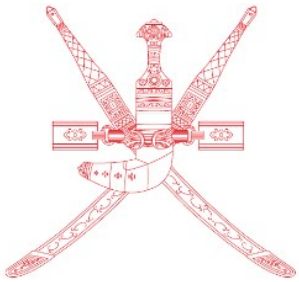
وصول
لإدارة المستندات والوثائق الإلكترونية

سلطنة عمان
هيئة الوثائق
والمحفوظات الوطنية



Government of the Sultanate of Oman

NATIONAL RECORDS AND ARCHIVES AUTHORITY (NRAA)

SPECIFICATIONS

FOR

OMAN SUBMISSION INFORMATION PACKAGE (OSIP)

ARCHIVAL SUBMISSION INTERFACE BETWEEN EDRMS AND DIGITAL PRESERVATION SYSTEMS

V1.0

ELECTRONIC DOCUMENT AND RECORDS MANAGEMENT SYSTEM (EDRMS)

Document History and Revision Control

NO.	DATE	DESCRIPTION OF CHANGES	AUTHOR
1	20200823	First released version	Yahya Yai Abdullah, Expert in Electronic Records Management & EDRMS Project Manager.
2	20210208	Second released version.	Yahya Yai Abdullah, Expert in Electronic Records Management & EDRMS Project Manager.

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1. Executive Summary

The Oman Submission Information Package (OSIP) specifies an open and neutral standard format that must be implemented by all systems that keep and manage official records in digital form in order to produce valid and complete digital information packages of those records that are to be transferred to the digital preservation system of NRAA for permanent preservation according to Omani laws and regulations.

The OSIP specifications describe the structure and order of such packages, including the digital content and information that must be present in these packages for it to be considered valid and complete both in the technical and business sense.

OSIP itself is designed with reference to the Open Archival Information Systems (OAIS) reference model[1] accepted and used worldwide by various national, state and city archives, libraries, and other corporate memory preservation institutions, including large multi-national corporations. OSIP is also based on the Swiss E-Government Standards eCH-0160 with modifications and translations.

However, OSIP also takes into account the specific characteristics and requirements of preservation of records that are inherent in the standards, practices and culture of Oman as well as the surrounding region of Arabic-speaking countries.

2. Objectives

The objectives of NRAA in producing a localized specification for the Submission Information Package (SIP) is to specify a single open and standard format for packaging of digital records along with their associated information necessary for its transfer and ingestion into NRAA's digital preservation system for permanent preservation, or into any other digital preservation system certified for use by NRAA in Oman.

This format is designed to be simple and easy enough for the various EDRMS vendors and solution providers to understand, in order that they may be able to develop and maintain a compliant implementation of it in their EDRMS products and solutions. As such this format is designed to be vendor and platform neutral.

It is also designed to be easily maintained and evolved over time by NRAA to meet any future requirements of digital preservation of digital records and archives.

It is the intention of NRAA that OSIP be promoted and accepted as the open standard for SIP in Oman, in the Gulf Cooperation Council (GCC) countries, the East African countries and in the Arabic-speaking world in general.

3. Audience

This document is meant for the following audiences:

1. Government agencies , semi-government entities, government-owned corporations and public utilities who are required under Omani laws and regulations to transfer their records to NRAA as permanent archives. This document provides a tool for them to facilitate communication with their in-house software development team or external software vendors to ensure compliance with OSIP specifications.

[1] ISO 14721: 2012 Space data and information transfer systems – Open Archival Information System (OAIS) – Reference Model, Edition 2 Published 2012-09.

2. Implementors of digital preservation systems who wish to understand the structure of OSIP packages in order to validate it, transform it, process it, and ultimately ingest them into those systems.

3. Implementors of electronic records management systems and line-of-business systems that manages records, who will need produce valid OSIP packages from the records it manages, for transfer and ingestion into digital preservation systems. The ability to produce valid OSIP packages will henceforth be considered mandatory for compliance with NRAA's national standards and guidelines for management of electronic document and records in the Oman government offices and in other entities where compliance is mandated by law[2].

4. Implementors of standalone OSIP creation tools that will facilitate the manual creation of OSIP packages from records that are not managed using electronic records management systems or line-of-business systems, or they are managed using legacy systems that are no longer supported by their original vendors.

[2] Article 13 Chapter III of the Records and Archives Law (Royal Decree 60/2007)

4. Acknowledgements

NRAA is indebted to the authors and creators of the *eCH-0160 v1.0 Archival Submission Interface* standards of the Swiss Federal Archives (SFA) for their original work on the SIP standards and for making eCH-0160 an open standard with a license that allows NRAA to fork eCH-0160 v1.0[3] and customize it to be the current OSIP standard.

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We also appreciate the work of Mr. Felix Akeret in providing his consultancy to NRAA in identifying the most appropriate of the various international SIP standards to adopt and to customize, and for his efforts in translating the original eCH-0160 specifications from German into English, and providing the first draft of the translation of the eCH-0160 XML / XSD from German into English.

[3] eCH-0160 Archival Submission Interface v1.0 issued 2012-11-29: "… The standards drawn up by the expert groups may be used, disseminated and further developed free of charge and without restriction, provided the authors at eCH are cited… eCH standards are fully documented and free from licence and/or patent restrictions. The associated documentation may be obtained free of charge…"

The authors and current maintainers of the OSIP v1.0 standard are:

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The authors of OSIP has reviewed, modified and finalized the English translation of the original German language XML element names, attribute names and enumerated values in the eCH-0160 standard. They have also removed certain elements specific to the Swiss context (e.g. “GEVER”) and added new structures and elements specific to the Omani context e.g. support for file volumes, relationship links, additional point-of-capture metadata for files and records. The XSD validation file has been completely rewritten.

