INTERNATIONAL STANDARD

ISO/IEC 29109-1

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Information technology — Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794 —

Part 1:
Generalized conformance testing methodology

Technologies de l'information — Méthodologie d'essai de conformité pour les formats d'interéchange de données biométriques définis dans l'ISO/CEI 19794 —

Partie 1: Méthodologie d'essai de conformité généralisée

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Contents

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 29109-1 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

ISO/IEC 29109 consists of the following parts, under the general title *Information technology — Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794*:

⎯ *Part 1: Generalized conformance testing methodology*

⎯ *Part 2: Finger minutiae data*

⎯ *Part 4: Finger image data*

⎯ *Part 10: Hand geometry silhouette data*

The following parts are under preparation:

⎯ *Part 3: Finger pattern spectral 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 11: Signature/sign processed dynamic data*

⎯ *Part 13: Voice data*

⎯ *Part 14: DNA data*

Introduction

ISO/IEC 19794 is a multi-part International Standard developed by ISO/IEC JTC 1, SC 37 that specifies a biometric data interchange format for different biometric modalities or technologies. It is expected that future parts of ISO/IEC 19794 for additional modalities or technologies will be developed. End users of biometric systems desire to use ISO/IEC 19794 and other standards to ensure that components of the biometric system can be substituted with other components from different vendors with a minimum of effort, and also to ensure that biometric data produced by one system can be used by another system. In order to achieve this, it is critical that systems claimed to conform to a standard actually are conformant, and thus there is a need for conformance testing methodology standards for each of the biometric data interchange formats specified in ISO/IEC 19794, in order to provide a reasonable degree of assurance that a conformance claim has validity. In fact, no test can be absolutely comprehensive and prove that a given system is conformant under all possible circumstances, especially when there are optional components of the standard. A well designed conformance test can, however, test all of the most likely sources of problems and ensure that the implementation under test conforms under a reasonable set of circumstances, giving assurance, but not a guarantee, of conformance.

There are many different types of conformance testing that may be appropriate for the various parts of ISO/IEC 19794. Some of these tests are highly specific to each data interchange format but some of them have many common elements across all of the formats. Therefore, it appears that a multi-part conformance testing standard, ISO/IEC 29109, will be useful. This part of ISO/IEC 29109 describes the different types of conformance testing. It then goes on to provide details of the common elements for defining test assertions. This part of ISO/IEC 29109 also provides guidelines for conducting the tests and reporting the results of the tests. The specific tests and assertions for each biometric data interchange format are left to the subsequent parts, one for each part of ISO/IEC 19794.

Information technology — Conformance testing methodology for biometric data interchange formats defined in ISO/IEC 19794 —

Part 1:
Generalized conformance testing methodology

1 Scope

This part of ISO/IEC 29109 specifies the concepts, test types and conformance testing methodologies to test biometric data interchange records, as specified in ISO/IEC 19794, or computer algorithms that create biometric data interchange records. This part of ISO/IEC 29109 defines two types (A and B) and three levels (1, 2 and 3) of conformance testing, but it only provides a detailed description and methodology for the three levels of Type A testing. In the case of the first two levels, there are many common test elements, and so the assertion language for specifying Level 1 and Level 2 test assertions is defined in this part of ISO/IEC 29109. ISO/IEC 29109 is not concerned with testing of other characteristics of biometric products or other types of testing of biometric products (i.e. acceptance, performance, robustness, security).

This part of ISO/IEC 29109 explicitly does not cover the following areas:

— detailed test elements and assertions or descriptions of any mandatory standard datasets required for testing, which are provided in the other parts of ISO/IEC 29109, each of which specifies conformance testing for a specific base standard;

— testing whether implementations under test (IUTs) that claim to be able to use conformant biometric data interchange records can correctly process such biometric data interchange records (Type B testing).

2 Conformance

Biometric data interchange format conformance tests that claim conformance to this part of ISO/IEC 29109 shall satisfy the normative requirements of the methodology for those levels of test they are claiming to perform, as specified in Clauses 6, 7 and 8.

Additionally, any Level 1 or Level 2 tests shall use the assertion types defined in Clause 7 with the specific assertion details given in the relevant subsequent parts of ISO/IEC 29109.

Implementations of ISO/IEC 19794 tested according to the methodology specified in ISO/IEC 29109 may claim conformance only to those requirements specified in ISO/IEC 19794 that are tested by the test methods established by this methodology.

3 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*