

**TECHNICAL ADVISORY GROUP ON
MACHINE READABLE TRAVEL DOCUMENTS**

Fifteenth Meeting

(Montreal, 17 to 21 May 2004)

Agenda Item 3: Report of the New Technologies Working Group (NTWG)

**PROPOSAL FOR CONTINUING WORK BY THE NTWG
ON
ELECTRONIC VISAS (E-VISAS)**

(Presented by the New Technologies Working Group (NTWG))

1. INTRODUCTION

1.1 The use of and potential for electronic visas ("e-visas") have been under consideration by ICAO NTWG for some time. Practical applications exist, specifically in Australia, but these are restricted to private use by the host country itself.

1.2 The possible development of specifications for electronic visas was discussed at an NTWG meeting in Manchester in November 1999. Further investigation work took place and a paper titled "Development of Specifications for Electronic Visas" was presented and discussed initially at the NTWG meeting in Haarlem in July-August 2000. Developments were reported to TAG 13 in February 2002 and a first Draft Technical Report was produced by Australia in December 2002.

1.3 The development of ICAO specifications for biometrics deployment in machine readable travel documents (MRTDs), most notably the decision of TAG 14 in May 2003 to endorse the use of high capacity contactless IC media as the storage medium for use with MRTDs in the deployment of biometrics, led to further consideration of this method of data storage in relation to visas.

2. BACKGROUND

2.1 There is considerable potential for applications of e-visas in a wider context in the ICAO community of states, particularly with the other NTWG initiatives for biometrics deployment in MRTDs. These applications may be for the benefit of all States particularly in respect of verification of identity and eligibility of persons travelling. Visas are primarily issued for the use of the host state or group of states and the exact nature of the applications of e-visas and benefits must be considered in this context.

2.2 The paper identified in 1.2 above defined three types of e-visas but further developments as described in 1.3 above have now defined four types of e-visas as follows:

- a) a purely electronic visa, where the visa or entry clearance is issued as an electronic record;
- b) an electronic visa that is issued as above but also recorded on a MRTD equipped with a high capacity contactless IC media in accordance with technical specifications being developed by ICAO NTWG;
- c) an electronic visa that is issued as above but recorded in a high capacity contactless media used with a conventional visa sticker; and
- d) an electronic visa issued as above but also recorded on a special form of MRV which is issued for the specific purpose of recording one or more e-visas from different states throughout its lifetime.

2.3 The NTWG meeting in The Hague in February 2004 agreed that development of the existing excellent work that had taken place resulting in the draft Technical Report should be continued and built on by a sub-committee of the NTWG. The aim being to incorporate into a Technical Report electronic storage of data on visas using contactless IC media as detailed in 2.2 (b) above.

2.4 In developing its work the NTWG sub-committee will undertake the following:

- a) suggest possible ways to implement ICAO-compliant biometrics enabled e-visas, discussing their merits vs. limits;
- b) consider how e-visas can organically link with other MRTDs (passports);
- c) consider potential obstacles to e-visa implementation, from enrollment to deployment, including scalability, security considerations and technological stumbling blocks; and
- d) determine cooperative practical testing programmes.

2.5 The attached proposed "Table of Contents" indicates the various items and matters that will be reviewed and compiled into the Technical Report on e-visas.

3. ACTION BY THE TAG/MRTD

3.1 The TAG/MRTD is invited to:

- a) approve continuation of the on-going development of guidelines and standards being carried out by the NTWG for electronic visas and their potential applications to the ICAO community and the development of a full Technical Report on these matters for subsequent consideration and adoption by the TAG/MRTD; and
- b) decide that this Technical Report be guided by the suggested Table of Contents for the future Technical Report, including but not limited to the subject matter listed therein.

