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FACILITATION PANEL (FALP)

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Agenda Item 2 : Work programme of the Panel

THE DIGITAL TRAVEL CREDENTIAL (DTC)

(Presented by the Secretariat)

SUMMARY

The growing number of electronic Machine Readable Travel Documents (eMRTDs) presents many opportunities across the travel continuum, including enhanced facilitation for travellers and improved security for border management. The digitization of the traveller's biographic and biometric data stored in the integrated circuit (IC or chip) of the eMRTD has generated many benefits. These include the possible verification of the passport bearer's identity through automated facial recognition and the provision of tools to digitally authenticate the travel document and its data. While these new processes have made significant contributions to the security and facilitation of civil aviation, the ePassport' s electronic security features and biometric data have yet to be fully leveraged.

This paper is intended to provide an update on the work undertaken on the Digital Travel Credential (DTC) and the benefits of using digital representations of the ePassport in travel. Envisioned is a digital credential that could be used in traveller facilitation and data exchange schemes, thereby greatly assisting the secure facilitation of travellers through controlled checkpoints.

Action by the FAL Panel:

The FAL Panel is invited to endorse the Standard 3.9 as proposed in paragraph 5.2.

References:	ICAO Annex 9 – *Facilitation* ICAO Doc 9303, *Machine Readable Travel Documents* ICAO Guiding Core Principles for the Development of Digital Travel Credential (DTC) ICAO Technical Report Digital Travel Credentials (DTC) Virtual Component Data Structure and PKI Mechanisms

1. INTRODUCTION

1.1 In recent years, industry and governments have been exploring ways to use digital traveller information more effectively and to facilitate people through the various airport checkpoints in a more seamless and customer-centric way. An increasing number of proprietary global passenger facilitation schemes have emerged that utilise digital identity credentials, carrying the inherent risk that solutions will not be globally interoperable – specifically in the traveller identification space.

1.2 In response to this fast-moving landscape, enhanced by the COVID-19 pandemic, and the need to move to more seamless and touchless environments, under the leadership of the International Civil Aviation Organization (ICAO), the New Technologies Working Group (NTWG) established a sub group to standardize the issuance of travel credentials in a digital format. A Digital Travel Credential (DTC) is intended to temporarily or permanently substitute a conventional passport with a digital representation of the traveller's identity. Of critical importance is that the DTC can be validated using the travel document issuing authority's public key infrastructure currently deployed for eMRTDs (ePassports).

2. THE DIGITAL TRAVEL CREDENTIAL

2.1 In the technical language of ISO/IEC 24760-1, the ePassport provides *identity information* (the stored data), and is used as a carrier of a *credential* (the signed data) to facilitate *authentication* of the holder using possession/anti-cloning features of the passport and biometrics.

2.2 There are four basic criteria needed for a digital travel credential to generate efficiencies for aviation industry and border management authorities. The credential must be:

- Produced by a Travel Document Issuing Authority.
- Capable of being provided unaltered to verifying entities in advance of the traveller's journey or arrival.
- Globally interoperable to ensure that it can be used in existing inspection systems and technologies deployed throughout the world.
- Adopted by travellers. This requires creation of trust in that the digital travel credential is as secure as an eMRTD.

2.3 The current security of the ePassport results from the ability to verify the authenticity of data; and the consistency of the physical and electronic information. This data is used to conduct biographic and biometric verification, e.g. the biographic data is used to query watchlists, exit/entry records, visa databases, etc., while the digital facial image from the ePassport chip can be verified against the passenger through a process of matching the primary biometric to the presenter of the ePassport. Comparison of digitized data stored on the chip to the printed information on the data page provides the binding with the secure physical document.

2.4 To ensure integrity and authenticity, the DTC can be validated to the same level of security as an ePassport. The DTC approach is based on a 'hybrid' concept, in which the DTC will consist of a Virtual Component (DTC-VC) containing the digital representation of the holder's identity and an (optional) Physical Component (DTC-PC) that is securely linked to the Virtual Component.

2.5 The DTC can be implemented in three types:

Type 1 - eMRTD bound DTC – consists of a DTC-VC only, with the eMRTD as a physical authenticator. Which means Data is extracted from the physical ePassport and stored in a digital container (Mobile, smart phone); holder must carry the physical travel document as back-up.

Type 2 – eMRTD - PC bound – consists of a DTC-VC and a DTC-PC in addition to the eMRTD: Data is extracted from the issuer database (or an existing ePassport) and digitally signed by the issuing authority; the DTC digital container (mobile) is the primary back-up, physical book is an alternate back-up.

Type 3 - PC bound – consists of a DTC-VC and a DTC-PC but NO eMRTD: The issuing authority would only issue the traveller with a DTC and no physical book.

