



ReadID Supported Identity Documents

*An overview of chipped passports,
identity cards, and residence permits
supported by ReadID*

Colophon

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Synopsis

This document provides an overview on all passports, identity cards, and residence permits, and whether they have a contactless (NFC) chip that is supported by ReadID for (potential) customers and partners. This is confidential information and is only shared under an NDA.

A public summary of this document is shared as 3 separate blog posts on ePassports, identity cards, and residence permits on the inverid.com website. In addition, there is summary of this document available as well via our website (after registration) and/or via support that can be shared without an NDA.

Inverid does not guarantee the correctness of this overview.

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1 Introduction

Since 1980, the International Civil Aviation Organization (ICAO, part of UN) standardises travel documents for international interoperability. The ICAO DOC 9303¹ *Machine Readable Travel Documents* specifies the technical details, including printing and physical details. It also specifies the details on the embedded contactless (NFC) chip including biographical and biometrical data stored in the chip and the digital signatures for securing the data in the chip, which is most relevant for ReadID. A travel document with an embedded chip is called an electronic Machine Readable Travel Document (eMRTD) and must carry the symbol below.



Figure 1. eMRTD chip symbol

Nowadays, many passports, identity cards, and residence permits have an embedded contactless eMRTD (Near Field Communication, or NFC) chip. Used terms for this include ePassport, biometric passport, electronic identity card (eID)² or biometric identity card. We'll use the terms ePassport and electronic identity card (or eID) in this document. In some countries like UK, a residence permit with the eMRTD chip is called the biometric residence permit.

1.1 ICAO 9303 BASICS AND SUPPORT IN READID

Countries have adopted to ICAO 9303 standards quickly in the last decades. Malaysia was the first country in the world to issue ePassports in 1998. By the end of 2008, there were already 62 countries and regions issuing ePassports³. This number doubled to 120 by 2017, with 80% of all passports being ePassports⁴. Currently, in 2023, we have found that there are 171 countries and regions issuing ePassports. In the European Economic Area (EEA)⁵, 23 out of 30 member states issue electronic identity cards; and all member states, except Iceland and Liechtenstein, issue ICAO 9303 compliant residence permits. There are few other countries outside the EEA that also implemented electronic identity cards. In total, we have seen 37 countries and regions outside the EEA have issued ICAO compliant electronic identity cards. Identity cards from the countries outside EEA are often used domestically, and are not as travel documents to cross the borders. There is less needs to compliant to an international standards like ICAO 9303.

ICAO eMRTDs, for example ePassports, eIDs, or residence permits with eMRTD chips, control the access to the data in the contactless chips using Basic Access Control (BAC) and/or the newer Password Authenticated Connection Establishment (PACE). eMRTDs sometimes have a third access control mechanism called Terminal Authentication (TA, or also called EAC-TA) for securing access to the fingerprint data in the chip. This is however rarely used. ReadID supports BAC and PACE, but currently did not productise support for Terminal Authentication (TA). In reality, getting access to the required certificates from the using country to read fingerprints is not an option. There has not been demand for TA from customers.

There are two cloning detection mechanisms: Active Authentication (AA) and Chip Authentication (CA, or also sometimes called EAC-CA). Cloning detection can be used for any identity document reader to check whether the document is a genuine copy or not. An eMRTD may implement Active Authentication, Chip Authentication, both, or neither. A document without cloning detection is often, but not always, an older document. ReadID supports both Active Authentication and Chip Authentication.

¹ International Civil Aviation Organization (ICAO) Doc 9303 Machine Readable Travel Documents <https://www.icao.int/publications/pages/publication.aspx?docnum=9303>

² From Wikipedia (September 10, 2021): https://en.wikipedia.org/wiki/Electronic_identification

³ <https://web.archive.org/web/20170406111611/http://findbiometrics.com/over-60-countries-now-issuing-epassports-2/>

⁴ <https://www.secureidnews.com/wp-content/uploads/2017/01/NXP-white-paper-the-future-of-epassports.pdf>

⁵ The European Economic Area consists of all EU countries plus Norway, Iceland, and Liechtenstein. These additional countries follow the EU regulations/directives on a.o. identity documents.

All information stored in the eMRTD is digitally signed by the issuing country's Country Signing Certificate Authority (CSCA). An identity document reader can check the authenticity of the passport, but only if it has the corresponding public key certificate in its list of trusted certificates. The check of the digital signature consists of three sub-parts: checking the hashes (HT), checking an intermediate certificate (DS) and checking the country certificate itself. The combination of the three is called passive authentication. ReadID supports this.

To know more about access control, cloning detection, and authenticity mechanisms, please read the blogs on these security mechanisms^{6,7,8} on the Inverid website.

1.2 ICAO 9303 STANDARDS CONCERNING CHIP CONTENTS

The ICAO 9303 standards (eighth edition, 2021) define personal and document information stored in the chip of electronic identity documents as well as the format in which this information should be stored. There are mandatory fields like names, date of birth, etc. There is also optional information, which each issuing state can decide if they put this in the chip themselves. For example, an issuing state can decide to store the identity document holder's personal number in the chip or not.

There are 16 data groups in the eMRTD chip, of which 6 are relevant for this document since they (can) store personal or document information. These 6 data groups are listed in Table 1. The other data groups are for security purposes or not (or rarely) used.

Table 1. The list of data groups in ICAO 9303 identity documents

Data Group (DG)	Contents	Necessity
DG 1	Machine Readable Zone (MRZ) Information	Required
DG 2	Face image	Required
DG 3	Fingerprint image	Optional
DG 11	Additional personal details	Optional
DG 12	Additional document details	Optional
DG 13	Optional details	Optional

1.2.1 Data Group 1 (DG 1)

DG 1 stores the same string as the MRZ string and includes the following personal and document information.

Personal information:

1. *Name of holder*: It is generally represented in two parts: the primary identifier and the secondary identifier, separated with "<<". It is in *Latin* alphabetic characters (A-Z), with a maximum of 39 characters for passports and 30 characters for identity cards and residence permits. The issuing state defines which part of the name is the primary identifier. This may be the family name, the maiden name, or the married name, and sometimes, the entire name where the holder's name cannot be divided into two parts. The remaining parts of the name are the secondary identifier.
2. *Nationality*: as a three-letter code (alpha-3) defined in [ISO 3166]⁹, often called ISO 3. For example, "NLD" is used for the Netherlands. There are few states and authorities which do not use or have ISO 3 codes, listed in ICAO 9303 part 3¹⁰. The most seen exception is Germany using only one code "D", instead of "DEU".
3. *Date of birth*: in the format of YYMMDD
4. *Gender*
5. *Optional data*: An issuing state can define their own usage for this field. Passports have one optional data field, which ICAO 9303 standards suggest storing personal numbers in it. On the other hand, identity cards and residence permits have two optional fields. ICAO 9303 standards leave the issuing states to define the

⁶ Privacy-related security mechanisms for ePassports (<https://readid.com/blog/Privacy-related-security-mechanisms-for-ePassports>).

⁷ Cloning detection for ePassports (<https://readid.com/blog/Cloning-detection-for-ePassports>).

⁸ Authenticity of ePassports (<https://readid.com/blog/Authenticity-of-ePassports>).

⁹ Available: <https://www.iso.org/iso-3166-country-codes.html>.

¹⁰ Available: https://www.icao.int/publications/Documents/9303_p3_cons_en.pdf

exact usage of those fields, for example to store personal numbers, or to store the excessive document numbers when they are longer than 9 characters.

Document information:

1. *Document number*: the 9 most significant characters. It can use Latin alphabetic characters (A to Z) and numeric characters (0 to 9).
2. *Document code*: for example, *P* or *ID*
3. *Issuing State or organization*: in the format of ISO 3 with exceptions. See the section of *Nationality* in *Personal Information* for more details.
4. *Date of expiry*: in the format of YYMMDD

It is possible that a document holder has no nationality or no secondary name or is gender neutral. For example, the Netherlands, Germany, Argentina, Australia, Canada, Denmark, India, Malta, Nepal, New Zealand, and Pakistan offer a gender-neutral option when applying for a passport¹¹. In such cases, the relevant data fields may be present but contain no information (i.e., they are empty).

1.2.2 Data Group 2 (DG 2)

DG 2 is a required data group that stores a picture of the identity document's holder related to the one printed out in the Visual Inspection Zone (VIZ), but with a higher resolution and typically in colour, whereas prints may be grayscale.

1.2.3 Data Group 3 (DG 3)

Although many documents nowadays store fingerprint images in DG 3, this requires different keys to retrieve those images. There is no country publicly sharing those keys. Moreover, the EU regulation only allow the authoritative organisations to access the fingerprints. This makes reading DG 3 in practice not possible. Due to lack of customer demand, ReadID therefore does not offer this functionality (currently).

1.2.4 Data Group 11 (DG 11)

DG 11 is an optional data group to store additional personal information, including:

1. *Full name of the holder*: It can be up to 99 characters. It is often used when the name of the holder exceeds the limit of mandatory name length (39 characters for passports or 30 characters for identity cards), or when the full name contains diacritics, or when the holders' real names are in different scripts than Latin.
2. *Other name(s)*: It can be up to 99 characters. Like the full name, the other name may contain diacritics and may use different scripts than Latin.
3. *Personal number*
4. *Full date of birth*: in the format of CCYYMMDD
5. *Place of birth*
6. *Address*
7. *Telephone number(s)*
8. *Profession*
9. *Title*
10. *Personal summary*
11. *Proof of citizenship*
12. *Other valid travel documents*
13. *Custody information*

An issuing state can store none, one, or multiple pieces of information from the above list in the chip. For example, Spanish passports only store personal numbers and place of birth in DG 11. Dutch passports, on the other hand, only store the full name of the holders in DG11, and only in the situation when the holder's real name exceed the limit of 39 characters.

¹¹ <https://www.bbc.com/news/world-europe-45914813> and <https://www.bmi.bund.de/DE/themen/moderne-verwaltung/ausweise-und-paesse/reisepass/reisepass-artikel.html>

The set of the information stored in the chip can be different for different generations of the identity documents. It can even be different within the same generation. This can be caused by the change of laws or regulations.

1.2.5 Data Group 12 (DG 12)

DG 12 stores additional document information, including:

1. *Issuing authority*
2. *Date of issue*: in the format of YYYYMMDD
3. *Image of front and back MRTD*. It is very rare to see these images stored in the chip. For example, no identity document from EEA, UK, Switzerland, and Ukraine includes these images in the chip.
4. *Other person(s)* who is included on the MRTD
5. *Endorsement(s)/observation(s)*
6. *Tax/exit requirements*
7. *Personalised time*: in the format of yyymmddhhmmss
8. *Personalised device serial number*

Similar to DG 11, an issuing state can choose their own set of information stored in the chip. It can also not include DG 12 at all. Moreover, the set of data fields can be different for different generations of identity documents and can also be different within the same generation.

1.2.6 Data Group 13 (DG 13)

DG 13 stores optional personal information, which an issuing state can define by themselves. For example, Luxembourg stores the national identification numbers in DG 13 of the identity cards. However, it is considered as sensitive data in Luxembourg and secured with different keys which they do not publicly share. This makes reading the national identification numbers from Luxembourg identity cards in practice not possible.

Nevertheless, ReadID reads and provides the raw data of DG 13 to our customers, without interpreting the contents.

1.3 PERSONAL NUMBERS IN THE CHIP

Since the personal number is often important for customers, and if and where in the chip this is located varies between identity documents, we pay special attention to this. Generally, personal or document information is stored at one dedicated location in a specific data group in the chip of the electronic identity document. The first exception is the name of the holder; this can be stored in three different locations: *Name of holder* (DG 1) as a mandatory location, *Full name of holder* (DG 11), and *Other name(s)* (DG 11) as complementary naming information. The personal number is the second exception here.

The personal numbers can be stored in *Optional Data* field(s) in DG 1 and/or *Personal number* field in DG 11. Moreover, there are two *Optional Data* fields in DG 1 for identity cards and residence permits, while only one in passports. Issuing states can store personal numbers in either of the *Optional Data* fields, or *Personal number* field, or both of them, or none of them.

In addition, for the tables in the rest of the document, we clarify the usage of DG 1 *Optional data* field(s) based on our knowledge. If the field is present and has no extra explanation, it means that the field is used for storing personal numbers.

An issuing state can choose their own locations to store personal numbers. The location can also differ for generations. Sometimes, it can also be caused by the change of laws and regulations. For example, from August 2021, the Dutch government removed the personal number (*Burgerservicenummer*, also known as BSN) from the MRZ and the chip for all newly issued passports and identity cards. Seldomly, the personal number can also be stored in other datagroups/optional fields. For example, Luxembourg has encrypted the personal number and stored it in the DG 13.

1.4 READID COVERAGE OVERVIEW

ReadID has a large default list of country signing certificates (CSCs) to verify the authenticity of most of the identity documents. By default, ReadID can verify passports from 116 countries (68% of all countries with

ePassports), all EEA identity cards (75% of EEA member states issues identity cards with eMRTD chips), and 96% of EEA residence permits (97% of EEA member states issues residence permits with eMRTD chips). In cases where the ReadID default CSC list misses an important certificate, we can work with customers to add a certificate and/or implement a work-around.

In Figure 2 we plot the ReadID coverage for passports, focusing on 'ordinary' passport (contrary to, for example, diplomatic passports). We have specified the following categories:

- Read & verify (**Dark green**): ReadID can read and verify the passports. The default list has all country signing certificates from the country.
- Read & partially verify (**Middle green**): ReadID can read the passports and has some country signing certificates to verify part of the passports.
- Read only (**Light green**): ReadID can read the passports, but the default list does not include the required country signing certificates to verify them.
- No chip (**Light gray**): Passports have no contactless chip.

In the rest of the document, we follow the same categorisation to detail the coverage of the documents.



Figure 2. ReadID coverage on ordinary passports worldwide (June 2023)

In Figure 3 we plot the ReadID coverage of identity cards in EEA, UK, Switzerland, and Ukraine in the similar way. Since August 2, 2021, the identity cards of Germany have ICAO compliant contactless chips, which was not the case before. Further, the new French identity cards issued from March 2021 and Slovak identity cards from December 2022 can be only read in Android mobiles with ReadID. The details on identity cards coverage can be found in Section 9.2.

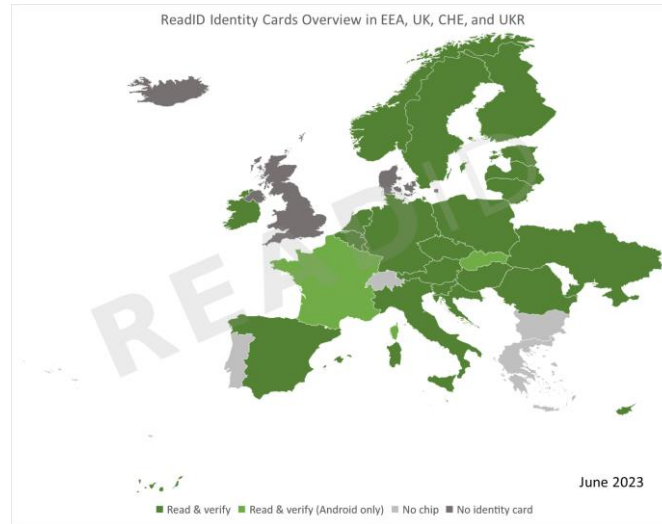


Figure 3. ReadID coverage on identity cards in EEA, UK, Switzerland, and Ukraine (June 2023)

In Figure 4, we show the ReadID coverage of residence permits in the same area. The detail on residence permits coverage can be found in Section 10.2.

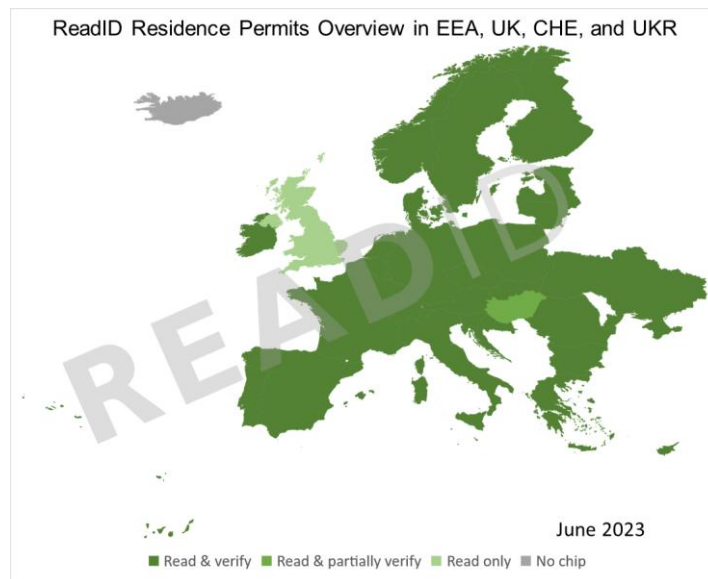


Figure 4. ReadID coverage on residence permits in EEA, UK, Switzerland, and Ukraine (June 2023).

1.5 SCOPE

This document provides an overview of ordinary passports and identity cards issued worldwide, and residence permits issued in EEA, UK, Switzerland, and Ukraine. Ordinary passports and identity cards are the majority of identity documents. The special passports for diplomats, officers, seamen, and refugees are out of scope. Regular residence permits are most popular and well-regulated in Europe. Therefore, we put the focus on this region.

We present the detailed list on each generation of passports, identity cards, and residence permits per country based on the categories we defined above in Section 1.2, also including the information whether a document has implemented any cloning detection mechanism.

For the European identity documents and all identity cards, we dive into the details of the additional personal and document information stored in the chips. Name of holder, date of birth, gender, and nationality are essential

personal information that every document has. Some other information is optional. We specifically provide an overview of the presence of the following additional personal and document information in a chip:

- DG 1: *Optional data*
- DG 11: *full name of holder, Other name(s), and Place of birth*
- DG 12: *Issuing authority, and Date of issue.*

We have selected those fields because they are the most used fields from the use cases of our existing customers, besides the essential personal information.

This data is collected and processed using our anonymous data analysis tool ReadID Analytics. We provide the information as is. If you spot any mistakes, please inform us via documents@inverid.com.

1.6 READING GUIDE

We dive into the details per country in the rest of the document. For readability, we look at the passports per continent in separate chapters (Chapters 2 to 7) with the following order: Europe, North America, South America, Australia and Oceania, Asia, and Africa. Chapter 8 gives an overview about the EU regulations on identity cards and residence permits. Chapter 9 and Chapter 10 dives into the details on the identity cards and residence permits, respectively. Chapter 11 to Chapter 16 provide an overview of identity cards in the rest of world. Chapter 17 lists the documents which have implemented Password Authenticated Connection Establishment (PACE) using card access numbers (CAN).

In each of the following chapters, we always start with the overview, and then dive into details in the tables for every generation of the currently valid identity documents in every country. With valid we mean a generation of document of which not all issued documents have expired yet, and thus can be used as identity document.

As the word generation implies, a generation often succeeds the previous. However, some countries issue(d) two generations in parallel.

The table below is the example from New Zealand, followed by the annotation of each column.

Table 2. An example of the identity document overview list

Country Name	3-letter code	First issue date (dd/mm/yyyy)	Document code	Contactless chip	Cloning detection	ReadID support	
						Read	Verify
New Zealand	NZL	03/05/2021	P	✓	✓	✓	✓
		18/11/2016	P	✓	✓	✓	✓
		08/10/2009	P	✓	✓	✓	✓

Annotation of the columns:

Country Name: The name of the country

3-letter code: Country code shown in MRZ. Based on the ICAO 9303 standard, the country code in MRZ is based on ISO 3166¹². Germany is the only exception to use “D<<” instead of ISO 3166/MA.

First issue date: The first issue date of the document generation. It is formatted as dd/mm/yyyy. Versioning information is gathered from public and non-public sources. We list all currently valid generation of the target identity documents in this document. A country might still issue older generations of documents after this date for a while.

Document code: The document code shown in MRZ. The Document Code are the first two characters from the MRZ. This can also be only one code, with the second a “<” which is the ICAO equivalent of a space in an MRZ, for example “P<” or “I<”. We then leave out the “<”.

¹² <https://www.iso.org/iso-3166-country-codes.html>

Contactless chip: whether the target identity documents have embedded ICAO compliant contactless chip.

- ✓ (dark green): With a contactless chip
- ✗ (red): Without a contactless chip

Cloning detection: whether we have evidence that the target identity documents have implemented any cloning detection mechanism.

- ✓ (dark green): All target identity documents have implemented at least one cloning detection mechanism.
- ✓ (light green): Part of the target identity documents has implemented at least one cloning detection mechanism.
- ✗ (red): the target identity document does not have any cloning detection mechanism.
- ? (black): unknown, i.e., we do not see enough data from the document.
- - (black): not applicable, i.e., when there is no chip in the document.

ReadID Support/Read: whether we have evidence that ReadID can read the chip of the target identity document. This also implies ReadID can scan the MRZ of the target identity documents.

- ✓ (dark green): Can read
- ✓ (light green): Part of ReadID products can read the chip of the targeted identity documents.
- ✗ (red): ReadID cannot read the chip from the target identity document. This never happens to ICAO 9303 compliant documents. ReadID cannot read identity documents with proprietary protocols.
- ? (black): Unknown, i.e., we do not see enough data from the document.
- - (black): Not applicable, i.e., when there is no chip in the document.

ReadID Support/Verify: Whether we have successfully tested that ReadID can verify the authenticity of the target identity documents using the default CSCs list.

- ✓ (dark green): ReadID default list has all CSCs and can verify all target identity documents.
- ✓ (light green): ReadID default list has part of the CSCs and can verify some target identity documents.
- ✗ (red): ReadID default list does not have the CSCs and cannot verify any target identity document from this generation.
- ? (black): Unknown, i.e., we do not see enough data from the document.
- - (black): Not applicable, i.e., when there is no chip in the document.

We present the chip details of the European passports and world-wide identity cards in the extended table with the additional section on the chip contents as below.

Table 3. An example of the extended document overview list

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID			Chip Content										
						Read	Verify	Presence	Full Name			Other Name			Optional Data ¹³	Personal Number	Place of Birth	Issuing Authority	Date of Issue
									Script	Diacritics	Presence	Script	Diacritics						
Austria	AUT	05/09/2014	P	✓	✓	✓	✓	✓		Latin	✗	✗	-	-	✗	✗	✓	✓	✓
		16/06/2006	P	✓	✓	✓	✓	✓		Latin	✗	✗	-	-	✗	✗	✓	✓	✓

¹³ When the optional data field is present and without any further explanation, we think it is used to store the personal number. We will specify it if it is used for a purpose other than the personal number.

Annotation of the columns:

Please see above for the detailed annotations on **Country, 3-letter code, First issue date, document code, contactless chip, clone detection, ReadID/Read**, and **ReadID/Verify**. We address the annotations on the part of Chip Content below.

Full name of holder: The *Full name of holder* field from DG 11

Presence: Is the field present in the chip?

- ✓ (Dark green): The field is present.
- ✓ (Light green): The field is present in part of the documents.
- X (Red): The field is not present.

Script: The script used for full names

- Name of script (black): If exists.
- - (black): Not applicable, when full names are not present.

Diacritics: Did we observe diacritics in the full names?

- ✓ (Light green): Diacritics were observed in part of the documents. Some citizens in a country may have diacritics in their names.
- X (Red): No diacritics in the full name were observed.
- - (black): Not applicable, when full names are not present.

Other name of holder: The *Other name(s)* field from DG 11

Presence: Is the field present in the chip?

- ✓ (Dark green): The field is present.
- ✓ (Light green): The field is present in part of the documents.
- X (Red): The field is not present.

Script: The script used for other names

- Name of script (black): If exists.
- - : Not applicable, when other names do not present.

Diacritics: Did we observe diacritics in the other names?

- ✓ (Light green): Diacritics were observed in part of the documents. Some citizens in a country may have diacritics in their names.
- X (Red): No diacritics in the full name were observed.
- - : Not applicable, when other names do not present.

Optional Data: The *Optional data* from DG 1. Issuing countries are free to define the usage of the field. When this field is present and without any explanation, it is used to store personal number based on our knowledge. We will specify it if it is used for a purpose other than the personal number. For identity cards and residence permits, we split this column into two columns **Optional Data 1** and **Optional Data 2**.

