Allow the assignment of a security category: • at any level of records aggregation; • after a specified time or event; and • to a record type. [32]
112	Support the automated application of a default value of 'Unclassified' to an aggregation or record not allocated any other security category.
113	Enable its security subsystem to work effectively together with general security products.
114	Be able to determine the highest security category of any record in any aggregation by means of one simple enquiry.
115	Support routine, scheduled reviews of security classifications.
116	Restrict access to electronic aggregations/records that have a security classification higher than a user's security clearance.

30 Security classification will be jurisdictionally or organisationally assigned but may include category levels such as:
- Unclassified;
- In Confidence (policy and privacy);
- Sensitive (policy and privacy);
- Restricted (national security information);
- Confidential (national security information);
- Secret (national security information); and
- Top Secret (national security information).

Further caveats may be assigned to any security clearance levels.

31 This will allow an administrator to manage and maintain a limited set of access-permissions/categories based on roles within the organisation rather than managing a large number of individual user-permission profiles for classified access.

32 Note that the correct level of security clearance may not be sufficient to obtain access. Searches will block access by not returning search results for records that are above a searcher's access clearance, see Requirements 103 and 104.

If security classifications are assigned to aggregations as well as individual records (as per Requirement 107), then the electronic records management system **must**:

117	Be capable of preventing an electronic aggregation from having a lower security classification than any electronic record within that aggregation.

3.4.7 Records management process metadata

Metadata about the processes of managing the record, including the disposal of the record, needs to be documented to ensure the integrity and authenticity of the record, so that all alterations, linkages and uses of the record are able to be authoritatively tracked over time. Records exist at different layers of aggregation, for example, as documents, items, files or series. Records management metadata must be applied to records at all levels of aggregations. Although the record may be fixed and inviolable, the records management metadata will continue to accrue throughout the administrative life of the record. It must be persistently linked to the record to ensure that the record is authentic, unaltered and reliable.

The electronic records management system **must**:

118	Be capable of creating unalterable metadata of records management actions (actions to be specified by each agency) that are taken on records, aggregations or the classification scheme. The metadata should include the following records management metadata elements: • type of records management action; • user initiating and/or carrying out the action; and • date and time of the action. [33]
119	Track events, once the metadata functionality has been activated, without manual intervention, and store in the metadata information.
120	Maintain the metadata for as long as required.
121	Provide metadata of all changes made to: • electronic aggregations (including volumes); • individual electronic records; and • records management metadata associated with any of the above.
122	Document all changes made to administrative parameters (for example, changes made by the administrator to a user's access rights).

33 The word 'unalterable' means that the metadata data cannot be modified in any way or deleted by any user. It may be subject to re-organisation and copying to removable media if required by, for example, database software, so long as its content remains unchanged and for a specific purpose. This process must not alter the original metadata data.

123	Be capable of capturing and storing in the metadata information about the following actions: • date and time of capture of all electronic records; • reclassification of an electronic record in another electronic volume; • reclassification of an electronic aggregation in the classification scheme; • any change to the disposal authority of an electronic aggregation; • any change made to any records management metadata associated with aggregations or electronic records; • date and time of creation, amendment and deletion of records management metadata; • changes made to the access privileges affecting an electronic aggregation, electronic record or user; • export or transfer actions carried out on an electronic aggregation; • date and time at which a record is rendered; and • disposal actions on an electronic aggregation or record.
124	Ensure that metadata is available for inspection on request, so that a specific event can be identified and all related data made accessible, and that this can be achieved by authorised external personnel who have little or no familiarity with the system.
125	Be able to export metadata for specified records and selected groups of records without affecting the metadata stored by the electronic records management system. [34]
126	Be able to capture and store violations (that is, a user's attempts to access a record or aggregation, including volumes, to which they are denied access), and (where violations can validly be attempted) attempted violations of access control mechanisms. [35]
127	Be able, at a minimum, to provide reports for actions on records and aggregations organised: • by record or aggregation; • by user; and • in chronological sequence.
128	Allow the metadata facility to be configurable by the administrator so that the functions for which information is automatically stored can be selected. The electronic records management system must ensure that this selection and all changes to it are stored in the metadata.
129	Be able to provide reports for actions on aggregations and records organised by workstation and (where technically appropriate) by network address.
130	Allow the administrator to change any user-entered records management metadata element. Information about any such change must be stored in the metadata. [36]

3.4.8 Tracking record movement

Location can refer to the physical location for hybrid records or the location within a classification structure or file structure for electronic records. Movement refers to changing the location of both electronic and physical records.

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34 This functionality can be used by external auditors who wish to examine or analyse system activity.

35 It is acceptable for this feature to be controllable so that it only applies to administrator-specified security categories.

36 This functionality is intended to allow administrators to correct user errors, such as data input errors, and to maintain user and group access.

The electronic records management system **must**:

131	Provide a tracking feature to monitor and record information about the location and movement of both electronic and non-electronic aggregations.
132	Record information about movements including: • unique identifier of the aggregation or record; • current location as well as a user-defined number of previous locations (locations should be user-defined); • date item sent/moved from location; • date item received at location (for transfers); and • user responsible for the move (where appropriate).
133	Maintain access to the electronic record content, including the ability to render it, and maintenance of its structure and formatting over time and through generations of office application software. [37]

3.5 Hybrid records management

3.5.1 Management of electronic and non-electronic records

Not all business systems are limited to the management of records in electronic format. Some business systems are specifically designed to provide for the management of physical records as well. Consequently, the functional requirements include requirements for hybrid system management to include functionality for managing records and files in physical format.

Hybrid file

The relationship between physical files and records in electronic formats differs significantly. As physical records (such as paper-based files) cannot be physically captured and registered directly into the business system, the business system must create and maintain markers – metadata profiles of physical records – to maintain linkages between the physical and electronic files.

Generally the marker will identify the title and unique identifier of the physical record, outline the record's content and provide location information for retrieval.

A hybrid file exists where a related set of physical files and aggregations of electronic records (for example, electronic files) deals with the same function, activity or transaction, and must be managed as a single aggregation of records. Management of these hybrid files involves merging the aggregation of electronic records and physical file management processes.

Hybrid records

Electronic records can be linked to physical records or files through a tightly bound metadata relationship to form a hybrid record, in much the same way that physical files and aggregations of electronic records can be linked to create hybrid files. The metadata link between the electronic and physical records will be established through the marker, which will identify the physical record and its location. The

37 This may be achieved by use of a multi-format viewer application.

marker may be attached directly to the electronic record component of the hybrid record.

The electronic records management system **must**:

134	Be able to define in the classification scheme non-electronic aggregations and volumes, and must allow the presence of non-electronic records in these volumes to be reflected and managed in the same way as electronic records.
135	Allow both kinds of record to be managed in an integrated manner.
136	Allow a non-electronic aggregation that is associated as a hybrid with an electronic aggregation to use the same title and numerical reference code, but with an added indication that it is a hybrid non-electronic aggregation.
137	Allow a different records management metadata element set to be configured for non-electronic and electronic aggregations; non-electronic aggregation records management metadata must include information on the physical location of the non-electronic aggregation.
138	Ensure that retrieval of non-electronic aggregations displays the records management metadata for both electronic and non-electronic records associated with it.
139	Include features to control and record access to non-electronic aggregations, including controls based on security category, which are comparable with the features for electronic aggregations.
140	Support tracking of non-electronic aggregations by the provision of request, check-out and check-in facilities that reflect the current location of the item concerned.

