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Space data and information transfer systems — XML formatted data unit (XFDU) structure and construction rules

Systèmes de transfert des informations et données spatiales — Structure des unités de données formatées XML (XFDU) et règles de construction

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Foreword

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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 13527 was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 661.0-B-1, September 2008) 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*.

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Space data and information transfer systems — XML formatted data unit (XFDU) structure and construction rules

1 Scope

This International Standard defines how the packaging of data and metadata, including software, can be put into a single package (e.g. file or message) in order to facilitate information transfer and archiving.

This International Standard also provides a detailed specification of core packaging structures and mechanisms, which accommodate the current computing environment and meet evolving requirements, and which can be implemented to demonstrate practical, near-term results.

This International Standard is applicable to the entire space informatics domain, from operational messaging to interfacing with science archives.

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 661.0-B-1, September 2008, *XML formatted data unit (XFDU) structure and construction rules*

For the purposes of international standardization, the modifications outlined below shall apply to the specific clauses and paragraphs of publication CCSDS 661.0-B-1.

Pages i to v

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

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Add the following information to the reference indicated:

[D1]   Document CCSDS 620.0-B-2, May 1992, is equivalent to ISO 12175:1994.

[D2]   Document CCSDS 643.0-B-1, November 1992, is equivalent to ISO 14962:1997.

[D3]   Document CCSDS 630.0-B-1, June 1993, is equivalent to ISO 13764:1996.

[D4]   Document CCSDS 632.0-B-1, November 1994, is equivalent to ISO 15395:1998.

[D5]   Document CCSDS 622.0-B-1, May 1997, is equivalent to ISO 15888:2000.

[D6]   Document CCSDS 641.0-B-2, June 2000, is equivalent to ISO 14961:2002.

[D7]   Document CCSDS 650.0-B-1, January 2002, is equivalent to ISO 14721:2003.

3   Revision of publication CCSDS 661.0-B-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 661.0-B-1. To this end, NASA will act as a liaison body between CCSDS and ISO.

CCSDS

The Consultative Committee for Space Data Systems

Recommendation for Space Data System Standards

XML FORMATTED DATA UNIT (XFDU) STRUCTURE AND CONSTRUCTION RULES

RECOMMENDED STANDARD

CCSDS 661.0-B-1

BLUE BOOK
September 2008

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CCSDS RECOMMENDED STANDARD FOR XFDU STRUCTURE AND CONSTRUCTION RULES

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 Recommendations 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.

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CCSDS RECOMMENDED STANDARD FOR XFDU STRUCTURE AND CONSTRUCTION RULES

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 **Recommended Standards** and are not considered binding on any Agency.

This **Recommended Standard** is issued by, and represents the consensus of, the CCSDS members. Endorsement of this **Recommendation** is entirely voluntary. Endorsement, however, indicates the following understandings:

o Whenever a member establishes a CCSDS-related **standard**, this **standard** will be in accord with the relevant **Recommended Standard**. Establishing such a **standard** does not preclude other provisions which a member may develop.

o Whenever a member establishes a CCSDS-related **standard**, that member will provide other CCSDS members with the following information:

-- The **standard** itself.

-- The anticipated date of initial operational capability.

-- The anticipated duration of operational service.

o Specific service arrangements shall be made via memoranda of agreement. Neither this **Recommended Standard** nor any ensuing **standard** is a substitute for a memorandum of agreement.

No later than five years from its date of issuance, this **Recommended Standard** 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 Standard** is issued, existing CCSDS-related member standards and implementations are not negated or deemed to be non-CCSDS compatible. It is the responsibility of each member to determine when such standards or implementations are to be modified. Each member is, however, strongly encouraged to direct planning for its new standards and implementations towards the later version of the Recommended Standard.

FOREWORD

This document is a technical Recommendation to use for the packaging of data and metadata, including software, into a single package (e.g., file, document or message) to facilitate information transfer and archiving. It provides a detailed specification of core packaging structures and mechanisms that meet current CCSDS agency requirements and that augment the current CCSDS packaging and language Recommended Standards to accommodate the current computing environment and meet evolving requirements. This Recommended Standard leverages the wide community acceptance and usage of XML technologies by making the packaging manifest an XML document defined by the XML Schema specified in this Recommended Standard.

Through the process of normal evolution, it is expected that expansion, deletion, or modification of this document may occur. This Recommended Standard 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.

CCSDS RECOMMENDED STANDARD FOR XFDU STRUCTURE AND CONSTRUCTION RULES

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

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- Agenzia Spaziale Italiana (ASI)/Italy.
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- 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.
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CCSDS RECOMMENDED STANDARD FOR XFDU STRUCTURE AND CONSTRUCTION RULES

DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 661.0-B-1	XML Formatted Data Unit (XFDU) Structure and Construction Rules, Recommended Standard, Issue 1	September 2008	Original issue

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