- ✓ (Dark green): The field is present.
- ✓ (Light green): The field is present in part of the documents.
- X (Red): The field is not present.

Personal number: The *Personal number* field from DG 11

- ✓ (Dark green): The field is present.
- ✓ (Light green): The field is present in part of the documents.
- X (Red): The field is not present.

Place of birth: The *Place of birth* field from DG 11

- ✓ (Dark green): The field is present.

- ✓ (Light green): The field is present in part of the documents.
- X (Red): The field is not present.

Issuing authority: The *Issuing authority* field from DG 12

- ✓ (Dark green): The field is present.
- ✓ (Light green): The field is present in part of the documents.
- X (Red): the field is not present.

Date of issue: The *Date of issue* from DG 12

- ✓ (Dark green): The field is present.
- ✓ (Light green): The field is present in part of the documents.
- X (Red): The field is not present.

1.7 DISCLAIMER

There is basically no authoritative source of all identity documents, and certainly not a publicly available one that contains details on the contactless chip implementation. In addition, this is a moving target. We combined knowledge from public sources, non-public sources, internal and customer testing, and ReadID Analytics¹⁴ data to generate the overview in this document. The percentage of documents with clone detection in each country has been estimated based on our Analytics data. There however may be mistakes or missing information in the overview, and we provide this overview as-is, without any form of guarantee. We always appreciate feedback on any mistakes or outdated information via documents@inverid.com.

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¹⁴ ReadID Analytics contains anonymous logging information that we use to improve ReadID, including if an MRZ scan or NFC read was successful and characteristics of the chip.

2 Passports from Europe

We discuss EEA, UK, and Switzerland separately from the rest of Europe since the latter two must adhere to the EU regulations on identity documents.

2.1 EPASSPORTS FROM EEA, UK, AND SWITZERLAND

2.1.1 EU Related regulations

The European Economic Area (EEA) countries follow EU regulations related to identity documents. The EU in 2004 in Council Regulation (EC) No 2252/2004¹⁵ already specified that passports should follow the ICAO 9303 standards, with the requirement to use the ICAO compliant contactless chip for storing facial and fingerprint images in the contactless chip.

In 2011, the European Commission (EC) defined that Password Authenticated Connection Establishment (PACE) was a better successor of the Basic Access Control (BAC) and would be enforced in EU ePassport at the latest on 31 December 2014 in Decision C (2011) 5499¹⁶.

In November 2018, Annex of Decision C (2018) 7774¹⁷ has further updated the technical specifications on EU ePassports. It specifies that the EU ePassports are required to implement PACE for controlling access to the data on the chip, Chip Authentication (CA) for cloning detection, and Terminal Authentication for securing fingerprint data. Countries can choose to also support the (older) BAC to control access to the passport data, and to also support Active Authentication (AA) to for cloning detection.

2.1.2 EEA, UK, and Switzerland Overview

Passports from EU countries are well regulated. All valid ordinary passports from EEA, UK, and Switzerland are ICAO-compliant. ReadID can therefore read and verify all the passports from above mentioned countries. The below figure shows the geographic overview of ReadID passport coverage in EEA, UK, and Switzerland.

¹⁵ Council Regulation (EC) No 2252/2004 on standards for security features and biometrics in passports and travel documents issued by Member States, 13 December 2004, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32004R2252>.

¹⁶ Commission Decision C(2011) 5499 amending Commission Decision C(2006)2909 laying down the technical specifications on the standards for security features and biometrics in passports and travel documents by Member States. https://ec.europa.eu/home-affairs/sites/homeaffairs/files/e-library/docs/comm_native_c_2011_5499_f_en.pdf.

¹⁷ Decision C(2018) 7774 (https://ec.europa.eu/home-affairs/sites/homeaffairs/files/e-library/documents/policies/borders-and-visas/document-security/docs/comm_decision_c_2018_7774_f1_en.pdf) final Annex to the commission implementing decision laying down the technical specifications regarding to the standards for security features and biometrics in passports and travel documents issued by member States and repealing Decision C(2006) 2909 and C (2008) 8657 https://ec.europa.eu/home-affairs/sites/homeaffairs/files/e-library/documents/policies/borders-and-visas/document-security/docs/comm_decision_c_2018_7774_f1_annex_en.pdf

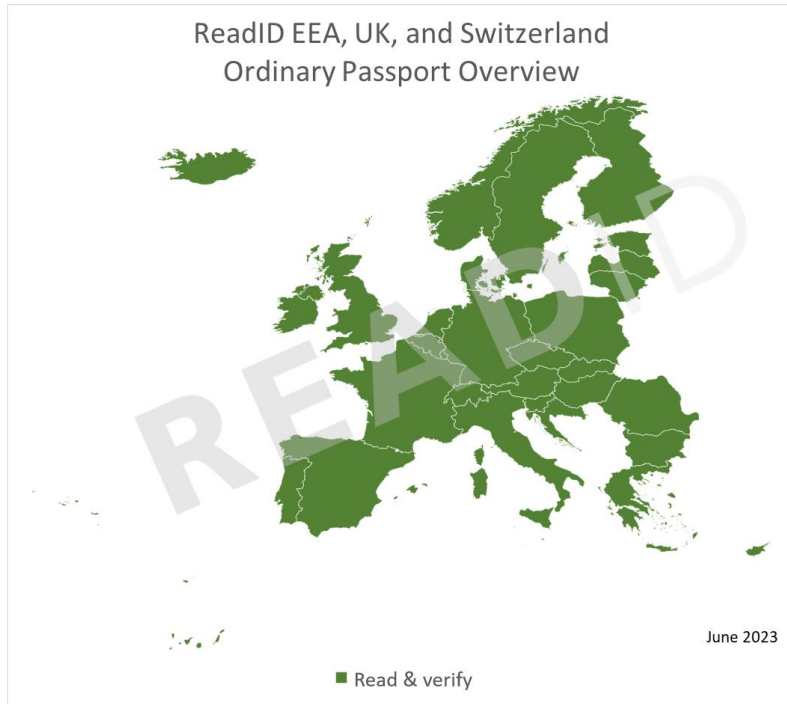


Figure 5. Geographic overview on ReadID of EEA, UK, and Switzerland passports (June 2023)

Sometimes, older passports from certain countries do not have any cloning detection mechanism implemented. Therefore, it is not possible to tell whether the passport is an original or not. Those passports are mostly expired right now, except some old ones from UK. Fortunately, the latest generation of passports from all European countries have implemented at least one of the cloning detection mechanisms (AA and/or CA). Below is the figure plotted based on our loggings from ReadID Analytics.

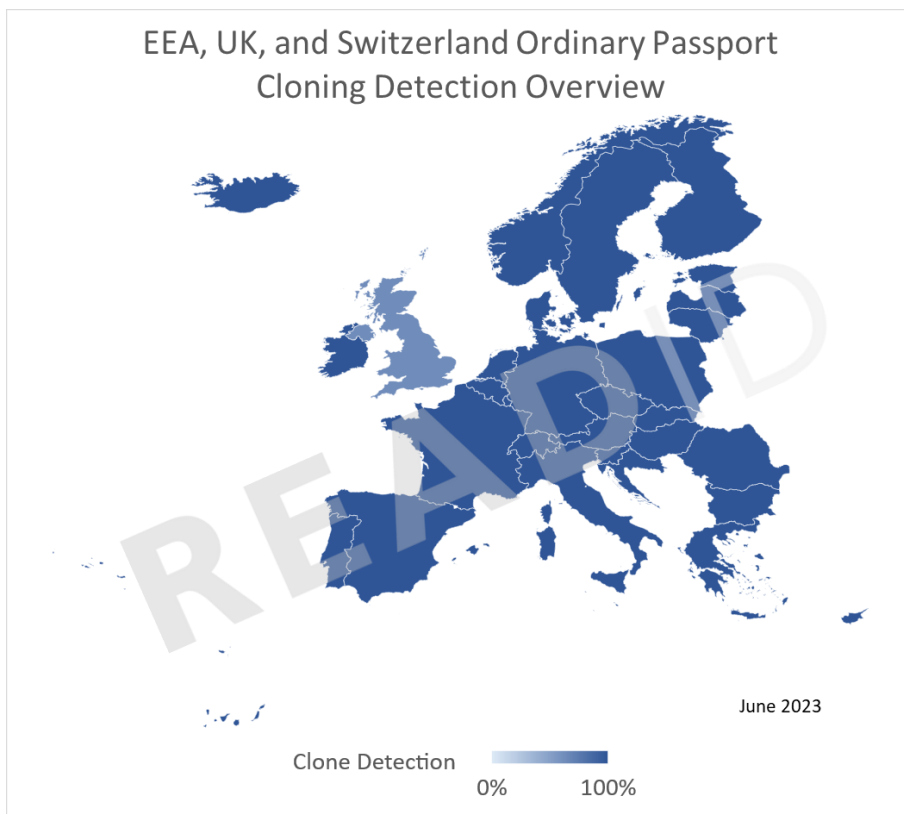


Figure 6. Geographic cloning detection overview on EEA, UK, Switzerland ordinary passports (June 2023)

2.1.3 EEA, UK, and Switzerland Details

The below table contains the details of the currently valid ordinary passports per country, per generation in EEA, UK, and Switzerland. Each generation of passports is distinguished by its first issuing dates¹⁸.

Table 4. List of ordinary passports per country per generation in EEA, UK, and Switzerland (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Presence	Full Name			Other Name			Optional Data ¹⁹	Personal Number	Place of Birth	Issuing Authority	Date of Issue
									Script	Diacritics	Presence	Script	Diacritics	Presence					
Austria	AUT	05/09/2014	P	✓	✓	✓	✓	✓	Latin	X	X	-	-	X	X	✓	✓	✓	
		16/06/2006	P	✓	✓	✓	✓	✓	Latin	X	X	-	-	X	X	✓	✓	✓	
Belgium	BEL	01/02/2023	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	✓	✓ ²⁰	✓ ²⁰	
		07/02/2022	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	✓	✓ ²⁰	✓ ²⁰	
		01/07/2019	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	✓	✓ ²⁰	✓ ²⁰	
		01/05/2017	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	✓	✓ ²⁰	✓ ²⁰	
		01/05/2014	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	✓	✓ ²⁰	✓ ²⁰	
Bulgaria	BGR	29/03/2010	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	✓	X	X	
Croatia	HRV	03/08/2015	P	✓	✓	✓	✓	X	-	-	X	-	-	X	✓	X	✓	✓	
		29/06/2009	P	✓	✓	✓	✓	X	-	-	X	-	-	X	✓	X	✓	✓	
Cyprus	CYP	24/07/2020	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		29/11/2010	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	
Czech Republic	CZE	01/01/2012	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		??/04/2009	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
Denmark	DNK	01/10/2021	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		01/01/2012	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		01/08/2006	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
Estonia	EST	01/01/2021	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		20/04/2017	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		01/06/2014	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
Finland	FIN	13/03/2023	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
		01/01/2017	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	
France	FRA	13/04/2019	P	✓	✓	✓	✓	✓	Latin	✓	✓ ²¹	Latin	✓	✓ ²²	X	✓	✓	✓	
		04/02/2013	P	✓	✓	✓	✓	✓	Latin	✓	✓ ²¹	Latin	✓	✓ ²²	✓ ²³	✓	✓	✓	
		28/01/2008	P	✓	✓	✓	✓	✓	Latin	✓	✓ ²¹	Latin	✓	✓ ²²	✓ ²³	✓	✓	✓	
Germany	D<< ²⁴	26/07/2021	P	✓	✓	✓	✓	X	-	-	X	-	-	✓ ²⁵	X	X	X	X	
		01/03/2017	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	
		01/11/2007	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	
Greece	GRC	27/02/2020	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	
		21/09/2016	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	

¹⁸ Versioning information is gathered from public and non-public sources.

¹⁹ When the optional data field is present and without any further explanation, it is used to store personal number based on our knowledge. We will specify it if it is used for a purpose other than the personal number.

²⁰ Based on ReadID Analytics data, almost all passports have issuing authority and date of issue present (>99%). It is not clear why this is the case.

²¹ Based on ReadID Analytics data, we have seen around 9% of passports with other names present.

²² Based on ReadID Analytics data, we have seen around 97% of passports with optional data fields. It is not clear why the rest does not have optional data field. From the specimen, the optional data field is used for personal numbers.

²³ Based on ReadID Analytics data, we have seen around 3% of passports with personal number fields. Those passports have also optional data in data group 1 present. It is not clear what exactly optional data fields are used for in this case.

²⁴ Germany uses "D<<" in the MRZ. Its actual ISO code is DEU.

²⁵ From the example of specimen, the optional data field is used to record the year and month of issue (yyymm).

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content										
						Read	Verify	Full Name			Other Name			Optional Data ¹⁹	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics					
Hungary	HUN	01/03/2012	P	✓	✓	✓	✓	✓ ²⁶	Latin	✓	✓ ²⁷	Latin	✓	X	X	✓	✓ ²⁸	✓ ²⁹
Iceland	ISL	01/02/2019	PA	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		23/05/2006	PA	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Ireland	IRL	03/10/2013	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		03/05/2013	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		01/10/2006	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
Italy	ITA	20/05/2010	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		26/10/2006	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
Latvia	LVA	28/01/2015	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		20/11/2007	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		01/07/2002 ³⁰	P	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Liechtenstein	LIE	26/10/2006	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Lithuania	LTU	20/05/2019	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	X	X	X
		27/01/2011	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		29/06/2009	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Luxembourg	LUX	16/02/2015	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	X	✓	✓
Malta	MLT	15/11/2019	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		29/09/2008	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Netherlands ³¹	NLD	20/07/2022	P	✓	✓	✓	✓	✓ ³²	Latin	X	X	-	-	X	X	X	✓ ³³	X
		30/08/2021	P	✓	✓	✓	✓	✓ ³²	Latin	X	X	-	-	X	X	X	✓ ³³	X
		09/03/2014	P	✓	✓	✓	✓	✓ ³²	Latin	X	X	-	-	✓	X	X	✓ ³³	X
Norway	NOR	19/10/2020	P	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	✓	✓	✓	X
		19/01/2015	PV	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		01/03/2011	PV	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		01/10/2005	PV	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Poland	POL	23/03/2022	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		01/12/2020 ³⁴	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X

²⁶ Based on ReadID Analytics data, almost all passports have full names in the chips. It is not clear why very few of them (< 1%) do not contain full names.

²⁷ Based on ReadID Analytics data, we have seen around 20% of the passports with other names present.

²⁸ Based on ReadID Analytics data, around 99% of passports have issuing authority stored in the chips. It is not clear why very few of them do not have this information.

²⁹ Based on ReadID Analytics data, around 99% of passports have date of issue stored in the chips. It is not clear why very few of them does not have this information.

³⁰ There is very small portion of the elderly holding a non-chip passport. The passport is valid for 50 years and issued to the person who was 60 years or older at the moment of the application. This passport may not be used for travel outside the Schengen area. <https://www.consilium.europa.eu/prado/en/LVA-AO-01002/index.html>

³¹ The BSN is the citizen service number (personal number) in the Netherlands. It was printed in the Dutch passports and stored in the chip (data group 1), apart from the exceptional cases in which the passport holder had no BSN when the passport was issued. For example, the citizens from the Netherland Antilles (Curacao, Bonaire, Aruba, Sint Maarten, Sint Eustatius, and Saba) do not have BSN, and therefore no BSN is printed in the MRZ and not in the chip (data group 1). See also <https://www.rvig.nl/caribisch-gebied/vraag-en-antwoord/is-het-bsn-geldig-en-ingevoerd-in-het-caribisch-deel-van-het-koninkrijk>. If the passport holder was born outside of the Netherlands and applies for the passport at the local Dutch embassy, there is often no BSN printed, since this person does not have a BSN. Please be aware that from August 2021 on, the Dutch government has removed the BSN from the MRZ and the chip for all newly issued passports and identity cards. The BSN is printed on the document (as a QR and in text).

³² Dutch passports only store the full names in the chip if it has more than 40 characters, i.e., when the name did not fit in datagroup 1.

³³ Around 5% of Dutch passports store the Issuing Authority in the chip.

³⁴ The 2020 version Polish passport has PACE only, without BAC. PACE is a newer standard for access control to the contactless chip, succeeding BAC.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content										
						Read	Verify	Full Name			Other Name			Optional Data ¹⁹	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics					
Portugal	PRT	05/11/2018	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		08/09/2011	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		14/06/2018	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		10/07/2017	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		29/05/2009	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Romania	ROU	01/01/2019	PE	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		06/04/2010	PE	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Slovakia	SVK	26/11/2014	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		15/01/2008	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Slovenia	SVN	12/12/2016	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		28/08/2006	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Spain	ESP	02/01/2015	P	✓	✓	✓	✓	X	-	-	X	-	-	✓ ³⁵	✓ ³⁶	✓ ³⁶	X	X
		01/09/2008	P	✓	✓	✓	✓	X	-	-	X	-	-	✓ ³⁵	✓ ³⁶	✓ ³⁶	X	X
Sweden	SWE	01/01/2022	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
		01/02/2012	P	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X
Switzerland	CHE	25/10/2022	PM	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	X	X	X
		01/01/2017	PM	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	X	X	X
		01/03/2010	PM	✓	✓	✓	✓	✓	Latin	✓	X	-	-	X	X	X	X	X
United Kingdom	GBR	01/03/2020	P	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		08/10/2016	P	✓	✓ ³⁷	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		02/07/2015	P	✓	✓ ³⁷	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		14/06/2011	P	✓	✓ ³⁷	✓	✓	X	-	-	X	-	-	X	X	X	X	X
		05/10/2010	P	✓	✓ ³⁷	✓	✓	X	-	-	X	-	-	X	X	X	X	X

2.2 EPASSPORTS FROM THE REST OF EUROPE

2.2.1 Overview

The countries at the rest of Europe have all issued ePassports. ReadID can read all of them. ReadID can verify all the passports, except part of the passports from Albania, Andorra, Azerbaijan, Bosnia and Herzegovina, Kazakhstan, Montenegro, and all passports from Belarus, and San Marino. The figure below shows the geographic overview.

³⁵ For a Spanish passport issued in Spain, the optional data field stores the personal number. For a Spanish passport issued abroad in a Spanish consulate, the optional data field stores the consulate registry code.

³⁶ Around 70% of passports have the fields for dedicated personal number and place of birth. It is not clear why the rest do not have those fields. As we know, it is possible a passport issued abroad in a Spanish consulate has no personal number. The personal number in the dedicated personal number field are almost the same as the optional data 1 field, with an extra “-” between the last two digits.

³⁷ ReadID Analytics data has shown that all passports with the expiry year from 2029 have cloning detection. Some passports with the expiry years 2027 and 2028 have no cloning detection. Almost all passports that expire before 2027 have no cloning detection.



Figure 7. Geographic overview of ReadID on ordinary passports from the rest of Europe (June 2023)

Guernsey, Isle of Man, Jersey are British overseas territories. Since 2015, United Kingdom has started to issue the standard British passports for its overseas territories. Besides those three countries, the British overseas territories include Anguilla, Bermuda, British Virgin Islands, Gibraltar, Montserrat, Saint Helena, and Turks and Caicos Islands. There are in total 3 generations of passports being issued till now, in 2015, 2016, and 2020, respectively. The issuing state is Great Britain in the data page, where states as “GBR” in Machine Readable Zone (MRZ). The nationality is stated as British nationals overseas in the data page and “GBR” in MRZ. Therefore, it is not possible to distinguish a passport from United Kingdom (UK) or its overseas territories, based on the MRZ data. The chips also have the same security features.

Similarly, Denmark issues passports for the Faroe Islands and Greenland. In the data page of the passports, Denmark is the issuing state, where “DNK” is stated in the MRZ. The nationality is stated as Danish and stated as “DNK” in the MRZ. Similar to the UK and its overseas passports, it is not possible to distinguish a passport from Denmark, Faroe Islands, or Greenland from the MRZ data, as well as from the security features of the chips.

Out of 23 countries with ePassports, only the passports from San Marino have no cloning detection implemented. The rest of countries have implemented or started to implement cloning detection in their passports. Till now, the following 10 countries have all passports with cloning detection: Albania, Andorra, Azerbaijan, Belarus, Georgia, Kosovo, Monaco, Serbia, Ukraine, Vatican City. The following 12 countries have still part of the passports without cloning detection, e.g., Russia, Turkey, UK and Danish overseas countries as Guernsey, Isle of Man, Jersey, Faroe Islands, and Greenland. The following figure shows the cloning detection overview in the rest of Europe.

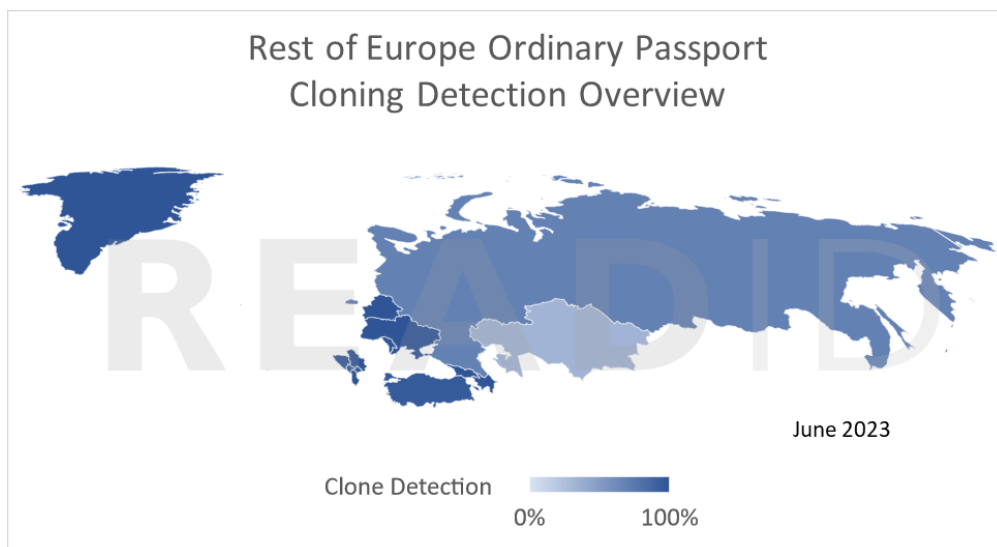


Figure 8. Geographic cloning detection overview on the rest of Europe for ordinary passports (June 2023)

2.2.2 Details

The below table illustrates the details of the ordinary passports per generation per country for the rest of Europe.

Table 5. List of ordinary passports per country per generation in the rest of Europe (June 2023)

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Albania	ALB	01/05/2009	P	✓	✓	✓	✓ ³⁸
Andorra	AND	01/01/2017	P ³⁹	✓	✓	✓	✓ ⁴⁰
Azerbaijan	AZE	01/09/2013	PC	✓	✓	✓	✓ ⁴¹
		01/01/1998	PP	✗	-	-	-
Belarus	BLR	01/01/2021	P	✓	✓	✓	✗
		15/05/2006	P	✗	-	-	-
Bosnia and Herzegovina	BIH	01/10/2014	P	✓	✓ ⁴²	✓	✓ ⁴³
		15/10/2009	P	✓	✓	✓	✗
Faroe Islands	FRO	See Danish passports ⁴⁴	-	-	-	-	-
Georgia	GEO	17/08/2016	P	✓	✓	✓	✓
		26/02/2010	P	✓	✓	✓	✓
Gibraltar	GIB	See British passports ⁴⁵	-	-	-	-	-
Greenland	GRL	See Danish passports ⁴⁴	-	-	-	-	-
Guernsey	GGY	See British passports ⁴⁵	-	-	-	-	-
Isle of Man	IMN	See British passports ⁴⁵	-	-	-	-	-
Jersey	JEY	See British passports ⁴⁵	-	-	-	-	-
Kazakhstan	KAZ	01/01/2009	P	✓	✓ ⁴⁶	✓	✓ ⁴⁷
Kosovo, Republic of	RKS	13/06/2013	P	✓	✓	✓	✓
		31/10/2011	P	✓	✓	✓	✓
	MDA	02/05/2018	PA	✓	✓	✓	✓

³⁸ Based on ReadID Analytics, we are missing the country signing certificate from certain production years, i.e., from the expiry year 2025.

