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Using PKD for Validation at the Border – Canada’s Experience

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Agenda

1. ePassports in Canada - Overview
2. ePassports in Canada – Governance
3. Canada’s Next Generation Automated Border Controls (“ABCs”)
4. Canada’s PIKs – First Year
5. Canada’s Lessons Learned
6. Helpful Resources



1. ePassports in Canada - Overview

- 2009: pilot (diplomatic/special passports) launched, including sharing certificates through the ICAO Public Key Directory (PKD)
- 2013: following successful pilot, full ePassport issuance began
- Factors in Canada's decision to opt for full ePassport issuance:
 - digitized version of photo
 - digital signatures/PKD validation
 - growing global consensus: in 2013, 62 countries were already issuing ePassports
- Bottom line: ePassport issuance seen to be a demonstration of Canada's commitment to both:
 - the safety of Canadians, and
 - international security.



2. ePassports in Canada - Governance

- **Immigration, Refugees and Citizenship Canada (IRCC)**
 - Role: Canada's authoritative issuer of travel documents for eligible Canadians. Includes the whole range of activities from procurement to issuance to control
 - IRCC houses Canada's national *Public Key Infrastructure* (PKI), which is where:
 - Canadian ePassports are digitally signed; and
 - ePassport certificates from other countries are managed (facilitated by ICAO PKD membership)
- **Canada Border Service Agency (CBSA)**
 - Role – responsible for enabling efficient processing of people/goods at Canada's borders; leads on implementation of Canada's border control systems (including Automated Border Controls – "ABCs")
- **Canada's Airport Authorities**
 - Role: Canada's airports collaborated with IRCC/CBSA to deliver both space and infrastructure needed to support ABC roll out in Canada's arrivals halls



3. Canada's Next Generation Automated Border Controls (“ABCs”)

- 2017: latest generation ABCs (Primary Inspection Kiosks, or “PIKs”) implemented; now operational in arrivals hall of **8 Canadian airports**
- “PIKs” perform the **full range of ID validations**, including:
 - PKI/PKD validation;
 - 1 to 1 person matching via facial recognition
 - Check against lost/stolen documents
- As of May 2018 – **15 million travellers** processed in Canada
- ***collaboration between issuer and border control** – IRCC a full participant in CBSA’s 2014 strategic process that laid the foundation for PIKs
- Following this first year, CBSA **already working** on tweaks to these latest gen. ABCs, with full IRCC support





4. Canada's PIKs – First Year

- **Canada's implementation of advanced ABCs (PIKs) represents a significant shift in business processes for border services officers**
 - the PIKs represent a change in what border services officers do, away from traditional manual document inspections *towards* a more risk-based approach, anchored in the trustworthiness of ePassport issuance processes (PKD!)
 - CHALLENGE: ensuring border services officers are aware of the verifications that are now automated by PIKs, and how these verifications fit in to their own broader business processes
- **“Pass” and “Fail” output may not be sufficient**
 - In Canada, PIK output still requires refinement in order to better enable action by border services
 - CHALLENGE: finding right level of detail for PIK output to enable quick yet confident decisions by border services officers; accordingly tweaking PIK programming



5. Canada's Lessons Learned

- **Early and ongoing** collaboration between issuing and border authorities is critical
 - Feedback loop is critical. Following PIK first year of implementation, Canada is just now formally establishing that loop
 - Issuance is not enough! To leverage full benefits, issuance/border control are two sides of the same coin. Without alignment, investment in ePassport issuance is largely lost
- Don't take **knowledge of ePassport technology** for granted
 - ePassport technology (PKI/PKD in particular) is **complicated** and may **not be immediately understood** by those outside of the issuance or IT worlds
 - take advantage of opportunities to pass along this knowledge - ICAO has lots of publicly-available resources and guides



6. Helpful Resources

- **ICAO – ePassport – Doc 9303**
 - <https://www.icao.int/publications/pages/publication.aspx?docnum=9303>
 - for ePassport, the following parts are relevant:
 - Part 9 - Biometrics
 - Part 10 - LDS
 - Part 11 – Security Mechanisms
 - Part 12 – Public Key Infrastructure
- **ICAO – ePassport Validation and Public Key Directory (PKD)**
 - <https://www.icao.int/Security/FAL/PKD/Pages/default.aspx>
 - in particular...see “**Publications**” on left-hand menu for PKD primers, technical and other documents
- **ICAO TRIP and Border Control Management**
 - [https://www.icao.int/Security/FAL/TRIP/Documents/ICAO TRIP Guide BCM-Version-2018.pdf](https://www.icao.int/Security/FAL/TRIP/Documents/ICAO%20TRIP%20Guide%20BCM-Version-2018.pdf)
- **Canada’s Primary Inspection Kiosks (“PIKs”)**
 - <https://www.cbsa-asfc.gc.ca/travel-voyage/pik-bip-eng.html#wb-cont>



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