

Issuing Process of Bulgarian Identity and Travel Documents and the Use of Biometrics

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Abstract: - In this paper an extensive overview is presented of the currently issued identification and travel documents along with some types used in the recent past in the Republic of Bulgaria. The general outlook and the graphic design of the cover and inner pages are described for the different types. Different aspects of the issuing process concerning organizational procedures and technical details are covered along with a set of limiting measures against misuse. Special attention is posed to the electronically stored personal data on a chip for some of the documents allowing for the citizens to use digital signatures. In order to have electronic identity framework at national level a centralized database and information system has been developed which structure and main functions are also described. Apart from physical features high security of the identity documents is guaranteed by the use of digital certificates tightly connected to a national signer with its own management system. Also the use of document validity portal as well as other web-based services is investigated in the current study. Plans for issuing new types of more advanced documents in the near future are also discussed.

Key-Words: - ID card, Passport, Travel Documents, Biometrics, Digital Certificate, Digital Signature, ICAO

1 Introduction

The unification of the structure and content of identity and travel documents is a major challenge worldwide. A step towards accomplishing this process is the adherence of international standards part of which are the recommendations of ICAO (international Civil Aviation Organization) and DOC 9303 [1] in particular. It is applicable to all European acts.

Being of main importance the security features of all personal documents share dedicated specifications in the Member States of the European Union (EU) including employed biometrics.

Regulation 2252 of the Council [2] later amended by Regulation 444 of May 28th 2009 [3] are key documents on these matters. As a sequence all travel documents including passports are equipped with contactless chip for storing the personal data of the holder. Initially, it includes the image and two fingerprints of the person with an option for future use of iris and possibly other types of biometrics.

Two functions can be implemented by using the recorded biometrics - authenticity confirmation of the document and the identity of the holder which are strictly laid down in the Regulation. The production of Bulgarian identity documents valid

for more than a year strictly follows these rules in compliance with the local law compatible to the European regulations and the ICAO DOC 9303. Additional key document is Decision 2909 from June 28th 2006 of the European Commission (EC) [4] rendering an account of ISO and ICAO standards specifying the technical properties of the biometric elements.

Residence permits for foreigners are also under unification including the electronic data storage by the Regulation 1030 of the Council of June 13th 2002 [5] and Regulation 380 of April 18th 2008.

Identity and travel documents for citizens, refugees, sailors along with driving licenses inside the family members of EU are issued according to:

- Directive 2004/38/EC of the European Parliament and the Council of 29 April 2004 [7];
- Refugee Convention (28 July 1951) [8];
- Seafarer's identity documents Convention (108/1958) [9];
- Council Directive 2006/126/EC of 20 Dec 2006 on driving licenses [10].

2 Identity Documents for Bulgarian Citizens Issued in the Past

According to the new international requirements and the national strategy for more efficient identification the first Bulgarian identity documents of the new type appeared in 1999.

In Fig. 1 are shown the old Identity Card and the Driving License.



Fig. 1. Identity Card (a) and Driving License (b) issued from 1999 till 2010

The machine readability of the passports was one of the innovations introduced in accordance with the ICAO recommendations, the ISO standards and the EU decisions assuring the format uniformity.

Around the same time, in 2 years time span, the old civil passports were replaced by ID cards. The features of the new passports allow Bulgarian citizens to travel inside EU without visas prior to the official affiliation of the country in it.

In Fig. 2 are shown the old types of passports.



Fig. 2. Passport (a), Seaman's Passport (b), Diplomatic Passport (c), and Travel Document of Subsidiary Protection Beneficiary (d) issued from 1999 till 2010

3 Currently Issued Personal Documents in Bulgaria

3.1 Passport type documents with electronic storage device (Fig. 3)





Fig. 3. Passport (a), Service Passport (b), Diplomatic Passport (c), Seaman's Passport (d), Certificate for Travelling Abroad of a Foreigner Who Has Been Granted Asylum (e), Certificate for Travel Abroad of a Foreigner with Humanitarian Status (f), Travel Document of a Stateless Person (g), Travel Document (Convention of 28 July 1951) (h) issued from 2010

In contrast to short term documents all passports valid for more than a year are equipped with electronic storage device for personal information

(contactless chip). Their issuing started from March 29th 2010.

3.2 Passport type documents without electronic storage device

The passports which validity is no more than a year (Fig. 4) do not have electronic chip.



