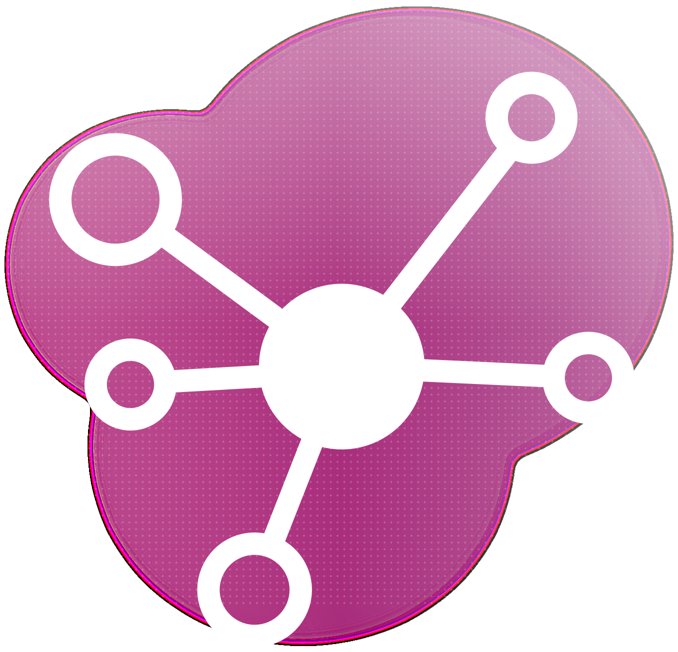
Specifications version 5.0.0



Contents

CHAPTER 1

Introduction

1.1 Problem Statement: vendor lock-in

Target 16.9 of the UN Sustainable Development Goals is to "provide legal identity for all, including birth registration" by the year 2030. But there is a major barrier: the lack of vendor/provider and technology neutrality - commonly known as "vendor lock-in".

The lack of vendor and technology neutrality and its consequences becomes apparent when a customer needs to replace one component of the identity management solution with one from another provider, or expand the scope of their solution by linking to new components. Main technology barriers are the following:

1. *Solution architectures are not interoperable by design.* The lack of common definitions as to the overall scope of an identity ecosystem, as well as in the main functionalities of a system's components (civil registry, biometric identification system, population registry etc.), blurs the lines between components and leads to inconsistencies. This lack of so-called irreducibly modular architectures makes it difficult, if not impossible, to switch to a third-party component intended to provide the same function and leads to incompatibilities when adding a new component to an existing ecosystem.
2. *Standardized interfaces (APIs) do not exist.* Components are often unable to communicate with each other due to varying interfaces (APIs) and data formats, making it difficult to swap out components or add new ones to the system.

For government policy makers tasked with implementing national identification systems, vendor lock-in is now one of their biggest concerns.

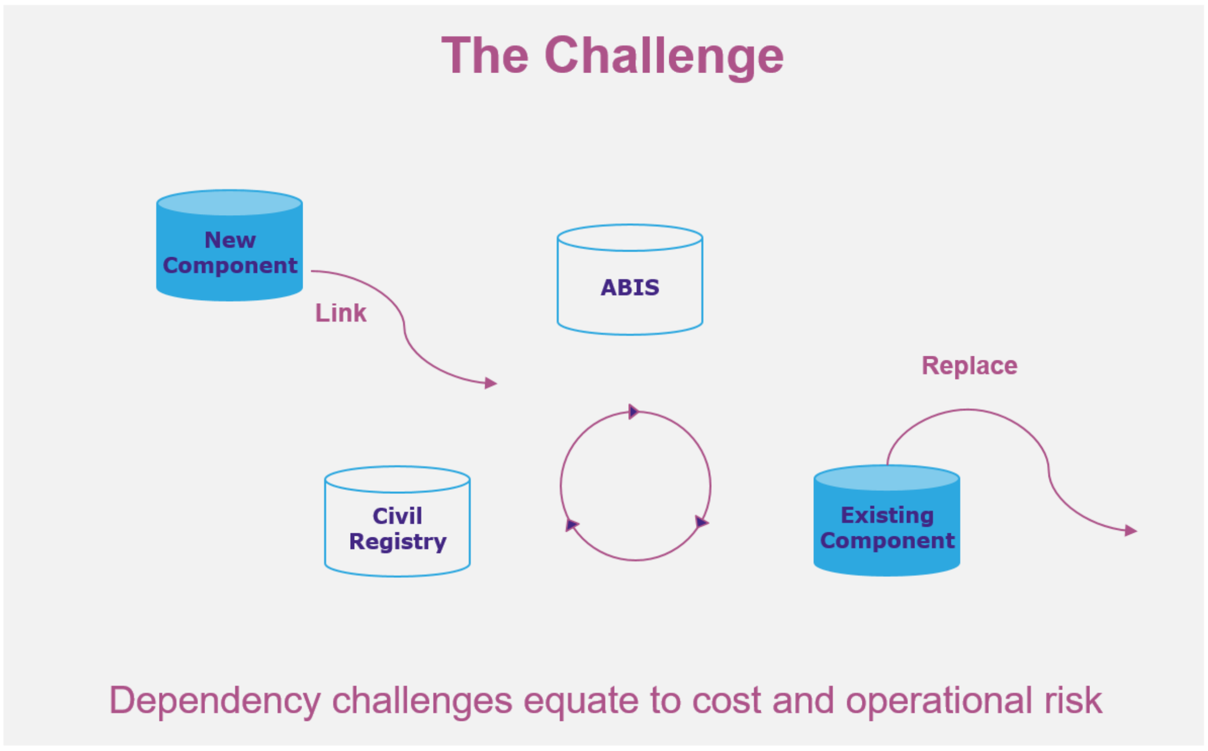


Fig. 1.1: The dependency challenge

1.2 The OSIA Initiative

Launched by the not-for-profit Secure Identity Alliance, *Open Standard Identity APIs* (OSIA) is an initiative created for the public good to address vendor lock-in problem.

OSIA addresses the vendor lock-in concern by providing a simple, open standards-based connectivity layer between all key components within the national identity ecosystem.

OSIA scope is as follows:

1. Address the lack of common definitions within the identity ecosystem – NON PRESCRIPTIVE

> Components of the identity ecosystem (civil registry, population registry, biometric identification system etc.) from different vendors are functionally incompatible due to the absence of a common definition/understanding of broader functionalities and scope.
>
> OSIA first step has been to formalize definitions, scope and main functionalities of each component within the identity ecosystem.

2. Create a set of standardized interfaces – PRESCRIPTIVE

> This core piece of work develops the set of interfaces and standardized data formats to connect the multiple identity ecosystem components to ensure seamless interaction via pre-defined services.
>
> Process of interaction among components (hence type of services each component implements) is down to each government to define and implement according to local laws and regulations.

With OSIA, governments are free to select the components they need, from the suppliers they choose – without fear of lock in.

And because OSIA operates at the interface layer, interoperability is assured without the need to rearchitect environments or rebuild solutions from the ground up. ID ecosystem components are simply swapped in and out as the use case demands – from best-of-breed options already available on the market.

This real-world approach dramatically reduces operational and financial risk, increases the effectiveness of existing identity ecosystems, and rapidly moves government initiatives from proof of concept to live environments.

1.3 Diffusion, Audience, and Access

This specification is hosted in GitHub and can be downloaded from ReadTheDocs.

This specification is licensed under The SIA License.

Any country, technology partner or individual is free to download the functional and technical specifications to implement it in their customized foundational and sectoral ID systems or components. Governments can also reference OSIA as Open Standards in tenders. For more information on how to reference OSIA please see Section *OSIA Versions & Referencing*.

1.4 Document Overview

This document aims at:

- formalizing definitions, scope and main functionalities of each component within the identity ecosystem,
- defining standardized interfaces and data format to connect the multiple ecosystem components to ensure seamless interaction via pre-defined services.

This document is structured as follows:

- Chapter 1 Introduction: This chapter introduces the problem statement and the OSIA initiative.
- Chapter 2 Functional View: This chapter provides an overview of OSIA interfaces and how they can be mapped against the various identity ecosystem components. Finally, the chapter describes a series of use cases where different OSIA interfaces are implemented between multiple identity ecosystem components.
- Chapter 3 Security and Privacy: This chapter lists a set of Privacy and Security features embedded in OSIA interfaces specifications.
- Chapter 4 OSIA Versions and Referencing: This chapter describes the way OSIA interfaces can be referenced in documents and tenders.
- Chapter 5 Interfaces: This chapter describes the specifications of all OSIA interfaces.
- Chapter 6 Components: This chapter describes OSIA interfaces that each component of the identity ecosystem may implement.

