



**Standalone training from the
eArchiving Initiative on the**

E-ARK Specifications

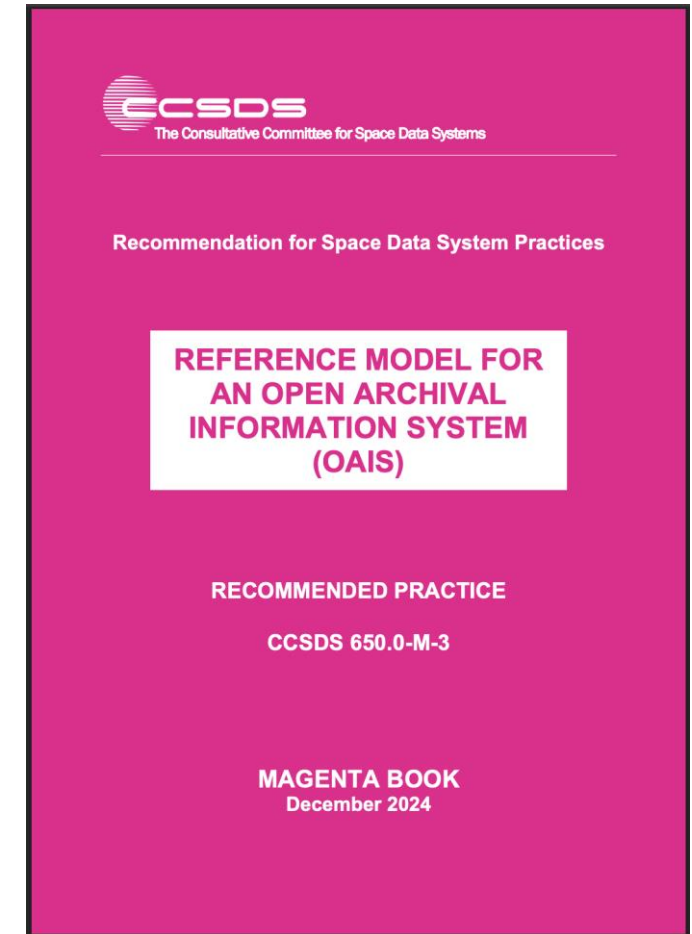
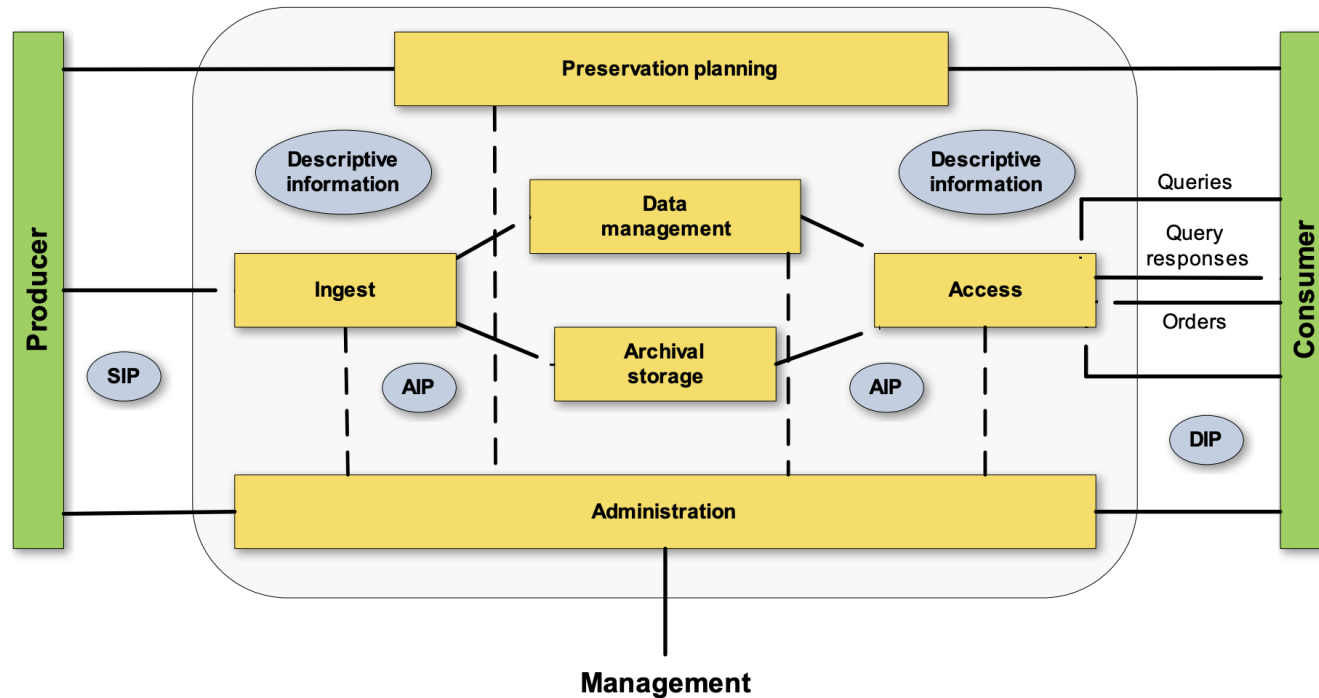
Lesson 2

**Common Specification and the
Information Package Specifications**

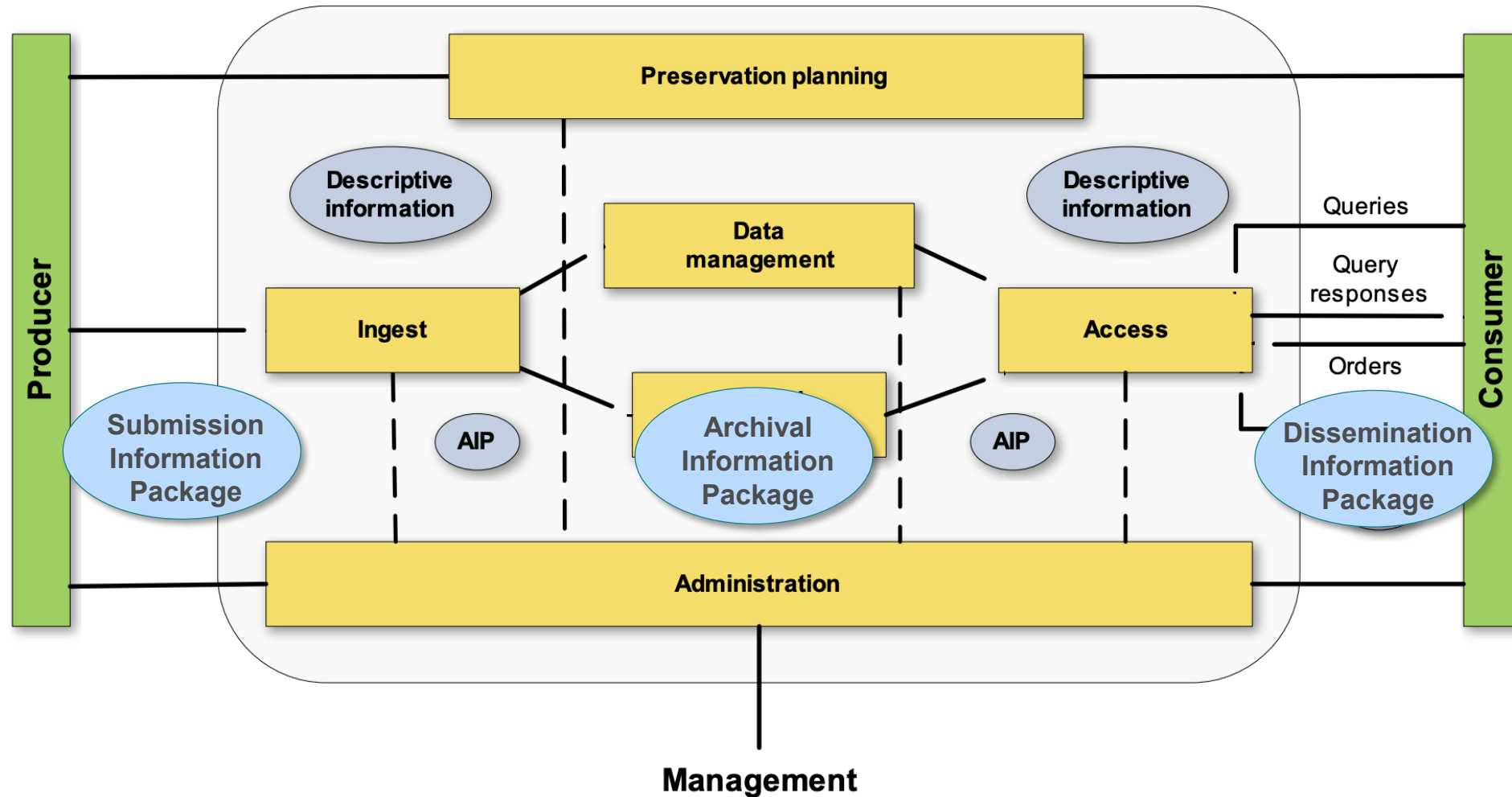
Lesson Structure

- Lesson 1 – Introduction to the E-ARK Specifications
- **Lesson 2 – Common Specification and the Information Package Specifications**
- Lesson 3 – Introduction to E-ARK Content Type Specifications
- Lesson 4 - 9 – Introduction to Specific Content Types
[To be added later]

