Guideline for the E-ARK Content Information Type Specification for Electronic Record Management Systems (CITS ERMS)

**A proper front page will be created for the publication occurring after implementation of review comments.**

1   Preface

The correct preface will be inserted for the publication occurring after implementation of review comments.

1.1   Aim of the specification

This E-ARK specification is part of a family of specifications that provide a common set of requirements for packaging digital information. These specifications are based on common, international standards for transmitting, describing and preserving digital data. They have been produced to help data creators, software developers and digital archives tackle the challenge of short-, medium- and long-term data management and reuse in a sustainable, authentic, cost-efficient, manageable and interoperable way.

The foundation for these specifications is the Reference Model for an Open Archival Information System (OAIS) which has Information Packages at its core. Familiarity with the core functional entities of OAIS is a prerequisite for understanding the specifications. A visualisation of the current specification network can be seen here:
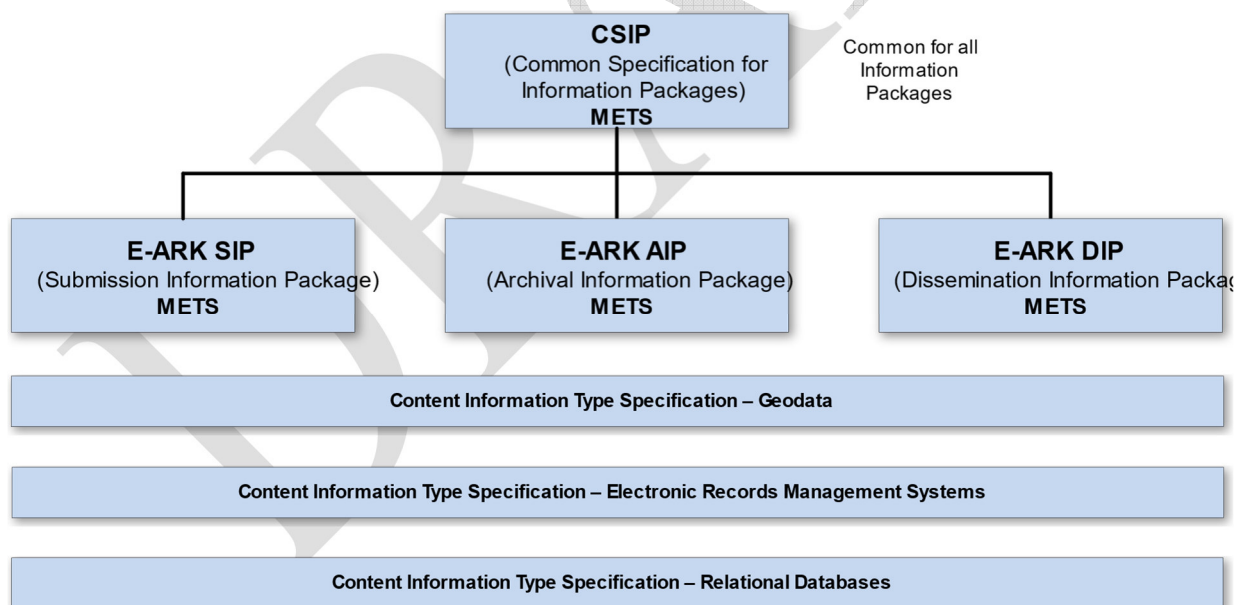
The E-ARK specification dependency hierarchy

Specification	Aim and Goals
Common Specification for	This document introduces the concept of a Common Specification for Information Packages (CSIP). Its three main purposes are to:

Specification	Aim and Goals
Information Packages	• Establish a common understanding of the requirements which need to be met in order to achieve interoperability of Information Packages. • Establish a common base for the development of more specific Information Package definitions and tools within the digital preservation community. • Propose the details of an XML-based implementation of the requirements using, to the largest possible extent, standards which are widely used in international digital preservation. Ultimately the goal of the Common Specification is to reach a level of interoperability between all Information Packages so that tools implementing the Common Specification can be adopted by institutions without the need for further modifications or adaptations.
E-ARK SIP	The main aims of this specification are to: • Define a general structure for a Submission Information Package format suitable for a wide variety of archival scenarios, e.g. document and image collections, databases or geographical data. • Enhance interoperability between Producers and Archives. • Recommend best practices regarding metadata, content and structure of Submission Information Packages.
E-ARK AIP	The main aims of this specification are to: • Define a generic structure of the AIP format suitable for a wide variety of data types, such as document and image collections, archival records, databases or geographical data. • Recommend a set of metadata related to the structural and the preservation aspects of the AIP as implemented by the reference implementation eArchiving ToolBox (formerly earkweb). • Ensure the format is suitable to store large quantities of data.
E-ARK DIP	The main aims of this specification are to: • Define a generic structure of the DIP format suitable for a wide variety of archival records, such as document and image collections, databases or geographical data. • Recommend a set of metadata related to the structural and access aspects of the DIP.
Content	The main aim and goal of a Content Information Type Specification is

Specification	Aim and Goals
Information Type Specifications	to: • Define, in technical terms, how data and metadata must be formatted and placed within a CSIP Information Package in order to achieve interoperability in exchanging specific Content Information. The number of possible Content Information Type Specifications is unlimited.

