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S.R. CWA 16021:2009

Business requirements specification - Transfer of digital records

S.R. CWA 16021:2009

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WORKSHOP

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AGREEMENT

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English version

Business requirements specification - Transfer of digital records

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

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Foreword

The CEN/ISSS WS eBES EEG13 has produced this CWA (CEN Workshop Agreement) specifying the transfer of digital records. The project was formally accepted at the EEG13 kick-off meeting on 2006-02-14.

The production of this specification was undertaken by a group of experts¹ of the CEN/ISSS/eBES/EEG13 group² in coordination with the UN/CEFACT TBG 19 group³; both groups dealing with eGovernment business processes. It was supported by the ICA⁴ and liaised with ISO⁵. Originally, the project was approved by the UN/CEFACT meeting in New Delhi in October 2006. The initial work built on activities undertaken by the Australasian Digital Recordkeeping Initiative. An international survey on the required features of a record exchange standard was carried out in November 2006⁶. The first draft was completed in August 2007. A call for comments was issued in January 2008⁷, the results of which were taken into account to produce the present version of the specification

CWA approval by the eBES Official Members was obtained following an electronic approval process which finished on 2009-08-20.

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Comments or suggestions from the users of the CEN Workshop Agreement are welcome and should be addressed to the CEN Management Centre.

¹ Project editor: Public Record Office Victoria, Australia; project coordinator: Direction des Archives de France. Participants in the project meetings: Ministry of Mines and Steel Development - Nigeria, IT- og Telestyrelsen – Denmark, SIE Gruppen - Sweden, National Archives of the United Kingdom, Riksarkivet - Sweden, Nationaal Archief - The Netherlands, National Archives of Australia, Bundesarchiv,- Germany), Kansallisarkisto - Finland, Sveriges Kommuner och Landsting - Sweden, Ministère du Budget - France, BSI - United Kingdom. The University of Michigan.

² Chaired by Ministère du Budget, France; .

³ Chaired by Ministère de l'économie, des finances et de l'emploi, France.

⁴ National Archives of Scotland, leader of priority area "Electronic records and automation"; the ICA Secretary General; the ICA Secretary General Designate; Provincial Archives of New Brunswick, Canada, the chair of the committee on best practices and standards.

⁵ ISO/TC 46, chaired by Bibliothèque nationale de France

⁶ Participants in the survey: National Archives and Records Administration, National Historical Publications and Records Commission - US), Statistics New Zealand, Archives New Zealand, Bentley Historical Library, University of Michigan - US, Bibliothèque nationale de France, Deutsche Nationalbibliothek - Germany, State Records Authority of New South Wales - Australia), State Records of South Australia, Kentucky Department for Libraries and Archives - US), National Archives of Scotland, Queensland State Archives - Australia), BSI - United Kingdom, Department of Education Tasmania, Australia, Rahvusarhiiv - Estonia.

⁷ Participants in the call for comments: Rahvusarhiiv - Estonia, Direction des Archives de France, Ministère du Budget – France, Archives New Zealand, Bibliothèque nationale de France, Centre national d'études spatiales - France, Electronic Office Systems - Russia, BSI, National Records and Archives Administration – US. The detailed report provided by the US National Records and Archives Administration was of great value for the review process.

Introduction

This Business Requirements Specification (BRS) describes a portion of the process of transferring of custody of digital records from one system to another in either the public or private sector. 'Transfer of custody' means the formal transfer of responsibility for the digital records, including responsibility for on-going preservation and access. Transfer can be of physical custody, legal custody, or both physical and legal. Examples of transfer of custody are:

- From the organization that created the records to an archive
- From a creating organization to its successor
- From an archive back to the creating organization
- From a creating organization to secondary storage and back again
- From one archive to another
- From one system to another within one organization

This specification is concerned with only one aspect of transfer of custody, specifically with the actual relocation of digital records from one records system to another. Aspects of transfer of custody not dealt with in this specification include, for example, the negotiation of the transfer, decisions about what to transfer and monitoring the quality of the transfer,

The specification describes transfer of custody from a business perspective. It is compatible with ISO 15489, OAIS, and MoReq2 (references for all of these are given in Clause 2).

