



BSI Standards Publication

Personal identification — ISO-compliant driving licence

Part 2: Machine-readable technologies

National foreword

This British Standard is the UK implementation of ISO/IEC 18013-2:2020+A1:2023. It supersedes BS ISO/IEC 18013-2:2008, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO/IEC text carry the number of the ISO/IEC amendment. For example, text altered by ISO/IEC amendment 1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee IST/17, Cards and security devices for personal identification.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2023

ISBN 978 0 539 19702 0

ICS 35.240.15

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2020.

Amendments/corrigenda issued since publication

Date	Text affected
30 June 2023	Implementation of ISO/IEC amendment 1:2023

**Personal identification — ISO-
compliant driving licence —**

**Part 2:
Machine-readable technologies**

*Identification des personnes — Permis de conduire conforme à l'ISO —
Partie 2: Technologies lisibles par une machine*





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Published in Switzerland

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC 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) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

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.

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 17, *Cards and security devices for personal identification*.

This second edition cancels and replaces the first edition (ISO/IEC 18013-2:2008), which has been technically revised. It also incorporates the Technical Corrigendum ISO/IEC 18013-2:2008/Cor 1:2011.

The main changes compared to the previous edition are as follows:

- following the revision of ISO/IEC 18013-3 and ISO/IEC 18013-1, magnetic stripe and optical memory machine-readable technologies are no longer supported by this document;
- the vehicle categories in respect of which driving licence may be issued have been updated to incorporate the contemplated amendments to the UN Conventions;
- the restrictions which may be applicable to a driving licence have been updated.

A list of all parts in the ISO/IEC 18013 series can be found on the ISO website.

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.

Introduction

ISO/IEC 18013 (all parts) establishes guidelines for the design format and data content of an ISO-compliant driving licence (IDL) with regard to human-readable features (ISO/IEC 18013-1), ISO machine-readable technologies (ISO/IEC 18013-2), and access control, authentication and integrity validation (ISO/IEC 18013-3). It creates a common basis for international use and mutual recognition of the IDL without impeding individual countries/states in applying their privacy rules and national/community/regional motor vehicle authorities in taking care of their specific needs.

This document prescribes requirements for the implementation of machine-readable technology on an IDL.

One of the functions of an IDL is to facilitate international interchange. Storing IDL data in a machine-readable form supports this function by speeding up data input and eliminating transcription errors. Consequently, the automation and productivity of traffic law enforcement and other traffic safety processes can be improved.

This document allows issuing authorities to customise machine-readable data for domestic use. Apart from international interchange, the use of an IDL as a domestic driving licence thus provides for domestic standardisation and creates a domestic infrastructure capable of processing IDLs issued by other issuing authorities.

Provision is made for issuing authorities to validate the authenticity and integrity of the mandatory and optional data. In addition, the option of protecting access to optional data (beyond basic access protection) is provided for. The exact mechanism used to achieve such protection (e.g. encryption and/or additional access control) is specified in ISO/IEC 18013-3.

Personal identification — ISO-compliant driving licence —

Part 2: Machine-readable technologies

1 Scope

The purpose of storing IDL data on machine-readable media on the IDL is to:

- increase productivity (of data and IDL use),
- facilitate electronic data exchange, and
- assist in authenticity and integrity validation.

This document thus specifies the following:

- mandatory and optional machine-readable data;
- the logical data structure;
- encoding rules for the machine-readable technologies currently supported.

To prevent unauthorised access to the data contained on a contactless IC (e.g. by eavesdropping), the privacy of the licence holder is protected via basic access protection requiring a human-readable and/or machine-readable key/password on the IDL to access the data on the PIC (via protected-channel communication). The implementation details of this function are defined in ISO/IEC 18013-3.

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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO/IEC 5218, *Information technology — Codes for the representation of human sexes*

ISO/IEC 7812-1, *Identification cards — Identification of issuers — Part 1: Numbering system*

ISO/IEC 7816-1, *Identification cards — Integrated circuit cards — Part 1: Cards with contacts — Physical characteristics*

ISO/IEC 7816-2, *Identification cards — Integrated circuit cards — Part 2: Cards with contacts — Dimensions and location of the contacts*

ISO/IEC 7816-3, *Identification cards — Integrated circuit cards — Part 3: Cards with contacts — Electrical interface and transmission protocols*

ISO/IEC 7816-4, *Identification cards — Integrated circuit cards — Part 4: Organization, security and commands for interchange*

ISO/IEC 7816-5, *Identification cards — Integrated circuit cards — Part 5: Registration of application providers*

ISO/IEC 7816-6, *Identification cards — Integrated circuit cards — Part 6: Interindustry data elements for interchange*

ISO/IEC 7816-11:2017, *Identification cards — Integrated circuit cards — Part 11: Personal verification through biometric methods*

ISO/IEC 8825-1, *Information technology — ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER) — Part 1*

