European Entry-Exit System

NIST International Face Performance Conference, 27\textsuperscript{th} October 2020
Agenda

1. eu-LISA
2. European Entry-Exit System (EES)
3. Interoperability and secure borders
4. Shared Biometric Matching Service (sBMS)
eu-LISA

- European Union Agency for the Operational Management of Large-Scale IT Systems in the Area of Freedom, Security and Justice

- Established in 2011, started operations on 01/12/2012
- Agency's mandate was reinforced with Regulation (EU) 2018/1726

- Headquarters: Tallinn (Estonia)
- Operations: Strasbourg (France)
- Backup site: Sankt-Johann im Pongau (Austria)
- Liaison office: Brussels (Belgium)

- 243 statutory staff, 10 seconded national experts
- At least 370 posts planned by 2022
Europe’s Schengen Area

- Schengen Agreement signed on 14 June 1985 by five of the ten member states of the then European Economic Community

- The Schengen Area includes 26 countries (22 are EU member states), with a population of ~420 million people

- Core part of EU law, and all EU member states which have not already joined the Schengen Area are legally obliged to do so when technical requirements have been met.
Europe’s Schengen Area – internal borders

• **Security checks**
  - can legally be carried out at ports and airports

• **Police checks** can be conducted if they:
  - are not involved in border control activities
  - are based on general police information and experience regarding possible threats to public security and aim, in particular, to combat cross-border crime
  - are executed in a manner clearly distinct from systematic checks on persons at the external borders
  - are carried out on the basis of spot-checks

Lifting internal, strengthening external border control!
eu-LISA – System portfolio

- **Visa Information System (VIS)**
  - ~80 M visa applications
  - ~70 M FP sets
  - All time high peak: 139 K operations/hour

- **Schengen Information System (SIS II)**
  - ~93 M alerts
  - >14K queries/day
  - ~ 2.5K hits/month
  - ~ 280 K FP sets

- **European Dactyloscopy Database (EURODAC)**
  - ~5.6 M asylum applications
  - ~145K irregular border crossings
  - ~5.6 M FP sets

- **Entry-Exit System (EES)**

- **European Criminal Records Information System (ECRIS-TCN)**

- **European Travel Information and Authorization System (ETIAS)**
European Entry-Exit system

To whom will it apply?

to non-EU nationals, visa-required and visa-exempt travellers in the Schengen area.

Who is using EES data?

The competent Member State authorities

Border guards
Consular officers dealing with visas

How will the system work?

EES will collect:

- Identity
- Travell documents

EES will record:

- Date and place of entry and exit
- 90 days in any 180 day period

EES will replace:

- Entry refusals
- Passport

Border crossing facilitation

for all non-EU nationals

Checks against security databases (SIS, Interpol SLTD)

European Entry-Exit System

Introduce biometric technology at all types of borders and register entry and exit electronically

Annual forecast of border crossings (*)

190 million in 2014
300 million in 2025

EES Regulation 2017/2226 entered into force on 29 December 2017

EES development and operational management entrusted to eu-LISA

Main purposes of EES

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Description</th>
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<tbody>
<tr>
<td>Enhance the efficiency of border checks</td>
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<td>Assist in the identification of third country nationals</td>
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<td>Allow for the identification and detection of overstayers</td>
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<td>Effective management of authorised short-stays</td>
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<td>Automation of border checks</td>
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<td>Information about authorized stay</td>
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<td>Support migration policy making</td>
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<td>Reinforce internal security</td>
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<td>Support increased load at the Schengen borders</td>
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Main actors of EES

• Border authorities
  • Consult the EES data in order to ensure that the traveller history is created and kept updated.

• Immigration authorities
  • Consult the EES data in order to verify the identity of the third-country national, or to check whether the conditions for entry and/or stay are fulfilled.

• Visa authorities
  • Consult the EES data from VIS in order to adopt decisions on visa application.

• Designated authorities (Law Enforcement)
  • Consult the EES data in order to prevent, detect and investigate terrorist offences or other serious criminal offences.
Entry & exit workflow at the border

Third-country national already registered

1. Scan MRZ
2. Search
3. Capture one biometric modality
4. Biometric verification
5. If match
   Interview, creation
   Entry, Exit, Refusal record
Entry & exit workflow at the border

1. Scan MRZ
2. Search
3. Capture both biometric modalities
4. Biometric Identification
5. Enrolment
6. Interview, creation Entry, Exit, Refusal record

Third country national not yet registered
Biometrics in EES

Data quality check

sBMS (EES + VIS)

Low quality EES data can be updated later!

EES

NIST

VIS

Result/Error/Warning

• Data capture
• Segmentation, sequence check, uniqueness check, biometric data quality check
• Creation of data container(s) (ANSI/NIST-ITL 1-2011: Update 2015)
• Validation of data container(s)
• Submission to EES

Facial Images
• Min 600x800 px (in portrait mode)
• Max 1200x1600 px
• Min 120 px between eyes
• ISO/IEC 19794-5:2011 Frontal image type

Fingerprints
• 4 fingers
• 500 or 1000 ppi
• 256 grey levels
Interoperability components’ go-live step-by-step; to be finalised by the end of 2023

- **European search portal** – a one-stop shop carrying out a simultaneous search of multiple EU information systems, in line with the users’ access rights.
- **Shared biometric matching service** – a tool cross-checking biometric data (fingerprints and facial images) and detecting links between information on the same person in different EU information systems.
- **Common identity repository** – a shared container of biographical and biometric information, such as name and date of birth, stored in relevant systems about non-EU citizens.
- **Multiple identity detector** – automatic alert system detecting multiple or fraudulent identities.

- Increases the effectiveness of **identity checks** and reduces the number of **multiple identities**
- Gives **faster access to data** in IT-systems
- Ensures that border guards and police officers have access to the right information **whenever and wherever they need it** to perform their duties
(1) Regulation (EU) 2019/817 - framework for interoperability between EU information systems in the field of borders and visa
(2) Regulation (EU) 2019/818 - framework for interoperability between EU information systems in the field of police and judicial cooperation, asylum and migration
Shared Biometric Matching Service

- FP processor
- FI processor

Entry-Exit System
- 4-print flat, live FI

Visa Information System
- 10-print flat, FI

Schengen Information System
- 10-print flat, 10-print rolled, latent prints (*), FI

EURODAC
- 10-print flat, 10-print rolled, FI

ECRIS-TCN
- 10-print flat, FI

> 700 million template records (*)
## Main challenges for sBMS

### Data quality
- FP and FI legacy data
- Variety of data capture devices and technics
- Timing issue for recapture
- Non-harmonized data quality, different thresholds per business domain
- Different failure to enrol rates (FTE)
- FI - no age limit in EES for children

### Response times
- Different SLA per business domain
- Different SLA per transaction

### Accuracy
- Different thresholds per business domain and/or use-case (FMR, FNMR, FPIR, FNIR)
- Measurement of overall sBMS accuracy
- Measurement of accuracy per business domain
- Measurement of accuracy per specific interoperability use case
- Potential bias across domains
- Accuracy testing (GDPR constraints)

### Availability
- 99.995% EES BMS (priority 1)
- Smooth data migration from the legacy systems

### Data containers
- Different NIST containers per system, conversions are needed
Thank you for your attention!