All these changes meant that OSIP is no longer compatible with the eCH-0160, and the intention is to maintain it as a separate standard moving forward.

5. Terms and Definitions

The following terms, abbreviations and acronyms used in this document have the following definitions.

Term, Abbreviation, or Acronym	Definition
AIP	Archival Information Package. When a SIP is ingested into an OAIS, it is transformed into an AIP. An AIP is an information package containing the content and all information required for the permanent and indefinite long term preservation of that content. Transforming an SIP into AIP may involve conversions of file formats, data representations and reorganized content information.
Digital Object	A single digital computer file in any file format.

Digital Preservation System	A OAIS-compliant system used to preserve the archived digital information for long term preservation. The digital records are to be preserved for its archival value for as long as possible in a format that is as open and as independent as possible in terms of technology and platform to mitigate against technology obsolescence which is inevitable over time.
eCH-0160	A standard for SIP created for the Swiss Federal Archives. Officially named the "Archival Submission Interface" standards. Part of the Swiss government's E-Government Standards. Version 1.0 was issued on the 29th November 2012.
EDRMS	Electronic Documents and Records Managements 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 electronic records. These systems, when they are also capable of document management capabilities, are also commonly referred to as EDRMS. (Source: National Archives of Australia, Digital Recordkeeping: Guidelines for Creating, Managing and Preserving Digital Records, exposure draft, 2004)
File	An aggregation of records of the same business context. Also commonly referred to as a Dossier or Folder. This is to be distinguished from a digital computer file.
File Volume	A File must contain one or more sub-aggregations called File Volumes. The actual records will be contained within the File Volumes, with constraints on the maximum number of records per File Volume. Support for File Volumes has been added to OSIP to support hybrid Files which comprise of both digital records in EDRMS and physical records kept in physical Files. Even for purely digital Files, it is not recommended to keep tens of thousands of documents within a single File; instead of that, distribute the documents across multiple sub-folders for easier and faster handling and processing.
GCC	Gulf Cooperation Council.
Ingest	This is a function within an OAIS that receives SIP from producers and packages it for storage. It accepts a SIP, verifies it, creates an

	AIP from it, and transfers the newly created AIP to archival storage for long term preservation.
NRAA	National Records and Archives Authority of the Sultanate of Oman.
OAIS	Open Archival Information System. This is “an archive, consisting of an organization of people and systems, that has accepted the responsibility to preserve information and make it available for a Designated Community”. The Designated Community is the “community of stakeholders and users that the OAIS serves”. OAIS provides a reference model for the design of digital preservation systems. The OAIS Reference Model is an ISO standard: ISO 14721: 2012.
OSIP	Oman Submission Information Package: a national specification for SIP produced by and for the Oman government.
Primary data	The actual digital content to be preserved indefinitely. Called ‘primary’ to distinguished it from metadata in the SIP which describes its preservation qualities, and that which describes the structure of the package itself.
Producer	An entity that produces the records that is transferred to an OAIS.
Record	Information in any format created, received and maintained as evidence and information by an organization or person, in pursuance of legal obligations or in the transaction of business. (Source: ISO 15489, Part 1, Clause 3.15). Every record created or obtained by every natural or legal person whether public or private in the course of exercising his functions whatever is the date, form and medium of this record. They include information that is accessed directly or indirectly such as letters, maps, pictures, magnetic tapes, films, compact disks and others. Records may be either separate or collected in a file. (Source: Records and Archives Law, Part 1 Clause 1, Royal Decree 60/2007, Sultanate of Oman).
SFA	Swiss Federal Archives
SIP	Submission Information Package. An digital information package delivered by the producers of records to an OAIS-compliant digital preservation system. This information package contains Content Information, Preservation Description Information and Package Information.

Submitting Agency	A Producer which is an Omani government agency, or government owned corporation, or public utilities that is required under Omani law and regulations to transfer their records for archival in an OAIS managed by NRAA.

Figure 1: Terms and Definitions

6. Notation

All folder, sub-folder and computer file names in this document will be formatted in a brown `Courier` font.

Numbering and naming patterns will be formatted in a purple `Courier` font like so:

f	n	n	n	n	n	n

XML attribute and element tags will be formatted in brown `Courier` font, and their values will be formatted in a green `Courier` font.

The following symbols are used in this document for the notation of folders and files:

Symbols	Description
`/`	Root folder. This is the folder at the top of a hierarchy of folders in the OSIP package.
`header/`	A folder with the name `header`.
`d000024.pdf`	A computer file with the name `d000024` and the file extension `.pdf`.
`...`	A placeholder indicating that there are more items to follow which is not explicitly shown.
🗁	Icon representing a folder object within the OSIP.
🗎	Icon representing a digital object within the OSIP.
`<element>`	An XML element
ⓘ	Icon representing additional information to be provided

7. Package

7.1. Structure

An OSIP package consists of multiple sub-folders and computer files (representing digital objects) contained within a single root (top-level) folder.

The root folder must contain only two sub-folders - `header` and `content` – and no other folders or files besides these two.

7.2. Metadata

The `header` sub-folder within the root folder can only contain two computer files – `metadata.xml` and `metadata.xsd`. All the metadata relating to all the records in this package are contained within the

`metadata.xml` file. The `metadata.xsd` is an XML Schema file used to validate the correctness of the `metadata.xml` file.

No other files are allowed to be inside the `header` sub-folder.

The `metadata.xml` file will be described in more detail below in section 10 - Metadata.