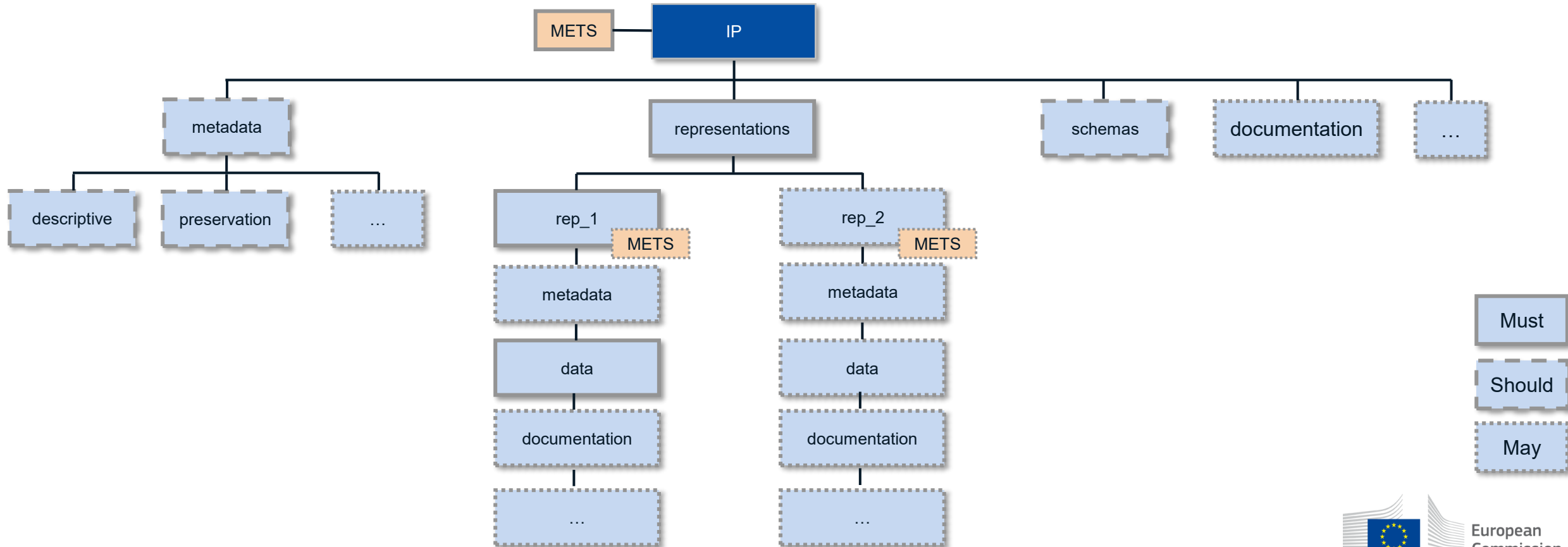
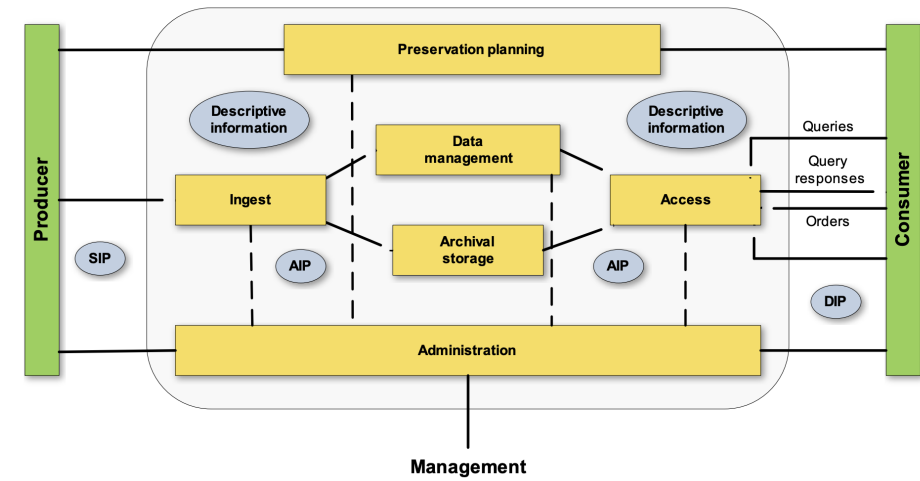
The OAIS Reference Model



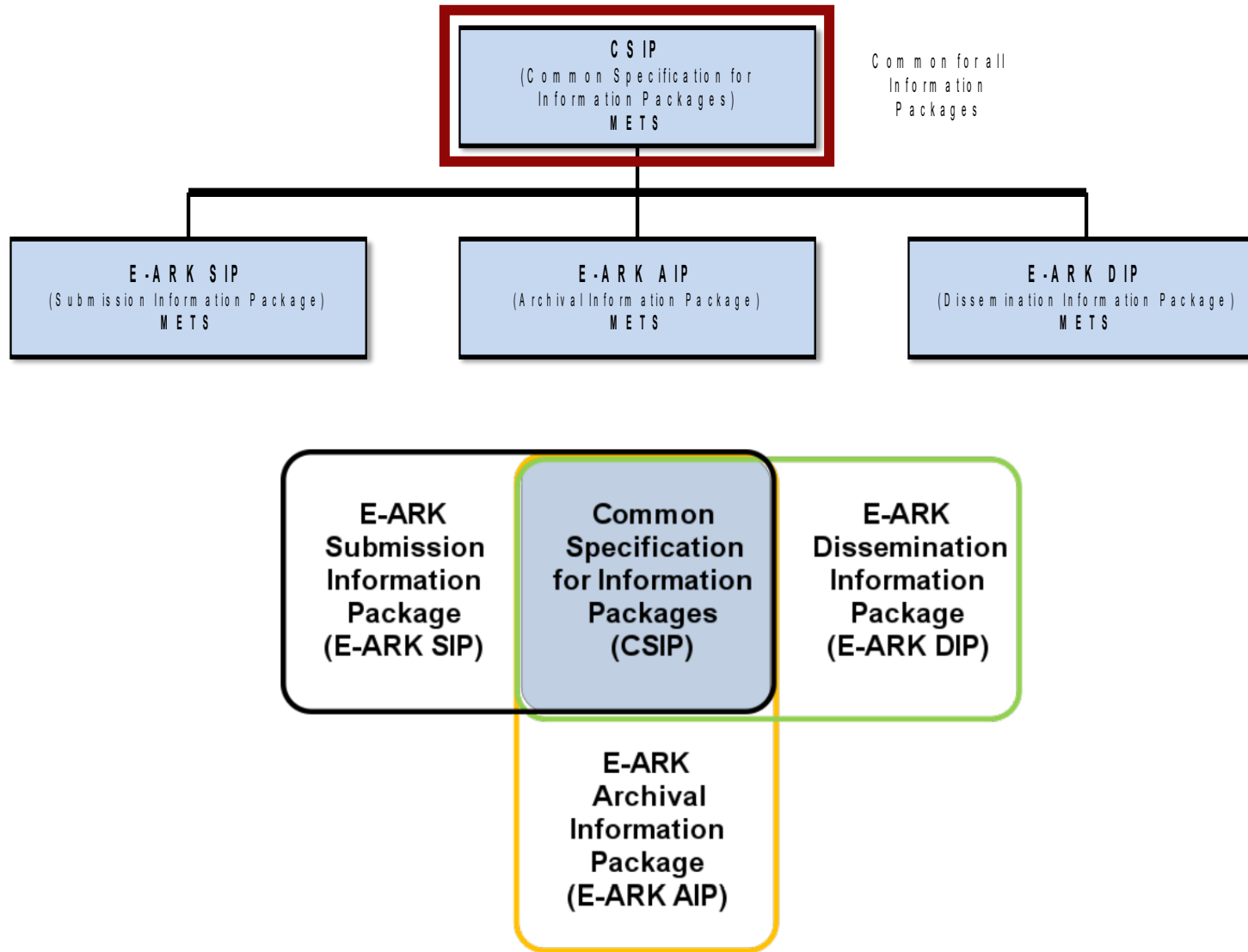
The OAIS Reference Model



E-ARK Information Packages



E-ARK Specifications – Common Specification



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Common Specification for Information Packages

At the heart of the eArchiving specifications is the Common Specification for Information Packages, which delivers a basic core specification providing a necessary minimum for institutions across Europe to securely package their data, and then customise their data as required.

