

Public procurement "Purchase of enrolment software"

Reference number: 297559

Annex 2: Technical specification description

Glossary

capture or enrolment – acquisition of finger- and/or palmprints and/or facial images

registration – acquisition of all relevant biometric and non-biometric data of a person without interruption

enrolment data – biometric and non-biometric data of a person per one registration

biometric data – finger- and/or palmprints and/or facial images of a person

non-biometric data – other alphanumeric data related to enrolment (e.g., personal data)

booking station – a device or a set of devices for liveness capture of finger- and/or palmprints and/or facial images, together with the corresponding computer

capture type – method for biometric data acquisition (i.e., capture is done in real-time using liveness devices or previously captured data is being enrolled)

capture hardware – devices used for both, liveness and flatbed capture (e.g., fingerprint scanner, flatbed scanner, photo camera, computer).

liveness capture – biometric data acquisition directly from a person at a booking station

flatbed capture – entry of previously acquired biometric data from a person through flatbed scanning or file import

SMT – scars, marks and tattoos

capture workflow – enrolment process from start to finish (i.e., capturing of biometric data together with non-biometric data)

user – person, who uses the software for enrolment

superuser – a user with complete access to the software and its configuration

administrator – technician who maintains the software

1. General requirements

No.	Requirement	Compliance with the requirement YES / NO (filled by the tenderer)	Description or reference to technical document (name and page number) (filled by the tenderer)
Software			
1.1	The software offered must enable the capture of biometric data from persons, but not the capture of latent prints and latent images related to the crime scene.		
1.2	The software offered must enable the capture of the following biometric data: (1) finger- and palmprints (2) facial images.		

1.3	<p>The software offered must enable the following capture types for all biometric data:</p> <p>(1) Livescan capture - biometric data acquisition directly from a person at a booking station.</p> <p>(2) Flatbed capture - entry of previously acquired biometric data from a person through</p> <p>(2.1) scanning of a fingerprint card or a photo</p> <p>(2.2) file import.</p>		
1.4	The software offered must be compatible with the hardware for biometric capture currently used by the Contracting Authority.		
1.5	The software offered must be applicable on operating system Windows 10 and Windows 11, and all their successors released during the term of the contract.		
1.6	The software offered must be browser-based, i.e., it must not be desktop-based.		
1.7	The software offered must be compatible with a Chromium-based browser (Edge, Chrome, version 44 or later).		
1.8	The software offered must not require installation of any software on the computer used for biometric capture other than that required for direct interaction with the capture hardware and server (middleware, drivers).		
1.9	The software offered must be able to be used by multiple users simultaneously.		
1.10	<p>The software offered must enable to define at least three different user roles:</p> <p>(1) user</p> <p>(2) superuser</p> <p>(3) administrator.</p>		
1.11	The enrolment software must enable user authentication using the OpenID Connect (OIDC) standard.		
1.12	The software offered must support integration with National Forensic Biometrics Database (RSBR) software that is under development.		
1.13	The Tenderer must carry out work to ensure the compatibility of the enrolment data with the ABIS central system used by the Contracting Authority in such a way that the captured biometric data could be		

	transmitted to the ABIS central system via RSBR.		
1.14	It must be possible to install drivers and middleware updates and security fixes of the software offered centrally at the booking stations using a push method.		
1.15	The software offered must be protected against attacks in accordance with OWASP best practice (https://owasp.org/ including: https://owasp.org/www-community/OWASP_Risk_Rating_Methodology ; OWASP ASVS https://owasp.org/www-project-application-security-verification-standard/).		

2. Requirements for enrolment software

No.	Requirement	Compliance with the requirement YES / NO (filled by the tenderer)	Description or reference to technical document (name and page number) (filled by the tenderer)
Integration with National Forensic Biometrics Database (RSBR) software			
2.1	The user interface of the software offered must open after receiving respective command from RSBR software and it must be capable of accepting the parameters sent when opening.		
2.2	The software offered must generate a unique code to each registration, which is human-readable.		
2.3	The software offered must transmit the enrolment data to RSBR after the end of the capture workflow.		
2.4	The software offered must be able to return the booking station ID to RSBR.		
2.5	The software offered must enable secure transmission of enrolment data via an encrypted channel. The Tenderer shall provide a description of the encrypted channel or a solution.		
2.6	The Tenderer must provide a solution or description of the transmission channel (e.g., HTTP, SOAP, SMTP, FTP, etc.).		
2.7	After the capture workflow has been completed, the software offered must redirect the user back to RSBR software,		