7.3. Primary Data

The `content` sub-folder within the root folder can only contain folder, sub-folders and the computer files of the digital objects for all the records referenced in the `metadata.xml` file.

Each folder here corresponds to a records management File and every sub-folder corresponds to a File Volume mentioned in the `metadata.xml` file. The digital objects for all records within a File and File Volume must therefore be found in the same folder and sub-folder representing that File and File Volume.

For EDRMS systems that support only Files and do not support File Volumes, then the `content` sub-folder will only contain one level of folders only containing computer files for digital objects.

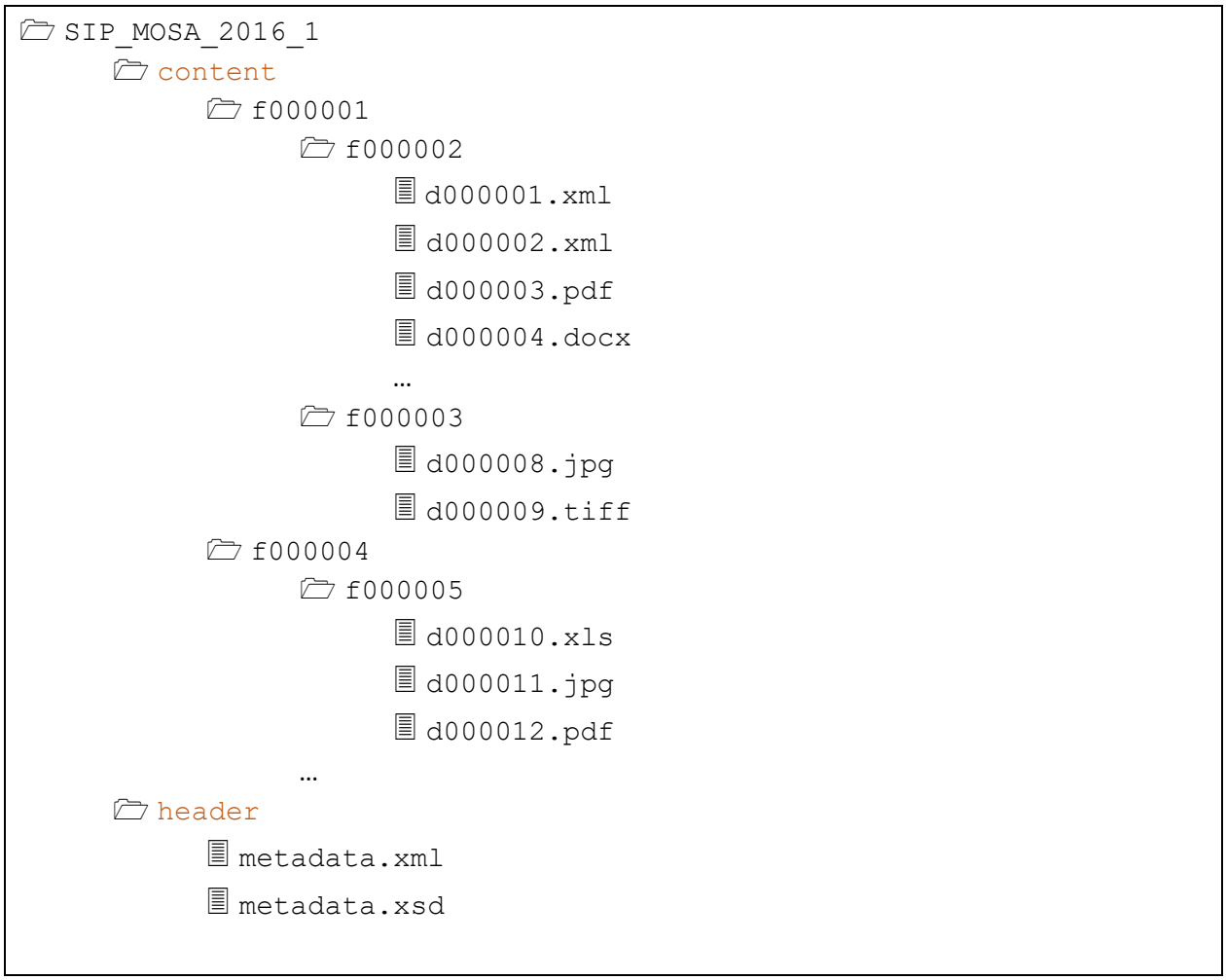

Figure 2 - Example structure of OSIP

The specifications for the folders, sub-folders and the computer files contained within them are further defined in section 9 – Primary Data below.

7.4. Naming

The root folder must be named according to this naming scheme:

Fixed identifier	Separator (underscore)	Submission Date	Separator (underscore)	Code of submitting agency	Separator (underscore)	Accession Number
SIP	_	YYYYMMDD	_	XXXXX	_	YYYY_NNN

The unique code for each submitting agency must be agreed beforehand between NRAA and the agency.

Example:

The code for the Ministry of Finance = MOF

A submission from the Ministry of Finance on the date 1st January 2023 with accession number 2022_003 (provided by NRAA to the Ministry) will have a root folder named:

SIP_20231122_MOF_2022_003

In the case where the package is compressed and / or contained within a single container format e.g. ZIP, then the name of the container must be the name of the root folder with the file extension indicating the container format.

Example:

SIP_20231122_MOF_2022_003**.zip**

7.5. Container format and compression

The OSIP package can be compressed and packed into a single container ZIP format for ease of handling and faster transfer especially over online channels. Container formats other than ZIP must be negotiated prior to the submission between the submitting agency and NRAA.

Although this ZIP format approach is highly recommended, there may be situations where the OSIP package should not be compressed into a single artifact e.g. when the package contains audio and video files that are too large to be supported by compression formats like ZIP.