1.5 Convention and Typographical Rules

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in RFC 2119.

Code samples highlighted in blocks appear like that:

```
{
    "key": "value",
    "another_key": 23
}
```

Note: Indicates supplementary explanations and useful tips.

Warning: Indicates that the specific condition or procedure must be respected.

1.6 Revision History

Table 1.1: OSIA Services Versions

OSIA Release	1.0.0	2.0.0	3.0.0	4.1.0	5.0.0
OSIA Release Date	mar-2019	jun-2019	nov-2019	jul-2020	dec-2020
Notification	.	1.0.0	1.0.0	1.1.0	1.2.0
UIN Management	1.0.0	1.0.0	1.0.0	1.1.0	1.2.0
Data Access	1.0.0	1.0.0	1.0.0	1.1.0	1.3.0
Enrollment Services	.	.	.	1.0.0	1.1.0
Population Registry Services	.	.	1.0.0	1.2.0	1.3.0
Biometrics Services	.	1.0.0	1.1.0	1.3.0	1.4.0
Credential Services	.	.	.	1.0.0	1.1.0
Relying Party Services	.	.	.		1.0.0

CHAPTER 2

Functional View

2.1 Components: Standardized Definition and Scope

OSIA provides seamless interconnection between multiple components part of the identity ecosystem.

The components are defined as follows:

- The *Enrollment* component.

  Enrollment is defined as a system to register biographic and biometric data of individuals.

- The *Population Registry* (PR) component.

  Population registry is defined as "an individualized data system, that is, a mechanism of continuous recording, or of coordinated linkage, of selected information pertaining to each member of the resident population of a country in such a way to provide the possibility of determining up-to-date information concerning the size and characteristics of that population at selected time intervals. The population register is the product of a continuous process, in which notifications of certain events, which may have been recorded originally in different administrative systems, are automatically linked on a current basis. A. method and sources of updating should cover all changes so that the characteristics of individuals in the register remain current. Because of the nature of a population register, its organization, and also its operation, must have a legal basis."[1]

- The *UIN Generator* component.

  UIN generator is defined as a system to generate and manage unique identifiers.

- The *Automated Biometric Identification System* (ABIS) component.

  An ABIS is defined as a *system to detect the identity of an individual when it is unknown, or to verify the individual's identity when it is provided, through biometrics*.

- The *Civil Registry* (CR) component.

  Civil registration is defined as "the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population, as provided through decree or regulation is accordance with the legal requirement in each country. Civil registration is carried out primarily

[1] *Handbook on Civil Registration and Vital Statistics Systems: Management, Operation and Maintenance, Revision 1, United Nations, New York, 2018, available at:* https://unstats.un.org/unsd/demographic-social/Standards-and-Methods/files/Handbooks/crvs/crvs-mgt-E.pdf *, para 65.*

for the purpose of establishing the documents provided by the law."[2]

- The *Credential Management System* (CMS) component.

  CMS is defined as a system to manage the production and issuance of credentials such as ID Cards, passports, driving licenses, digital ID, etc.

- The *Third Party Services* component.

  This component interfaces with external systems to leverage the identity databases for the benefits of individuals. It provides services to authenticate, identify, and access identity attributes for use cases such as KYC.

- The *Digital Credential Issuance & Distribution System*.

  This component is in charge of the issuance and delivery of the digital credentials built from the identity databases under the control of the CMS.

[2] *Principles and Recommendations for a Vital Statistics System, United Nations publication Sales Number E.13.XVII.10, New York, 2014, paragraph 279*

Table 2.1: Components

ID Ecosystem Component	Data	Functions
Enrollment	• Biographic data • UIN • History • Supporting documents	• Recording application • Collecting personal data
PR	• Biographic data • UIN • History • Supporting documents	• Identity attributes storage • Identity Life cycle management
UIN Gen	• Biographic data • UIN	• UIN generation
ABIS	• UIN • Biometric data (images and templates)	• Authentication (1:1) • Identification (1:N) • Quality control and adjudication
CR	• Events • UIN • History • Supporting documents	• Events storage • Certificate production • Workflow
CMS	• Biographic data • UIN • Biometric data • Credential event history	• Credential data storage • Credential Life cycle management • Credential Production • Workflow
Third Party Services	• Biographic data/Identity attributes • Biometric data	• Authentication (1:1) • Identification (1:N) • Access to identity attributes
Digital Credential Issuance & Distribution System		• Issuance of a digital credential • Delivery of a digital credential

The components are represented on the following diagram:

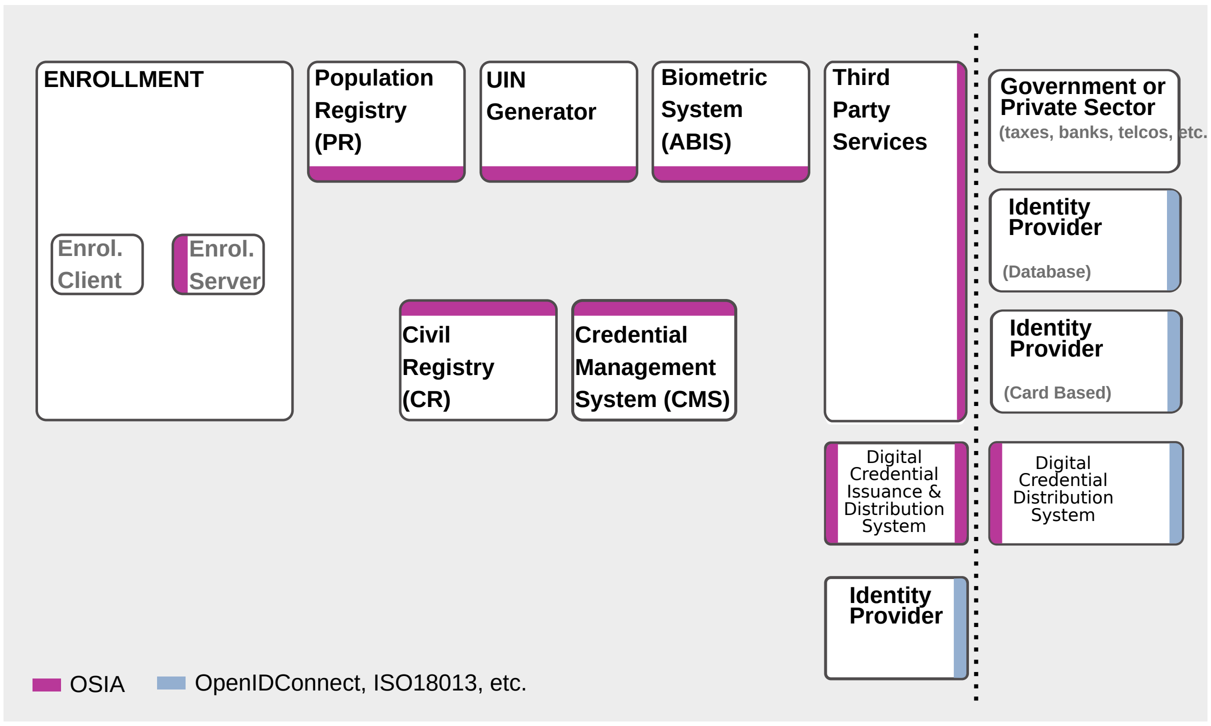


Fig. 2.1: Components identified as part of the identity ecosystem

2.2 Interfaces

This chapter describes the following interfaces:

- Notification

  A set of services to manage notifications for different types of events as for instance birth and death.

- Data access

  A set of services to access data.

  The design is based on the following assumptions:

  1. All persons recorded in a registry have a UIN. The UIN can be used as a key to access person data for all records. Please note that the UIN is the same throughout all registries (see Chapter 3 - Security & Privacy).
  2. The registries (civil, population, or other) are considered as centralized systems that are connected. If one registry is architectured in a decentralized way, one of its component must be centralized, connected to the network, and in charge of the exchanges with the other registries.
  3. Since the registries are customized for each business needs, dictionaries must be explicitly defined to describe the attributes, the event types, and the document types. See Data Access for samples of those dictionaries.
  4. The relationship parent/child is not mandatory in the population registry. A population registry implementation may manage this relationship or may ignore it and rely on the civil registry to manage it.
  5. All persons are stored in the population registry. There is no record in the civil registry that is not also in the population registry.

- UIN Management

  A set of services to manage the unique identifier.

- Enrollment Services

  A set of services to manage biographic and biometric data upon collection.

- Population Registry Services

  A set of services to manage a registry of the population.

