Common Specification for Archival Information

E-ARK Common Specification for Archival Information

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1   Preface

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:
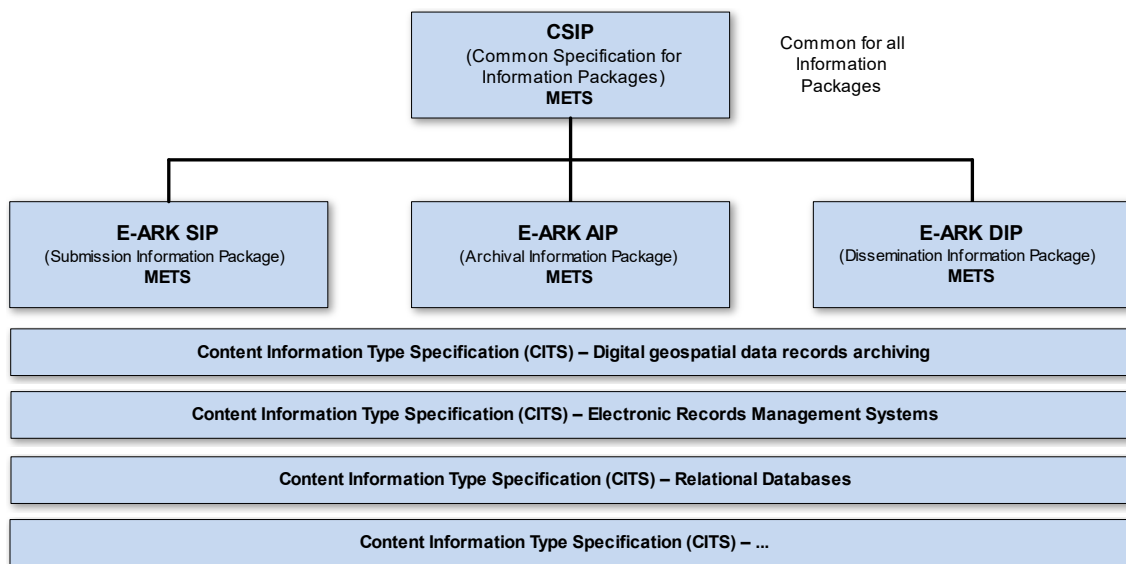

Figure I: Diagram showing E-ARK specification dependency hierarchy. Note that the image only shows a selection of the published CITS and isn't an exhaustive list.

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

Specification	Aim and Goals
	• 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 eArchiving Reference Implementation (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 Information Type Specifications	The main aim and goal of a Content Information Type Specification is 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. For a list of existing Content Information Type Specifications see the DILCIS Board webpage (DILCIS Board, http://dilcis.eu/).

1.2   Organisational support

This specification is maintained by the Digital Information LifeCycle Interoperability Standards Board (DILCIS Board, http://dilcis.eu/). The role of the DILCIS Board is to enhance and maintain the draft specifications developed in the European Archival Records and Knowledge Preservation Project (E-ARK project, http://eark-project.com/), which concluded in January 2017. The Board consists of eight members, but no restriction is placed on the number of participants taking part 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. The DILCIS Board have been responsible for providing the core specifications to the Connecting Europe Facility eArchiving Building Block https://ec.europa.eu/cefdigital/wiki/display/CEFDIGITAL/eArchiving/.

1.3   Authors & Revision History

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

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1 Context

1.1 Purpose

The purpose of this document is to describe the Common Specification (CS) for Archival Information. The term 'archival information' includes documents such as the finding aid and the creator information.

The specification is used for both the transfer to archives and for information exchange between different systems that require access to the Archival Information. This specification is supported by several different XML-schemas, Schematron documents and by ontologies provided by the different endorsed profiles.