1.2   Organisational support

This specification is maintained by the Digital Information LifeCycle Interoperability Standards Board (DILCIS Board). The DILCIS Board (http://dilcis.eu/) was created to enhance and maintain the draft specifications developed in the European Archival Records and Knowledge Preservation Project (E-ARK project) which concluded in January 2017 (http://eark-project.com/). The Board consists of eight members, but there is no restriction on the number of participants in the work. All Board documents and specifications are stored in GitHub (https://github.com/DILCISBoard) while published versions are made available on the Board webpage. Since 2018 the DILCIS Board has been responsible for the core specifications in the Connecting Europe Facility eArchiving Building Block (https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/eArchiving).

1.3   Authors

A full list of contributors to this specification, as well as the revision history can be found in Appendix 1.

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1 Context

1.1 Purpose

The purpose of this guideline is to further explain and describe the Content Information Type Specification for Electronic Records Management systems (CITS ERMS).

1.2 Scope

The scope of this document is to give an overview of the standard used for creating the specification and a brief introduction to the implementation of the specification CITS ERMS.

This guideline is not covering information and explanation of concepts like the OAIS Reference model, XML and XML-schema. These concepts are described in the "Guideline for information packages" thus its recommended that background information is obtained there. The "Guideline for information packages" is the introduction and covers the specifications named:

- E-ARK Common Specification for Information Packages (CSIP)

- E-ARK Common Specification for Submission Information Packages (SIP)

- E-ARK Common Specification for Archival Information Packages (AIP)

- E-ARK Common Specification for Dissemination Information Packages (DIP)

- E-ARK Content Information Type Specification for Archival Information (CITS Archival Information)

- E-ARK Content Information Type Specification for Preservation Metadata (CITS Preservation Metadata)

2 Setting the basis for the CITS ERMS guideline

This section covers the methodology used for the creation of the elements and attributes which has been expressed in the XML-schema used in CITS ERMS.

2.1 Explanation of the preface

The preface provides a general description of the different packages and content information types available and is the same for all produced documents within this suite of specifications and guidelines.

2.2 Methodology based upon the E-ARK project

The ERMS specification is based on the work of the E-ARK project (2014–2017) which studied specific use cases and requirements to be implemented by export tools for electronic records systems. During the process of developing the specification, decisions were made about:

— Which metadata elements to support
— Which additional ones were needed
— How they are to be implemented.

The choice about which entities and metadata elements to adopt in the ERMS specification was made according to two broad criteria. First, only accepted metadata standards that were in frequent use were adopted for the required functions in the ERMS and archive communities. Second, not every entity or metadata element defined in these standards was adopted. Adoption was limited to those that were relevant for the ERMS scenario in order to meet submission use cases and were:

— in use in all archives in the E-ARK project or
— in use in most archives in the E-ARK project or
— required by national regulation and legislation or, to a lesser extent, required by policy decisions within the national archives and related institutions. The former results in mandatory data entities, metadata elements and processes.

From this, it was possible to identify which requirements, processes, entities and metadata elements were mandatory for every use of the ERMS specification.

Rather than adopting any particular metadata standard existing ones were adopted if and as necessary. For example, the mandatory MoReq requirements for metadata elements were relaxed if they could not be supplied in practice. Extension points were defined so that other metadata elements can be added to support local needs.

Note: the ERMS metadata and data validates correctly with the standard supplied ERMS-schema.

3 Standard/Standards used

Metadata can be obtained in several ways that are not mutually exclusive:

- automatically from the source system;
- extracted from the content;
- added manually during submission agreement or ingest.

Ideally, metadata should be created or captured as close to its source as possible where it can be most easily or exclusively obtained.

The balance of manual versus automated creation of metadata, as well as the origin of metadata (producer versus archive), varies greatly because of different best-practices and legal environments at the local level. However, in most cases, the metadata is a mixture of metadata created manually and in an automated fashion, by both the archive and the producer.

In the case of an ERMS export, the specification builds mainly on the MoReq2010 metadata and export service. However, there are some differences between the MoReq export and an archive transfer service:

- There are entities and metadata elements in the MoReq export schema that are not needed for archive export, because:
  - Most existing production systems are not MoReq Compliant Records Systems (MCRS) and may not be in a position to export according to the semantics and syntax described in the MoReq export schema.
  - The archive does not support the full functionality for an MCRS, including records creation and corresponding workflows, and does not support original technical access restriction management, or manage retention periods.
- There are entities and metadata elements that are needed for archive export (SIP export) but not in the MoReq export, because:
  - Archives may have additional functionality. For example, they may wish to merge records from multiple sources. They then need to map the disparate local producer implementations to a normalised archive implementation. Metadata is needed for this.
  - Archives need additional metadata to address long-term preservation, in particular technical and additional provenance metadata.

Therefore, the MoReq export schema (XML Export Schema https://www.moreq.info/specification) is used as an inspiration for a transfer service (the MoReq export schema is not being adopted but built upon).