³⁹ Although the specimen passport has the document code "S", we only see passports with document code "P" for Andorra in our ReadID Analytics. Most likely "P" is used for production.

⁴⁰ Based on ReadID Analytics, we are missing the country signing certificate from certain production years, i.e., from the expiry year 2028.

⁴¹ Based on ReadID Analytics, we do not have the country signing certificate for some production years, i.e., from 2025 to 2028.

⁴² Based on ReadID Analytics data, some passports have no cloning detection.

⁴³ Based on ReadID Analytics, we do not have the country signing certificate for a large proportion of passports.

⁴⁴ Denmark issues the passports for Faroe Islands and Greenland. The issuing state is Denmark (DNK in MRZ). The nationality is stated as Danish (Stated as DNK in MRZ).

⁴⁵ Since 2015, Great Britain issues the passports for its overseas territories. The issuing state is Great Britain (GBR in MRZ). The nationality is stated as British nationals overseas (Stated as GBR in MRZ).

⁴⁶ Based on ReadID Analytics, not all passports have cloning detection. The passports expiring before 2026 have no cloning detection. For those expiring after 2026, the percentage of passports with cloning detection increases every year.

⁴⁷ Based on ReadID Analytics, we are missing the country signing certificate for the passports expiring after 2029.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Moldova, Republic of		01/08/2014	PA	✓	✓	✓	✓
		01/01/2011	PA	✓	✗	✓	✓
Monaco	MCO ⁴⁸	01/03/2021	P	✓	✓	✓	✓
		26/10/2005	P	✓	✓	✓	✓
Montenegro	MNE	26/02/2021	P	✓	✓	✓	✓
		05/05/2008	P	✓	✓ ⁴⁹	✓	✓ ⁵⁰
Macedonia, North	MKD	??/??/2015	P	✓	✓	✓	✓
		02/04/2007	P	✓	✓ ⁵¹	✓	✓
Russian Federation	RUS	01/03/2010 ⁵²	P	✓	✓ ⁵³	✓	✓
		01/01/2006	P	✓	✗	✓	✓
San Marino	SMR	??/02/2014	P	✓	✗	✓	✗
		12/10/2006 ⁵⁴	P	✓	?	?	?
Serbia	SRB	13/02/2016	P	✓	✓	✓	✓
		01/07/2008	P	✓	✓	✓	✓
Türkiye	TUR	01/04/2018	P	✓	✓	✓	✓
		01/06/2010	P	✓	✓ ⁵⁵	✓	✓
Ukraine	UKR	01/01/2015	p ⁵⁶	✓	✓	✓	✓
		01/01/2015	p ⁵⁷	✗	-	-	-
		01/01/2007	P	✗	-	-	-
Vatican City State	VAT	01/10/2020 ⁵⁹	PV	✓	?	?	?
		??/??/2015 ⁵⁸	PS	✓	✓	✓	✓
		15/10/2013 ⁵⁹	PV	✓	?	?	?
		??/??/2008 ⁵⁹	PT	✓	?	?	?

⁴⁸ Based on ReadID Analytics, there were only 6 passport readings from Monaco the last year. Hence, it is little data to draw a definitive conclusion. The certificates from the individual readings seem from reliable real passports.

⁴⁹ Based on ReadID Analytics, some passports with the expiry year 2020 to 2022 have no cloning detection. A small percentage of the passports with the expiry year 2023 has no cloning detection. All passports with the expiry year from 2024 have cloning detection.

⁵⁰ Based on ReadID Analytics, we are missing the country signing certificate for the passports expiring after 2029.

⁵¹ Based on ReadID Analytics, some passports with the expiry years 2020 and 2021 have no cloning detection.

⁵² From 2016 onwards, Russia issues ordinary passports at diplomatic posts without NFC chips. We do expect that this is a very small portion of the total Russian passports.

⁵³ Based on ReadID Analytics, all passports with the expiry year from 2028 have the cloning detection mechanism. Between the expiry year 2024 and 2027, only part of the passports has the cloning detection mechanism. The penetration percentage increases every year. Before the expiry year 2024, there is no cloning detection in the passports.

⁵⁴ There is no data in the ReadID Analytics for this generation of the passports.

⁵⁵ Based on ReadID Analytics data, passports with expiry year from 2024 have cloning detection. Before 2024 expiry year, some passports do not have any cloning detection mechanism present.

⁵⁶ Ukraine has stored personal number in the optional data field in the MRZ as well as in datagroup1 in the chip.

⁵⁷ Ukraine has issued two versions of passport in 2015: one with chip and one without chip. The motivation behind is unclear to us.

⁵⁸ We only have 8 passport readings from Vatican City State in ReadID Analytics in the last year. Hence, it is little data to draw a definitive conclusion. The certificates from the individual readings seem from reliable real passports. They will be expired in years from till 2027. We estimate that Vatican City State started issuing the new generation of passports with ICAO chip from 2015, with validity of 5 years.

⁵⁹ We do not have data in ReadID Analytics for the passports with document code "PV".

3 Passports from North America

3.1 OVERVIEW

The largest countries of North America, Canada and the United States have implemented ePassports. ReadID can read and verify the passports from both countries.

UK overseas territories have the same type of passports as in the UK. This means that ReadID can read and verify the passports from Anguilla, Bermuda, the British Virgin Islands, the Cayman Islands, Montserrat, and Turks and Caicos Islands. But ReadID cannot distinguish the UK overseas passports from standard UK passports based on the MRZ and the security features of the chips.

There are 14 other countries that issue ePassports. ReadID can read all of them. Costa Rica, Haiti, Honduras, Belize, and Jamaica have also started to issue ePassports. ReadID can verify all passports from Panama, Barbados, Mexico, and Saint Vincent and the Grenadines, and part of the passports from the Bahamas. We miss (part of) the certificates from Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Costa Rica, Haiti, Belize, Jamaica, and Honduras. Please note that since October 2021, Mexico started to issue ePassports.

There are 7 countries without ePassports so far. This includes Cuba, Guatemala, the Dominican Republic, Nicaragua, Saint Lucia, El Salvador, and Trinidad and Tobago.

The figure below depicts the geographic overview of ReadID coverage in North America.

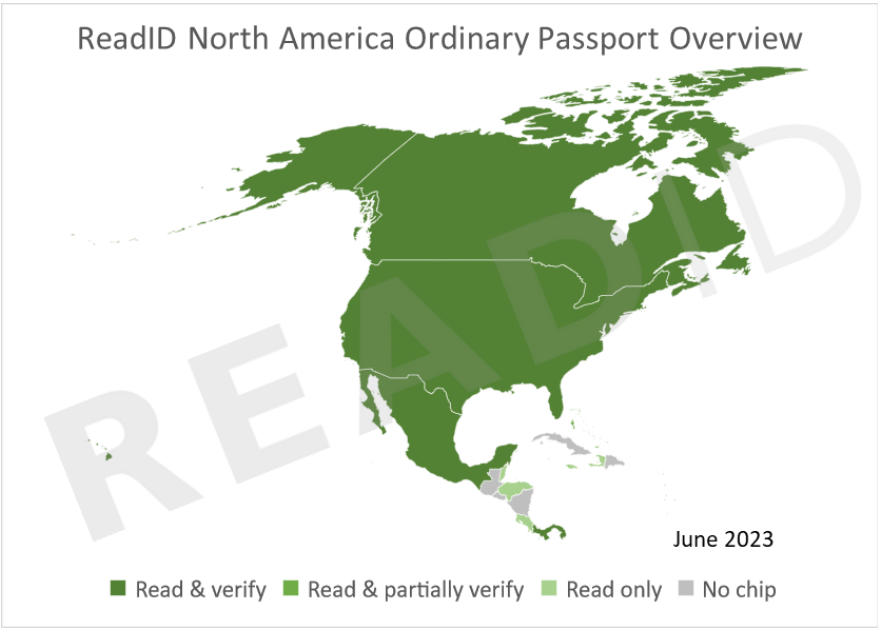


Figure 9. Geographic overview of ReadID on ordinary passports from North America (June 2023)

It is important to mention that US passports have not implemented any cloning detection mechanism. Thus, it is not possible to check whether a US passport is an original or a copy. Similarly, Barbados passports have also no cloning detection mechanism. All 6 UK overseas territories have implemented cloning detection in part of the passports, as has the UK. The other 14 countries have implemented cloning detection in all passports. The figure below shows the geographic overview of the cloning detection implementation.

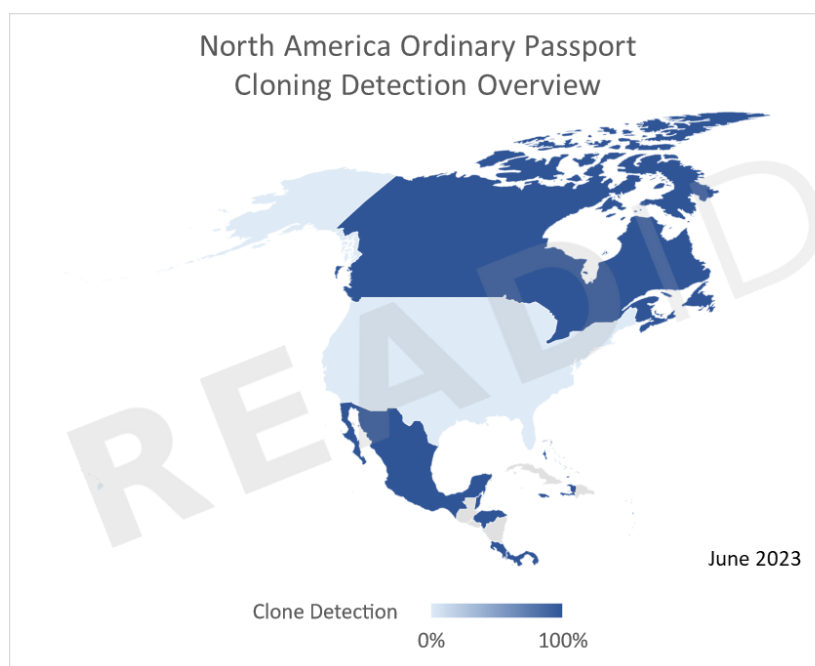


Figure 10. Geographic cloning detection overview of North American ordinary passports (June 2023)

3.2 DETAILS

The table below dives into the details of each generation of the currently valid passports in every country in North America.

Table 6. List of ordinary passports per country per generation in North America (June 2023)

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Anguilla	AIA	See British passports ⁶⁰	-	-	-	-	-
Antigua and Barbuda	ATG	??/05/2017	PA	✓	✓	✓	✗
		??/??/2006	P	✗	-	-	-
Bahamas	BHS	26/01/2017	PA	✓	✓	✓	✓
		05/12/2007	PR	✓	✓	✓	✗
Barbados	BRB	01/01/2018	PR	✓	✗	✓	✓
		??/??/2016	PR	✗	-	-	-
Belize	BLZ	11/10/2022	PA	✓	✓	✓	✗
		16/09/2011	P	✗	-	-	-
Bermuda	BMU	See British passports ⁶⁰	-	-	-	-	-
British Virgin Islands	VGB	See British passports ⁶¹	-	-	-	-	-
Canada	CAN	02/02/2013	P	✓	✓	✓	✓
Cayman Island	CYM	See British passports ⁶¹	-	-	-	-	-

⁶⁰ Since 2015, Great Britain issues the passports for its overseas territories. The issuing state is Great Britain (GBR in MRZ). The nationality is stated as British nationals overseas (Stated as GBR in MRZ).

⁶¹ Since 2015, Great Britain issues the passports for its overseas territories. The issuing state is Great Britain (GBR in MRZ). The nationality is stated as British nationals overseas (Stated as GBR in MRZ).

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Costa Rica	CRI	01/09/2021 ⁶²	P	✓	✓	✓	✗
		??/??/2015	P	✗	-	-	-
		??/??/2006	P	✗	-	-	-
Cuba	CUB	??/??/2013	P	✗	-	-	-
Dominica	DMA	01/07/2021	P	✓	✓	✓	✗
		01/01/2006	P	✗	-	-	-
Dominican Republic	DOM	01/08/2015	P	✗	-	-	-
		03/06/2004	PR	✗	-	-	-
Grenada	GRD	17/07/2018	PA	✓	✓	✓	✗
		??/??/2006	P	✗	-	-	-
Guatemala	GTM	??/04/2013	P	✗	-	-	-
Haiti	HTI	01/01/2021 ⁶³	P	✓	✓	✓	✗
		01/01/2009	P	✗	-	-	-
Honduras	HND	01/03/2022 ⁶⁴	P	✓	✓	✓	✗
		26/02/2013	P	✗	-	-	-
Jamaica	JAM	31/03/2023	PA	✓	✓	✓	✗
		??/??/2013	P	✗	-	-	-
		??/??/2009	P	✗	-	-	-
Mexico	MEX	05/10/2021	P	✓	✓	✓	✓
		12/06/2016	P	✗	-	-	-
		01/10/2015	P	✗	-	-	-
		27/08/2012	P	✗	-	-	-
		01/01/2008	P	✗	-	-	-
Montserrat	MSR	See British passports ⁶¹	-	-	-	-	-
Nicaragua	NIC	01/09/2015	P	✗	-	-	-
		??/??/2010	P	✗	-	-	-
Panama	PAN	01/01/2019	P	✓	✓	✓	✓
		01/01/2014	P	✓	✓	✓	✓
Saint Kitts and Nevis	KNA	11/11/2010	P	✓	✓	✓	✗
Saint Lucia	LCA	??/??/2015	-. ⁶⁵	✗	-	-	-
Saint Vincent and the Grenadines	VCT	??/??/2014 ⁶⁶	P	✓	✓	✓	✓
Salvador, El	SLV	18/01/2018	P	✗	-	-	-
		13/12/2010	P	✗	-	-	-

⁶² There are many new ePassports seen in ReadID Analytics from Costa Rica. The first issue date is based on the first document seen in our Analytics. It might vary with the actual first release dates.

⁶³ There are many new ePassports seen in ReadID Analytics from Haiti. The first issue date is based on the first document seen in our Analytics. It might vary with the actual first release dates.

⁶⁴ There are many new ePassports seen in ReadID Analytics from Honduras. The first issue date is based on the first document seen in our Analytics. It might vary with the actual first release dates.

⁶⁵ Unknown document Code.

⁶⁶ Based on ReadID Analytics, there are 9 passport readings from VCT the last year. Hence, it is little data to draw a definitive conclusion. The certificates from the individual readings seem from reliable real passports.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
		01/01/2007	P	✗	-	-	-
Trinidad and Tobago	TTO	??/??/2014	P	✗	-	-	-
Turks and Caicos Islands	TCA	See British passports ⁶⁷	-	-	-	-	-
United States	USA	10/07/2020	P	✓	✗	✓	✓
		14/08/2006	P	✓	✗	✓	✓

⁶⁷ Since 2015, Great Britain issues the passports for its overseas territories. The issuing state is Great Britain (GBR in MRZ). The nationality is stated as British nationals overseas (Stated as GBR in MRZ).

4 Passports from South America

4.1 OVERVIEW

Most countries in South America issue ePassports, with the exception of Guyana and Suriname. ReadID can read and verify all passports from Argentina, Brazil, Ecuador, Paraguay, Peru, and Uruguay. We miss part of CSCs from Chile, Bolivia, and Colombia. Thus, we can read all Chilean, Bolivian, and Colombian passports, but only verify part of them. We do not have the CSCs from Venezuela. Therefore, we can only read passports from Venezuela, but not verify them. The figure below shows the overview of ReadID coverage in South America.

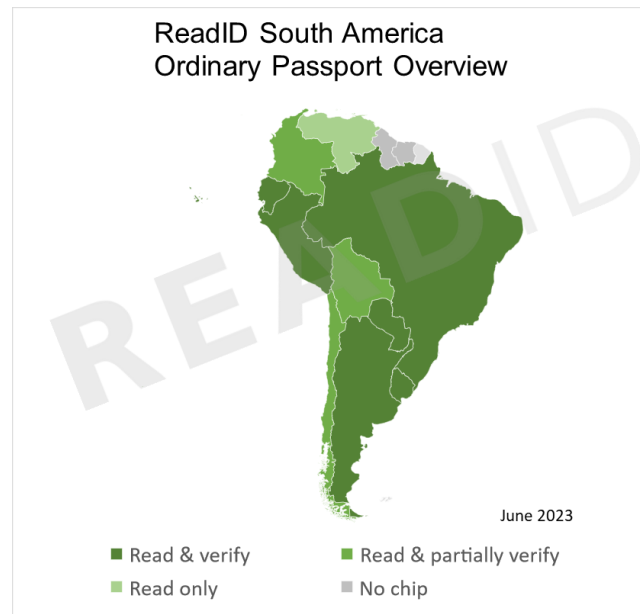


Figure 11. Geographic overview of ReadID on ordinary passports from South America (June 2023)

Among all 10 countries with ePassports, 7 countries have implemented the clone detection mechanism in all their passports. They are Argentina, Bolivia, Chile, Ecuador, Paraguay, Peru, and Uruguay. Brazil, Columbia, and Venezuela have part of passports with cloning detection implemented, as shown in the figure below.

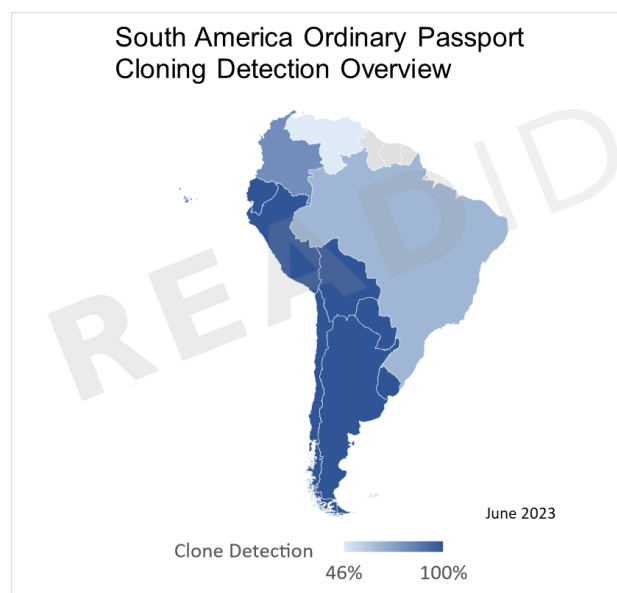


Figure 12. Geographic cloning detection overview of South American ordinary passports (June 2023)

4.2 DETAILS

We list the details of each currently valid generation of the ordinary passports every country in South America in the below table.

Table 7. List of ordinary passports per country per generation in South America (June 2023)

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Argentina	ARG	01/06/2022	P	✓	✓	✓	✓
		01/01/2019	P	✓	✓	✓	✓
		01/03/2014	P	✓	✓	✓	✓
		01/06/2012	P	✓	✓	✓	✓
		02/11/2009	P	✗	-	-	-
Bolivia	BOL	??/02/2019	P	✓	✓	✓	✓ ⁶⁸
		??/04/2010	P	✗	-	-	-
Brazil	BRA	01/01/2019	P	✓	✓ ⁶⁹	✓	✓
		01/07/2016	P	✓	✓	✓	✓
		25/10/2010	P	✓	✓	✓	✗
Chile	CHL	01/02/2020	P	✓	✓	✓	✓ ⁷⁰
		05/09/2013	P	✓	✓	✓	✓
		02/05/2002	P	✗	-	-	-
Colombia	COL	15/07/2018	P	✓	✓	✓	✓ ⁷¹
		??/09/2015	P	✓	✓ ⁷²	✓	✓ ⁷¹
		01/05/2010	P	✗	-	-	-
Ecuador	ECU	14/09/2020	P	✓	✓	✓	✓
		??/??/2015	P	✗	-	-	-
		??/??/2013	P	✗	-	-	-
Guyana	GUY	25/05/2014	P	✗	-	-	-
Paraguay	PRY	01/01/2016	PC	✓	✓	✓	✓
		??/??/2011	PC	✗	-	-	-
Peru	PER	08/07/2016	P	✓	✓	✓	✓
		??/??/2014	P	✗	-	-	-
		26/10/2010	P	✗	-	-	-
Suriname	SUR	??/??/2004	P	✗	-	-	-
Uruguay	URY	16/10/2015	P	✓	✓	✓	✓
		01/06/2014	P	✗	-	-	-
Venezuela	VEN	19/04/2021	P	✓	✓ ⁷³	✓	✗

⁶⁸ Based on ReadID Analytics, we are missing the country signing certificates for some production years, i.e., for the passports with expiry year between 2025 and 2029.

⁶⁹ Based on ReadID Analytics, some passports with the expiry year from 2020 to 2030 have no cloning detection mechanism.

⁷⁰ Based on ReadID Analytics, we are missing the country signing certificates for some production years, i.e., for the passports with expiry year after 2024.

⁷¹ Based on ReadID Analytics, we are missing the country signing certificates for some production years, i.e., for the passports with expiry year between 2025 and 2030.

⁷² Based on ReadID Analytics, all passports with the expiry years after 2026 have cloning detection. Some of the passports expiring in 2026 have cloning detection. The passports expiring before 2026 have no cloning detection.

⁷³ Based on ReadID Analytics, most of the passports issued after 2021 have cloning detection.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
		01/05/2011	P	✓	✗	✓	✗
		??/??/2007	P	✓	✗	✓	✗

5 Passports from Australia & Oceania

5.1 OVERVIEW

There are only 4 countries issuing ePassports in Australia and Oceania, namely Australia, New Zealand, Fiji, and French Polynesia (issued by France since 2019). ReadID can read all the passports from those three countries. With the default CSCs list, ReadID can verify and check the clone detection of passports from Australia, New Zealand, and French Polynesia, but not from Fiji. The below two figures illustrates the geographic overview on ReadID coverage and passport Cloning detection overview in Australia and Oceania.

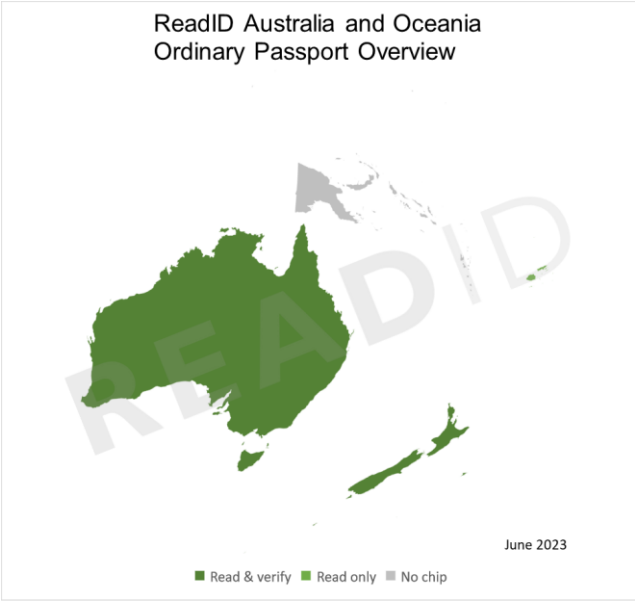


Figure 13. Geographic overview of ReadID on ordinary passports from Australia and Oceania (June 2023)



Figure 14. Geographic cloning detection overview of Australia and Oceania's ordinary passports (June 2023)

5.2 DETAILS

The below table lists the details of each currently valid generation of passports in every country in Australia and Oceania.