- XSD (XML Schema Definition), a recommendation of the World Wide Web Consortium (W3C), specifies how to formally describe the elements in an Extensible Markup Language (XML) document. It can be used by programmers to verify each piece of item content in a document, to assure it adheres to the description of the element it is placed in. (https://en.wikipedia.org/wiki/XML_Schema_(W3C))

- Schematron is a rule-based validation language for making assertions about the presence or absence of patterns in XML trees. It is a structural schema language expressed in XML using a small number of elements and XPath. In a typical implementation, the Schematron schema XML is processed into normal XSLT code for deployment anywhere that XSLT can be used. Schematron is capable of expressing constraints in ways that other XML schema languages like XML Schema and DTD cannot. For example, it can require that the content of an element be controlled by one of its siblings. Or it can request or require that the root element, regardless of what element that is, must have specific attributes. Schematron can also specify required relationships between multiple XML files. Constraints and content rules may be associated with "plain-English" validation error messages, allowing translation of numeric Schematron error codes into meaningful user error messages. (https://en.wikipedia.org/wiki/Schematron)

- In computer science and information science, an ontology encompasses a representation, formal naming and definition of the categories, properties and relations between the concepts, data and entities that substantiate one, many, or all domains of discourse. More simply, an ontology is a way of showing the properties of a subject area and how they are related, by defining a set of concepts and categories that represent the subject. (https://en.wikipedia.org/wiki/Ontology_(information_science))

1.2 Scope

The scope of this specification is to add an Archival Information to the transfer of an information package.

2 Archival Information

Archival Information is divided into different categories:

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Archival Information or Finding Aid: This document describes the structure of the archival material itself. The document follows a structure developed by the International Council of Archives (ICA) called the General International Standard Archival Description (ISAD-G) (https://www.ica.org/en/isadg-general-international-standard-archival-description-second-edition). ISAD-G does not provide a transfer format but uses the Encoded Archival Description (EAD) (http://www.loc.gov/ead/index.html) maintained by the Technical Subcommittee on Encoded Archival Standards (https://www2.archivists.org/governance/handbook/section7/groups/Standards/TS-EAS).

Archival Creator: This document provides information about the person or body that created the archival collection. The document follows a structure developed by the International Council of Archives (ICA) called the International Standard Archival Authority Record for Corporate Bodies, Persons and Families (ISAAR(CPF)) (https://www.ica.org/en/isaar-cpf-international-standard-archival-authority-record-corporate-bodies-persons-and-families-2nd). ISAAR(CPF) does not provide a transfer format, but uses the Encoded Archival Context for Corporate Bodies, Persons and Families (EAC-CPF) https://eac.staatsbibliothek-berlin.de/ maintained by the Technical Subcommittee on Encoded Archival Standards (https://www2.archivists.org/governance/handbook/section7/groups/Standards/TS-EAS).

Archival Institution: This document provides information about the institution or body that maintains the archival holdings. The document follows a structure developed by the International Council of Archives (ICA) called the International Standard for Describing Institutions with Archival Holdings (ISDIAH) (https://www.ica.org/en/isdiah-international-standard-describing-institutions-archival-holdings). ISDIAH does not provide a transfer format but uses the Encoded Archival Guide (EAG) (http://wiki.archivesportaleurope.net/index.php/EAG2012) maintained by the Archives Portal Europe Foundation (http://www.archivesportaleuropefoundation.eu/index.php).

Functions or Activities of the Archival Creator: This document provides information regarding the functions or activities that the person or body that created the archival collection has performed. The document follows the structure developed by the International Council of Archives (ICA) called the International Standard for Describing Functions (ISDF) (https://www.ica.org/en/isdf-international-standard-describing-functions). ISDF does not provide a transfer format, although work on a format is being undertaken by the Technical Subcommittee on Encoded Archival Standards (https://www2.archivists.org/governance/handbook/section7/groups/Standards/TS-EAS).

Records in Context: The International Council of Archives (ICA) Expert Group on Archival Description (EGAD) (https://www.ica.org/en/about-egad) has created a conceptual model for archival description called Records in Context (RiC) https://www.ica.org/ica-network/expert-groups/egad/records-in-contexts-ric/ . RiC consists of four parts: Records in Contexts-Foundations of Archival Description (RiC-FAD), Records in Contexts-Conceptual Model (RiC-CM), Records in Contexts-Ontology (RiC-O) and Records in Contexts-Application Guidelines (RiC-AG). It is possible to include documents following RiC in an information package.