The Common Specification for Information Packages (CSIP) aims to serve three main purposes:

1. Establish a common understanding of the requirements which need to be met in order to achieve interoperability of Information Packages;
2. Establish a common base for the development of more specific Information Package definitions and tools within the digital preservation community;
3. 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 CSIP is to reach a level of interoperability between all Information Packages so that tools implementing the CSIP can be taken up by institutions without needing further modifications or adaptations.

As an implementation specification, the CSIP defines an overall physical structure for Information Packages, detailing the position of data, metadata, and any other components within the package. Furthermore, the CSIP describes in detail the requirements in regard to metadata, most notably the interoperable use of METS and PREMIS within any Information Package.

Please note that all requirements presented within the CSIP have been followed in the E-ARK SIP, AIP and DIP specifications. As such we recommend starting with the CSIP before proceeding with any of the others!

Download the Common Specification

Latest version

Common Specification v2.2.0 (May 17, 2024). [PDF](#), [HTML](#).

Previous versions

[Common Specification v2.1.0](#) (October 15, 2021)

[Common Specification v2.0.4](#) (June 12, 2020)

[Common Specification v2.0.3](#) (January 8, 2020)

[Common Specification v2.0.2](#) (October 28, 2019)

[Common Specification v2.0.1](#) (September 9, 2019)

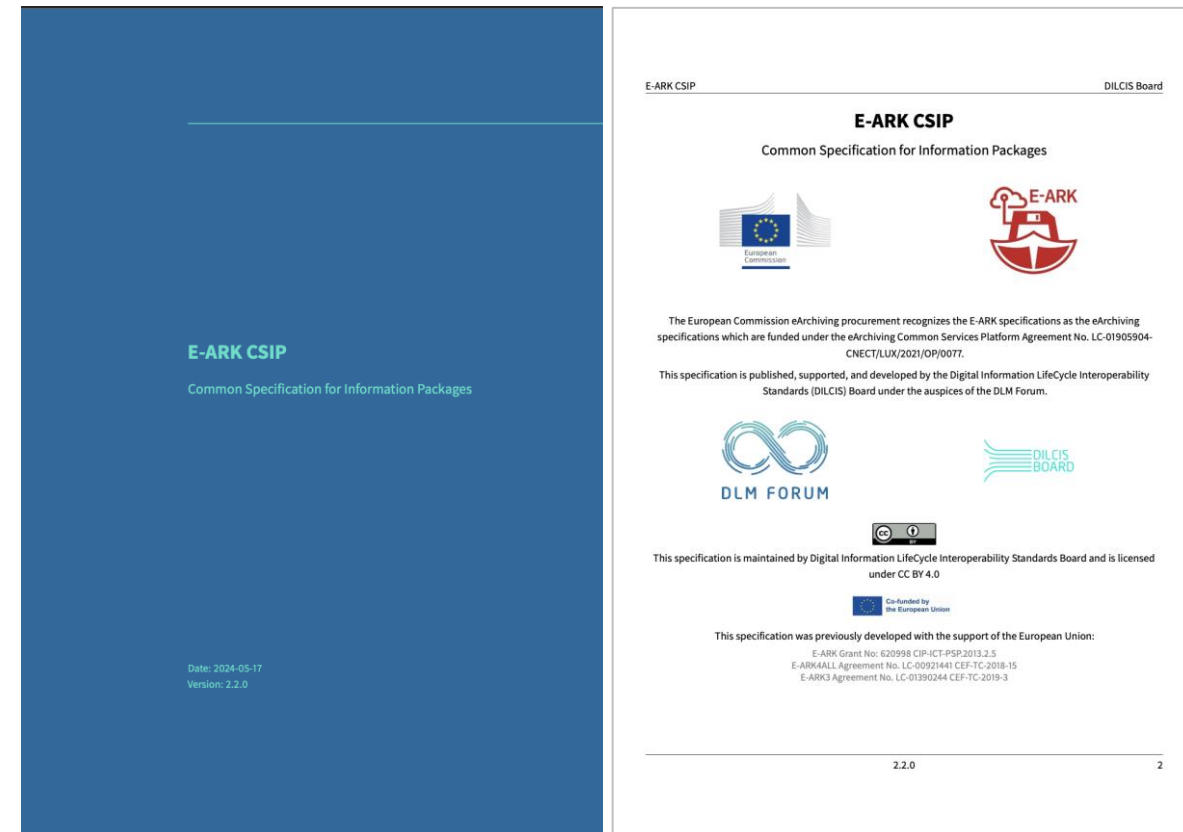
[Common Specification v2.0.0](#) (May 31, 2019)

[Common Specification v1.0](#) (February 1, 2017)

Common Specification for Information Packages (CSIP)

Executive Summary

This base profile describes the Common Specification for Information Packages (CSIP) and the implementation of METS for packaging OAIS conformant Information Packages. The profile is accompanied with a textual document explaining the details of use of this profile. This will enable repository interoperability and assist in the management of the preservation of digital content. This profile is a base profile which is extended with E-ARK implementation of SIP, AIP and DIP. The profile can be used as is, but it is recommended that the supplied extending implementation are used. Alternatively, an own extension fulfilling the extending needs of the implementer can be created.

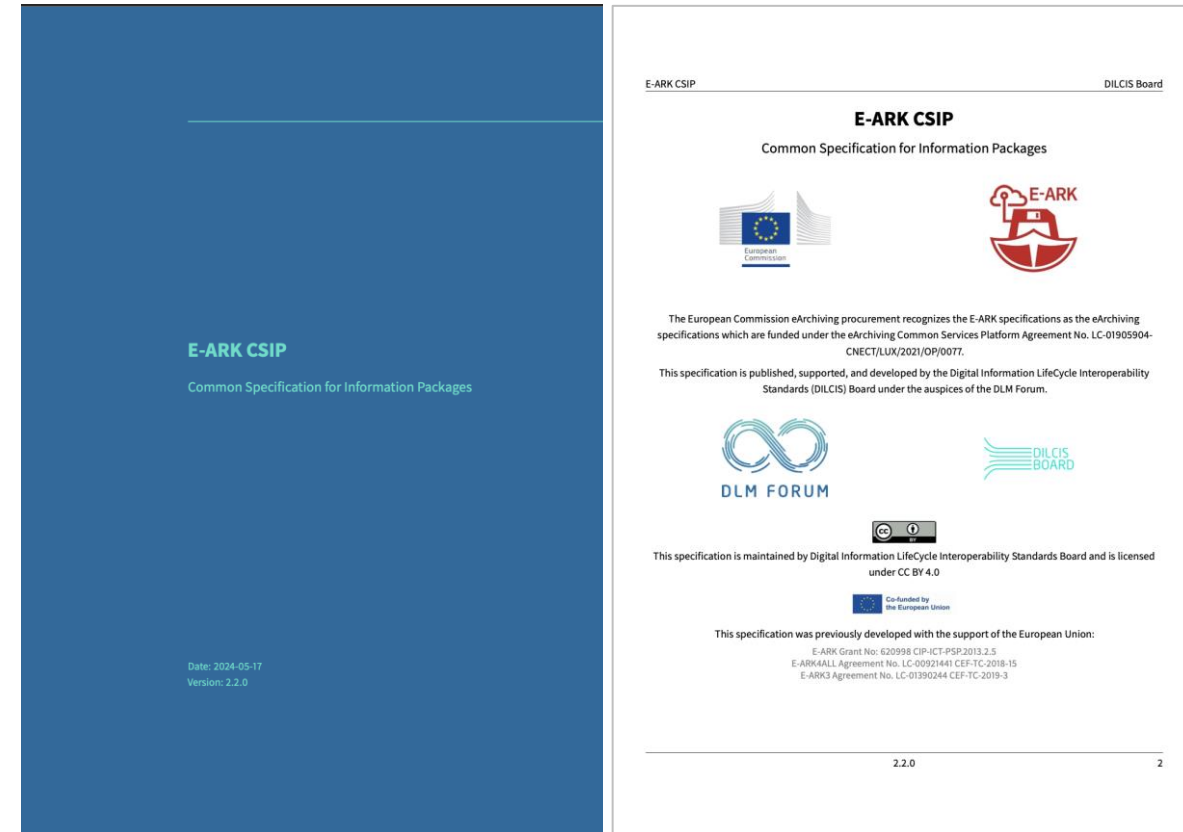


Common Specification for Information Packages (CSIP)

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.