- Biometrics

  A set of services to manage biometric data and databases.

- Credential Services

  A set of services to manage credentials, physical and digital.

- ID Usage

  A set of services implemented on top of identity systems to favour third parties consumption of identity data.

The following table describes in detail the interfaces and associated services.

Table 2.2: Interfaces List

Services	**Description**
Notification	
Subscribe	Subscribe a URL to receive notifications sent to one topic
List Subscription	Get the list of all the subscriptions registered in the server
Unsubscribe	Unsubscribe a URL from the list of receiver for one topic
Confirm	Confirm that the URL used during the subscription is valid
Create Topic	Create a new topic
List Topics	List all the existing topics
Delete Topic	Delete a topic
Publish	Notify of a new event all systems that subscribed to this topic
Data Access	
Read Person Attributes	Read person attributes
Match Person Attributes	Check the value of attributes without exposing private data
Verify Person Attributes	Evaluate simple expressions on person’s attributes without exposing private data
Query Person UIN	Query the persons by a set of attributes, used when the UIN is unknown
Query Person List	Query the persons by a list of attributes and their values
Read document	Read in a selected format (PDF, image, etc.) a document such as a marriage certificate
UIN Management	
Generate UIN	Generate a new UIN
Enrollment Services	
Create Enrollment	Insert a new enrollment
Read Enrollment	Retrieve an enrollment
Update Enrollment	Update an enrollment
Partial Update Enrollment	Update part of an enrollment
Finalize Enrollment	Finalize an enrollment (mark it as completed)
Delete Enrollment	Delete an enrollment
Find Enrollments	Retrieve a list of enrollments which match passed in search criteria
Send Buffer	Send a buffer (image, etc.)
Get Buffer	Get a buffer
Population Registry Services	
Find Persons	Query for persons, using all the available identities
Create Person	Create a new person
Read Person	Read the attributes of a person
Update Person	Update a person

Continued on next page

Table 2.2 – continued from previous page

Delete Person	Delete a person and all its identities
Merge Persons	Merge two persons
Create Identity	Create a new identity in a person
Read Identity	Read one or all the identities of one person
Update Identity	Update an identity. An identity can be updated only in the status claimed
Partial Update Identity	Update part of an identity. Not all attributes are mandatory.
Delete Identity	Delete an identity
Set Identity Status	Set an identity status
Define Reference	Define the reference identity of one person
Read Reference	Read the reference identity of one person
Read Galleries	Read the ID of all the galleries
Read Gallery Content	Read the content of one gallery, i.e. the IDs of all the records linked to this gallery
Biometrics	
Create Encounter	Create a new encounter. No identify is performed
Read Encounter	Read the data of an encounter
Update Encounter	Update an encounter
Delete Encounter	Delete an encounter
Merge Encounter	Merge two sets of encounters
Set Encounter Status	Set an encounter status
Read Template	Read the generated template
Read Galleries	Read the ID of all the galleries
Read Gallery content	Read the content of one gallery, i.e. the IDs of all the records linked to this gallery
Identify	Identify a person using biometrics data and filters on biographic or contextual data
Verify	Verify an identity using biometrics data
Credential Services	
Create Credential Request	Request issuance of a secure credential
Read Credential Request	Retrieve the data/status of a credential request
Update Credential Request	Update the requested issuance of a secure credential
Delete Credential Request	Delete/cancel the requested issuance of a secure document / credential
Find Credentials	Retrieve a list of credentials that match the passed in search criteria
Read Credential	Retrieve the attributes/status of an issued credential (smart card, mobile, passport, etc.)
Suspend Credential	Suspend an issued credential. For electronic credentials this will suspend any PKI certificates that are present
Unsuspend Credential	Unsuspend an issued credential. For electronic credentials this will unsuspend any PKI certificates that are present
Revoke Credential	Revoke an issued credential. For electronic credentials this will revoke any PKI certificates that are present
Set Credential Status	Change the credential status
Find Credential Profiles	Retrieve a list of credential profils that match the passed in search criteria
ID Usage	
Verify ID	Verify Identity based on UIN and set of attributes (biometric data, demographics, credential)
Identify	Identify a person based on a set of attributes (biometric data, demographics, credential)
Read Attributes	Read person attributes
Read Attributes set	Read person attributes corresponding to a predefined set name

2.3 Components vs Interfaces Mapping

The interfaces described in the following chapter can be mapped against ID ecosystem components as per the table below:

Table 2.3: Components vs Interfaces Mapping

	Components							
Interfaces	Enroll Clt	Enroll Srv	PR	UIN Gen	ABIS	CR	CMS	ID Usage
Notification								
Subscribe			U		U	U	U	
List Subscription			U		U	U	U	
Unsubscribe			U		U	U	U	
Confirm			U		U	U	U	
Create Topic			U		U	U	U	
List Topics			U		U	U	U	
Delete Topic			U		U	U	U	
Publish			U		U	U	U	
Data Access								
Read Person Attributes		U	IU		U	IU		U
Match Person Attributes		U	IU			IU		U
Verify Person Attributes		U	IU			IU		U
Query Person UIN		U	IU			IU		U
Query Person List						U		U
Read Document		U	IU			IU		U
UIN Management								
Generate UIN			U	I		U		
Enrollment Services								
Create Enrollment	U	I						
Read Enrollment	U	I						
Update Enrollment	U	I						
Partial Update Enrollment	U	I						
Finalize Enrollment	U	I						
Delete Enrollment	U	I						
Find Enrollments	U	I						
Send Buffer	U	I						
Get Buffer	U	I						
Population Registry Services								
Find Persons			I					
Create Person			I		U		U	
Read Person			I		U		U	U
Update Person			I		U		U	
Delete Person			I		U		U	
Merge Person			I		U			
Create Identity			I					
Read Identity			I					
Update Identity			I					
Partial Update Identity			I					
Delete Identity			I					
Set Identity Status			I					
Define Reference			I					
Read Reference			I					
Read Galleries			I					
Read Gallery Content			I					

Continued on next page

Table 2.3 – continued from previous page

	Components							
Interfaces	Enroll Clt	Enroll Srv	PR	UIN Gen	ABIS	CR	CMS	ID Usage
Biometrics								
Create Encounter		U	U		I			
Read Encounter		U	U		I			U
Update Encounter		U	U		I			
Delete Encounter		U	U		I			
Merge Encounter			U		I			
Set Encounter Status		U	U		I			
Read Template		U	U		I			
Read Galleries								
Read Gallery Content		U	U		I			
Identify		U			I			U
Verify		U			I			U
Credential Services								
Create Credential Request							I	
Read Credential Request							I	
Update Credential Request							I	
Delete Credential Request							I	
Find Credentials							I	
Read Credential							I	
Suspend Credential							I	
Unsuspend Credential							I	
Revoke Credential							I	
Set Credential Status							I	
Find Credential Profiles							I	
ID Usage								
Verify ID								I
Identify ID								I
Read Attributes								I
Read Attributes set								I

where:

- `I` is used when a service is implemented (provided) by a component
- `U` is used when a service is used (consumed) by a component

2.4 Use Cases - How to Use OSIA

Below are a set of examples of how OSIA interfaces could be implemented in various use cases.

