

# INTERNATIONAL STANDARD

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## Information technology — Biometric data interchange formats —

### Part 9: Vascular image data

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

*Partie 9: Données d'images vasculaires*

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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 the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

ISO/IEC 19794-9 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

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*

## Introduction

Vascular biometric technologies have existed for many years. Additionally, new technologies employing vascular images obtained from various parts of the human body are emerging or under continuous improvement as a result of new, state-of-the-art imaging devices. Some of them are being widely adopted as reliable biometric modalities.

Currently, however, little vascular biometric image information is being exchanged between the equipment and devices from different vendors. This is due in part to the lack of standardized formats for information exchange that would ensure interoperability among the various vendors.

The purpose of this part of ISO/IEC 19794 is to define a proposed standard for the exchange of human vascular biometric image information. It defines a specific definition of attributes, a data record format for storing and transmitting vascular biometric images and certain attributes, a sample record, and conformance criteria.

This part of ISO/IEC 19794 is intended for applications requiring the exchange of raw or processed vascular biometric images. It is intended for applications not limited by the amount of storage required. It is a compromise or a trade-off between the resources required for data storage or transmission and the potential for improved data quality/accuracy. Basically, it is to enable various algorithms to identify or verify the vascular biometric image data transferred from other image sources. Currently available vascular biometric technologies that may utilize this part of ISO/IEC 19794 for image exchange are technologies that use the back of the hand, palm and finger.

The use of captured source images can provide interoperability among and between vendors relying on various different recognition or verification algorithms. Accordingly, data from the captured vascular biometric image offers the developer more freedom in choosing or combining matching algorithm technology.

# Information technology — Biometric data interchange formats —

## Part 9: Vascular image data

### 1 Scope

This part of ISO/IEC 19794 specifies an image interchange format for biometric person identification or verification technologies that utilize human vascular biometric images and may be used for the exchange and comparison of vascular image data. It specifies a data record interchange format for storing, recording, and transmitting vascular biometric information from one or more areas of the human body. It defines the contents, format and units of measurement for the image exchange. The format consists of mandatory and optional items, including scanning parameters, compressed or uncompressed image specifications and vendor-specific information. Information compiled and formatted in accordance with this part of ISO/IEC 19794 can be recorded on machine-readable media or may be transmitted by data communication facilities.

Vascular biometric image data that comply with this part of ISO/IEC 19794 are intended to be embedded in a CBEFF-compliant structure in the CBEFF Biometric Data Block (BDB) as specified in ISO/IEC 19785-1.

### 2 Conformance

Applications claiming conformance with this part of ISO/IEC 19794 shall be capable of encoding and decoding vascular biometric image data and the associated parameter data used in the transmitting and/or receiving of vascular biometric images as defined by this part of ISO/IEC 19794. Minimum conformance shall require the ability to transmit (exchange) and extract interoperable vascular biometric information

Since the size of the human body areas used by vascular biometric technologies varies dramatically among the different technologies, the recommended image quality criteria described in this part of ISO/IEC 19794 should be associated with specific technologies. Therefore, it would be unreasonable to specify the minimum requirement of the spatial resolution of an image in a single standard format. Accordingly, the minimum requirement of the spatial resolution is not defined in this part of ISO/IEC 19794.

### 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, *Information technology — Biometric data interchange formats — Part 1: Framework*

ISO/IEC 19785-1, *Information technology — Common Biometric Exchange Formats Framework — Part 1: Data element specification*

ISO/IEC 10918 (all parts), *Information technology — Digital compression and coding of continuous-tone still images*

ISO/IEC 15444 (all parts), *Information technology — JPEG 2000 image coding system*

ISO/IEC 14495 (all parts), *Information technology — Lossless and near-lossless compression of continuous-tone still images*