Table 8. List of ordinary passports per country per generation in Australia and Oceania (June 2023)

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Australia	AUS	07/09/2022 ⁷⁴	P	✓	✓	✓	✓
		01/03/2014	P	✓	✓	✓	✓
		01/05/2009	P	✓	✓	✓	✓
Fiji	FJI	??/??/2019 ⁷⁵	P	✓	✗	✓	✗
		??/04/2012	P	✗	-	-	-
Kiribati	KIR	??	P	✗	-	-	-
Marshall Islands	MHL	??	P	✗	-	-	-
Micronesia	FSM	??/05/2007	P	✗	-	-	-
Nauru	NRU	??/??/2015	P	✗	-	-	-
New Zealand	NZL	03/05/2021	P	✓	✓	✓	✓
		18/11/2016	P	✓	✓	✓	✓
		08/10/2009	P	✓	✓	✓	✓
Palau	PLW	18/03/2008	PO	✗	-	-	-
Papua New Guinea	PNG	08/04/2015	P	✗	-	-	-
Polynesia, French	FRA	01/07/2019 See French passport 2019 version ⁷⁶	-	-	-	-	-
Samoa	WSM	??/??/2001	- ⁷⁷	✗	-	-	-
Solomon Islands	SLB	??	P	✗	-	-	-
Tonga	TON	??/??/2007	- ⁷⁷	✗	-	-	-
Tuvalu	TUV	01/05/2017	P	✗	-	-	-
Vanuatu	VUT	27/08/2010	P	✗	-	-	-

⁷⁴ Australian passport issued from 2009 is called “N series”, ones from 2014 is called “P series”, and ones from 2022 is called “R series”. N and P series passports have the chip in the middle of the passports. Especially, the chip in N series are difficult to be found. R series passports have the chip on the data page and have the advanced security features. From 2022 September, R series are rolled out in parallel as P series. From early 2023, all applicants shall receive R series passport. <https://www.passports.gov.au/r-series-questions-and-answers>

⁷⁵ Based on ReadID Analytics, there are 5 passport readings from Fiji the last year. They will be expired in years from 2029. Hence, it is very little data to draw a definitive conclusion. The certificates from the individual readings seem from reliable real passports. We can estimate that Fiji starts issuing the new generation of passports with ICAO chip from 2019, with validity of 10 years.

⁷⁶ French Polynesia official website has revealed that from July 1, 2019, citizens can apply French biometric passports and Identity cards (<http://www.polynesie-francaise.pref.gouv.fr/Demarches-administratives/Papiers-Citoyennete/Passeport>). There are no further details of the passports. Thus, it is unclear whether there states any information about the oversea countries of France.

⁷⁷ Unknown document Code.

6 Passports from Asia

6.1 OVERVIEW

76% of the countries in Asia issue ePassports to their citizens. ReadID can read all of them. With the default CSCs list, ReadID can verify all the passports from 15 countries and regions, including mainland China, Hong Kong, Marco, Japan, South Korea, Israel, Lebanon, Oman, Singapore, Taiwan, Timor-Leste, Thailand, Turkmenistan, United Arab Emirates, and Uzbekistan. We can verify part of the passports from Armenia, Iran, Kuwait, Malaysia, Maldives, the Philippines, Qatar, Vietnam, and Tajikistan. We miss the certificates from, Brunei Darussalam, Bangladesh, Cambodia, Indonesia, Lao, Kyrgyzstan, Saudi Arabia, Nepal, Bahrain, Iraq, and Mongolia, and cannot verify their passports.

Since 2021, 7 more countries, namely Vietnam, Kyrgyzstan, Nepal, Saudi Arabia, Bahrain, Iraq, and Mongolia have started to issue ePassports to their citizens. There are still 11 countries which do not issue ordinary ePassports yet, including large countries such as India, Pakistan, Myanmar, etc. India currently only issues ePassports to diplomats and officials. It plans to start issuing ePassports for regular citizens from 2022, based on the news⁷⁸. Till the moment this document was last updated (June 2023), this has not happened yet.

The following figure shows the overview of ReadID coverage in Asia.



Figure 15. Geographic overview of ReadID on ordinary passports from Asia (June 2023)

27 out of 35 countries with ePassports have implemented cloning detection mechanisms in all their passports. Japan and Thailand have part of the passports without cloning detection. There are 6 countries that have not implemented any cloning detection mechanism. They are Brunei Darussalam, Qatar, Singapore, Taiwan, Mongolia, and Turkmenistan, as shown in the figure below.

⁷⁸ <https://www.thehindu.com/business/budget/india-union-budget-2022-e-passports-with-embedded-chip-to-be-rolled-out-this-year/article65013155.ece>



Figure 16. Geographic cloning detection overview of Asian ordinary passports (June 2023)

6.2 DETAILS

We list the details of each valid generation of passports in every country in Asia in the table below.

Table 9. List of ordinary passports per country per generation in Asia (June 2023)

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Afghanistan	AFG	01/01/2021	PO	✗	-	-	-
		30/09/2017	PO	✗	-	-	-
		01/01/2016	PO	✗	-	-	-
		13/01/2012	PO	✗	-	-	-
Armenia	ARM	16/07/2012	P	✓	✓	✓	✓ ⁷⁹
		01/01/2008	P	✗	-	-	-
Bahrain	BHR	01/03/2023	PB	✓	✓	✓	✗
		27/02/2011	P	✗	-	-	-
Bangladesh	BGD	22/01/2020	P	✓	✓	✓	✗
		01/01/2013	P	✗	-	-	-
Bhutan	BTN	01/01/2006	P	✗	-	-	-
Brunei Darussalam	BRN	01/01/2008	PN	✓	✗	✓	✗
Cambodia	KHM	??/??/2014	PN	✓	✓	✓	✗
China - mainland	CHN	02/02/2012	PO	✓	✓	✓	✓
		01/01/2007	PO	✗	-	-	-
	CHN	01/05/2019	P	✓	✓	✓	✓

⁷⁹ Based on ReadID Analytics, we are missing the country signing certificates for some production years.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
China – Hongkong		05/02/2007	P	✓	✓	✓ ⁸⁰	✓
China – Macao	CHN	03/12/2019	P	✓	✓	✓	✓
		05/03/2009	P	✓	✓	✓	✓
India ⁸¹	IND	01/01/2019	P	✗	-	-	-
		??/??/2012	P	✗	-	-	-
		01/01/2005	P	✗	-	-	-
Indonesia	IDN	30/10/2014 ⁸²	P	✓	✓	✓	✗
		??/??/2015	P	✗	-	-	-
		??/??/2013	P	✗	-	-	-
Iran, Islamic Republic	IRN	01/01/2014	P	✓	✓	✓	✓ ⁸³
		20/02/2011	P	✓	✓	✓	✗
Iraq	IRQ	09/03/2023	P	✓	✓	✓	✗
		01/01/2013	P	✗	-	-	-
		06/10/2009	P	✗	-	-	-
Israel	ISR	30/06/2013	P	✓	✓	✓	✓
		17/11/2011	P	✗	-	-	-
Japan	JPN	06/02/2020	P	✓	✓	✓	✓
		31/08/2013	P	✓	✓	✓	✓
		20/03/2006	P	✓	✓ ⁸⁴	✓	✓
Jordan	JOR	19/09/2016	P	✗	-	-	-
		??/07/2007	P	✗	-	-	-
Korea, Democratic People's Republic of	PRK	10/10/2004		✗ ⁸⁵	-	-	-
Korea, Republic of	KOR	21/12/2021	PM	✓	✓	✓	✓
		25/08/2008	PM	✓	✓	✓	✓
		01/03/2005	PM	✗	-	-	-
Kuwait	KWT	01/01/2016	P	✓	✓	✓	✓ ⁸⁶
		01/01/2005	P	✗	-	-	-
Kyrgyzstan	KGZ	01/04/2021	P	✓	✓	✓	✗
		25/11/2006	P	✗	-	-	-

⁸⁰ Hong Kong 2007 generation passports have very bad NFC antennas and the users have significant difficulties finding and read the chip. It is suggested to place the phone on the inside of the back cover (where the NFC chip is located) to enhance the chance of a successful chip read.

⁸¹ India plans to start issuing ePassports for regular citizens from 2022. Currently, ePassports are only issued to diplomats and officials. By August 2020, there are 20000 diplomatic and official ePassports issued. See the news link at the foot note 78.

⁸² Indonesia issues passports with and without chips in parallel. <https://tirto.id/di-balik-perubahan-warna-paspor-indonesia-bRXr>

⁸³ Based on ReadID Analytics, we do not have parts of the country signing certificates.

⁸⁴ Based on ReadID Analytics, some passports which expire before 2024, have no cloning detection. All passports with the expiry year from 2024 have cloning detection.

⁸⁵ No MRZ.

⁸⁶ Based on ReadID Analytics, we do not have parts of the country signing certificates.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
Laos	LAO	15/01/2016	PO	✓	✓	✓	✗
		??/??/2009	P	✗	-	-	-
Lebanon	LBN	15/08/2016	P	✓	✓	✓	✓
		01/03/2007	P	✗	-	-	-
Malaysia	MYS	01/10/2017	P	✓	✓	✓	✓ ⁸⁷
		09/05/2016	P	✓	✓	✓	✓ ⁸⁷
		??/04/2013	P	✓	✓ ⁸⁸	✓	✗
Maldives ⁸⁹	MDV	26/01/2016	PR	✓	✓	✓	✓ ⁹⁰
		01/01/2007	PC	✓	✓	✓	✗
Mongolia	MNG	15/03/2023	PE	✓	✗	✓	✗
		??/??/2004	PE	✗	-	-	-
Myanmar	MMR	30/03/2011	PJ	✗	-	-	-
		01/04/2010	PB	✗	-	-	-
Nepal	NPL	17/11/2021	P	✓	✓	✓	✓
		13/04/2014	P	✗	-	-	-
		26/12/2010	P	✗	-	-	-
Oman	OMN	19/11/2014	P	✓	✓	✓	✓
		??/??/2007	P	✗	-	-	-
Pakistan	PAK	??/??/2017	P	✗	-	-	-
		31/10/2013	P	✗	-	-	-
		01/01/2009	P	✗	-	-	-
Palestine, State of	PSE	29/03/2009	P	✗	-	-	-
Philippines	PHL	01/08/2016	P	✓	✓	✓	✓ ⁹¹
		??/??/2012	P	✓	✓	✓	✓
Qatar	QAT	28/04/2008	P	✓	✗	✓	✓ ⁹²
Saudi Arabia	SAU	01/01/2021	P	✓	✓	✓	✗
		??/??/2000	P	✗	-	-	-
Singapore	SGP	30/10/2017	PA	✓	✗	✓	✓
		15/08/2006	PA	✓	✗	✓	✓
Sri Lanka	LKA	??/??/2008	PB	✗	-	-	-
Syrian Arab Republic	SYR	10/08/2008	PN	✗	-	-	-
Taiwan	TWN	11/01/2021	P	✓	✗	✓	✓
		01/05/2018	P	✓	✗	✓	✓
		25/12/2017	P	✓	✗	✓	✓

⁸⁷ Based on ReadID Analytics, we do not have parts of the country signing certificates, i.e., from the expiry years 2025 to 2030.

⁸⁸ Based on ReadID Analytics, all passports which expire after 2020 have cloning detection. Passports expiring before 2020 had no cloning detection, but these are not valid anymore.

⁸⁹ Maldives issues passports with and without chip in parallel.

⁹⁰ Based on ReadID Analytics, we do not have the country signing certificates from some years of passport production, i.e., from the expiry years 2024.

⁹¹ Based on ReadID Analytics, we do not have the country signing certificates from some years of passport production.

⁹² Based on ReadID Analytics, we do not have the country signing certificates from some years of passport production, from the expiry years 2026.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning detection	ReadID Support	
						Read	Verify
		29/12/2008	P	✓	✗	✓	✓
		01/03/2004	P	✓	✗	✓	✓
Tajikistan	TJK	01/02/2010	P	✓	✓	✓	✓ ⁹³
Thailand	THA	29/06/2020	P	✓	✓	✓	✓
		23/11/2012	P	✓	✗	✓	✓
		01/06/2005	P	✓	✗	✓	✓
Timor-Leste	TLS	06/06/2017	P	✓	✓	✓	✓
		01/01/2008	<	✗	-	-	-
Turkmenistan	TKM	10/07/2008	P	✓	✗	✓	✓
United Arab Emirates	ARE	01/09/2022	P	✓	✓	✓	✓
		01/01/2011	P	✓	✓	✓	✓
Uzbekistan	UZB	01/01/2019	P	✓	✓	✓	✓
		01/11/2011	P	✓	✓	✓	✓
Vietnam	VNM	14/08/2021 ⁹⁴	p	✓	✓	✓	✓ ⁹⁵
		01/07/2022	P	✗	-	-	-
		01/10/2005	P	✗	-	-	-
Yemen	YEM	01/01/2017	P	✗	-	-	-
		02/04/2013	P	✗	-	-	-

⁹³ Based on ReadID Analytics, we are missing the country signing certificates for many years of passport production.

⁹⁴ It is not clear when Vietnam started to issue ePassports. There are multiple versions on the dates from different sources. We have recorded in this document the earliest issue dates, based on the earliest expiry dates we have seen in our ReadID Analytics with the assumption of 10 years validity. Other source of beginning of issuing ePassports:

<https://hanoitimes.vn/vietnam-to-issue-e-passports-for-its-citizens-317948.html>; <https://opengovasia.com/vietnam-passports-to-have-electronic-chips/>; <https://en.vietnamplus.vn/ordinary-passports-with-electronic-chips-to-be-issued-from-next-month/248472.vnp>

⁹⁵ Based on ReadID Analytics, we are missing the country signing certificates for many years of passport production.

7 Passports from Africa

7.1 OVERVIEW

In the last few years, many African countries have migrated or started to migrate from old passports without chips to ePassports. For example, since 2017, the new East African ePassports has started being issued in East African Community (EAC), which includes Kenya, Tanzania, Uganda, Burundi, Rwanda, South Sudan⁹⁶. Kenya and Tanzania will phase out the old passports in March 2020. Uganda and Rwanda will phase out the old passports in 2021⁹⁷. Zimbabwe started to issue ePassports from December 2021.

By September 2022, 44 out of 55 countries and regions in Africa issue ePassports to their ordinary citizens. ReadID can again read all the ePassports. More African countries are publishing their country signing certificates publicly. With the current default CSCs list, ReadID can verify all ePassports from Algeria, Botswana, Morocco, Côte d'Ivoire, Rwanda, Zimbabwe, Uganda, and Saint Helena. We can verify part of the passports from Liberia, Cameroon, Burkina Faso, and Tanzania. Unfortunately, we still miss the certificates from the rest of the 32 countries and cannot verify the authenticity of their ePassports.

There are still 11 countries issuing old passports without a chip. The examples are Egypt, Libya, South Africa, Tunisia, and Ethiopia.

The below figure gives the overview of the ReadID coverage in Africa.

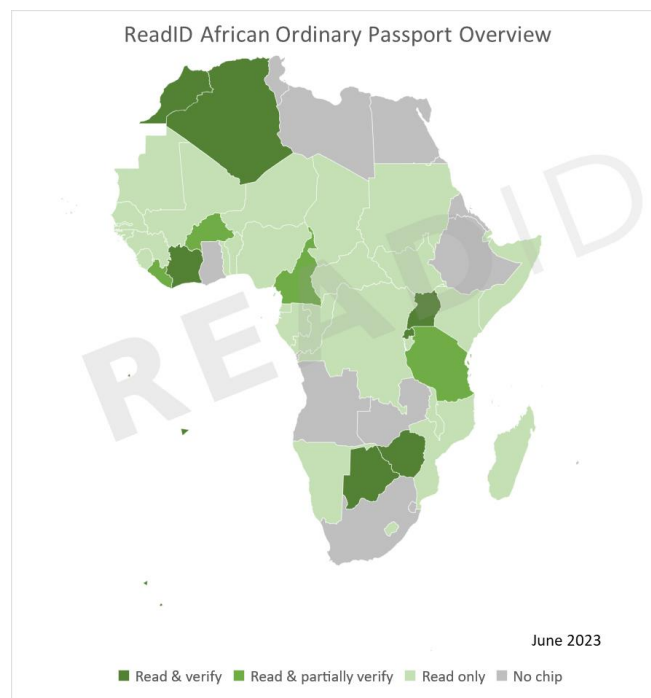


Figure 17. Geographic overview of ReadID on ordinary passports from Africa (June 2023)

The majority of countries issue ePassports with cloning detection. There are ePassports from 7 countries without any cloning detection mechanism, i.e., Central African Republic, Republic of the Congo, Guinea-Bissau, Lesotho, Sierra Leone, South Sudan, and Sudan. The passports from Cameroon used to have no clone detection, however, it has been introduced in the newer generation of passports from 2021. Similarly, Nigeria has also introduced clone detection in the newer generation of ePassports from 2019. Benin is a counter case, where they have removed the clone detection mechanism from the latest generation from 2021. Besides these 3

⁹⁶ <https://www.eac.int/press-releases/148-immigration-and-labour/754-eac-to-start-issuing-ea-e-passport-january-2018%20=>.

⁹⁷ <https://www.theeastafrican.co.ke/news/ea/Tanzania-rolls-out-new-electronic-EAC-passports/4552908-5440146-doid2fz/index.html>.

countries, Liberia, Mozambique, and Saint Helena have only implemented cloning detection in part of their ePassports. The figure below shows the overview of clone detection mechanism in African ePassports.

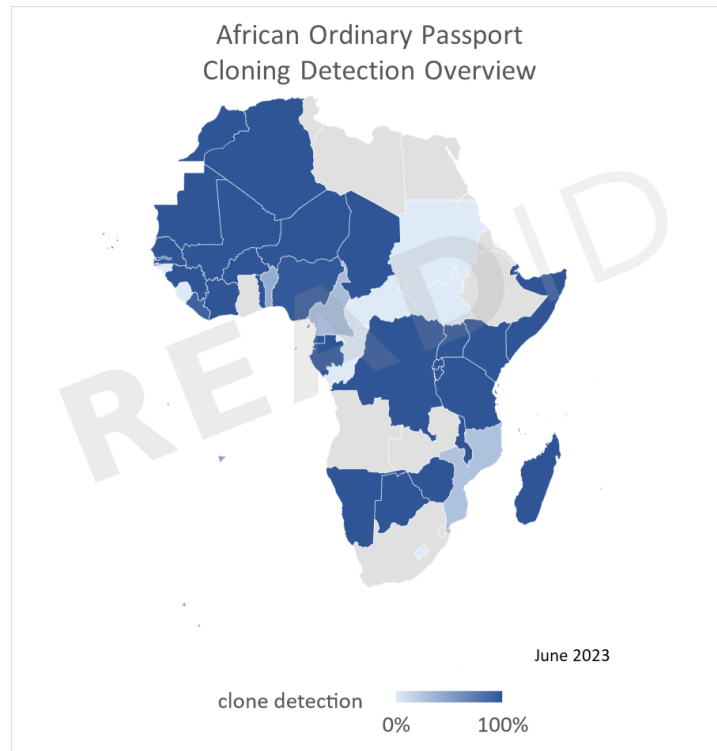


Figure 18. Geographic cloning detection overview of African ordinary passports (June 2023)

7.2 DETAILS

The following table lists the details on each valid generation of passports from every country in Africa.

Table 10. List of ordinary passports per country per generation in Africa (June 2023)

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning Detection	ReadID Support	
						Read	Verify
Algeria	DZA	02/01/2012	P	✓	✓	✓	✓
Angola	AGO	??/08/2005	PN	✗	-	-	-
Benin	BEN	10/03/2021	P	✓	✗	✓	✓
		01/01/2016	P	✓	✓	✓	✗
Botswana	BWA	01/01/2009	P	✓	✓	✓	✓
Burkina Faso	BFA	01/09/2018	P	✓	✓	✓	✓ ⁹⁸
		21/08/2013 ⁹⁹	-	✗	-	-	-
Burundi	BDI	01/01/2018	PO	✓	✓	✓	✗
		02/03/2011	PO	✓	✓	✓	✗
Cameroon	CMR	08/07/2021	PO	✓	✓	✓	✓
		01/07/2013	PO	✓	✗	✓	✗
Cape Verde	CPV	22/02/2016	PC	✓	✓	✓	✗
		??/??/2008	PO	✗	-	-	-

⁹⁸ Based on ReadID Analytics, we do not have parts of the country signing certificates.

⁹⁹ We only know this generation does not have a chip. We cannot find further information about this generation in any Database or ReadID Analytics.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning Detection	ReadID Support	
						Read	Verify
Central African Republic	CAF	??/??/2015 ¹⁰⁰	P	✓	✗	✓	✗
Chad	TCD	??/??/2019 ¹⁰¹	P	✓	✓	✓	✗
		Unknown	No MRZ	✗	-	-	-
Comoros	COM	??/??/2013	PO	✓	✓	✓	✗
		20/06/2008	PO	✗	-	-	-
Congo, Democratic Republic of the	COD	04/12/2015	P	✓	✓	✓	✗
Congo, Republic of the	COG	01/01/2014	P	✓	✗	✓	✗
		??/??/2008	P	✗	-	-	-
Cote d'Ivoire	CIV	31/07/2008	P	✓	✓	✓	✓
Djibouti	DJI	01/03/2017	P	✓	✓	✓	✗
		??/??/2003	_ ¹⁰²	✗	-	-	-
Egypt	EGY	27/01/2008	P	✗	-	-	-
Equatorial Guinea	GNQ	??/??/2018	p ¹⁰³	✓	✓	✓	✗
		??/??/2011	_ ¹⁰⁴	✗	-	-	-
Eritrea	ERI	01/05/2010	P	✗	-	-	-
Ethiopia	ETH	01/01/2004	P	✗	-	-	-
Gabon	GAB	01/01/2013	P	✓	✓	✓	✗
		01/04/2009	PO	✗	-	-	-
Gambia	GMB	22/09/2014	P	✓	✓	✓	✗
		01/01/2002	PC	✗	-	-	-
Ghana ¹⁰⁵	GHA	31/03/2019	P	✗	-	-	-
		30/04/2010	P	✗	-	-	-
Guinea	GIN	01/08/2018	PO	✓	✓	✓	✗
		14/05/2014	PO	✓	✓	✓	✗
	GNB	??/??/2014 ¹⁰⁶	PC	✓	✗	✓	✗

¹⁰⁰ Based on ReadID Analytics, there are 6 passport readings from Central African Republic (CAF) in the last year. They will be expired in years from 2020 to 2024. Hence, there is very little data from which to draw a definitive conclusion. The certificates from the individual readings seem to be from reliable real passports. We can estimate that CAF starts issuing the new generation of passports with ICAO chip from 2015, with a validity of 5 years.

¹⁰¹ Based on ReadID Analytics, there are 44 passport readings from Chad in the last year. They will be expired in years from 2024 to 2025. We can estimate that Chad starts issuing the new generation of passports with an ICAO compliant chip from 2019, with a validity of 5 years.

¹⁰² Unknown document Code.

¹⁰³ Based on ReadID Analytics data, there are 29 passport readings from Equatorial Guinea the last year. They will be expired in years following 2028. The certificates from the individual readings seem from reliable real passports. We can estimate that Equatorial Guinea starts issuing the new generation of passports with ICAO chip from 2018, with 5 years of validity.

¹⁰⁴ Unknown document Code.

¹⁰⁵ Ghana plans to launch ePassports soon, based on this news: <https://www.biometricupdate.com/202008/biometric-passports-made-an-election-promise-by-ghanas-incumbent-party>.

¹⁰⁶ Based on ReadID Analytics, there were 47 passport readings from Guinea-Bissau the last year. They will be expired in years from 2019 to 2025. We can estimate that GNB starts issuing the new generation of passports with ICAO chip from 2014, with a validity of 5 years.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning Detection	ReadID Support	
						Read	Verify
Guinea-Bissau		??/??/2006	_ ¹⁰⁷	✗	-	-	-
Kenya	KEN	01/07/2015	P	✓	✓	✓	✗
		01/01/2008	P	✗	-	-	-
Lesotho	LSO	01/08/2016	P	✓	✗	✓	✗
		01/01/2006	P	✗	-	-	-
Liberia	LBR	04/08/2017	P	✓	✓ ¹⁰⁸	✓	✓ ¹⁰⁹
		01/07/2010	P	✗	-	-	-
Libya	LBY	01/08/2013	P	✗	-	-	-
Madagascar	MDG	??/??/2014	PO	✓	✓	✓	✗
Malawi	MWI	01/01/2020	P	✓	✓	✓	✗
		01/01/2011	P	✗	-	-	-
Mali	MLI	04/04/2016	P	✓	✓	✓	✗
		??/??/2013	P	✗	-	-	-
Mauritania	MRT	01/01/2013	P	✓	✓	✓	✗
Mauritius	MUS	26/09/2005	P	✗	-	-	-
Morocco	MAR	15/12/2009	P	✓	✓	✓	✓
Mozambique	MOZ	??/??/2012	PN	✓	✓ ¹¹⁰	✓	✗
Namibia	NAM	01/01/2018	P	✓	✓	✓	✗
		01/01/2001	P	✗	-	-	-
Niger	NER	??/??/2015 ¹¹¹	PO	✓	✓	✓	✗
		Unknown	PO	✗	-	-	-
Nigeria	NGA	29/04/2019	P	✓	✓	✓	✗
		27/02/2007 ¹¹²	P	✓	✗	✗	✗
Rwanda	RWA	01/06/2019 ¹¹³	PC	✓	✓	✓	✓
Saint Helena	SHN	See British passports ¹¹⁴	-	-	-	-	-
Sao Tome and Principe	STP	01/01/2018	p ¹¹⁵	✓	✓	✓	✗
		28/08/2008	_ ¹¹⁶	✗	-	-	-
Senegal	SEN	01/01/2007	P	✓	✓	✓	✗

¹⁰⁷ Unknown document Code.