2.4.1 Birth Use Case

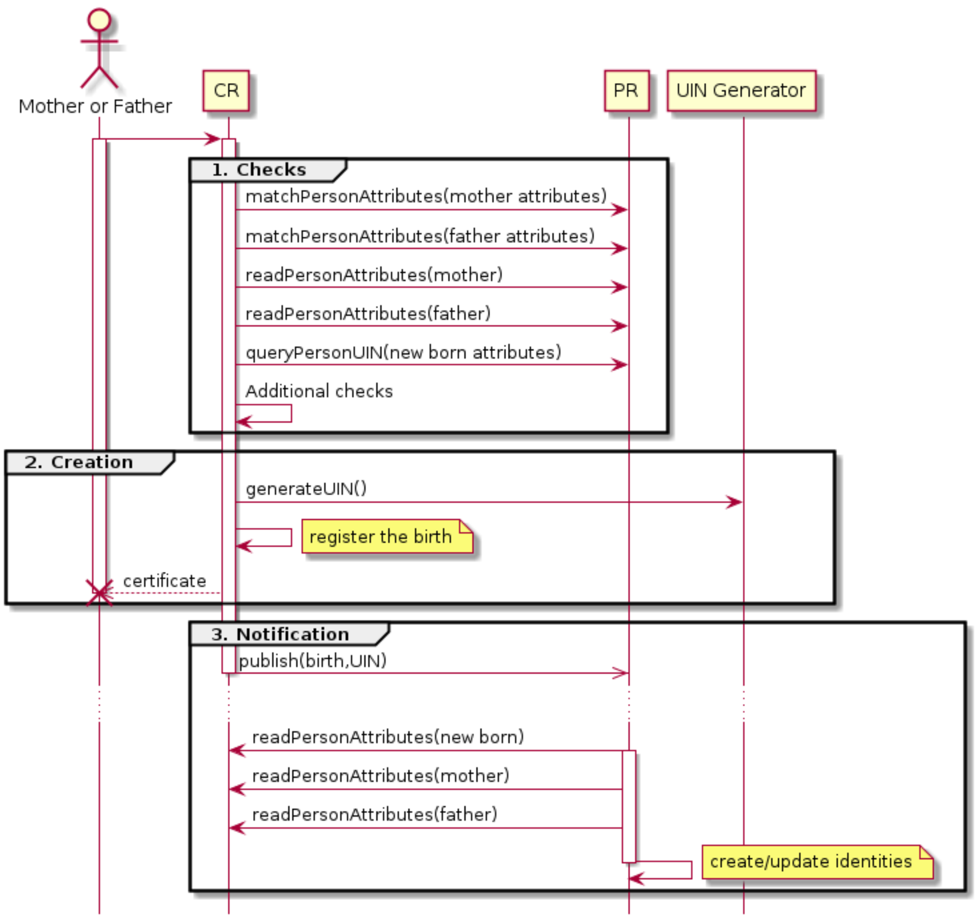

Mother or Father
CR
PR
UIN Generator
1. Checks
matchPersonAttributes(mother attributes)
matchPersonAttributes(father attributes)
readPersonAttributes(mother)
readPersonAttributes(father)
queryPersonUIN(new born attributes)
Additional checks
2. Creation
generateUIN()
register the birth
certificate
3. Notification
publish(birth,UIN)
readPersonAttributes(new born)
readPersonAttributes(mother)
readPersonAttributes(father)
create/update identities

Fig. 2.2: Birth Use Case

1. Checks

   When a request is submitted, the CR may run checks against the data available in the PR using:

   - `matchPersonAttributes`: to check the exactitude of the parents' attributes as known in the PR
   - `readPersonAttributes`: to get missing data about the parents's identity
   - `qureyPersonUIN`: to check if the new born is already known to PR or not

   How the CR will process the request in case of data discrepancy is specific to each CR implementation and not in the scope of this document.

2. Creation

   The first step after the checks is to generate a new UIN. To do so, the CR requests a new UIN to the PR using generateUIN service. At this point the birth registration takes place. How the CR will process the birth registration is specific to each CR implementation and not in the scope of this document.

3. Notification

   As part of the birth registration, it is the responsibility of the CR to notify other systems, including the PR, of this event using:

   - `publish`: to send a *birth* along with the new `UIN`.

   The PR, upon reception of the birth event, will update the identity registry with this new identity using:

- `readPersonAttributes`: to get the attributes of interest to the PR for the parents if relevant and the new child.

2.4.2 Death Use Case

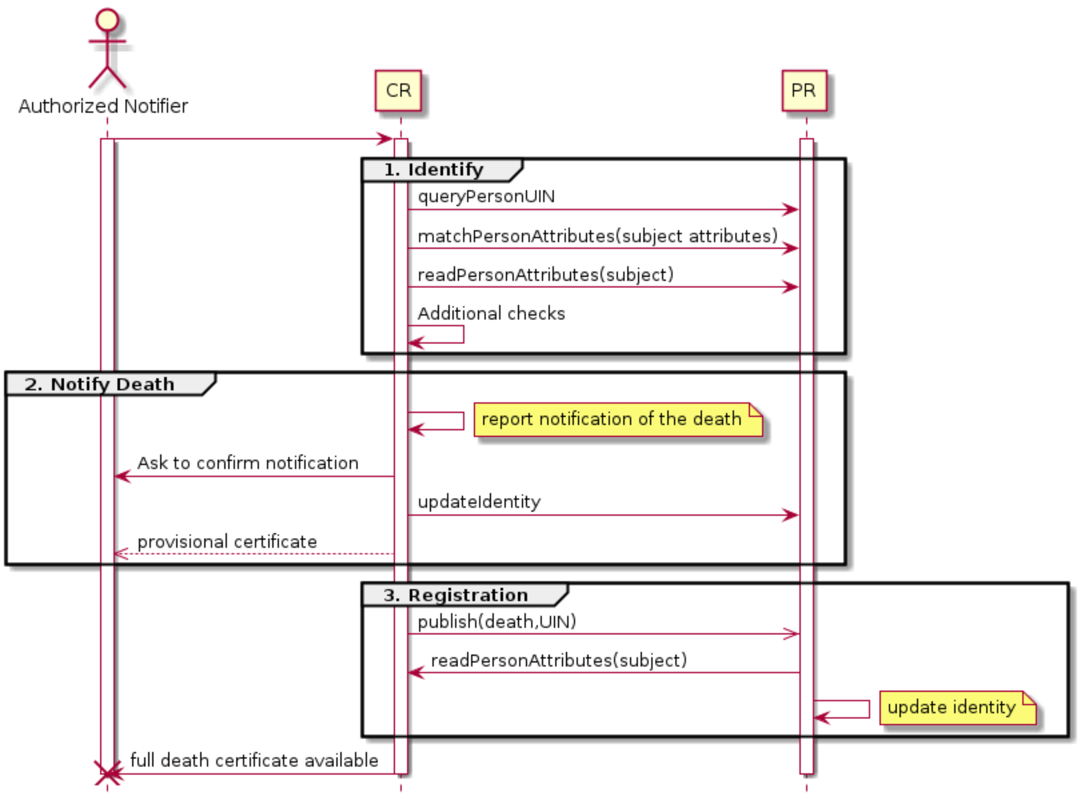

Authorized Notifier
CR
PR
1. Identify
queryPersonUIN
matchPersonAttributes(subject attributes)
readPersonAttributes(subject)
Additional checks
2. Notify Death
report notification of the death
Ask to confirm notification
updateIdentity
provisional certificate
3. Registration
publish(death,UIN)
readPersonAttributes(subject)
update identity
full death certificate available

Fig. 2.3: Death Use Case

1. Subject identification checks

   When a death notification is submitted by an authorized party, the CR shall run checks against the data available in the PR using:

   - `matchPersonAttributes`: to check the exactitude of the subject's attributes as known in the PR
   - `readPersonAttributes`: to get missing data about the subject's identity that
   - `queryPersonUIN`: to check if the person is already known to PR or not

   How the CR will process the request in case of data discrepancy is specific to each CR implementation and not in the scope of this document. The CR may implement an internal procedure to create a valid PR record retrospectively.

2. Notification creation

   The first step after the identity checks is to notify the life event status to the PR based on an identified record. At this point the death notification is recorded by not finally registered. Most states implement a waiting period. How the CR will process the death notification is specific to each CR implementation - a provisional certificate is possible.

3. Final registration

   When the PR finalizes the status of the subject's person record then the CR may publish this information at its discretion. The PR may maintain a list of interested parties who shall be informed of any finalized death status. A final certificate of death including the context of this event is typically issued by the CR to the notifier for distribution.

2.4.3 Deduplication Use Case

During the lifetime of a registry, it is possible that duplicates are detected. This can happen for instance after the addition of biometrics in the system. When a registry considers that two records are actually the same and decides to merge them, a notification must be sent.

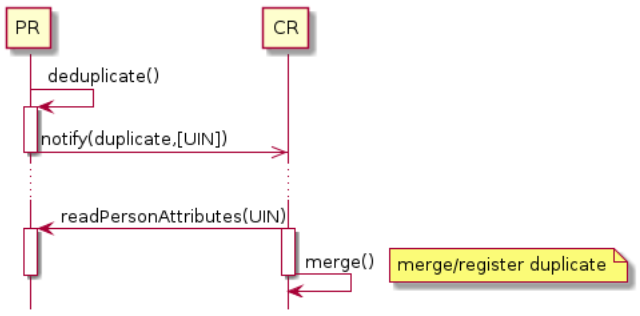


Fig. 2.4: Deduplication Use Case

How the target of the notification should react is specific to each subsystem.

2.4.4 ID Card Request Use Case (1)

An ID card is one type of credential. The procedures surrounding credential issuance may involve several subsystems that contribute to the establishment of the applicant identity and the required data for the type of credential.

This use case assumes a simple starting scenario where the identity is known and can be validated, mostly with data available from a Civil or Population Registry based Identity Provider. These use cases also assume the use of a Credentials Management System (CMS) responsible for the technical personalization and lifecycle management of a credential such as an ID card.