The specification is expected to be of use to:

- Those responsible for records within an organization
- Those carrying out transfers of digital records
- Those designing or implementing records systems that must conform with this specification
- Those testing records systems for conformance to this specification.

Background

Records are evidence of an organization or individual carrying out their day to day activities. Understanding what happened in the past and why is critical to the continued day to day activities of an organization or individual. It is also the basis on which legal systems are built, and it is the basis of all historical understanding. For all these reasons, preserving the ability to access records is critical to organizations and individuals.

Digital records are simply records represented digitally. Digital records range from written documents (such as reports and emails) through to images (photographs, plans), sound (voice mail), video, and databases. The continued integration of the computer into infrastructure means that new types of digital records are being continually developed.

In an organization these digital records are stored and managed by many records systems. These records systems may range from the very simple (e.g. the corporate file system) to the sophisticated (e.g. a dedicated electronic document management system). All of these records systems have one characteristic in common: they have a finite, relatively short life. Often the records system has a much shorter lifespan than the records that it holds.

The short lifespan of records systems leads to a key challenge in preserving digital records: ensuring that the digital records can be extracted from the records systems that currently store and manage them and be reliably transferred to another system. Four types of transfer are of particular importance:

- Transfer of records from one system to its replacement within an organization. This type of transfer occurs with a relatively low frequency, but involves the transfer of all records.
- Transfer of long term temporary records from the organization that created them to a specialist storage organization and back again. This is equivalent to the provision of secondary storage of paper records. This relieves an organization from having to preserve and store records that have no day to day use in operational systems.
- Transfer of permanent records from the organization that created them to an archive. This ensures that the long term preservation of permanent records is carried out by a specialist organization

and relieves the creating organization from the burden of preserving, storing, and providing access to these records.

- Transfer of records between business partners or between units within an organization when those units do not use the same records system.

This specification is not intended for use in situations where records are relocated, but custody is not transferred such as relocation for backup/recovery and continuity of business operations.

The purpose of this specification is to reduce the risk of loss or compromised records, and the overall cost, of transferring digital records from one system to another. It does this by defining a standard transfer process and transfer format for records.

Benefits

This standard transfer process and standard transfer format (also known as a Submission Information Package or SIP) can be used as a common exchange language between records systems. Without such a standard, any transfer of digital records between records systems requires specific custom arrangements between each pair of systems. Such custom arrangements have a number of issues:

- High risk of loss or compromised records
- High cost

The high risk and cost can often be managed in the limited case where a records system is replaced within an organization by another system. In general, however, managing the risk and cost is far more difficult where one organization (such as an archive or secondary storage supplier) is receiving records from many organizations.

The use of this specification means that less custom software is required to transfer records, and this software can be re-used. Re-use may occur by the same organization (e.g. a secondary storage supplier using the same software to accept transfers from many different organizations), or by different organizations (e.g. the vendor of a records system implementing the transfer software once and providing it to all users of the system).

The use of this specification also means less intervention is required during the transfer of records. Intervention may occur at export, relocation, and import of records.

In other words, this specification is part of risk minimization and therefore ultimately results in cost reduction.

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1 Scope

| <i>Categories</i> | <i>Description and Values</i> |
|--------------------------------|---|
| <i>Business Process</i> | <i>Transfer of digital records</i> |
| <i>Product Classification</i> | <i>Records management</i> |
| <i>Industry Classification</i> | <i>Government – Archiving sectors</i> |
| <i>Geopolitical</i> | <i>Global</i> |
| <i>Official Constraint</i> | <i>International and national regulations</i> |
| <i>Business Process Role</i> | <i>IT provider and integrator</i> |
| <i>Supporting Role</i> | <i>Producer/Archive</i> |
| <i>System Capabilities</i> | <i>No limitation</i> |

The scope of this specification is to define a transfer process and a Submission Information Package that may be used by all records systems in all organizations when transferring records between records systems. The systems may be located in the same organization or in different organizations. The specification is primarily intended for use when transferring records from a producer to an archive, but may be used for other types of transfer.