The electronic records management system **should**:

141	Support the printing and recognition of bar codes for non-electronic objects (for example, documents, files and other containers), or should support other tracking systems to automate the data entry for tracking the movement of such non-electronic records.
142	Support the retention and disposal protocols and routinely apply to both electronic and non-electronic elements within hybrid aggregations.

Where aggregations have security categories, the electronic records management system **must**:

143	Ensure that a non-electronic record is allocated the same security category as an associated electronic record within a hybrid records aggregation.

3.6 Retention and disposal

3.6.1 Disposition authorities

'Disposition' includes a number of actions, such as destruction, transfer, permanent archive and reassessment of a retention period, however the term for authorised records destruction is often 'disposal'. In this Module the term 'disposition' is used to cover all these processes and the term 'disposal' is used as shorthand for assigning a period before authorised destruction can be considered.

Deletion is often considered to be (permanent) destruction, however material may still be accessible, discoverable or recoverable due to back-ups, personal hard drives and so on, and through digital forensics. These technical issues may be addressed at

a policy or technical level and may required serious consideration where legal or security requirements are paramount.

Establishing disposition authorities

The electronic records management system **must**:

144	Provide a function that: • specifies disposal authorities; • automates reporting and destruction actions; • disposes of compound records as a single action; and • provides integrated facilities for exporting records and records management metadata.
145	Be able to restrict the setting up and changing of disposal authorities to the administrator only.
146	Allow the administrator to define and store a set of customised standard disposal authorities.
147	Support retention periods from a minimum of one month to an indefinite period.

Applying disposition authorities

The electronic records management system **must**:

148	Be capable of assigning a disposal authority to any aggregation or record type.
149	By default, ensure that every record in an aggregation is governed by the disposal authority(s) associated with that aggregation.
150	Include a disposition action, agency retention period and trigger in the (metadata) record for the decision for each disposition authority.
151	For each aggregation: • automatically track retention periods that have been allocated to the aggregation; and • initiate the disposition process by prompting the administrator to consider and, where appropriate approve and execute, disposal action when disposition is due.
152	Allow at least the following decisions for each disposal authority: • retain indefinitely; • present for review at a future date; • destroy at a future date; and • transfer at a future date.
153	Allow retention periods for each disposal authority to be specified at a future date, with the date able to be set in at least the following ways: • passage of a given period of time after the aggregation is opened; • passage of a given period of time after the aggregation is closed; • passage of a given period of time since the most recent record has been assigned to the aggregation; • passage of a given period of time after a specific event (event to be identified in the schedule, and will be notified to the electronic records management system by the administrator, rather than being detected automatically by the electronic records management system); and • specified as 'indefinite' to indicate long-term preservation of the records. [38]

38 While these are generally inclusive, it is possible that some records will have types of retention requirements that are not listed.

154	Enable a disposal authority to be assigned to an aggregation that over-rides the disposal authority assigned to its 'parent' aggregation. [39]
155	Allow the administrator to amend any disposal authority allocated to any aggregation at any point in the life of that aggregation.
156	Allow the administrator to change the authority(s) associated with an aggregation at any time.
157	Allow the definition of sets of processing rules that can be applied as an alerting facility to specified aggregations prior to initiation of a disposal process. [40]
158	Provide the option of allowing electronic records or aggregations that are being moved between aggregations by the administrator to have the disposal authority of the new aggregation, replacing the existing disposal authority(s) applying to these records.

Executing disposition authorities

The electronic records management system **must**:

159	Allow the administrator to delete aggregations, volumes and records (subject to Section 3.4.6: Security categories). [41]
160	When executing disposition authorities, the electronic records management system must be able to: • produce an exception report for the administrator; • delete the entire contents of an aggregation or volume when it is deleted; • prompt the administrator to enter a reason for the action; • ensure that no items are deleted if their deletion would result in a change to another record (for example, if a document forms a part of two records – see Section 3.1.3: Aggregation of electronic records – one of which is being deleted); • inform the administrator of any links from another aggregation or record to an aggregation or volume, that is about to be deleted, and request confirmation before completing the deletion; • alert the administrators to any conflicts, for example, items that are linked to more than one disposition action involving pointers; and • maintain complete integrity of the records management metadata at all times.

If more than one disposal authority is associated with an aggregation, the electronic records management system **must**:

161	Automatically track all retention periods specified in these disposal authorities, and initiate the disposal process once the last of all these retention dates is reached.
162	Allow the administrator to manually or automatically lock or freeze records disposition processes (freeze for litigation or legal discovery purposes, Freedom of Information purposes, etc.).

39 For example, if an aggregation ('parent') contains another aggregation ('child'), then it must be possible to assign a disposal authority to the 'child' that over-rides the disposal authority for the 'parent'.

40 For example, during a review of the aggregation and contents by a manager or administrator, notify the administrator when an aggregation has a given security level.

41 This functionality is intended for exceptional circumstances only.

Documenting disposition actions

The electronic records management system **must**:

163	Record any deletion or disposal action comprehensively in the process metadata.
164	Automatically record and report all disposal actions to the administrator.

Reviewing disposition

The electronic records management system **must**:

165	Support the review process by presenting electronic aggregations to be reviewed, with their records management metadata and disposal authority information, in a manner that allows the reviewer to browse the contents of the aggregation and/or records management metadata efficiently.
166	Allow the reviewer to take at least any one of the following actions for each aggregation during review: • mark the aggregation for destruction; • mark the aggregation for transfer; • mark the aggregation for indefinite hold, for example, pending litigation; and • change the disposal authority (or assign a different schedule) so that the aggregation is retained and re-reviewed at a later date, as defined in this section.
167	Allow the reviewer to enter comments into the aggregation's records management metadata to record the reasons for the review decisions.
168	Alert the administrator to aggregations due for disposal before implementing disposal actions, and on confirmation from the administrator must be capable of initiating the disposal actions specified in this section.
169	Store in the metadata all decisions taken by the reviewer during reviews.
170	Produce a disposal authority report for the administrator that identifies all disposal authorities that are due to be applied in a specified time period, and provide quantitative reports on the quantity and types of records covered.
171	Be able to specify the frequency of a disposal authority report, the information reported and highlight exceptions such as overdue disposal.
172	Alert the administrator if an electronic aggregation that is due for destruction is referred to in a link from another aggregation and pause the destruction process to allow the following remedial action to be taken: • confirmation by the administrator to proceed with or cancel the process; and • generation of a report detailing the aggregation or record(s) concerned and all references or links for which it is a destination.
173	Support reporting and analysis tools for the management of retention and disposal authorities by the administrator, including the ability to: • list all disposal authorities; • list all electronic aggregations to which a specified disposal authority is assigned; • list the disposal authority(s) applied to all aggregations below a specified point in the hierarchy of the classification scheme; • identify, compare and review disposal authorities (including their contents) across the classification scheme; and • identify formal contradictions in disposal authorities across the classification scheme.

174	Provide, or support the ability to interface with, a workflow facility to support the scheduling, review and export/transfer process by tracking: • progress/status of the review, such as awaiting or in-progress, details of reviewer and date; • records awaiting disposal as a result of a review decision; and • progress of the transfer process.

The electronic records management system **should**:

175	Be able to accumulate statistics of review decisions in a given period and provide tabular and graphic reports on the activity.