The use case aims to show how a selection of the CMS API calls can support a typical, use case in relation to CMS usage.

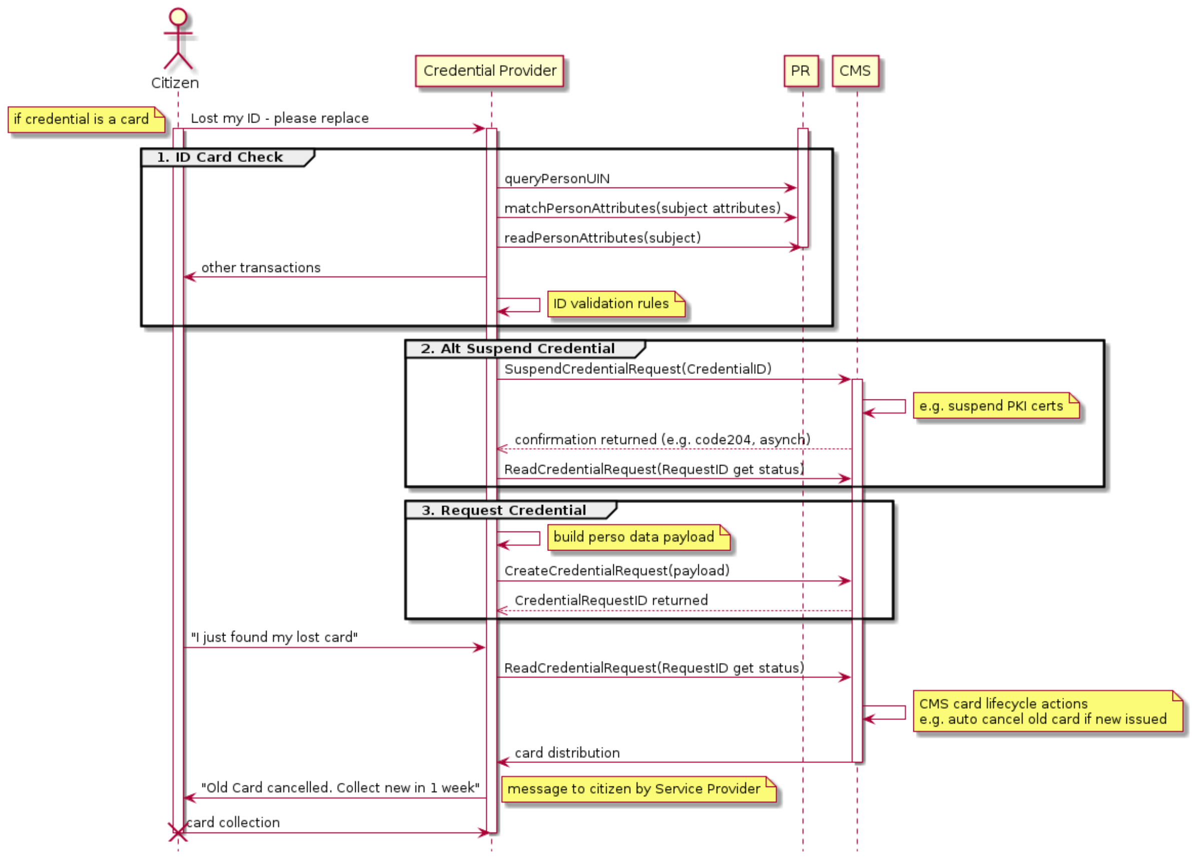

Citizen
Credential Provider
PR
CMS
if credential is a card
Lost my ID - please replace
1. ID Card Check
queryPersonUIN
matchPersonAttributes(subject attributes)
readPersonAttributes(subject)
other transactions
ID validation rules
2. Alt Suspend Credential
SuspendCredentialRequest(CredentialID)
e.g. suspend PKI certs
confirmation returned (e.g. code204, asynch)
ReadCredentialRequest(RequestID get status)
3. Request Credential
build perso data payload
CreateCredentialRequest(payload)
CredentialRequestID returned
"I just found my lost card"
ReadCredentialRequest(RequestID get status)
CMS card lifecycle actions
e.g. auto cancel old card if new issued
card distribution
"Old Card cancelled. Collect new in 1 week"
message to citizen by Service Provider
card collection

Fig. 2.5: ID Card Request Use Case (1)

1. Identity Checks

   The example scenario assumes a credential provider service such as an ID card provider (National ID, Voter, &c). Such as service may access several OSIA API based components to establish an ID check. In this example the Population Register is used. This example case also assumes that the credential provider holds its own register of credentials issued to its subscribers.

2. Suspend Credential

   In the example above the citizen has lost a card and requests a replacement. The credential provider service first establishes the legitimacy of the citizen identity and the identity of the lost document within its own register. The next likely step in such a use case is to suspend the current credential. This is done using a CMS API call. The CMS confirms this step with a reference. In some use cases the reported lost credential may be cancelled immediately, but this is typically a decision made by the policy of the credential provider. There is an OSIA API call to both either or both requirements to the CMS.

3. Requesting a New Credential

   The credential provider is in this example case responsible for preparing the core document data for the CMS. The CMS itself may further process this data appropriate to the credential type: for example the CMS may be the service that signs this document data electronically. The CMS returns a new request ID to the credential provider service which will enable the provider to query credential production status within the CMS domain.

   Such a business process might be interrupted by an new event such as the citizen finding her lost card and wishing to cancel the replacement order, perhaps to avoid a replacement fee. Depending on the status returned by the CMS to the credential provider then the credential provider service will act accordingly in informing the citizen whether this is possible. In this case the citizen's card was already replaced by the CMS so the original card is now cancelled.

   The CMS on its side is responsible for maintaining a credential profile which can be accessed by the CR at a later point. This use case stops for CMS when the card is distributed to the CR for collection by the citizen.

2.4.5 ID Card Request Use Case (2)

A second ID Request use case shows how the CMS might expose more decisions to the credential providing service. In this case it is the citizen facing provider that controls the cancellation of the lost document, and this is not automated within the CMS component.