ISO/IEC 8859-1, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 10918-1, *Information technology — Digital compression and coding of continuous-tone still images: Requirements and guidelines — Part 1*

ISO/IEC 14443-1, *Cards and security devices for personal identification — Contactless proximity objects — Part 1: Physical characteristics*

ISO/IEC 14443-2, *Identification cards — Contactless integrated circuit(s) cards — Proximity cards — Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-3, *Cards and security devices for personal identification — Contactless proximity objects — Part 3: Initialization and anticollision*

ISO/IEC 14443-4, *Cards and security devices for personal identification — Contactless proximity objects — Part 4: Transmission protocol*

ISO/IEC 15444-1, *Information technology — JPEG 2000 image coding system: Core coding system*

ISO/IEC 15948, *Information technology — Computer graphics and image processing — Portable Network Graphics (PNG): Functional specification*

ISO/IEC 18013 (all parts), *Information technology — Personal identification — ISO-compliant driving licence*

ISO/IEC 19785-1:2015, *Information technology — Common Biometric Exchange Formats Framework — Part 1: Data element specification*

ISO/IEC 19785-3:2015, *Information technology — Common Biometric Exchange Formats Framework — Part 3: Patron format specifications*

ISO/IEC 19794-2:2005, *Information technology — Biometric data interchange formats — Part 2: Finger minutiae data*

ISO/IEC 19794-3:2006, *Information technology — Biometric data interchange formats — Part 3: Finger pattern spectral data*

ISO/IEC 19794-4:2005, *Information technology — Biometric data interchange formats — Part 4: Finger image data*

ISO/IEC 19794-5:2005, *Information technology — Biometric data interchange formats — Part 5: Face image data*

ISO/IEC 19794-6:2005, *Information technology — Biometric data interchange formats — Part 6: Iris image data*

IEC 61966-2-1, *Multimedia systems and equipment — Colour measurement and management — Part 2-1: Colour management — Default RGB colour space — sRGB*

IAFIS-IC-0110(v3), *WSQ Gray-scale Fingerprint Image Compression Specification*, Federal Bureau of Investigation, Criminal Justice Information Services Division (1997)

ICAO Doc 9303, *Machine Readable Travel Documents*, Seventh Edition 2015

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 18013-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1.1

basic access protection

BAP

protection method requiring a human-readable and/or machine-readable key/password on the IDL to access the data on the secure IC via protected-channel communication

3.1.2

binary coded decimal

BCD

binary coding of a sequence of integers using 4 bits for each integer (where the bit weights are 8421) and encoding two integers per byte, and where a 0 digit is appended to the left of an integer sequence containing an uneven number of digits before encoding

Note 1 to entry: Only unsigned BCD is used in this document.

Note 2 to entry: For purposes of this document, the definition of numeric characters in ISO/IEC 18013-1 in terms of ISO/IEC 8859-1 is deemed to be for identification purposes of the numeric characters only, and does not pertain to the manner in which numeric characters have to be encoded. Encoding rules are explicitly specified in this document.

EXAMPLE See [Table 1](#).

Table 1 — BCD examples

Integer	BCD
5	0000 0101
20	0010 0000
387	0000 0011 1000 0111

3.1.3

biometric data block

BDB

block of data with a defined format that contains one or more biometric samples or *biometric templates* ([3.1.5](#))

3.1.4

biometric information record

BIR

BioAPI Consortium Patron Format biometric record header

3.1.5

biometric template

biometric sample (i.e. information obtained from a biometric device, either directly or after further processing) or combination of biometric samples that is suitable for storage as a reference for future comparison

Note 1 to entry: This definition is an expansion of a definition in ISO/IEC 19785-1:2015.

3.1.6

card holder

person using an IDL, who is not necessarily the legitimate licence holder

3.1.7

common biometric exchange file format

CBEFF

file format that promotes interoperability of biometric-based applications and systems by specifying a standard structure for a *BIR* (3.1.4) and a set of abstract data elements and values that can be used to create the header part of a CBEFF-compliant BIR

Note 1 to entry: This definition is based on descriptive language in ISO/IEC 19785-1:2015.

3.1.8

compact encoding

encoding method when the memory capacity available for the IDL application does not exceed 5 kB, typically applicable to 2D bar code symbologies, *RFID* (3.1.13) and limited memory-capacity ICs (PICs and ICs with contacts)

Note 1 to entry: Compact encoding generates one constructed data object containing all *data groups* (3.1.9). Selective reading is not possible and the read device reads all data at the same time, where after the data is parsed. Using this method for machine-readable technologies with large memory capacity is not recommended as it can result in prolonged reading time.

Note 2 to entry: Compact encoding may also be used where the total memory capacity exceeds 5 kB (e.g. ICs with contacts and PICs) but where the capacity available to the IDL application is limited due to capacity being reserved for other applications.

 Note 3 to entry: See Annex B and Annex E (informative). 

