
Electronic archiving —

Part 1:

**Specifications concerning the design and
the operation of an information system
for electronic information preservation**

*Archivage électronique — Partie 1: Spécifications relatives à la
conception et au fonctionnement d'un système d'informations pour la
conservation d'informations électroniques*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 14641-1 was prepared by Technical Committee ISO/TC 171, *Document management applications*, Subcommittee SC 3, *General issues*.

ISO 14641 consists of the following parts, under the general title *Electronic archiving*:

- *Part 1: Specifications concerning the design and the operation of an information system for electronic information preservation*

Future parts will address trusted content, data-level-controls and the testability of document integrity and authenticity control elements within document management systems.

Introduction

Electronic documents are an essential part of everyday business, whether the sources are incoming communications or output from organizations. It is important that electronic documents be stored appropriately, either fully or in part, in secure information systems designed for operations and archiving, in order to meet business, legal or regulatory requirements.

The objectives of secure information systems are to resolve organizational issues such as:

- a) optimization of long-term electronic document preservation, archiving and integrity;
- b) provision of information search facilities;
- c) ensuring ease of access and use of electronic documents.

This part of ISO 14641 is intended to provide a reference framework for organizations. It describes the methods and techniques to be used for the implementation of an electronic information system for managing documents within an archive. In conjunction with related archival policies of organizations, it describes criteria for system design and specifications for operational processes.

These specifications are intended to ensure that all documents to be managed by the information system are captured, stored, retrieved and accessed in a way that guarantees that the archived document is an authentic rendition of the original document for the duration of preservation. An authentic rendition means that the rendered document corresponds to the source document as it was at the time of input in the information system in respect of criteria of fidelity and integrity, and that this state is maintained for the duration of preservation.

This part of ISO 14641 takes into account the use of three possible archiving media: physical WORM, logical WORM and rewritable media. Archival integrity is ensured on physical and logical WORM media by the inherent properties of WORM solutions. On rewritable media, integrity is ensured using encryption-like techniques, in particular with checksum calculation or hash function, date and time stamp or digital signature. In all cases, it is necessary to comply with related procedures.

Depending on the types of documents to be archived, other specialized standards can be relevant and used to complement the recommendations in this part of ISO 14641.

This part of ISO 14641 provides a specific and complementary definition of issues addressed in other standards or specifications concerning the management of electronic information. Its content is intended to address execution issues raised in several other documents. These include:

- ISO/TR 15801, *Document management — Information stored electronically — Recommendations for trustworthiness and reliability*,
- ISO 15489 (all parts), *Information and documentation — Records management*,
- MoReq2, *Model Requirements for the Management of Electronic Records*,

which detail specifications for organizing and controlling the lifecycle of archived information for purposes of evidence and operational history; and

- ISO 14721, *Space data and information transfer systems — Open archival information system — Reference model*,

which describes the characteristics of an open system for the preservation of digital data.

Annexes A, B and C are informative and complementary.

Electronic archiving —

Part 1: Specifications concerning the design and the operation of an information system for electronic information preservation

1 Scope

This part of ISO 14641 provides a set of technical specifications and organizational policies to be implemented for the capture, storage and access of electronic documents. This ensures legibility, integrity and traceability of the documents for the duration of their preservation.

This part of ISO 14641 is applicable to electronic documents resulting from:

- the scanning of original paper or microform documents;
- the conversion of analogue audio or video content;
- the “native” creation by an information system application; or
- other sources that create digital content such as two- or three- dimensional maps, drawings or designs, digital audio/video, and digital medical images.

This part of ISO 14641 is not applicable to information systems in which users have the ability to substitute or alter documents after capture.

This part of ISO 14641 is intended for the following users.

- a) Organizations implementing information systems in which:
 - 1) electronic documents created from scan captures are kept in an environment that ensures fidelity with regard to the original and long-term preservation;
 - 2) digitally born documents are kept in an environment that ensures the content integrity of the information and document legibility;
 - 3) traceability is ensured for all operations relating to the electronic documents.
- b) Organizations providing information technology services and software publishers seeking to develop information systems that ensure the fidelity and integrity of electronic documents.
- c) Organizations providing third-party document archiving services.

2 Normative references

The following referenced documents are indispensable for the application 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 2859 (all parts), *Sampling procedures for inspection by attributes*

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/TR 12033, *Document management — Electronic imaging — Guidance for the selection of document image compression methods*

ISO 12653-1, *Electronic imaging — Test target for the black-and-white scanning of office documents — Part 1: Characteristics*

ISO 12653-2, *Electronic imaging — Test target for the black-and-white scanning of office documents — Part 2: Method of use*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12653-1 and ISO 12653-2 and the following apply.

3.1 access
processes of retrieving and displaying (playing) electronic documents for operational, evidential or historical purposes

3.2 archive(s)
set of documents produced or received, whatever their date, format or storage media, by any individual, organization, public or private service, in the course of their activity

3.3 archival policy
legal, functional, operational, technical and security requirements of an internal or external information system

NOTE Annexes A and B give principles of an archival policy and of a declaration of archival practices.

3.4 archive lifecycle log
log which records audit trail data related to the document lifecycle archiving process

3.5 archive restitution
return and transfer of archived documents to their originator, or to a duly appointed person or organization

3.6 archival system profile
set of properties that applies to a class of archives that share common characteristics in terms of confidentiality, retention and disposal schedules, and access rights (e.g. create, read, modify, delete)

3.7 ACU
attestation creation unit
hardware and/or software devices for the delivery of electronic attestations

NOTE Attestations include a unit identifier and the related archival service identifier.

3.8 audiovisual
communication techniques combining sound and image

3.9 audit trail
aggregate of the information necessary to provide a historical record of all significant events associated with stored information and the information system

3.10 data
digital form of information which can be accessed, read and/or processed