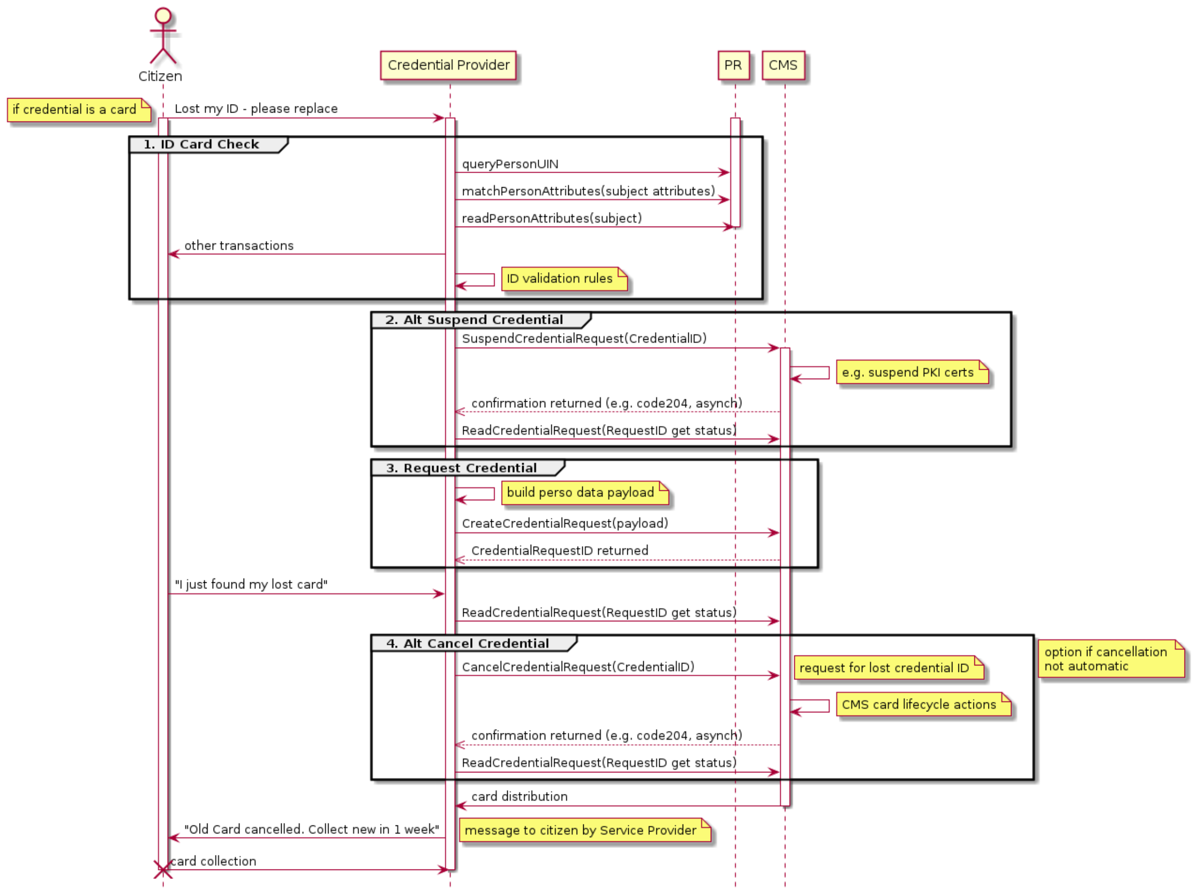

Citizen
Credential Provider
PR
CMS
if credential is a card
Lost my ID - please replace
1. ID Card Check
queryPersonUIN
matchPersonAttributes(subject attributes)
readPersonAttributes(subject)
other transactions
ID validation rules
2. Alt Suspend Credential
SuspendCredentialRequest(CredentialID)
e.g. suspend PKI certs
confirmation returned (e.g. code204, asynch)
ReadCredentialRequest(RequestID get status)
3. Request Credential
build perso data payload
CreateCredentialRequest(payload)
CredentialRequestID returned
"I just found my lost card"
ReadCredentialRequest(RequestID get status)
4. Alt Cancel Credential
CancelCredentialRequest(CredentialID)
request for lost credential ID
option if cancellation not automatic
CMS card lifecycle actions
confirmation returned (e.g. code204, asynch)
ReadCredentialRequest(RequestID get status)
card distribution
"Old Card cancelled. Collect new in 1 week"
message to citizen by Service Provider
card collection

Fig. 2.6: ID Card Request Use Case (2)

This second example shows how APIs may be used to flex the control over functions such as credential lifecycle management. This example first makes use of the API to suspend a credential pending production of a replacement; then a second API call is made to the CMS to instruct cancellation of the lost document.

2.4.6 Bank account opening Use Case

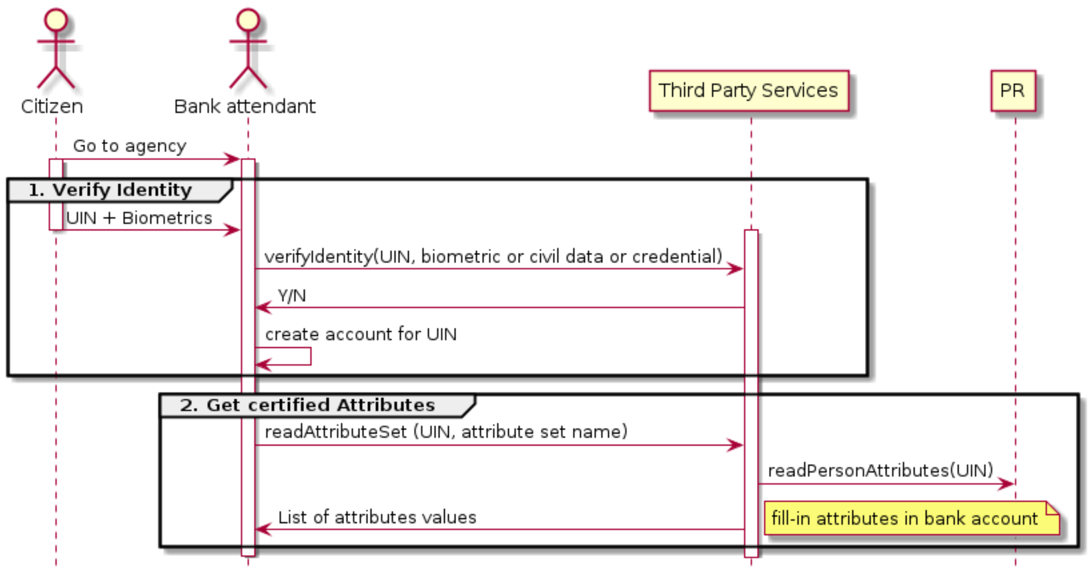

Citizen
Bank attendant
Third Party Services
PR
Go to agency
1. Verify Identity
UIN + Biometrics
verifyIdentity(UIN, biometric or civil data or credential)
Y/N
create account for UIN
2. Get certified Attributes
readAttributeSet (UIN, attribute set name)
readPersonAttributes(UIN)
List of attributes values
fill-in attributes in bank account

Fig. 2.7: Bank account opening Use Case

2.4.7 Police identity control Use Case

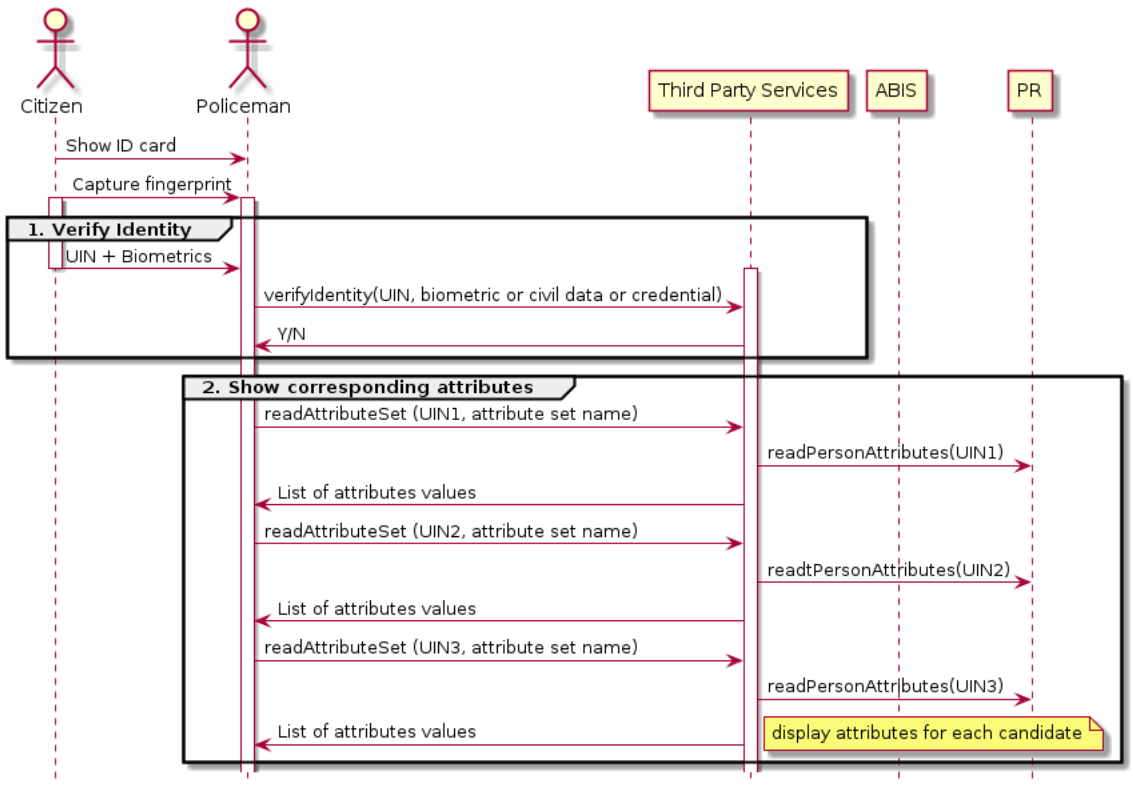

Citizen
Policeman
Third Party Services
ABIS
PR
Show ID card
Capture fingerprint
1. Verify Identity
UIN + Biometrics
verifyIdentity(UIN, biometric or civil data or credential)
Y/N
2. Show corresponding attributes
readAttributeSet (UIN1, attribute set name)
readPersonAttributes(UIN1)
List of attributes values
readAttributeSet (UIN2, attribute set name)
readtPersonAttributes(UIN2)
List of attributes values
readAttributeSet (UIN3, attribute set name)
readPersonAttributes(UIN3)
List of attributes values
display attributes for each candidate

