



Position Paper

Electronic Driving Licence

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Introduction

The DIGITAL AGENDA FOR EUROPE (DAE) aims to reboot Europe's economy and help Europe's citizens and businesses to get the most out of digital technologies. This flagship initiative under EUROPE 2020 would benefit the internal market, i.e. the free flow of goods, people, services and capital.

One key element on this agenda is the **electronic identification** of citizens. Many regulations of the European Commission underline this, such as

- EC 2252/2004 regarding electronic Passports
- EC 1030/2002 regarding electronic Residence Permits
- EC 2135/1998 regarding driver cards for trucks and buses (called Tachograph)
- EC 127/2003 regarding electronic vehicle registration cards

An overview of the electronic ID documents was published as a document called Generic eID by EUROSMART in March 2011.

In eight of the 27 Member States of the European Union (EU) there is no mandatory or optional national identity document in use. For example, the United Kingdom has not issued any ID document since 1951. Given these circumstances, the driving licence often takes over the role of a "de facto" identity document. It is used for example for check-in in hotels, to open a new bank account, as an identity document on the road and in many other cases.

1. European Directive

In late 2005 the European Commission and the related Directorate-General for Mobility and Transport (DG MOVE) registered 110 different valid driving licence documents in use that differ in design, material, data set, optical security and validity period. Most of them are written in the national language of the country of issue. In 2006 the European Commission published the new directive 2006/126/EC in order to harmonise the driving licence document in format, data set, optical security and validity period. The deadline for issuing this new document was set for 19 January 2013. In the original regulation of 2006, the use of an electronic driving licence (with a chip) is optional. In the case of electronic driving licences, a full-face photo must be stored on the card; two fingerprint images are optional.

One of the main changes in the regulation on driving licences is the introduction of a limited driving licence validity period. While for citizens the regulation mandates a validity of 10-15 years, a validity of only 5 years is stipulated for professional/commercial drivers. The main aim is to avoid outdated pictures on driving licences so as to ensure reliable authentication. The repetition of tests and other criteria when renewing the driver's licence are not provided for by the EU directive; however, individual member states might choose to do so.

On 5 May 2012, the DG MOVE of the European Commission published Commission Directive 383/2012, an amendment and a supplement to the aforementioned directive, addressing an EU driving licence with a microcontroller.

3. EU e-Driving Licence Specification

In the amendment of the EU regulation, the specification shows deviations from the international standard ISO 18013. These deviations concerns two aspects:

- a) Transport ministries in Europe are involved in the specification, such as the DVLA in the UK and the RDW in the Netherlands
- b) Use of EAC to access biometric information (if present) in order to capture synergies with the ePassport infrastructure

Despite the deviations from ISO/IEC 18013, Commission Regulation 383/2012 may be considered a first step towards reconciliation between the ISO/IEC and EU norms and standards. Within the framework of the amended EU standard, the security protocols for the electronic data storage medium can be configured in such a way that a certain compatibility with ISO/IEC is established. However, while Commission Regulation 383/2012 limits the security protocols to BAC, as defined by ICAO, ISO/IEC 18013 allows four different configurations with ascending security levels for its BAP and EAP protocols. It should be noted that the first BAP configuration from the ISO18013 makes use of the TDES algorithm and is compatible with the BAC protocol. De facto compatibility of both standards can only be attained at the lowest BAP and EAC configuration. Some additional modification along the security architecture, like PACE and AES should be expected in the near future.

Beyond that, an approval process at member state level for driving licence manufacturers is mandated. These EU type approvals require both a functional and a security certificate. While the security certificate asks for EAL4+ level compliance, the underlying protection profile still appears to apply.

4. Advantages of the electronic driving licence

Fitting driving licences with an electronic chip has obvious advantages for both law enforcement authorities and citizens:

- Cross-checking the printed information against the data stored in the embedded chip (off-line scenario), or both data sets against a remote database (on-line scenario), greatly improves the level of confidence and convenience in document verification, thus making roads safer and thwarting identity fraud.
- Introducing a pan-European electronic driving licence along the lines of Commission Regulation 383/2012 contributes to the unification of electronic identification standards within Europe and helps to protect citizens and their vehicles across borders.
- Electronic identity documents carry a multi-application capability that opens the door to a host of useful and convenient services that make citizens' lives easier and help to reduce cost and transaction complexity in public administration.