3.1   Moreq2010

The MoReq2010 standard has been chosen as the starting point for creating an exchange format for records management information. The standard is based upon the ISO standards for records management and is available from the DLM Forum (http://www.dlmforum.eu/index.php/resources/21-the-moreq-work-programme) and https://www.moreq.info/.

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3.1.1   Moreq2010 Entities and Metadata for the ERMS Specification

In MoReq2010 each core service manages entities belonging to a specified number of entity types, and each entity must belong to only one of the entity types. The MoReq2010 core services refer to the following entity types:

- **Aggregations**

What is the entity?

Aggregation is a core entity in MoReq2010 which defines aggregations as "…accumulations of related record entities that, when combined, may exist at a level above that of a single record". Aggregations can be of individual records or higher-level aggregation of aggregations of records. Note that MoReq2010 does not distinguish between the archival terms Fonds, Sub-fonds, Series, File and Sub-files usually more familiar to archivists. These are all categorised as aggregations at various, specifiable levels. They all can be mapped to the MoReq2010 aggregation entity.

How are aggregations dealt with in the ERMS specification?

Different institutions use various combinations and patterns of values for this Entity type. Also, some partners are obliged by law to use specific terms for aggregation levels. Therefore, the vocabulary for titles of the aggregation entity is not controlled by the ERMS but can be freely chosen by the users. It should be controlled locally in the organisation. Aggregations used in agencies/ERMS are not necessarily the same ones as required/wished for by the archive. It is recommended that ISAD-G (in the form of EAD) is used for contextual descriptions in the archive. See section 3.2 for more details.

- **Class**

What is the entity?

Class is a core entity in MoReq2010 and in all E-ARK partner implementations. Class is defined in MoReq2010 as "a unit of classification that may be associated with an aggregation or a record". It is a business classification applied to records and aggregations of records. In a somewhat circular definition, MoReq2010 defines classification as "the act of associating a class from a classification scheme to an aggregation or record." A unit of classification is not defined.

How is class dealt with in the ERMS specification?

The vocabulary for titles of the Class entity is not controlled by this specification but can be freely chosen by users and stated using the relevant elements in the XML-schema.

- **Component**

What is the entity?

In MoReq2010, a record can have more than one discrete resource making up its content, and these different resources may even be stored in different locations. MoReq2010 defines a component as "a part of a record that represents a discrete item of content". The association between a record and its content is provided by component entities. Each record can have one or more components. Each referenced component is a single item of content. A component can either be electronic (referring to a digital resource such as a datafile) or physical (referring to a real-world object such as a paper document or DVD).

How is component dealt with in the ERMS specification?

The metadata for this entity type is presented in appendices as a part of a record. It is important to note that each component must belong to only one record (Figure 2) as stated in MoReq2010. Observe that these components are placed in a representation in the representations data folder of a package following the CSIP and SIP specifications.
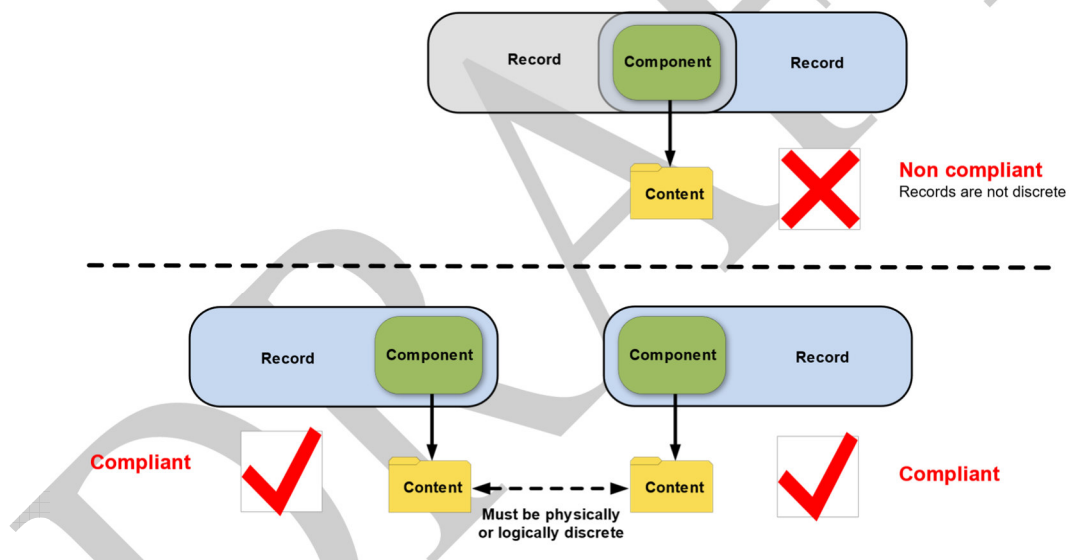
Figure 1: Components in an ERMS

● **Metadata element definitions**

What is the entity?

In MoReq2010 a metadata element definition sets out the semantics of a metadata element with a list of the required properties of the element. MoReq2010 allows for specialised subtypes of this entity type and divides metadata element definitions into:
  – System metadata element definitions.
  – Contextual metadata element definitions.

How are metadata element definitions dealt with in the ERMS specification?

