

Sovereign Military Order of Malta issues new e-passport

Authorities opt for turnkey solution

by Claudia Hager

The Sovereign Military Order of Malta is one of the smallest sovereign countries in the world based in Rome. You may be surprised to discover that the Order has issued passports for decades. Unfortunately, the absence of meaningful security features has historically made these documents easy to counterfeit. So much so that the passport's popularity on the black market - prices up to USD 50,000 have not been uncommon - required the government of the order to replace it with a new e-passport that meets the latest ICAO requirements. Claudia Hager discusses the issues involved.

The Sovereign Military Order of Malta (or simply the Order of Malta) was founded in 1048 in Jerusalem. It was originally appointed as sovereign over the islands of Rhodes and Malta (a role it fulfilled for 500 years) and currently has its seat in Rome. The order's mission is to provide medical and humanitarian help to the sick, the needy and refugee communities. It does so without taking account of religion, race, origin or age. The Order, which maintains diplomatic relations with no less than 93 countries and many international organisations, including the UN, is active in 120 countries. A substantial number of additional countries accepts the Order's passport as a legitimate travel document.

The old passport's popularity on the black market is attributable to the fact that (i) the passport holder enjoys diplomatic status and (ii) the passport was manufactured using traditional (and dated) techniques, making it easy to counterfeit. The order's decision to issue several versions of the passport served to exacerbate the situation. The old passport was bigger than a standard ICAO-sized document (10.2 x 15.2cm), and contained watermarked yet unprinted visa pages. The passport was personalised by hand, while the holder's photograph was simply glued to the document (figure 1).

Three-letter code

To improve passport security, the government of the Order of Malta decided to introduce a machine readable document that would comply with the latest ICAO biometrics recommendations. The necessity and basic requirement to issue an e-document was the machine readability¹, so initially the government applied to ICAO for a three-letter code. Following consultation, ICAO agreed to assign the code XOM, where OM stands for Order of Malta. The new code will be published in the 6th edition of ICAO Doc. 9303².

New security features

The new passport concept was developed in close cooperation with OeSD (the Austrian State Printing House), which was also contracted to supply the booklet. The passport layout fully complies with ICAO requirements, and the machine readable biographical data page is found on page 2 of the 44-page booklet. The biographical data page and the visa pages include high-quality security features, such as security printing, intaglio, guilloches, a relief design, UV print, microtext and conical laser perforation.

The booklet (figure 2) is made of high-quality security paper that features invisible fibres and a registered multi-tonal watermark depicting the Order's coat of



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arms. The paper has also been chemically treated, rendering any attempt to counterfeit the document immediately visible. The back cover of the booklet contains a 72kB microchip, which has been embedded in a Durasoft-Inlay, supplied by Smartrac Technology. The electronic data includes EF.COM, DG1, DG2 and EF.SOD. To optimise facial recognition, a 20 kB (digital) photograph was specified.

Applying for a new passport

As government officials and members of the Order's diplomatic missions live all around the world, the order asked OeSD in Vienna to issue the passport (rather than having to establish a passport application centre in Rome). To apply for a passport, members of the Order surf to a special website, which includes passport application forms for the diplomatic as well as the service passport. The applicant fills in the necessary details and attaches a photograph to the application (image specifications and other ICAO guidelines are posted on the site). The form is subsequently sent to the Order in Rome, which verifies the applicant's identity and eligibility. Assuming the application is approved, a secret code is assigned. Next, the application is forwarded (in batches) to

Austrian State Printing House, which captures the data, and scans the photograph and the signature.

Issuance

OeSD's proprietary Optidata software is used to screen the feasibility of the data (e.g. ensuring that the applicant's date of birth is not in the future). The Optidata package is also used to (i) adjust the size and contrast of the photograph and (ii) generate the MRZ. All data are subsequently linked to the passport number (a sequential number), and digitally signed to create the EF.SOD.

The above data are also used to personalise the passport, a process that takes place at three levels:

1. Optical personalisation of the biographical data page and page 3, which contains holder-related information (diplomatic status);
2. Electronic personalisation of the chip (whereupon the chip is locked in read-only mode);
3. Lamination of the biographical data page.

The biographical data page is covered with a protective laminate, which contains a coat of arms that partly covers the photographic area and invisible text,

Figure 1
Biographical data page of the old 'easy-to-counterfeit' passport

Figure 1 shows two pages of a biographical data page from an old passport. Page 6 (left) contains a list of fields for personal information, and page 7 (right) contains fields for passport number, signature, and validity. A large, diagonal 'ANNULLATO' stamp is visible across both pages.

Page 6:

- 1. Nom / Nome / Name
- 2. Lieu et date de naissance / Luogo e data di nascita / Place and date of birth
- 3. Paternité / Paternità / Father's name
- 4. Taille / Statura / Height
- 5. Couleur des cheveux / Colore dei capelli / Colour of hair
- 6. Couleur des yeux / Colore degli occhi / Colour of eyes
- 7. Signes particuliers / Segni particolari / Distinguishing marks

Page 7:

- Numéro du Passeport / Numero del Passaporto / Number of Passport
- Signature du titulaire / Firma del titolare / Holder's signature
- Valable jusqu'au / Valido fino al / Valid until



Figure 2
Covers of
the new diplomatic
and service
e-passports

protecting the alphanumeric part of the biographical data page. Once the documents have been personalised, they are securely dispatched to Rome, from where they are sent to their new owners.

Proven Interoperability

The configuration of the new e-passport of the Sovereign Military Order of Malta was recently tested at the InterFest Interoperability Tests in Singapore on November 7 and 8, 2005. The e-passport was tested on 22 readers of different manufacturers from all around the world. The sample data file consisted of DG1, DG2 with a 20KB photo, EF.SOD and EF.COM. The security level was active with Passive Authentication and Basic Access Control. The average reading speed of the passport across all 22 readers was 4,03 seconds. Tests were successful on the first try in each case, the fastest reading time was 2,98 seconds and the slowest 5,72 seconds.

Conclusion

The Order of Malta is among the first sovereigns to issue an e-passport that complies with the latest ICAO recommendations. Austrian State Printing House

was assigned responsibility for the development, production and personalisation of the document (including the development of the application forms and data capture solutions). Interoperability of the chosen solution is guaranteed by the test results of the Singapore Interoperability Test. By closely cooperating, the Order of Malta and the Austrian State Printing House were able to launch a high-quality document that minimises the risk of counterfeiting and illegal immigration.

¹ The electronic data is derived from the biographical data page.

² As the new Part B of the Normative Appendix 7 to Section IV.