3.1.9

data group

DG

collection of related data elements

3.1.10

delimiter

D

character used to separate data elements in a machine-readable data stream

3.1.10.1

data group delimiter

multiplication sign "×"

Note 1 to entry: Character D7 of ISO/IEC 8859-1.

3.1.10.2

field delimiter

division sign "÷"

Note 1 to entry: Character F7 of ISO/IEC 8859-1.

3.1.10.3
sub-field delimiter
sub-delimiter
 semicolon “;”

Note 1 to entry: Character 3B of ISO/IEC 8859-1.

3.1.10.4
end of file delimiter
 pilcrow “¶”

Note 1 to entry: Character B6 of ISO/IEC 8859-1.

3.1.11
digital signature

data appended to, or cryptographic transformation of, a data string that proves the origin and the integrity of the data string and protects against forgery, e.g. by the recipient of the data string

3.1.12
standard encoding

encoding method when the memory capacity available for the IDL application exceeds 5 kB, typically applicable to ICs (PICs and ICs with contacts)

3.1.13
radio-frequency identification
RFID

ISO/IEC 14443-compliant IC designed primarily for data storage

3.2 Abbreviated terms

DF	dedicated file
EF	elementary file
F	fixed length field
IC	integrated circuit
ICC	integrated circuit card
LDS	logical data structure
MF	master file
PIC	proximity integrated circuit
PICC	proximity integrated circuit card
V	variable length field

4 Conformance

A driving licence is in conformance with this document if it meets all mandatory requirements specified directly or by reference herein. Compliance with ISO/IEC 18013-1 is not required for compliance with this document, except for those parts of ISO/IEC 18013-1 directly referenced in this document outside of [Clause 3](#). Conversely, the incorporation of a machine-readable technology which is not compliant with this document does not necessarily render the IDL non-compliant with ISO/IEC 18013-1.

5 Machine-readable functionality of IDLs

5.1 Overview

The subclauses that follow specify the functions (mandatory and optional) to be supported by any machine-readable data elements used on an IDL. The optional domestic data elements incorporated at the discretion of an issuing authority may support additional functions than those specified below.

5.2 General principles

The use of machine-readable functionality in IDLs is optional. If used, all the data elements identified in ISO/IEC 18013-1 as mandatory for international interchange, except for the signature and portrait of the licence holder, shall be included in the machine-readable data. The machine-readable data elements may also include any other data/information that appears visually on the IDL (such as the identification of the issuing country), as well as additional data elements not reflected visually on the IDL. No machine-readable data/information shall conflict with the human-readable data/information. Machine-readable data elements shall, except for optional domestic data (see [8.9](#)), have the exact same meaning as the human-readable data elements on the IDL.

NOTE A conflict between human-readable data elements and machine-readable data elements can cast suspicion upon the licence holder.

Rewriting, updating and appending functions may be supported to the extent allowed by the technology (or technologies) used. If implemented, such functions shall comply with the principles set out herein. Security options are established to support authenticity and integrity of machine-readable data.

It shall be possible to read mandatory data without restriction (with the exception of basic access protection in the case of a PIC IDL). Optional data may be protected, in which case the protection mechanism (and associated parameters) shall be noted or referenced. The various protection mechanisms are specified in ISO/IEC 18013-3. The optional domestic data may be protected in any manner without restriction.

Changes to machine-readable data elements by the issuing authority are allowed only to data-elements that do not appear in human-readable format on the IDL. Issuing authorities shall uniquely identify each new version (see [8.4](#)) of optional machine-readable data (typically after changing the originally recorded optional data). Issuing authorities shall issue a new IDL when changes to machine-readable data elements will lead to inconsistencies with human-readable data elements on the IDL.

5.3 Mandatory functions

5.3.1 General

Machine-readable data elements included on an IDL shall support/enable the functions described in the following subclauses.

5.3.2 Privilege to drive at time of licensing

Using the IDL to determine (from machine-readable data elements) the driving privileges [and associated restrictions, conditions and validity period(s)] granted to the licence holder by the issuing authority identified on the IDL. It is recognized that this information does not confirm that the issuing authority presently (i.e. at the time when the machine-readable data on an IDL is read by an entity trying to establish a licence holder's driving privileges) considers the licence holder's driving privileges to be valid.

5.3.3 Reference to driving privilege database

Using the machine-readable data elements (such as the licence number) on the IDL to reference records of driving privileges maintained by the issuing authority.

5.3.4 Age verification

Using the machine-readable data elements on the IDL to assure that the licence holder meets various age thresholds for certain products and services, including driving privileges (in the case where the age threshold to drive a particular category of vehicle domestically in the issuing country is lower than the age permitted internationally).

5.4 Optional functions

5.4.1 Identity verification

Using the machine-readable data elements on the IDL to confirm, by way of a visual comparison of the portrait image, that the card holder is the licence holder.

5.4.2 Biographical data verification

Using the machine-readable data elements on the IDL to confirm, by way of visual inspection of the biographical data printed on the portrait side of the card, that such data have not been altered.