3 Metadata and Mapping

The document or documents forming the archival information and descriptions are created in most cases during export from an archival description system. There is much software available which can automatically export in the different transfer formats for archival description without requiring

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mapping. The commonly implemented profiles for archival descriptions in European systems follow the Archives Portal Europe profiles. These should be used if national profiles are not utilised.

Note:

- that the profiles used for the Archival Information in the transmission need to be recorded in the submission agreement.

- that the granularity of the Archival Information follows the profiles and the submission agreement.

3.1   Archives Portal Europe

The Archives Portal Europe is a portal for gathering European archival descriptions. All the profiles can be found here, http://wiki.archivesportaleurope.net/index.php/Category:Standards. Exports supporting these profiles have been implemented in the common European Systems meaning that an export can be used to transfer the Archival Information in the Information Package.

Note that the METS profile used by Archives Portal Europe is for describing a collection of digital objects in the Archival Information, not as an information package like CSIP.

3.2   Local archival description profiles

Many national profiles of the Archival Information use different transfer formats for transferring information. For example, Sweden has national profiles for Archival Information that use both the current and previous versions of EAD and EAC-CPF (see FGS Arkivredovisning at this URL https://riksarkivet.se/faststallda-kommande-fgser). When national profiles are available, and the submission agreement states that the national profiles for Archival Information are used, these can be placed in the information package.

4 Transfer of Archival Information only

In some cases, only archival Information will be transferred. This could occur, for example, during the transfer of a large number of analogue archives with no digital content, as might arise in a national archive. In such instances, the Archival Information documents are treated as metadata objects only in the transfer and will/might not be preserved in the archival system. The packaging of the Archival Information in a CSIP/SIP package despite no digital objects being transferred is to ensure that the metadata files is transferred properly to the receiver.

5 Metadata in the Information Package

Considering the two use cases of Archival Information transfer:

- Transfer of Archival Information together with data objects.
- Transfer of several different Archival Information seen as metadata objects in a transfer.

Irrespective of the use case they are inserted in the package in the same manner.

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Descriptive metadata is placed in the descriptive metadata section when using the Metadata Transmission and Encoding Standard (METS), the following description copied from the METS Primer page 33. (https://www.loc.gov/standards/mets/METSPrimer.pdf)

The descriptive metadata section <dmdSec> records descriptive metadata pertaining to the METS object as a whole or one of its components. Multiple descriptive metadata sections are allowed so that descriptive metadata can be recorded for each separate item or component within the METS document. Descriptive metadata can be expressed according to many current content standards (i.e., MARC, MODS, Dublin Core, TEI Header, EAD, VRA, FGDC, DDI) or a locally produced XML schema. METS does not itself provide a vocabulary or syntax for encoding this descriptive metadata; no descriptive metadata elements are defined in METS. Content guidelines are supplied by the specific descriptive standard used. METS does, however, provide a means for linking this metadata to the digital content of the entity and to other types of metadata related to the object, such as structural and administrative metadata.

5.1   Using the Common Specification for Archival Information together with the Common Specification for Information Packages (CSIP)

When the Archival Information documents have been created, they can be transmitted in a package following the requirements described in the chapter about Use of the METS descriptive metadata section (element dmdSec) in the CSIP specification (http://earkcsip.dilcis.eu/).

Each Archival Information type file in the transfer has one "Descriptive metadata" section. Requirements pertaining to the file such as mimetype, size and equals are not described in the following tables.

5.1.1   Specific fields to use in CSIP for the Archival Information or finding aid

The Archival Description is encoded with the help of EAD as previously described.

Table 1: Specific fields to use in CSIP for an EAD document

Element name	METS path	Value
Descriptive metadata	mets/dmdSec	n/a One dmdSec for each file
Status of the descriptive metadata	mets/dmdSec/@STATUS	SUPERSEDED or CURRENT
Type of metadata	mets/dmdSec/mdRef/@MDTYPE	EAD

5.1.2   Specific fields to use in CSIP for the archival creator

The archival creator is encoded with EAC-CPF as previously described.