5. References, worldwide

Several countries have deployed electronic driving licences. Early deployments used proprietary implementations. To give a worldwide overview:

El Salvador was the first country to introduce, in 1998, a smart card-based driving licence. The scheme is proprietary and uses low-capacity microcontrollers.

India followed in 2004. Their solution is proprietary in considering the application standard ISO 18013, contact-based, 4k Memory, with biometric minutiae of the card holder's finger prints. To date, more than 45 million cards have been deployed.

Russia deployed and started tests with contact-less driving licences in 2005.

In 2004 the National Police Agency (NPA) in **Japan** registered an increasing amount of fraud involving the manipulation of the visible data on driving licences in Japan. The decision was made to improve the level of security of the documents in order to avoid a further increase in fraud. This decision included the following measures:

- a) Contactless microcontroller is embedded in the card body

- to allow secure storage of data
- b) Biometric full-face image is stored in a microcontroller
 - to allow automatic recognition of the holder
- c) Authentication protocol between the card and reader using the ISO 18013 standard;
 - to allow interoperability
- d) Authorised personnel (e.g. Police on the street) must have a mobile terminal with an embedded contactless card reader and a card sleeve for the police card;
 - to reduce the misuse of the data on the card
- e) Card to Card authentication to get access to the data on the Driving Licence
 - to ensure only authorised personnel gain access to the data on the chip;

The Universal Traffic Management Society (UTMS), a working group involving Government and the information security industry, was established in 2005 in order to work on the specification for an electronic driving licence and to push the new ISO standard 18013. In 2006 a field pilot test was started in one prefecture in Japan. The mass roll-out began in 2007. Currently, around 75 million electronic driving licences have been distributed in all 47 prefectures.

The lifetime of the Driving Licence in Japan is set to 3 or 5 years. If a driver has not committed any traffic violation he/she gets a new driving licence valid for 5 years. Otherwise the document is only valid for 3 years. To get a new driving licence the driver must visit a police station, pass a new driving test, pay a fee, and provide a new photo and then he/she will be given a new licence. If the driver fails the driving test, no licence is issued. With this policy, the authorities have no pressure to define an age limit for driving a vehicle and the driver must prove to the police that he/she is familiar with all current traffic regulations.

The driving licence card has a chip that uses the contactless interface in line with ISO 14443 with an 8K Bytes memory. This stores the driver's data and the facial image file using a special compression mode.

Some **Mexican States** have deployed a microprocessor-based driving licence since 2007. It contains a picture and a digital signature. It serves as a secure ID card and is the basis for future driving licence applications. Some Mexican states are seeking to store licence points on the chip and to combine the application and removal of points with a direct payment scheme.

A **Moroccan e-driving licence** (and vehicle registration) was introduced few years. Production of the card began in early 2008, based on an 18K full contactless card. The official data stored in the memory include the driver's name & ID card number.

US driving licence documents are issued by the federated administration structure in place. Each US Federal State issues its own DL documents; this means up to 50 different driving licences with different a design and visible security.

In the Federal State of Washington in 2008 a pilot was started for an electronic driving licence. The data set and the security scheme were not consistent with ISO 18013. The eDL is a contactless interface using ISO 18000-6c (868 MHz – UHF). The memory size does not allow the storage of biometric data or any other personal data. It simply contains an identifying number that links to an online database. This card is readable at a distance not exceeding one meter.