Fig. 4. Temporary Passport for Definitive Leaving the Republic of Bulgaria (a), Temporary Passport (b), Temporary Passport of Foreigner for Return to the Republic of Bulgaria (c), Temporary Travel Document (d), Border Pass (e)

3.3 Bulgarian identity and residence documents, and driving licences

There are two different types of the Bulgarian Identity Card. The first one was issued prior to March 29th 2010. Both contain no electronic device.

The current design for it and for the driving license are presented in Fig. 5.a and b respectively.



Fig. 5. Identity Card (a) and Driving License (b)

The set of documents issued by the Bulgarian Government to foreigners are shown in Fig. 6.



Fig. 6. Card of Refugee (a), Card of a Foreigner Granted Asylum (b), Temporary Card of a Foreigner (c), Card of Subsidiary Protection Beneficiary (d), Certificate for EU Citizen (e)

Starting from June 2010 residents of the Republic of Bulgaria, foreigners with obtained residence permit under the Law on Foreigners and residents' family members in Bulgaria being EU citizens are being issued with a Residence permit (Fig. 7). It contains contactless chip similar to that in passports. In it there is the holder's image and / or fingerprints.



Fig. 7. Residence permit for third country citizens

4 Design of Passport Type Bulgarian Identity Documents

The pages of the new Bulgarian passports include 26 images of cultural subject closely related to the national and world history (Fig. 8). There is a distinctive historical chronology of these representations. Hence the passports users may feel the concept of "travelling in time".

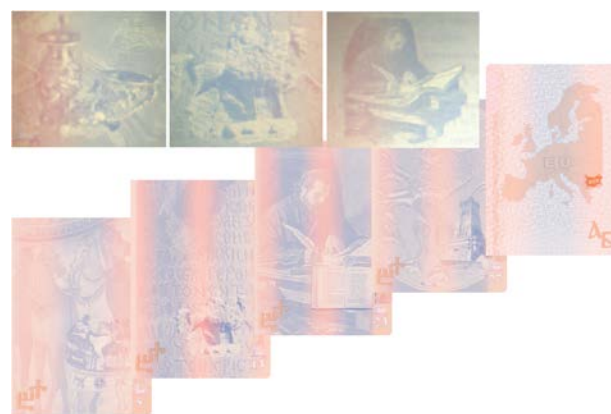


Fig. 8. Sample pages of the passport type documents containing various pictures

In the contactless chip there are two biometric features captured from the holder of the document – facial image and a fingerprint.

Biometrics is a measurable physical property or a feature of a particular person. It can be used as a proof that an individual is really who he or she is claiming to be. Important attribute of biometrics is that it is a part of the human but not an item that one could bring along. Typical biometric features are face, fingerprints, height, weight, hand shape, iris, etc.

The preparatory activities related to the issuing of the new identity and travel documents with biometrics according to the preliminary designed schedule ended on January 18th, 2010. Then, the reconstruction and installations of the supporting premises were led to finish. Following up to February 14th, 2010 the manufacturing and approval of the documents' prototypes were the next steps in

the process. The same date was put as a limit for the delivery and equipping of the hardware and software set-up for the main computer center of the Ministry of Interior. The centers for personalization were fitted up until March 7th, 2010 as a part of the decentralized concept for fetching personal data including biometrics. The biometric readers were delivered and installed until March 12th, 2010. Two days later the whole system were fully tuned and tested. As part of the organizational procedures the printing and delivering of forms needed for personalization of specimens for personal documents was accomplished until March 28th, 2010. The final starting of operation for the system was made on March 29th, 2010. It is officially named Centralized automated information system for decentralized personalization of Bulgarian personal documents (or more simply “the System”).

5 Personal Documents' Validity

From March 29th, 2010 queries for the new personal documents are accepted in the Republic of Bulgaria. It is not obligatory for Bulgarian citizens to have their documents reissued at that stage if the validity of their older documents is not overdue.

The green passports issued prior to 1999 and the termless ID cards issued after 1999 retain their validity and it is not necessary to be replaced with documents of the new type. The validity of the expiring ID cards and driver licenses in 2010 had been extended with 6 months in order to give a time slot for the citizens to get familiar with the new rules of issuing and organize themselves for the substitution. The expiration date for all the rest documents remains the same.

According to the Amending and supplementing law to the Law for the Bulgarian personal documents enacted on December 9th, 2009, in the transitional and final provisions, §21a and §21b are created. They regulated the extension of the substitution process with 6 months during which period the older documents are valid for identification only on the territory of the Republic of Bulgaria. If an individual is willing to have new personal documents before the extension is over it is possible to apply. Driving licenses remain also individual certifying documents aptitude for driving a motor vehicles only on Bulgarian territory and could be reissued earlier at citizen's request.

