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

Beth Newcombe

Passport Program Policy

Immigration, Refugees and Citizenship Canada

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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 – Two Years In
5. Canada’s Lessons Learned
6. Helpful Resources



1. ePassports in Canada - Overview

- 2009: pilot (diplomatic/special passports) launched, accompanied by 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.



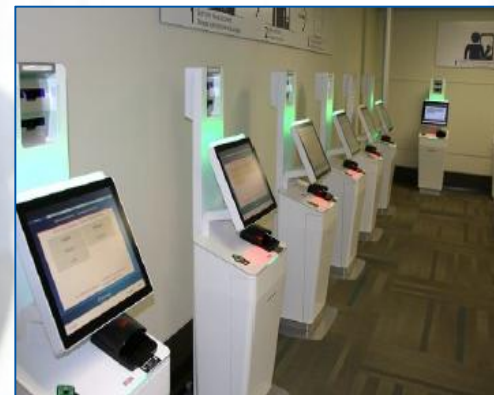
2. ePassports in Canada - Governance

- **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")

- **collaboration between issuer and border control** – IRCC a full participant in CBSA's 2014 Air Traveller Strategy, which laid the foundation for Primary Inspection Kiosks ("PIKs")
- 2019: PIKs began implementation; there are now **436 PIKs** in arrivals halls of **9 Canadian airports**
- PIKs perform the **full range of validations**, including:
 - Document validation: PKI/PKD validation
 - Document validation: check against lost/stolen
 - ID validation: 1 to 1 matching via facial recognition
- Following first two years of implementation, CBSA **already working** on tweaks to these latest generation ABCs, with full IRCC support





4. Canada's PIKs – Lessons thus Far

- **“Pass” and “Fail” output may not be sufficient**
 - Evidenced by a higher than expected referral rate to secondary inspection – PIK output appears too blunt to enable border officers to make confident decisions
 - CHALLENGE: finding right level of detail for PIK output to enable quick yet confident decisions by border services officers; accordingly tweaking PIK programming
- **Knowledge of ePassport technology (and related PIK processes) among border services officers could be stronger**
 - PIKs support processing but do not make decisions
 - travellers still need to present to an officer who makes the final decision re admissibility, based on PIK output in addition to other factors
 - CHALLENGE: good awareness of ePassport technology (in particular security features like PKD validation), the automated PIK process and how it fits into their broader border clearance processes will better support border officers in their final decision making



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
 - good basic understanding of ePassport technology among border authorities will assist in ensuring border systems provide the most actionable output possible for border service officers
 - 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
- **Canada’s Primary Inspection Kiosks (“PIKs”)**
 - <https://www.cbsa-asfc.gc.ca/travel-voyage/pik-bip-eng.html#wb-cont>
- **A Primer on the Public Key Directory**
 - http://www.securitydocumentworld.com/creo_files/upload/client_files/hjp_pkd_promotion-paper_v1_5_20090520.pdf
- **ICAO ePassport Border Validation Roadmap Tool**
 - <https://www.icao.int/Security/FAL/PKD/BVRT/Pages/default.aspx>



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