In such cases, the OSIP package – the root folder and all its contents – can be copied as is without compression or using any container format into a transfer media such as an external disk or portable flash-based storage.

7.6. Size Limits

The maximum size for an OSIP package is 8 GB.

However - for faster handling, transfer and ingest - it is highly recommended that the size of the OSIP not exceed 2 GB. This can be achieved by distributing the digital records to be transferred over multiple packages through proper prior planning and prior agreement with NRAA.

OSIP packages over 8 GB in size can be only submitted in very exceptional cases. The submitting agency must contact NRAA and provide cogent reasons for doing so before creating such large OSIP packages.

A single OSIP package cannot contain more than 999,999 computer files.

A single OSIP package cannot contain more than 999,999 folders and sub-folders.

A single folder or sub-folder in OSIP must not contain more than 5,000 computer files. If a single folder does contain more than that number of computer files, it is required to use sub-folders to reduce the number of computer files per folder.[4]

The submitting agency must plan ahead of time in order to determine which records should be grouped into the same OSIP. It is best to distribute the records to be transferred into multiple OSIPs where each OSIP contains records with similar characteristics e.g. the same security classifications (e.g. Top Secret), classification systems & levels, applicable retention series and organization units.

7.7. Maximum Path Lengths

All paths to each folder and computer file in the package must not exceed 250 characters in length (including the / file separator symbol), and the paths include the root folder's name as well.

7.8. Formats and Character Sets

The XML and XSD files in the SIP must be in UTF-8 encoding to cater for the use of Arabic names, values and descriptions.

The formats of the digital objects must be the original formats stored in the EDRMS system from which the records are extracted in order to create the SIP.

8. Primary Data

Primary data are all the digital computer files that are found in the folders and sub-folders under the /content folder of OSIP package. They represent the actual digital content of records to be transferred to NRAA as archives.

The folders, sub-folders and computer files must be named in the OSIP according to specific rules that are described below.

8.1. Folders and Sub-folders

Every folder representing a records management File or File Volume must be named according to this scheme below:

f	n	n	n	n	n	n

f: is a fixed constant character representing a (f)older.

n: represents a single digit numeric value from 0 – 9.

[4] Since a folder is supposed to represent a records management File, and the sub-folder is supposed to represent a File Volume, and the Oman government's National Standards and Guidelines for the Management of Electronic Documents and Records puts a limit of 100 records per File Volumes (unless there are justifiable reasons to do otherwise), this limit will not be reached in normal case.

Example: f000035

The folder name must be unique across all folder and sub-folders in the entire OSIP package. The number following the f constant character will be assigned automatically and serially starting with f000001 followed by f000002, and then f000003 and so on until the maximum value of f999999. Of course then this means that an OSIP package can only contain up to 999,999 folders and sub-folders.

This name will be used as a reference id in the metadata.xml file whenever Files or File Volumes are referenced.

An example below shows how the names and ids are used to map the actual folders, sub-folders, computer files in the OSIP with the <folder> and <digitalObject> elements under <toc>, and with the <file>, <fileVolume> and <digitalObjectRef> elements under <submission>, in the metadata.xml within the same OSIP.

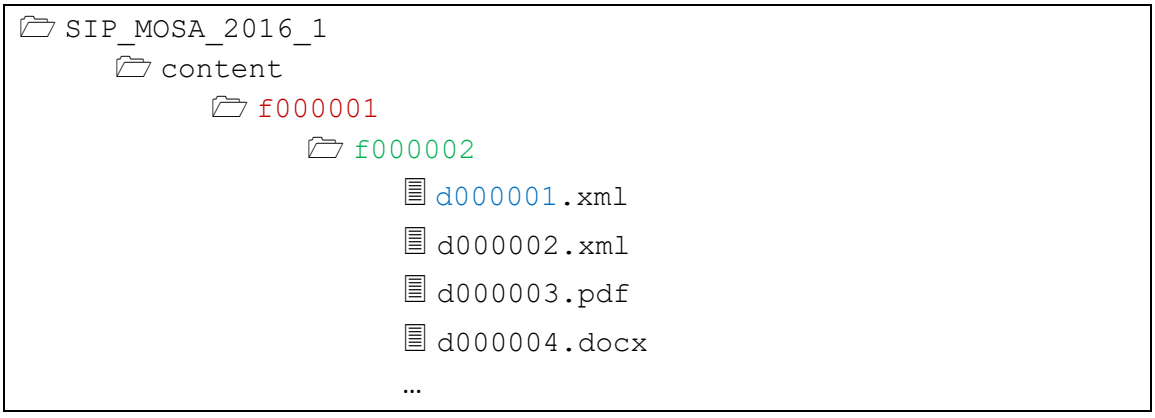

Figure 3 - Example of OSIP contents to show mapping of names and ids

```
<package ...>
   <toc>
      <folder>
         <name>content</name>
         ...
            <folder>
               <name>f000001</name>
               ...
               <folder>
                  <name>f000002</name>
                  ...
                     <digitalObject id="d000001">
                        <name>d000001.xml</name>
                        <originalName>acceptance-invite.xml</originalName>
                     ...
                     </digitalObject>
    ...
    <submission>
      ...
      <classificationSystem ...>
```

```
            ...
            <classificationLevel ...>
               ...
               <classificationLevel ...>
                  ...
                  <classificationLevel ...>
                     ...
                     <classificationLevel ...>
                        <file id="f000001">
                           ...
                           <fileVolume id="f000002">
                              ...
                              <record>
                                 <digitalObjectRef>d000001</digitalObjectRef>
      ...
      ...
      ...
</package>
```

Figure 4 - Example of metadata.xml to show mapping of names and ids

Only File objects and File Volume objects should represented as folders and sub-folders under the `content` folder. Classification system and classification levels should not be represented in this way, and should only be specified in the `metadata.xml` file.