6 Organization of the issuing process

The applications for the new identity and travel documents are submitted in regional offices of the Ministry of Interior. Citizens can be serviced also in the Capital Directorate of Interior, the 27th district directorates of the Ministry of Interior and the Bulgarian Identity Documents Directorate. Driving licenses could be issued in any of the 28th stations of Traffic Police.

At the reception offices for citizens printing of the application form for issuing of the new personal documents is initially undertaken. The workplace (Fig. 9) for capturing biometric data includes a photo cabin. It is closely located to the workstation for making the biometric records. No fingerprints are taken from children below 12 years of age and from disabled persons.

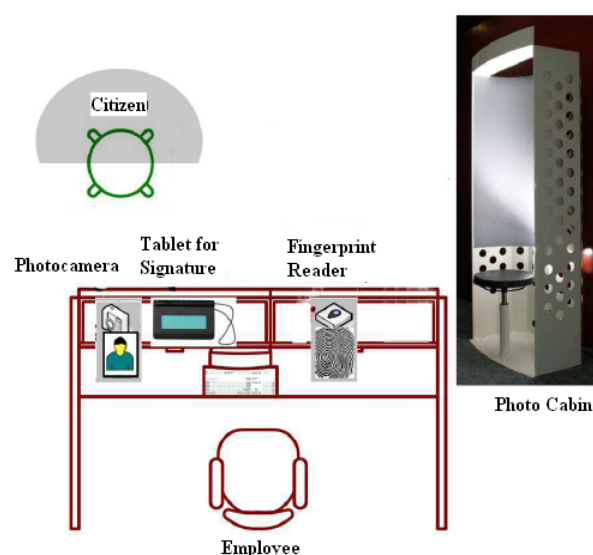


Fig. 9. Biometric data capturing workplace

Bulgarian citizens residing abroad could pass their applications for passport or ID card issuing to a diplomatic or consular mission of the Republic of Bulgaria in the respective country.

Issuing deadlines are as the following – regular order is served within 30 days, fast order for passports and ID cards – up to 3 working days and for driver licenses – up to 10 working days, while the express order (only for passports and ID cards) is executed within 8 working hours.

The fees for regular order of the basic types of documents issued for Bulgarian citizens are: EUR 20 for a passport (against EUR 15 for the older version), EUR 9 for an ID card (with EUR 5 prior to that), and EUR 12.5 for a driver license (for EUR 9 up to that moment). The preferential fees regime

stays the same as previous assuring that disabled people, children below 16 years of age, retirees above 70 years old and others can take benefit of it. Also, the proportions between fees for regular order (2x) and express one (5x) are preserved considering the production and serving costs. Taking into an account the compulsory nature of the ID card a social element is added in the issuing fee formation.

The new technology provides a number of opportunities for citizens during their interaction with the authorities. These include no necessity of filling an application form from a scratch if personal information already exists for the particular individual. No photo is required either since it is taken at the service offices. Ailing and motor disabled persons may be visited by a mobile unit to provide proper assistance. A set of electronic services related to the issuing of the new documents also applies. Higher security and reliability are distinctive features of the new personal documents that the citizens can rely on.

Protective measures are foreseen against violations of the Bulgarian personal documents law in the form of penalties. A fine between EUR 10 and EUR 75 is owed when a person doesn't state a document reissuing within 30 days after a change of names, identification number, sex, citizenship, permanent address or occurred durable and significant changes in the appearance. The same mulct is also due if an individual doesn't apply for a new ID card 30 days after the expiration date of the current one. The deadline for return of a passport or a substituting document back to the issuing authority is 3 months after validity ends or after the grounds for issuance fall off. After that period the same penalty rule applies.

Even higher amount between EUR 15 and EUR 100 is demanded by a person being Bulgarian citizen who obtained personal document from another country without declaring it in front of the competent authorities. Loosing, damaging or destroying a Bulgarian personal document or using invalid documents and introducing deliberate obstacles intentionally to prevent an identity check ahead of the delegated authorities lead to the same sanction. The fine is from EUR 25 to EUR 150 reoffend.

7 Centralized Database and Information System

Centralized information system accounts for the management of personal data and the identity and travel documents issued in Republic of Bulgaria which is operated by the Ministry of Interior. Continuous data exchange is performed with other information systems (Fig. 10). Together among them there is a tight connection with the Register of the population when issuing the documents.