5.4.3 Evidence of residence

Ability to use the IDL as evidence that the licence holder resided at a specific location at the time the IDL was issued. It is recognized that this information does not confirm that the issuing authority presently considers the licence holder's residential information to be correct.

5.4.4 Biometric authentication

Ability to use a machine-readable biometric template or templates on the IDL to determine whether the card holder is the licence holder by means of a machine-assisted biometric verification process (i.e. a one-to-one match).

5.4.5 Reciprocity of driving privileges

Ability for a country other than the issuing country to use the machine-readable data elements on the IDL to establish whether a mutual recognition agreement (or agreements) exists with the issuing authority.

5.4.6 Document authentication and validation

Ability to reference items on or qualities about the IDL to verify the document is authentic (i.e. produced by the issuing authority reflected both in the human- and machine-readable data) and that no data has been altered since issuing.

6 Machine-readable technologies supported

Technologies suitable for both compact encoding and standard encoding are supported.

For compact encoding, a typical minimum capacity of 300 usable bytes is required.

Given the minimum data capacity needed to support the mandatory data requirements, the IDL may contain any or a combination of the following machine-readable technologies:

- RFID — Compact encoding, specified in [Annex B](#).
- Two-dimensional bar code — Compact encoding, specified in [Annex B](#).
- IC with contacts — Standard encoding, specified in [Annex C](#) (failing which, compact encoding only if limited memory capacity is available for the IDL application, specified in [Annex B](#)).

- PIC — Standard encoding, specified in [Annex C](#) (failing which, compact encoding only if limited memory capacity is available for the IDL application, specified in [Annex B](#)).

7 Organization of data

7.1 Overview

Data is organized into fourteen data groups, of which each contains data pertaining to a similar function. One data group is mandatory and the others are optional. One data group is reserved for future use.

NOTE Whether or not each group (or individual data element) can be accessed individually depends on the machine-readable technology used.

7.2 Mandatory data

Mandatory data is comprised of the minimum set of data elements required for international interchange (as defined in ISO/IEC 18013-1), with the exception of the signature and portrait.

