

# American National Standard

*INCITS/ISO/IEC 19794-2:2011 [2013]  
ISO/IEC 19794-2:2011*

Reaffirmed as  
INCITS/ISO/IEC 19794-2:2011 (R2018)

*Information technology — Biometric data  
interchange formats — Part 2: Finger minutiae  
data*

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**Developed by**



*Where IT all begins*



## INCITS/ISO/IEC 19794-2:2011 [2013]

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**Adopted by INCITS (InterNational Committee for Information Technology Standards) as an American National Standard.**

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## Information technology — Biometric data interchange formats —

### Part 2: Finger minutiae data

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

*Partie 2: Données du point caractéristique du doigt*

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Reference number  
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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 19794-2 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 19794-2:2005). It reflects the harmonization across the second generation of ISO/IEC 19794. A new Clause 7 has been added to describe the finger minutiae format types; Clause 8 contains descriptions of the harmonized general and representation headers; and Clauses 8 and 9 have been technically revised. All annexes have been technically revised. Annex A is under development and will contain an amendment for conformance testing methodology for this part of ISO/IEC 19794. The former Annex B "Fingerprint Image Quality Specifications" has been removed. Annex E contains three examples of capture device certifications. Annex F provides descriptions of fingerprint minutiae location, direction, and type.

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*



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## Introduction

ISO/IEC 19794 is a series of International Standards being developed by ISO/IEC JTC 1/SC 37 that supports interoperability and data interchange among biometric applications and systems. The ISO/IEC 19794 series specifies requirements that solve the complexities of applying biometrics to a wide variety of personal recognition applications, whether such applications operate in an open systems environment or consist of a single, closed system. Additional information regarding the series is provided in ISO/IEC 19794-1.

In the interest of implementing interoperable biometric recognition systems, this part of ISO/IEC 19794 establishes a data interchange format for minutiae. It is relevant for systems or components dealing with generating, processing, and storing minutiae data. Representation of fingerprint data using minutiae is a widely used technique in many application areas.

This part of ISO/IEC 19794 defines specifics of the extraction of key points (called *minutiae*) from fingerprint ridge patterns. These specifics include a description of the types of minutiae identified, the method used for the placement of minutiae on an image, a definition of the coordinate system used, and the methods used to calculate the angle associated with each minutia.