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Biometrics interoperability profiles — Best practices for slap tenprint captures

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Biometrics interoperability profiles — Best practices for slap tenprint captures

Profils biométriques interopérables — Recommandations pour les captures de 10 doigts à plat

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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The committee responsible for this document is ISO/JTC 1, *Information technology*, Subcommittee SC 37, *Biometrics*.

It has been adopted from the European Technical Specification, CEN/TS 16428:2012, *Biometrics Interoperability profiles — Best Practices for slap tenprint captures*.

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Biometrics interoperability profiles — Best practices for slap tenprint captures

1 Scope

The main goal of this Technical Specification is to give guidelines to follow during the acquisition process of slap tenprints in order to obtain fingerprints with the best quality possible within acceptable time constraints.

Non-cooperative users are out of the scope of this Technical Specification.

When using ten-fingerprint sensors, it is fundamental to know how to use them and how to proceed during the acquisition. This Technical Specification describes how to capture fingerprints correctly by specifying best practices for slap tenprint captures.

It gives guidance on the following topics:

1) recommendations on the hardware of the fingerprint sensor and its deployment;

2) recommendations on user guidance;

3) recommendations on the enrolment process including a sample workflow;

4) recommendations for developers and system integrators on application software;

5) recommendations on processing, compression and coding of the acquired fingerprint images;

6) recommendations on operational issues and data logging;

7) recommendations on the evaluation of a solution and its components.

Although this Technical Specification primarily focuses on reaching optimal data quality for enrolment purposes, the recommendations given here are applicable for other purposes. All processes which rely on good quality tenprint slaps can take advantage of the best practices reported here.

2 Sensor hardware requirement

Image quality should comply with the quality specifications from ISO/IEC 19794-4 [1]. EBTS V 8.002:2008 [6], Annex F, corresponds to ISO/IEC 19794-4:2011, B.1, and BSI TR-03121 [5] corresponds to ISO/IEC 19794-4:2011, B.3.

NOTE 1 This Technical Specification considers optical sensors based on the principle of total internal reflection. However, this does not mean that other technologies cannot be used for tenprint enrolment purposes. As soon as sufficient experiences are available and recommendations can be given on emerging technologies, they will be included in a future version of this document.

The sensor device should provide methods for re-calibration in the field by qualified service staff if the device technically supports it.

It is recommended that the compliance of a sensor device to the applicable quality standard can be verified at any time in the operational environment.

NOTE 2 The need for calibration or re-calibration depends on the sensor technology and calibration might not be necessary for all devices.

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3 Acquisition software

3.1 Acquisition process

For the acquisition process, the highest quality images should be used. The acquisition of these images should be done automatically. The sequence of images having the highest quality should be used; if a timeout has occurred then these may be below the desired quality levels.

An example for an acquisition process design can be found in Annex A and Annex B, an example for a quality metric can be found in Annex C.

3.2 User feedback

The presence of a user interface is strongly advised to give feedback to the user.

Feedback can be given, for example, by

— a screen attached in close neighbourhood to the sensor,

— illuminated pictograms on the sensor,

— LEDs assigned to pictograms directly on the sensor.

The following information should be given to the user:

— assistance to finger positioning with images and/or video on the screen and/or audio instructions (for instance to instruct the user to move its fingers to the left/right/top/bottom);

— visual and/or audio notification when a successful acquisition has been completed;

— a quality indicator for each acquisition, which indicator should be simple [e.g. a two-state logic (not good/good) or similar];

— if possible, the reason for a bad quality acquisition (e.g. wrong positioning of the hand).

Additional information (e.g. a poster or a video) can be used to illustrate to users how to use the system. This information can be displayed close to the sensor and additionally in the waiting zone.

Operators should be trained to give guidance to the users.

3.3 Acquisition check

The software linked to the sensor should take account of the following during the acquisition process in order to perform a better acquisition.

— Any feedback provided by the sensor software (background correction, quality evaluation, end of acquisition, etc.).

— A timeout for capturing the best available image in case the specified quality threshold is not reached.

— The inability of the subject to provide a full set of fingerprints. Acceptable images for certain fingers may not have been captured, which could be due to

  — missing fingers,

  — inability for the subject to interact with the sensor correctly,

  — temporary or permanent issues with the subject's fingerprints.

— The image quality of the captured images. This is to enable the system to finish the acquisition process after the preset quality level or a timeout has been reached.

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