Along the 4000 km “green border” between the USA and Canada, a registered frequent traveller programme was established in 2007. As an identifier for this programme the user uses a basic driving licence. After registration the driver gets an identity card, which uses the ISO 18000-6c Standard (UHF). On the Canadian side, e.g. Ontario and Manitoba, interested citizens may apply for an enhanced driving licence (EDL) with the same characteristics. The cards contain just an identifying number used as a pointer system to the database via a contactless reader at the green border. The border police have a monitor (display) on their desk to download the driver's data on the screen whenever a driver comes to this border control point. The border police can manually check the full-face photo on the screen against the driver in the vehicle, and then the driver can go ahead on his way. This programme is called PASS-Card (**P**eople **A**ccess **S**ecurity **S**ervice) and is voluntary. Users must be pre-registered and must pay a fee. The typical lifetime of this kind of registered traveller card is one year. Around 700,000 frequent drivers use this card each day. Users come from Canada as well as from the USA.

6. Outlook in Europe

Recently, at the end of CY 2012, six EU Member States have completed the tender procedure relating to the card body in line with the new EU design and optical security feature, combined with an outlook on a 2nd generation to migrate to the electronic DL. Six other EU States have announced their interest in this approach.

One of the early adopters of the electronic DL in Europe could be France, where its implementation is mandated by national law to be by the end of September 2013. The chosen card interface in France will be contactless, in order to interact on mobile terminals with the electronic Residence Permit Card (which includes the work permit function). In France there are more than two million non-EU nationals permanently registered, who have registered to reside for more than 3 months in France. According to EU law, they need an electronic Residence Permit Card (eRPC). These eRPC must have a data set, biometric data and the security architecture in accordance with ICAO 9303, which allows only the contactless interface under ISO 14443. In the future, the police or other authorised persons will be able to read, with mobile terminals, the driver's details on the street using his/her electronic driving licence as well as that of any non-EU foreigner with a work permit, in order to ensure they are able to drive and work in France, for example on a construction site.

7. Recommendation

EUROSMART fully supports this new wave of electronic identity documents in Europe. This programme of the European Commission underlines that:

- "Security on the road" is essential in Europe.
- Reduction of fraud could be achieved with smart card technology.
- Free movement of citizens is guaranteed.
- An EU-specific application standard is determined, in order to reduce time, effort and risk in drawing up a national tender and to foster technical interoperability;
- The EU Commission has decided to take over most of the content of the ISO-standard;
- Electronic driving licences would be a new pillar of electronic identities in line with the DIGITAL AGENDA for EUROPE

Europe would be a frontrunner in this application, regarding standardised technologies and interoperable documents. Other regions, such as Africa, the Middle-East and Asia, as well as North and South America, could follow this approach. This would mean that they opt for the same technologies and define similar security, and a similar infrastructure and eco-system, including mobile terminals. Working references would be available and could be shown at a national level in Europe by the second half of CY 2013.

Glossary

BAC	Basic Access Control
BAP	Basic Access Protocol
CY	Calendar Year
DAE	Digital Agenda for Europe
DG	Directorate General
DL	Driving Licence
DVLA	Driver and Vehicle Licensing Agency
EAC	Extended Access Control
EAL	Evaluation Assurance Level
EAP	Extended Access Protocol
EC	European Commission
EDL	Enhanced Driving Licence
eDL	electronic Driving Licence
eRPC	electronic Residence Permit Card
EU	European Commission
ICAO	International Civil Aviation Organization

IEC International Electrotechnical Commission
ISO International Organization for Standardization
JPEG Joint Photographic Experts Group
MHz Mega Hertz
NPA National Police Agency
PACE Password Authenticated Connection Establishment
PASS People Access Security Service
RDW Transport-Ministry in Netherlands
SAC Supplemental Access Control
SC ISO Organisation
TDES Triple Data Encryption Standard
UHF Ultra High Frequency
UK United Kingdom
UTMS Universal Traffic Management Society
WG Working Group

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EUROSMART

The Voice of the Smart Security Industry

Eurosmart is an international non-profit association located in Brussels and representing the Smart Security Industry for multi-sector applications. Founded in 1995, the association is committed to expanding the world's Smart Secure Devices market, promoting Smart Security standards and continuously improving quality security applications and services.

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Eurosmart is acknowledged as representing “the Voice of the Smart Security Industry” and is largely involved in political and technical initiatives as well as research and development projects at European and international level.

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