APPENDIX

PROPOSAL FOR CONTINUING THE WORK BY THE NTWG ON ELECTRONIC VISAS (E-VISAS)

PROPOSED TECHNICAL REPORT, TABLE OF CONTENTS

1. **The case for e-visas**
2. **Goals**
 - 2.1. Major
 - 2.1.1. ICAO's MRTD compliance
 - 2.1.2. Improved verification and facilitation at port of entry
 - 2.2. Derived
 - 2.2.1. Practical experience on implementing multiple biometrics
3. **e-Visa types – advantages and limitations**
 - 3.1. Chip enabled
 - 3.1.1. Chip attached to passport
 - 3.1.2. Freestanding document (paper with chip or card)
 - 3.2. Central data base
 - 3.2.1. Electronic visa in data base only (pointer)
 - 3.3. Hybrid
 - 3.4. Refer to DIMIA (Australia's paper)
4. **Visa registration issues (initial data capture)**
 - 4.1. Additional biometrics
 - 4.2. Enrollment
5. **Interoperability issues**
 - 5.1. Readability by other stakeholders such as airlines
 - 5.2. Increased capacity to authenticate
 - 5.3. Evaluate impact of MRTD compliance vs. technical constraints

6. **Privacy issues**

- 6.1. Use NTWG MRTD published documents
- 6.2. Include comments on specific local laws at enrollment countries
- 6.3. Link to data security

7. **Chip insertion, manufacturing, durability and cost issues**

- 7.1. Practical issues at issuing point
- 7.2. Chip inclusion within label / sticker / paper (ex : secure films & laminates)
- 7.3. Physical compatibility issues between passport book and visa media
- 7.4. Critical component issues for durability

8. **e-Visa chip layout (data structure)**

- 8.1. MRTD compliance
- 8.2. Correlation with printed data
- 8.3. See NTWG LDS and PKI updates

9. **Use of e-Visa at control point (data robustness, external coherence, reading constraints)**

- 9.1. Describe several scenarios
- 9.2. Verification of data
 - 9.2.1. Integrity checks
 - 9.2.2. External data base matching
- 9.3. Common reader check point issues

10. **Correlated data security and integrity issues (both of chip and other visa security features)**

- 10.1. Physical: mechanical stamping and clipping area issues
- 10.2. Logical: see NTWG PKI updates focussed only on non tampering
- 10.3. Potential interferences

11. **Deployment constraints and potential interactions on MRTD passports**

- 11.1. Collision detection (two chips and more inside a single MTRD passport)
 - 11.1.1. Passport chip should never be obscured/incapacitated by e-visa chip
 - 11.1.2. Collect and analyse chip interoperability as well as reader interoperability data
- 11.2. Performance issues
 - 11.2.1. Sequence and timing of passport and e-visa read steps by chip reader
 - 11.2.2. Ownership dialogue time (to identify a given e-visa amongst several other ones already on passport)

- 11.3. Antenna sizes and layout on passport (see WG8 and e-passport task force recommendations)
 - 11.3.1. Mutual antenna de-tuning (antenna overlay)
 - 11.3.2. Single resonator for multiple e-visas
- 11.4. Coordinate with WG8 papers N947, N938 , etc. on antenna and MRTD

- 12. **e-Visa validity and cancellation**
 - 12.1. Multiple vs. single entry, extension, expiry
 - 12.2. Initially: WORM only (like passports), so no extension, so far
 - 12.3. Should it be destroyed ? (by issuing country ?)

- 13. **Conclusion**
 - 13.1. Feasibility, stumbling blocks and time-to-market estimates
 - 13.2. Recommendations
 - 13.2.1. RFI from the Industry
 - 13.2.2. Test scenarios (see Appendix II)
 - 13.2.3. Pilot sites

- 14. **Appendix I: Reference documents (ICAO, ISO, EU, SC17, WG8 and other origins)**

- 15. **Appendix II: Practical e-visa test implementation**
 - 15.1. Refer to WG8 antenna discussions
 - 15.2. Coordinate with Japan test site
 - 15.3. Include MasterCard's own interoperability data
 - 15.4. Multiple e-visas on a single passport
 - 15.4.1. Reproducible successful read rate levels
 - 15.4.2. Optimized passport page layout
 - 15.5. Single antenna
 - 15.5.1. Influence of antenna size and location
 - 15.5.2. Parallel MRZ and chip reading
 - 15.5.3. Combining passport ID1 and (smaller) e-visa antennas
 - 15.6. Other interferences
 - 15.7. Durability data
 - 15.7.1. Mechanical resistance (stamping, etc.)
 - 15.7.2. Encryption compromises