



| ICAO

2026 ICAO **TRIP** SYMPOSIUM

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DTC Fundamentals

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DTC Concept

DTC Concept

The ICAO DTC is a secure and globally interoperable digital companion and/or substitution to a physical eMRTD, designed to support seamless travel.

The key feature is that DTC can be send before the travel and authorities can verify a digital representation of the passport data before the traveller's arrival and confirm the data's integrity and authenticity. This enables

- ✓ Enhanced screening capabilities
- ✓ More efficient border processes
- ✓ Faster and more convenient experiences for travellers.

DTC Concept

The use of the DTC is not limited to border checks. The greatest impact on streamlining travel is achieved when the DTC is utilized broadly across various operations especially at airports.

Hybrid model

➤ DTC Virtual Component (DTC-VC)

Digital representation of the passport's data
Cryptographically linked to the issuing authority



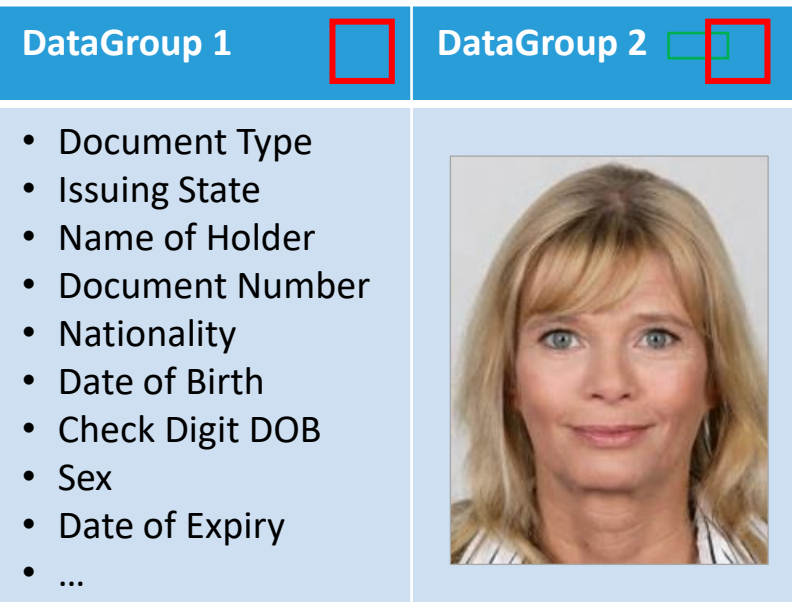
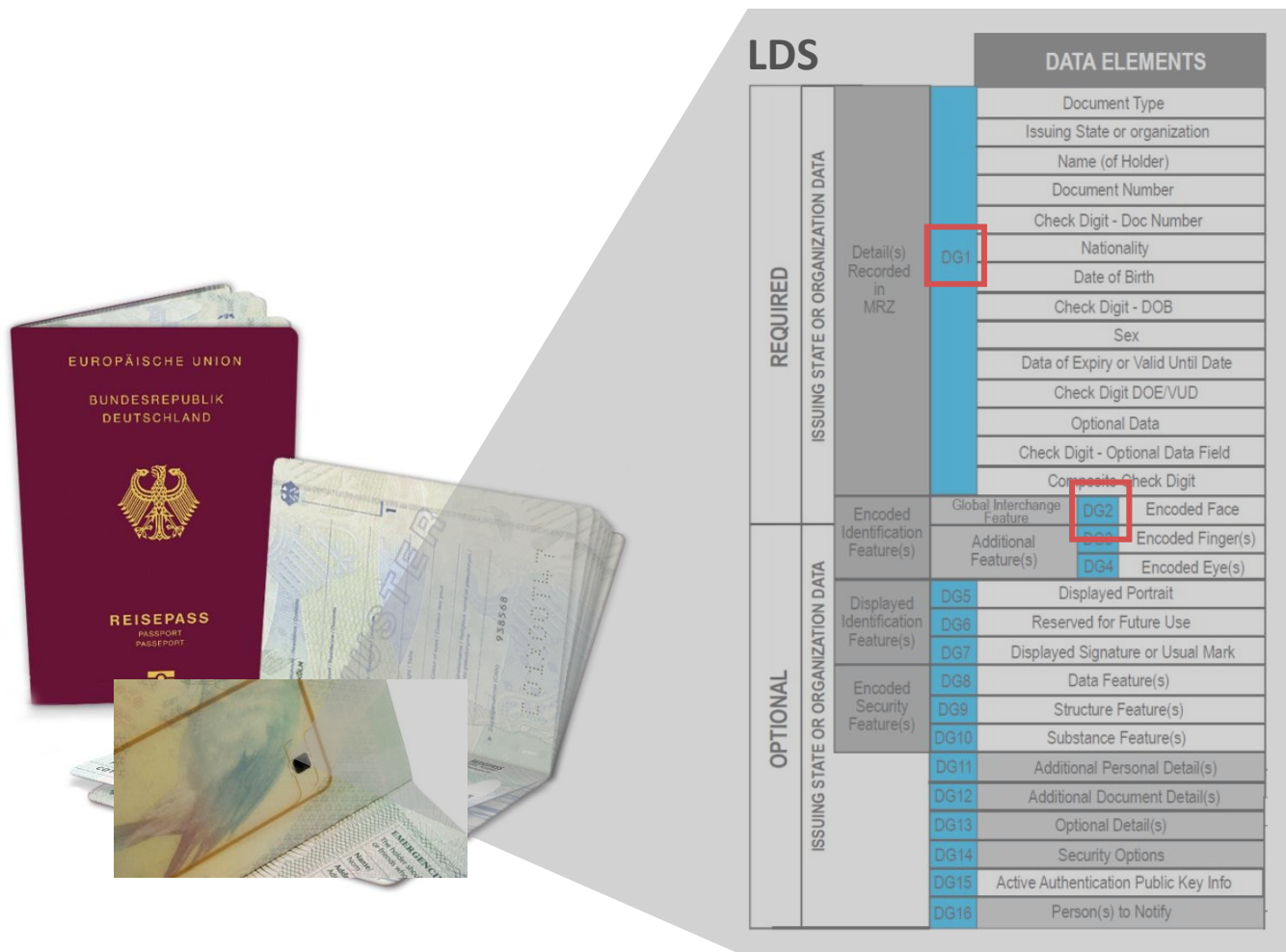
➤ DTC Physical Component (DTC-PC)