The main purposes of CSIP are to:

- Common understanding of the requirements.
- Common base for the development of more specific Information Package definitions.
- Details of an XML-based implementation of the requirements.





CSIP – Document Structure

E-ARK CSIP

DILCIS Board

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E-ARK CSIP

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Information flow between live and archival systems

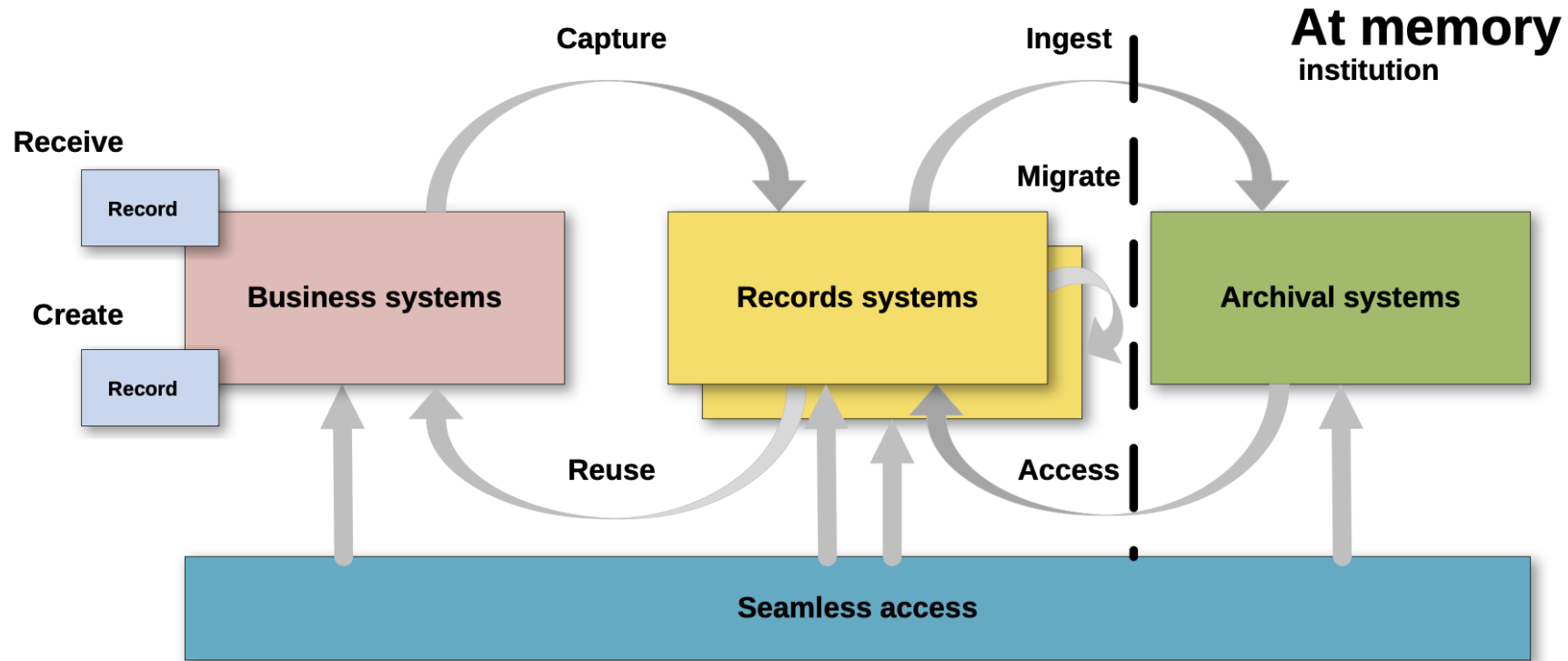
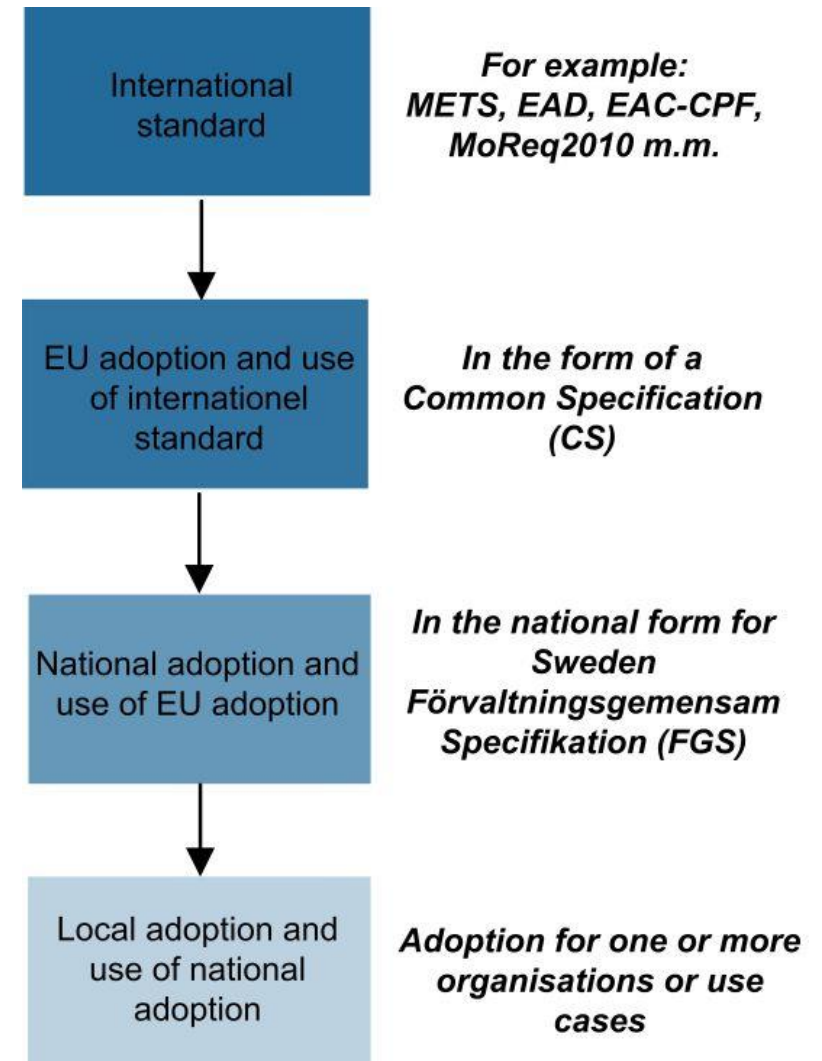


Figure 5: Information flow between live and archival systems

Standards behind the E-ARK specifications

Most important standards

- Open Archival Information System (OAIS) Reference Model or ISO14721:2012
- Extensible Markup Language (XML)
- Metadata Encoding and Transmission Standard (METS)
- PREservation Metadata Implementation Strategies (PREMIS)
- Encoded Archival Description (EAD)
- Encoded Archival Creators- Corporate Bodies, Persons and Families (EAC-CPF)
- Records in Context (RiC)



CSIP – Principles

“At the heart of any standardisation activity has to be a clear understanding of the needs and aims which have to be addressed. This is also the goal of this section, which presents a series of high-level principles to guide the technical details delivered in Part II of this specification.

Most of the principles are driven by the aim of interoperability, which is that Information Packages shall be easy to exchange, identify, validate and (re)use with a wide variety of software tools and systems.

The principles present a conceptual view of an Information Package, including an overall IP data model, and use of data and metadata.

Each principle has a sequential number and a short description. The description always includes an RFC2119 keyword (MUST/MUST NOT, SHOULD/SHOULD NOT, MAY) to indicate the requirement level. The short description of each principle is followed by a rationale which describes the reason and background for the principle.”

3.1 General principles

3.1.1 Principle 1.1

It **MUST** be possible to include any data or metadata in an Information Package regardless of its type or format.

This is one of the most crucial principles of the CSIP. To be truly “common”, technical implementations of the CSIP **MUST NOT** introduce limitations or restrictions which are only applicable to certain data or metadata types. If an Information Package implementation fails to meet this principle, it is not possible to use it across different sectors and tools, thereby limiting practical interoperability.