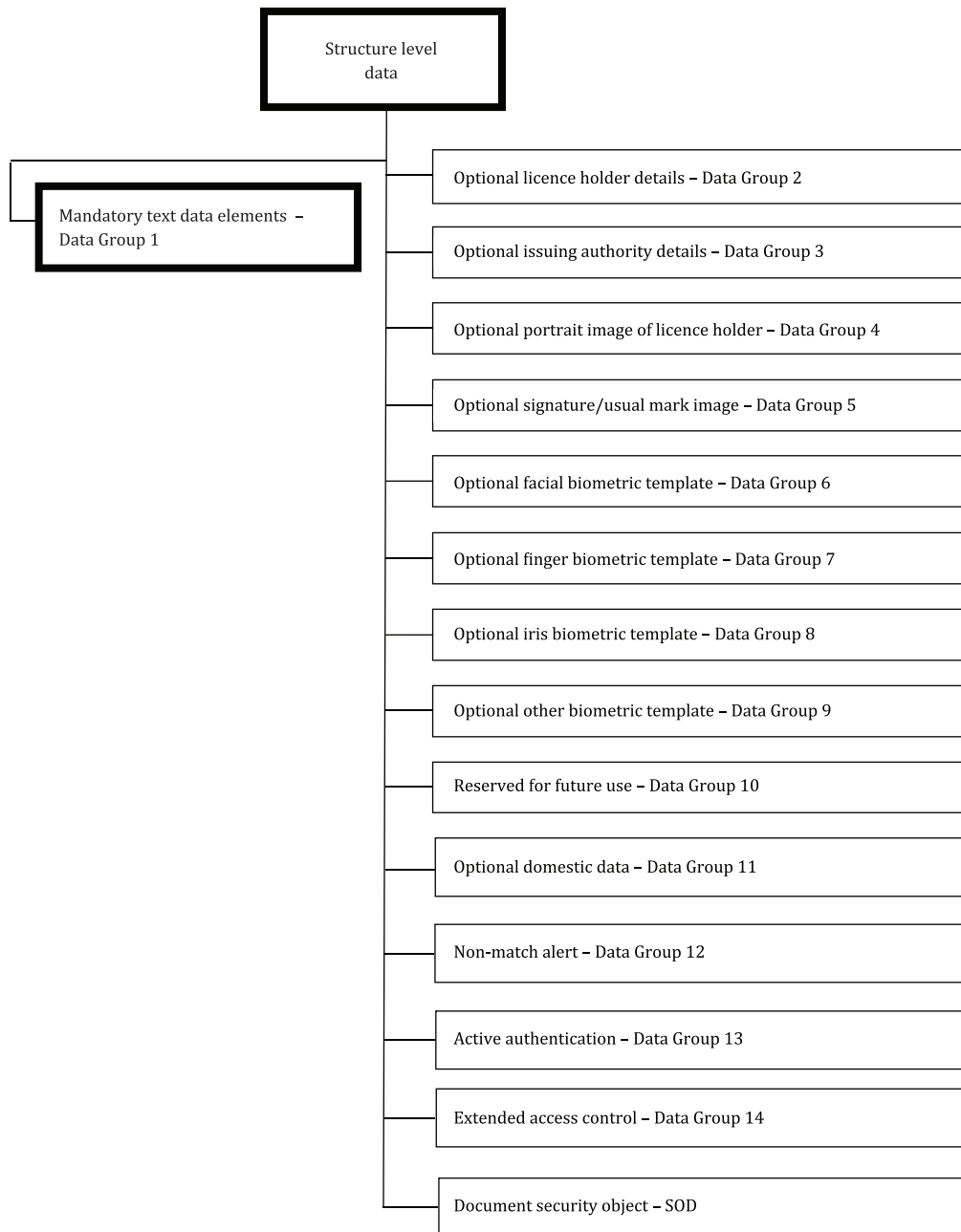
7.3 Optional data

Optional data is organized into the following groups — licence holder details (DG 2), issuing authority details (DG 3), portrait image (DG 4), signature/usual mark image (DG 5), facial biometric template (DG 6), fingerprint biometric template (DG 7), iris biometric template (DG 8), domestic data (DG 11), non-match alert (DG 12), active authentication (DG 13) and extended access control (DG 14). Provision is also made for another as yet undefined biometric template (DG 9), and an additional group reserved for future use (DG 10).

8 Data structure

8.1 Conceptualisation

Details of the data structure vary depending upon the storage technology(s) used. Conceptually the structure can be visualized as depicted in [Figure 1](#).



NOTE This is only a graphical representation. The actual data mapping for each of the machine-readable technologies is specified in the annexes.

Figure 1 — Conceptual data structure

Data groups 12 to 14 and the document security object are applicable specifically to access control, authentication and integrity validation and are thus specified in ISO/IEC 18013-3.

8.2 Data Group 1: mandatory text data elements

Data Group 1 consists of nine mandatory elements — demographic data and endorsement/restriction information. See [Table 2](#).

Table 2 — Data Group 1, mandatory text data elements

Name	Fixed or variable	Field format/length/type	Example
Family name	V	36AS	Smithe-Williams
Given ^a names	V	36AS	Alexander George Thomas
Date of birth (yyyymmdd)	F	8N	19700301
Date of issue (same format as Date of Birth)	F	8N	20020915
Date of expiry (same format as Date of Birth)	F	8N	20070930
Issuing country (shall be in accordance with ISO 3166-1)	F	3A	JPN
Issuing authority	V	65ANS	HOKKAIDO PREFECTURAL PUBLIC SAFETY COMMISSION
Licence number	V	25AN	A290654395164273X
Categories of vehicles/restrictions/conditions (shall comply with the field assembly rules specified in Annex A)	V	ADNS (also specified in Annex A)	C1;20000315;20100314;93;<=;8000
NOTE 1 Note the difference between the issuing country code specified in ISO 3166-1, and the issuing country code appearing in Zone I of an IDL as specified in ISO/IEC 18013-1:2018, Annex F.			
NOTE 2 Field format/length/type refers to status before encoding.			
^a No titles and/or suffixes shall be included.			

The assembly of the categories of vehicles/restrictions/conditions field shall comply with [Annex A](#). Encoding specifics vary slightly depending upon the technology mapping employed and is specified in [Annexes B](#) and [C](#) in accordance with the machine-readable medium included on the card. The following general format (repeated as necessary) is adhered to:

[category] ; [issue date] ; [expiry date] ; [restriction/condition code] ; [restriction/condition sign] ; [restriction/condition value]

NOTE Spaces (periods) have been inserted before and after the sub-field delimiter above for ease of reading only.

8.3 Data Group 2: optional licence holder details

Data Group 2 consists of seven optional data elements that provide supplemental descriptive information. Any or all data elements may be present for a particular implementation. See [Table 3](#).

Table 3 — Data Group 2, optional licence holder details

Name	Fixed or variable	Field format/length/type	Example
Gender (shall be in accordance with ISO/IEC 5218)	F	1N	1 (Male = 1, Female = 2)
Height (cm)	F	3N	172
Weight (kg)	F	3N	082
Eye colour ^a	F	3A	BLU
Hair colour ^b	F	3A	BAL
Place of birth	V	35ADNS ^c	Frozen Foot;Minnesota;USA
Permanent place of residence	V	113ADNS ^d	471 Monica Road;201 Delta Building;Lynnwood;Gauteng;0186;-South Africa
NOTE 1 ISO/IEC 18013-1 allows non-metric units to be used for the height and weight values that may appear in Zone II of an IDL.			
NOTE 2 Field format/length/type refers to status before encoding.			
^a Eye colour options are BLK = Black, BLU = Blue, BRO = Brown, DIC = Dichromatic, GRY = Grey, GRN = Green, HAZ = Hazel, MAR = Maroon, PNK = Pink, UNK = Unknown			
^b Hair colour options are BAL = Bald, BLK = Black, BLN = Blond, BRO = Brown, GRY = Grey, RED = Red/Auburn, SDY = Sandy, WHI = White, UNK = Unknown			
^c Three fields delimited by the sub-field delimiter — City; State/Province or District; Country. Addresses that cannot be expressed in the defined character set shall be transliterated.			
^d Six fields delimited by the sub-field delimiter — Street address line 1 (e.g. street name and number); Street address line 2 (e.g. apartment number); City; State/Province or District; Postal Code; Country. Addresses that cannot be expressed in the defined character set shall be transliterated.			

