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Information technology — On-card biometric comparison —

Part 2: Work-sharing mechanism

Technologies de l'information — Comparaison biométrique sur cartes —

Partie 2: Mécanisme de partage des tâches

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Foreword

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

This first edition cancels and replaces ISO/IEC 24787:2018, which has been technically revised. ISO/IEC 24787 has been split into two parts, ISO/IEC 24787-1 and ISO/IEC 24787-2.

The main changes are as follows:

— Previous Clause 9 “Work-sharing on-card biometric comparison procedure” and other subclauses related to work-sharing have been moved into this document.

A list of all parts in the ISO/IEC 24787 series can be found on the ISO and IEC websites.

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.

Introduction

On-card biometric comparison provides a more secure biometric verification method than one where a biometric comparison is carried out outside a secure cryptographic device. Storing biometric reference data in a secure integrated circuit card (ICC) means that the reference is not available at any external interface once it has been stored in the ICC, mitigating the risk of extraction and misuse by an unauthorized party.

ISO/IEC 7816-11 and ISO/IEC 19785-3 cover technologies for off-card and simple on-card biometric comparison. The ISO/IEC 17839 series covers biometric system-on-card.

Information technology — On-card biometric comparison —

Part 2:
Work-sharing mechanism

1 Scope

This document provides requirements for a biometric comparison methodology suitable for the on-card environment. In particular, it establishes the work-sharing on-card biometric comparison techniques that require an intensity exceeding the capabilities of integrated circuit cards (ICCs).

This document does not establish

— architectures of biometric comparison using an ICC,

— on-card biometric comparison, both in sensor-off-card systems and as part of biometric system-on-card,

— security policies for on-card biometric comparison,

— requirements for off-card biometric comparison,

— requirements for biometric system-on-card (defined in the ISO/IEC 17839 series), or

— modality-specific requirements for storage and comparison.

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 2382-37, *Information technology — Vocabulary — Part 37: Biometrics*

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

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

ISO/IEC 24787-1, *Information technology — On-card biometric comparison — Part 1: General principles and specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 2382-37 and ISO/IEC 24787-1 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 Abbreviated terms

For the purposes of this document, the symbols and abbreviated terms given in ISO/IEC 7816-11, ISO/IEC 7816-4 and the following apply.

APDU	application protocol data unit
EF	elementary file
ICC	integrated circuit card
IFD	interface device
PBO	PERFORM BIOMETRIC OPERATION
SW1-SW2	status bytes

5 Conformance

A work-sharing on-card biometric comparison system claiming conformance to this document shall support work-sharing as described in requirements set forth in Clause 6, as well as the relevant sections of ISO/IEC 24787-1 where applicable.

6 Work-sharing on-card biometric comparison procedure

The following requirement is applied to work-sharing on-card biometric comparison:

— Biometric auxiliary data shall be read from an ICC if the ICC supports work-sharing on-card biometric comparison and the work-sharing mechanism uses biometric auxiliary data.

NOTE Biometric auxiliary data is stored separately from the biometric reference. For example, biometric auxiliary data is stored in a working elementary file (EF) and a biometric reference is stored in an internal EF defined in ISO/IEC 7816-4.

Figure 1 illustrates the outline of the work-sharing on-card biometric comparison procedure. To implement this procedure, commands and status bytes shall comply with ISO/IEC 7816-4 and ISO/IEC 7816-11.

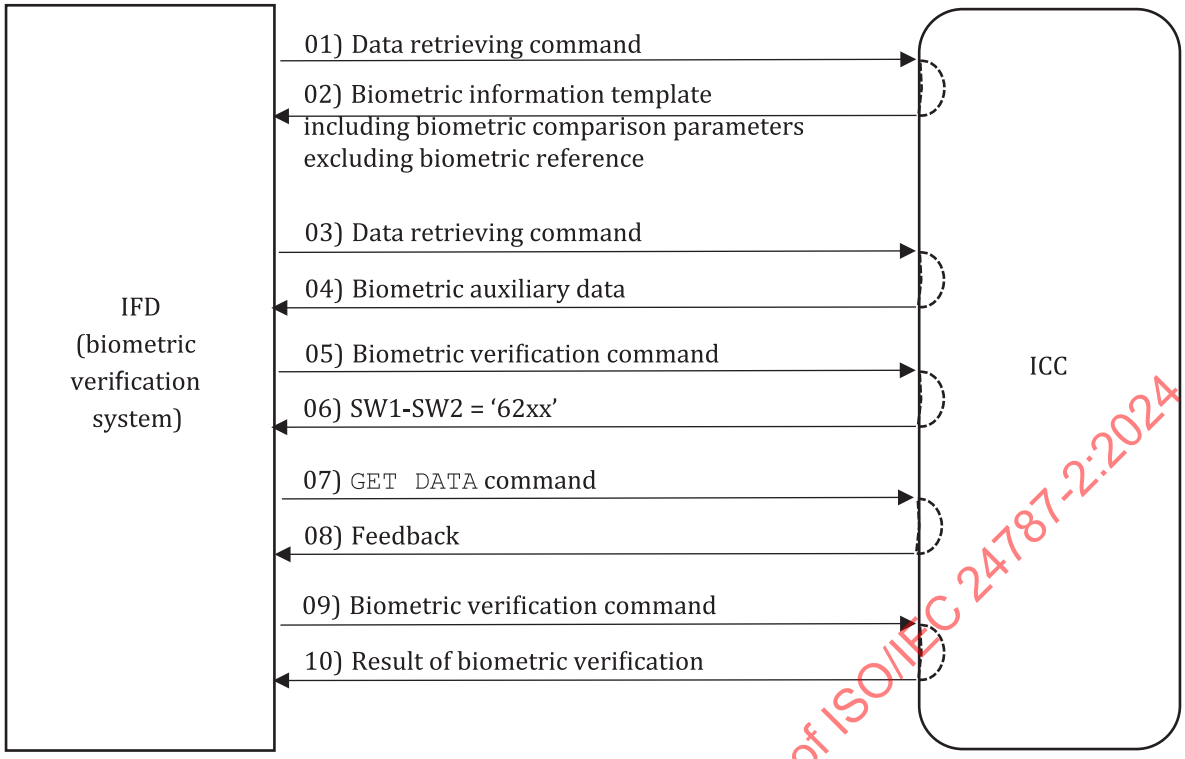

Figure 1 — Command-response APDU exchange for the work-sharing procedure

The following sequence is the outline of the work-sharing procedure:

01) The ICC receives a data retrieving command (e.g. `READ BINARY`) for extracting the biometric information template excluding the biometric reference.

02) The ICC returns the biometric information template for checking parameters.

03) The ICC receives a data retrieving command (e.g. `READ BINARY`) for extracting biometric auxiliary data.

04) The ICC returns auxiliary data for processing with a biometric sample.

05) The ICC receives a biometric verification command requiring on-card biometric comparison (e.g. PBO), and then starts the first ICC process of work-sharing on-card biometric comparison process.

06) The ICC returns status bytes as '62xx' indicating 'xx' bytes of feedback available according to card-originated byte string specified in ISO/IEC 7816-4.

07) The ICC receives `GET DATA` for extracting feedback.

08) The ICC returns feedback.

09) The ICC receives another on-card biometric verification command (e.g. PBO), then starts the final process of biometric comparison, decision and action.

10) The ICC returns status bytes indicating the result of the biometric verification.