¹⁰⁸ Based on ReadID Analytics, some passports with the expiry year between 2025 to 2027 have no cloning detections.

¹⁰⁹ Based on ReadID Analytics, we do not have parts of the country signing certificates, i.e., between the expiry years 2023 to 2027.

¹¹⁰ Based on ReadID Analytics, most of the passports with the expiry year between 2024 to 2027 have no cloning detections.

¹¹¹ Based on ReadID Analytics, there are 26 passport readings from Niger in the last year. They will be expired in years from 2020 to 2025. We can estimate that Niger starts issuing the generation of passports with an ICAO chip from 2015, with a validity of 5 years.

¹¹² Based on ReadID Analytics, ReadID fails to access the chip for 2007 generation passports. We get access control error with wrong credentials. It seems like this version of Nigerian passports have implemented differently. ReadID can well-read 2019 generation passports.

¹¹³ Based on ReadID Analytics, there are 4 passport readings from Rwanda the last year. The data might be unreliable.

¹¹⁴ Since 2015, Great Britain issues the passports for its overseas territories. The issuing state is Great Britain (GBR in MRZ). The nationality is stated as British nationals overseas (Stated as GBR in MRZ).

¹¹⁵ We have seen this new generation of ePassports from ReadID Analytics.

¹¹⁶ No MRZ.

Country Name	3-letter Code	First issue date (dd/mm/yyyy)	Document code	Contactless Chip	Cloning Detection	ReadID Support	
						Read	Verify
Seychelles	SYC	01/11/2022 ¹¹⁷	P	✓	✓	✓	✗
		01/06/2005	P	✗	-	-	-
Sierra Leone	SLE	??/??/2016 ¹¹⁸	PO	✓	✗	✓	✗
		16/06/2010	PO	✗	-	-	-
Somalia	SOM	01/01/2016	P	✓	✓	✓	✗
		01/01/2013	P	✓	✓	✓	✗
		01/01/2007 ¹¹⁹	P	✓	-	-	-
South Africa	ZAF	01/04/2009	PM	✗	-	-	-
South Sudan	SSD	22/07/2013 ¹²⁰	PB	✓	✗	✓	✗
		04/01/2012	P	✓	✗	✓	✗
Sudan	SDN	??/03/2008	PC	✓	✗	✓	✗
Swaziland	SWZ	01/01/2019	P	✗	-	-	-
		??/??/????	?	✗	-	-	-
Tanzania, United Republic of	TZA	01/02/2018	P	✓	✓	✓	✓ ¹²¹
		??/??/2005	P	✗	-	-	-
Togo	TGO	01/01/2012	P	✓	✓	✓	✗
		01/08/2009	P	✓	✓	✓	✗
Tunisia	TUN	01/09/2003	P	✗	-	-	-
Uganda	UGA	30/03/2023	P	✓	✓	✓	✓
		17/12/2018	P	✓	✓	✓	✓
		01/01/2003	PC	✗	-	-	-
Zambia	ZMB	10/08/2008	P	✗	-	-	-
Zimbabwe	ZWE	14/12/2021	PN	✓	✓	✓	✓
		22/05/2015	VX	✗	-	-	-

¹¹⁷ This date is estimated from the ReadID Analytics data. There was no first issue dates announced.

¹¹⁸ Based on ReadID Analytics, there were 68 passport readings from Sierra Leone in the last year. They will be expired in the years from 2021 to 2025. We can estimate that SLE starts issuing the new generation of passports with an ICAO chip from 2016, with validity of 5 years.

¹¹⁹ There is no data in ReadID Analytics for this generation of the passports.

¹²⁰ There is 1 reading in the ReadID Analytics for this generation of the passports. The data might be not reliable.

¹²¹ Based on ReadID Analytics, we do not have parts of the country signing certificates, i.e., from the expiry year 2032.

8 EU Regulations on Identity Cards and Residence Permits

8.1 RELATED REGULATIONS

The EEA countries follow EU regulations related to identity documents. With respect to passports, since 2004 the EU in Council Regulation (EC) No 2252/2004¹²² already specified that passports should follow the ICAO 9303 standards, with the requirement to use the ICAO compliant contactless chip for storing facial and fingerprint images in the contactless chip.

With respect to identity cards, the EU used to give more freedom to the member states. By the time of writing, 21 out of 30 EEA member states do have identity cards which follow ICAO 9303 standards, and which are thus compatible with ReadID, such as Cyprus, Spain, Italy, the Netherlands, and Belgium.

Residence permits were already more regulated in Europe. A uniform format for residence permits was introduced by COUNCIL REGULATION (EC) No 1030/2002¹²³ (consolidated version in 2017¹²⁴). Based on this regulation, all residence permits should have an ICAO-compliant MRZ and contactless chip, except ones for non-EU family members of EU citizens.

The EU has decided to strengthen and align the security features of the identity cards and residence permits from the different member states. Enforced on August 1, 2019, Regulation (EU)2019/1157¹²⁵ all member states that issue identity cards and residence permits have to make those ICAO 9303 compliant. This is applied to identity cards for EU citizens and residence permits for non-EU family members of EU citizens. This also fills the gap in EC No 1030/2002. This means, the new identity cards and residence permits will be in the ICAO TD1 format¹²⁶, including a machine-readable zone (MRZ) and a compliant contactless chip (including face image).

Member states have two years (till August 2, 2021) to adopt this regulation and only issue identity cards and residence permits that are conformant to the new Regulation. Already released cards in circulation will be phased out. By August 2, 2026, all identity cards and residence permits in circulation shall have the compliant MRZ. By August 2, 2031, all identity cards and residence permits in circulation shall have the compliant contactless chip (NFC chip). The identity cards and residence permits do not meet above requirements by the dates, shall be invalid. The only exceptional case is that the persons older than 70 (on August 1, 2019) with the identity cards or residence permits with MRZ are not affected.

Please note that the above regulation does not require member states to issue Identity cards to their citizens. Specifically, Denmark, Iceland, and the United Kingdom do not issue identity cards and do not have to start doing so now.

8.2 TYPES OF IDENTITY CARDS

Countries can have different types of identity cards, such as ordinary Identity cards, temporary Identity cards, and service/official Identity cards. We focus on the most important and most circulated type: the ordinary identity cards.

¹²² Council Regulation (EC) No 2252/2004 on standards for security features and biometrics in passports and travel documents issued by Member States, 13 December 2004, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:32004R2252>.

¹²³ Council Regulation (EC) No 1030/2002 laying down a uniform format for residence permits for third country nationals, 13 June 2002, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:02002R1030-20080519&from=EN>.

¹²⁴ Regulation (EU) 2017/1954 amending Council Regulation (EC) No 1030/2002, 25 October 2017, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2017.286.01.0009.01.ENG&toc=OJ:L:2017:286:FULL.

¹²⁵ Regulation of the European Parliament and of the Council on strengthening the security of identity cards of Union citizens and of residence documents issued to Union citizens and their family members exercising their rights of free movement, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019R1157>.

¹²⁶ Part 5 of International Civil Aviation Organization (ICAO) Doc 9303 <https://www.icao.int/publications/pages/publication.aspx?docnum=9303>

8.3 TYPES OF RESIDENCE PERMITS

Residence permits are generally issued to foreign nationals to legally stay in the residing country for a certain period. Regulation 1030/2002 is applied to any person who is not a citizen of the European Union, except:

- Non-EU family member of EU citizen.
- Citizens of European Free Trade Association (EFTA: Iceland, Liechtenstein, Norway, and Switzerland) and their family members.

Therefore, we often see three types of residence permits in Europe:

- Regular residence permits follow Regulation 1030/2002 (amended by EU 2017/1954).
- Residence permits for non-EU family members of EU citizens. Not all member states have this type of residence permit. The countries which have issued this type of residence permits are Croatia, the Netherlands, Poland, Portugal, Sweden, Norway. With the enforcement of Regulation (EU) 2019/1157, the other member states will follow up over the time.
- Residence permits for EU citizens and citizens from EFTA. Only few member states issue this type of residence permit, such as Latvia and Sweden.

There will be a fourth types of residence permits soon. Since 31 December 2020, all British nationals living in the EU also need to apply for residence permits. The European Commission has decided to create a uniform EU-wide biometric residence permit for all British nationals in the EU¹²⁷.

We focus on the regular residence permits in Europe, since they are the most seen and regulated residence permits at this moment.

8.4 HOW TO DISTINGUISH IDENTITY CARDS FROM RESIDENCE PERMITS

Please be aware that identity cards are easy to confuse with residence permits since these are typically implemented as a card with the same form factor and possibly even the same document code. This is especially challenging if the identity card or residence permit is read remotely without visually inspecting the document. To our knowledge, there are 5 ways to distinguish the two from data received from the chip of the document (the first three also work on the MRZ only).

Method 1: Different document code

ICAO has defined the first two characters on the MRZ as the document code (and thus data group 1 of the chip). ICAO has specified the first character: “P” is used for TD3 (passports); “V” is used for visas; and “A”, “C”, or “I” is used for TD1 and TD2 format¹²⁸. Each issuing authority can define the second character itself. The EU has not further specified the document code in its relevant regulations.

Therefore, there is no one single rule to distinguish identity cards and residence permits based on document codes from Europe-wide. However, within a country, different document codes are normally used for identity cards and residence permits. The only exception we know is Belgium, within the EEA, UK, Switzerland, and Ukraine. Belgium uses the same document code “ID” for both identity cards and residence permits.

Chapters 10 and 11 list the document codes for each country.

Method 2: Different nationality and issuing states

By definition, identity cards are issued to own citizens, while residence permits are issued to foreign nationals. Therefore, the nationality of the holder and the issuing states should be different for residence permits, but

¹²⁷ <https://www.politico.eu/article/brits-in-the-eu-common-residence-card-biometric-residence-document/>

¹²⁸ Part 4 to 7 of International Civil Aviation Organization (ICAO) Doc 9303
<https://www.icao.int/publications/pages/publication.aspx?docnum=9303>

identical for identity cards. There might exist exceptional cases where this rule does not apply. If you are aware of it, please contact us via email on documents@inverid.com.

Method 3. Optional field from data group 1 / MRZ

Some countries use optional fields in identity cards or residence permits to fill in extra personal information. For example, Dutch identity cards have Burgerservicenummer (BSN) filled in optional field 1, while Dutch residence permits have a V-number (VNR) in optional field 1, and document type information in the optional field 2.

Method 4. Different Country Signing Certificate Authorities (CSCA)

The Country Signing Certificate Authority for identity cards and residence permits can be different. Since the two types of documents are issued to nationals and non-nationals respectively, the organizational unit to issue these documents are often different. This however does require a per-country analysis¹²⁹.

Method 5. Contains different data groups

The documents might contain different data groups. For example, currently the Dutch identity cards have no Data group 3 for fingerprints recorded, while the Dutch residence permits have. However, this might also change over the time.

Which method to choose?

The combination of Method 1 and 2 can work effectively in the majority of cases to distinguish identity cards and residence permits in EU.

The information used in Method 3, 4, and 5 differs per country. These methods require in-depth knowledge of the documents, or the government issuing organizations within the issuing country. Moreover, the contents might change over time in different document versions. They are not easy to be implemented on a large scale. It also requires frequent maintenance to keep the information up to date. Therefore, Method 3, 4, or 5 can be applied as supplementary methods for specific countries, for additional assurance.

¹²⁹ ReadID does not have an overview of this at this moment, only for some countries we know this. And please be aware a country may change the issuing party without warning.

9 Identity Cards from EEA, UK, and CHE

9.1 OVERVIEW

29 out of 32 countries (EEA, UK, and Switzerland) have an identity card with an ICAO compliant MRZ. ReadID can scan the MRZ of all those identity cards. ReadID supports also the MRZ of the old French identity cards with CNIS format¹³⁰. Of the 29 countries, 24 have released identity cards with ICAO compliant NFC chip, except Bulgaria, Greece, Portugal, Liechtenstein, and Switzerland. ReadID can read and verify all of them, except the French new identity cards from 2021 and the Slovak identity cards from 2022. ReadID can read and verify them using Android phones, but not iOS phones.

It is important to be aware that Belgium, Cyprus, Hungary, Italy, Luxembourg, Malta, Poland, Slovenia, Spain, France, Croatia, Czech, Estonia, Romania, Austria, Finland, Slovak, and Germany have still valid earlier versions of identity cards without a contactless chip in circulation. Especially, Italy has issued versions of its identity card with and without contactless chip in parallel for a while. This means, not all identity cards from those countries can be read by ReadID. With the enforcement of the above-mentioned Regulation (EU) 2019/1157, the percentage of compatible identity cards will increase over time, both in the 'mixed' countries where the non-compliant identity cards will disappear and countries that will start issuing compliant identity cards. We would like to mention a few countries in particular:

- Slovenia, Romania, Austria, Belgium, Malta, Norway, France, Croatia, Czech, Finland, and Estonia started recently (after Jan 2020) issuing ICAO compliant identity cards.
- Germany has started issuing ICAO compliant identity cards since 2021 August 2nd. ReadID can read and verify this latest version. Before that, the identity cards are embedded with NFC, but not ICAO compliant and therefore also not ReadID compatible (yet).
- The Netherlands has released a newer version of identity cards on 2 August 2021, which removes the citizen service number (BSN) from the machine readable zone (MRZ) and includes it in a QR code on the back side of the identity cards¹³¹.
- The French and Slovak identity cards (issued after March 2021 and December 2022, respectively) are PACE only documents. Their PACE implementation is incompatible with ReadID iOS PACE, due to the iOS platform restrictions. Thus, the French new identity cards can be read and verified using ReadID Android SDKs, but not iOS SDKs.
- Ireland and Ukraine have passport cards, comparable to identity cards.

The figure below illustrates the overview of the ReadID coverage on identity cards in the EEA, the UK, and CHE.

¹³⁰ See <https://ga.ambafrance.org/Carte-nationale-d-Identite-securisee-CNIS> for more details.

¹³¹ See <https://www.rvig.nl/actueel/nieuws/2021/05/20/nieuw-model-nederlandse-identiteitskaart-per-2-augustus-2021> for more details.

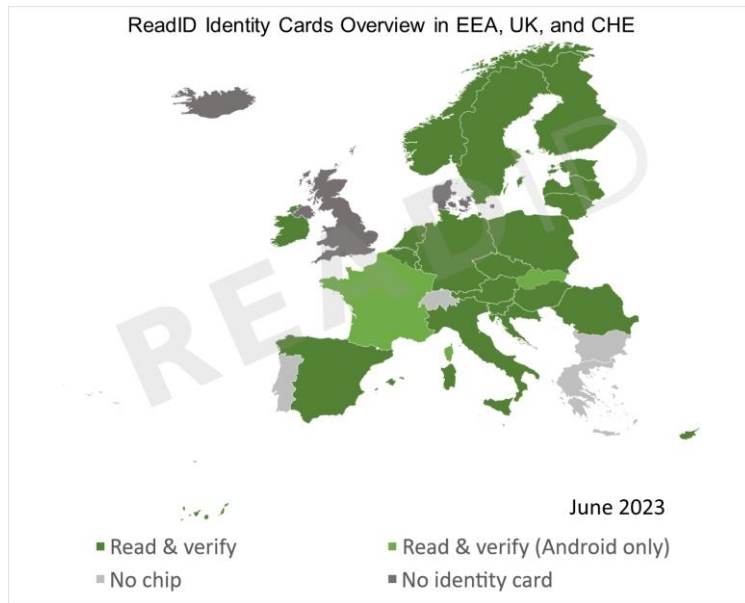


Figure 21. ReadID coverage on identity cards in EEA, UK, Switzerland, and Ukraine (June 2023).

All issued eIDs have at least one clone detection mechanism implemented in the EEA, as shown in the following figure.

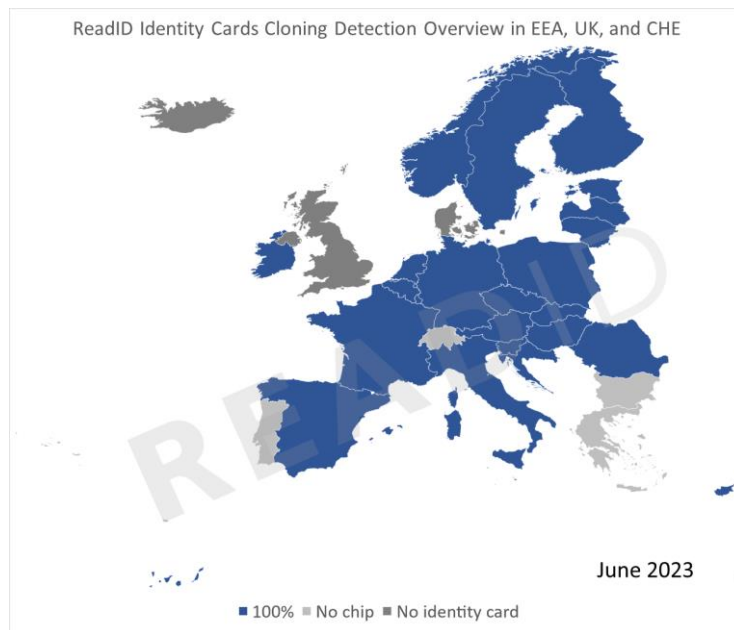


Figure 22. ReadID cloning detection overview on identity cards in EEA, UK, Switzerland, and Ukraine (June 2023)

9.2 DETAILS

Contrary to passports, there are two optional data fields in identity cards and residence permits. Optional data 1 can be up to 15 characters, and Optional data 2 can be up to 11 characters. Issuing states define the usage of these fields per needs, including storage of personal numbers. We will point it out in the following table, if we know the personal numbers are stored in either of the optional data fields, or in the dedicated personal number fields, or in both. We will also indicate if the optional fields are used for a purpose other than personal number. The below table presents the overview of ordinary identity cards and their contents in the chips per country, per generation. Each generation of identity cards is distinguished by its first issuing dates.

Table 11. List of identity cards per country per generation in EEA, UK, Switzerland, and Ukraine (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content												
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹³²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue	
								Presence	Script	Diacritics	Presence	Script	Diacritics							
Austria	AUT	02/08/2021	ID	✓	✓	✓	✓	✓	Latin	✗	✗	-	-	✗	✗	✗	✓	✓	✓	
		03/05/2010	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Belgium	BEL	15/07/2021	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹³³	✓	✗	✗	✗	✗	
		14/01/2020	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹³³	✓	✗	✗	✗	✗	
		17/11/2015	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/12/2013	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bulgaria	BGR	29/03/2010	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Croatia	HRV	02/08/2021	IO	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✓	✗	✓	✓	
		08/06/2015	IO	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/07/2013	IO	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/01/2003	IO	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyprus	CYP	12/08/2020	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗	
		24/02/2015	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗	
		01/07/2008	-	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Czech Republic	CZE	02/08/2021	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗	
		19/05/2014	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		11/01/2012	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Denmark	DNK	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Estonia	EST	23/08/2021	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗	
		03/12/2018	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/01/2011	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Finland	FIN	13/03/2023	I	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗	
		02/08/2021	I	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗	
		01/01/2017	I	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		31/05/2011	I	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
France	FRA	16/03/2021	ID	✓	✓	✓ ¹³⁴	✓	✓	Latin	✓	✓ ¹³⁵	Latin	✓	✗	✗	✗	✓	✗	✓	
		01/01/2014	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/10/1994	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Germany	D<<	02/08/2021	ID	✓	✓	✓ ¹³⁶	✓	✗	-	-	✗	-	-	✗	✓ ¹³⁷	✗	✗	✗	✗	
		01/11/2010	ID	✗ ¹³⁸	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Greece	GRC	05/08/2016	- ¹³⁹	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/07/2000	- ¹³⁹	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹³² When the optional data field 1 or 2 is present and without any further explanation, it is used to store the personal number based on our knowledge. We will specify it if it is used for a purpose other than personal number.

¹³³ Based on ReadID Analytics data, there were 20% of identity cards with optional data 1 field in the chip. It is known that Belgian identity cards have sometimes longer document numbers than the limit (9 characters) and use the optional field 1 to fill in the extra part of the document numbers.

¹³⁴ The 2021 version French ID card uses PACE only, without BAC. ReadID Android SDKs can read the card, but ReadID iOS SDKs cannot, due to the limitation of the operating system. For more details on PACE and BAC, see the blog post Privacy Related Security Mechanisms for ePassports (<https://readid.com/blog/Privacy-related-security-mechanisms-for-ePassports>).

¹³⁵ Based on ReadID Analytics data, we have seen around 10% of identity cards with other names present.

¹³⁶ The 2021 version German identity card uses PACE only, without BAC. For more details, see the blog post Privacy Related Security Mechanisms for ePassports (<https://readid.com/blog/Privacy-related-security-mechanisms-for-ePassports>).

¹³⁷ From the example of specimen, the optional data 2 field is used to record the year and month of issue (yy/mm).

¹³⁸ The 2010 version German Identity cards have contactless chip, but not ICAO compliant.

¹³⁹ No MRZ.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹³²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Hungary	HUN	01/01/2016	I	✓ ¹⁴⁰	✓	✓	✓	✓ ¹⁴¹	Latin	✓	✓ ¹⁴²	Latin	✓	X	X	X	✓ ¹⁴³	✓ ¹⁴⁴	✓ ¹⁴⁵
		01/03/2012	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		09/04/2001	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iceland	ISL	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ireland ¹⁴⁶	IRL	21/10/2021	IP	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	X
		02/10/2015	IP	✓	✓	✓	✓	X	-	-	X	-	-	X	X	X	X	X	X
Italy	ITA	04/07/2016	C	✓	✓	✓	✓	✓	Latin	X	X	-	-	X	X	✓	✓	✓	✓
		01/01/2004	CI	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Latvia	LVA	29/04/2021	I	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	X
		02/09/2019	I	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	X
		01/04/2012	I	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	X
Liechtenstein	LIE	23/06/2009	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Lithuania	LTU	01/06/2021	I	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	X	X	X	X
		04/07/2012	I	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	X
		01/01/2009	I	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	X
Luxembourg	LUX	02/08/2021	ID	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓ ¹⁴⁷	X	X	X	✓	✓
		01/07/2014	ID	✓	✓	✓	✓	X	-	-	X	-	-	✓ ¹⁴⁷	X	X	X	X	X
		21/03/2013	70	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/12/2008	70	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malta	MLT	07/09/2020	ID	✓	✓	✓	✓	✓	Latin	X	X	-	-	✓	✓ ¹⁴⁸	X	✓	✓	✓
		12/02/2014	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Netherlands	NLD	02/08/2021	I	✓	✓	✓	✓	✓ ¹⁴⁹	Latin	X	X	-	-	X ¹⁵⁰	X	X	X	✓	X
		01/03/2017	I	✓	✓	✓	✓	✓ ¹⁴⁹	Latin	X	X	-	-	✓	X	X	X	✓	X
		09/03/2014	I	✓	✓	✓	✓	✓ ¹⁴⁹	Latin	X	X	-	-	✓	X	X	X	✓	X
	NOR	09/07/2021	XA	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	✓	X	X	✓
		09/07/2021	CA	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	✓	X	X	✓
		30/11/2020	XA	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	✓	X	X	✓

¹⁴⁰ An exception is the Hungarian identity cards for anyone who is older than 65 years at time of issuing, these do not have the contactless chip, and these also have 60 years of validity.

¹⁴¹ Based on ReadID Analytics data, almost all passports have the full name in the chip. It is not clear why very few of them (around 2%) do not contain full names.