While specialised elements for specific types of aggregations are not within the scope of this ERMS specification, they might still be valid for use by systems as well as archives. Possible use of specialised metadata elements is something every individual needs to consider and describe in Submission Agreements.

- **Disposal holds**

What is the entity?

A disposal hold is a legal or other administrative order that interrupts the normal disposal process and prevents the destruction of some of an organisation's records while the disposal hold is in place. According to MoReq2010, if the disposal hold is associated with an individual record, it prevents the destruction of that record while the disposal hold remains active.

How are disposal holds dealt with in the ERMS?

Since disposal holds can apply to records in archive custody as well, metadata about disposal holds need to be included in the extraction XML using the relevant elements from this specification about disposal.

- **Disposal schedules**

What is the entity?

Disposal schedules are used to manage the life cycles of records in all MCRS solutions. According to MoReq2010, disposal schedules are critical to managing records because a record in an MCRS may only be destroyed as part of a disposal process governed by the disposal schedule applicable to that record. A record's disposal schedule determines how long a record is retained and how it is subsequently disposed of at the end of its retention period.

How are disposal schedules dealt with in the ERMS specification?

When the records are transferred to an archive the disposal schedules do not possess the same importance for the archive's records preservation activities, they will only be archived as metadata, and their ERMS functionality is not supported in the archive. When using the specification for transfer between different ERMS systems, this information needs to be included in the extension point being described with the metadata for disposal.

- **Events**

What is the entity?

Events are defined in MoReq2010 as "an entity that is generated by performing a function". Events are not independent entities insofar as all entities, except access control lists and events will have an associated event history in the MCRS, consisting of a description of all the events in which the entity has participated.

How are events dealt with in the ERMS?

To simplify the MoReq2010 model and make it easier to understand events, the descriptions are stored with its record entity, instead of as a separate entity.

- **Function definitions**

What is the entity?

These are definitions of functions that can be performed with an entity by a user. Function definitions are used to define operational functions and are represented as entities. Function definitions are used for both access control (roles, users, groups) and in events that are generated by performing functions. When events are generated, the function definition of the function that was performed is included in the event.

How are function definitions dealt with in the ERMS specification?

Functions are described as part of events or actions in another entity description (instead of being a stand-alone entity) as function definitions only define functions which can be performed with an entity by a user in MCRS. This means that the actions performed with a record are described with the help of the metadata describing actions.

- **Groups, Roles and Users**

What is the entity?

In MoReq2010 these are separate entity types, but for ERMS purposes their use in the ERMS specification is described together. MoReq2010 allows for specifying individual users who participated in events, as well as their roles. Different use cases require keeping different kinds of information about such entities. Role-based event information may suffice for records of archival value. User-level event information is needed if archived materials are used for legal reasons (legal deposit, other legal scenarios such as discovery orders).

- A group is an entity type that usually represents a team or business unit within the organisation and has various user entities as members.
- A role is an entity representing a set of function definitions. Granting a role to a user or group in relation to an entity enables that user, or any member of that group, to perform that role on the entity and its descendants. Roles are generally constructed to mirror the tasks of a staff member filling a particular position within the organisation. For example, different roles may be constructed around each of the following usage types: office clerk, local records officer, senior records manager, personnel manager, sales representative, auditor, external contractor, guest or office temp, executive personal assistant, senior executive officer, etc.

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- A user is a person or system with an account which enables access to and use of an MCRS. The user does not have to be a human and could be another business system. Users must be authenticated before they can use an MCRS.

How does the ERMS specification deal with these entities?

Groups should be exported by MoReq as individual Users because the Group Entity type as a functional entity is not supported in all implementations. Roles and Users will only be archived as metadata (if they are related to some actions/events), but their functionality is not supported in the archive.

- **Record**

What is the entity?

A record is a core entity in MoReq2010 and is defined as any "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" (ISO 15489-1:2001, 3.15). It is a record of a business transaction made up of one or more components that are managed atomically.

How is record dealt with in the ERMS specification?

The record entity, being at the heart of MCRS functionality and of archival holdings is described fully by this specification.

- **Service**

What is the entity?

A service is a logical subset of the total functionality of an MCRS that focuses on managing only one or a small group of entity types. For example, the disposal scheduling service only manages disposal schedules. There is an export service sub-type of the MoReq2010 service entity type that specifies the process of exporting records and metadata from a MoReq Compliant Records System to another MCRS.

How is service dealt with in the ERMS specification?

The export service is used as a basis for defining the format to be used when exchanging records between the ERMS and the archives.

- **Template**

What is the entity?

According to MoReq2010, a template is a set of contextual metadata element definitions that can be used to add contextual metadata elements to entities at creation or later. Contextual metadata is defined as "metadata that is not mandated by MoReq2010 but is created within an MCRS in a local context to support the local business needs and operations of an organisation".

How is template dealt with in the ERMS specification?

The ERMS specification does not use the MoReq2010 metadata templates, as such metadata, if it exists in the MCRS, it will be recorded by other means: for example in an extension.