3.6.2 Migration, export and destruction

The electronic records management system **must**:

176	Provide a well-managed process to transfer records to another system or to a third party organisation and support migration processes.
177	Include all aggregations, volumes, records and associated metadata within aggregations whenever an electronic records management system transfers any aggregation or volume.
178	Be able to transfer or export an aggregation (at any level) in one sequence of operations so that: • the content and structure of its electronic records are not degraded; • all components of an electronic record (when the record consists of more than one component) are exported as an integral unit including any technical protection measures; • all links between the record and its records management metadata are retained; and • all links between electronic records, volumes and aggregations are retained.
179	Be able to include a copy of the entire metadata set associated with the records and aggregations that are transferred or exported from an electronic records management system.
180	Produce a report detailing any failure during a transfer, export or destruction. The report must identify any records destined for transfer that have generated processing errors, and any aggregations or records that are not successfully transferred, exported or destroyed.
181	Retain copies of all electronic aggregations and their records that have been transferred, at least until such time as a successful transfer is confirmed. [42]
182	Be able to continue to manage records and aggregations that have been exported from the electronic records management system to other forms of storage media.
183	Have the ability to retain records management metadata for records and aggregations that have been destroyed or transferred.
184	Allow the administrator to specify a subset of aggregation records management metadata that will be retained for aggregations which are destroyed, transferred out or moved offline. [43]

42 This is a procedural safeguard to ensure that records are not deleted before successful transfer is confirmed.

185	Enable the total destruction of records (whether identified by class or individually) stored on re-writable media by completely obliterating them so that they cannot be restored through specialist data recovery facilities.

The electronic records management system **should**:

186	Provide a utility or conversion tool to support the conversion of records marked for transfer or export into a specified file transfer or export format.
187	Provide the ability to add user-defined records management metadata elements required for archival management purposes to electronic aggregations selected for transfer.
188	Provide the ability to sort electronic aggregations selected for transfer into ordered lists according to user-selected records management metadata elements.

Where hybrid aggregations are to be transferred, exported or destroyed, the electronic records management system **should**:

189	Require the administrator to confirm that the non-electronic part of the same aggregations has been transferred, exported or destroyed before transferring, exporting or destroying the electronic part.

43 This is necessary for the organisation to know which records it has held and the dates they were destroyed or disposed of, without necessarily incurring the expense of keeping all the detailed records management metadata for the records.

3.6.3 Retention and disposal of electronic and non-electronic records

The electronic records management system **must**:

190	Support the allocation of disposal authorities to every non-electronic aggregation in the classification scheme. The authorities must function consistently for electronic and non-electronic aggregations, notifying the administrator when the disposal date is reached, but taking account of the different processes for disposing of electronic and non-electronic records.
191	Support the application of the same disposal authority to both the electronic and non-electronic aggregations that make up a hybrid aggregation.
192	Be able to apply any review decision made on a hybrid electronic aggregation to a non-electronic aggregation with which it is associated.
193	Alert the administrator to the existence and location of any hybrid non-electronic aggregation associated with a hybrid electronic aggregation that is to be exported or transferred.
194	Be able to record in the metadata all changes made to records management metadata references to non-electronic or hybrid aggregations and records.
195	Be capable of offering check-out and check-in facilities for non-electronic aggregations profiled in the system, in particular enabling the ability to record a specific user or location to which a non-electronic aggregation is checked out, and to display this information if the non-electronic aggregation is requested by another user.
196	Be capable of offering a request facility for non-electronic records profiled in the hybrid aggregation system, enabling a user to enter a date that the non-electronic element is required and generating a consequent message for transmission to the current holder of that non-electronic aggregation or the administrator, according to configuration.
197	Be able to export and transfer records management metadata of non-electronic records and aggregations.

The electronic records management system **should**:

198	Support the application of a review decision taken on a group of aggregations to any non-electronic aggregations within that group, by notifying the administrator of necessary actions to be taken on the non-electronic aggregations.

DISSEMINATE

3.7 Search, retrieve and render

Note that the electronic records management systems must never present information to any user who is not entitled to access it. All the features and functionality in this section must be subject to access controls as described in Section 3.4: Managing authentic and reliable records. To avoid complexity, this is assumed and is not repeated in each requirement below.

The electronic records management system **must**:

199	Provide a flexible range of functions that operate on the metadata related to every level of aggregation and on the contents of the records through user-defined parameters for the purpose of locating, accessing and retrieving individual records or groups of records and/or metadata.
200	Allow all record, volume and aggregation records management metadata to be searchable.

201	Allow the text contents of records (where they exist) to be searchable.
202	Allow the user to set up a single search request with combinations of records management metadata and/or record content.
203	Allow administrators to configure and change the search fields to: • specify any element of record, volume and aggregation records management metadata, and optionally full record content, as search fields; and • change the search field configuration.
204	Provide searching tools for: • free-text searching of combinations of record and aggregation records management metadata elements and record content; and • Boolean searching of records management metadata elements (see also Requirement 219).
205	Provide for 'wild card' searching of records management metadata that allows for forward, backward and embedded expansion. [44]
206	Allow searching within a single aggregation or across more than one aggregation.
207	Be able to search for, retrieve and display all the records and records management metadata relating to an electronic aggregation, or volume, as a single unit.
208	Be able to search for, retrieve and render an electronic aggregation by all implemented naming principles, including: • name; and • identifier (classification code).
209	Display the total number of search results on a user's screen and must allow the user to then display the results list, or refine the search criteria and issue another request.
210	Allow records and aggregations featured in the search results list to be selected, then opened (subject to access controls) by a single click or keystroke.
211	Allow users to retrieve aggregations and records directly through the use of a unique identifier.
212	Never allow a search or retrieval function to reveal to a user any information (records management metadata or record content) that the access and security settings are intended to hide from that user.
213	Have integrated search facilities for all levels of the classification scheme. [45]
214	Provide free-text and records management metadata searches in an integrated and consistent manner.
215	Present seamless functionality when searching across electronic, non-electronic and hybrid aggregations.
216	Allow users to save and re-use queries.
217	Allow users who are viewing or working with a record or aggregation, whether as the result of a search or otherwise, to see the record within the classification or aggregation hierarchy easily and without leaving or closing the record. [46]

44 For example, the search term 'proj*' might retrieve 'project' or 'PROJA'; the term 'C*n' would retrieve 'Commission'.

45 In other words, users should see the same interface, features and options whether searching for classes, aggregations or records.

46 For example, when reading a record, the user should be able to see what volume and aggregation the record is associated with. If viewing aggregation records management metadata, the user should be able to find out information about the aggregation in which it is located.

218	Allow users to refine (that is, narrow) searches. [47]

The electronic records management system **should**:

219	Provide word proximity searching that can specify that a word has to appear within a given distance of another word in the record to qualify as a search result (see also Requirements 202, 203 and 204).
220	Allow the records management metadata of any object (such as record, volume or aggregation) to be searched, whether the object itself is in electronic form or not, and regardless of whether the object is stored online, near-line or offline.
221	Provide display formats configurable by users or administrators for search results, including such features and functions as: • select the order in which the search results are presented; • specify the number of search results displayed on the screen; • set the maximum number of search results; • save the search results; and • choose which records management metadata fields are displayed in search result lists.
222	Provide relevance ranking of the search results.
223	Be able to relate an 'extract' of an electronic record to the original record, so that retrieval of one allows retrieval of the other, while retaining separate records management metadata and access controls over the two items.
224	Provide concept searches through the use of a thesaurus incorporated as an online index. [48]

Where a graphical user interface is employed, the electronic records management system **must**:

225	Provide a browsing mechanism that enables graphical or other display browsing techniques at any level of aggregation. [49]

3.7.1 Rendering: displaying records

The electronic records management system **must**:

226	Render or download records that the search request has retrieved. [50]

47 For example, a user should be able to start with the result list from a search and then initiate a further search within that list.