	from where the capture workflow was started.		
2.8	The software offered must allow to cancel the capture workflow at any stage and redirect the user back to RSBR software from where the capture workflow was started.		
2.9	The software offered must automatically delete all enrolment data after the capture workflow has been completed (i.e., when enrolment data have been transmitted to RSBR and permission for deletion from RSBR has been received).		
2.10	The software offered must automatically delete all enrolment data after the capture workflow has been cancelled by the user.		
2.11	In the absence of any user activity, the software offered must disconnect at a time set by the administrator, close the screen view of the software offered and return to the login screen of RSBR. The expiry of a session must not prevent the start of the next session (incl. by another user).		
Compatibility with hardware used for capturing biometric data			
2.12	The software offered must be compatible with the following hardware for biometric data capture: (1) Idemia TP 5300 finger- and palmprint scanner (2) Canon EOS 2000D photo camera (3) Epson Perfection V850 Pro flatbed scanner.		
2.13	The Tenderer must provide a full list of devices used for biometric data capture by type (i.e., finger- and palmprint scanners, photo cameras and flatbed scanners), manufacturer and model that are currently supported by the software offered.		
2.14	The software offered must be applicable to be used with scanners and photo cameras in the future through a separately paid development project.		
2.15	The software offered must enable to use the photo camera in both, portrait and landscape position.		
2.16	The software offered must enable to use the photo camera with both, studio lights and LED-lights.		
General requirements for biometric data capture			

2.17	<p>The software offered must enable to capture the following finger- and palmprints:</p> <p>(1) 10 flat fingerprints (2*4 fingers + 2 thumbs)</p> <p>(2) 10 rolled fingerprints</p> <p>(3) 4 palmprints (i.e., 2 palms and 2 writer's palms).</p>		
2.18	<p>The software offered must also enable to capture upper palms from both hands.</p> <p>The software offered must be configurable in such a way that the administrator can switch this functionality on and off for the users.</p>		
2.19	<p>The software offered must enable to capture five facial images in the following views and order:</p> <p>(1) frontal view (0°) - mandatory</p> <p>(2) right side view (90°) - optional, the user may skip it</p> <p>(3) right half-side view (45°) - optional, the user may skip it</p> <p>(4) left side view (90°) - optional, the user may skip it</p> <p>(5) left half-side view (45°) - optional, the user may skip it.</p>		
2.20	<p>When finger-, palmprints and facial images are captured, the capture order in the software offered is as follows:</p> <p>(1) fingerprints</p> <p>(2) palmprints</p> <p>(3) facial images.</p>		
2.21	<p>The software offered must enable to capture finger- and palmprints with a resolution of at least 500ppi to 1000ppi (default value).</p>		
2.22	<p>The software offered must enable to capture facial images that are of at least 1536 pixels in width and 2024 pixels in height.</p>		
2.23	<p>The user interface of the software offered must display on screen:</p> <p>(1) instructions and order for capturing biometric data (i.e., finger-, palmprints and facial images), etc.</p> <p>(2) notifications about incorrect finger- and/or palmprints capture and there is a need to recapture.</p> <p>(3) notification about incorrect facial image placement, wrong facial view is</p>		

	<p>captured, lighting is insufficient, eyes are closed, mouth open etc. and there is a need to recapture</p> <p>(4) quality control result using a traffic light (green, yellow, red) system for visualisation</p> <p>(5) summary of the capture.</p>		
2.24	<p>The software offered must enable to mark the following exemptions:</p> <p>(1) amputated fingers (preferably by segments) and palms (if marked, then the same exemption applies automatically to all fingers of that hand)</p> <p>(2) unable to print fingers and palms, i.e., plastered and/or bandaged fingers and palms</p> <p>(3) partial prints, i.e., injured fingers and palms (incl. missing ridge details and/or strongly scarred and/or deformed).</p>		
2.25	<p>The software offered must enable to write comments by the user during the capture of finger-, palmprints and facial images. A single, continuous comment field must be available for editing during the entire capture workflow.</p>		
2.26	<p>The software offered must transmit the biometric data in the following file formats:</p> <p>(1) finger- and palmprints in</p> <p>(1.1) WSQ format if resolution is 500ppi</p> <p>(1.2) JPEG2000 format if resolution is higher than 500ppi</p> <p>(2) facial images in lossless PNG format.</p>		
2.27	<p>During the term of the Contract, the Tenderer obliges to carry out data format conversion work in case the ABIS central system used by the Contracting Authority is replaced during this period.</p>		
2.28	<p>The software offered must transmit to RSBR in addition to biometric data the following information:</p> <p>(1) amputated fingers and palms</p> <p>(2) unable to print fingers and palms</p> <p>(3) partial prints</p> <p>(4) comments written by the user during the capture workflow.</p>		
Livescan capture specific requirements			
2.29	<p>Based on the command received from RSBR software, the software offered must enable to capture in a single workflow:</p>		