3.1.2   Translating MoReq2010 Class and Aggregation Values

As well as general descriptive and administrative metadata, there are two important metadata entities in MoReq2010 which can be successfully incorporated into the export document to maintain contextual information needed for provenance and authenticity. MoReq2010 specifies both class and aggregation as entity types used for managing and accessing records in a MCRS. Class is a unit of classification that can be associated with a record or an aggregation and is used to relate records and aggregations to the business activity (functions, activities, transactions, etc.) which produced the records. Although class values can usually be organised hierarchically (Figure 3), it is not mandatory (and sometimes unnecessary) to do so (Figure 4).
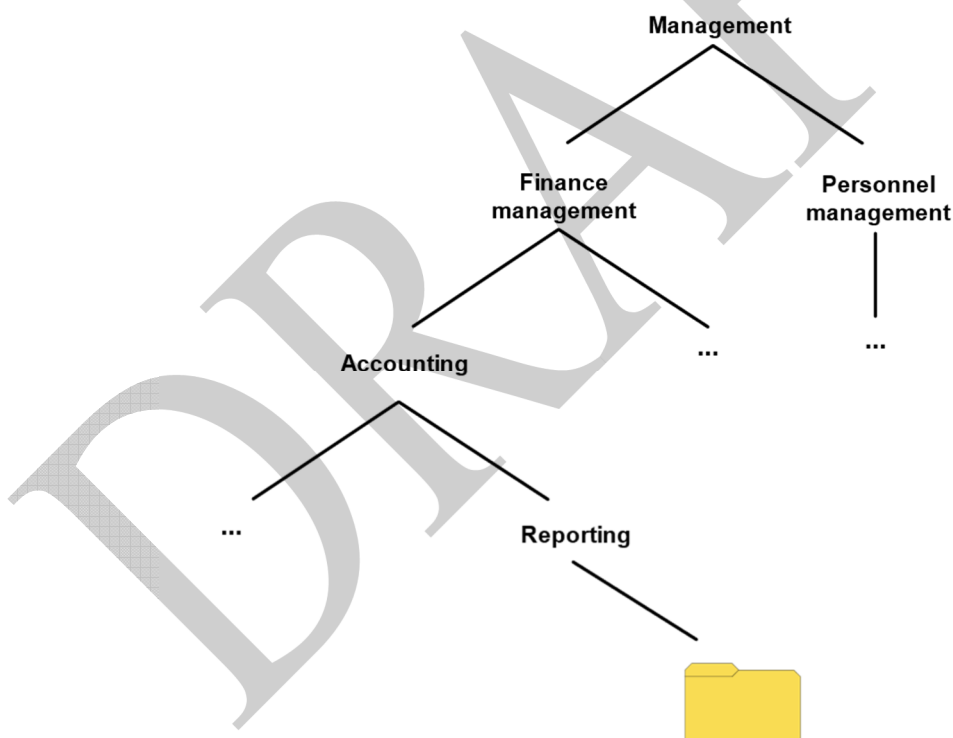
Figure 2: Hierarchical classes
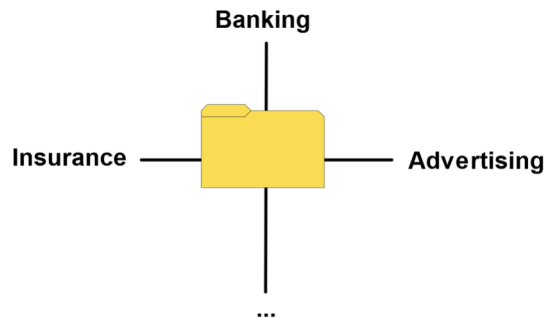
Figure 3: Non-hierarchical classes

An *aggregation* is any accumulation of record entities at a level above the record object such as folder, series, fonds, etc. (see Figure 5, this example is based on the ISAD(G) General International Standard Archival Description. See https://www.ica.org/en/isadg-general-international-standard-archival-description-second-edition).

Figure 4: Aggregation

It is important to note that classification is not a way of structuring records but is a way of categorising records for management and access purposes. In contrast, aggregation is a way