Physical authenticator

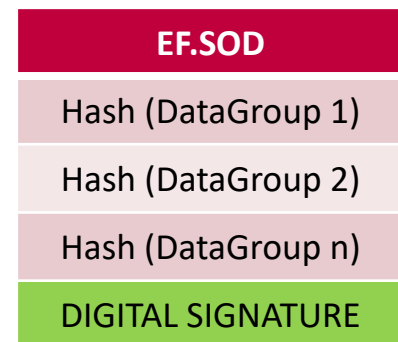
The DTC-VC is a data set that can be copied.
Using the DTC-PC, the passenger can prove they possess an authentic travel document.

Passport Chip and Logical Data Structure

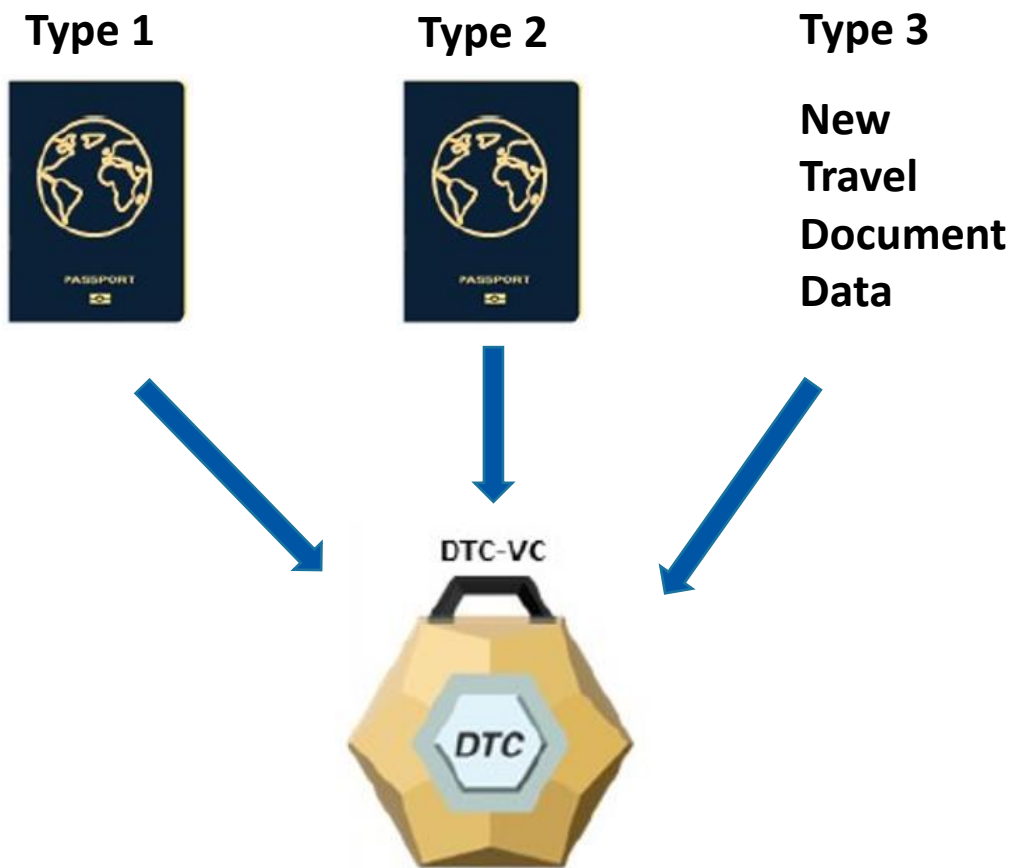
* The diagram below is based on Dr. Uwe Seidel's diagram
– Chair ICAO NTWG