8.2. Computer Files (representing Digital Objects)

Every computer file[5] in the OSIP package representing digital object must be named according to this scheme below:

d	n	n	n	n	n	n	.	extension

`d`: is a fixed constant character representing a (d)igital object.

`n`: represents a single digit numeric value from 0 – 9.

`extension`: is the computer file's original file extension e.g. `docx`, `jpg`, `pdf`.

Example: `d000982.pdf`

The computer file name for digital objects must be unique across all computer files contained within in the entire package. The number following the `d` constant character will be assigned automatically and serially starting with `d000001` followed by `d000002`, and then `d000003` and so on until the maximum value of `d999999`. Of course then this means that an OSIP package can only contain up to 999,999 computer files representing digital objects.

This name will be used as a reference id in the `metadata.xml` file whenever digital objects are referenced. The original name for the digital objects are preserved as metadata in the `metadata.xml` file as the value of the `<originalName>` element.

[5] Exceptions are made for the `metadata.xml` and `metadata.xsd` file under the header folder which should not be renamed.

ⓘ Note

The reason why the digital objects in OSIP must be renamed according to this scheme and the need to preserve the original filename in metadata is to avoid possible problems such as:

- Computer file name conflicts in the OSIP folders and sub-folders due to duplicate original computer file names for what are essentially different digital content
- Differences in the support for certain characters in different technology platforms for computer file names
- Lack of support for certain character sets on different platforms
- Differences in technology platforms for the maximum length of computer file names, and full path lengths

The computer files representing the digital objects must not be encrypted or password-protected in any way. If these computer files were stored in encrypted form in their source systems, then they must be decrypted first before being placed into the package.

If the package requires enhanced protection during its transfer to NRAA, then the entire package as a whole or the media in which it is transported must be encrypted using a single encryption key which must be sent to NRAA through a different channel than that which is used to transfer the package. However, this must be agreed beforehand between the submitting agency and NRAA.

9. Metadata

The metadata is information describing the Primary Data and the OSIP package itself. The information comprises of Content Information, Preservation Description Information, Packaging Information and Descriptive Information. The OSIP package is self-describing – the information in the `metadata.xml` file describes exactly what folders and computer files contained inside the OSIP package, and how those are conceptually mapped to the logical Files, File Volumes and Records that are being submitted through this package. All of this textual information inside the `metadata.xml` must be encoded in Unicode only (`UTF-8` encoding) to support the use of Arabic text in the metadata values.

The root element in the `metadata.xml` is the `<package>` element. This element has an attribute `schemaVersion` that specifies the version of the OSIP schema which is `1.0` at the time of this document. There may be enhanced OSIP schemas in the future where the version number will be higher.

The `<package>` element has 3 direct child elements: `<packageType>`, `<toc>`, and `<submission>`.

`<packageType>`	Mandatory. Text value. This element value will always be `SIP` for the current specifications. In the future, OSIP may support other package types. Example: `SIP`
`<toc>`	Mandatory.

Table of contents for the package. OSIP is self-describing and the <toc> element describes the hierarchical structure of folders, sub-folders and computer files that can be found inside the package.

This element and its descendant elements will be described in detail in the following sub-sections.

<submission>

Mandatory.
This element contains information that describes the files and records that are transferred in this package include the business classification levels that they each belong under.

This element and its descendant elements will be described in detail in the following sub-sections.

9.1. Table of Contents

The <toc> element represents the table of contents for the package. This is where every folder, sub-folder and computer file inside the OSIP package is described in the metadata.xml file. The computer files are represented by the <digitalObject> elements with the <folder> elements. A hierarchy of folders and sub-folders within the package are represented by nesting <folder> elements within other <folder> elements.

Every <folder> element and <digitalObject> element has the <name> and <originalName> child elements. This is to allow for automated renaming of folders and computer files by the software that generates the OSIP package[6] where the original name of the folder or computer file is preserved in metadata.

9.1.1. Folder

The <folder> element represents an actual folder in the package. This element can nest within itself in order to represent a tree structure of folders and sub-folders.

Each <folder> will have a child <name> element and <originalName> element. For <folder> elements that correspond to the <file> and <fileVolume> elements described under the <submission> section of the OSIP, the <folder>'s <name> value must correspond to the id attribute of the <file> and <fileVolume> elements.

<name>

Mandatory. Text value.
This value is either header or content for the two fixed folders that must be directly under the root of the OSIP

[6] See the note in section 8.2 on why renaming of folders and computer files (i.e. digitalObject) is sometimes required.

package; otherwise it must be the auto-generated name for the sub-folders under the /content folder.

Example of fixed folder name under root: header or content
Example of auto-generated sub-folder name: f000002

<originalName>

Mandatory. Text value.
The is the original computer folder name for the digital object.
It must be the same value as for the <name> element for folders.

Example of fixed root folder name: header or content
Example of auto-generated sub-folder name: f000002

<digitalObject>

A <folder> element may contain either child <folder> elements (to mimic the hierarchy of <file> and <fileVolume> tree), or it may contain <digitalObject> elements.

<digitalObject> elements are described in the next section below.

<folder>

A <folder> element may contain either child <folder> elements (to mimic the hierarchy of <file> and <fileVolume> tree), or it may contain <digitalObject> elements.

<digitalObject> elements are described in the next section below.

9.1.2. Computer Files

The <digitalObject> element represents an actual computer file within the package.