¹⁴² Based on ReadID Analytics data, we have seen around 10% of identity cards with other names present.

¹⁴³ Based on ReadID Analytics data, around 99% of identity cards have place of birth stored in the chip. It is not clear why those fields are absent.

¹⁴⁴ Based on ReadID Analytics data, the percentage of the identity cards which have issuing authority stored in the chip grows from 0% on expiry year 2022 to 100% by expiry year 2028.

¹⁴⁵ Based on ReadID Analytics data, around 99% of identity cards have date of issue stored in the chip.

¹⁴⁶ Ireland issues no identity card, but a passport card, which is similar.

¹⁴⁷ From the example of the specimen, the optional data 1 field is used to store the date of issue. The national identification number of Luxembourg is stored in DG 13 and secured with different keys which are not shared publicly. Thus, the national identification numbers in DG 13 are not accessible.

¹⁴⁸ From the example of the specimen, the optional data 2 field is used for storing the date of issue.

¹⁴⁹ Dutch identity cards only store the full names in the chip if it has more than 30 characters. It does not store any diacritics.

¹⁵⁰ For Dutch identity cards issued after 2 August 2021, the personal number (burgerservicenummer, BSN) is no longer stored in optional data field 1, or anywhere else in the chip. The identity cards issued earlier than the date still have the BSN in the optional data field 1.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content												
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹³²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue	
								Presence	Script	Diacritics	Presence	Script	Diacritics							
Norway ¹⁵¹		30/11/2020	CA	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	✓	X	X	✓	
Poland	POL	07/11/2021	I	✓	✓	✓ ¹⁵²	✓	X	-	-	X	-	-	X	✓ ¹⁵³	✓	✓	✓	✓	
		04/03/2019	I	✓	✓	✓ ¹⁵²	✓	X	-	-	X	-	-	X	✓ ¹⁵³	✓ ¹⁵⁴	✓ ¹⁵⁵	✓	✓	
		01/03/2015	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		19/11/2013	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		07/02/2002	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		15/01/2001	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Portugal	PRT	05/06/2015	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/06/2009	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Romania	ROU	02/08/2021	ID	✓	✓	✓	✓	X	-	-	X	-	-	✓ ¹⁵⁶	X	X	X	X	X	
		02/01/2017	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		12/05/2009	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/01/2006	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/01/2001	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Slovakia	SVK	01/12/2022	ID	✓	✓	✓ ¹⁵⁷	✓	X	-	-	X	-	-	✓	X	X	X	X	X	
		01/12/2019	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/03/2015	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		30/11/2013	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/07/2008	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Slovenia	SVN	28/03/2022	I	✓	✓	✓	✓	✓	Latin	✓	X	-	-	✓	X	X	X	X	X	
		20/06/1998	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Spain	ESP	02/06/2021	ID	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	✓ ¹⁵⁸	✓	X	X	
		02/01/2015	ID	✓	✓	✓	✓	X	-	-	X	-	-	✓	X	✓ ¹⁵⁸	✓	X	X	
		16/03/2006	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sweden	SWE	01/01/2022	I	✓	✓	✓ ¹⁵⁹	✓	X	-	-	X	-	-	✓	X	X	X	X	X	

¹⁵¹ Norway issues two types of identity cards: ones with the document code CA are valid travel documents within European Union and Schengen associated countries; ones with the document code XA are not valid travel documents. Thus, the nationality in XA card is recorded as “xxx”, instead of “NOR”.

¹⁵² From March 2019, the newly issued Polish identity card uses PACE only, without BAC. PACE is a newer standard for access control to the contactless chip, succeeding BAC. PACE and BAC are access control mechanisms to access the data in the chip. For more details, see the blog post Privacy Related Security Mechanisms for ePassports (<https://readid.com/blog/Privacyrelated-security-mechanisms-for-ePassports>)

¹⁵³ From the example of the specimen, it looks like that the optional data 2 field has been used for storing the personal numbers.

¹⁵⁴ Based on ReadID Analytics data, the 2019 version of Polish identity cards started to record personal number in the chip from August 2019. Before that, there was no personal number in the chip.

¹⁵⁵ Based on ReadID Analytics data, the 2019 version Polish Identity cards started to record place of birth in the chip from August 2019. Before that, there was no place of birth info in the chip.

¹⁵⁶ From the example of the specimen, it looks like that the optional data 1 field has been used for storing the excessive of the document numbers.

¹⁵⁷ The 2022 version of the Slovakian identity card uses PACE only, without BAC. ReadID Android SDKs can read the card, but ReadID iOS SDKs cannot, due to the limitation of the operating system. For more details on PACE and BAC, see the blog post Privacy Related Security Mechanisms for ePassports (<https://readid.com/blog/Privacy-related-security-mechanisms-for-ePassports>).

¹⁵⁸ The personal numbers in the dedicated fields are almost the same as the optional data 1 field, except that they have an extra “-” between the last two digits.

¹⁵⁹ The 2022 version Swedish identity card uses PACE only, without BAC. For more details, see the blog post Privacy Related Security Mechanisms for ePassports (<https://readid.com/blog/Privacy-related-security-mechanisms-for-ePassports>).

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content												
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹³²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue	
								Presence	Script	Diacritics	Presence	Script	Diacritics							
		02/08/2021	I	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗	
		02/01/2012	I	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗	
Switzerland	CHE	02/02/2023	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/11/2005	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/01/2003	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ukraine ¹⁶⁰	UKR	01/01/2018	ID	✓	✓	✓	✓	✓	Latin	✓ ¹⁶¹	Latin, Cyrillic	✓	✓	✗	✓	✓	✓	✓	✓	
		01/01/2016	ID	✓	✓	✓	✓	✓	Latin	✓ ¹⁶¹	Latin, Cyrillic	✓	✓	✗	✓	✓	✓	✓	✓	
United Kingdom	GBR	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

¹⁶⁰ Ukraine issues no identity card, but a passport card, which is similar.

¹⁶¹ Based on ReadID Analytics data, we have seen around 90% of identity cards with other names present.

10 Residence Permits from EEA, UK, CHE, and UKR

10.1 OVERVIEW

Only two EEA countries, namely Iceland and Liechtenstein, have residence permits without the ICAO-compliant chips. All 27 EU countries, Norway, UK, Switzerland, and Ukraine have applied (EC) No 1030/2002 (amended by EU 2017/1954) and issued ICAO-compliant regular residence permits for foreign nationals.

ReadID is compatible to read and check whether it is a clone for all of them. ReadID can also verify all of them, except residence permits from UK, and part of Hungarian residence permits. If these countries fall into your focus scope, please contact us via documents@inverid.com. We may be able to help you further with it. The figure below illustrates this in the geographic view.

With the enforcement of the above-mentioned Regulation (EU) 2019/1157, the residence permits for non-EU family member of the EU citizens will also be ICAO compliant over time.

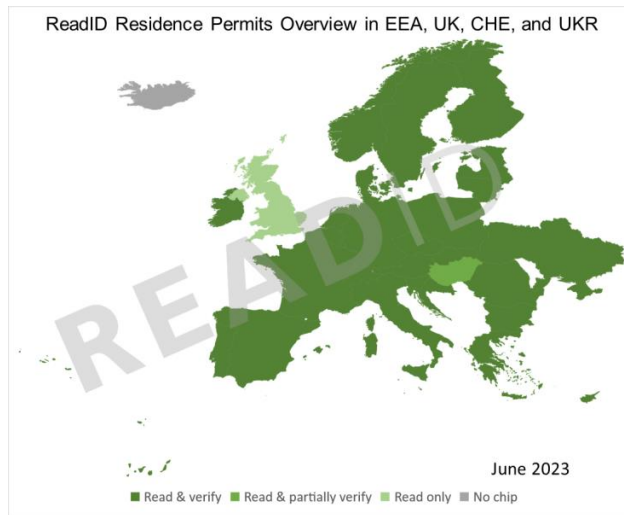


Figure 23. ReadID coverage on residence permits in EEA, UK, Switzerland, and Ukraine (June 2023)

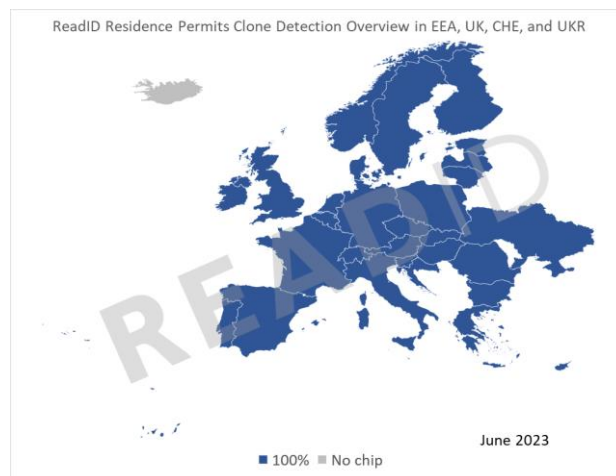


Figure 24. ReadID clone detection coverage on residence permits in EEA, UK, Switzerland, and Ukraine (June 2023)

10.2 DETAILS

The below table contains the details on the residence permits from EEA, UK, Switzerland, and Ukraine, per generation. This table only includes the most often seen and used residence permits for foreign nationals. It does not include the data for other types like non-EU family member of EU citizens, or permanent residence permits. Please contact documents@inverid.com, if you have questions over those residence permits. We may be able to help you to find more information on it.

Similar to identity cards, there are also two optional fields in the chip: Optional data 1 (up to 15 characters) and Optional data 2 (up to 11 characters). Issuing states define the usage of these fields per needs, including storage of personal numbers. We will point it out in the following table, if we know the personal numbers are stored in either of the optional data fields, or in the dedicated personal number fields, or in both. We will also indicate if the optional fields are used for a purpose other than personal number.

Table 12. List of residence permits per country per generation in EEA, UK, Switzerland, and Ukraine (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹⁶²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Austria	AUT	01/07/2020	AR	✓	✓	✓	✓	✓	Latin	✗	✗	-	-	✗	✓ ¹⁶³	✗	✓	✓	✓
		01/07/2011	AR	✓	✓	✓	✓	✓	Latin	✗	✗	-	-	✗	✓ ¹⁶³	✗	✓	✓	✓
Belgium	BEL	01/07/2022	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁶⁴	✓	✗	✗	✗	✗
		11/10/2021	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁶⁴	✓	✗	✗	✗	✗
		31/03/2021	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁶⁴	✓	✗	✗	✗	✗
		19/05/2013 ¹⁶⁵	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁶⁴	✓	✗	✗	✗	✗
Bulgaria	BGR	29/03/2010	IX	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✗	✓	✗	✓	✗	✗
Croatia	HRV	02/08/2021	AB ¹⁶⁶	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✓	✗	✓	✓
		01/01/2021	AD	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✓	✗	✓	✓
		27/10/2016	AB ¹⁶⁶	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✓	✗	✓	✓
		01/07/2013	AD	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✓	✗	✓	✓
Cyprus	CYP	02/08/2021	IR ¹⁶⁷	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✓	✗	✗	✗
		05/09/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✓	✗	✗	✗
		25/08/2014	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✓	✗	✗	✗

¹⁶² When the optional data field 1 or 2 is present and without any further explanation, it is used to store the personal number based on our knowledge. We will specify it if it is used for a purpose other than personal number.

¹⁶³ The example of the specimen shows that the optional data 2 is used to store Card Access Number (CAN).

¹⁶⁴ Based on ReadID Analytics data, there were 5% of residence permits with optional data 1 field in the chip. It is known that Belgium residence permits have sometimes longer document numbers than the limit (9 characters) and use the optional field 1 to fill in the extra part of the document numbers.

¹⁶⁵ Belgium issued the residence permits without NFC chip to EEA citizens and their family members between 2013 and 2021. They have the same document code "ID" in MRZ.

¹⁶⁶ We have very little data on Croatian residence permits with document code AB. Thus, the information provided here might be biased.

¹⁶⁷ Cyprus issues the residence permits to regular foreign nationals and to EEA citizens and their family members with the same document code "IR" in MRZ.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹⁶²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Czech Republic	CZE	01/02/2022	IR ¹⁶⁸	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✓ ¹⁶⁹	✗	✗	✗	✗
		27/06/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✓ ¹⁶⁹	✗	✗	✗	✗
		23/04/2014	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✓ ¹⁶⁹	✗	✗	✗	✗
		04/07/2011	IR ¹⁷⁰	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✓ ¹⁶⁹	✗	✗	✗	✗
Denmark	DNK	01/11/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		01/08/2017	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
Estonia	EST	01/10/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
		03/12/2018	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
		01/01/2011	RP	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
Finland	FIN	01/01/2021	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		25/09/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		16/02/2017	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
France	FRA	10/08/2020	IR	✓	✓	✓	✓	✓	Latin	✗	✓ ¹⁷¹	Latin	✗	✓	✗	✓	✓	✓	✓
		20/06/2011	IR	✓	✓	✓	✓	✓	Latin	✗	✓ ¹⁷¹	Latin	✗	✓	✗	✓	✓	✓	✓
Germany ¹⁷²	D<<	04/01/2021	AR	✓	✓	✓ ¹⁷³	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		01/11/2019	AR	✓	✓	✓ ¹⁷³	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		01/11/2019	AF	✓	✓	✓ ¹⁷³	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		01/11/2019	AS	✓	✓	✓ ¹⁷³	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		01/09/2011	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		01/09/2011	AF	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		01/09/2011	AS	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
Greece	GRC	01/11/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
		04/06/2013	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	
Hungary	HUN	20/05/2011	IR	✓	✓	✓	✓ ¹⁷⁴	✗	-	-	✗	-	-	✗	✓ ¹⁷⁵	✗	✗	✗	
Iceland	ISL	01/07/2004	RT	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ireland	IRL	09/03/2022	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	
		??/??/2017	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	

¹⁶⁸ Czech issues the residence permits to regular foreign nationals and to EEA citizens and their family members with the same document code “IR” in MRZ.

¹⁶⁹ Based on ReadID Analytics data, we have seen around 94% of residence permits with optional data 2 present. It is unclear what the field is used for.

¹⁷⁰ The earliest reading from Czech Republic in RA is from the expiry year 2015. The validity of residence permits varies from a few months to a few years. Further, both generations share the same document codes and other specifications in chips. It is not possible for us to distinguish these two generations of residence permits based on the expiry dates. The results along the years are consistent.

¹⁷¹ Based on ReadID Analytics data, we have seen around 15% of residence permits with other names present.

¹⁷² AF is the document code for the German residence permits for non-EU family members of EEA citizens. AS is the document code for the German residence permits for Swiss citizens and their family members. AR is the document code for the regular German residence permits for other nationality.

¹⁷³ Since 2019, German has issued the residence permit uses PACE only, without BAC. For more details, see the blog post Privacy Related Security Mechanisms for ePassports (<https://readid.com/blog/Privacy-related-security-mechanisms-for-ePassports>).

¹⁷⁴ ReadID misses part of the certificates for this new residence permit.

¹⁷⁵ It is unclear that for which the optional data 2 field is used.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹⁶²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Italy	ITA	03/02/2021	CR	✓	✓	✓	✓	✓	Latin	✗	✗	-	-	✗	✗	✓	✓	✗	✓
		06/11/2013	CR	✓	✓	✓	✓	✓	Latin	✗	✗	-	-	✗	✗	✓	✓	✗	✓
Latvia	LVA	13/01/2021	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
		01/04/2012	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
Liechtenstein	LIE	23/06/2009	AA	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lithuania	LTU	17/09/2020	IT	✓	✓	✓	✓	✓ ¹⁷⁶	Latin	✗	✗	-	-	✓	✗	✗	✗	✗	✗
		09/01/2012	IR	✓	✓	✓	✓	✓ ¹⁷⁷	Latin	✓	✗	-	-	✓	✗	✗	✗	✗	✗
Luxembourg	LUX	15/12/2020	IR	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✓ ¹⁷⁸	✗	✗	✓	✓	✓
		20/05/2011	IR	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✓ ¹⁷⁸	✗	✗	✓	✓	✓
Malta	MLT	20/06/2020	IR	✓	✓	✓	✓	✓ ¹⁷⁹	Latin	✗	✗	-	-	✓	✗	✗	✗	✓ ¹⁸⁰	✓ ¹⁸⁰
		??/??/2014	IR	✓	✓	✓	✓	✓ ¹⁷⁹	Latin	✗	✗	-	-	✓	✓ ¹⁸¹	✗	✗	✓ ¹⁸⁰	✓ ¹⁸⁰
Netherlands ¹⁸²	NLD	12/05/2022	IW	✓	✓	✓	✓	✓ ¹⁸³	Latin	✗	✗	-	-	✓ ¹⁸⁴	✓ ¹⁸⁵	✗	✗	✗	✗
		01/10/2020	IR	✓	✓	✓	✓	✓ ¹⁸³	Latin	✗	✗	-	-	✓ ¹⁸⁴	✓ ¹⁸⁵	✗	✗	✗	✗
		01/10/2020	IT	✓	✓	✓	✓	✓ ¹⁸³	Latin	✗	✗	-	-	✓ ¹⁸⁴	✓ ¹⁸⁵	✗	✗	✗	✗
		01/04/2012	IT	✓	✓	✓	✓	✓ ¹⁸³	Latin	✗	✗	-	-	✓ ¹⁸⁴	✓ ¹⁸⁵	✗	✗	✗	✗
		01/06/2014	IR	✓	✓	✓	✓	✓ ¹⁸³	Latin	✗	✗	-	-	✓ ¹⁸⁴	✓ ¹⁸⁵	✗	✗	✗	✗
		01/06/2014	IW	✓	✓	✓	✓	✓ ¹⁸³	Latin	✗	✗	-	-	✓ ¹⁸⁴	✓ ¹⁸⁵	✗	✗	✗	✗
Norway	NOR	30/11/2020	IR	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✗	✗	✗	✓	✓	✓
		01/11/2017	IR	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✗	✗	✗	✓	✓	✓
		04/06/2012	IR	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✗	✗	✗	✓	✓	✓
Poland	POL	30/09/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		23/08/2011	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
Portugal	PRT	30/09/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		22/12/2008	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
Romania	ROU	01/07/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✓ ¹⁸⁷	✓

¹⁷⁶ From the ReadID Analytics data, we can see that the documents expired between 2023 June and 2024 June, and after 2026 June are almost 100% with the field name of holder. Before that, it did not exist.

¹⁷⁷ From the ReadID Analytics data, we can see that the documents expired between 2026 June and 2027 June, and after 2031 June are almost 100% with the field name of holder. Before that, it did not exist.

¹⁷⁸ From the example of the specimen, it is likely that the optional data 1 field stores the date of issue.

¹⁷⁹ From the ReadID Analytics data, there are around 86% of residence permits with the full names in the chips. It is unclear why the rest do not.

¹⁸⁰ From the ReadID Analytics data, there are around 86% of residence permits with the issuing authority and date of issue in the chips. It is unclear why the rest do not.

¹⁸¹ It is unclear that for which the optional data 2 field is used.

¹⁸² "IW" is the document code used for the Dutch residence permits for asylum seekers. This type of residence permit cannot be used to cross the border. "IR" is used for EU family member and long-term residence. "IT" is used for regular residence permits.

¹⁸³ Dutch residence permits only store the full names in the chip if it has more than 30 characters. It does not store any diacritics.

¹⁸⁴ Dutch residence permits use the optional data 1 field to store "V-nummer".

¹⁸⁵ Dutch residence permits use the optional data 2 field to store the type of residence permit.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹⁶²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
		?/?/? ¹⁸⁶	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✗	✗	✗	✓ ¹⁸⁷	✓
		01/01/2007	IT ¹⁸⁸	✓	✓	✓	✓	-	-	-	-	-	-	-	-	-	-	-	-
Slovakia	SVK	21/08/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
		19/09/2011	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
Slovenia	SVN	18/05/2011	AR	✓	✓	✓	✓	✓ ¹⁸⁹	Latin	✓	✗	-	-	✓ ¹⁹⁰	✗	✗	✗	✗	✗
Spain	ESP	19/05/2020	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
		01/04/2011	IR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
Sweden	SWE	01/01/2022	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁹¹	✗	✗	✗	✗	✗
		01/12/2020	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁹¹	✗	✗	✗	✗	✗
		20/05/2011	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁹¹	✗	✗	✗	✗	✗
Switzerland	CHE	01/09/2020	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁹²	✗	✗	✗	✗	✗
		01/12/2018	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁹²	✗	✗	✗	✗	✗
		24/01/2011	AR	✓	✓	✓	✓	✗	-	-	✗	-	-	✓ ¹⁹²	✗	✗	✗	✗	✗
Ukraine	UKR	01/06/2018	TT ¹⁹³	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✓	✗	✓	✓ ¹⁹⁴	✓	✓
		01/06/2018	TP ¹⁹⁵	✓	✓	✓	✓	✓	Latin	✓	✗	-	-	✓	✗	✓	✓ ¹⁹⁶	✓	✓
United Kingdom ¹⁹⁷	GBR	01/01/2021	IR	✓	✓	✓	✗	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		?/?/?/2016	AR ¹⁹⁸	✓	✓	✓	✗	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗
		01/01/2015	IR	✓	✓	✓	✗	✗	-	-	✗	-	-	✗	✗	✗	✗	✗	✗

¹⁸⁶ The majority of the ReadID RA readings from Romania are with the code “IR”, instead of “IT”. However, it is not registered in any document Database we have used. We are almost sure that this is a “forgotten” new generation of residence permit from Romania.

¹⁸⁷ Around 30% of the residence permits have issuing authority in the chip.

¹⁸⁸ There was no information over this document for the last year in ReadID Analytics. Therefore, we cannot fill in the information over the chip content. This is likely due to it being no longer valid and not in circulation anymore.

¹⁸⁹ Around 50% of residence permits have the full name, especially the ones expire after August 2022.

¹⁹⁰ Around 50% of residence permits have optional data 1 field, especially the ones that expire after August 2022. It is not clear why the rest do not have such a field and what exactly is stored in the field.

¹⁹¹ From the example of the specimen documents, the optional data 1 field stores the full date of birth (yyyymmdd).

¹⁹² From the example of the specimen documents, the optional data 1 field stores “No Symic”.

¹⁹³ Temporary residence permits.

¹⁹⁴ Around 60% of residence permits have the place of birth.

¹⁹⁵ Permanent residence permits.

¹⁹⁶ Around 68% of residence permits have the place of birth.

¹⁹⁷ Besides the residence permits listed in table here, there were still one more type of residence documents called biometric residence card, or permanent residence card or derivative residence card, which was issued to EEA citizens and their family members. This type of card has the document code “CR”. Due to Brexit, the UK has no longer issue residence card any more since 30 June 2021, instead, all EEA citizens and their family member need to apply for residence permits via EU settlement scheme. For more details on residence cards, visit <https://www.gov.uk/residence-documents-foreign-nationals-uk>.

¹⁹⁸ This is a type of residence permit issued to foreign nationals who has made an application to stay in the UK and are having their application considered. It is called “Application Registration cards (ARCs)”. Once the application is either granted or refused, the card should be withdrawn. It is unknown when the UK started to issue this type of residence permit. The specimen document was issued in 2016. Typically, this card does not have a long validity period, due to its purpose.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ¹⁶²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
		26/07/2010	IR 199	✓	X	X	X	-	-	-	-	-	-	-	-	-	-	-	-
		01/10/2012	VR 200	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		22/02/2010	VR 201	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹⁹⁹ This generation of UK residence permits are made with Trub cards. Due to the limitation of cards, the contactless chip is not compatible to implement proper ICAO security mechanisms and cannot be read properly using NFC. Based on our knowledge, around 17% of the current active residence permits in circulation are Trub cards and not readable using NFC till Feb 2020. Based on regulation, all Trub cards has an expiry date no later than 31/12/2024. Before this, the UK residence permit was issued as the sticker with document code “VR”. The residence permit sticker was last issued on 30 November 2012. We think it is almost all out of circulation at this moment.

²⁰⁰ The residence documents for EU/EEA Nationals, family members for EU/EEA nationals. The Documents with VR are stickers, without chip. ReadID MRZ can scan and interpret the MRZ.