48 This will allow retrieval of documents with a broader, narrower or related term in their content or records management metadata. For example, a search for 'ophthalmic services' might retrieve 'health services', 'eye test' or 'ophthalmology'.

49 This would be used with the searching techniques described above to provide a first-level view of records management metadata for a group of records or aggregations that have met the specified search criteria.

50 If the electronic records management system is storing records in a proprietary application format, it may be acceptable for the rendering to be performed by an application outside the electronic records management system.

The electronic records management system **should**:

227	Render records that the search request has retrieved without loading the associated application software. [51]
228	Be able to render all the types of electronic records specified by the organisation in a manner that preserves the information in the records (for example, all the features of visual presentation and layout produced by the generating application package), and ~~which renders all components of an electronic record in their original relationship.~~[52]

3.7.2 Rendering: printing

This section applies to records and their records management metadata and other data within the electronic records management system that can meaningfully be printed.

The electronic records management system **must**:

229	Provide the user with flexible options for printing records and their relevant records management metadata, including the ability to print a record(s) with records management metadata specified by the user.
230	Allow the printing of records management metadata for an aggregation.
231	Allow the user to be able to print out a summary list of selected records (for example, the contents of an aggregation), consisting of a user-specified subset of records management metadata elements (for example, Title, Author, Creation date) for each record.
232	Allow the user to print the results list from all searches.
233	Be able to print all the types of electronic records specified by the organisation. Printing must preserve the layout produced by the generating application package(s) and include all (printable) components of the electronic record. [53]
234	Allow the administrator to specify that all printouts of records have selected records management metadata elements appended to them, for example, title, registration number, date and security category.
235	Allow the administrator to print the thesaurus, where a thesaurus exists within the system.
236	Allow the administrator to print any and all administrative parameters.
237	Allow the administrator to print disposal authorities.
238	Allow the administrator to print the classification scheme.
239	Allow the administrator to print metadata schema or element sets.

The electronic records management system **should**:

240	Allow all records in an aggregation to be printed, in the sequence specified by the user, in one operation.

51 This is typically provided by integrating a viewer software package into the electronic records management system. This is frequently desirable to increase speed of rendering.

52 The organisation must specify the application packages and formats required.

53 The organisation must specify the application packages and formats required.

If the electronic records management system uses classification schemes and thesauri, it **must**:

241	Allow the administrator to print the file list.

3.7.3 Rendering: redacting records

A redacted record is a copy of an electronic record from which some material has been removed or permanently masked (redacted). An extract is made when the full record cannot be released for access, but part of the record can.

The electronic records management system **must**:

242	Allow the administrator to take a copy of a record for the purposes of redaction. [54]
243	Record the creation of extracts in the records management metadata, including at least date, time, reason for creation and creator.
244	Store in the metadata any change made in response to the requirements in this section.

The electronic records management system **should**:

245	Provide functionality for redacting (see Glossary at Appendix A) sensitive information from the extract. If the electronic records management system does not directly provide these facilities, it must allow for other software packages to do so. [55]
246	Prompt the creator of an extract to assign it to an aggregation.
247	Store a cross-reference to an extract in the same aggregation and volume as the original record, even if that volume is closed.

3.7.4 Rendering: other

This section applies only to records that cannot meaningfully be printed, such as audio, visual and database files.

The electronic records management system **must**:

248	Include features for rendering those records that cannot be meaningfully printed to an appropriate output device. [56]

3.7.5 Rendering: re-purposing content

The electronic records management system **must**:

249	Allow the re-use or re-purposing of content. [57]

54 This copy is referred to as an 'extract' of the record in this requirement (see Glossary at Appendix A).

55 It is essential that when these or any other redaction features are used, none of the removed or masked information can ever be seen in the extract, whether on screen, printed or played back, regardless of the use of any features such as rotation, zooming or any other manipulation.

56 Examples include audio, video and some websites.

57 An example may be allowing the user to cut text from a word-processed record or appending a dynamic link to an image-based record within another context.

ADMINISTER

3.8 Administration

In exceptional circumstances, records may be altered or deleted by system administrators. Where this is the case, copies of the records without the sensitive information (redacted copies) must be able to be created. System administrators also need to be able to manage system parameters, back up and restore data, and generate system reports. This section includes requirements for managing system parameters, back-up and restoration, system management and user administration. The administration of security classification, controls, classification and so on are addressed in the relevant security-related requirements in Section 3.4.4: Managing authentic and reliable records.

3.8.1 Administrator functions

The electronic records management system **must**:

250	Allow the administrator to retrieve, display and re-configure system parameters and to re-allocate users and functions between user roles.
251	Provide back-up facilities so that records and their records management metadata can be recreated using a combination of restored back-ups and metadata.
252	Provide recovery and rollback facilities in the case of system failure or update error, and must notify the administrator of the results. [58]
253	Monitor available storage space and notify the administrator when action is needed because available space is at a low level or because it needs other administrative attention.
254	Allow the administrator to make bulk changes to the classification scheme, ensuring all records management metadata and metadata data are handled correctly and completely at all times, in order to make the following kinds of organisational change: • division of an organisational unit into two; • combination of two organisational units into one; • movement or re-naming of an organisational unit; and • division of a whole organisation into two organisations. [59]
255	Support the movement of users between organisational units.
256	Allow the definition of user roles, and must allow several users to be associated with each role.

58 That is, the electronic records management system must allow administrators to 'undo' a series of transactions until a status of assured database integrity is reached. This is only required when error conditions arise.

59 When such a change is made, closed files must remain closed, retaining their references to the classification scheme before the change, and open files must either be closed, retaining their references to the classification scheme before the change and cross-referenced to a new file in the changed scheme, or be referenced to the changed scheme, but clearly retaining all prior references to the classification scheme before the change. Changes to organisational units described above may imply corresponding changes to the classification schemes of the units and their user populations. The term 'bulk changes' implies that all aggregations and records affected can be processed with a small number of transactions, rather than needing to be processed individually. Note that this element will apply especially where classification schemes are based on an organisation plan and be less necessary where classification is functionally assessed.

257	Communicate any errors encountered in saving data to storage media.

3.8.2 Metadata administration

Metadata schemas have to be administered, including the creation, addition, deletion or alteration of metadata elements, and the semantic and syntactical rules and obligation status applied to those elements.

The electronic records management system **must**:

258	Allow the administrator to create, define and delete metadata elements, including custom fields.
259	Allow the administrator to apply and modify metadata schema rules, including semantic and syntactical rules, encoding schemes and obligation status.
260	Allow the administrator to configure the system to restrict the viewing or modifying of metadata elements by group, functional role or user.
261	Document all metadata administration activities.

3.8.3 Reporting

This section articulates basic reporting requirements. It does not articulate the requirements for a comprehensive reporting subsystem.