Table 2: Specific fields to use in CSIP for an EAC-CPF document

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Element name	METS path	Value
Descriptive metadata	mets/dmdSec	n/a One dmdSec for each file
Status of the descriptive metadata	mets/dmdSec/@STATUS	SUPERSEDED or CURRENT
Type of metadata	mets/dmdSec/mdRef/@MDTYPE	EAC-CPF

5.1.3   Specific fields to use in CSIP for the archival institution

The archival institution is encoded with EAG as previously described.

Table 3: Specific fields to use in CSIP for an EAG document

Element name	METS path	Value
Descriptive metadata	mets/dmdSec	n/a One dmdSec for each file
Status of the descriptive metadata	mets/dmdSec/@STATUS	SUPERSEDED or CURRENT
Type of metadata	mets/dmdSec/mdRef/@MDTYPE	OTHER
Type of metadata	mets/dmdSec/mdRef/@OTHERMDTYPE	EAG

5.1.4   Specific fields to use in CSIP for the functions or activities of the archival creator

The functions and activities are encoded in a way described in the submission agreement.

Table 4: Specific fields to use in CSIP for a function and activity document

Element name	METS path	Value
Descriptive metadata	mets/dmdSec	n/a One dmdSec for each file
Status of the descriptive metadata	mets/dmdSec/@STATUS	SUPERSEDED or CURRENT
Type of metadata	mets/dmdSec/mdRef/@MDTYPE	OTHER
Type of metadata	mets/dmdSec/mdRef/@OTHERMDTYPE	FUNCTIONS

5.1.5   Specific fields to use in CSIP for a description following Records in Context

Records in Context is encoded with RiC as previously described.

Table 5: Specific fields to use in CSIP for a RiC document

Element name	METS path	Value
Descriptive metadata	mets/dmdSec	n/a One dmdSec for each file
Status of the descriptive metadata	mets/dmdSec/@STATUS	SUPERSEDED or CURRENT
Type of metadata	mets/dmdSec/mdRef/@MDTYPE	OTHER
Type of metadata	mets/dmdSec/mdRef/@OTHERMDTYPE	RIC

5.2 Placement of Archival Information metadata documents in a CSIP Information Package

All the documents that provide Archival Information for the data objects in the transfer are placed in the "metadata" section of the IP, as shown in Figure 1 using EAD as the example. The schemas for validating the archival information are placed in the "schemas" folder.
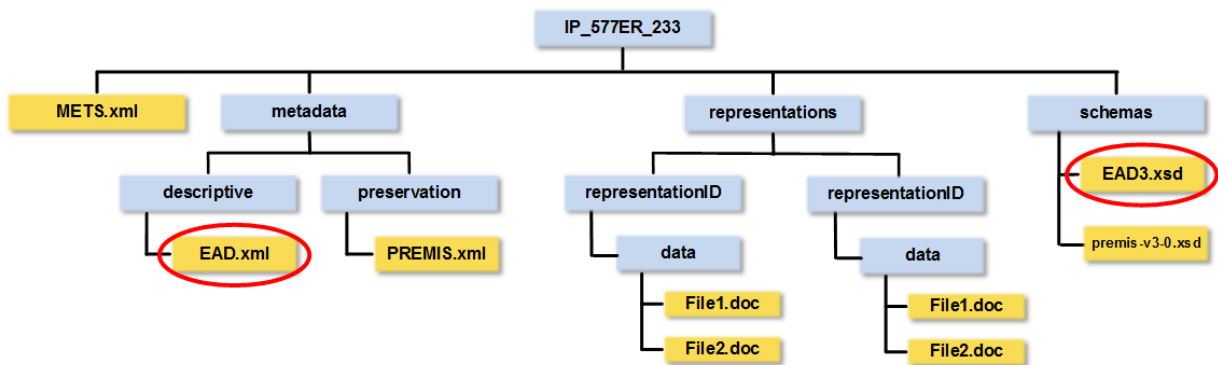

Figure 1: Example of placement of EAD in the IP.

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6 Postface

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