



**TECHNICAL ADVISORY GROUP ON MACHINE READABLE
TRAVEL DOCUMENTS (TAG/MRTD)**

TWENTY-SECOND MEETING

Montréal, 21 to 23 May 2014

Agenda Item 3: Activities of the ICBWG

BASIC CONCEPTS OF MRTD AND EMRTD – TWO PAGE FACTSHEET

(Presented by the ICBWG)

1. INTRODUCTION

1.1 Since its very beginning, the ICBWG has been monitoring the compliance of MRTDs globally, working together with ICAO to identify, and correspond with, States that are issuing MRTDs with non-compliant elements. Many letters have been sent out and some of the problems have been solved.

1.2 Many stakeholders in those countries know very little about some of the basic technical concepts and terms of MRTD and eMRTD, and are therefore vulnerable to manipulation by some unscrupulous vendors. Anecdotally, some attendees at ICAO events are confused about the basic concepts of MRTDs and eMRTDs.

2. BACKGROUND

2.1 Bearing this in mind, ICBWG has developed a two-page factsheet explaining in simple words the very basics of MRTD for people who know very little about them. This factsheet also shows what MRTD and eMRTD have in common, and what is different.

2.2 This factsheet will become part of the documents given with the delegate bag at ICAO MRTD symposia, regional seminars and workshops. It could also be included in the ICAO MRTD Report or any other journal published by ICAO.

3. CURRENT STATUS

3.1 The document went through several reviews by ICBWG and members of ISO WG3-TF2 and is now ready for submission to TAG. It is attached as an Appendix to this working paper.

4. ACTION BY THE TAG/MRTD

4.1 The TAG/MRTD is invited to:

- a) approve the content of this factsheet; and
- b) approve the distribution of the factsheet "Basic concepts of MRTD and eMRTD" at appropriate events and through appropriate means by ICAO;

— END —

APPENDIX A

**BASIC CONCEPTS OF MRTD AND EMRTD – TWO PAGE
FACTSHEET**

(see next pages)

Basic concepts of MRTD and eMRTD

This document provides clarification on the differences between an MRTD and an eMRTD, explaining basic concepts of each and focusing on compliance with the International Civil Aviation (ICAO) Document 9303.¹ Other resources are available for free in the download section of the ICAO MRTD-website.²

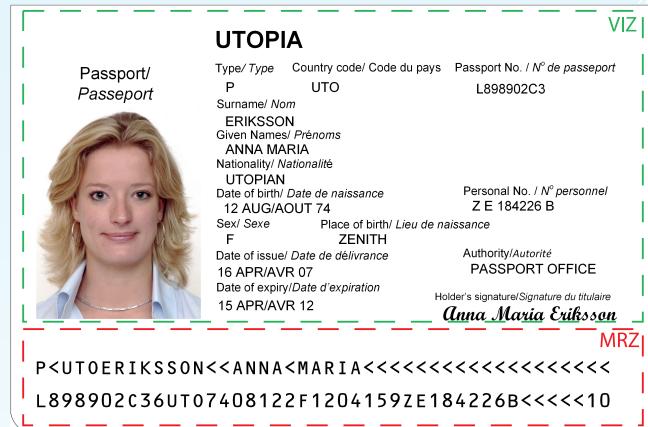
Machine Readable Travel Documents (MRTD)

The MRTD is an official travel document issued by a State or organization, used by its holder for international travel. It contains in a standardized format, various identification details of the holder, including a photo (or digital image) with mandatory and optional identity elements. The mandatory elements, apart from the photo, are reflected in a two- or three-line machine readable zone (MRZ).

Passports & other booklet-MRTD	Card-MRTD	Visa labels
125x88 mm (TD3)	54x86 mm (TD1) 74x105 mm (TD2)	80x120 mm (visa A) 74x105 mm (visa B)

Figure 1: MRTD sizes

According to the Annex 9 of the Chicago Convention (3.10 and 3.10.1)³, all passports being issued have to be machine readable from April 1st 2010. In addition, all non-machine readable passports have to expire before November 24th 2015.



If an MRTD is a passport, one of the most important elements is the personal data page.

The data page shall contain a Visual Inspection Zone (VIZ), which groups mandatory and optional data elements, and a machine readable zone (MRZ) of fixed dimensions containing two lines of information printed in OCR-B font.

National characters are not allowed in the MRZ and must be transliterated. The recommended transliteration for some scripts is provided in Doc 9303, as well as a list of country codes to be used in the MRZ. Print specifications of the MRZ are also defined in Doc 9303.

Barcodes are not recognized as globally interoperable and therefore are not permitted on the data page.

¹ <http://www.icao.int/Security/mrtnd/Pages/Document9303.aspx>

² <http://www.icao.int/Security/mrtnd/Pages/Downloads.aspx>

³ <http://store1.icao.int/index.php/publications/annexes/9-facilitation.html>

Electronic Machine Readable Travel Documents (eMRTD)

In order to be called as such, an eMRTD must additionally contain a contactless integrated circuit (IC) chip with an antenna. This chip stores data from the travel document data page and the mandatory biometric feature of the passport holder: the photograph. The data encoded in the chip are protected by Public Key Infrastructure (PKI) cryptographic technology against tampering.

An eMRTD can be recognised from its cover bearing the ICAO "chip inside" logo:



The ICAO eMRTD specifications are included in **ICAO Document 9303 Volume 2 of both Parts 1 and 3**. Additional details and clarifications are available from **Doc 9303 Supplement**. Any MRTD that does not comply with the specifications given in this volume may not be called an eMRTD and cannot display the eMRTD logo. The chip used in an eMRTD must have a minimum data storage capacity of 32 kilobytes and must comply with ISO/IEC 14443 and ISO/IEC 7816-4⁴.

File	Explanation
Data Group 1	duplication of the machine readable zone data
Data Group 2	holder's facial image
Security Data (EF.SOD)	digitally signed file to check authenticity and integrity of content

Figure 3: Mandatory content where chip is present in the passport

The mandatory and optional data stored in the chip should be protected against unauthorised reading and against cloning by security mechanisms as described in Doc 9303.

As the chip contains digitally signed data, a country willing to issue eMRTD has to maintain a dedicated public key infrastructure (PKI) in secure facilities. The "Root" of this PKI is the Country Signing Certification Authority (CSCA). The document signer (DS) certificate, signed by the CSCA, proves the authenticity and integrity of the data on the chip and the link to the issuing country.



Figure 4: PKI and issuance

Figure 5: Border control

⁴ <http://www.iso.org/iso/home.htm>