International Standard

ISO/IEC 15434

Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media

Technologies de l'information — Techniques automatiques d'identification et de capture des données — Syntaxe pour supports de CAD à haute capacité

Fifth edition
2025-01

Reference number
ISO/IEC 15434:2025(en)

© ISO/IEC 2025



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **1**
4 Documentation notation conventions ... **1**
5 Message format ... **2**
5.1 General ... 2
5.2 Message envelope ... 3
5.2.1 General ... 3
5.2.2 Message header ... 4
5.2.3 Message trailer ... 4
5.3 Format envelope ... 4
5.3.1 General ... 4
5.3.2 Format header ... 4
5.3.3 Format trailer ... 9
5.4 Data format ... 9
5.4.1 General ... 9
5.4.2 Format “00” — Reserved ... 9
5.4.3 Format “01” — Transportation ... 9
5.4.4 Format “02” — Complete EDI message / transaction ... 12
5.4.5 Format “03” — Structured data using ASC X12 segments ... 12
5.4.6 Format “04” — Structured data using UN/EDIFACT segments ... 12
5.4.7 Format “05” — Data using GS1 application identifiers ... 12
5.4.8 Format “06” — Data using ASC MH 10 data identifiers ... 13
5.4.9 Format “07” — Free form text format ... 13
5.4.10 Format “08” — Structured data using CII syntax rules ... 13
5.4.11 Format “09” — Binary data ... 13
5.4.12 Formats “10” to “11” — Reserved ... 13
5.4.13 Format “12” — Using text element identifiers ... 14
5.4.14 Format “13” — Blocked ... 14
5.4.15 Format “14” — Data using JSON syntax ... 14
5.4.16 Format “15” — ISO/IEC 20248 verifiable data construct ... 14
5.4.17 Formats “16” to “99” — Reserved ... 14
Annex A (normative) **Subset of ISO/IEC 646 (table of hexadecimal and decimal values)** ... **15**
Annex B (informative) **Examples of ADC media encoded with ISO/IEC 15434 syntax** ... **17**
Bibliography ... **31**

© ISO/IEC 2025 – All rights reserved

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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 document 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 or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and https://patents.iec.ch. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

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. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

This fifth edition cancels and replaces the fourth edition (ISO/IEC 15434:2019), which has been technically revised.

The main changes are as follows:

— format “14” has been assigned to data structured with JSON syntax (see 5.3.2.16 and 5.4.15);

— format “15” has been assigned to data containing an ISO/IEC 20248 verifiable data construct (see 5.3.2.17 and 5.4.16);

— Annex B has been added to provide examples of syntax used to encode data into high-capacity ADC media.

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 and www.iec.ch/national-committees.

© ISO/IEC 2025 – All rights reserved

Introduction

This document defines the manner in which data is transferred to high-capacity automatic data capture (ADC) media from a supplier's information system and the manner in which data is transferred to the recipient's information system. It does not define the internal data storage format for specific high-capacity ADC media. This document does not specify the application of data structures provided by a specific data syntax format. The application of the data structure may be specified by industry conventions.

Users of automatic identification and data capture (AIDC) techniques benefit by being able to receive data in a standard form and by being able to provide data in a standard form. Low capacity ADC media, such as linear bar code symbologies and optical character recognition, typically encode a single field of data. Most applications of these technologies involve the encoding of a single field of data by the supplier of the medium and the subsequent decoding of the data field by the recipient. Encoding single fields of data permits the supplier to perform the encoding from a single field within the supplier's information system. Decoding single fields of data permits the recipient to input this data into a single field in the recipient's information system, in lieu of key entry.

High-capacity ADC media, such as two-dimensional symbols, RFID transponders, contact memories and smart cards, encode multiple fields of data. These multiple fields are usually parsed by the recipient's information system and then mapped to specific fields of data in the recipient's information system. This document defines the syntax for high-capacity ADC media, so as to enable ADC users to utilize a single mapping utility, regardless of which high-capacity ADC medium is employed.

The benefits of using high-capacity ADC media come with challenges. The ability to convey both data and meaning (e.g. assuming an encoded serial number is "12345"; "12345" is the data and the understanding "12345" is a serial number is the meaning) within a single technology has been executed differently by many industries in a variety of ways. The widespread use of these different data and meaning formats has led to an additional challenge of identifying which format is being used. To address this challenge, this document assigns many of the data and meaning formats a unique two-digit number called a format indicator which identifies the data structure for the encoded data. These format indicators enable a user to employ one or more formats within a single high-capacity ADC media and accurately decode the data stream.

This document defines a syntax to indicate the message encoded in the high-capacity ADC media conforms to this document. Its defined syntax also indicates which data format or formats are being used to provide data and meaning. The purpose of the syntax is to provide a mechanism for an automated information system consuming data through high-capacity ADC media to adaptively interpret and parse the data meaningfully.

© ISO/IEC 2025 – All rights reserved

Information technology — Automatic identification and data capture techniques — Syntax for high-capacity ADC media

1 Scope

This document specifies a transfer structure, syntax, coding of messages and data formats when using high-capacity automatic data capture (ADC) media.

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/IEC 646, *Information technology — ISO 7-bit coded character set for information interchange*

ISO/IEC 19762, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*

ISO/IEC 21778, *Information technology — The JSON data interchange syntax*

ISO/IEC 20248, *Information technology — Automatic identification and data capture techniques — Digital signature data structure schema*

ANS MH10.8.2, *ASC MH 10 Data Identifiers and Application Identifiers*

ANS X12, *Electronic Data Interchange*

CII Syntax Rule (Vers 3.00), CII Syntax Rule Specifications (3.00) (Electronic Data Interchange — Japan)

GS1 General Specifications Standard

Airlines for America, *ATA Common Support Data Dictionary (CSDD)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762 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

— IEC Electropedia: available at https://www.electropedia.org/

4 Documentation notation conventions

This document uses the following typographical conventions in message examples.

a) **BOLD**: Text that shall be entered exactly as it appears. (In this document, $^{F}_{S}$, $^{G}_{S}$, $^{U}_{S}$, $^{R}_{S}$, $^{E}o_{T}$ are used to represent non-printable characters. The ISO/IEC 646 representation of non-printable characters that shall be used and is used in this document can be found in Annex A.)

b) *italic, lower case*: Variable parameters. The user shall supply an appropriate value. In some cases, default values are recommended in this document.

© ISO/IEC 2025 – All rights reserved