	(1) finger-, palmprints and facial images (2) only finger- and palmprints (3) only facial images		
2.30	<p>The software offered must enable to capture finger- and palmprints in the following order:</p> (1) right hand slaps (4 at once) (2) left hand slaps (4 at once) (3) thumb slaps of both hands (2 at once or one by one) (4) right hand rolled prints starting with the thumb and ending with the little finger (one by one, total of 5) (5) left hand rolled prints starting with the thumb and ending with the little finger (one by one, total of 5) (6) right hand palmprint (*) right hand upper palmprint (7) right hand writer's palmprint (8) left hand palmprint (*) left hand upper palmprint (9) left hand writer's palmprint * The software offered must be configurable in such a way that the administrator can switch this functionality on and off for the users.		
2.31	The default values of finger- and palmprint resolution and facial image size of the software offered must be configurable by the administrator.		
2.32	<p>The software offered must automatically check the sequence order of fingerprint capture (i.e., flats vs rolled prints) to avoid capturing prints on wrong positions or mixing up left and right hand.</p> <p>In case of a problem, the software must display an appropriate error message on the screen.</p>		
2.33	<p>The software offered must automatically check during capture the correctness of facial image views to avoid position errors (i.e., frontal view is frontal view and right side view is right side view etc.).</p> <p>In case of a problem, the software must display an appropriate error message on the screen.</p>		
2.34	The software offered must perform the quality control check against NIST Fingerprint Image Quality (NFIQ 2) standard for fingerprints.		

	In case of a problem, the software must display an appropriate error message on the screen.		
2.35	The software offered must be configurable by the administrator in such a way that without achieving the necessary capture quality, at least three consecutive attempts must be made before the poor-quality result can be accepted and capture workflow continued.		
2.36	The software offered must enable to mark and change exemptions for finger- and palmprints during the entire capture workflow.		
2.37	The software offered must enable to automatically skip the capture of previously marked exemptions for finger- and palmprints: (1) amputated fingers and palms (2) unable to print fingers and palms.		
2.38	The software offered must display the capture area on screen for finger-, palmprint and facial image capture. The software must be able to detect when the finger, palm and/or face to be captured is not within the designated area display an appropriate error message on the screen.		
2.39	When capturing facial images, the software offered must mark the height of the camera in the live preview with a position indicator (e.g., a line, oval, etc.). The aim of the indicator is to aid in adjusting the camera to the eye level.		
2.40	The software offered must apply an automatic cropping function to all facial image views, ensuring that the face in the image remains centrally positioned. The original aspect ratio of the image must be preserved during cropping to avoid any distortion of the face. The image size (i.e., height x width in pixels) must be configurable by the administrator (see requirement 2.22).		
2.41	The software offered must be configurable in such a way that the administrator can change the size of the automatically cropped facial image (image height x width in pixels) if necessary.		

2.42	The software offered must enable to capture facial images only manually by clicking a respective button.		
2.43	The software offered must enable the captured image to remain on the screen until a respective button to capture has been clicked on for next finger-, palmprint and facial image capture.		
2.44	The software offered must enable multiple attempts to be made while capturing of finger-, palmprints and facial images, and choose the best attempt. All attempts performed must remain on the screen and disappear from the screen after the choice has been made. Prints/images that are not chosen must be deleted automatically. Chosen prints/images must be deleted automatically after the capture has been completed (i.e., when enrolment data have been transmitted to RSBR and permission for deletion has been received from RSBR).		
2.45	The software offered must display a summary of captured finger-, palmprints and facial images with respective quality scores after the capture, and if necessary, enable to recapture before returning to RSBR.		
Flatbed capture specific requirements			
2.46	Based on the command received from RSBR software, the software offered must enable for both, scanning and file import to enroll in a single workflow: (1) finger-, palmprints and facial images (2) only finger- and palmprints (3) only facial images.		
2.47	The default resolution of fingerprint card scanning of the software offered must be configurable by the user.		
2.48	When importing the file, the software offered must enable to enroll finger-, palmprints and facial images with the resolution and size they were submitted.		
2.49	When importing the file, the software offered must enable to import finger- and palmprints, and facial images from a NIST container. The software offered must support NIST formats used by the European Union biometric systems (SIS, VIS, EES,		

