

INTERNATIONAL
STANDARD

ISO/IEC
24713-1

First edition
2008-03-01

**Information technology — Biometric
profiles for interoperability and data
interchange —**

**Part 1:
Overview of biometric systems
and biometric profiles**

*Technologies de l'information — Profils biométriques pour
interopérabilité et échange de données —*

*Partie 1: Exposé général des systèmes biométriques et des profils
biométriques*

Reference number
ISO/IEC 24713-1:2008(E)



© ISO/IEC 2008

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web 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 Abbreviated terms	6
5 General biometric system.....	6
5.1 Conceptual diagram of general biometric system	6
5.2 Conceptual components of a general biometric system.....	7
5.2.1 Data capture subsystem	7
5.2.2 Transmission subsystem (not portrayed in diagram).....	7
5.2.3 Signal processing subsystem	7
5.2.4 Data storage subsystem	7
5.2.5 Matching subsystem	7
5.2.6 5.2.6 Decision subsystem	7
5.2.7 5.2.7 Administration subsystem (not portrayed in diagram).....	8
5.2.8 Interface (not portrayed in diagram)	8
5.3 Functions of general biometric system.....	8
5.3.1 Enrolment	8
5.3.2 Verification	9
5.3.3 Identification.....	9
6 Relationship between the biometric system and the application.....	10
6.1 General.....	10
6.2 The ID life-cycle.....	10
6.2.1 Proofing	11
6.2.2 Registration	11
6.2.3 Issuance.....	11
6.2.4 Usage	11
6.3 Subject versus end-user	11
6.3.1 6.3.1 Access control example.....	12
6.3.2 Travel document example.....	12
6.4 Biometric decision versus authorization	13
7 Interfaces between the biometric system and the application	14
7.1 Application programming interface (API).....	14
7.2 Protocol interface	15
7.3 Hardware based electronic input/output interface	15
8 Developing biometric profiles utilising biometrics base standards	15
8.1 Relationships of biometric base standards and their use in biometric profiles.....	15
8.2 Classes	16
8.2.1 Application class	16
8.2.2 Data class	16
8.2.3 Interface class	17
8.3 Using biometric base standards to develop biometric profiles.....	17
Bibliography	18

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.

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

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

ISO/IEC 24713-1 was prepared by Technical Committee ISO/TC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

ISO/IEC 24713 consists of the following parts, under the general title *Information technology — Biometric profiles for interoperability and data interchange*:

- *Part 1: Overview of biometric systems and biometric profiles*
- *Part 2: Physical access control for employees at airports*
- *Part 3: Biometric based verification and identification of seafarers*

Introduction

This part of ISO/IEC 24713 is intended to form the overview part of the multipart standard on biometric profiles for interoperability and data interchange. It describes a schema for the use of a number of biometric standards. This part of ISO/IEC 24713 is not intended to replace or counter any other part of this International Standard, but rather to be used as a reference guide for the implementation of a generic biometric system or a profile-standardized system.

This part of ISO/IEC 24713 provides generic information and guidance to users about biometric systems and the use of the various base standards within biometric profiles to support interoperability and data interchange among biometrics applications and systems.

This part of ISO/IEC 24713 is one of a family of international standards being developed by ISO/IEC JTC 1/SC 37 that support interoperability and data interchange among biometrics applications and systems. This family of standards specifies requirements that solve the complexities of applying biometrics to a wide variety of personal recognition applications, whether such applications operate in an open systems¹⁾ environment or consist of a single, closed 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.

- The biometric data interchange format standards specify biometric data interchange records for different biometric modalities. Parties that agree in advance to exchange biometric data interchange records as specified in a subset of the ISO/IEC JTC 1/SC 37 biometric data interchange format standards should be able to perform biometric recognition with each other's data. Parties should also be able to perform biometric recognition even without advance agreement on the specific biometric data interchange format standards to be used, provided they have built their systems on the layered ISO/IEC JTC 1/SC 37 family of biometric standards.
- The biometric interface standards include the Common Biometric Exchange Formats Framework (CBEFF) and the Biometric Application Programming Interface (BioAPI). These standards support exchange of biometric data within a system or among systems. The CBEFF standard 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. The BioAPI standard specifies an open system API that supports communications between software applications and underlying biometric technology services. BioAPI also specifies a CBEFF BIR format for the storage and transmission of BioAPI-produced data.

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.

1) Open systems are built on standards based, publicly defined data formats, interfaces, and protocols to facilitate data interchange and interoperability with other systems, which may include components of different design or manufacture. A closed system may also be built on publicly defined standards, and may include components of different design or manufacture, but inherently has no requirement for data interchange and interoperability with any other system.

Information technology — Biometric profiles for interoperability and data interchange —

Part 1: Overview of biometric systems and biometric profiles

1 Scope

This part of ISO/IEC 24713 identifies and defines the functional blocks and components of a generic biometric system, and the distinct characteristics of each component. It also defines a generic biometric reference architecture incorporating the relevant biometric-related base standards to support interoperability and data interchange.

2 Normative references

The following referenced documents are indispensable for the application 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 19794-1:2006, *Information technology — Biometric data interchange formats — Part 1: Framework*