LDS2 – Concept and Overview: Exploring Possibilities in Travel Border Clearance

Overview

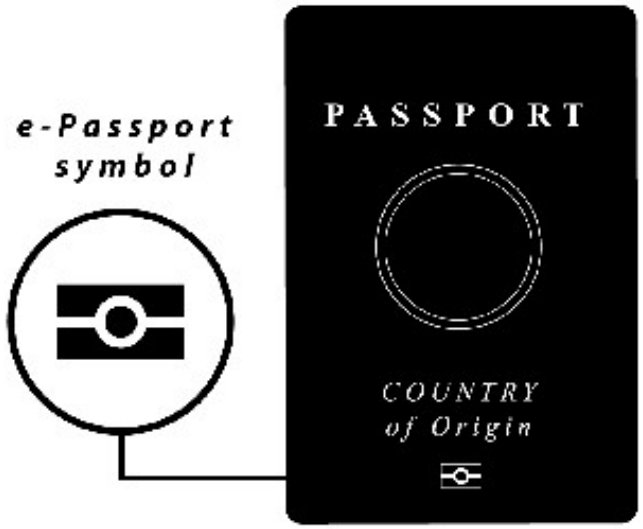
- Current generation of ePassports
- Benefits and Limits of an ePassport
- Overview of the next generation ePassport
  - Applications
  - Benefits
  - Uses in border clearance
- State of specifications development
- Future work

Background: What is an ePassport?

- A biometric passport (ePassport) contains an encrypted chip with the biographic (page 2) and biometric (photo) data of the holder.

- The addition of a chip to the ePassport enhances the security of the document (inspection and reading).

- The International Civil Aviation Organization (ICAO) sets and manages the framework for the issuance of ePassports (and other travel documents).



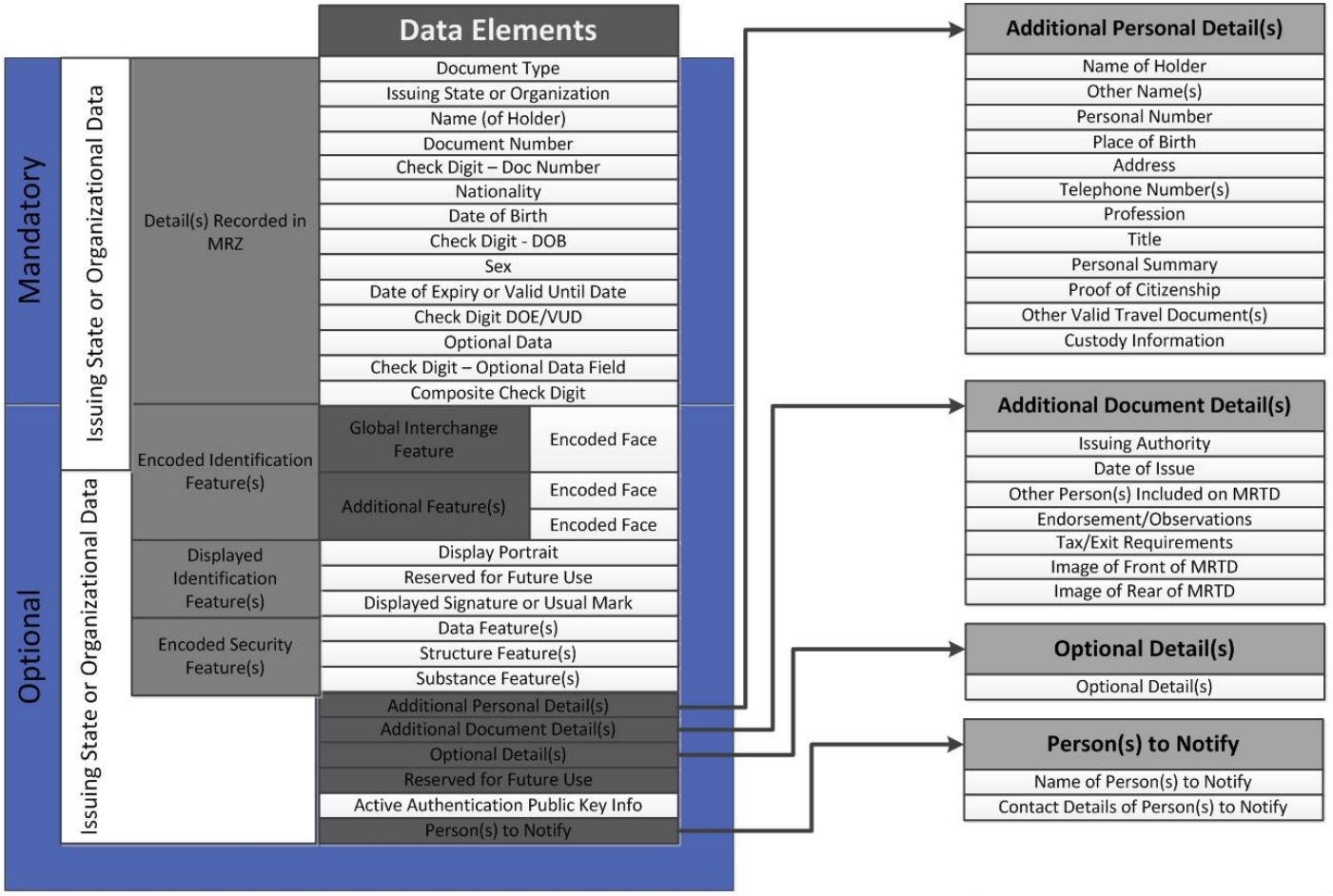
Logical Data Structure (LDS)

- ePassport data is stored in a specified order (logical data structure or LDS) to ensure for international interoperability.