²⁰¹ Certificate of enrollment to confirm the right of reside in the UK. The holders can return to and work in the UK without a visa. The Documents with VR are stickers, without chip. ReadID MRZ can scan and interpret the MRZ.

11 Identity Cards from the rest of Europe

11.1 OVERVIEW

13 out of 24 countries from the rest of Europe also issue ICAO compliant identity cards. ReadID can verify the identity cards from Georgia, Kosovo, Moldova, and Ukraine. ReadID has part of the certificates from Bosnia and Herzegovina. ReadID can read the chip of the identity cards from the other 8 countries: Albania, Azerbaijan, Belarus, Gibraltar, Kazakhstan, Montenegro, and Türkiye. Unfortunately, Monaco, North Macedonia, Russia, and Serbia issue identity cards, but without NFC chips. Andorra, the Faroe Islands, Greenland, Guernsey, the Isle of Man, Jersey, and Vatican City State do not issue identity cards to their citizens.

The figure below illustrates the overview of the ReadID coverage on identity cards for the rest of Europe.

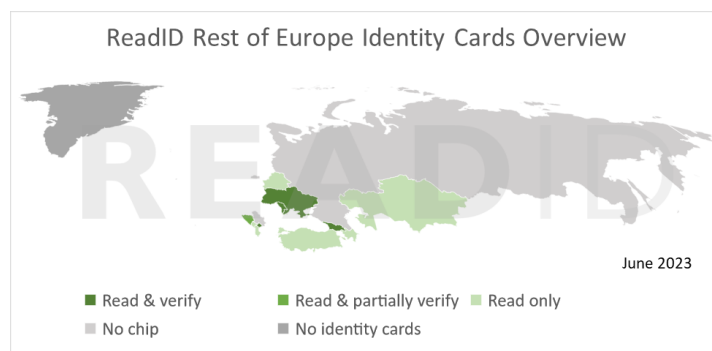


Figure 25. ReadID coverage on identity cards for the rest of Europe (June 2023)

8 out of 13 countries issuing eIDs have at least one clone detection mechanism implemented, namely, Azerbaijan, Belarus, Bosnia and Herzegovina, Kosovo, Moldova, Montenegro, Türkiye, and Ukraine. Albania and Kazakhstan started to issue identity cards with a clone detection mechanism implemented in the recent years. However, Georgia, Gibraltar, and San Marino still issue identity cards without a clone detection mechanism. The following figure depicts the overview.

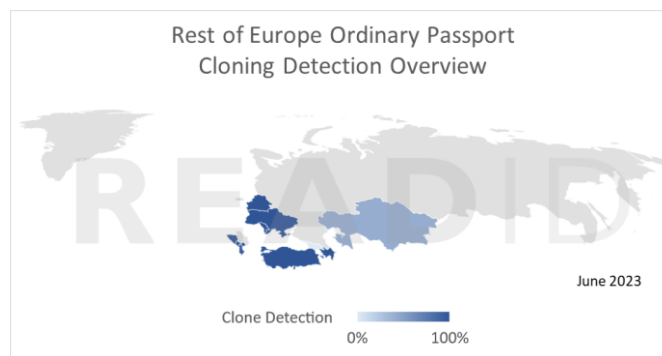


Figure 26. ReadID clone detection overview of identity cards for the rest of Europe (June 2023)

11.2 DETAILS

The below table illustrates the details of the identity cards per generation per country for the rest of Europe.

Table 13. List of identity cards per country per generation in the rest of Europe (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁰²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Albania	ALB	12/01/2009	I	✓	✓ ²⁰³	✓	✗	✗	-	-	✗	-	-	✓	✗	✗	✓ ²⁰⁴	✓	✓
Andorra	AND	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Azerbaijan	AZE	08/12/1999	IA	✓	✓	✓	✗	✓ ²⁰⁵	Latin	✓	✗	-	-	✓	✗	✗	✗	✓ ²⁰⁶	✓ ²⁰⁷
Belarus	BLR	01/09/2021	ID	✓	✓	✓	✗	✗	-	-	✓ ²⁰⁸	Latin	✓	✓	✗	✓ ²⁰⁹	✗	✓ ²¹⁰	✓ ²¹¹
Bosnia and Herzegovina	BIH	01/03/2013	ID	✓	✓	✓	✓ ²¹²	✗	-	-	✗	-	-	✓	✗	✗	✗	✓	✓
Faroe Islands	FRO	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Georgia	GEO	01/08/2011	ID	✓	✗	✓	✓	✓	Georgian	✗	✗	-	-	✓	✗	✓	✓ ²¹³	✓	✓
Gibraltar	GIB	01/05/2015	ID ²¹⁴	✓	✗	✓	✗	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
Greenland	GRL	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guernsey	GGY	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Isle of Man	IMN	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jersey	JEY	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kazakhstan	KAZ	01/01/2009	ID	✓	✓ ²¹⁵	✓	✗	✓	Cyrillic	✓	✓ ²¹⁶	Cyrillic	✓	✓	✗	✗	✗	✗	✓ ²¹⁷

²⁰² When the optional data field 1 or 2 is present and without any further explanation, it is used to store personal number based on our knowledge. We will specify it if it is used for a purpose other than personal number.

²⁰³ Based on ReadID Analytics data, the clone detection has been implemented in the documents from the expiry year 2025.

²⁰⁴ Based on ReadID Analytics data, around 53% of the documents contain the information of place of birth.

²⁰⁵ Based on ReadID Analytics data, 96% of the documents contain the full name of the holder, and 98% of them contain diacritics.

²⁰⁶ Based on ReadID Analytics data, 96% of the documents contain the information of the issuing authority.

²⁰⁷ Based on ReadID Analytics data, 96% of the documents contain the information of the issuing date.

²⁰⁸ Based on ReadID Analytics data, 82% of the documents contain the other name of the holder, and 75% of them contains diacritics.

²⁰⁹ Based on ReadID Analytics data, 96% of the documents contain the personal number in DG11.

²¹⁰ Based on ReadID Analytics data, 96% of the documents contain the information over the issuing authority.

²¹¹ Based on ReadID Analytics data, 96% of the documents contain the information over the issuing date.

²¹² Based on ReadID Analytics data, ReadID miss part of the certificate for every expiry year.

²¹³ Based on ReadID Analytics data, around 73% of the documents contain the information of place of birth.

²¹⁴ Based on ReadID Analytics data, there is no gender information in the document. Further, the nationality of the holder is 'GBR', instead of 'GIB'.

²¹⁵ Based on ReadID Analytics data, the clone detection has been implemented in the documents from the expiry year 2030.

²¹⁶ Based on ReadID Analytics data, around 47% of the documents have other names in the chip.

²¹⁷ Based on ReadID Analytics data, around 60% of the documents have date of issue in the chip.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁰²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Kosovo, Republic of	XKX ²¹⁸	01/12/2013	ID	✓	✓	✓	✓	✗	-	-	✗	-	-	✗	✓	✗	✗	✗	✗
Moldova, Republic of	MDA	14/05/2019	CA	✓	✓	✓	✓	✓ ²¹⁹	Latin	✓	✗	-	-	✓	✗	✗	✗	✗	✗
		01/09/2015	CA	✓	✓	✓	✓	✓ ²¹⁹	Latin	✓	✗	-	-	✓	✗	✗	✗	✗	✗
		07/03/2013	CA	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Monaco	MCO	30/04/2009	I	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montenegro	MNE	30/02/2020	ID	✓	✓	✓	✗	✓	Latin, Cyrillic	✓	✗	-	-	✓	✗	✗	✓	✓	✓
		19/04/2008	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Macedonia, North	MKD	01/10/2007	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Russian Federation	RUS	01/07/2011	PN ²²¹	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
San Marino	SMR	12/01/2017	I	✓	✗	✓	✗	✗	-	-	✗	-	-	✓	✗	✗	✗	✗	✗
Serbia	SRB	01/03/2008	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Türkiye	TUR	01/03/2016	I	✓	✓	✓	✗	✓	Latin	✓	✗	-	-	✓	✗	✓	✓	✓ ²²³	✗
Ukraine ²²⁴	UKR	01/01/2018	ID	✓	✓	✓	✓	✓	Latin	✓	✓ ²²⁵	Latin, Cyrillic	✓	✓	✗	✓	✓	✓	✓
		01/01/2016	ID	✓	✓	✓	✓	✓	Latin	✓	✓ ¹⁶¹	Latin, Cyrillic	✓	✓	✗	✓	✓	✓	✓
Vatican City State	VAT	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²¹⁸ Issuing state and nationality of Kosovo are represented with the code 'XKX' in identity cards and represented with the code 'RKS' in passports.

²¹⁹ Based on ReadID Analytics data, around 95% of the documents have full names in the chip.

²²⁰ Based on ReadID Analytics data, around 91% of the documents have place of birth in the chip.

²²¹ This document is in a form of passport (TD3).

²²² Based on ReadID Analytics data, around 76% of the documents have place of birth in the chip.

²²³ Based on ReadID Analytics data, around 91% of the documents have place of birth in the chip.

²²⁴ Ukraine issues no identity card, but a passport card, which is similar.

²²⁵ Based on ReadID Analytics data, we have seen around 90% of identity cards with other names present.

12 Identity Cards from North America

12.1 OVERVIEW

Identity cards with NFC chips are not popular in North America. Only Mexico, Barbados, and Haiti issue eIDs. ReadID can read and verify eIDs from the first two and miss the country certificates from Haiti.

The United States have identity cards with NFC chips, but are not ICAO compliant. Thus, ReadID cannot read it. The following figure illustrates the overview.

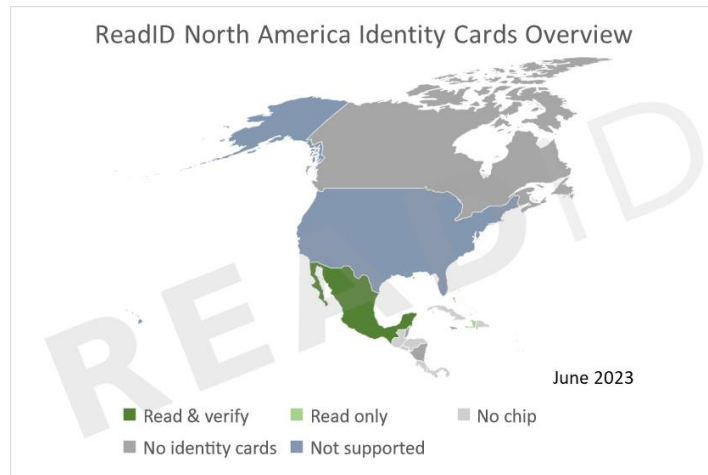


Figure 27. ReadID coverage on identity cards for North America (June 2023)

All eIDs from Haiti and majority of eIDs from Mexico have a clone detection mechanism implemented. The eIDs from Barbados have no clone detection implemented, as shown in the figure below.

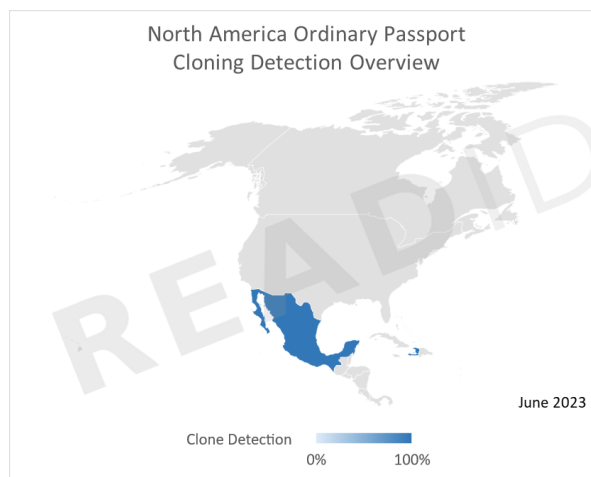


Figure 28. ReadID clone detection overview on identity cards for North America (June 2023)

12.2 DETAILS

The below table illustrates the details of the identity cards per generation per country for the rest of Europe.

Table 14. List of identity cards per country per generation in North America (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²²⁶	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Anguilla	AIA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Antigua and Barbuda	ATG	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bahamas	BHS	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barbados	BRB	01/06/2022	I	✓	X	✓	✓	X	-	-	X	-	-	✓	X	X	X	X	X
Belize	BLZ	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bermuda	BMU	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
British Virgin Islands	VGB	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Canada	CAN	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cayman Island	CYM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Costa Rica	CRI	01/09/2016	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cuba	CUB	29/10/2014	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dominica	DMA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dominican Republic	DOM	01/01/2014	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Grenada	GRD	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guatemala	GTM	01/01/2009	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Haiti	HTI	01/10/2020	I	✓	✓	✓	✓	X	✓	Latin	✓	X	-	✓	X	✓	X	✓	✓
Honduras	HND	01/01/1990	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jamaica	JAM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mexico	MEX	01/06/2022	I	✓	✓ ²²⁷	✓	✓	✓	✓	Latin	✓	X	-	X	X	✓ ²²⁸	X	X	X
		01/11/2014	CG	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montserrat	MSR	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nicaragua	NIC	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Panama	PAN	01/01/2010	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²²⁶ When the optional data field 1 or 2 is present and without any further explanation, it is used to store the personal number based on our knowledge. We will specify it if it is used for a purpose other than personal number.

²²⁷ Based on ReadID Analytics data, we have seen some documents fail with unknown reasons.

²²⁸ Based on ReadID Analytics data, around 79% of documents have personal numbers in the chip.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content												
						Read	Verify	Full Name			Other Name			Optional Data 1 ²²⁶	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue	
								Presence	Script	Diacritics	Presence	Script	Diacritics							
Saint Kitts and Nevis	KNA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saint Lucia	LCA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Saint Vincent and the Grenadines	VCT	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Salvador, El	SLV	01/01/2008	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Trinidad and Tobago	TTO	01/05/2012	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Turks and Caicos Islands	TCA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
United States ²²⁹	USA	01/10/2012	IP	✓	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	
		19/04/2010	IP	✓	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		14/07/2008	IP	✓	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²²⁹ US identity cards are not ICAO compliant and cannot be read by ReadID.

13 Identity Cards from South America

13.1 OVERVIEW

All countries in South America issue identity cards. However, only nearly half of them are with chips. They are the identity cards from Chile, Ecuador, Peru, Suriname, and Uruguay. ReadID can read and verify part of the eIDs from Chile, Ecuador, and Uruguay. We do not have the country certificates from Peru and Suriname, and can only read their eIDs, but not verify them. It is important to know that the eIDs from Suriname only implement PACE. Their PACE implementation is incompatible with ReadID iOS PACE, due to the iOS platform restrictions. Thus, like the new French identity cards, the Suriname identity cards can be read using ReadID Android SDKs, but not iOS SDKs and their implementation does not work with iOS PACE.

The below figure presents an overview on ReadID coverage of identity cards from South America.



Figure 29. ReadID coverage on identity cards for South America (June 2023)

It is possible to check whether it is a clone or not for the eIDs from Chile, Peru, Suriname, and Uruguay. Unfortunately, Ecuador does not implement the clone detection mechanism in the identity cards. The figure below shows the overview for the clone detection details.

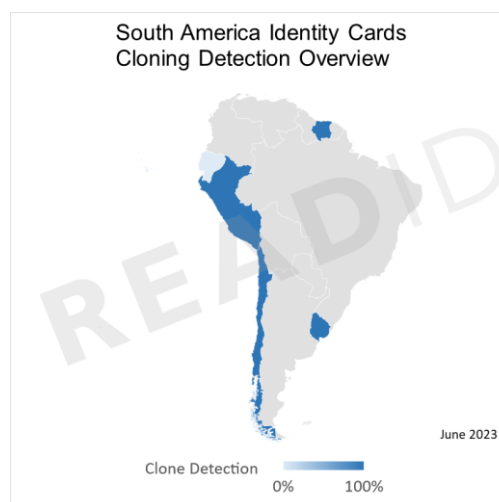


Figure 30. ReadID clone detection overview on identity cards for South America (June 2023)

13.2 DETAILS

The below table illustrates the details of the identity cards per generation per country for the rest of Europe.

Table 15. List of identity cards per country per generation in South America (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content												
						Read	Verify	Full Name			Other Name			Optional Data 1 ²³⁰	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue	
								Presence	Script	Diacritics	Presence	Script	Diacritics							
Argentina	ARG	01/01/2020	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
		01/01/2015	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		19/03/2012	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bolivia	BOL	01/01/2008	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Brazil	BRA	01/01/1999	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Chile	CHL	01/01/2013	IN	✓	✓	✓	✓ ²³¹	✓	Latin	✓	X	-	-	✓ ²³²	✓	X	✓ ²³³	✓ ²³⁴	✓ ²³⁵	
Colombia	COL	01/01/2000	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Ecuador	ECU	01/01/2021	I	✓	X	✓	✓ ²³⁶	✓	Latin	✓	X	-	-	✓ ²³⁷	✓ ²³⁷	✓	✓	✓	✓	
Guyana	GUY	??/??/???	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Paraguay	PRY	01/01/2012	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Peru	PER	01/01/2020	I	✓	✓	✓	X	X	-	-	X	-	-	X	X	X	X	X	X	
		01/01/2013	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Suriname	SUR	15/03/2019	ID	✓	✓	✓ ²³⁸	X	X	-	-	X	-	-	✓	X	X	X	X	X	
Uruguay	URY	01/01/2015	I	✓	✓	✓	✓ ²³⁹	X	-	-	X	-	-	✓	✓ ²⁴⁰	X	X	X	X	
Venezuela	VEN	01/01/2000	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

²³⁰ When the optional data field 1 or 2 is present and without any further explanation, it is used to store personal number based on our knowledge. We will specify if it is used for a purpose other than personal number.

²³¹ Based on ReadID Analytics data, ReadID misses the country signing certificate for some production years.

²³² From the specimen, optional data 1 field stores the excessive document number and optional data 2 field stores the personal number.

²³³ Based on ReadID Analytics data, around 82% of the documents contain the information of place of birth.

²³⁴ Based on ReadID Analytics data, around 95% of the documents contain the information of issuing authority.

²³⁵ Based on ReadID Analytics data, around 22% of the documents contain the information of date of issue.

²³⁶ Based on ReadID Analytics data, ReadID misses the country signing certificates for some passports with the expiry year 2031.

²³⁷ It is unknown the usage of Optional data field 1 and 2.

²³⁸ The Suriname identity cards have only implemented PACE. Its PACE implementation does not work with the ReadID iOS implementation, due to the limitation of the operating system.

²³⁹ Based on ReadID Analytics data, ReadID misses the country signing certificates for part of the passports in every production year.

²⁴⁰ From the specimen document, Optional data 2 field is date of issue.

14 Identity Cards from Australia & Oceania

14.1 OVERVIEW

Countries and regions from Australia and Oceania are not fond of identity cards. Tonga is the only country that issues identity cards and their cards have no contactless chip embedded.

14.2 DETAILS

The below table illustrates the details of the identity cards per generation per country for the rest of Europe.

Table 16. List of identity cards per country per generation in Australia and Oceania (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content												
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁴¹	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue	
								Presence	Script	Diacritics	Presence	Script	Diacritics							
Australia	AUS	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fiji	FJI	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kiribati	KIR	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marshall Islands	MHL	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Micronesia	FSM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nauru	NRU	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Zealand	NZL	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palau	PLW	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Papua New Guinea	PNG	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Polynesia, French	PYF	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Samoa	WSM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Solomon Islands	SLB	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tonga	TON	23/10/2010	I	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tuvalu	TUV	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vanuatu	VUT	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁴¹ When the optional data field 1 or 2 is present and without any further explanation, it is used to store personal number based on our knowledge. We will specify if it is used for a purpose other than personal number.

15 Identity Cards from Asia

15.1 OVERVIEW

Many Asian countries issue identity cards. However, ICAO compliant eIDs are not popular in Asia. There are only four countries issuing eIDs: Iraq, Kyrgyzstan, the Philippines, and Vietnam. ReadID misses the country certificates for those documents and can only read them, not verify them. 7 countries and regions issue identity cards with a contactless chip with their own priority protocols, namely, mainland China, China-Macao, Jordan, Malaysia, Maldives, Oman, and United Arab Emirates. Identity cards from the rest of Asia have either no ICAO compliant contactless chip, or no identity cards at all. The below figure shows an overview of this.

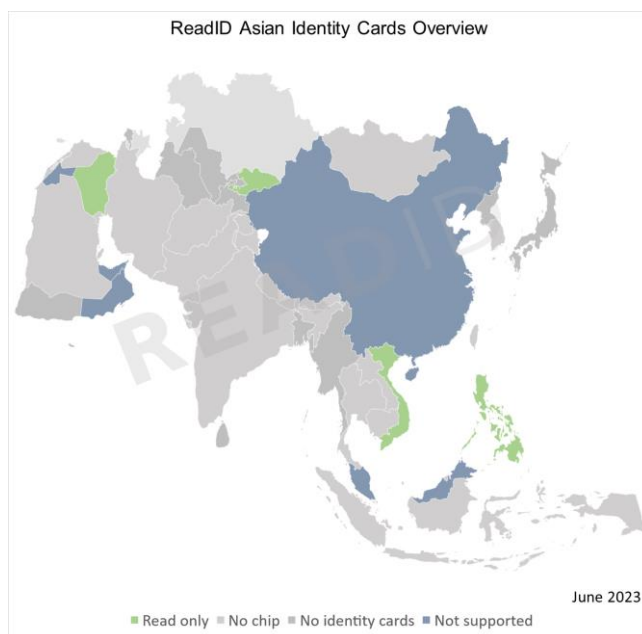


Figure 31. ReadID coverage on identity cards for Asia (June 2023)

Iraq, the Philippines, and Vietnam has implemented a clone detection mechanism in their identity cards, while Kyrgyzstan not.

15.2 DETAILS

The below table illustrates the details of the identity cards per generation per country for the rest of Europe.

Table 17. List of identity cards per country per generation in Asia (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content														
						Read	Verify	Full Name					Other Name									
								Presence	Script	Diacritics	Presence	Script	Diacritics	Optional Data 1 ²⁴²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue			
Afghanistan	AFG	01/01/2019	I	X ²⁴³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁴² When the optional data field 1 or 2 is present and without any further explanation, it is used to store personal number based on our knowledge. We will specify if it is used for a purpose other than personal number.

²⁴³ This document has a contact chip, but no contactless chip.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁴²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Armenia	ARM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bahrain	BHR	01/01/2007	-	X ²⁴³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bangladesh	BGD	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bhutan	BTN	??/??/????	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brunei Darussalam	BRN	??/??/????	-	X ²⁴³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cambodia	KHM	11/11/2020	-	X ²⁴³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China - Mainland ²⁴⁴	CHN	01/01/2016	-	✓	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/01/2003	-	✓	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-
China – Hongkong	CHN	26/11/2018	-	X ²⁴³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
China – Macao	MAC	31/20/2013	I	✓	-	X ²⁴⁵	-	-	-	-	-	-	-	-	-	-	-	-	-
		04/12/2002	I	X ²⁴³	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
India	IND	01/01/2020	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indonesia	IDN	01/01/2011	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iran, Islamic Republic	IRN	01/01/2015	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Iraq	IRQ	01/01/2019	ID	✓	✓	✓	X	✓	Arabic	X	✓ ²⁴⁶	Arabic	X	✓	X	✓	✓	✓	✓
Israel	ISR	01/01/2013	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Japan	JPN	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jordan	JOR	01/06/2016	ID	✓	-	X ²⁴⁷	-	-	-	-	-	-	-	-	-	-	-	-	-
Korea, Democratic People's Republic of	PRK	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Korea, Republic of	KOR	01/01/2000	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kuwait	KWT	01/01/2011	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Kyrgyzstan	KGZ	01/01/2017	ID	✓	X	✓	X	X	-	-	X	-	-	✓	X	X	X	X	X
Laos	LAO	01/01/2015	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lebanon	LBN	??/??/????	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁴⁴ This document has a contactless chip, with proprietary protocols, which is not compliant with ICAO 9303.

²⁴⁵ This document has a contactless chip, with proprietary protocols, which is not compliant with ICAO 9303.

²⁴⁶ Based on the ReadID Analytics data, around 57% of the documents have other names in the chip.

