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Space data and information transfer systems — Requirements for bodies providing audit and certification of candidate trustworthy digital repositories

Systèmes de transfert des informations et données spatiales — Exigences pour les organismes d'audit et de certification des référentiels numériques potentiellement de confiance

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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

ISO 16919 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 652.1-M-2, March 2014) 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 — Requirements for bodies providing audit and certification of candidate trustworthy digital repositories

1 Scope

The main purpose of this document is to define a CCSDS Recommended Practice and ISO International Standard on which to base the operations of the organization(s) which assess the trustworthiness of digital repositories using ISO 16363 and provide the appropriate certification. This document specifies requirements for bodies providing audit and certification of digital repositories, based on the metrics contained within ISO/IEC 17021 and CCSDS 652.0-M-1/ISO 16363. It is primarily intended to support the accreditation of bodies providing such certification.

ISO/IEC 17021 provides the bulk of the requirements on bodies offering audit and certification for general types of management systems. However, for each specific type of system, specific additional requirements will be needed, for example, to specify the standard against which the audit is to be made and the qualifications which auditors require.

This document provides the (small number of) specific additions required for bodies providing audit and certification of candidate trustworthy digital repositories. Trustworthy here means that they can be trusted to maintain, over the long-term, the understandability and usability of digitally encoded information placed into their safekeeping.

In order improve readability, the clause numbers are kept consistent with those of ISO/IEC 17021. Some subclauses are applicable as they stand, and these are simply enumerated; otherwise additions to subclauses are explicitly given. In the former case, the clauses may consist of just a few sentences. As a result, this document must be read in conjunction with ISO/IEC 17021.

The requirements contained in this CCSDS Recommended Practice need to be demonstrated in terms of competence and reliability by any organization or body providing certification of digital repositories

This document is meant primarily for those setting up and managing the organization performing the auditing and certification of digital repositories.

It should also be of use to those who work in or are responsible for digital repositories seeking objective measurement of the trustworthiness of their repository and wishing to understand the processes involved.

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 652.1-M-2, March 2014, *Requirements for Bodies Providing Audit and Certification of Candidate Trustworthy Digital Repositories*

For the purposes of international standardization, the modifications outlined below shall apply to the specific clauses and paragraphs of publication CCSDS 652.1-M-2.

Pages i to vi

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

3 Revision of publication CCSDS 652.1-M-2

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 652.1-M-2. To this end, NASA will act as a liaison body between CCSDS and ISO.

The Consultative Committee for Space Data Systems

Recommendation for Space Data System Practices

REQUIREMENTS FOR BODIES PROVIDING AUDIT AND CERTIFICATION OF CANDIDATE TRUSTWORTHY DIGITAL REPOSITORIES

RECOMMENDED PRACTICE

CCSDS 652.1-M-2

MAGENTA BOOK

March 2014

RECOMMENDED PRACTICE FOR REQUIREMENTS FOR BODIES PROVIDING AUDIT AND CERTIFICATION OF CANDIDATE TRUSTWORTHY DIGITAL REPOSITORIES

AUTHORITY

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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 *Organization and Processes for the Consultative Committee for Space Data Systems* (CCSDS A02.1-Y-3), 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:

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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 Recommended Practice to use for setting the requirements for bodies providing audit and certification of trustworthy digital repositories.

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 *Organization and Processes for the Consultative Committee for Space Data Systems* (CCSDS A02.1-Y-3). 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:

Member Agencies

– 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 (DLR)/Germany.
– European Space Agency (ESA)/Europe.
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– Japan Aerospace Exploration Agency (JAXA)/Japan.
– National Aeronautics and Space Administration (NASA)/USA.
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Observer Agencies

– Austrian Space Agency (ASA)/Austria.
– Belgian Federal Science Policy Office (BFSPO)/Belgium.
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– South African National Space Agency (SANSA)/Republic of South Africa.
– Space and Upper Atmosphere Research Commission (SUPARCO)/Pakistan.
– Swedish Space Corporation (SSC)/Sweden.
– Swiss Space Office (SSO)/Switzerland.
– United States Geological Survey (USGS)/USA.

DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 652.1-M-1	Requirements for Bodies Providing Audit and Certification of Candidate Trustworthy Digital Repositories, Recommended Practice, Issue 1	November 2011	Original issue, superseded
CCSDS 652.1-M-2	Requirements for Bodies Providing Audit and Certification of Candidate Trustworthy Digital Repositories, Recommended Practice, Issue 2	March 2014	Current issue