- Information stored in the ePassport becomes static at the time of issuance, and cannot be modified in any possible way.
  - "Locking" the chip at the time of issuance is necessary to ensure that personal information is protected, and that document tampering may be more easily detected.

- Other travel data (visas, travel stamps, observations, etc...) are physically entered into the document's visa pages.

Background: ePassport data elements



Benefits of an ePassport

Security	Facilitation
• Enhanced security against tampering • Document authentication, via the ICAO Public Key Directory (PKD) • Common international security framework	• Automated clearance and processing • Facial Recognition • Less reliance on physical document inspection procedures

ePassports: The Gap

- Travel data (stamps, visas, observations) that is not digitally inserted into the ePassport continues to present vulnerabilities:
  - Variations in format, inks and information;
  - Requirement for manual inspection;
  - Transportation and issuance are subject to fraud; and
  - Risk managing traffic at border control.

- Recognizing this gap, ICAO's New Technologies Working Group (NTWG) has commissioned a sub-group to explore the policy and technical framework for the next generation of the ePassport.

The Elements, Uses and Advantages of an LDS2-Enabled Passport

What is LDS2?

- Logical Data Structure 2 (LDS2) is an **optional** and **backwards compatible** extension to the ePassport chip.

- LDS2 extends the use of the ePassport through the addition of applications that allow for the secure digital storage of travel data (visas and travel stamps), and other information that could facilitate the travel of the holder (additional biometrics), over its validity period.

- LDS2 further protects the document against counterfeiting, copying and unauthorized reading or writing.

LDS2 Applications

Electronic Travel Stamps

- Standardized content and format, and protection from tampering.

- The benefit of adding this travel data in digital format include: greater consistency; enhanced security; and ease of access and viewing.

Electronic Visas

- Application will allow for electronic visas to be added to the document almost instantaneously, bolstering client service and reducing the costs associated with designing, shipping, and storing visas/travel stamps.

- Adding the visa directly to the document also reduces the need to rely on databases containing this information, which could facilitate transit travel, support third party validation, and mitigate the impacts of network outages or connection errors.

LDS2 Applications (Continued)

Additional Biometrics

- The ability to add secondary biometrics (iris and fingerprint) post-issuance provides States with more choices in national policy regarding secondary biometric storage and trusted traveller programs.

- In instances where the photo of the holder can no longer be used, States could add an updated photo of the holder, which could result in fewer replacement passports being issued, less unnecessary delays at border control, and more dependability on facial recognition.

LDS2 ePassports and Border Control

- Extending the functions of the ePassport would create added opportunities to automate passenger and document processing at controlled points in travel.

- LDS2 ePassports will include the 'missing' information that is needed to systematically clear passengers using automated border clearance (ABC) technologies
  - Standard, reliable and protected travel data can be leveraged to perform an on-the-spot, systematic analysis of the risk that travellers present, and detect unusual travel patterns; disconnects between entry and exit stamps; and attempts to alter travel data.

- The possibility of being able to streamline various processes could improve the flow of passenger traffic, allow States to redirect attention to more high-value activities, and provide States with opportunities to make better use of investments in border clearance infrastructure.

State of International Specifications Development

- Working with the International Organization for Standardization (ISO) and State officials to design and develop technical specifications to support consistent global implementation.
  - Need to continue to align international policy with the technical specifications.
  - Work in collaboration with ISO Working Group 3 to design and develop an LDS2 technical demonstrator.

Future Work

1. **Outreach and managing expectations (Use Cases, Timing, Feasibility)**
   - Engaging passport issuing/border control authorities on the value (efficiency/security) of more e-travel data, how LDS2 could support other systems, and whether advancements to ePassports are premature.
   - Consulting industry on the feasibility, requirements, performance, and infrastructure needs to support an LDS2-enabled travel document.

2. **Assessing the value of the technology**
   - Evaluating the benefits, drawbacks and opportunities of the technology based on an analysis of the LDS2 technical demonstrator

3. **Adapting technical specifications to align with policy directions**
   - Continued work to ensure that the technical specifications reflect any key policy changes

Questions? Comments?

The LDS2 Policy Sub-Group is interested in broadening its representation and perspectives. If you are interested in participating in the sub-group, or would like to offer your views, please contact us

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Thank You!