INTERNATIONAL STANDARD

ISO 16363

First edition
2012-02-15

Space data and information transfer systems — Audit and certification of trustworthy digital repositories

Systèmes de transfert des informations et données spatiales — Audit et certification des référentiels numériques de confiance

Reference number
ISO 16363:2012(E)

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

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 16363 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 652.0-M-1, September 2011) and was adopted (without modifications except those stated in Clause 2 of this International Standard) by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 13, *Space data and information transfer systems*.

Space data and information transfer systems — Audit and certification of trustworthy digital repositories

1 Scope

This International Standard defines a recommended practice for assessing the trustworthiness of digital repositories. It is applicable to the entire range of digital repositories. This International Standard can be used as a basis for certification.

The scope and field of application are furthermore detailed in subclauses 1.1 and 1.2 of the enclosed CCSDS publication.

2 Requirements

Requirements are the technical recommendations made in the following publication (reproduced on the following pages), which is adopted as an International Standard:

CCSDS 652.0-M-1, September 2011, *Audit and certification of trustworthy digital respositories*

For the purposes of international standardization, the modifications outlined below shall apply to the specific clauses and paragraphs of publication CCSDS 652.0-M-1.

Pages i to v

This part is information which is relevant to the CCSDS publication only.

Page 1-6

Add the following information to the reference indicated:

[1] Document CCSDS 650.0-B-1, January 2002, is equivalent to ISO 14721:2003.

Page B-1

Add the following information to the reference indicated:

[B5] Document CCSDS 661.0-B-1, September 2008, is equivalent to ISO 13527:2010.

[B6] Document CCSDS 644.0-B-3, June 2010, is equivalent to ISO 15889:2011.

[B7] Document CCSDS 647.1-B-1, June 2001, is equivalent to ISO 21961:2003.

3 Revision of publication CCSDS 652.0-M-1

It has been agreed with the Consultative Committee for Space Data Systems that Subcommittee ISO/TC 20/SC 13 will be consulted in the event of any revision or amendment of publication CCSDS 652.0-M-1. To this end, NASA will act as a liaison body between CCSDS and ISO.

(blank page)

The Consultative Committee for Space Data Systems

Recommendation for Space Data System Practices

AUDIT AND CERTIFICATION OF TRUSTWORTHY DIGITAL REPOSITORIES

RECOMMENDED PRACTICE

CCSDS 652.0-M-1

MAGENTA BOOK

September 2011

(blank page)

AUTHORITY

Issue:	Recommended Practice, Issue 1
Date:	September 2011
Location:	Washington, DC, USA

This document has been approved for publication by the Management Council of the Consultative Committee for Space Data Systems (CCSDS) and represents the consensus technical agreement of the participating CCSDS Member Agencies. The procedure for review and authorization of CCSDS documents is detailed in the *Procedures Manual for the Consultative Committee for Space Data Systems*, and the record of Agency participation in the authorization of this document can be obtained from the CCSDS Secretariat at the address below.

This document is published and maintained by:

CCSDS Secretariat
Space Communications and Navigation Office, 7L70
Space Operations Mission Directorate
NASA Headquarters
Washington, DC 20546-0001, USA

STATEMENT OF INTENT

The Consultative Committee for Space Data Systems (CCSDS) is an organization officially established by the management of its members. The Committee meets periodically to address data systems problems that are common to all participants, and to formulate sound technical solutions to these problems. Inasmuch as participation in the CCSDS is completely voluntary, the results of Committee actions are termed **Recommendations** and are not in themselves considered binding on any Agency.

CCSDS Recommendations take two forms: **Recommended Standards** that are prescriptive and are the formal vehicles by which CCSDS Agencies create the standards that specify how elements of their space mission support infrastructure shall operate and interoperate with others; and **Recommended Practices** that are more descriptive in nature and are intended to provide general guidance about how to approach a particular problem associated with space mission support. This **Recommended Practice** is issued by, and represents the consensus of, the CCSDS members. Endorsement of this **Recommended Practice** is entirely voluntary and does not imply a commitment by any Agency or organization to implement its recommendations in a prescriptive sense.

No later than five years from its date of issuance, this **Recommended Practice** will be reviewed by the CCSDS to determine whether it should: (1) remain in effect without change; (2) be changed to reflect the impact of new technologies, new requirements, or new directions; or (3) be retired or canceled.