Example:

```
<digitalObject id="d000003">
      <name>d000003.xml</name>
      <originalName>working-paper-2.xml</originalName>
      <checksumAlgorithm>MD5</checksumAlgorithm>
```

<checksum>ef39859ca0be7cdcb79e0e88c36f2874</checksum>

</digitalObject>

Each <digitalObject> will have the following *attributes*:

id	Mandatory. Text value. An identifier that is unique for each digital object in this OSIP. The identifier need only be unique within the OSIP it is contained within. This identifier should be auto-generated according to the following numbering pattern: d n n n n n n d: is a fixed constant string representing a digital object. n: represents a single digit numeric value from 0 – 9. Example: d000016 This identifier must match the auto-generated filename of the computer files for the corresponding digital object (see section 8.2 above).

Each <digitalObject> will have the following child *elements*:

<name>	Mandatory. Text value. This is the auto-generated name for the computer file that this element represents. See section 8.2 above for how the computer file name should be auto-generated. This value must match the <digitalObject>'s id attribute with the difference being that this value will include the actual extension of the computer file. For example, if the id is d000001, then the auto-generated name value must be d000001.xml (if the extension of the computer file is .xml). Example: d000001.xml
<originalName>	Mandatory. Text value. The is the original computer filename for the digital object. Example: acceptance-invite.xml

<checksumAlgorithm>	Mandatory. Text value. The value is the name of the checksumAlgorithm used in computing the checksum. Example: MD5 Example: SHA-1 Example: SHA-2
<checksum>	Mandatory. Text value. The <checksum> element's value is the computed checksum of the computer file using the algorithm specified in the <checksumAlgorithm> element. Example of checksum value computed using MD5 algorithm: 627f1e1e819df185cc9d9788852cdacb

9.2. Submission

The <submission> element contains information that describes the files and records that are transferred in this package include the business classification levels that they each belong under.

The <submission> element has the following child *elements*:

<submissionType>	Mandatory. Text value. In this current version of the OSIP specifications, the value of this element should always be EDRMS.
<submittingOrganization>	Mandatory. Text value. The full name of the agency that is submitting this package to NRAA. Example: Ministry of Culture, Youth and Sports Affairs
<submissionNumber>	Mandatory. Text value. The accession number given by NRAA to the agency in the approval letter NRAA will issue to the agency in response to the Form NRAA-04-2019 submitted by the agency containing the list of files that is to be transferred in this package. Every submission must have a unique submission number that will be checked against the accession numbers

previously issued by NRAA. An accession number cannot be re-used for more than one unique submission.

Example: MOSA-2016-1

<transferApprovalReference> Mandatory. Text value.
The reference number of NRAA's approval letter authorizing the NRAA-04-2019 application to transfer previously submitted by the agency.

Example: NRAA-9999/2016.1

<creationTimePeriod> Mandatory.
This element contains two mandatory child elements whose values are dates with the format yyyy-mm-dd (example: a value representing 1st of January 2016 will be represented as 2016-01-01):

<from> Mandatory. Date value.
The registered date of the earliest record of any file in this package.

Example: 2016-01-01

<until> Mandatory. Date value.
The registered date of the latest record of any file in this package.

Example: 2016-12-31

<protectionPeriodCategory> Optional. Text value.
Reference to an article of law or regulation that imposes a period of time ("closure period") before which the transferred records should not be made accessible to the public by NRAA. This would be one of either Article 27 or Article 28 or Article 29 of the Records and Archives Law (promulgated by the Royal Decree No. 60/2007)

Example: Article 27 of the Records and Archives Law (Royal Decree No. 60/2007)

<protectionPeriod> Mandatory only if <protectionPeriodCategory> has a value. Integer value.

The number of years before which the transferred records should not be made accessible to the public by NRAA.

Example: 60

<protectionPeriodArguments> Optional. Text value.
A description of what records and why they require the protection period.

Example: Records related to investigations and statistics

<provenance> Mandatory.
This element must contain the following child *elements*:

<creatorName> Mandatory. Text value.
The full name of the agency who created and is submitting this OSIP.

Example: MOSA

<systemName> Mandatory if the OSIP is generated by an EDRMS system or business system instead of by hand. Text value.

The full name and version number of the EDRMS system or business system that generated this OSIP.

Example: Wosool v1.0

<systemDescription> Mandatory if the OSIP is generated by an EDRMS system or business system instead of by hand. Text value. A short description of the EDRMS system or business system that generated this OSIP.

Example: `System acquired in 2019. Went operational in 2021. Technology based on Java platform.`

`<systemRelated>` Optional. Text value.
Systems that have exchanged data with the system described and are therefore subsystems, parallel systems or superordinate systems. The designations of the systems and the nature of the relationship are entered here.

Example: `Migrated from System XYZ v5.1 in 2009. Contains financial records transferred from the Mawrid v2.0 financial system 2014.`

`<classificationSystem>` Mandatory.

This will be described in more detail in the next sub-section.

9.2.1. Classification System

The `<classificationSystem>` element represents the multi-level, hierarchical structure of a business classification scheme, or file plan under which Files are classified. Files and their contained records that comes from an EDRMS compliant system will already be classified under such a system, and such information would already be available for that system to generate the OSIP package.

For records that come from non-EDRMS systems lacking such a structured classification plan (e.g. records kept in shared network drives), then the creator of the OSIP package will have to create a simple classification system under which those folders and records will be classified. Any such OSIP package must contain at least one classification level.

It contains the following direct child *elements*:

`<name>` Mandatory. Text value.
This is the name of the classification system.