CSIP – Principles

General principles

Principle 1.1

*It **MUST** be possible to include any data or metadata in an Information Package regardless of its type or format.*

Principle 1.2:

*The Information Package **MUST NOT** restrict the means, methods or tools for exchanging it.*

Principle 1.3

*The package format **MUST NOT** define the scope of data and metadata which constitutes an Information Package.*

Principle 1.4:

*The Information Package **SHOULD** be scalable.*

Principle 1.5:

*The Information Package **MUST** be machine-readable*

Principle 1.6:

*The Information Package **SHOULD** be human-readable*

Principle 1.7:

*The Information Package **MUST NOT** prescribe the use of a specific preservation*

CSIP – Principles

3.2 Identification of the Information Package

3.2.1 Principle 2.1:

The Information Package OAIS type (SIP, AIP or DIP) MUST be clearly indicated.

3.2.2 Principle 2.2:

Any Information Package MUST clearly identify the Content Information Type(s) of its data and metadata.

3.2.3 Principle 2.3:

Any Information Package MUST have an identifier which is unique and persistent within the repository.

3.2.4 Principle 2.4:

Any Information Package SHOULD have an identifier which is globally unique and persistent.

3.2.5 Principle 2.5:

All components of an Information Package MUST have an identifier which is unique and persistent within the repository.

3.3 Structure of the Information Package

3.3.1 Principle 3.1:

The Information Package MUST ensure that data and metadata are logically separated from one another.

3.3.2 Principle 3.2:

The Information Package SHOULD ensure that data and metadata are physically separated from one another.

3.3.3 Principle 3.3:

The structure of the Information Package SHOULD allow for the separation of different types of metadata

3.3.4 Principle 3.4:

The structure of the Information Package MUST allow for the creation of data and metadata in multiple representations.

3.3.5 Principle 3.5:

The structure of the Information Package MUST explicitly define the possibilities for adding additional components into the Information Package.

3.3.6 Principle 3.6:

The Information Package SHOULD follow a common conceptual structure regardless of its technical implementation.

3.4 Information Package Metadata

3.4.1 Principle 4.1:

Metadata in the Information Package MUST conform to a standard or be in a well-formed format.

3.4.2 Principle 4.2:

Metadata in the Information Package MUST allow for unambiguous use.

3.4.3 Principle 4.3:

The Information Package MUST NOT restrict the addition of supplementary metadata.

CSIP – Folder Structure

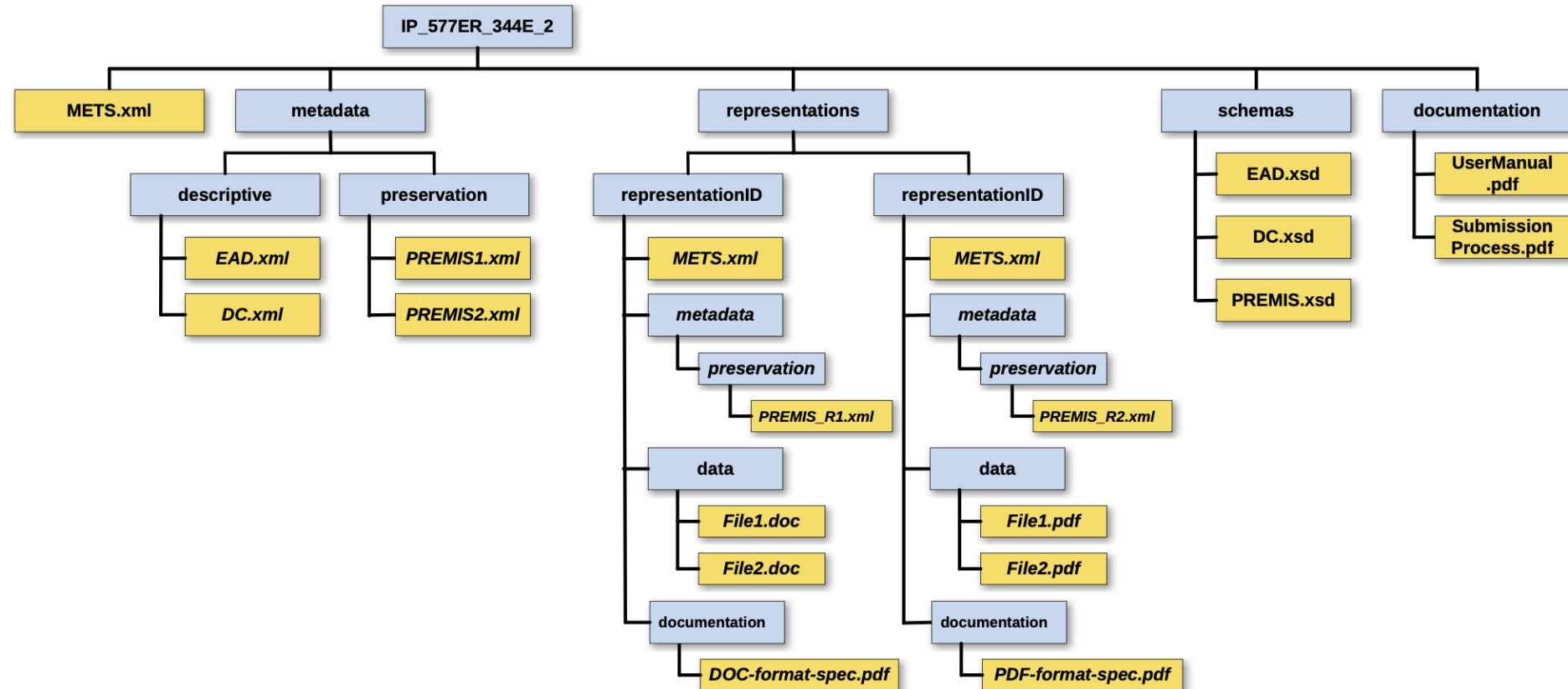


Figure 10: Example of the full use of the CSIP structure

CSIP – Metadata

5.1 General requirements for metadata in a CSIP Information Package

The primary consideration with metadata is, as with the rest of this specification, interoperability. Specifically, the high-level technical interoperability and tasks that allow an Information Package to be prepared, transferred and received, regardless of the institutions or tools involved.

These tasks include:

- Uniquely identifying an Information Package and its components;
- Validating an Information Package and its contents;
- Establishing the authenticity of the Information Package;
- Accessing the contents of an Information Package.

In technical terms, the CSIP tries to control metadata needed by tools or users to:

- navigate data and metadata components within the package (i.e. packaging metadata);
- validate that no component has been damaged during transfer or preservation (i.e. fixity information);
- understand the processes used when creating and managing the package (i.e. provenance and preservation metadata); and
- understand how the data within the package can be accessed (i.e. representation information).

CSIP – METS

5.3.2 Use of the METS header (element metsHdr)

The purpose of the METS header section is to describe the METS document itself, for example information about the creator of the IP. The requirements for the metsHdr element, its sub-elements and attributes are presented in the following table.

ID	Name, Location & Description	Card & Level
CSIP117	Package header <i>mets/metsHdr</i> General element for describing the package.	1..1 MUST
CSIP7	Package creation datetime <i>mets/metsHdr/@CREATEDATE</i> <i>mets/metsHdr/@CREATEDATE</i> records the date and time the package was created.	1..1 MUST
CSIP8	Package last modification datetime <i>mets/metsHdr/@LASTMODDATE</i> <i>mets/metsHdr/@LASTMODDATE</i> records the data and time the package was modified and is mandatory when the package has been modified.	0..1 SHOULD
CSIP9	OAIS Package type information <i>mets/metsHdr/@csip:OAISPACKAGETYPE</i> <i>mets/metsHdr/@csip:OAISPACKAGETYPE</i> is an additional CSIP attribute that declares the type of the IP.	1..1 MUST

CSIP – METS – Complete Examples

7.1 Appendix A: E-ARK Information Package METS Examples

7.1.1 Example 1: Example of a whole METS document describing an information package with no representations

```
<mets:mets xmlns:csip="https://DILCIS.eu/XML/METS/CSIPExtensionMETS" xmlns:mets="http://www.loc.gov/METS/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xlink="http://www.w3.org/1999/xlink" OBJID="csip-mets-example" LABEL="Sample CSIP Information Package with no representations" TYPE="Database" csip:CONTENTINFORMATIONTYPE="SIARDDK" PROFILE="https://eakcsip.dilcis.eu/profile/E-ARK-CSIP.xml" xsi:schemaLocation="http://www.loc.gov/METS/ http://www.loc.gov/standards/mets/mets.xsd http://www.w3.org/1999/xlink http://www.loc.gov/standards/mets/xlink.xsd https://DILCIS.eu/XML/METS/CSIPExtensionMETS https://eakcsip.dilcis.eu/schema/DILCISExtensionMETS.xsd">
<mets:metsHdr CREATEDATE="2018-04-24T14:37:49.602+01:00" LASTMODDATE="2018-04-24T14:37:49.602+01:00" RECORDSTATUS="NEW" csip:OAISPACKAGETYPE="SIP">
  <mets:agent ROLE="CREATOR" TYPE="OTHER" OTHERTYPE="SOFTWARE">
    <mets:name>
      RODA-in
    </mets:name>
    <mets:note csip:NOTETYPE="SOFTWARE VERSION">
      2.1.0-beta.7
    </mets:note>
  </mets:agent>
</mets:metsHdr>
<mets:dmdSec ID="appdx1.dmd-ead-file" CREATED="2018-04-24T14:37:49.609+01:00">
```