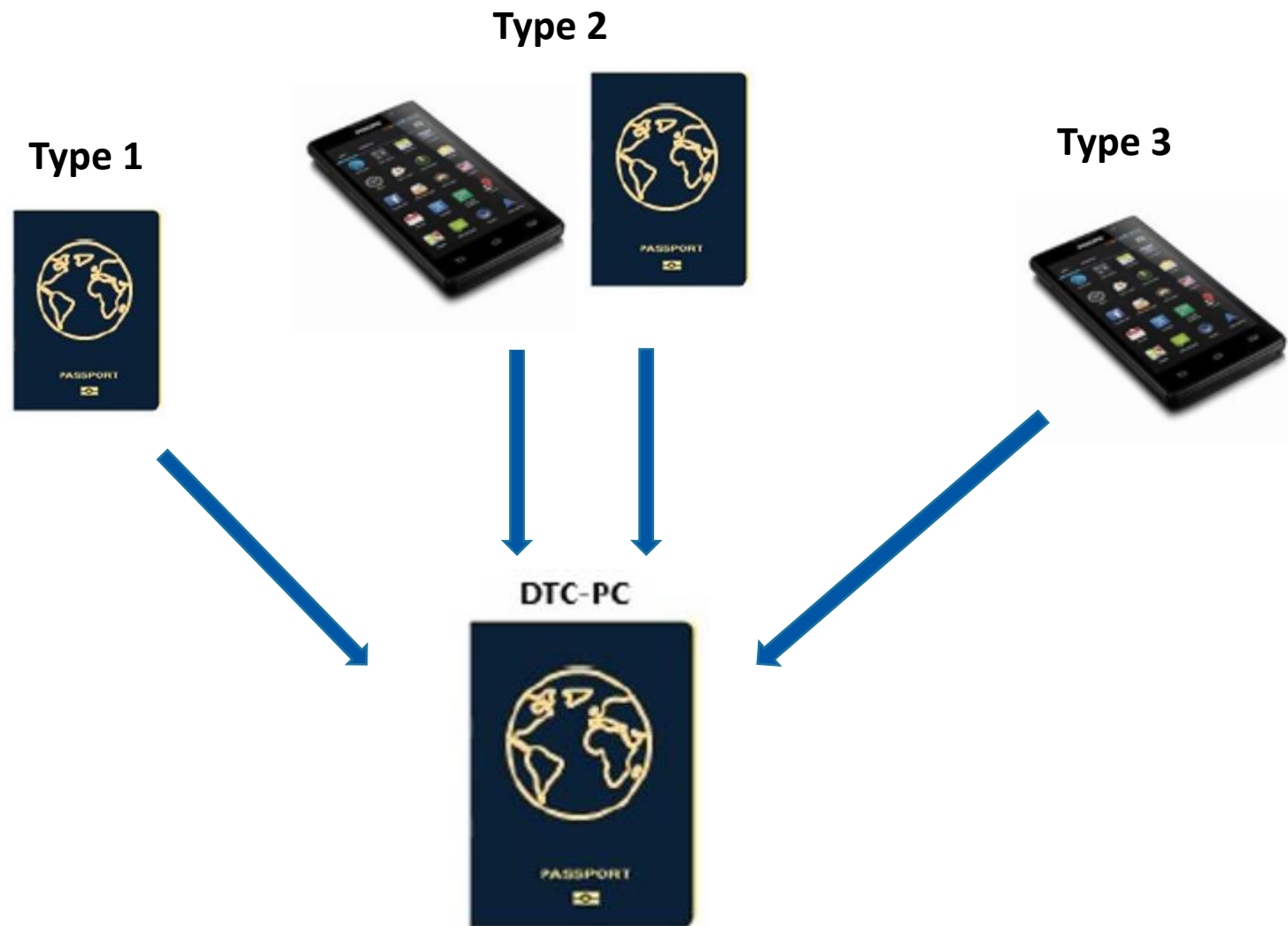
To proof integrity and authenticity of the data, the chip contains the Document Security Object