8.4 Data Group 3: optional issuing authority details

Data Group 3 consists of four optional data elements that can provide additional details about the IDL or issuing authority. None or all data elements need to be present for a given implementation. See [Table 4](#).

Table 4 — Data Group 3, optional issuing authority details

Name	Fixed or variable	Field format/length/type	Example
Administrative number	V	25ANS	123456789B
Document discriminator ^a	F	2N	01
Data discriminator ^b	F	2N	01
ISO issuer ID number ^c (shall be in accordance with ISO/IEC 7812-1)	F	8N	63600000
NOTE Field format/length/type refers to status before encoding.			
^a Number assigned by the issuing authority to differentiate between additional licences (documents) or duplicate documents issued bearing the same licence number as the original, that is 01 for the original licence, 02 for the first duplicate, 03 for the second duplicate and nn for the (nn-1)th duplicate.			
^b Number assigned by the issuing authority to differentiate between machine-readable data sets on the same physical document where updates have been made to machine-readable data, that is 01 for the original data set, 02 for the first update, 03 for the second update and nn for the (nn-1)th update. The data discriminator is mandatory when any change is made to the machine-readable data (see 5.2).			
^c ISO number assigned to issuing country or licensing authority, as the case may be.			

8.5 Data Group 4: optional portrait image

Data Group 4 is comprised of one or more portrait images of the licence holder. The portrait images shall comply with [Annex D](#). An image visually similar to the image printed on the portrait side of the IDL shall be included. See [Table 5](#).

Table 5 — Data Group 4, optional portrait image

Name	Fixed or variable	Field format/length/type
Portrait image timestamp ^a	F	14N yyyymmddhhmmss where yyyy=year, mm=month, dd=day, hh=hour, mm=minute, ss=second If hour, minute, and second are not available, 00 shall be used for each value.
Type of image	F	1N 3 = JPEG; 4 = JPEG2000
Portrait image	V	JPEG shall be in accordance with ISO/IEC 10918-1, JPEG-2000 shall be in accordance with ISO/IEC 15444-1, as specified in Annex D .
NOTE 1 Issuing authorities may include a portrait image in a facial biometric data block in lieu of including such image in DG 4 (in standard encoding). Consequently, card-reading applications should test for the presence of a portrait image in DG 6.		
NOTE 2 Image length may be specified by the encoding scheme.		
NOTE 3 Field format/length/type refers to status before encoding.		
^a Used to date the appearance of the licence holder (as reflected on the portrait image). The timestamp reflects the date and time the picture was taken (which is not necessarily the same as the time and date that the physical image data file was created). Mandatory if more than one portrait image is included.		

8.6 Data Group 5: optional signature/usual mark image

Data Group 5 specifies encoding of the licence holder's signature or usual mark (as specified in [Annex D](#)). Since it is an image, signatures or usual marks using non-Latin characters are possible. See [Table 6](#).

Table 6 — Data Group 5, optional signature/usual mark image

Name	Fixed or variable	Field format/length/type
Type of image	F	1N 3 = JPEG; 4 = JPEG2000; 5 = PNG
Image of signature or mark	V	JPEG shall be in accordance with ISO/IEC 10918-1, JPEG-2000 shall be in accordance with ISO/IEC 15444-1, PNG shall be in accordance with ISO/IEC 15948, as specified in Annex D .
NOTE 1 Image length can be specified by the encoding scheme.		
NOTE 2 Field format/length/type refers to status before encoding.		

8.7 Data groups 6, 7, 8 and 9: optional facial, fingerprint, iris and other biometric templates

Any biometric template is encoded based on the "ISO/IEC JTC 1/SC 37 TLV-encoded patron format, for use with smartcards or other tokens" patron format, which shall be as specified in ISO/IEC 19785-3:2015, Clause 11, specifically the off-card matching implementation specified in ISO/IEC 19785-3:2015, 11.2, as amended in [Table 7](#). This format uses the CBEFF structure.

Multiple biometric templates may be stored. If more than one is stored, the most recent biometric shall be identified as such by supplying the BDB creation date and time.

Use of the CBEFF format to sign and/or encrypt individual BDBs falls outside the scope of this document. Use of the access control and authentication features defined in ISO/IEC 18013-3 is preferred.