7.1.2 Example 2: Example of a whole METS document describing an information package with representations

```
<mets:mets xmlns:csip="https://DILCIS.eu/XML/METS/CSIPExtensionMETS" xmlns:mets="http://www.loc.gov/METS/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xlink="http://www.w3.org/1999/xlink" OBJID="csip-mets-example" LABEL="Sample CSIP Information Package with representations" TYPE="Database" PROFILE="https://eakcsip.dilcis.eu/profile/E-ARK-CSIP.xml" xsi:schemaLocation="http://www.loc.gov/METS/ http://www.loc.gov/standards/mets/mets.xsd http://www.w3.org/1999/xlink http://www.loc.gov/standards/mets/xlink.xsd https://DILCIS.eu/XML/METS/CSIPExtensionMETS https://eakcsip.dilcis.eu/schema/DILCISExtensionMETS.xsd">
<mets:metsHdr CREATEDATE="2018-04-24T14:37:49.602+01:00" LASTMODDATE="2018-04-24T14:37:49.602+01:00" RECORDSTATUS="NEW" csip:OAISPACKAGETYPE="SIP">
  <mets:agent ROLE="CREATOR" TYPE="OTHER" OTHERTYPE="SOFTWARE">
    <mets:name>
      RODA-in
    </mets:name>
    <mets:note csip:NOTETYPE="SOFTWARE VERSION">
      2.1.0-beta.7
    </mets:note>
  </mets:agent>
</mets:metsHdr>
<mets:dmdSec ID="appdx2.dmd-ead-file" CREATED="2018-04-24T14:37:49.609+01:00">
  <mets:mdRef LOCTYPE="URL" MDTYPE="EAD" MDTYPEVERSION="2002" xlink:type="simple" xlink:href="metadata/descriptive/ead2002.xml" SIZE="903" CREATED="2018-04-24T14:37:49.609+01:00" CHECKSUM="
```

CSIP – PREMIS

5.4 Use of PREMIS

The CSIP recommends and advocates the use of the PREservation Metadata Implementation Strategies (PREMIS, <https://www.loc.gov/standards/premis/>) metadata standard for recording preservation and technical metadata about digital objects contained within CSIP Information Packages. The use of PREMIS is described in the “E-ARK Common Specification for Preservation Metadata using PREMIS” (CS PREMIS) found at <https://citspremis.dilcis.eu/specification/> .

Note that use of PREMIS is not mandatory.

CSIP – Descriptive Metadata

6.3 Handling descriptive metadata within the Common Specification

Descriptive metadata are used to describe the intellectual contents of archival holdings, and they support finding and understanding individual information packages. The CSIP allows essentially for the inclusion of any kind of descriptive metadata in the IP. However, it is required that all descriptive metadata must be placed into the “metadata” folder of the IP, and that it is recommended (should) to also exploit the possibility of creating a specific sub-folder “descriptive” as seen in Figure 11 below (cf. EAD.xml).

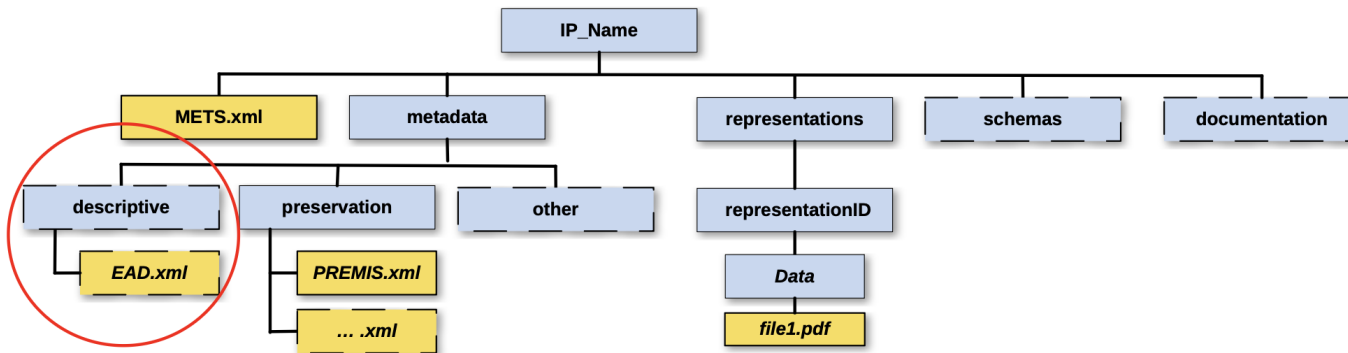
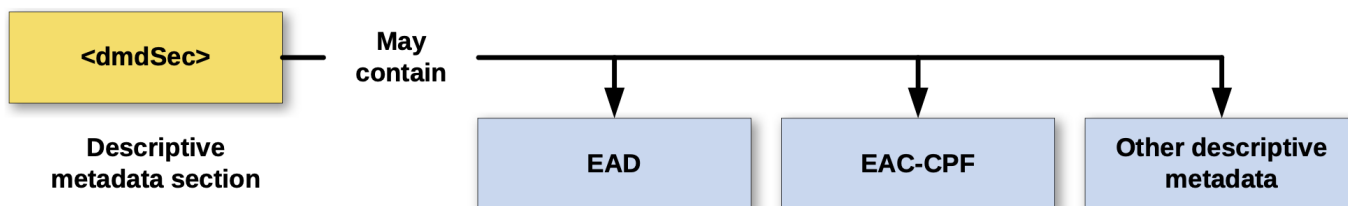


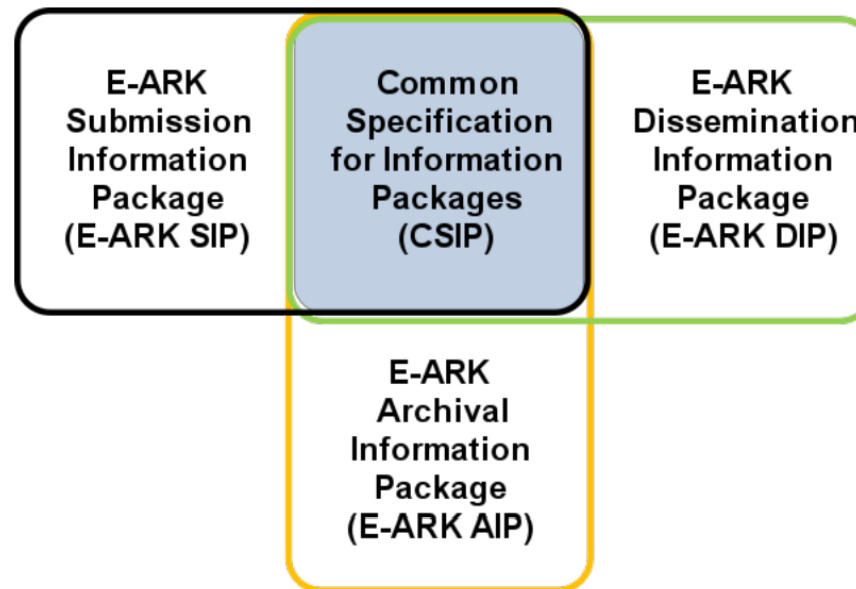
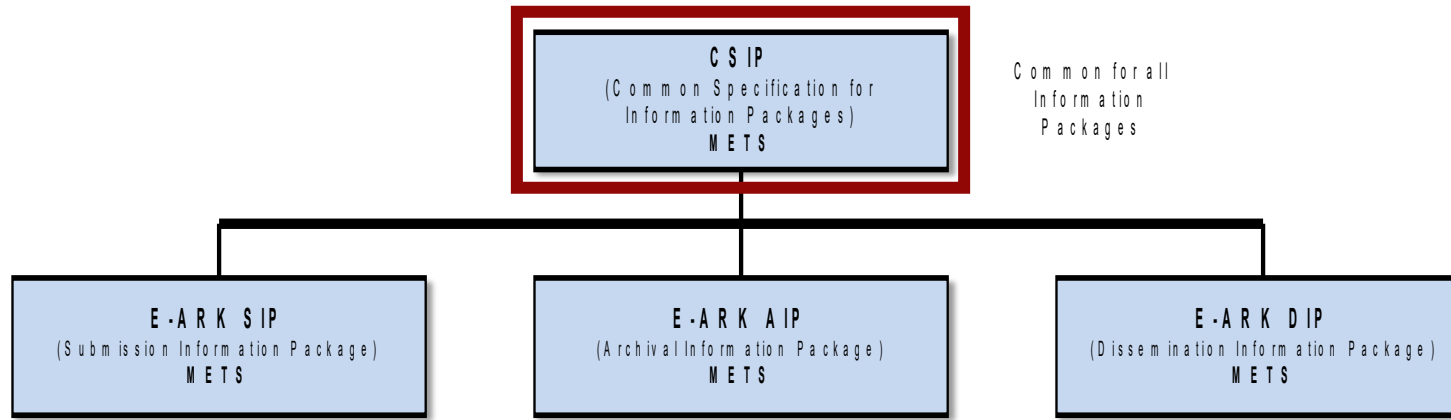
Figure 11: E-ARK IP descriptive metadata