of structuring records to place them into the context of their creation and use. Because the records in aggregations arise out of business activities, information about both the aggregation to which a record belongs and the business activity which caused the record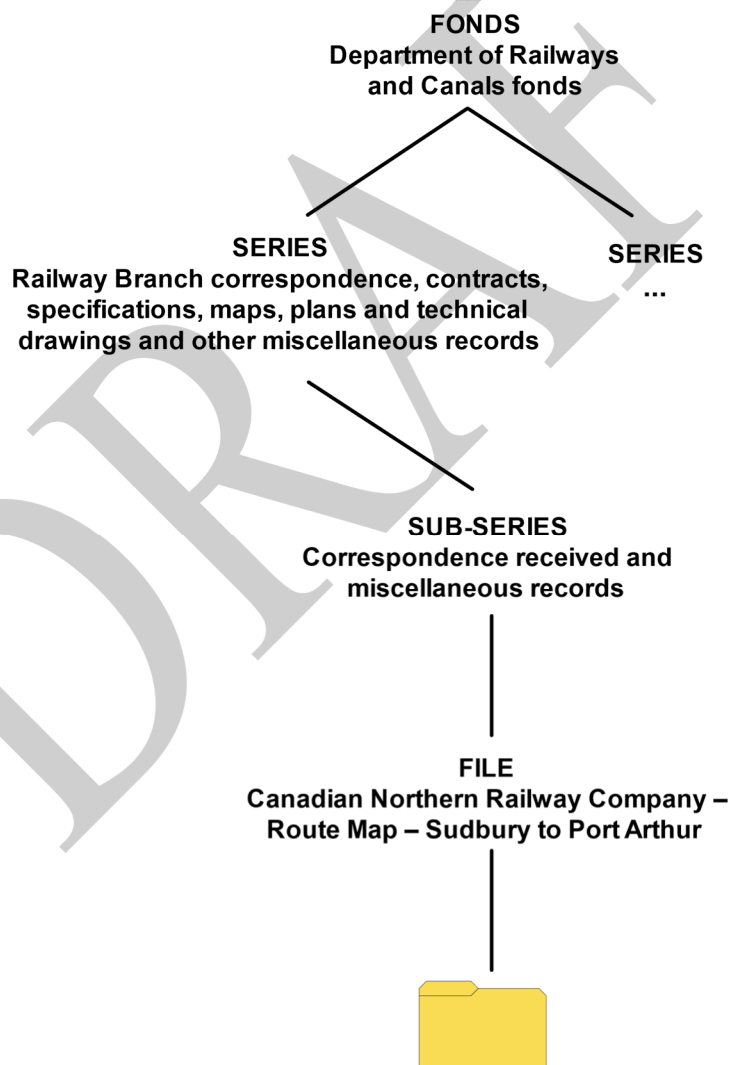 to be created is required to fully understand the context of a record. Such metadata must accompany the SIP and be incorporated into the systems in use by the receiving archive.

Section 3 above specifies that class hierarchies and aggregation structures are to be represented using ERMS metadata. Many of the aspects of the submissions from producers are governed by law or existing constraints. Producers may, for example, not be able to submit complete aggregation information with a record, or may not be able to choose whether they submit a single record or a whole series, or may be obliged to record information from several classification schemes. In these cases, it is not possible to specify a mandatory requirement for implementing tools in one specific way or specify rigid metadata structures that are mandatory.

The most common ones found in the stakeholder analysis have been captured. The aim is not to specify a catch-all solution but provide guidelines for the most critical issues.

3.1.2.1   Mapping between ERMS and Archive Aggregations

When producer class and aggregation values are received in a SIP, they can be used by the archive in a number of ways. They can be:

- Incorporated as raw values into the Encoded Archival Description (EAD) record for the AIP.
- Mapped and translated into the archive's EAD profile.
- Incorporated into the archive's EAD profile by extending the EAD profile.
- Archived as an ERMS document containing the class and aggregations values referenced in the archival description or EAD profile.

EAD uses aggregation values as the "level" attribute on the elements <archdesc> and <c>, to specify the aggregation level at which description belongs (Example 1).

Note: The ERMS specification presents only one mechanism (using ERMS metadata) for how MCRS aggregation values can be translated to archival aggregation values, and do not restrict the use of any other method (i.e. adding all relevant class values as keywords to each individual record).

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Example 1:

```
<archdesc level="fonds">
        …
        <dsc>
                <c level="series">
                        …
                        <c level="file">
                                Records and computer files
                        </c>
                </c>
        </dsc>
</archdesc>
```

The names of aggregation levels depend on the agreements between data producers and archives. EAD3 has defined a set of values (class, collection, file, fonds, item, otherlevel, recordgrp, series, subfonds, subgrp, subseries) for that purpose, but it allows other values to be used as well if they are defined as "otherlevel" (Example 2).

Example 2:

```
<archdesc level="collection">
        …
        <dsc>
                <c level="series">
                        …
                        <c otherlevel="case"> <!--A new aggregation level-->
                                Records and computer files
                        </c>
                </c>
        </dsc>
</archdesc>
```

3.2   The ERMS schema

For the specification and transfer of ERMS metadata, an XML-schema has been developed based on previous work described in this guideline. The XML-schema is accompanied by a Schematron document that aids with validation rules that cannot be created in the XML-schema. The schema itself does not document the requirement numbers defined in the specification CITS ERMS since the schema can be used in more settings than the transfer to an archive.

