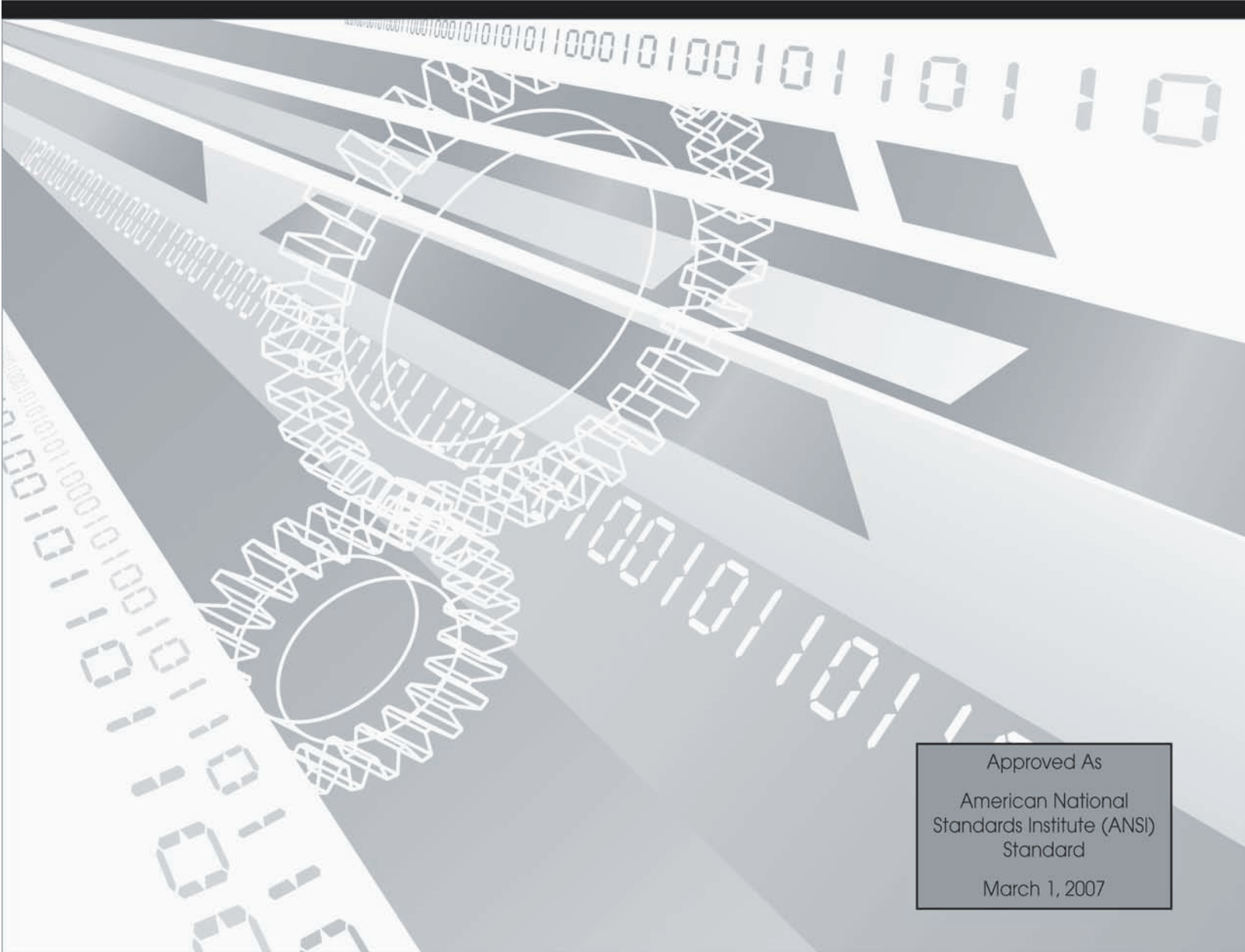


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# The Digital Records Conversion Process: Program Planning, Requirements, Procedures



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# The Digital Records Conversion Process: Program Planning, Requirements, Procedures



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# FOREWORD

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This document has been prepared as part of the work of the ARMA Task Force on conversion requirements. The aim of the Task Force has been to develop conversion requirements that an organization can use to ensure that its electronic records remain authentic and trustworthy as they are converted from one recordkeeping system to another. These requirements focus on digital-to-digital conversion. Though this document does not address digital preservation, there is a substantial link between conversion and digital preservation, as many preservation strategies involve some type of conversion process. Institutions engaged in research work and testing related to digital preservation recognize the significance of standardized procedures and approaches relating to the conversion process. How an organization chooses to set up the conversion process, such as deciding what format to employ or the level of control needed, greatly influences its view of the record and its survivability.

Similarly, there is a substantial link between conversion and the admissibility of electronic evidence. The courts generally accept and assign greater weight to records converted from one recordkeeping system to another according to a clearly defined methodology.

The Task Force sought broad input into this standard from several information management disciplines including records management, archives management, information technology, and library management.

This document is divided into two parts. Part I addresses the decisions relating to program planning and recordkeeping issues. Part II discusses the actual conversion process. This division recognizes that some organizations may already have in place aspects of the program planning and requirements addressed in Part I and may desire to go directly to the conversion process. Other organizations may be facing the challenge of a records conversion project for the first time and may need to address all aspects of such a project.

Appended to this standard are tables and other tools designed to aid records professionals and others assigned the conversion task. These are supplied as examples only. Also appended to the standard is a template that draws

together recordkeeping requirements, the risks/drivers impinging on the process, the controls, and the stages of the conversion process. It became the cornerstone for much of the work of the Task Force. It is included to provide additional background on the conversion process and for its potential educational value for those unfamiliar with the process.