Fig. 2.8: Collaborative identity control

2.4.8 Telco Customer Enrollment with ID document

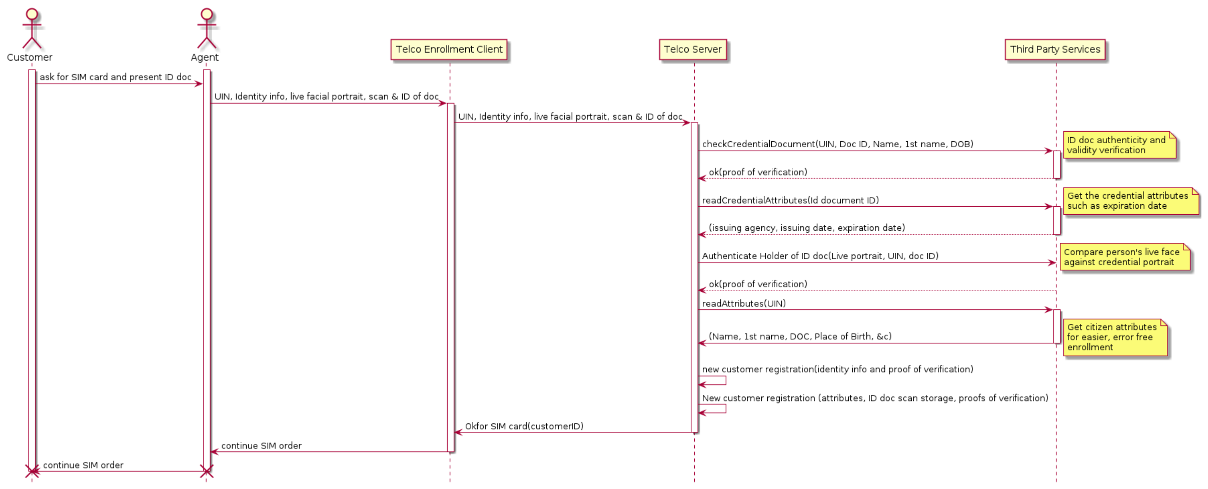

Customer
Agent
Telco Enrollment Client
Telco Server
Third Party Services
ask for SIM card and present ID doc
UIN, Identity info, live facial portrait, scan & ID of doc
UIN, Identity info, live facial portrait, scan & ID of doc
checkCredentialDocument(UIN, Doc ID, Name, 1st name, DOB)
ID doc authenticity and validity verification
ok(proof of verification)
readCredentialAttributes(Id document ID)
Get the credential attributes such as expiration date
(issuing agency, issuing date, expiration date)
Authenticate Holder of ID doc(Live portrait, UIN, doc ID)
Compare person's live face against credential portrait
ok(proof of verification)
readAttributes(UIN)
(Name, 1st name, DOC, Place of Birth, &c)
Get citizen attributes for easier, error free enrollment
new customer registration(identity info and proof of verification)
New customer registration (attributes, ID doc scan storage, proofs of verification)
Okfor SIM card(customerID)
continue SIM order
continue SIM order

Fig. 2.9: Telco Customer Enrollment with ID document

1. Use case objective

   This use case allows a telco operator to check a citizen's ID document and identity.

   The use case relies on an IDMS to check the authenticity and validity of the ID document presented by the citizen, then to check that he actually is the holder of the document.

2. Pre-conditions

   The citizen is registered in the IDMS and has a UIN.

   The citizen has a valid ID document.

   The citizen presents as a customer to the agent.

   The IDMS should support authentication token generation to protect against misusage of UIN.

3. Use case description

   The customer shows his ID document to the Agent. The Agent inputs (possibly by reading an MRZ on the document) the UIN, document ID, name, given name, DOB, and a live facial portrait taken of the citizen.

   The telco server calls an IDMS API to check if the information of the ID document is coherent and if the document is still valid.

   The telco server calls an IDMS API to get meta data of the document such as the issuing agency, the issuing date, expiration date, etc.

   The telco server calls an IDMS API to check if the customer is actually the holder of the document using his live biometric portrait.

   The telco server calls an IDMS API to get some reliable data of the customer in order to register him.

4. Result

   The citizen is now identified, authenticated and registered in a customer database and becomes eligible to buy a SIM card.

   The telco operator can prove regulatory controls have been applied for 'Know Your Customer' compliance.

2.4.9 Telco Customer Enrollment with no ID document

A customer applying for a new network SIM card may not be able to present an ID document as part of her application.

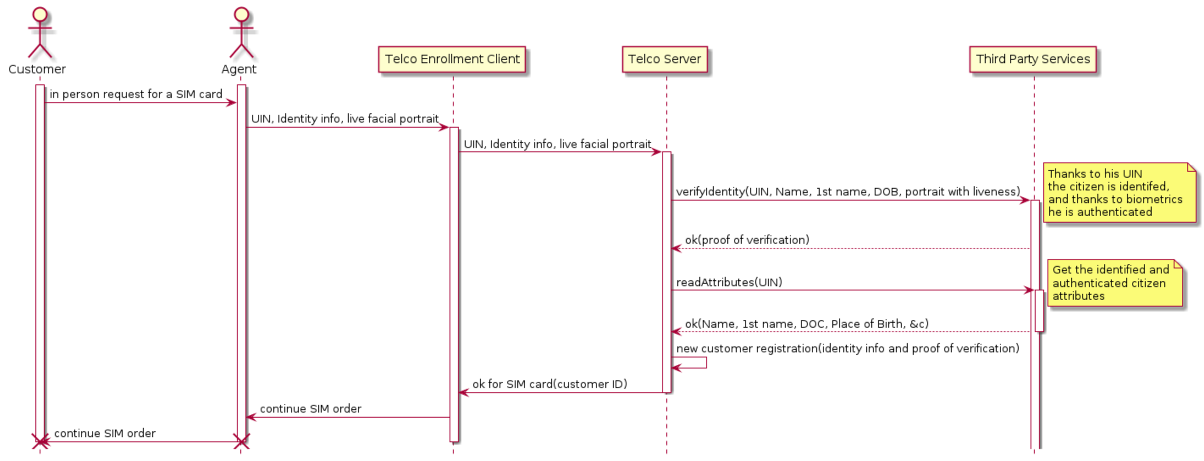

Customer
Agent
Telco Enrollment Client
Telco Server
Third Party Services
in person request for a SIM card
UIN, Identity info, live facial portrait
UIN, Identity info, live facial portrait
verifyIdentity(UIN, Name, 1st name, DOB, portrait with liveness)
Thanks to his UIN the citizen is identifed, and thanks to biometrics he is authenticated
ok(proof of verification)
readAttributes(UIN)
Get the identified and authenticated citizen attributes
ok(Name, 1st name, DOC, Place of Birth, &c)
new customer registration(identity info and proof of verification)
ok for SIM card(customer ID)
continue SIM order
continue SIM order

Fig. 2.10: Telco Customer Enrollment with no ID document

1. Use case objective

   This use case allows a telco operator to check a citizen's identity and get his attributes relying on IDMS to check that the biometrics of the citizen matches with his UIN.

2. Pre-conditions

   The citizen is registered in the IDMS and has a UIN.

   The citizen biometrics are registered and associated to his UIN.

   The citizen presents as a customer to the agent.

   The IDMS should support authentication token generation to protect against misusage of UIN.

3. Use case description

   The Agent inputs the citizen's UIN, Name, 1st Name, DOB and takes a live photo portrait of the customer.

   The telco server calls an IDMS API to check if the customer is actually the citizen corresponding to the given UIN thanks to his live portrait (face biometric matching).

   The telco server calls an IDMS API to get some reliable data of the customer in order to register him.

4. Result

   The citizen is now identified, authenticated and registered in a customer database and becomes eligible to buy a SIM card.

   The telco operator can prove regulatory controls have been applied for 'Know Your Customer' compliance.

CHAPTER 3

Security & Privacy

3.1 Introduction

Insert diagram of security & privacy features

3.2 Virtual UIN

Explain: using a different UIN in each subsystem - no direct/easy links between the records in different subsystems

3.3 Authorization

Because OSIA is a set of interfaces/API and not a full system, this chapter describes only how to secure those API, through the usage of standard JWT, and not how to generate and protect such tokens, nor how to secure the full system.

Securing the API is one mandatory step on the way to a secure system, but securing a full system includes more than just that: hardware & software components, processes & methodology, audit, etc. that are not in the scope of this document.

3.3.1 Principles

Securing OSIA services is implemented with the following principles:

- Rely on JWT: "JSON Web Token (JWT) is a compact, URL-safe means of representing claims to be transferred between two parties" It can be "digitally signed or integrity protected with a Message Authentication Code (MAC) and/or encrypted". [**RFC 7519**]
- Tokens of type "Bearer Token" are used. [**RFC 6750**] The generation and management of those tokens are not in the scope of this document.
- Validating the token is the responsibility of the service implementation, with the help of components not described in this document (PKI, authorization server, etc.)