4 Glossary

Table 1: Glossary

Name	Description
Aggregation	Aggregations of records are accumulations of related record entities that, when combined, may exist at a level above that of a single record. Aggregations of records may reflect relationships such as shared characteristics or attributes, or the existence of sequential relationships between related records.
AIP	Archival Information Package.
Class	A unit of classification that may be associated with an aggregation or a record. In MoReq2010, classes always have a default disposal schedule, which is inherited by any record they classify, in accordance with the principle in ISO 15489 that "Classification of business activities acts as a powerful tool to assist the conduct of business and in many of the processes involved in the management of records including … determining appropriate retention periods and disposition [i.e. disposal] actions for records" (ISO 15489 −1:2001, 9.5.1).
Component	A part of a record that represents a discrete item of content. For completeness, a record, including all its components and their content, must be managed atomically.
Contextual Metadata	Metadata that is not mandated by MoReq2010 but is created within an MCRS in a local context to support the local business needs and operations of an organisation.
Contextual metadata element definition	Contextual metadata element definitions must be exported whenever contextual metadata is exported to ensure that an MCRS that imports the export data can interpret the metadata element and represent it correctly.
DIP	Dissemination Information Package.
EAD	Encoded Archival Description. A non-proprietary de facto standard for the encoding of finding aids for use in a networked (online) environment based on ISAD(G). Finding aids are inventories, indexes, or guides that are created by archival and manuscript repositories to provide information about specific collections. While the finding aids may vary somewhat in style, their common purpose is to provide a detailed description of the content and intellectual organisation of collections of archival materials. EAD allows the standardisation of collection information in finding aids within and across repositories. See http://www.loc.gov/ead
EAC-CPF	Encoded Archival Context – Corporate bodies, Persons, and Families (EAC-CPF). A non-proprietary de facto standard for encoding the names of creators of archival materials and related information. EAC-CPF is based on ISAAR(CPF). See http://eac.staatsbibliothek-berlin.de/

Entity	Entities represent individual and discrete units of information within an information system. In an MCRS, each entity must be of a particular entity type and have some, or all, of the following:
	
	    • system metadata,
	    • contextual metadata,

	• access control list, • event history. The system metadata, and sometimes the contextual metadata, link the entity to other entities, forming relationships.
ERMS	Electronic Records Management System.
IP	Information Package.
MCRS	MoReq Compliant Records System.
METS	Metadata Encoding and Transmission Standard. A de facto standard for describing information packages. See http://www.loc.gov/standards/mets/
MoReq2010	MoReq2010: Modular Requirements for Records Systems. See https://www.moreq.info/files/moreq2010_vol1_v1_1_en.pdf
PREMIS	PREservation Implementation Strategies. A de facto standard for preservation metadata. See http://www.loc.gov/standards/premis/
Record	Any "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 (ISO 15489−1:2001, 3.15)". In MoReq2010, a record may be further characterised as follows. • It has an extensible set of metadata that describes it. • It has one or more components that represent its content. • It is classified with a business classification. • It has a disposal schedule that describes explicitly if, how and when it will be disposed of or destroyed. • It belongs to an aggregation of records. • Access to it is controlled and limited to authorised users. • Its destruction may be prevented by a disposal hold. • It may be exported to another MCRS while retaining all of the characteristics listed above.
SIP	Submission Information Package.

5 Metadata

CITS ERMS uses one metadata schema developed in XML-schema for all the defined elements. To further extend the use, it is possible to add extra elements and include data following another XML-schema or reference files with more information in different places.

5.1 Model picture

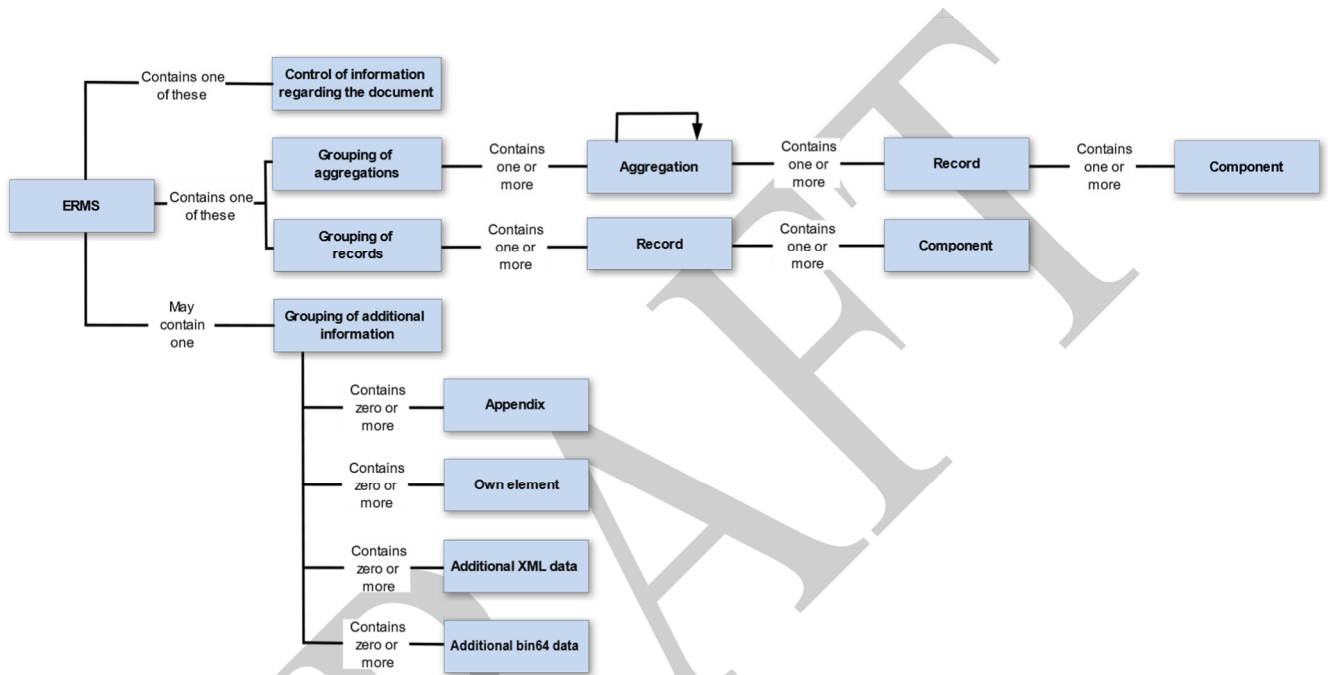In the figure below the main elements of the XML-schema are shown.

