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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 2, *Document file formats, EDMS systems and authenticity of information*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The trustworthy storage system (TSS) provides a secure storage framework to preserve and protect all types of electronically stored information (ESI) independent of the application and is not intended to be limited to the use cases of content and records management applications. It provides a unified tamper-resistant storage repository for the preservation and protection of ESI for various environments. In a digital world where information is created, authored and captured electronically, the TSS provides the vital security, protection and preservation of ESI against an ever-growing list of evolving vulnerabilities including accidental and malicious acts, malware and ransomware as well as operational and application errors.

Organizations designing and implementing information and content management systems need guidance on how to select and implement a trustworthy storage system to safeguard the trustworthiness, reliability, authenticity, integrity and immutability of ESI throughout its entire lifecycle. A trusted system needs a TSS in order to maintain ESI trustworthiness ensuring chain of custody, compliance with organizational mandates, legal and regulatory requirements and admissibility standards, including enforcement of retention requirements and deletion-holds. The TSS also benefits organizations that do not have a formal records programme or application, but are responsible for protecting, managing and securing information for their organization.

Readers are advised to use this document taking into account their local jurisdictions and applicable liabilities, paying special attention to legal, regulatory and other organizational requirements, obligations and expectations.

Document management — Trustworthy storage system (TSS) — Functional and technical requirements

1 Scope

This document specifies the functional, technology-neutral requirements for trustworthy storage systems (TSS) that ensure storing and managing electronically stored information (ESI) in a protected and secure fashion during the lifecycle of the information. The TSS as specified in this document is storage technology neutral and accordingly does not specify any specific storage media types or configurations.

This document is applicable to all information systems in which users and applications must manage the protection, preservation and security of stored ESI throughout its entire lifecycle to meet organizational and regulatory requirements to enforce:

— immutability, authenticity and trustworthiness of the stored ESI;

— protection of application managed ESI and other stored ESI against tampering, malicious acts and ransomware;

— organizational ESI preservation and retention policies;

— protection for unstructured and unmanaged data.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12651-1, *Electronic document management — Vocabulary — Part 1: Electronic document imaging*

ISO 13008, *Information and documentation — Digital records conversion and migration process*

ISO 14641, *Electronic document management — Design and operation of an information system for the preservation of electronic documents — Specifications*

ISO 15489-1, *Information and documentation — Records management — Part 1: Concepts and principles*

ISO/TR 15801, *Document management — Electronically stored information — Recommendations for trustworthiness and reliability*

ISO 18829, *Document management — Assessing ECM/EDRM implementations — Trustworthiness*

ISO/TR 22957, *Document management — Analysis, selection and implementation of enterprise content management (ECM) systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12651-1, ISO 14641, ISO 15489-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp