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Information technology — Biometric data interchange formats —

Part 1: Framework

Technologies de l'information — Formats d'échange de données biométriques —

Partie 1: Cadre

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national 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 and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 19794-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

This second edition cancels and replaces the first edition (ISO/IEC 19794-1:2006), Clause 11 of which has been technically revised. In addition, Clause 3 now includes definitions that are used in multiple parts of ISO/IEC 19794, and Clause 12 has been added to describe general and representation headers that are harmonized across all parts of ISO/IEC 19794.

ISO/IEC 19794 consists of the following parts, under the general title *Information technology — Biometric data interchange formats*:

— *Part 1: Framework*

— *Part 2: Finger minutiae data*

— *Part 3: Finger pattern spectral data*

— *Part 4: Finger image data*

— *Part 5: Face image data*

— *Part 6: Iris image data*

— *Part 7: Signature/sign time series data*

— *Part 8: Finger pattern skeletal data*

— *Part 9: Vascular image data*

— *Part 10: Hand geometry silhouette data*

— *Part 11: Signature/sign processed dynamic data*

— *Part 13: Voice data*

— *Part 14: DNA data*

Introduction

This part of ISO/IEC 19794 defines what is commonly applied for biometric data formats, i.e. the standardization of the common content, meaning, and representation of biometric data formats of biometric modalities considered in the specific parts of ISO/IEC 19794.

Each part of ISO/IEC 19794 can reference text and concepts from documents published by national, international, or industry organizations. Documents from approved reference specification originator (ARO) organizations as defined by JTC 1 will be referenced by citation. Documents from non-ARO organizations can be copied to an annex.

ISO/IEC 19794 is one of a family of International Standards being developed by ISO/IEC JTC 1/SC 37 that support interoperability and data interchange among biometric applications and systems. This family of standards specifies requirements that solve the complexities of applying biometrics to a wide variety of person-recognition applications, whether such applications operate in an open systems environment or consist of a single, closed system. Open systems are built on standards-based, publicly defined data formats, interfaces, and protocols to facilitate data interchange and interoperability with other systems, which can include components of different design or manufacture. A closed system can also be built on publicly defined standards, and can include components of different design or manufacture, but inherently has no requirement for data interchange and interoperability with any other system.

Biometric data interchange format standards and biometric interface standards are both necessary to achieve full data interchange and interoperability for biometric recognition in an open systems environment. The ISO/IEC JTC 1/SC 37 biometric standards family includes a layered set of standards consisting of biometric data interchange formats and biometric interfaces, as well as biometric profiles that describe the use of these standards in specific application areas.

Figure 1 shows the interrelation of biometric-related areas of standardization. Biometric data complying with a biometric data interchange format of ISO/IEC 19794 represents the core component of biometric interoperability. Biometric formats frameworks such as ISO/IEC 19785 (CBEFF) can be used and serve as a wrapper around biometric data. Since biometric data are sensitive data and subject to attack, cryptographic protection is required in interchange environments. Biometric properties with respect to profiles, security evaluation and performance evaluation also play an important role. Biometric interfaces are essential to facilitate easy integration and usage of biometric components. The emerging harmonized vocabulary is recommended for use in describing biometric technology. The deployment of applications using biometric verification or identification takes place within the context of societal and cross-jurisdictional requirements.

The biometric data interchange format standards specify biometric data interchange formats for different biometric modalities. Parties that agree on a biometric data interchange format specified in ISO/IEC 19794 should be able to decode each other's biometric data.

The biometric interface standards include ISO/IEC 19785, *Information technology — Common Biometric Exchange Formats Framework* and ISO/IEC 19784, *Information technology — Biometric application programming interface* (BioAPI). These standards support exchange of biometric data within a system or among systems. ISO/IEC 19785 specifies the basic structure of a standardized Biometric Information Record (BIR), which includes the biometric data interchange record with added metadata such as when it was captured, its expiry date, whether it is encrypted, etc. ISO/IEC 19784 specifies an open system API that supports communications between software applications and underlying biometric technology services.

The biometric profile standards facilitate implementations of the base standards (e.g. the ISO/IEC JTC 1/ SC 37 biometric data interchange format and biometric interface standards, and possibly non-biometric standards) for defined applications. These profile standards define the functions of an application (e.g. physical access control for employees at airports) and then specify use of options in the base standards to ensure biometric interoperability.

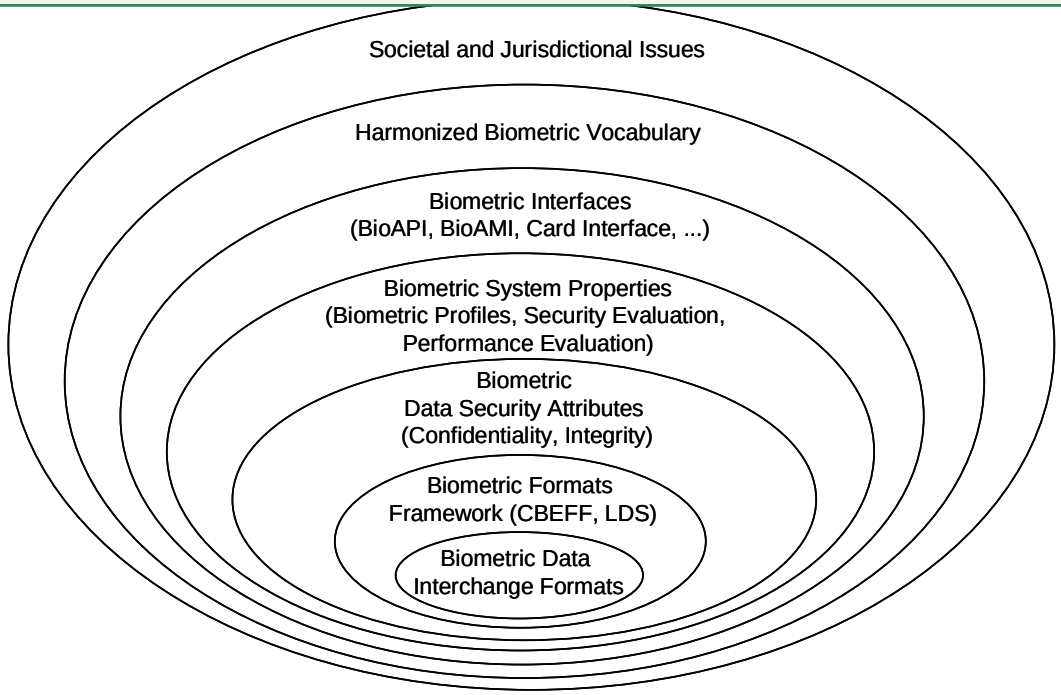

Figure 1 — General interrelation model of biometric issues