Figure 5: Components of the ERMS XML-format

Using the XML-schema provides different possibilities of structuring the information that needs to e descried. As seen in the image, it is possible to either have a grouping of aggregations or records. A mandatory part is the control section which gives information about the ERMS document itself with the history and actions taken on the document in combination with giving the classification schema used for structuring the information.

All the sections is described in the CITS ERMS, and in the following sections of the guideline some additional guidance is added.

5.2 Explanation of tables and values used in the specification

For making it easy to follow the CITS ERMS these tables found in the "Guideline for information packages" are repeated.

5.3 Specification tables

Table 2: Requirement tables headings

ID	Name, Location & Description	Card & Level
[ID]	[Name of element] [XPath to element] [Description of the element]	[Cardinality 1..1 and so on] [Level: MUST, SHOULD, MAY]

Table 3: Explanation of the parts of the requirement table

Term	Explanation
[ID]	Identification number for the requirement. The numbering is unique and built upon acronym for specification and a running number. There are no renumbering occurring which means if a requirement gets outdated, the number is obsolete and not used.
[Name of element]	Name of the element in human-readable form.
[XPath to element]	The XPath describing the location of the element in the XML-document.
[Description of the element]	A longer description of the purpose of the elements and links to extending information as well as other information pertaining to the element and described in another place. For example, values of value lists.
[Cardinality]	Possible occurrence of the element. See explanation in section "5.4 Cardinality values".
[Level]	The level of requirement of the element. See explanation in section "5.5 Level of requirement values".

5.4   Cardinality values

The cardinality gives the number of possible occurrences of an element.

Table 4: Cardinality

Cardinality	In human reading	DTD	XML-schema
[0..1]	Zero or once	?	minOccurs=0 maxOccurs=1
[0..n]	Zero or one or more times	*	minOccurs=0 maxOccurs=n minOccurs=0

Cardinality	In human reading	DTD	XML-schema
			maxOccurs=unbounded
[1..1]	Once	-	minOccurs=1 maxOccurs=1
[1..n]	One or more times	+	minOccurs=1 maxOccurs=unbounded minOccurs=1 maxOccurs=n

5.5   Level of requirement values

The level gives the requirement of an element following RFC 2119 (http://www.ietf.org/rfc/rfc2119.txt).

Table 5: Level of requirement

Term	Explanation
MUST	This word means that the definition is an absolute requirement.
SHOULD	This word means that in particular circumstances, valid reasons may exist to ignore the requirement, but the full implications must be understood and carefully weighed before choosing a different course.
MUST NOT	This phrase means that the prohibition described in the requirement is an absolute prohibition of the use of the element.
SHOULD NOT	This phrase means that in particular circumstances violating the prohibition described in the requirement is acceptable or even useful, but the full implications should be understood and the case carefully weighed before doing so. The requirement text should clarify such circumstances.
MAY	This word means that an item is not prohibited but entirely optional.

6 More information

This section will be extended for the publication occurring after implementation of review comments.

In this section additional information for understanding the use of CITS ERMS is provided.

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6.1   Additional Information elements

Own XML-elements can be added to provide information that is not covered by the specification. When doing this, it is necessary to include a description of the own elements in the documentation with the exported ERMS information. It is important to provide this description in the submission agreement when the transfer is planned to an archive. If the transfer is being made to a new system, then that system needs to be able to handle the import of those extra elements. In this instance, it is critical to document the decisions made and the use so that future users can understand. It is recommended that if many elements need to be added an own XML-schema should be provided. This can then be linked rather than be inserted.

6.2   How to get the information into an XML-document

This specification expects an export from the originating system to an XML-document based upon the supplied XML-schema and Schematron document. So far it is not an automated process it demands manual work.

6.2.1   Mapping

The usual way of doing the export is by creating a mapping table that describes the available fields in the originating system and how these relate to the ERMS schema. The export is then created and implemented following this mapping with either internal or external resources depending on knowledge and available budget.

6.2.2   In the long run

The more the format is used, and the demands upon its use increase, the more likely it will be implemented by the systems suppliers and an export will be made available off the shelf.

7 Example

This section will be extended for the publication occurring after implementation of review comments.

[A full example will be added when it is available!]
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8 Postface

AUTHOR(S)	
Name(s)	Organisation(s)
Karin Bredenberg	Kommunalförbundet Sydarkivera
Jaime Kaminski	Highbury Ltd

REVIEWER(S)	
Name(s)	Organisation(s)
[Name]	[Affiliation]
[Name]	[Affiliation]
[Name]	[Affiliation]

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