Further, all descriptive metadata need to be described in and referenced from METS metadata (i.e. the `METS.xml` file) using the element `<dmdSec>` (Figure 12) and as such descriptive metadata should not be embedded directly in the METS file.

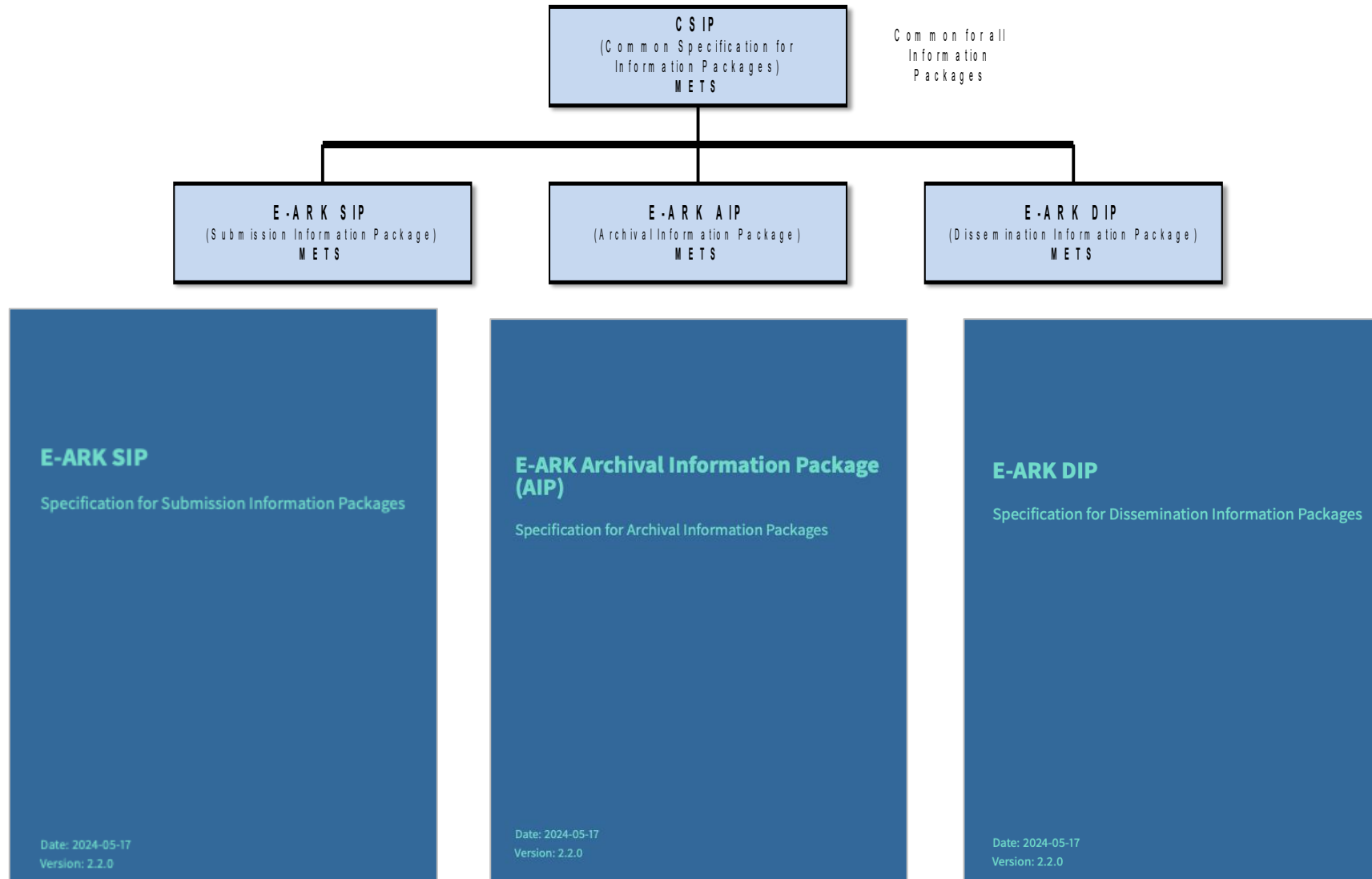


The CSIP does not prescribe or assume the use of specific descriptive metadata schemas. This means implementers are free to use descriptive metadata standards of their choosing inside a CSIP package following the recommendations in the “E-ARK Common Specification for Archival Information” (CS Archival Information) found at <https://citsarchival.dilcis.eu/specification/>.

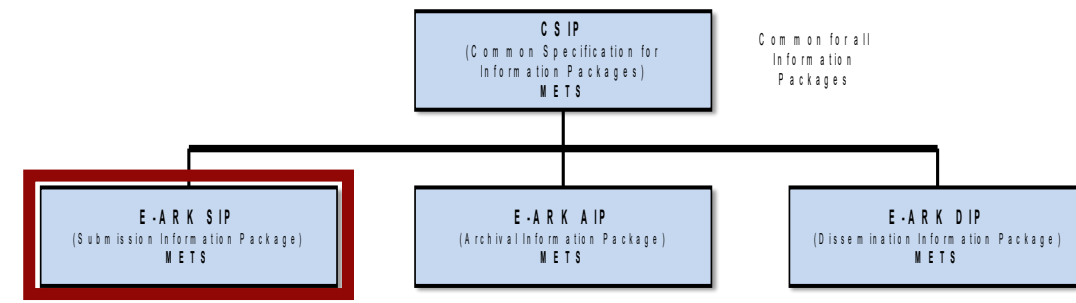
CSIP vs. E-ARK SIP/AIP/DIP



CSIP vs. E-ARK SIP/AIP/DIP



E-ARK SIP

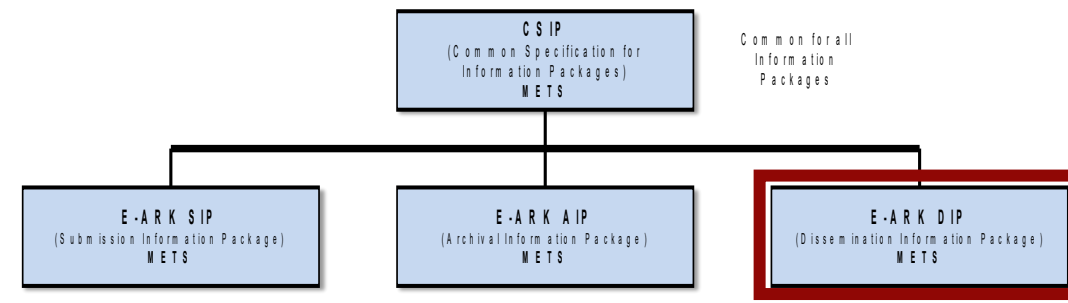


SIP-specific extensions and modifications

The E-ARK SIP specification focuses on defining a general structure for Information Packages delivered by the Producer to the OAIS for ingestion or updating Archival Information Packages (AIPs). It extends the CSIP with metadata necessary during the transfer moment.