Table 7 — Data Group 6 to 9, optional biometric information

Name	Fixed or variable	Field format/length/type encoding	Presence	Example
Entry count	V	Binary representation	Mandatory when more than one BDB is present	'01' for the first entry, '02' for the second entry, the highest numbered entry being the most recent.
For each entry				
Name	Fixed or variable	Field format/length/type encoding	Presence	Example
Patron header version	F	2 bytes, '01 01'	Mandatory (if absent, the default value applies)	'01 01'
Biometric type	V	1 to 3 bytes ISO/IEC 19785-3:2015, Table 11.5 shall apply	Optional	Facial = '02' Finger = '08' Iris = '10'
Biometric subtype	F	1 byte ISO/IEC 19785-3:2015, Table 11.6 shall apply	Mandatory when biometric subtype is applicable but not specified in BDB	binary xx100101 for right hand thumb (given a biometric type of '08') binary xx100010 for left eye (given a biometric type of '10')
Biometric data creation date and time (yyyymmddhhmmss) ^a	F	14BCD	Mandatory when more than one BDB is present	'20 03 12 15 17 35 30', representing December 15, 2003, 5:35:30 PM. Using BCD representation this is coded using 7 bytes.
BIR creator	V	Encoded ANS shall be in accordance with ISO/IEC 8859-1	Optional	Hokkaido Prefectural Public Safety Commission (before encoding)
BDB validity period (yyyymmddyyyymmdd) ^b	F	16BCD	Optional	'20 03 12 15 20 08 12 14', representing a validity period from December 15, 2003 to December 14, 2008. Using BCD representation this is coded using 8 bytes.
<p>NOTE Field format/length/type refers to status after encoding.</p> <p>^a If hour, minute, second are not available, 00 shall be used for each value.</p> <p>^b Two concatenated dates where the first date is the "from date" (not after), and the second date is the "to date" (not before).</p>				

Table 7 (continued)

Name	Fixed or variable	Field format/length/type encoding	Presence	Example
For each entry				
BDB product owner, product type	F	4 bytes (a concatenation of two 16 bit positive integers of value 1 to 65 535) ISO/IEC 19785-1:2015, 6.5.12 and 6.5.13 and ISO/IEC 19785-3:2015, Table 11.4 shall apply	Optional	'00 01 00 82'
BDB format owner	F	2 byte non-negative integer of value 1 to 65 535 ISO/IEC 19785-1:2015, 6.5.1 shall apply	Mandatory	'01 01' for ISO/IEC JTC 1/SC 37, <i>Biometrics</i>
BDB format type	F	2 byte non-negative integer of value 1 to 65 535 ISO/IEC 19785-1:2015, 6.5.2 shall apply	Mandatory	'00 09' for ISO/IEC JTC 1/SC 37's iris image format
BIR index (unique identifier used to reference the biometric data set in an application context outside the IDL)	V	Free format	Optional	RecId_1952686A67
Biometric data block	V	Format and encoding as specified by BDB format owner and type.	Mandatory	Finger minutia record as specified in ISO/IEC 19794-2:2005, Clause 7
BIR payload	V	ISO/IEC 19785-1:2015, 6.5.22 shall apply	Optional	Arbitrary domestic data
<p>NOTE Field format/length/type refers to status after encoding.</p> <p>^a If hour, minute, second are not available, 00 shall be used for each value.</p> <p>^b Two concatenated dates where the first date is the "from date" (not after), and the second date is the "to date" (not before).</p>				

8.8 Data Group 10: reserved for future use

Data Group 10 is reserved for future use.

8.9 Data Group 11: optional domestic data

Since Data Group 11 is dedicated for domestic (or regional) use, the contents shall be defined by the issuing authority (or supranational entity) consistent with the structure, format and principles embodied in the definition of the other data groups.

9 Application identifiers

All applications specified in this document (including other parts of the ISO/IEC 18013 series) are identified by a seven byte Application Identifier (AID). The AID consists of a five byte Registered Application Identifier (RID) and a two byte Proprietary Application Identifier Extension (PIX).

The RID for the *International Interchange Driving Licence Application* is 'A0 00 00 02 48'.

NOTE 1 The RID was assigned by ISO/IEC JTC 1/SC 17/WG 5 in accordance with ISO/IEC 7816-5.

NOTE 2 Pairs of single apostrophes are used to indicate hexadecimal notation and are not encoded.

The PIX for each of the applications involved is shown in [Table 8](#).

Table 8 — Proprietary Application Identifier Extensions

Application	PIX
Application 1: Compact encoding (all technologies excluding ICs)	'01 00'
Application 2: Standard encoding for ICs	'02 00'
Application 3: Compact encoding for ICs	'03 00'

Issuing authorities may add additional applications to the IDL. Issuing authorities may either use the range of PIXs allocated for this purpose ('05 00' to '05 FF') or obtain separate RIDs from the Registration Management Group of SC 17/WG5 according to the procedures defined in ISO/IEC 7816-5 for such applications.

