

**International Civil Aviation Organization  
TAG/TRIP New Technologies Working Group  
2016/2017 Request for Information**

**1 BACKGROUND**

The International Civil Aviation Organization (ICAO) Technical Advisory Group on Traveller Identification Programme (TAG/TRIP) is responsible for the development of specifications for travel documents with the goal of global interoperability. In addition, the TAG/TRIP seeks to advise ICAO on technology issues related to the issuance and use of machine-readable travel documents.

The TAG/TRIP, through its New Technologies Working Group (NTWG), issues an RFI every three years in order to keep abreast of new and improving technologies. Relevant information gathered during the RFI process is summarized and shared among the 191 ICAO Member States. ICAO also considers this information when international standards are developed.

**2 AREAS OF INTEREST**

Information regarding technologies that may be used in machine-readable passports, visas and card-based travel documents is sought for consideration. The technologies sought are to assist in the following areas:

- assessment of applicant eligibility
- document security and production
- linking documents to holders/bearers
- providing reliable authentication of genuine documents
- facilitating secure and reliable transit of travellers through airports, seaports and other international border control points.

Interested parties are invited to provide technical, application environment and pricing information for technologies in the following categories:

<b>Category</b>	<b>Requirement</b>
<b>1. Mobile / Virtual ID</b>	Smartphone-based and virtual identity systems with capability to establish, present, verify and validate identification through the use and exchange of non-privacy data, i.e. without disclosing any personally identifiable information during the process of establishing, presenting, verifying and validating identities.
<b>2. Image Manipulation</b>	Image manipulation detection systems that can be utilized

<b>Detection Systems</b>	to detect when an image (mainly photograph, but could be image of a fingerprint or iris), either digital or hard copy, original or digitized, has been altered, amended or tampered with, in order to prevent attacks such as morphing or beautification.
<b>3. Liveness Factor / Detection</b>	Liveness detection systems with the ability to integrate into online and mobile passport application systems and able to determine that the subject is the actual live person submitting the photograph or biometric image and not a model or photograph.
<b>4. Smartphone and online application processes (ex. Security Tolls and photos)</b>	Technologies that may mitigate risks associated with online service channel, such as strategies to prevent service denial attacks and blunt force attacks to overcome fraud controls built into the online system. Measures to provide assurances to the issuing authority as to the integrity and genuineness of individual online applications.
<b>5. Creative ways to send certificates to the PKD</b>	Creative ways to send, upload / download ePassport certifying credentials to the Public Key Directory.
<b>6. Photo Quality Assessment Systems</b>	Assessment systems that can be utilized to judge whether a facial photo, submitted by travel document applicants, for online and hard copy, is compliant with the photo specifications provided in Doc 9303 and appropriate ISO standard 19794-5.
<b>7. Physical Security Features</b>	Physical security features that protect travel documents from counterfeiting, photo-substitution, alteration of text of the data page, and replacement of IC inlays. Features that can make it easy to recognize visually and /or be authenticated at automatic border control by automated inspection systems are welcomed.
<b>8. Machine readable Security Features / Machine Authentication</b>	Systems and/or software that can optically and electronically read travel documents and be used for confirmation of their integrity and authenticity at passport application with kiosk systems or automatic border control. <ul style="list-style-type: none"> <li>• Design rules and examples for documents suited for machine authentication</li> <li>• Reader systems</li> </ul>

	<ul style="list-style-type: none"> <li>• Authentication software and reference databases</li> </ul>
<b>9. Leveraging ePassports</b>	Use of the passport beyond purely as a travel document. Uses such as an identification document, whose validity can be verified through the use of the PKI process.
<b>10. Storage media and contactless chips</b>	The NTWG is interested in new technology or improvements in storage media and contactless chips.
<b>11. LDS2 and Mobile Technology</b>	Applications to store and/or securely operate Logical Data Structure 2 (LDS2) using mobile phone technology. Applications that allow mobile phones to securely communicate with integrated circuit chip inspection systems, send and receive information stored in LDS2 to inspection systems and/or display data stored in LDS2 using a phone as a medium.
<b>12. Multimodal Biometrics (3<sup>rd</sup> biometric – what is available and status) / Multi-Biometrics capture (i.e. face and iris at the same time)</b>	Latest developments in biometric capture systems, specifically cost effective systems that would allow for the capture of high quality facial and iris biometrics in a single pass.
<b>13. Facial Recognition Algorithms</b>	Algorithms that can be used to verify facial images at travel document application or border control
<b>14. Remote verification of ePassports using devices and remote connections to PKD</b>	Already NFC enabled smartphones are being used to read data on passport chips. This has potential to enable remote verification of passports. This could be strengthened by enabling such devices to also undertake PKI authentication of passport chips.
<b>15. Biographic Search</b>	Information on the latest developments in database lookup algorithms that support the pre-issuance stage of MRTDs. These “biographic search” techniques may involve Name-matching, address equivalence and other test fields / descriptors including distance between texts.

### 3 CONSIDERATIONS

Interested parties must present their technologies in the context of ICAO Document 9303, which prescribes international format and on-board data storage standards for machine-readable passports, visas, and other official machine-readable travel documents. Interested parties must also be able to substantiate any claims related to performance of the technology proposed.

Proposals will be reviewed against a variety of qualitative and quantitative factors, depending on the category. Generally, this will include such aspects as cost, innovation, and compatibility with current and future document issuance and border resistor processes. Dependent technologies, reliability, accuracy and speed are also factors that may be considered by the selection panel.

Interested parties should also recognize that in the application of these technologies, the NTWG panel will give particular consideration to the ICAO goals of facilitation, security, and global interoperability.

#### **4 SUBMISSIONS**

Written responses to this RFI must be provided by 15 November 2016 to:

Louise Cole, RFI Co-ordinator

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Supporting information and descriptive literature may be provided as part of the response. However, a succinctly written three (3) page summary paper **must** be included in all responses. Submissions that do not include this summary paper **will not** be considered.

The international selection panel will be reviewing material through virtual/electronic means. All summary papers and additional information must be submitted in a format compatible with this approach. Submissions must be written in English.

The summary papers will be used to form a compilation of technology information, which can then be provided to ICAO Member States. The format, background material on the requirements, and instructions for completion of the summary paper can be downloaded at <http://www.icao.int/Security/FAL/TRIP/Pages/rfi.aspx>

Following the receipt of summary sheets, descriptive literature and information, vendors will be invited to make oral presentations to government members of the New Technologies Working Group, representatives of ICAO Contracting States. Oral presentations are planned for 18-21 April 2017 in Amsterdam, the Netherlands. The language of work is English.

Interested parties are advised that ICAO is under no obligation to designate any standard or take any further action with any party as a result of this Request for Information. Summary sheets supplied in response to this RFI will be made available to Member States. Accompanying information and descriptive literature may also be made available to Member States. With the exception of the summary sheets, any other information that is considered non-disclosable to all ICAO Member States should be identified as such. Non-disclosable information will be retained exclusively for the use of the government members of the ICAO New Technologies Working Group.

The current ICAO specifications for machine-readable travel documents (ICAO Document 9303, Parts 1 to 12) can be downloaded at: <http://www.icao.int/Security/FAL/TRIP/Pages/Publications.aspx>

This Request for Information is placed by the Department of Internal Affairs in New Zealand in furtherance of its participation in the TAG/TRIP also being a Member State of ICAO, a United Nations specialized agency. The New Zealand Government and its employees accept no responsibility for the actions or undertakings of ICAO, ICAO participants, or ICAO staff.