Fig. 10. Centralized database and information system

The applications for issuing documents from consulates are passed to a dedicated information system. At this stage capturing and transmission of the biometric data currently being the citizen's photo and fingerprints to a database is done. After the documents are personalized in the Bulgarian Identity Documents Directorate they are passed through the Ministry of Foreign Affairs to the point of application. The control of the issuing process is the same as that practiced in the country.

In order to protect children at risk information is exchanged with the Register of the imposed administrative compulsory measures which typically include ban on leaving the country. If such exists withdrawal of already issued documents is performed.

Special attention is paid to invalid documents and stolen (lost) forms for which information is passed from the document register to the Information system of Interpol. Automated hit verification (HIT) is provided there for wanted persons or blank documents since 2012.

Another positive development is the operation of the Schengen Information System (SIS) in Bulgaria since November 2010. There a check could be made for lost or stolen identity and travel documents.

Continuous bi-directional mode of data transmission is supported during these checks.

8 Security of Identity Documents

The measures taken against falsifications of identity and travel documents lead to increased level of illegal usage of real documents. One type of a common fraud is the use of a document with an image resembling the facial appearance of another person. Another one includes issuing a document with a real photo of the applicant but with insubstantial personal data. Simple check, e.g. by biometrics evaluation, could prevent the abuse in the first case while in the second situation the foundation of the administrative system is affected and more strict measures are needed. Some of the effective precautions that can be undertaken in the latter occasion include:

- When a minor's documents are issued the presence of the child is mandatory while the parents make the application;
- Additional police check must be done at the address of residence of the child when doubts occur about its identity (possibly by additional recognition by photo from neighbors and relatives);
- Older photos of the child from the centralized information system could be used for comparison with the currently delivered photo;
- Thorough check at the address of the applicant for establishment of the correspondence between the provided photo and the personal information.

At least two witnesses with Bulgarian citizenship and valid ID cards feeding written statements are required in the case when the applicant doesn't possess identification document. Criminal liability is sought from them if providing false information.

The Bulgarian Vice President has the right to give Bulgarian citizenship by decree in which case a confirmation is sent between the electronic systems of the Ministry of Justice and the Ministry of Interior in the form of certificate and a photo of the person. It is compared with the photo provided in the application.

Administrative actions are launched against officials allowing the issuance of false credentials

and if forethought is found for these actions criminal liability is looked for from them as well.

The strictly controlled access to the database and all the hardware resources of the centralized information system is guarantee against various types of frauds. It is a major part of the concept for information security (Fig. 11). Being strictly followed as a top priority it assures the lawful issue of identity and travel documents.

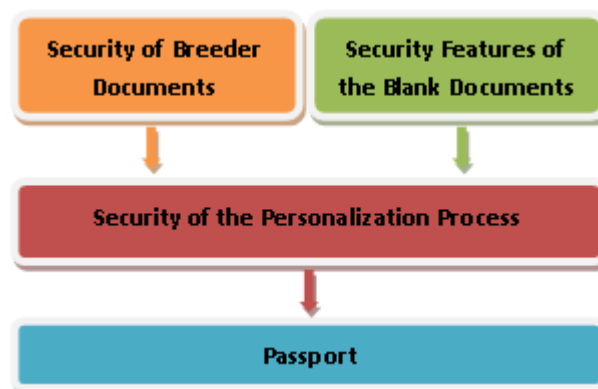


Fig. 11. Information security concept

The following types of attempts must be intersected:

- Any illegal issuance and use of personal documents;
- Identity substitution via false breeder documents;
- Any use of forged documents;
- Illegal leaving of children from the country.

The document number is one of the leading factors for certifying the validity of checked documents preventing identity thefts either by the use of lost or stolen documents or by the use of forged ones in various governmental and financial institutions.

Additional measures against providing false identity are:

- Real-time access by the National Schengen Information System (SIS) to the National Automated Information Fund at the National Register of Bulgarian Personal Documents (NAIF NRBPD) is provided for individual data and thus it is available to all EU member states;
- Ministry of Interior by its information system holds data on all cases of issued

documents with data of one person and the image of another. More strict caution is required from clerks accepting citizens' applications;

- Ministry of Interior provides the functionality by a web-based portal for checking the validity of personal documents based on the serial number of the document and the date of birth of the holder;
- Notaries can also prevent abuse by accessing NAIF NRBPD evaluating the validity of personal documents during transactions;
- Detecting forged documents become more reliable in banking institutions since various public campaigns were carried out introducing their latest protective elements;
- Ministry of Interior holds records through its information system for all discovered forged documents. The specifics of these cases are brought to the knowledge of the clerks accepting applications against future frauds;
- The management of the Sofia Directorate of the Interior and the Regional Directorates of the Ministry of Interior is often acquainted with the latest attempts of impersonation and forgery for taking countermeasures;
- Periodically new protections for the personal documents are introduced following the best international practices.