3. BENEFITS OF THE DTC

3.1 One of the advantages of the DTC is that it builds on the technology available in the ePassport. It maintains a balance between security and facilitation. It was conceived with the core principle that a DTC will be as secure as the ePassport and that it should be authenticated similarly to the ePassport. The same public key infrastructure used for ePassports is used for the DTC, such that States can continue to utilize the same national infrastructure to verify DTCs. The ICAO Public Key Directory (PKD) continues to be an important distribution mechanism for the international sharing of public key certificates necessary for validation of DTCs

3.2 Introducing a DTC into the travel continuum can fundamentally reform how many processes are currently done. Passport presentation is required in many steps of travel from travel authorization application, through to border control. These interactions can take time, and can result in friction in the system. Passport-free travel does not imply completely passport-free processes. In fact, at the root of the DTC concept is enrolment based on the passport as the foundational identity document. The passport will surely continue to play a role going forward, albeit not having to be presented as frequently by the traveller during the journey as is currently the case.

3.3 Another important advantage of the DTC specification is that it provides several deployment options, without losing the benefits of interoperability. The DTC itself could be derived from an existing ePassport by the holder of that ePassport (Type 1). Or the issuing authority could create the DTC (Type 2) and has the option to store the virtual component on a remote system or securely on a smart device.

3.4 In a future where the DTC is fully leveraged across all processes, it is conceivable to imagine the DTC being validated and injected into the system to allow travellers to seamlessly move through touchpoints only using their face, where facial recognition and required chip validation technology has been deployed.

3.5 The DTC has the potential to generate benefits for governments and air industry. From a government perspective, the DTC could be used by both immigration and border authorities to strengthen identity validation in application/matching processes, collect and use verifiable data from the traveller in advance of their travel, and reduce the volume of in-person interactions with passengers at the border.

3.6 From an airport perspective, the DTC could be used to more seamlessly move passengers through the airport and reduce congestion at queueing points.

3.7 Airlines could benefit from the DTC in that it would allow them to improve on the quality of data collected from passengers, support seamless flows, and potentially redirect resources to higher value activities.

4. WAY FORWARD AND CONCLUSION

4.1 During TAG/TRIP/3 Pre-session, held by correspondence from 30 July to 30 September 2020, TAG/TRIP endorsed the DTC guiding principles and integrated a risk analysis for the DTC hybrid model and the Technical Report that specifies the virtual component of the DTC as defined in the Guiding Principles, as well as the associated public key infrastructure (PKI) mechanisms for the protection of the virtual component of the DTC.

4.2 The NTWG will continue to explore advancements to the DTC, including updates to the specifications and integration of other related travel document technologies. The specifications for the Physical Component of the DTC-Hybrid model are currently being drafted and are expected to be published by the end of 2021.

4.3 The ICAO PKD Board will continue to examine all necessary evolution of the PKD to support deployment of the DTC. The newly launched pilot project on commercial use of PKD data (document FALP/12-IP/7 refers) will examine how such use can support more seamless usage of the DTC across the full travel continuum and involving public and private sector actors at different touchpoints.

4.4 Given the profound impact that COVID-19 has had on the aviation sector, the global response has expedited work on digital initiatives and, in some ways, accelerated collaboration between airports, airlines, and governments. The DTC and the ways in which digital identities are established will enhance initiatives to create a health “passport” or certificate. These same responses to COVID-19 might also accelerate the standardization and digitization of visas or other travel authorizations.

4.5 The use of biometrics and digital identity management needs to be emphasized and we need to have a closer look at how digital identity will be incorporated into processes still in place today.

4.6 While recovery will take years, digital identity will be at the forefront of strengthening aviation security and facilitation. At the same time, it is important to note that the development of DTC and its use is dependent on the underlying eMRTD being conformant to Doc 9303, *Machine Readable Travel Documents*. Currently, the requirement for ePassports to be compliant to Doc 9303 is just a recommendation. This raises the possibility that eMRTDs may be issued not complying to Doc 9303. DTCs issued on the basis of such non-compliant documents would not be interoperable and would delay the evolution of Digital Identity and the deployment of the DTC.

5. ACTION BY THE FAL PANEL

5.1 The discussions at the TAG/TRIP/3 meeting that concluded on 7 July 2021, endorsed a revised proposal to elevate Recommended Practice 3.9 to a Standard. The proposed language is conditional in that it does not require States to issue electronic MRTDs. The standard requires adherence to ICAO Doc 9303 when issuing eMRTDs. The adherence to the specifications is a pre-requisite for achieving global interoperability of travel credentials, whether they are DTCs or eMRTDs.

5.2 The FALP is invited to approve the Proposed Standard:

3.9 **~~Recommended Practice.—~~** When a Contracting State~~s should incorporate biometric data in their machine readable travel documents in a contactless integrated circuit chip, as specified in~~ issues an electronically enabled Machine Readable Travel Document (eMRTD) they shall do so in accordance with the specifications of Doc 9303, Machine Readable Travel Documents.

~~*Note.— Doc 9303 does not support the incorporation of biometric data in visas.*~~

Note.— The specifications for electronically enabled MRTDs are found in ICAO Doc 9303, Parts 9, 10, 11 and 12.

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