- ✓ Submission Agreement
- ✓ Package Structure
- ✓ METS file

E-ARK DIP

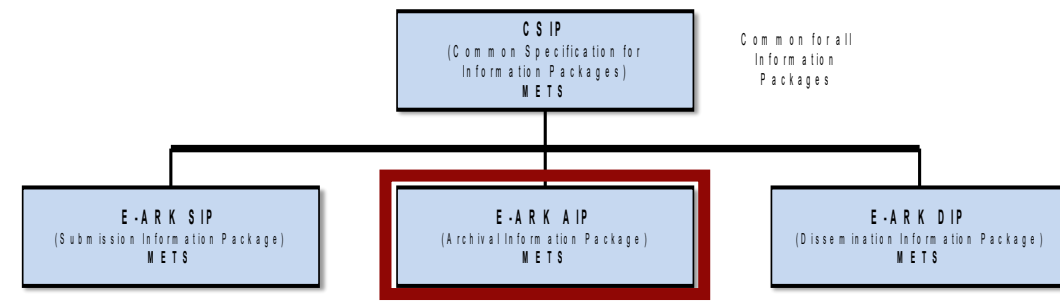


DIP-specific extensions and modifications

The E-ARK DIP specification defines requirements for Information Packages derived from one or more AIPs and sent to a Consumer in response to a request. The core definition of an E-ARK DIP is that it is a CSIP ready for processing by its designated Access Software.

- ✓ Purpose-driven Content
- ✓ METS file
- ✓ PREMIS for Access Information (Access Software)
- ✓ Access Restrictions in Descriptive Metadata

E-ARK AIP

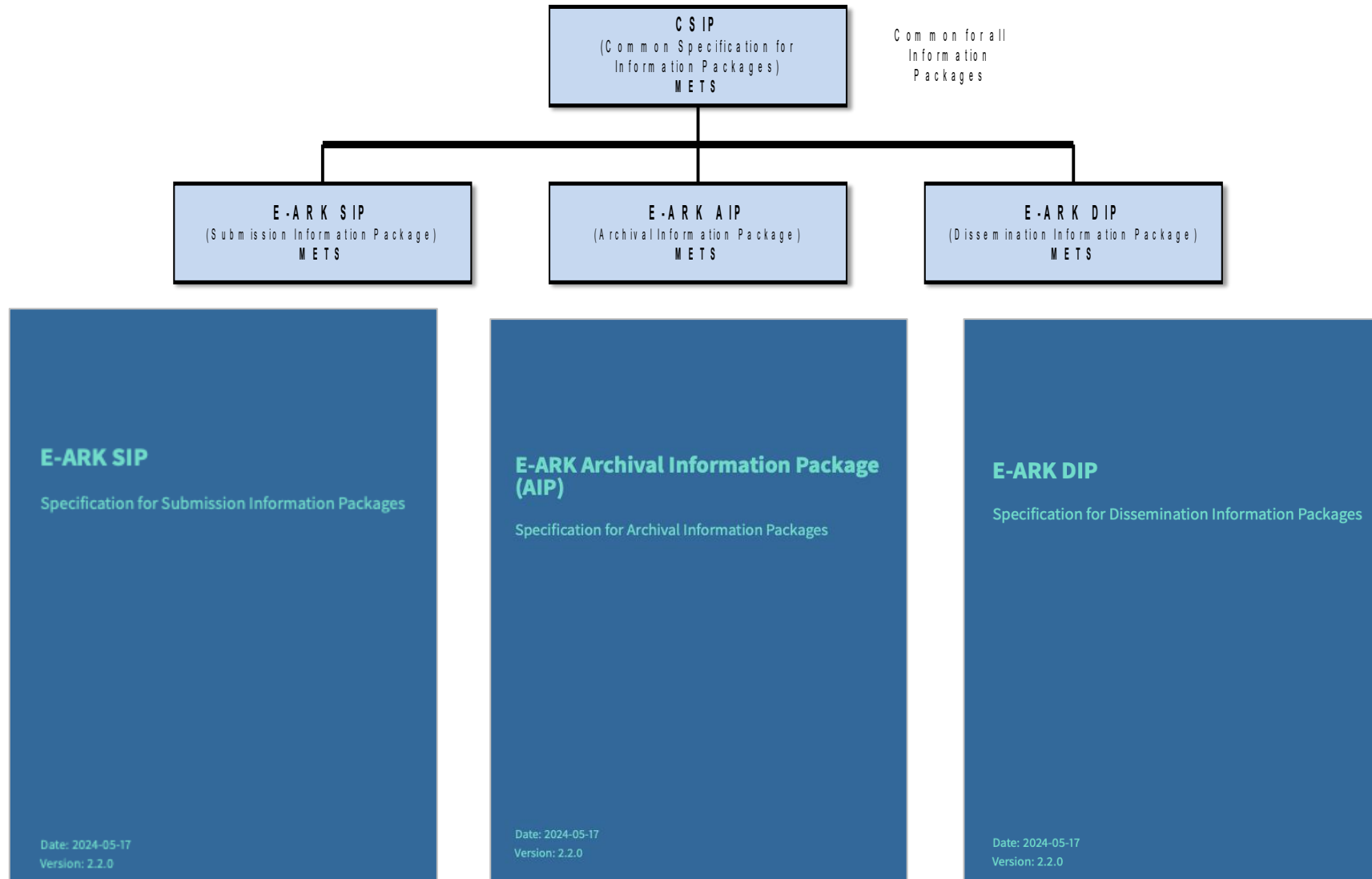


AIP-specific extensions and modifications

The E-ARK AIP specification defines requirements for building AIPs that store information for the long term in an archive. Unlike SIP and DIP, which are "snapshots" in time, the AIP addresses an "evolving object" that is continually updated by preservation actions throughout its lifecycle.

- ✓ Provenance and Life-cycle
- ✓ METS file
- ✓ Physical Container Packaging
- ✓ PREMIS Object Metadata

CSIP vs. E-ARK SIP/AIP/DIP

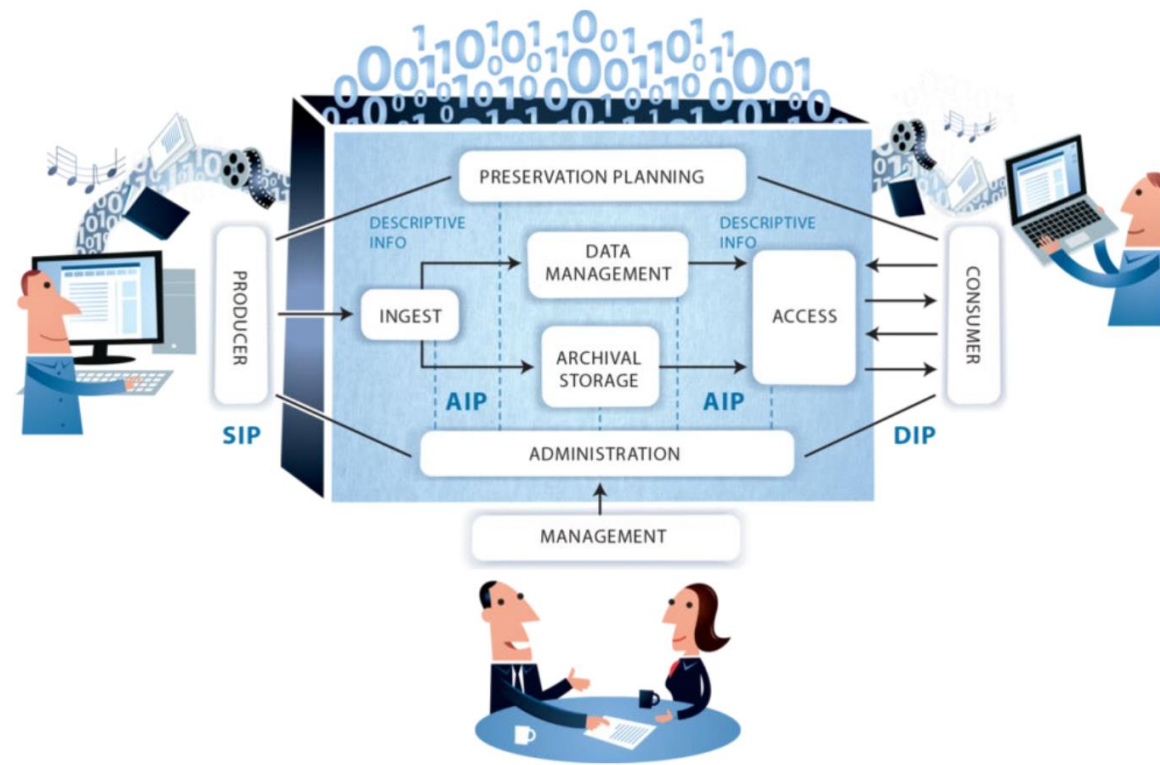


Guidelines

Guideline for information packages

Guideline for E-ARK Information Packages and Content
Information Type Specifications

Date: 20.08.2025
Version: 1.1.0



Digitalbevaring.dk



Thank you

Contact



<https://www.e-ark-foundation.eu/>



support@e-ark-foundation.eu



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