The electronic records management system **must**:

262	Provide flexible reporting facilities for the administrator. They must include, at a minimum, the ability to report the following: • numbers of aggregations, volumes and records; • transaction statistics for aggregations, volumes and records; and • activity reports for individual users.
263	Allow the administrator to report on metadata based on selected: • aggregations; • volumes; • record objects; • users; • time periods; and • file formats and instances of each format.
264	Be able to produce a report listing aggregations, structured to reflect the classification scheme, for all or part of the classification scheme.
265	Allow the administrator to request regular periodic reports and one-off reports.
266	Allow the administrator to report on metadata based on selected: • security categories; • user groups; and • other records management metadata.
267	Include features for sorting and selecting report information.
268	Include features for totalling and summarising report information.
269	Allow the administrator to restrict users' access to selected reports.

3.8.4 Back-up and recovery

Electronic records management systems must have comprehensive controls to create regular back-ups of the records and records management metadata that they maintain. These back-ups should enable the electronic records management system to rapidly recover records if any are lost because of system failure, accident or security breach. In practice, back-up and recovery functions may be divided between electronic records management system administrators and IT staff.

The electronic records management system **must**:

270	Provide automated back-up and recovery procedures.
271	Allow the administrator to schedule back-up routines by: • specifying the frequency of back-up; and • allocating storage media, system or location for the back-up (for example, offline storage, separate system, remote site).
272	Allow only the administrator to restore from electronic records management system back-ups. Full integrity of the data must be maintained after restoration.
273	Allow only the administrator to roll-forward the electronic records management system from a back-up to a more recent state, maintaining full integrity of the data.
274	Allow users to indicate that selected records are considered to be 'vital records'. [60]
275	Be able to notify users whose updates may have been incompletely recovered, when they next use the system, that a potentially incomplete recovery has been executed.

60 Vital records are those records that are absolutely necessary for the organisation's ability to continue its business either in terms of its ability to cope with emergency/disaster conditions or to protect its financial and legal interests. The identification and protection of such records, therefore, is of great importance to any organisation.

4 APPENDICES

A Glossary

Term	Definition
Access	The right, opportunity, means of finding, using or retrieving information. Source: ISO 15489, Part 3, Clause 3.1.
Access controls	A scheme of non-hierarchical mechanisms, which may be applied to digital records to prevent access by unauthorised users. May include the definition of user access groups and ad hoc lists of individual named users. See also **Security controls, System access control** and **User access group**. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 28.
Accountability	The principle that individuals, organisations and the community are required to account to others for their actions. Organisations and their employees must be able to account to appropriate regulatory authorities, to shareholders or members, and to the public to meet statutory obligations, audit requirements, relevant standards and codes of practice, and community expectations.
Action tracking	The process in which time limits for actions are monitored and imposed on those conducting the business
Activity	The second level of a business classification scheme. Activities are the major tasks performed by an organisation to accomplish each of its functions. An activity is identified by the name it is given and its scope note. The scope of the activity encompasses all the transactions that take place in relation to it. Depending on the nature of the transactions involved, an activity may be performed in relation to one function, or it may be performed in relation to many functions. See also **Business classification scheme**, **Function** and **Transaction**.
Adequate	Records should be adequate for the purposes for which they are kept. Thus, a major initiative will be extensively documented, while a routine administrative action can be documented with an identifiable minimum of information. There should be adequate evidence of the conduct of business activity to be able to account for that conduct.
Administrator	A role responsible for the day-to-day operation of the corporate records management policy within an organisation. May also indicate responsibility for operation of the corporate records management system.
Aggregation	Any accumulation of record entities at a level above record object (document, digital object), for example, digital file, series. *Individual records may be aggregated into files and individual files, with their constituent records subsequently aggregated into files (depending on terminology used by the electronic records management system).* See also **File**, and **Record category**.
Application program interface (API)	An application program(ming) interface is the specific method prescribed by a computer operating system or application program so that the application program can make requests of the operating system or another application.
Appraisal	The process of evaluating business activities to determine which records need to be captured and how long the records need to be kept, to meet business needs, the requirements of organisational accountability and community expectations.

Term	Definition
Archival authority	The archival agency, archival institution, archival program agency or program responsible for selecting, acquiring and preserving archives, making them available and approving destruction of other records
Archive	The whole body of records of continuing value of an organisation or individual. Sometimes called 'corporate memory'.
Archives	Materials created or received by a person, family or organisation, public or private, in the conduct of their affairs and preserved because of the enduring value contained in them or as evidence of the functions and responsibilities of their creator, especially those materials maintained using the principles of provenance, original order and collective control; permanent records. Note: This definition differs to the IT sphere where it refers to 'a copy of one or more files or a copy of a database that is saved for future reference or for recovery purposes in case the original data is damaged or lost.' Source: *IBM Dictionary of Computing*, McGraw Hill, New York, 1994, p. 30.
Authentication	The process of establishing that the sender of a message is who they claim to be. Source: National Archives of Australia, *Recordkeeping and Online Security Processes: Guidelines for Managing Commonwealth Records Created or Received Using Authentication and Encryption*, 2004.
BCS	See **Business classification scheme.**
Business classification scheme (BCS)	1 A conceptual representation of the functions and activities performed by an organisation. The scheme is a taxonomy derived from the analysis of business activity. 2 The basis from which classification tools, such as a functions thesaurus and records classification scheme, are developed. See also **Disposition authority, Records classification tool** and **Taxonomy**.
Business activity	An umbrella term covering all the functions, processes, activities and transactions of an organisation and its employees. Includes public administration as well as commercial business.
Business system	For the purposes of this document, an automated system that creates or manages data about an organisation's activities. Includes applications whose primary purpose is to facilitate transactions between an organisational unit and its customers – for example, an e-commerce system, client relationship management system, purpose-built or customised database, and finance or human resources systems. See also **Electronic document and records management system** and **Electronic records management system** (both are commonly referred to as EDRMS).

Term	Definition
Capture	1 The process of lodging a document or digital object into a recordkeeping system and assigning metadata to describe the record and place it in context, thus allowing the appropriate management of the record over time. For certain business activities this functionality may be built into business systems so that the capture of records and associated metadata is concurrent with the creation of records. See also **Registration**. Source: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records,* exposure draft, 2004. Adapted from AS 4390, Part 1, Clause 4.7. 2 The process of fixing the content, structure and context of a record to ensure that it is a reliable and authentic representation of the business activities or transactions in which it was created or transmitted. Once captured within an electronic records management system, users should not be able to alter the content, structure and context of a record.
Certification authority	A body that generates, signs and issues public key certificates that bind subscribers to their public key. Source: National Archives of Australia, *Recordkeeping and Online Security Processes: Guidelines for Managing Commonwealth Records Created or Received Using Authentication and Encryption*, 2004.
Classification	1 The systematic identification and arrangement of business activities and/or records into categories according to logically structured conventions, methods and procedural rules represented in a classification system. 2 Classification includes determining document or file naming conventions, user permissions and security restrictions on records. See also **Business classification scheme, Records classification scheme** and **Taxonomy**. Source: Adapted from ISO 15489, Part 1, Clause 3.5; AS 4390, Part 1, Clause 4.8.
Component	A set of constituent parts that comprises a digital record (such as the multimedia components of a web page). It is necessary to capture metadata about components to enable a record to be managed over time – for example, for migration purposes. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 1.
Compound record	A record that comprises multiple individual electronic objects, *for example, web pages with embedded graphics and style sheets.*
Control	1 The physical and/or intellectual management established over records by documenting information about their physical and logical state, content, provenance and relationships with other records. The systems and processes associated with establishing control include registration, classification, indexing and tracking. See also **Classification** and **Registration**. 2 An IT term for the process of eliminating a record from a system in such a way that the record may still be retrieved if necessary. Also known as 'soft delete'. See also **Destruction**.