	<p>ECRIS, EURODAC), Interpol and the FBI.</p> <p>The software offered must support the following file formats included in the NIST container: WSQ, JPG, JPEG2000, PNG, BMP, TIFF.</p>		
2.50	<p>When scanning a fingerprint card from paper, the software offered must enable to use a fingerprint card form valid in Estonia.</p> <p>Link to a valid fingerprint card: https://www.riigiteataja.ee/aktilisa/1031/0202/3016/VV_87m_lisa2.pdf#</p>		
2.51	<p>The software offered must allow the use of any fingerprint card format when scanning from paper.</p>		
2.52	<p>In case the enrolment workflow includes finger- and palmprints for both, scanning and file import (incl. NIST file import), the software offered must enable:</p> <ul style="list-style-type: none"> (1) correcting the orientation of the finger- and palmprint (i.e., rotate function) (2) correction of the size of the area surrounding the finger- and palmprint (4) marking of exemptions (e.g., amputated, unable to print, etc.) (5) the enrolment of both finger- and palmprints at the same time, as well as the enrolment of fingerprints or palmprints only. (6) displaying as summary of the fingerprint card. 		
2.53	<p>When importing the file of facial image, the software offered must enable to:</p> <ul style="list-style-type: none"> (1) crop the image (2) rotate the image. 		
Optional requirements for software (negotiable)			
2.54	<p>The user interface of the software offered should display on screen notifications about sequence errors of finger- and/or palmprints capture, if the same print is captured more than once, insufficient capture quality (e.g., finger or palm has shifted during capture, print is outside of capturing area, print is too light etc.).</p>		
2.55	<p>If the finger, palm and/or face being captured is not within the designated capture area, the software offered should display on screen instructions to help the user adjust the positioning.</p>		

2.56	For flatbed scanning, the contrast of scanned prints should be adjustable if necessary.		
2.57	The software offered should perform the quality control check against ICAO standard for facial images. In case of a problem, the software must display an appropriate error message on the screen.		
2.58	The capture functionality of the software offered should be expanded to whole-body and SMT capture with respective descriptions.		
2.59	The software offered should be configurable in such a way that the administrator can change the order in which facial (and full body) views are captured.		

3. Requirements for delivery, installation and training

No.	Requirement	Compliance with the requirement YES / NO <i>(filled by the tenderer)</i>	Description or reference to technical document (name and page number) <i>(filled by the tenderer)</i>
3.1	The delivery and installation of the software must take place within 4 months of the signing of the contract.		
3.2	The installation costs of the software, including the transport and accommodation of the installation technician, if necessary, must be included in the total amount of the tender.		
3.3	The Tenderer must carry out work that ensures compliance to all requirements described, including to ensure the compatibility of the enrolment data with the ABIS central system used by the Contracting Authority in such a way that the captured biometric data could be transmitted to the ABIS central system via RSBR.		
3.4	If necessary, the Tenderer must participate in the installation and configuration of the software offered.		
3.5	The software offered must have a user and administrator manual describing all the functionality of the software from the end-		

	user's point of view. The manual shall be either in Estonian or in English.		
3.6	The administrator's manual of the software offered must contain information on the configuration parameters and the possibilities to change them.		
3.7	The software offered must be easily configurable by the administrator through the modification of configuration files.		
3.8	The user interface of the software offered must include functionality that enables to display data fields for end users in Estonian.		
3.9	The software offered must support character sets in all languages. (negotiable)		
3.10	The Tenderer will carry out a user training either in Estonian or English. The training will be provided for two user groups: (1) administrators and superusers (2) superusers and users. For a total of 20 persons.		
3.11	The Tenderer will carry out a user training on-site at the Contracting Authority.		
3.12	The cost of both training, together with the associated costs of the trainer's transport and accommodation, must be included in the total amount of the tender.		