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Identification cards — Optical memory cards — Linear recording method —

Part 6: Use of biometrics on an optical memory card

Cartes d'identification — Cartes à mémoire optique — Méthode d'enregistrement linéaire —

Partie 6: Emploi de la biométrie sur une carte à mémoire optique

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Contents

Page

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

The committee responsible for this document is ISO/IEC JTC1, *Information technology*, Subcommittee SC 17, *Cards and personal identification*.

This second edition cancels and replaces the first edition (ISO/IEC 11694-6:2006), which has been technically revised.

ISO/IEC 11694 consists of the following parts, under the general title *Identification cards — Optical memory cards — Linear recording method*:

— *Part 1: Physical characteristics*

— *Part 2: Dimensions and location of the accessible optical area*

— *Part 3: Optical properties and characteristics*

— *Part 4: Logical data structures*

— *Part 5: Data format for information interchange for applications using ISO/IEC 11694-4*

— *Part 6: Use of biometrics on an optical memory card*

Introduction

This part of ISO/IEC 11694 is one of a series of International Standards defining the parameters for optical memory cards and the use of such cards for the storage and interchange of digital data.

This part of ISO/IEC 11694 is specific to optical memory cards using the linear recording method. Characteristics which apply to other specific recording methods shall be found in separate International Standards.

This part of ISO/IEC 11694 describes the use of biometric data on an optical memory card. It uses the logical structure defined in ISO/IEC 11694-5 to facilitate the interchange of biometric data written to optical memory cards using the linear recording method.

All numbers in this document are written in decimal notation unless otherwise specified.

Identification cards — Optical memory cards — Linear recording method —

Part 6:
Use of biometrics on an optical memory card

1 Scope

This part of ISO/IEC 11694 describes the use of biometric data on optical memory cards using the logical data structure described in ISO/IEC 11694-5.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 11694-4, *Identification cards — Optical memory cards — Linear recording method — Part 4: Logical data structures*.

ISO/IEC 11694-5, *Identification cards — Optical memory cards — Linear recording method — Part 5: Data format for information interchange for applications using ISO/IEC 11694-4*

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

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

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

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

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

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

ISO/IEC 19794-7, *Information technology — Biometric data interchange formats — Part 7: Signature/sign time series data*

ISO/IEC 19794-8, *Information technology — Biometric data interchange formats — Part 8: Finger pattern skeletal data*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11694-4, ISO/IEC 11694-5, ISO/IEC 19785-1, and the following, apply.

3.1
biometric data
set of bytes that describes the physical properties of one or more parts of a living body

EXAMPLE The encoded template which mathematically describes a person's fingerprint. This template can be compared against the fingerprint of the person who is presenting the card.

3.2
CBEFF file
biometric data file (a set of bytes) that conforms to ISO/IEC 19875-1

3.3
encoded biometric data
biometric data that has been interpreted and encoded

3.4
raw biometric data
biometric data obtained directly from a biometric device

4 Interchange of biometric data items

ISO/IEC 11694-5 allows for the interchange of all types of data on optical cards by specifying both the directory structure on the card and the method of identifying individual data items that are written to the card. Using the data format described in ISO/IEC 11694-5, biometric data are accessed in much the same manner as any other type of data on an optical memory card.

This being the case, this part of the standard specifies tags and structures which facilitate and which are specific to accessing biometric data items on a card.

Typically, an application that reads a given card looks on that card for tags that correspond to data items that the application knows how to use, based on the published tag document. ISO/IEC 11694-5 includes a set of defined tag ranges that assist a reading application in accessing useful biometric data on the card in the absence of the application's knowledge of a particular tag.

EXAMPLE The reader requires from the card, images of one or more of the cardholder's fingerprints. It queries the card for any data with tags in the range from 7000 through 7999. Tags in this range correspond to data items containing raw fingerprint images. If the card contains any such data, the reader can then read the corresponding data item from the card and use it to verify the identity of the cardholder.