Example: `MOSA-BCS-2011`

<classificationSystemVersion>	Mandatory. Text value. Classification systems may be updated or changed over time, and therefore should be tracked using a version number. This version number for the classification system under which the files in the package belong, must be provided here. Example: 1.0
<classificationLevel>	Mandatory. A <classificationSystem> element may contain multiple <classificationLevel> child elements. Further described in detail in the sub-section below.

9.2.2. Classification Level

A <classificationLevel> element represents a single class or level within a business classification scheme.

Each <classificationLevel> element may contain these following *attributes*:

id	Mandatory. Text value. An identifier that is unique for each <classificationLevel> in this OSIP. The identifier need only be unique within the OSIP it is contained within. This identifier should be auto-generated according to the following numbering pattern: c n n n n n n c: is a fixed constant string representing a classification level. n: represents a single digit numeric value from 0 – 9. Example: c000012
levelNumber	Mandatory. Text value. An identifier that is unique for each <classificationLevel>. It is the business identifier given to each classification level in the business classification scheme to which the files in the OSIP belong. Example: 1100 Example: 1233/5

Each <classificationLevel> element may contain these following child *elements*:

<title>	Mandatory. Text value. The full title of the classification level Example: Consultative Council Meeting
<classificationLevel>	Optional. Any <classificationLevel> may or may not have child <classificationLevel> elements. This is dependent on the structure of the business classification scheme.
<file>	Mandatory for <classificationLevel> elements that do not contain any child <classificationLevel> elements. Further described in detail in the sub-section below.

9.2.3. File

A <file> element represents a records management File (i.e. aggregation of records like a dossier or folder, not a single computer file) that represents a unique business activity for which the contained records represent the individual transactions under that business activity.

Each <file> has the following *attributes*:

id	Mandatory. Text value. An identifier that is unique across all <file>s and <fileVolume>s in this OSIP (<fileVolume> will be described further below). The identifier need only be unique within the OSIP it is contained within. This identifier should be auto-generated according to the following numbering pattern: f n n n n n n f: is a fixed constant string representing a file or file volume. n: represents a single digit numeric value from 0 – 9. Example: f000012
fileNumber	Mandatory. Text value. An identifier that is unique for each <file>. It is a business identifier given to each file. Example: 1234/2016-16

Each <file> has the following child *elements*:

<title>	Mandatory. Text value.

The full title of the file.

Example: `Trade Pricing Council Meeting`

`<creationTimePeriod>`

Mandatory.
This element contains two mandatory child elements whose values are dates with the format `yyyy-mm-dd` (example: a value representing 1st of January 2016 will be represented as `2016-01-01`):

`<from>` Mandatory. Date value.
The registered date of the earliest record within any file volumes in this particular file.

Example: `2016-01-01`

`<until>` Mandatory. Date value.
The registered date of the latest record within any file volumes in this particular file.

Example: `2016-12-31`

`<securityLevel>`

Mandatory. Text value.
A single character code representing the security level of the file. The value for this code must be one of the following:

U	Unclassified
C	Confidential
R	Restricted
S	Secret
T	Top Secret

Note: a file may contain records of different security levels, but the security level of each child record cannot be greater than the security level of the file itself.

`<organisationUnitResponsible>`

Mandatory. Text value.
The organization unit that owns or is responsible for maintaining this file.

Example: `Office of the Chairman`

`<description>`

Optional. Text value.

A description of the unique business activity that is represented by the file.

Example: `File for all the records related to the 1st Trade Pricing Council Meeting`

`<retentionSeries>`

Mandatory.
This element represents the specific rule (series) in the retention policy that is applied to this file.

This element has the following child elements:

`<retentionSeriesNumber>`	Mandatory. Text value. The number of the retention series that is applicable to this file. Example: `4,3,2,1`
`<retentionSeriesTitle>`	Mandatory. Text value. The title of the retention series that is applicable to this file. Example: `Consultative Council Meeting Series`

`<formOfAppearance>`

Mandatory. Text value.
This specified whether the file contains records that are purely digital or non-digital or a mix of both.
The value must be one of the following:

`unspecified`	Not specified
`digital`	The file is purely digital
`non-digital`	The file is purely non-digital
`mixed`	The file contains a mix of records that are digital and non-digital i.e. hybrid file.

`<fileVolume>`

A `<file>` element must contain at least one `<fileVolume>` child element.

The `<fileVolume>` element is described in more detail in the following section below.

9.2.4. File Volume

A file may consists of multiple volumes (especially if the file is originally a non-digital or hybrid file that has been subsequently digitized).

The `<fileVolume>` element represents the information for each of such file volumes.

Each `<fileVolume>` element will contain the following *attributes*:

`id`

Mandatory. Text value.
An identifier that is unique across all `<file>`s and `<fileVolume>`s in this OSIP. The identifier need only be unique within the OSIP it is contained within. This identifier should be auto-generated according to the following numbering pattern:

f	n	n	n	n	n	n

f: is a fixed constant string representing a file or file volume.
n: represents a single digit numeric value from 0 – 9.

Example: `f000012`

`fileNumber`

Mandatory. Text value.
An identifier that is unique for each `<fileVolume>`. It is a business identifier given to each file volume. It must be unique across all `<file>` and `<fileVolume>` elements within this OSIP.

Example: `1234/2016-16V1`

`volumeNumber`

Mandatory. Text value.
The volume number that indicates the order in which the file volumes were created. Will usually be a numeric value.

Note: Although the fileNumber attribute should contain digits that represent the volume number, this is not guaranteed for older Files or File Volumes received from agencies. Also, the standard pattern for fileNumber used by any particular agency may be different or changed over time; so having a separate attribute that unambiguously represent the volume number is required.