Term	Definition
Controlled vocabulary	An alphabetical list containing terms or headings that are authorised or controlled so that only one heading or form of heading is allowed to represent a particular concept or name. See also **Thesaurus.** Source: Adapted from J Kennedy and C Schauder, *Records Management: A Guide to Corporate Recordkeeping*, 2nd edition, Longmans, Melbourne, 1988, p. 291.
Conversion	The process of changing records from one medium to another or from one format to another. Conversion involves a change of the format of the record but ensures that the record retains the identical primary information (content). See also **Migration**. Source: Adapted from the ISO 15489, Part 1, Clause 3.7 and Part 2, Clause 4.3.9.2.
Cryptographic key	The data elements used for the encryption or decryption of electronic messages. They consist of a sequence of symbols that control the operation of a cryptographic transformation, such as encipherment. Source: National Archives of Australia, *Recordkeeping and Online Security Processes: Guidelines for Managing Commonwealth Records Created or Received Using Authentication and Encryption*, 2004.
Database	An organised collection of related data. Databases are usually structured and indexed to improve user access and retrieval of information. Databases may exist in physical or digital format.
Deletion	The process of removing, erasing or obliterating recorded information from a medium outside the disposition process. Deletion within electronic systems generally refers to the removal of the marker (that is, location information) that allows the system to identify where a particular piece of data is stored on the medium. See also **Destruction** and **Disposition**.
Descriptor	A non-hierarchical qualifier (for example, 'Personnel') attached to a security category to limit access to particular records. Descriptors may be informative or advisory but cannot actively control access. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, pp. 27–8.
Design specification	A document detailing requirements for functionality, performance and design to be incorporated within a system to be built. The design specification details what is to be built, how it is to be built and how the system will function.
Destruction	1 The process of eliminating or deleting records, beyond any possible reconstruction. 2 In this document, destruction refers to a disposal process whereby digital records, record plan entities and their metadata are permanently removed, erased or obliterated as authorised and approved by a disposition authority schedule. See also **Deletion**. Source: Adapted from ISO 15489, Part 1, Clause 3.8.

Term	Definition
Digital certificate	An electronic document signed by the certification authority which identifies a key holder and the business entity they represent, binds the key holder to a key pair by specifying the public key of that key pair, and should contain any other information required by the certificate profile. Source: National Archives of Australia, *Recordkeeping and Online Security Processes: Guidelines for Managing Commonwealth Records Created or Received Using Authentication and Encryption*, 2004.
Digital file	A set of related digital records held in a tightly bound relationship within the business system and managed as a single object. A type of aggregation of digital records. May also be referred to as a 'container'. See also **Aggregation** and **File**.
Digital object	An object that can be represented by a computer, such as a file type generated by a particular system or software application (for example, a word-processed document, a spreadsheet, an image). A digital record may comprise one or more digital objects. See also **Component**.
Digital signature	A security mechanism included within a digital record that enables the identification of the creator of the digital object and that can also be used to detect and track any changes that have been made to the digital object. Sources: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records*, exposure draft, 2004. Adapted from the Australian Government Information Management Office, *Trusting the Internet: A Small Business Guide to E-security*, 2002, p. 43.
Digital watermark	A complex visible or invisible pattern denoting provenance or ownership information. A watermark may be superimposed on a digital image and can only be removed by use of an algorithm and a secure key. Similar technologies may be applied to digitised sound and moving picture records. Source: Cornwell Management Consultants (for the European Commission's Interchange of Documentation between Administrations Programme), *Model Requirements for the Management of Electronic Records* (MoReq Specification), 2001, p. 70.
Disposition	A range of processes associated with implementing retention, destruction or transfer decisions which are documented in disposition or other instruments. Source: ISO 15489, Part 1, Clause 3.9
Disposition action (also Disposal action)	The action noted in a disposition authority indicating the minimum retention period for a record and the event from which the disposal date should be calculated. See also **Disposition trigger** and **Retention period**.
Disposition authority (also Disposal authority)	A formal instrument that defines the retention periods and consequent disposition actions authorised for classes of records described in the authority. See also **Disposition action**, **Disposition class** and **Retention period**. Source: Adapted from AS 4390, Part 1, Clause 4.10.
Disposition class (also Disposal class)	A description of the characteristics of a group of records documenting similar activities, together with a disposition action to be applied to the group. The description consists of function and activity terms and scope notes, record description and disposition action. A component of a disposition authority, implemented within a business system as a set of rules made up of a disposition trigger, a retention period and a disposition action, which may be applied to a record plan entity.

Term	Definition
Disposition trigger (also Disposal trigger)	The point from which the disposition action is calculated. This can be a date on which action is completed or a date on which an event occurs. See also **Retention period**.
Document (noun)	Recorded information or an object that can be treated as a unit. See also **Record**. Sources: ISO 15489, Part 1, Clause 3.10.
Electronic document and records management system (EDRMS)	An electronic records management system capable of providing document management functionality.
Electronic messages	Any communication using an electronic system for the conduct of official business internally, between organisations, or with the outside world. Common examples include email, instant messaging and SMS (short messaging services). Source: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records,* exposure draft, 2004.
Electronic messaging systems	Applications used by organisations or individuals for sending and receiving, as well as storing and retrieving, electronic messages. These systems generally do not possess recordkeeping functionality. Source: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records,* exposure draft, 2004.
Electronic records management system	An automated system used to manage the creation, use, maintenance and disposition of electronically created records for the purposes of providing evidence of business activities. These systems maintain appropriate contextual information (metadata) and links between records to support their value as evidence. The primary purpose of an electronic records management system is the capture and management of digital records. These systems are commonly referred to as EDRMS. See also **Electronic document and records management system (EDRMS)**. Source: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records,* exposure draft, 2004.
Encryption	The process of converting data into a secure code, through the use of an encryption algorithm, for transmission over a public network. The mathematical key to the encryption algorithm is encoded and transmitted with the data, thus providing the means by which the data can be decrypted at the receiving end and the original data restored. Sources: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records,* exposure draft, 2004. Adapted from the Australian Government Information Management Office, *Trusting the Interne: A Small Business Guide to E-security*, 2002, p. 43.
Evidence	Proof of a business transaction. Not limited to the legal sense of the term.
Export	A disposition process, whereby copies of a digital record (or group of records) are passed with their metadata from one system to another system – either within the organisation or elsewhere. Export does not involve removing records from the first system. See also **Transfer**. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 3.

Term	Definition
Extract	A copy of a digital record, from which some material has been removed or permanently masked. An extract is made when the full record cannot be released for access, but part of the record can. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 3.
Field	A set of one or more related data elements that represent a category of information within a database. See also **Database**.
File	1 (Noun) An organised unit of documents accumulated during current use and kept together because they deal with the same subject, activity or transaction. 2 (Verb) The action of placing documents in a predetermined location according to a scheme of control. *Note:* For the purposes of this document the records management definition of this term will apply. This differs from the IT definition, which identifies a file as a named collection of information stored on a computer and treated as a single unit. Source: Adapted from J -Ellis (ed.), *Keeping Archives*, 2nd edition, Australian Society of Archivists and Thorpe, Melbourne 1993, p. 470.
Format	The physical form (such as paper or microfilm) or computer file format in which a record is maintained. See also **Native format**. Source: Adapted from Department of Defense (US), *Design Criteria Standard for Electronic Records Management Software Applications, DoD 5015.2-STD*, 2002, p. 14.
Function	1 The first level of a business classification scheme. Functions represent the major responsibilities that are managed by the organisation to fulfil its goals. Source: Adapted from AS 4390, Part 4, Clause 7.2. 2 The largest unit of business activity in an organisation or jurisdiction.
Graphical user interface (GUI)	A graphical, rather than purely textual, user interface to a computer (for example, windows-style interface).
Hybrid file	A set of related digital files and physical files. Both files are held in a tightly bound relationship within the business system and managed as a single object. Records managed within a hybrid file deal with the same subject, activity or transaction. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 4.
Hybrid record	1 A set of related digital and physical components that are linked by metadata in a tightly bound relationship and managed as a single record. See also **Physical record** and **Record**. 2 A record consisting of electronic and non-electronic components. *The electronic record and its associated records management metadata is maintained within the electronic records management system together with the records management metadata relating to the non-electronic record.*
Hybrid recordkeeping system	A recordkeeping system containing a combination of paper, electronic or other formats. Source: National Archives of Australia, *Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records,* exposure draft, 2004.