The reader can use a process similar to that in the above example to read and use any type of biometric information that is associated with a tag which is not recognized by the reader.

5 Biometric Tag Ranges

If a card issuer wishes to write to their cards, biometric data items that do not conform exactly to any of the standards listed in the next section, they shall request from the tag registration authority (as defined in Part 5) a new tag. The tag registration authority shall issue a tag in one of the following ranges, according to the type of biometric item:

Tag Range	Description of Biometric Items
2000 – 2999	Any encoded (not raw) biometric data that comprises information specifically about the face or head of the subject. This specifically includes matching of face (visible light or thermal) and ear and excludes matching of eyes.
3000 – 3999	Any encoded (not raw) biometric data that comprises information specifically about the fingers of the subject. This includes fingerprints and attributes of individual fingers and excludes hand geometry.
4000 – 4999	Any encoded (not raw) biometric data that comprises information specifically about the eyes of the subject. This specifically includes retina and iris matching.

Tag Range	Description of Biometric Items
5000 – 5999	Any encoded (not raw) biometric data that comprises information specifically about the hands or feet of the subject. This specifically includes hand geometry, palm and foot prints, veins in the hand, and thermal hand image, and excludes fingerprints or individual finger traits, which are in another range.
6000 – 6999	Any raw (not encoded or processed) images of the subject. This includes the common image of the face (portrait).
7000 – 7999	Any raw (not encoded or processed) images of single digit fingerprints.
8000 – 8999	Any raw images or encoded data that comprises information about the pen-based signature of the subject.
12200 – 12299	Any encoded biometric data that comprises information on a molecular or cellular level. This specifically includes DNA and body odour matching.
12300 – 12399	Any encoded biometric data that comprises information about a behaviour. This specifically includes gait, keystroke, lip movement and voice and excludes the pen-based signature, which is in another range.
12400 – 12799	Any biometric data that does not fit into the above categories and conforms to ISO/IEC 19785-1, *Information Technology – Common Biometric Exchange Formats Framework*
12800 – 12899	Any biometric data that does not fit into the above categories and does not conform to ISO/IEC 19785-1, *Information Technology – Common Biometric Exchange Formats Framework*

A reading application that supports the verification or identification of the cardholder using certain biometric data items can use the above table as a guide and look for tags in the range that matches its capabilities.

EXAMPLE A reading application is in a system that consists of a camera for obtaining the facial image of the cardholder and which contains software that can compare the cardholder's face against templates assigned to tags 2345, 2346, and certain CBEFF files. This application can start by querying the card for any data items with tags in the range from 2000 through 2999. If there are 2345 or 2346 data items, the application can read and use them right away. If there is an unrecognized data item with tag 2347, the application can look for the CBEFF header for that item and parse that header to see if the item can be used. Section 7 describes how to find and read the CBEFF header without having to read the data item itself, if the card issuer supports it.

6 CBEFF files that meet other standards

Although the use of ISO/IEC 19875-1 (CBEFF) is not required by this standard, the use of existing biometric standards for the storage of biometrics on optical memory cards is strongly recommended.

This part of ISO/IEC 11694 includes specific support for CBEFF files.

The following standards, which all describe CBEFF files, are specific as to which biometric is described, so each has a tag within the tag range corresponding to the type of biometric. Exact implementations of these standards shall not require a tag document and shall be assigned the following tags within ISO/IEC 11694-5:

Tag	Data Item Meaning
3030	ISO/IEC 19794-2, Information Technology – Biometric data interchange formats – Part 2: Finger minutiae data
3040	ISO/IEC 19794-3, Information Technology – Biometric data interchange formats – Part 3: Finger pattern spectral data
7030	ISO/IEC 19794-4, Information Technology – Biometric data interchange formats – Part 4: Finger image data
2001	ISO/IEC 19794-5, Information Technology – Biometric data interchange formats – Part 5: Face image data