Example: 1

Each <fileVolume> element will contain the following *elements*:

<creationTimePeriod> Mandatory.
This element contains two mandatory child elements <from> and <until> whose values are dates with the format yyyy-mm-dd (example: a value representing 1st of January 2016 will be represented as 2016-01-01).

The <from> and <until> date values of any File Volume must be within the range of the <from> and <until> date values of its parent File.

<from> Mandatory. Date value.
The registered date of the earliest record within any file volumes in this particular file.

Example: 2016-01-01

<until> Mandatory. Date value.
The registered date of the latest record within any file volumes in this particular file.

Example: 2016-06-30

<dateClosed> Mandatory. Date value.
The date on which the file volume has been closed.

Example: 2016-06-30

<creator> Mandatory. Text value.
The name of the person who created this file volume.

Example: Yahya Yai Abdullah

<record> Mandatory.
Every file volume in the OSIP must contain at least one record.
Therefore every <fileVolume> element must contain at least one <record> element.

The <record> element is described in further detail in the next sub-section.

9.2.5. Records

The <record> element represents a single record in the OSIP.

Please note that a record may be comprised of multiple digital objects (i.e. compound record). Each digital object will be different computer files.

Each <record> element contains the following *attributes*:

id	Mandatory. Text value. An identifier that is unique across all records in the OSIP. This identifier should be auto-generated according to the following numbering pattern: r n n n n n n r: is a fixed constant string representing a record. n: represents a single digit numeric value from 0 – 9. Example: r000007

Each <record> element contains the following child *elements*:

<title>	Mandatory. Text value. The full title of the record Example: Acceptance of Invitation to 1st Trade Pricing Council Meeting
<recordNumber>	Mandatory. Text value. This is business identifier given to every record in the file. Example: 1234/2016-16V1.1
<recordType>	Mandatory. Text value. This is the name of the type of the record. Example: Correspondence Example: Minutes of Meeting Example: Invoice

<dateRegistered>	Mandatory. Date value. This is the date on which the record is registered into an EDRMS system or a registry book, when it is created, or received from an external party. This date value must be in the format `yyyy-mm-dd` (example: a value representing 1st of January 2016 will be represented as `2016-01-01`). Example: `2016-01-01`
<author>	Optional. Text value. The name of the author of the record. Example: `Yahya Yai Abdullah`
<creator>	Mandatory. Text value. The name of the person who entered or registered the record into the EDRMS system or a registry book. The author and the creator could be, but isn't always necessarily the same person. Example: `Marya Al-Siyabi`
<securityLevel>	Mandatory. Text value. A single character code representing the security level of the record. The value for this code must be one of the following: `U` Unclassified `C` Confidential `R` Restricted `S` Secret `T` Top Secret

`<formOfAppearance>`

Mandatory. Text value.
This specified whether the record is a digital or non-digital record.

The value must be one of the following:

`unspecified`	Not specified
`digital`	The record is digital
`non-digital`	The record is non-digital
`mixed`	The record may comprise of components that are a mixed of digital computer files and non-digital artifacts like paper.

`<additionalInfo>`

Optional.
The EDRMS system from which the OSIP is generated may hold other business metadata regarding the record that adds important contextual information to the record.
Such metadata is described under the `<additionalInfo>` element.

This element has the following child *elements*:

`<attribute>` Each separate piece of business metadata will be encapsulated within an `<attribute>` element. This element will have its own XML attribute called `name`, which is the name of the metadata, and the element's value will be the corresponding value of the business metadata.

An `<additionalInfo>` element must have at least one `<attribute>` child element.

Example:

```
<additionalInfo>
   <attribute
name="sender_organization">Ministry     of
Finance</attribute>
   <attribute    name="date_sent">2016-01-
01</attribute>
</additionalInfo>
```

<relationships>

Optional.

The EDRMS system from which the OSIP is generated may hold information regarding the relationships between records in the same OSIP that adds important contextual information to the record.

Such information is described under the <relationships> element.

This element has the following child *elements*:

<relationship>

Each separate relationship will be encapsulated within a <relationship> element. This element will have its own XML attribute called type, which is the type of relationship, and ref will be the value of the corresponding id of the linked record existing in the same OSIP.

An <relationships> element must have at least one <relationship> child element.

Example:

```
<relationships>
  <relationship type="RELATES TO"
ref="r000005"/>
</relationships>
```

<digitalObjectRef>

A record may be comprised of multiple digital objects (i.e. compound record). Each digital object will be different computer files.

The digital objects themselves will be described under the <toc> element of the OSIP under various <folder> elements.

Over here under the <submission> element of the OSIP, the <record> element will reference those digital objects through the <digitalObjectRef> element. The value of the <digitalObjectRef> element will be the value of the id attribute of the referenced digital object.

A record may or may not have digital objects depending on the record's <formOfAppearance> value.

If a record's <formOfAppearance> is digital or mixed, then there must at least be one <digitalObjectRef> element within the <record> element if not more.

If a record's <formOfAppearance> is non-digital, then there must not be any <digitalObjectRef> element within the <record> element.

If a record's <formOfAppearance> is unspecified, then there may or may not be any <digitalObjectRef> elements within the <record> element.

The value of the <digitalObjectRef> element must correspond to the value of the attribute named id of one of the <digitalObject> elements under the <toc> section of the OSIP.

Example: d000007

10. Sample OSIP

A sample of a correct OSIP XML and XSD is included with this specification to illustrate how the entire OSIP package will look like.


metadata.xml

metadata.xsd

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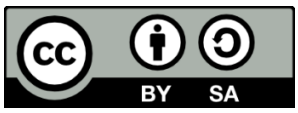

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