To prevent confusion, the following terms will be used in this specification:

- A *transfer* as a whole is the business activity involved in transferring custody from one system to another. This may involve the transfer of physical custody or legal custody. Transfer includes tasks ranging from the extremely high level (e.g. agreement at the ministerial level as to access provisions), to the extremely low level (e.g. physical relocation of the records). This specification only covers some of the tasks involved in carrying out a transfer of digital records.
- A *transfer agreement* is negotiated between the staff of the respective organizations as part of the transfer, and would typically cover: whether the transfer would occur at all; what records are to be transferred (including their types); when they are to be transferred (and how often); access arrangements; and minimum metadata standards. Once negotiated, the agreement may remain in existence for a long time and cover many instances of actually transferring records. For example, a transfer agreement may specify that records are to be transferred annually. The negotiation and subsequent maintenance of the transfer agreement, as a whole, is not part of this specification.
- A *transfer session* is the activities involved in administering and performing an actual transfer of records within a transfer agreement. These activities include, for example, identifying the records that are to be transferred within this transfer session, ensuring that appropriate documentation has been completed, setting up quality assurance mechanisms to ensure that the correct records have been transferred, ensuring agreement between the records systems at either the producer or archive as to the records that will be transferred, ensuring that all agreed records have been accurately moved, and that the recipient has accepted responsibility for the preservation of the records. There may be many transfer sessions conducted under the authority of a single transfer agreement.

The following issues may need to be considered when conducting a transfer session:

- Transferring the records may involve various processes that take different amounts of time, some of which may be quite lengthy. For example, several levels of approval may be required before a transfer of custody is completed, or manual inspections may be needed to ensure the right records were transferred or that restricted content is properly identified.
- Records may be lost, corrupted, or detached from their metadata during the transfer session. When considering loss, it is important to note that records may be lost at other points than just during transfer over a network (or other physical transfer mechanism). Records can be lost, for

example, due to software failure in the producer or archive, or a decision by the archive to delete them (e.g. due to a processing failure).

- During the processing of a transfer session, it may be decided that some records that are intended to be transferred will not actually be transferred. This might occur because the process of transferring detects errors in the records and it is decided that it is too difficult or expensive to correct these errors for this transfer session.
- The data model of a 'record' may vary significantly between jurisdictions. A typical model is hierarchical and might consist, for example, of a functional classification, which contains files, which contain items, which contain (recursively) sub items. Other models are possible and may be considerably different.
- The organization of the information within a record in a transfer session may differ between jurisdictions and between transfers. Options for organizing the information include: separating a record into its physical parts and sending them separately; packaging all of the parts of a record into a single object; and packaging multiple records into a single object. There are many standards for packaging the information in a record into physical objects including METS and MPEG-21 DIDL. Jurisdictions may also have their own packaging standards.
- The metadata associated with a record may vary significantly between jurisdictions and between applications. There are many sets of metadata used for a variety of purposes and defined by a variety of bodies, and it is expected that more will be defined in the future. However, arbitrary use of metadata sets will increase the cost of transfer to both the producer and the archive. The lack of a standardized set of metadata will require customization of software for the producer and, possibly, the archive, and will make it difficult for an archive to build a consistent set of metadata for its collection.
- Record content can be represented by a variety of data formats. These range from native formats (e.g. Open Document Format, PDF, JPEG), to container formats (e.g. METS). Record content can be explicitly included in the transfer message, or be referenced from the transfer message using URLs. In the later case it is expected that the archive will use the URLs to retrieve a copy of the content before formally accepting custody.
- While the basic purpose of this specification is to transfer custody to a new system, there are a number of variations on this theme. This includes whether the source system destroys their copy after custody has been transferred, transfer of responsibility for the management of the records to an appropriate authority while physical storage of the record is retained by the producer, or transfer of physical records (where only the metadata associated with the records is transferred electronically).

These issues are supported by this specification.