9 Country Signer Certificate

High level of security for the personal documents was introduced by the incorporation of the contactless electronic storage device. It stores personal data including biometrics which connects stronger the holder with the document.

The recommendations of ICAO and European legislation were fully implemented in the Republic of Bulgaria in order to have the complete set of capabilities provided by the system with digital certificates. In addition to that interoperability of the issued documents is achieved with already existing systems (Fig. 12).

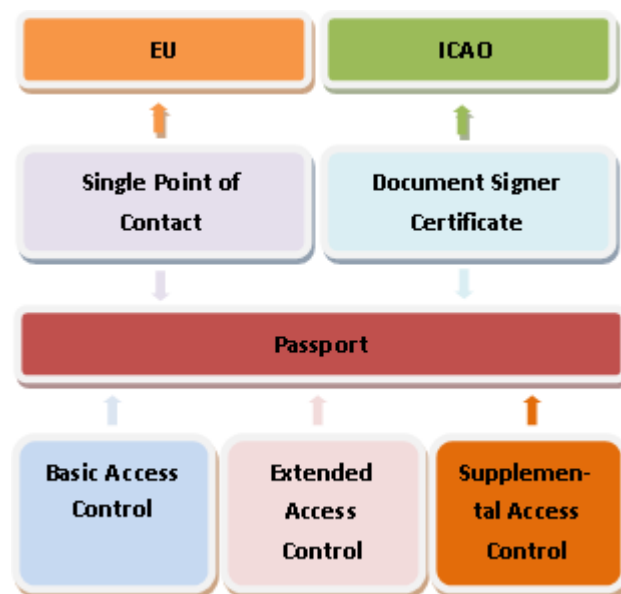


Fig. 12. The use of certificates and the access control types

Document signer certificate is stored in the chip for the issuing authority. The State certificate is provided through diplomatic channels and working groups in the European Commission to partners of the European community. Typically, it is made available through server based system for external use by stakeholders. ICAO supports directory for exchange of publishers certificates (PKD) and Bulgaria is a member of it. Supplemental Access Control (SAC) is applied from April 2016 with Password Authenticated Communication Establishment (PACE v.2). It achieves higher level of protection when exchanging data with electronic documents accessing the built-in chip.

10 Identity Documents Verification

Starting from March 29th, 2010 the issuing of personal documents in Bulgaria included new security features usable at visual inspection. Any forgery attempts become more easily visible by placing the laminate in new position along with the halftone image of the holder perforated by laser.

Border control was tightened by providing the ability to security officers to check the photo which was included in the application for issuing of passing citizens in the database for personal documents through internal network.

Given the serial number of the document and the date of birth of the person it is also possible to

verify the validity of a presented document through a website of the Ministry of Interior (Fig. 13).



Fig. 13. Document validity verification portal

Specimens of Bulgarian identity documents can be seen over in the Public Register of Authentic Documents Online - PRADO (prado.consilium.europa.eu).

11 Release of new documents in the near future

In worldwide scale the security of identity documents becomes more important with the new challenges posed by mass migration and terrorism threats. Bulgaria makes no exception in this context. With the advance of modern technologies it was decided that the new Bulgarian ID card must contain electronic storage device with biometric data. It will be contained in a separate data group in a secured fashion according to the recommendations of ICAO DOC 9303. Holder's approval will be needed for recording. Currently biometrics for both Bulgarians and residing foreigners is being stored in the electronic supported documents. Corresponding law changes are intended for the ID card to be added to their family.

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changes are intended for the ID card to be added to their family.

12 Conclusion

In this paper an extensive overview of the personal documents for identification and travel of Bulgarian citizens and foreigners residing in Republic of Bulgaria is presented. Currently the protection against forgery has been applied in two levels – by introduction of a set of special materials and advanced physical features and by the use of encrypted electronic records stored in a chip for a part of the issued documents. Following the decisions and council regulations of the European Commission and the recommendations of the ICAO Bulgarian personal documents are considered reliable enough to the extent to be freely used within and outside the European Union including the Schengen area. In the near future a new advanced ID card with on-chip capabilities of providing electronic identity and qualified digital signature will be introduced further extending the abilities of Bulgarian citizens for free and more secure travel and wider economic exchange.

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