Annex A **(normative)**

Assembly rules for categories of vehicles/restrictions/ conditions field

A.1 General

This annex contains the assembly rules for the categories of vehicles/restrictions/conditions field as defined in [Table 2](#). The assembly rules include coding systems for vehicle categories (as defined in ISO/IEC 18013-1) and vehicle and driver restrictions and conditions. The use of codes facilitates language-independent implementation.

A.2 Scope

In addition to specifying the logical record format for the electronic storage of the categories of vehicles/restrictions/conditions field, this annex also defines the codes necessary for international interchange (machine-readable data corresponds to human-readable data) in respect of the following:

- any vehicle subcategory defined in accordance with ISO/IEC 18013-1:2018, Annex B;
- supplementation of defined vehicle subcategories in accordance with ISO/IEC 18013-1:2018, Annex B;
- vehicle restriction definitions in ISO/IEC 18013-1:2018, Annex B;
- driver restriction definitions in ISO/IEC 18013-1:2018, Annex B.

The above-mentioned definitions may be expanded upon for domestic purposes by adding the following optional restrictions in Data Group 11:

- vehicle restrictions in addition to the mandatory definitions in ISO/IEC 18013-1:2018, Annex B;
- driver restrictions in addition to the mandatory definitions in ISO/IEC 18013-1:2018, Annex B.

A.3 Logical record format

The categories of vehicles/restrictions/conditions field consists of one or more instances of the category of vehicle/restriction/condition data object. The category of vehicle/restriction/condition data object is assembled as illustrated in [Figure A.1](#).

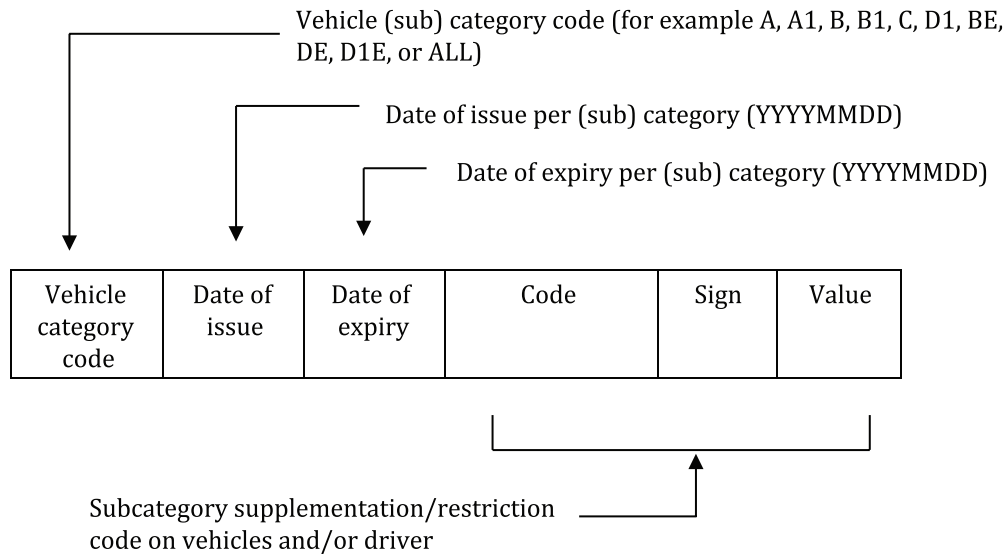


Figure A.1 — Structure of the category of vehicle/restriction/condition data object

Each data block in [Figure A.1](#) is separated by a sub-field delimiter. Each instance of a vehicle category is followed by 5 data fields.

NOTE The number of sub-fields in the categories of vehicles/restrictions/conditions field thus always will be a multiple of 6.

The category of vehicle/restriction/condition data object is repeated as necessary to explain all the categories of vehicles/restrictions/conditions applicable to the licence holder. The manner in which multiple instances of the category of vehicle/restriction/condition data object is encoded is specified in the corresponding specification for compact encoding or standards encoding in [Annex B](#) or [Annex C](#) respectively.

For encoding purposes, the formatting of the fields comprising the categories of vehicles/restrictions/conditions field is defined in [Table A.1](#).

Table A.1 — Field formatting

Field	Fixed or variable	Field format/length/type (before encoding)
Vehicle category code	V	AN
Date of issue	F	8N
Date of expiry	F	8N
Code	V	ANS
Sign	V	S
Value	V	ANS

When a category of vehicle/restriction/condition data object is encoded (e.g. in accordance with [Annex C](#)), each field making up the data object shall be encoded individually as specified in the corresponding specification defined in [Annex B](#) or [Annex C](#).

EXAMPLE For compact encoding (as specified in [Annex B](#)), the various fields (and the delimiters) will be encoded as shown in [Table A.2](#).

Table A.2 — Field formatting

Field	Encoding method
Vehicle category code	As per ISO/IEC 8859-1