Term	Definition
Identify (Identification)	The process of persistently linking a record or aggregation with a unique identifier. See also **Registration.**
Indexing	The process of establishing access points to facilitate retrieval of records and/or information.
Import	To receive digital records and associated metadata into one system from another, either within the organisation or elsewhere.
Inherit	To take on a metadata attribute from a parent entity. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 4.
Instance	An occurrence of a digital record in a particular format or at a particular point in time. For example, one instance of a record may be in its native format whil another instance is a rendition. Instances may be created as a product of migration or conversion processes.
Marker	A metadata profile of a record physically held outside the business system. A marker may denote a physical record (such as a large bound volume or building plan) or an electronic record stored on removable media (such as a CD-ROM or video). A representational link to a relevant record within the electronic records management system to alert users to the existence of a relevant record that is required to be accessible in more than one location. *Note:* A paper file will usually be represented and managed in the business system as a physical file. It is not envisaged that a physical file would contain markers for each document or record placed on a paper file, unless specifically required to do so in order to meet a particular business requirement of the organisation. This may also be referred to as an electronic records management system specific term.
Metadata	Structured or semi-structured information, which enables the creation, management and use of records through time and within and across domains. Source: ISO 23081 – 1: 2006, Clause 4. Structured information that describes and/or allows users to find, manage, control, understand or preserve other information over time. Source: Adapted from A Cunningham, 'Six degrees of separation: Australian metadata initiatives and their relationships with international standards', *Archival Science*, vol. 1, no. 3, 2001, p. 274.
Migration	The act of moving records from one system to another, while maintaining the records' authenticity, integrity, reliability and useability. Migration involves a set of organised tasks designed to periodically transfer digital material from one hardware or software configuration to another, or from one generation of technology to another. Source: Adapted from ISO 15489, Part 1, Clause 3.13 and Part 2, Clause 4.3.9.2.
Native format	The format in which the record was created, or in which the originating application stores records. See also **Conversion**. Source: Adapted from NSW Department of Public Works and Services, *Request for Tender No. ITS2323 for the Supply of Records and Information Management Systems, Part B: Specifications*, 2001, p. 13.

Term	Definition
Physical file	An entry in the record plan for a hardcopy (usually paper) file. The file itself is stored outside the business system but metadata about its location and management is maintained in the system. A physical file may stand on its own within the records classification scheme, or it may form part of a hybrid file of closely related digital and physical objects. See also **File** and **Marker**. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 5.
Physical record	A record in hardcopy form, such as a folio, paper file, bound volume, photograph, microfilm, audio recording or moving image recording. See also **Marker, Physical file** and **Record**.
Quality records	Records used to demonstrate conformance to specified requirements and effective operation of quality systems under the AS/NZS ISO 9000 series.
Record (noun)	Information in any format created, received and maintained as evidence and information by an organisation or person, in pursuance of legal obligations or in the transaction of business. See also **Hybrid record** and **Physical record**. Source: ISO 15489, Part 1, Clause 3.15.
Record category	A subdivision of the records classification scheme, which may be further subdivided into one or more lower-level record categories. A record category is constituted of metadata which may be inherited from the parent (for example, records category) and passed on to a child (for example, file or aggregation of digital records). The full set of record categories, at all levels, together constitutes the records classification scheme. See also **Records classification scheme**. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 1.
Record type	Definition of a record object which specifies particular management requirements, metadata attributes and forms of behaviour. A default record type is the norm. Specific record types are deviations from the norm, which allow an organisation to meet regulatory requirements (such as privacy or data matching) for particular groups of records. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 5.
Records classification scheme	A hierarchical classification tool which, when applied to a business system, can facilitate the capture, titling, retrieval, maintenance and disposition of records. A records classification scheme stems from an organisation's business classification scheme.
Records classification tool	A device or method used to assist in classifying, titling, accessing, controlling and retrieving records. May include a records classification scheme, thesaurus, indexing scheme or controlled vocabulary.
Records continuum	The whole extent of a record's existence. Refers to a consistent and coherent regime of management processes from the time of the creation of records (and before creation, in the design of recordkeeping systems), through to the preservation and use of records as archives.
Records management	The field of management responsible for the efficient and systematic control of the creation, receipt, maintenance, use and disposition of records, including processes for capturing and maintaining evidence of, and information about, business activities and transactions in the form of records. Source: ISO 15489, Part 1, Clause 3.16.

Term	Definition
Records management (Recordkeeping)	The making and maintaining of complete, accurate and reliable evidence of business transactions in the form of recorded information. Recordkeeping includes the creation of records in the course of business activity and the means to ensure the creation of adequate records; the design, establishment and operation of recordkeeping systems; and the management of records used in business (traditionally regarded as the domain of records management) and as archives (traditionally regarded as the domain of archives administration). Source: Adapted from AS 4390, Part 1, Clause 4.19 and Part 3, Foreword.
Records management metadata	Identifies, authenticates and contextualises records and the people, processes and systems that create, manage, maintain and use them, and the policies that govern them. See also **Metadata**. Source: ISO 23081, Part 1, Clause 4.
Records management system	A framework to capture, maintain and provide access to evidence over time, as required by the jurisdiction in which it is implemented and in accordance with common business practices. Recordkeeping systems include both records practitioners and records users; a set of authorised policies, assigned responsibilities, delegations of authority, procedures and practices; policy statements, procedures manuals, user guidelines and other documents which are used to authorise and promulgate the policies, procedures and practices; the records themselves; specialised information and records systems used to control the records; and software, hardware and other equipment, and stationery. Source: Adapted from AS 4390, Part 3, Clause 6.2.1.
Redaction	The process of masking or deleting information in a record.
Registration	The act of giving a record or file a unique identity in a recordkeeping system to provide evidence that it was created or captured. Registration involves recording brief descriptive information about the context of the record and its relation to other records. In the archival context, both aggregations (such as series) and individual record items can be registered. See also **Capture** and **Identify**. Sources: Adapted from ISO 15489, Part 1, Clause 3.18; AS 4390, Part 1, Clause 4.24.
Render	The production of a human-readable representation of a record, usually to a visual display screen or in hardcopy.
Rendition	Instance of a digital record made available in another format or on different medium by a process entirely within the business system control, without loss of content. A rendition should display the same metadata and be managed in a tightly bound relationship with the native format record. Renditions may be required for preservation, access and viewing purposes. See also **Conversion**.
Retention period	The length of time after the disposition trigger that a record must be maintained and accessible. At the expiration of the retention period, a record may be subject to a disposition action. See also **Disposition action** and **Disposition trigger**.