²⁴⁷ This document has a contactless chip, with proprietary protocols, which is not compliant with ICAO 9303.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁴²	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Malaysia	MYS	01/01/2012	-	✓	-	X ²⁴⁸	-	-	-	-	-	-	-	-	-	-	-	-	-
Maldives	MDV	11/10/2017	-	✓	-	X ²⁴⁹	-	-	-	-	-	-	-	-	-	-	-	-	-
Mongolia	MNG	??/??/????	-	X ²⁵⁰	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Myanmar	MMR	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nepal	NPL	25/05/2018	-	X ²⁵⁰	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/01/1999	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Oman	OMN	01/01/2016	ID	✓	-	X ²⁵¹	-	-	-	-	-	-	-	-	-	-	-	-	-
		01/01/2013	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pakistan	PAK	01/10/2012	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Palestine, State of	PSE	01/01/2003	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Philippines	PHL	01/01/2019	IS	✓	✓	✓	X	X	-	-	X	-	-	X	X	X	X	X	X
		01/01/2010	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Qatar	QAT	01/01/2014	-	X ²⁵⁰	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saudi Arabia	SAU	??/??/????	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Singapore	SGP	??/??/????	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sri Lanka	LKA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Syrian Arab Republic	SYR	01/01/2000	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taiwan	TWN	01/01/1990	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tajikistan	TJK	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thailand	THA	09/05/2001	-	X ²⁵²	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Timor-Leste	TLS	??/??/????	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Turkmenistan	TKM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
United Arab Emirates	ARE	20/10/2011	ID	✓	-	X ²⁵³	-	-	-	-	-	-	-	-	-	-	-	-	-
Uzbekistan	UZB	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vietnam	VNM	01/01/2020	ID	✓	✓	✓	X	X	-	-	X	-	-	✓	X	X	X	X	X
Yemen	YEM	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁴⁸ This document has both contact and contactless chip, with proprietary protocols, which is not compliant with ICAO 9303. It has also no MRZ.

²⁴⁹ Maldives issues passport cards, with both contact and contactless chip and proprietary protocols, which is not compliant with ICAO 9303. It has also no MRZ.

²⁵⁰ This document has a contact chip, but no contactless chip.

²⁵¹ This document has a contactless chip, with proprietary protocols, which is not compliant with ICAO 9303.

²⁵² This document has a contact chip, but no contactless chip.

²⁵³ The contactless chip of this document has an extra layer of encryption which prevents the private party from accessing it.

16 Identity Cards from Africa

16.1 OVERVIEW

More and more African countries started to issue eIDs to their citizens in the last decades, i.e., countries from the northern and western Africa. Till now, there are 12 countries issuing eIDs, namely, Algeria, Benin, Chad, Côte d'Ivoire, Djibouti, Ghana, Guinea-Bissau, Kenya, Mauritania, Morocco, Senegal, and Sierra Leone. ReadID can read all of them but can only verify the eIDs from Algeria and Benin. Morocco issue eIDs with only access control mechanism PACE. ReadID Analytics has shown that the eIDs issued during the year 2020 to 2022 have a PACE implementation that does not work with ReadID iOS, due to OS limitations. However, eIDs issued after September 2022 have changed PACE implementation and worked with both ReadID Android and iOS PACE.

The rest of the African countries either have no identity cards or have identity cards without ICAO compliant contactless chips. The below figure shows an overview of ReadID coverage of African identity cards.

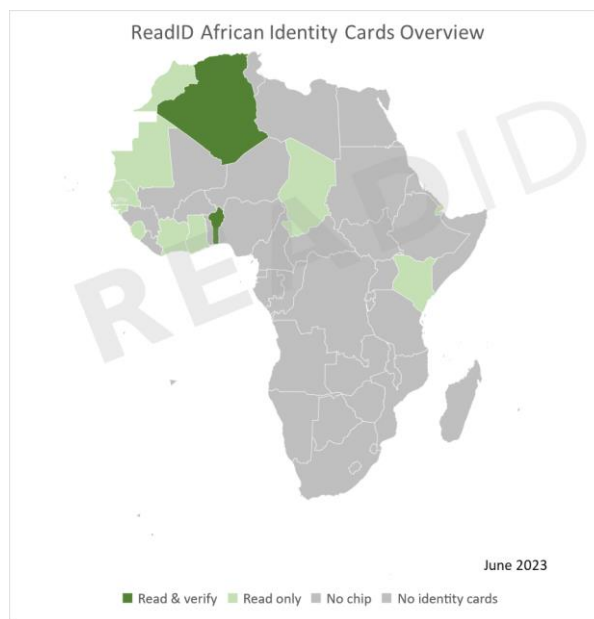


Figure 32. ReadID coverage on identity cards for Africa (June 2023)

All eIDs from 12 countries have implemented clone detection mechanism(s), except eIDs from Kenya and Mauritania, as shown in the figure below.

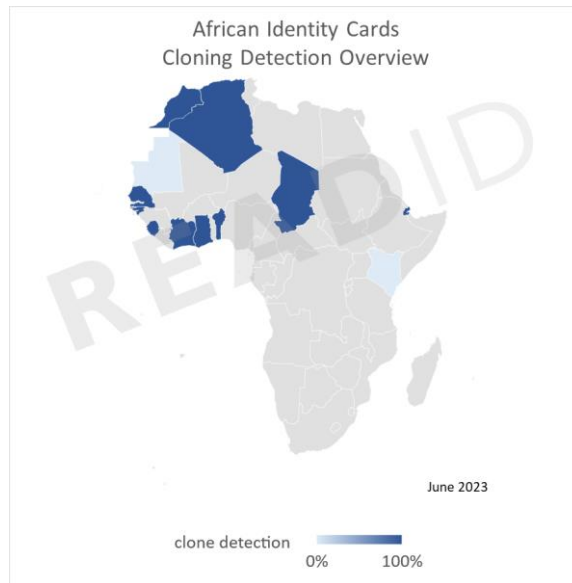


Figure 33. A clone detection overview for African identity cards (June 2023)

16.2 DETAILS

The below table illustrates the details of the identity cards per generation per country for the rest of Europe.

Table 18. List of identity cards per country per generation in Africa (June 2023)

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁵⁴	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Algeria	DZA	01/01/2016	ID	✓	✓	✓	✓	✓ ²⁵⁵	Latin	✗	✓ ²⁵⁶	Latin	✗	✗	✗	✓	✓ ²⁵⁷	✓ ²⁵⁸	✓
Angola	AGO	01/01/2000	-	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benin	BEN	01/01/2016	I	✓	✓	✓	✓	✓	Latin	✗	✓ ²⁵⁹	Latin	✗	✗	✓	-	-	-	-
Botswana	BWA	01/01/1999	AC	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burkina Faso	BFA	01/04/2008	I	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Burundi	BDI	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cameroon	CMR	01/01/2008	ID	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cape Verde	CPV	17/03/2014	I	✗	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁵⁴ When the optional data field 1 or 2 is present and without any further explanation, it is used to store personal number based on our knowledge. We will specify if it is used for a purpose other than personal number.

²⁵⁵ Based on ReadID Analytics data, around 87% of the documents have full names in the chip.

²⁵⁶ Based on ReadID Analytics data, around 87% of the documents have other names in the chip.

²⁵⁷ Based on ReadID Analytics data, around 87% of the documents have place of birth in the chip.

²⁵⁸ Based on ReadID Analytics data, around 87% of the documents have issuing authorities in the chip.

²⁵⁹ Based on ReadID Analytics data, around 10% of the documents have other names in the chip.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁵⁴	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Central African Republic	CAF	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chad	TCD	01/01/2020 ²⁶⁰	I	✓	✓	✓	X	✓	Latin	X	X	-	-	✓	X	✓	✓	X	✓
		01/01/2004	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Comoros	COM	01/01/2008	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Congo, Democratic Republic of the	COD	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Congo, Republic of the	COG	01/01/2008	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cote d'Ivoire	CIV	01/01/2021	ID	✓	✓	✓	X	✓	Latin	X	✓ ²⁶²	Latin	X	✓ ²⁶³	✓ ²⁶³	✓	✓	✓	✓
Djibouti	DJI	01/01/2022 ²⁶⁵	I	✓	✓	✓	X	✓ ²⁶⁶	Latin	X	X	-	-	✓ ²⁶⁷	✓ ²⁶⁸	✓ ²⁶⁹	✓	X	✓ ²⁷¹
Egypt	EGY	??/??/????	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Equatorial Guinea	GNQ	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Eritrea	ERI	01/10/2014	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethiopia	ETH	28/08/2004	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gabon	GAB	01/01/2013	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gambia	GMB	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ghana	GHA	04/07/2011	I	✓	✓	✓	X	X	-	-	X	-	-	X	X	✓	X	X	X
Guinea	GIN	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Guinea-Bissau	GNB	28/03/2018	ID	✓	✓	✓	X	X	-	-	X	-	-	✓	X	X	X	X	X
		01/01/2007	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁶⁰ This generation is not registered in the public or private document databases we have access to. This data is collected from our ReadID Analytics data.

²⁶¹ Based on ReadID Analytics data, around 81% of the documents have place of birth in the chip.

²⁶² Based on ReadID Analytics data, around 7% of the documents have other names in the chip.

²⁶³ ReadID Analytics show the presence of optional field 1 and 2. However, we could find further information on the content of those fields.

²⁶⁴ Based on ReadID Analytics data, around 87% of the documents have place of birth in the chip.

²⁶⁵ This generation is not registered in the public or private document databases we have access to. This data is collected from our ReadID Analytics data.

²⁶⁶ Based on ReadID Analytics data, around 50% of the documents have full names in the chip.

²⁶⁷ ReadID Analytics show the presence of optional field 1. However, we could find further information on the content of those fields.

²⁶⁸ ReadID Analytics show 50% of the documents have optional field 2. However, we could find further information on the content of those fields.

²⁶⁹ Based on ReadID Analytics data, around 50% of the documents have personal number in the chip.

²⁷⁰ Based on ReadID Analytics data, around 50% of the documents have place of birth in the chip.

²⁷¹ Based on ReadID Analytics data, around 50% of the documents have date of issue in the chip.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁵⁴	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Kenya	KEN	24/12/2019	ID	✓	X	✓	X	✓ ²⁷²	Latin	X	X	-	-	X	X	X	✓ ²⁷³	✓ ²⁷⁴	✓ ²⁷⁵
		01/01/2012 ²⁷⁶	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lesotho	LSO	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Liberia	LBR	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Libya	LBY	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Madagascar	MDG	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Malawi	MWI	01/01/2017	-	X ²⁷⁷	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mali	MLI	01/01/2000	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mauritania	MRT	01/01/2011	I	✓	X	✓	X	✓	Arabic	X	X	-	-	✓	X	✓ ²⁷⁸	✓ ²⁷⁹	X	✓
Mauritius	MUS	01/10/2013	-	X ²⁸⁰	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Morocco	MAR	01/09/2022	ID	✓	✓	✓	X												
		01/06/2020	ID	✓	✓	✓ ²⁸¹	X	✓ ²⁸²	Arabic	X	X	-	-	✓	X	X	X	✓ ²⁸³	✓ ²⁸⁴
		01/04/2008	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mozambique	MOZ	01/01/2010	BI	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Namibia	NAM	01/01/1999	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Niger	NER	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nigeria	NGA	01/08/2014	I	X ²⁸⁵	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rwanda	RWA	01/01/2008	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Saint Helena	SHN	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sao Tome and Principe	STP	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Senegal	SEN	04/11/2016	I	✓	✓	✓	X	✓	Latin	X	X	-	-	✓	X	✓	✓	✓	✓

²⁷² Based on ReadID Analytics data, around 95% of the documents have full names in the chip.

²⁷³ Based on ReadID Analytics data, around 95% of the documents have place of birth in the chip.

²⁷⁴ Based on ReadID Analytics data, around 95% of the documents have issuing authority in the chip.

²⁷⁵ Based on ReadID Analytics data, around 95% of the documents have date of issue in the chip.

²⁷⁶ This generation has the issuing state as “KYA”, instead of “KEN”. It has also no date of expiry in the MRZ.

²⁷⁷ This document has a contact chip, but no contactless chip.

²⁷⁸ Based on ReadID Analytics data, around 45% of the documents have personal number in the chip.

²⁷⁹ Based on ReadID Analytics data, around 61% of the documents have place of birth in the chip.

²⁸⁰ Although there is an eMRTD chip symbol on the card, ReadID Analytics data show no NFC chip was found in the document.

²⁸¹ ReadID Analytics data shows that this document has only PACE, no BAC. PACE implementation is incompatible with ReadID iOS PACE, due to the iOS platform restrictions. ReadID Analytics have shown since the expiry year September 2032 (rough estimation of the issue year 2022 September), Morocco has issued another version which PACE works with ReadID iOS PACE.

²⁸² Based on ReadID Analytics data, around 96% of the documents have full names in the chip.

²⁸³ Based on ReadID Analytics data, around 96% of the documents have issuing authority in the chip.

²⁸⁴ Based on ReadID Analytics data, around 96% of the documents have date of issue in the chip.

²⁸⁵ This document has a contact chip, but no contactless chip.

Country	3-letter code	First issue date (dd/mm/yyyy)	Document Code	Contactless Chip	Clone Detection	ReadID		Chip Content											
						Read	Verify	Full Name			Other Name			Optional Data 1 ²⁵⁴	Optional Data 2 ¹³²	Personal Number	Place of Birth	Issuing Authority	Date of Issue
								Presence	Script	Diacritics	Presence	Script	Diacritics						
Seychelles	SYC	01/01/2015	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sierra Leone	SLE	01/11/2022	I	✓	✓	✓	X	X	-	-	X	-	-	✓ ²⁸⁶	✓ ²⁸⁷	X	X	X	X
		01/01/2000	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Somalia	SOM	01/12/2016	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Africa	ZAF	18/07/2013	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Sudan	SSD	01/01/2011	IN	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sudan	SDN	??/??/????	ID	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Swaziland	SWZ	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tanzania, United Republic of	TZA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Togo	TGO	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tunisia	TUN	01/01/2008	-	X	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Uganda	UGA	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zambia	ZMB	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zimbabwe	ZWE	NOT EXIST	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

²⁸⁶ ReadID Analytics show the presence of optional field 1. However, we could find further information on the content of those fields.

²⁸⁷ ReadID Analytics show 89% of the documents have optional field 2. However, we could find further information on the content of those fields.

17 Documents Supporting PACE-CAN

There are two access control mechanisms to protect access to the chip: Basic Access Control (BAC) and Password Authenticated Connection Establishment (PACE), as described in Section 1.1. A document can implement either of these two algorithms or both.

BAC uses information from Machine Readable Zone (MRZ) to compute access keys to read the chip. That information is *document number*, *date of birth*, and *date of expiry*. PACE can use the same information to compute access keys. It can also derive the key from the card access number (CAN). This is only supported by a limited selection of documents.

PACE-CAN is supported in many recent EU identity cards and residence permits. It is often printed on the lower-right corner of the front of EU identity cards and residence permits. Some EU passports have also implemented it and printed it on the data page. But German passports have printed it on the first inner page. In those documents, the field is sometimes mentioned as "CAN", but not always. On Dutch driving licenses, the CAN is equal to the document number printed on the back and the front of the document.

The following table presents the list of documents we have seen where PACE-CAN has been implemented. The data is collected via public and non-public resources, and from our ReadID Analytics.

Table 19. List of identity documents supporting PACE-CAN (June 2023)

Country	3-letter code	Document Type	First issue date (dd/mm/yyyy)	Document code
Austria	AUT	Identity Card	02/08/2021	ID
		Residence Permit	01/07/2020	AR
Croatia	HRV	Identity Card	02/08/2021	IO
		Residence Permit	02/08/2021	AB
			01/01/2021	AD
Cyprus	CYP	Residence Permit	02/08/2021	IR
			05/09/2020	IR
Czech Republic	CZE	Identity Card	02/08/2021	ID
		Residence Permit	01/02/2022	IR
			27/06/2020	IR
Estonia	EST	Identity Card	23/08/2021	ID
		Residence Permit	01/10/2020	IR
			03/12/2018	IR
Finland	FIN	Passport	13/03/2023	P
			01/01/2017	P
		Identity Card	02/08/2021	I
		Residence Permit	01/01/2021	IR
			25/09/2020	IR
France	FRA	Identity Card	16/03/2021	ID
		Residence Permit	10/08/2020	IR
Germany	D<<	Passport	26/07/2021	P
			01/03/2017	P
		Identity Card	01/08/2021	ID
		Residence Permit	04/01/2021	AR
			01/11/2019	AR
			01/11/2019	AF

Country	3-letter code	Document Type	First issue date (dd/mm/yyyy)	Document code
			01/11/2019	AS
			01/09/2011	AR
			01/09/2011	AF
			01/09/2011	AS
Greece	GRC	Residence Permit	01/11/2020	IR
Hungary	HUN	Identity Card	01/01/2016	I
Iceland	ISL	Passport	01/02/2019	PA
Ireland	IRL	Residence Permit	09/03/2022	IR
Italy	ITA	Identity Card	04/07/2016	C
		Residence Permit	03/02/2021	CR
Latvia	LVA	Identity Card	29/04/2021	I
			02/09/2019	I
			01/04/2012	I
		Residence Permit	13/01/2021	IR
			01/04/2012	IR
Lithuania	LTU	Identity Card	01/06/2021	I
		Residence Permit	17/09/2020	IT
Luxembourg	LUX	Passport	16/02/2015	P
		Identity Card	02/08/2021	ID
			01/07/2014	ID
Residence Permit	15/12/2020	IR		
Malta	MLT	Identity Card	07/09/2020	ID
		Residence Permit	20/06/2020	IR
Netherlands	NLD	Identity Card	02/08/2021	I
		Residence Permit	01/10/2020	IR
			01/10/2020	IT
		Electronic Driving License	01/05/2018	D1
Norway	NOR	Passport	19/10/2020	P
		Identity Card	09/07/2021	XA
			09/07/2021	CA
			30/11/2020	XA
			30/11/2020	CA
		Residence Permit	30/11/2020	IR
Poland	POL	Identity Card	07/11/2021	I
			04/03/2019	I
		Residence Permit	30/09/2020	IR
Portugal	PRT	Residence Permit	30/09/2020	IR
Slovakia	SVK	Identity Card	01/12/2022	ID
		Residence Permit	21/08/2020	IR
Spain	ESP	Passport	02/01/2015	P
		Identity Card	02/06/2021	ID
			02/01/2015	ID
		Residence Permit	19/05/2020	IR

Country	3-letter code	Document Type	First issue date (dd/mm/yyyy)	Document code
Sweden	SWE	Passport	01/01/2022	P
		Identity Card	01/01/2022	I
		Residence Permit	01/01/2022	AR
01/12/2020	AR			
Switzerland	CHE	Residence Permit	01/09/2020	AR

In ReadID, the CAN must be entered manually, as it is not part of MRZ and often not in the same page as MRZ in identity cards and residence permits. In use cases where the user must manually enter the access control information, PACE-CAN is typically more user friendly because the CAN is often smaller and is always a single field (as opposed to 3 separate fields). Please read our technical guides and UX guides to gain more details.

18 Changelog

Version	Notes	Published Date
1	First version release	2021/02/17
1.1	Added passport for Swaziland	2021/02/23
1.2	Added chip support API and its limitation in 1.2	2021/05/11
	<ul style="list-style-type: none"> - Added passports from the following countries: Poland (2020), Switzerland (2017), USA (2020), Estonia (2021), Iraq (2013), China (2007), New Zealand (2021) and Kyrgyzstan (2021). - Update passport information from India (2005), Thailand (2020), Australia (2014) - Added identity cards from the following countries: France (2021), Spain (2021), Norway (2020 and 2021), The Netherlands (2021), Estonia (2021), Croatia (2021), and Czechia (2021) - Added residence permits from the following countries: Lithuania (2020), Germany (2019 and 2020), Croatia (2016 and 2021), UK (2021), Switzerland (2018 and 2020), Denmark (2020), France (2020), Spain (2020) - Added support of PACE in iOS - Updated the French Polynesia passport. - Updated the Botswana passport 	2021/08/30
	<ul style="list-style-type: none"> -Added identity cards from Romania (2021), Austria (2021), and Germany (2021) -Added residence permits from Czech (2020), Finland (2021), and Belgium (2021) -Added Greece passport (2020) 	2021/09/24
1.3	Small textual corrections	2021/10/11
1.4	<ul style="list-style-type: none"> -Added Mexico ePassport (2021) -Added identity cards from Finland (2021) 	2021/10/29
1.5	Correct the title for RP plots	2021/11/16
1.6	<ul style="list-style-type: none"> - Add passports from the following countries: Georgia(2016), The Netherlands (2021), Germany (2021), Monaco(2021), Swaziland(2019), Yemen(2017), Ghana(2019), El Salvador(2018), Sweden(2022), Afghanistan(2021), Dominica (2021), Saudi Arabia (2021), Zimbabwe(2021), Belarus(2021), Marshall Island, Latvia (2002), Portugal (2018), Azerbaijan (1998), Serbian (2016), Vatican (2020), Indonesia (2015, 2013), Japan (2020), Kuwait (2005), Korea (2021), Nepal (2021), Taiwan (2021), Cameroon (2021) - Removed invalid passports from Estonia (2010), Finland (2012), Hungary (2006), Luxembourg (2011), Poland (2006), Andorra (2007), Georgia (2005), Canada (2010), Argentina (2009), Venezuela (2021) - Updated the passport from Ukraine (2007), Indonesia (2014), Djibouti (2017) - add identity cards from the following countries: Sweden (2021 and 2022), Luxemburg (2021), Finland (2021), Poland(2021, 2013, 2002,2001), Lithuania (2021), Belgium (2021), Latvia (2021), Romania (2006, 2001), Slovakia (2013, 2008), Croatia (2003), Hungary (2001), Luxembourg (2008) 	2022/04/05

	<ul style="list-style-type: none"> -Updated identity card information for France (2021) -Add RP from Portugal (2020), The Netherlands(2020), Latvia (2021), Italy (2021), German (AS and AF versions from 2011 and 2019), Belgium (2021 Oct), Sweden (2020, 2022), Romania (2020), Croatia (2021) 	
1.7	<ul style="list-style-type: none"> - Added passports from Costa Rica (2021), Demark (2021), The Netherlands (2022), Poland (2022), Haiti (2021), Honduras (2022), India (2019), Sao Tome and Principe (2021) - Updated verification status of passports from Côte d'Ivoire (2008), Mexico (2021), Liberia (2017), Cameroon (2021), Rwanda (2019), Tanzania (2018), Uganda (2018), Zimbabwe (2021) - Added passport card from Ireland (2021) - Added identity card from Slovenia (2022) - Added residence permits from Belgium (2022), Estonia (2020), Greece (2020), and Ireland (2022) - Updated verification status of residence permits from Cyprus (2020), Malta (2020), and Estonia (2011) - Updated the country name Türkiye 	2022/10/
1.8	Renamed Innovalor to Inverid and updated relevant email address.	2022/11/07
2.0	<ul style="list-style-type: none"> - Added new chapter on the chip contents of European documents - Added residence permit from Cyprus (2021), Czech (2022) - Added passport from Switzerland (2022), Benin (2021) - Added identity cards from Slovakia (2022) - Removed the chapter for ReadID API 	2023/01/31
2.1	- Updated the national identification numbers in Luxembourg identity cards	2023/02/07
3.0	<ul style="list-style-type: none"> - Added passports from Montenegro (2021), Vietnam (2021 and 2022), Australian (2022), Argentina (2022), Belgium (2023), Finland (2023), United Arab Emirates (2022), Bahrain (2023), Belize (2022), Iraq (2023), Jamaica (2023), Mongolia (2023), Seychelles (2022) - Added ID card from Finland (2023) - Added residence permits from The Netherlands (2022), the UK (ARC and the notes for BRC) - Updated verification status of passports from Nepal (2021) - Updated note for CYP residence permits (2021) and CZE residence permits (2022) - Removed GRC passport (2011). It is invalid since August 2022 - Removed residence permit from Finland (2012) - Corrected geographic information of Gibraltar - Merged the chip contents of European identity documents into their overview tables - Added identity cards world-wide - Updated verification status of ePassports - Added a chapter for PACE-CAN supported documents - Removed the chapter on middle eastern countries 	2023/06/27
3.1	- Update the verification status of Antigua and Barbuda	2023/08/22