This specification defines a reliable submission process for actually transferring custody of records from one system (producer) to another (archive). It provides the following features:

- Variable duration. It does not assume that responses will occur within a short period of time, and recognizes that the responses could be delayed for lengthy periods.
- Error recovery to recover from loss of records during transfer. The transfer process is reliable in that it will recover from any loss of records during the process at the archive (during processing), the producer, or in the network.
- Mechanisms for reducing the scope of the transfer. It may be necessary to cut the transfer short even though not all records have been transferred. This might occur because it is decided that some records are not to be transferred during this session. The transfer status of every record is fully documented.
- A flexible representation of a record. A record is an arrangement of objects, but the meaning of the objects is for an individual jurisdiction. This accommodates the different data models of 'record' that exist in different jurisdictions.
- Flexibility to associate any metadata with a component during the transfer session. The specification defines a minimal set of metadata that contains the information it is expected that the transfer process will need to access. However, the specification permits producers to add other sets of metadata to be used to describe or manage digital records during or after the transfer.
- Flexibility to transfer any data format. A simple representation of a data object is defined, but jurisdictions can use other representations defined in other standards.
- Variations in the transfer scenario are possible. It is possible to move just metadata, and hence to move the either digital or paper records between a producer and an archive, or not to move the records at all. It is not required that the producer destroy their copy after transfer of custody.

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This specification does not define:

- The negotiation or management of a transfer agreement between the producer and the archive at an organizational level⁸.
- The legal aspects of transfer, which depend on the agreement between parties and/or national legislations.
- The administration of a transfer session.
- Processes between more than two parties. For example: an agency asking a secondary storage which temporarily holds its records to transfer these records to another archive, or where records and simultaneously transferred to multiple archives.
- The definition of a record or the organization of records. The specification represents the information being transferred as any arrangement of records, collections of records, and parts of records.
- The behaviour of the records systems at either the producer or archive beyond that necessary to process the messages defined in this specification. The specification assumes that the records system is designed to hold records in a manner that ensures their authenticity and integrity. The specification does not define the long-term preservation package format (i.e. the archival information package format).
- The data formats (e.g. PDF, TIFF) in which an archive will accept the content of digital records. The SIP is designed to contain any content in any format. These formats may be other transfer formats (e.g. METS) in addition to native formats such as Open Document Format or PDF. An archive may, outside this specification, restrict the data formats that it accepts.
- The metadata sets that are to be transferred with the record, except a minimal set of metadata used for transfer. The SIP in particular is designed to contain any metadata sets. An archive may, outside this specification, restrict the metadata sets that it accepts. An archive that accepts any metadata set may find that the records transferred lack sufficient context (metadata) to retain authenticity or integrity. It also may have difficulty in providing coherent access to the records.
- The physical mechanisms by which the records are transferred from one records system to another or from a producer to an archive. This physical representation could be moved between the records systems in many different ways (e.g. by the internet or on media such as CDs).
- The low level protocols that ensure accurate data transmission between the producer and the archive.
- Physical mapping of the business requirements to any technical syntax (for example XML). This mapping will be found in the associated Requirement Specification Mapping (RSM).

The audience for this specification is:

- Those responsible for records within organizations (e.g. records managers, archivists, IT specialists, and corresponding senior managers). This group needs to understand the purpose of the specification and, broadly, how it is achieved. This group also needs to know what the specification does not cover so that these areas can be negotiated prior to a transfer.
- Those responsible for carrying out a transfer of records between systems (e.g. recordkeepers, archivists, and information technology staff). This specification enables them to know how a transfer is represented so that they can carry out a specific transfer.
- Those responsible for designing and implementing software for exporting and importing records from/to records systems (e.g. vendors, software developers). This specification enables them to have a precise, clear, and unambiguous specification of the transfer process and/or submission information package so that they can accurately implement it.
- Those responsible for testing systems to ensure that systems accurately implement the transfer process and/or submission information package. This specification provides a precise, clear, and unambiguous specification to ensure defensible decisions about whether an implementation fulfils the specification or not.

⁸ The high level transfer process is addressed by ISO 20652:2006 (Producer-archive interface - Methodology abstract standard) which defines the methodology for the structure of actions that are required from the initial time of contact between the producer and the archive until the objects of information are received and validated by the archive.

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