Term	Definition
Security category	Hierarchical designation (such as 'Top Secret' or 'Protected') allocated to a user, user role, digital record or other record plan entity to indicate the level of access allowed. The security category reflects the level of protection that must be applied during use, storage, transmission, transfer and disposal of the record. See also **Security controls.** Source: Adapted from Cornwell Management Consultants (for the European Commission Interchange of Documentation between Administrations Programme), *Model Requirements for the Management of Electronic Records* (MoReq Specification), 2001, p. 107.
Security classification system	A set of procedures for identifying and protecting official information, the disclosure of which could have adverse consequences. The security classification system is implemented by assigning markings that show the value of the information and indicate the minimum level of protection it must be afforded. See also **Classification** and **Security category**. Source: Adapted from Attorney-General's Department, *Commonwealth Protective Security Manual*, 2000.
Security controls	A scheme of protective markings which may be allocated to users, digital records and record plan entities to restrict access. May include a hierarchical security category, possibly in conjunction with a non-hierarchical qualifier. See also **Access controls** and **Descriptor**.
System access control	Any mechanism used to prevent access to the business system by unauthorised users. May include the definition of user profiles, or the use of ID and password login. See also **Access controls** and **Security controls**.
System administrator	A user role with designated responsibility for configuring, monitoring and managing the business system and its use. May exist at various degrees of seniority with a variety of permissions to undertake system administration functions and some records management processes.
System rules	Policies internal to system software that may be established and/or configured by a system administrator in order to govern the functionality of a given system and determine the nature of operational processes applied by that system.
Thesaurus	1 In a thesaurus, the meaning of a term is specified and relationships to other terms are shown. A thesaurus should provide sufficient entry points to allow users to navigate from non-preferred terms to preferred terms adopted by the organisation. 2 A records classification tool comprising an alphabetical presentation of a controlled list of terms linked together by semantic, hierarchical, associative or equivalence relationships. Sources: Adapted from AS 4390, Part 4, Clause 7.3.2.2; AS ISO 15489, Part 2, Clause 4.2.3.2.
Taxonomy	1 The classification of entities in an ordered system that indicates natural relationships. 2 The science, laws and principles of classification. See also **Classification**.
Tracking	Creating, capturing and maintaining information about the movement and uses of records. Source: ISO 15489, Part 1, Clause 3.19.

Term	Definition
Transaction	The smallest unit of business activity. Uses of records are themselves transactions. The third level in a business classification scheme. See also **Activity**, **Business classification scheme** and **Function**. Sources: Adapted from AS 4390, Part 1, Clause 4.27; AS ISO 15489, Part 2, Clause 4.2.2.2.
Transfer	A disposition process, consisting of a confirmed export of digital records and associated metadata, and where applicable aggregations of digital records, followed by their destruction within the exporting business system. Records may be transferred from one organisation to another following administrative change, from an organisation to archival custody, from an organisation to a service provider, from the government to the private sector or from one government to another. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 6.
Transfer (custody)	Change of custody, ownership and/or responsibility for records.
Transfer (movement)	Moving records from one location to another.
User access group	Discrete set of named individuals (users known to the business system) that makes up a stable and nameable group. Access to particular records or other file plan entities may be restricted to members of certain user access groups. See also **Access controls**. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 28.
User permissions	Privileges allocated to employees determining the extent of access to records and authority to author/originate, add, alter and dispose of records in recordkeeping system.
User profile	A summary of all attributes allocated to a user of the business system. Includes all data known to the system, such as username, ID and password, security and access rights, functional access rights. See also **Access controls**.
User role	An aggregation or standard set of business system functional permissions that may be granted to a predefined subset of system users. Source: Adapted from The National Archives (UK), *Requirements for Electronic Records Management Systems, 3: Reference Document*, 2002, p. 6.
Volume	A sub-division of an electronic or non-electronic aggregation. Also referred to as a 'part'. Usually a file part closed off due to size or time period constraints, for example, 'Expense claim forms 2007–2008'. See also **Aggregation**.

B Further reading

Australian Standard for Work Process Analysis for Recordkeeping, AS 5090 – 2003, http://www.standards.com.au.

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Indiana University, *Electronic Records Project,* http://www.libraries.iub.edu/index.php?pageId=3313.

International Council on Archives, *Authenticity of Electronic Records*, ICA Study 13-1, November 2002.

International Council on Archives, *Authenticity of Electronic Records*, ICA Study 13-2, January 2004.

International Standard for Records Management, ISO 15489 – 2001 (also includes the ISO 23081 series), http://www.standards.com.au.

National Archives of Australia, *Functional Specifications for Electronic Records Management Systems Software*, exposure draft, February 2006, http://www.naa.gov.au/records-management/publications/ERMS-specs.aspx.

National Archives of Australia, *Guidelines for Implementing the Functional Specifications for Records Management Systems Software,* February 2006, http://www.naa.gov.au/records-management/publications/ERMS-guidelines.aspx.

University of Pittsburgh, *Functional specifications for Evidence in Recordkeeping: The Pittsburgh Project*. 1996, http://www.archimuse.com/papers/nhprc/BACartic.html.

C Sample checklist of requirements for reviewing an existing electronic records management system

This tool assumes that the electronic recordkeeping system in question contains records and the records of the business transactions have been identified. It is also assumed that the fundamental records management tools such as the disposition authority, business classification scheme, and security and access classification scheme are in place within the organisation.

No.	Checkpoint	Evidence of achievement / comments	Level of achievement (1–5): 5 = Satisfied 3 = Partially satisfied 1 = Not satisfied
GENERAL			
	Are personnel appropriately trained to be able to implement their recordkeeping responsibilities?		
CREATE RECORDS THAT ARE LINKED TO THEIR CONTEXT			
	Can 'fixed'/static records be created by the system?		
	Can the system create records that are linked to their business context?		
	Does the system capture the required recordkeeping metadata elements in line with jurisdictional standards and business needs?		
	Is the recordkeeping metadata linked to the records, and are these linkages maintained over time?		
MANAGE AND MAINTAIN RECORDS			
	Are documented policies and procedures in place for the management of the records?		
	Can the records be proven to be what they purport to be; have been created or sent by the person that created or sent it; and have been created or sent at the time purported?		
	Are there sufficient controls to protect the records from unauthorised access, alteration, deletion and use?		
	Can the records be searched for, displayed and accessed in a meaningful way?		
	Are there policies and procedures in place for conducting recordkeeping audits on the system on a regular basis?		

	Are back-up and disaster recovery plans in place for the system?		
	Is a complete and current set of system documentation maintained (for example, specifications, manuals, design, integration, etc.)?		
	If digital signatures are in use, can the records be read as and when required?		
IMPORT AND EXPORT OF RECORDS AND INTEROPERABILITY			
	Where records are stored with one organisation, but the responsibility for management and control resides with another, are the responsibilities clearly understood, traceable and documented?		
	Are there processes and mechanisms in place which support ongoing access to records, in line with retention requirements, beyond the life of the system?		
	Are records capable of being transferred from the system to an archival institution for archiving?		
RETENTION AND DISPOSAL			
	Can you execute disposition actions in line with the disposition authority?		
	Are records being retained in line with disposition authorities, and not being deleted or overwritten?		
HYBRID SYSTEMS			
	Where the system manages both physical and electronic records, does it support hybrid recordkeeping functionality?		