In those instances when a new version of a **Recommended Practice** is issued, existing CCSDS-related member Practices and implementations are not negated or deemed to be non-CCSDS compatible. It is the responsibility of each member to determine when such Practices or implementations are to be modified. Each member is, however, strongly encouraged to direct planning for its new Practices and implementations towards the later version of the Recommended Practice.

FOREWORD

This document is a technical Recommendation to use as the basis for providing audit and certification of the trustworthiness of digital repositories. It provides a detailed specification of criteria by which digital repositories shall be audited.

The OAIS Reference Model (reference [1]) contained a roadmap which included the need for a certification standard. The initial work was to be carried out outside CCSDS and then brought back into CCSDS to take into the standard.

In 2003, Research Libraries Group (RLG) and the National Archives and Records Administration (NARA) created a joint task force to specifically address digital repository certification. That task force published *Trustworthy Repositories Audit & Certification: Criteria and Checklist* (TRAC—reference [B3]), on which this Recommended Practice is based.

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This Recommended Practice is therefore subject to CCSDS document management and change control procedures, which are defined in the *Procedures Manual for the Consultative Committee for Space Data Systems*. Current versions of CCSDS documents are maintained at the CCSDS Web site:

http://www.ccsds.org/

Questions relating to the contents or status of this document should be addressed to the CCSDS Secretariat at the address indicated on page i.

At time of publication, the active Member and Observer Agencies of the CCSDS were:

<u>Member Agencies</u>

- Agenzia Spaziale Italiana (ASI)/Italy.
- Canadian Space Agency (CSA)/Canada.
- Centre National d’Etudes Spatiales (CNES)/France.
- China National Space Administration (CNSA)/People’s Republic of China.
- Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)/Germany.
- European Space Agency (ESA)/Europe.
- Federal Space Agency (FSA)/Russian Federation.
- Instituto Nacional de Pesquisas Espaciais (INPE)/Brazil.
- Japan Aerospace Exploration Agency (JAXA)/Japan.
- National Aeronautics and Space Administration (NASA)/USA.
- UK Space Agency/United Kingdom.

<u>Observer Agencies</u>

- Austrian Space Agency (ASA)/Austria.
- Belgian Federal Science Policy Office (BFSPO)/Belgium.
- Central Research Institute of Machine Building (TsNIIMash)/Russian Federation.
- China Satellite Launch and Tracking Control General, Beijing Institute of Tracking and Telecommunications Technology (CLTC/BITTT)/China.
- Chinese Academy of Sciences (CAS)/China.
- Chinese Academy of Space Technology (CAST)/China.
- Commonwealth Scientific and Industrial Research Organization (CSIRO)/Australia.
- CSIR Satellite Applications Centre (CSIR)/Republic of South Africa.
- Danish National Space Center (DNSC)/Denmark.
- Departamento de Ciência e Tecnologia Aeroespacial (DCTA)/Brazil.
- European Organization for the Exploitation of Meteorological Satellites (EUMETSAT)/Europe.
- European Telecommunications Satellite Organization (EUTELSAT)/Europe.
- Geo-Informatics and Space Technology Development Agency (GISTDA)/Thailand.
- Hellenic National Space Committee (HNSC)/Greece.
- Indian Space Research Organization (ISRO)/India.
- Institute of Space Research (IKI)/Russian Federation.
- KFKI Research Institute for Particle & Nuclear Physics (KFKI)/Hungary.
- Korea Aerospace Research Institute (KARI)/Korea.
- Ministry of Communications (MOC)/Israel.
- National Institute of Information and Communications Technology (NICT)/Japan.
- National Oceanic and Atmospheric Administration (NOAA)/USA.
- National Space Agency of the Republic of Kazakhstan (NSARK)/Kazakhstan.
- National Space Organization (NSPO)/Chinese Taipei.
- Naval Center for Space Technology (NCST)/USA.
- Scientific and Technological Research Council of Turkey (TUBITAK)/Turkey.
- Space and Upper Atmosphere Research Commission (SUPARCO)/Pakistan.
- Swedish Space Corporation (SSC)/Sweden.

– United States Geological Survey (USGS)/USA.

DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 652.0-M-1	Audit and Certification of Trustworthy Digital Repositories, Recommended Practice, Issue 1	September 2011	Original issue

CONTENTS