It is recommended that this standard be read and used in conjunction with the international standard ISO 14721:2003, *Space data and information transfer systems—Open archival information system—Reference model*. The Task Force relied heavily on this OAIS standard in the development of this document. Employing it as a reference resource can provide substantial background and contextual information to better inform the issues addressed in this standard.

This material has been developed under the published procedures of ARMA International, which are designed to ensure the appointment of technically competent committees having balanced representation. Although the procedures ensure the highest degree of care, ARMA, its members, and those participating in its activities do not accept any liability resulting from compliance or noncompliance with the provisions given herein, for any restrictions imposed on materials or processes, or for the completeness of the text. ARMA has no power or authority to police or enforce compliance with the contents of this document. Any certification or product stating compliance with requirements of this document is made at the peril of the certifier.

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## ***Part I: Program Planning, Recordkeeping Requirements***

### **► 1 Introduction**

With the rapid pace of technological change, records in electronic form will, at some point, need to be converted from one medium, format, or system to another to ensure their continued accessibility and processability.

This is not to suggest that conversion is the only way of preserving electronic records. Other methods, such as emulation, do exist or are under development. Conversion is, however, one of the more prevalent methods of digital preservation at this time. While this standard does not address digital preservation per se, the conversion process can have an impact on digital preservation strategy. How an organization chooses to set up the conversion process—what format to employ, the level of control needed, and so on—largely influences its view of the record. At the time of the development of this standard, no one, good preservation method had been identified. However, institutions recognize the benefit of standardized procedures; many testbeds and task forces have been established to explore and research migration, emulation, and refreshment,

among other preservation procedures, to determine what should work best.

Whenever conversion is used as a method of preserving electronic records, it is important to implement it in a managed way in recommended order to prevent any degradation or loss of the accuracy, completeness, authenticity, and integrity of the records. The conversion of electronic records should be carried out according to a well-defined set of procedures. This document aims to outline the program components, planning issues, recordkeeping requirements, and procedures for performing the conversion of electronic records so as to ensure their continued accessibility and processability while maintaining their accuracy, completeness, authenticity, and integrity.

From the outset, note that it is not necessary to adopt all of the procedures recommended in this standard to ensure that recordkeeping requirements are met. The decision as to which procedures to adopt depends on such factors as the type of conversion to be performed, the value of the records to the organization, and the level of risk the organization is willing to accept. In addition, organizations

would be well advised to incorporate future convertability of records among requirements for managing enterprise electronic recordkeeping systems and consider the use of open source technologies.

Before starting a conversion project, individuals designated as “key” to the process need to be aware of the recordkeeping requirements. The term *recordkeeping criteria/requirements* in records and information management means an adherence to a set of principles that relate to record integrity, authenticity, reliability, and fixity. Adherence to these principles ensures that record content, context, and structure are maintained and a given record’s standing as evidence is not compromised. The principles apply regardless of how long the record must be retained for legal, fiscal, administrative, or historical needs.

### 1.1 Scope

This document outlines the minimum program components, planning issues, recordkeeping requirements, and procedures for the conversion of digital records so as to preserve the integrity of such records as evidence of business transactions. In setting out a minimum recommended standard, these procedures do not preclude the insertion of additional steps where appropriate to the context of a particular conversion exercise.

These procedures are intended only for use in the conversion of data that are to be preserved as digital records. They do not, therefore, cover certain types of current data migrations in the production environment or backup-tape migrations, as they are considered too onerous for such use cases.

This document generally focuses on the transformation method documented in the international standard ISO 14721:2003, *Space data and information systems—Open Archival Information System—Reference Model*, although all four types of migrations (see appendix A) may well be carried out in conversions aimed at preserving digital records, as transformation-type conversions have the potential to have great impact upon the accessibility and integrity of digital records.

Finally, this document does not address procedures for the digitization of records held in paper form.

### 1.2 Purpose

This standard provides guidance in understanding recordkeeping requirements, the organizational and business framework for conducting the conversion process, technology planning issues, and monitoring/controls for the process. It identifies the steps, components, and particular methodologies for the conversion of records from one

recordkeeping system to another—covering such topics as workflow, testing, version control, and validation.

### 1.3 Equivalency

Nothing in this standard is intended to preclude the application of new methods, technologies, or techniques for the protection of records and information.

## ▶ 2 Normative References

The following documents contain provisions that, through references in the text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties are encouraged to consider the possibility of applying the most recent edition of the following documents.

- Pearce-Moses, R. *A Glossary of Archival and Records Terminology*. Chicago: The Society of American Archivists, 2005. Available at: <http://www.archivists.org/glossary/index.asp>
- ISO 14721:2003, *Space data and information transfer systems—Open Archival Information System—Reference model*. Geneva, Switzerland: International Organization for Standardization, 2003.
- ISO 15489-1:2001, *Information and documentation—Records management—Part 1: General*. Geneva, Switzerland: International Organization for Standardization, 2001.
- ARMA International. *Retention Management for Records and Information*. (ANSI/ARMA 8-2005). Lenexa, KS: ARMA International, February 2005.

## ▶ 3 Definitions

This section contains only those definitions essential for clarification of this standard. For additional definitions see the ARMA International *Glossary of Records and Information Management Terms*, the terms and definitions section of ISO 15489-1: 2001 *Information and documentation—Records management—Part 1: General*, and the Society of American Archivists’ *A Glossary of Archival and Records Terminology*.

Use and meaning of the term *conversion* varies in the literature. In some documents, it describes the process of moving data to a different format, especially from an obsolete to a current format, and it includes the scanning of paper documents to create digital images. Other documents make a distinction between the terms *conversion* and *migration*, employing the former to describe the scanning