3 DTC Types



3 DTC Types



Trust model

- Anchored in the existing Public Key Infrastructure (PKI) framework established for eMRTDs/ePassports.
- The issuing State or Travel Document Issuing Authority remains the primary root of trust.
- When a DTC is transmitted (e.g., from a device to an authority), the eMRTD trust infrastructure serves as the basis of trust.

Different ways of using DTC



DTC Type 1

1:n facial comparison + DTC-PC binding



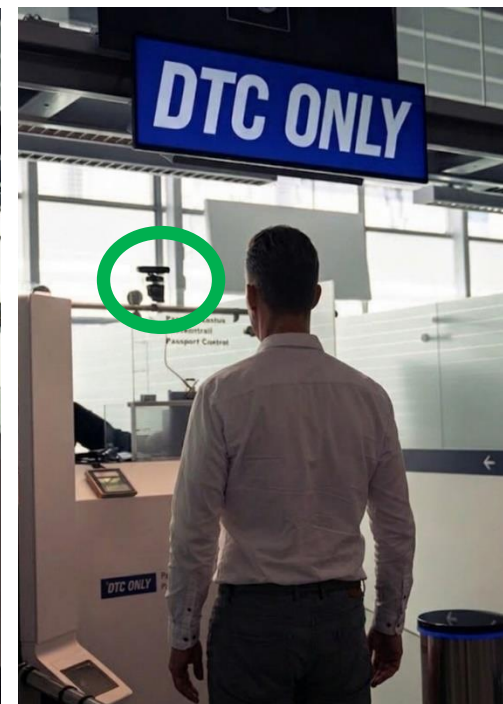
DTC Type 1

1:1 facial comparison + DTC-PC binding



DTC Type 2 and 3

1:n facial comparison + DTC-PC binding



DTC Type 1, 2 and 3

1:n facial comparison + no DTC-PC binding



Next Steps

DTC-PC specifications

The standardization of the DTC-PC is required before DTC Types 2 and 3 can be implemented. However, standardization is still ongoing. Why?

- The role of the PC component is to act as an anti-cloning mechanism, which requires very high security for private key storage. In the context of mobile devices, this necessitates precise technical specifications for assessing device security as well as third-party certification processes that have not yet been defined.
- One of the most significant challenges is ensuring that the data presented to the verification system originates specifically from the device in question. There is a risk that data could be routed from elsewhere, causing the device to act merely as a relay.

Close collaboration is ongoing with ISO SC17/WG4 to define mobile device security parameters so that ICAO can create secure and comprehensive specifications.

DTC Type 1 - Extended

The possibility of adding an extension capability for DTC Type 1 DTC-VC data is currently under investigation.

The main reason for this is that the physical document (especially the data page) is not available and the DTC-VC does not contain all the information present in the passport.

Examples of information that could be added are the person's full name and the document's date of issue.

The standard could also enable the fragmentation of the data set into individual data fields while maintaining the ability to verify authenticity and integrity of the data elements.

However, this introduces complexity to the DTC concept. It requires signing the additional information after the passport has been personalized.

DTC Transmission Protocol

DTC transmission is necessary because large-scale implementation of DTCs—especially for border crossings—is extremely difficult, if not impossible, without a common, standardized protocol.

- Priority in ICAO Travel Document standardization
- Guiding Principles were accepted November 2025
- More detailed requirements are needed for technical standard
 - The outputs of the Ad Hoc DTC Transmission group will be published for comment by all interested parties within a few days.
 - Good co-operation is ongoing between WG3 and WG10.
- A great deal is happening in the digital ID landscape, and extensive collaboration is needed to achieve interoperable solutions and genuine facilitation!



Thank You

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