- The service implementations are responsible for extracting information from the token and give access or not to the service according to the claims contained in the token and the *scope* defined for each service in this document.
- The service implementations are free to change the security scheme used, for instance to use OAuth2 or OpenID Connect, if it fits the full system security policy. **Scopes must not be changed**.
- All HTTP exchanges must be secured with TLS. Mutual authentication is not mandatory.

Note: The added use of peer-to-peer payload encryption - e.g. to protect biometric data - is not in the scope of this document.

Note: OSIA does not define ACL (Access Control List) to protect the access to a subset of the data. This may be added in a future version.

Warning: Bearer tokens are sensitive and subject to security issues if not handled properly. Please refer to JSON Web Token Best Current Practices for advice on proper implementation.

3.3.2 Rules

All scopes are named according to the following rules:

```
application[.resource].action
```

where:

- application is a key identifying the interface group listed in *Interfaces*. Examples: `notif`, `pr`, `cr`, `abis`, etc.
- resource is a key identifying the resource. Examples: `person`, `encounter`, `identity`, etc.
- action is one of:
  - `read`: for read access to the data represented by the *resource* and managed by the *application*.
  - `write`: for creating, updating or deleting the data.
  - or another value, for specific actions such as match or verify that need to be distinguished from a general purpose read or write for proper segregation.

Scopes should be less than 20 characters when possible to limit the size of the bearer token.

3.3.3 Scopes

The following table is a summary of all scopes defined in OSIA.

Table 3.1: Scopes List

Services	**Scope**
Notification	
Subscribe	`notif.sub.write`
List Subscription	`notif.sub.read`
Unsubscribe	`notif.sub.write`
Confirm	`notif.sub.write`
Create Topic	`notif.topic.write`
List Topics	`notif.topic.read`
Delete Topic	`notif.topic.write`

Continued on next page

Table 3.1 – continued from previous page

Publish	`notif.topic.publish`
Data Access	
Read Person Attributes	`pr.person.read` or `cr.person.read`
Match Person Attributes	`pr.person.match` or `cr.person.match`
Verify Person Attributes	`pr.person.verify` or `cr.person.verify`
Query Person UIN	`pr.person.read` or `cr.person.read`
Query Person List	`pr.person.read` or `cr.person.read`
Read document	`pr.document.read` or `cr.document.read`
UIN Management	
Generate UIN	`uin.generate`
Enrollment Services	
Create Enrollment	`enroll.write`
Read Enrollment	`enroll.read`
Update Enrollment	`enroll.write`
Partial Update Enrollment	`enroll.write`
Finalize Enrollment	`enroll.write`
Delete Enrollment	`enroll.write`
Find Enrollments	`enroll.read`
Send Buffer	`enroll.buf.write`
Get Buffer	`enroll.buf.read`
Population Registry Services	
Find Persons	`pr.person.read`
Create Person	`pr.person.write`
Read Person	`pr.person.read`
Update Person	`pr.person.write`
Delete Person	`pr.person.write`
Merge Persons	`pr.person.write`
Create Identity	`pr.identity.write`
Read Identity	`pr.identity.read`
Update Identity	`pr.identity.write`
Partial Update Identity	`pr.identity.write`
Delete Identity	`pr.identity.write`
Set Identity Status	`pr.identity.write`
Define Reference	`pr.reference.write`
Read Reference	`pr.reference.read`
Read Galleries	`pr.gallery.read`
Read Gallery Content	`pr.gallery.read`
Biometrics	
Create Encounter	`abis.encounter.write`
Read Encounter	`abis.encounter.read`
Update Encounter	`abis.encounter.write`
Delete Encounter	`abis.encounter.write`
Merge Encounter	`abis.encounter.write`
Set Encounter Status	`abis.encounter.write`
Read Template	`abis.encounter.read`
Read Galleries	`abis.gallery.read`
Read Gallery content	`abis.gallery.read`
Identify	`abis.identify`
Verify	`abis.verify`
Credential Services	
Create Credential Request	`cms.request.write`
Read Credential Request	`cms.request.read`
Update Credential Request	`cms.request.write`
Delete Credential Request	`cms.request.write`

Continued on next page

Table 3.1 – continued from previous page

Find Credentials	`cms.credential.read`
Read Credential	`cms.credential.read`
Suspend Credential	`cms.credential.write`
Unsuspend Credential	`cms.credential.write`
Revoke Credential	`cms.credential.write`
Set Credential Status	`cms.credential.write`
Find Credential Profiles	`cms.profile.read`
ID Usage (Work in progress)	
Verify ID	`id.verify`
Identify	`id.identify`
Read Attributes	`id.read`
Read Attributes set	`id.SET_NAME.read`

3.3.4 REST Interface Implementation

The OpenAPI files included in this document must be changed to:

1. Define the security scheme. This is done with the additional piece of code:

```
components:
  securitySchemes:
    BearerAuth:
      type: http
      scheme: bearer
      bearerFormat: JWT
```

2. Apply the security scheme and define the scope (i.e. permission) for each service. Example:

```
paths:
  /yyy:
    get:
      security:
        - BearerAuth: [id.read] # List of scopes
      responses:
        '200':
          description: OK
        '401':
          description: Not authenticated (bad token)
        '403':
          description: Access token does not have the required scope
```

See the different YAML files provided in *Technical Specifications*.

3.4 Privacy by Design

Privacy by design is a founding principle of the OSIA initiative.

The OSIA API is designed to support the protection of private citizens' Personal Identifiable Information (PII).

The protection of PII data is a central design concern for all identity based systems regardless of where these are based.

PII data does not recognize geographical boundaries; it moves across systems and jurisdictions. Similarly, the OSIA initiative is not geographically limited. OSIA takes its strong reference point from the European Union's GDPR regulation because this is considered by many as a best practice approach. GDPR anticipates the possible adverse consequences from the mobility of PII whether inside or outside the EU.

The General Data Protection Regulation (GDPR) is quite recent. It was introduced across the EU in 2016, before reaching its full legal effect in 2018. It is adopted by all EU governments and carries direct regulatory and legal force for any organization handling Personal Identifiable Information (PII), either in the EU or in connection with

EU citizens or residents. Compliance failure in respect of GDPR carries significant financial penalties, reflecting the rights of individuals and groups, as well as the importance of the issue.

GDPR is not the only defined standard, but it is seen as a best practice one. It is exemplary approach for the safeguarding of PII; but, it should also be seen as a safeguard for a system owner/operator's interests. It is a major driver for government leadership in Identity Management is to prevent identity fraud.

3.4.1 Privacy for end-to-end systems

For privacy the bigger goal is to protect PII across the full reach of ID systems. The OSIA API is a fundamental part and principle of the building process, providing definitions of how components are connected.

This is a part of a wider story. An end-to-end solution making use of the OSIA API should address three specific areas of concern for PII.

Correct implementation of the API definition

PII data flows through systems. API based connectivity between functional components is by definition a way of sharing information, which will focus mostly on PII. The OSIA API defines what should happen between application endpoints involving OSIA framework components. It defines content and a minimum acceptable security standard for implementation.

PII safeguards within the components connected by the APIs

The API concept is built around functional components: the sub-systems for Identity Management.

As well as the correct implementation or use of the appropriate API, a component should also meet PII requirements while this is present within the component. Such internal component design and PII behavior is the responsibility of the component supplier.

The customer architect responsible for an API connected solution should therefore ensure that the internal logic of an individual component is itself GDPR compliant. The API concept cannot itself provide any guarantee that components are designed with the same or sufficient internal levels of PII safeguards. What the API can do is to preserve this level of trust and prevent the creation of new vulnerabilities between these components.

The workflow connecting components in an OSIA enabled solution

OSIA provides a model for an open architecture. An end-to-end identity system may use some, or all of the OSIA components. It may use additional components to move data through the system. Wherever the system uses components to move data that are not covered by the OSIA framework definition then these should support end-to-end security with the same objective of GDPR compliance.

3.4.2 PII actors

The GDPR approach provides simple definitions.

- PII is a very wide category of information. It can be a name, a photo, a biometric, an email address, bank details, social media postings, medical data, and even an IP address;
- The PII data belongs to a Data Subject who is a natural person that might identified directly or indirectly using the PII;
- The usage, rules, and means of processing PII are determined by a Data Controller (e.g. the Government agency);
- The data is processed by a Data Processor.

When a government department acts as owner of an ID system then it is a Data Controller. It may also act as the Data Processor if it operates this system ‘in house’.

However, in today’s commercial world the Data Controller is equally likely to delegate some processing to a data center or to a business service for all or part of the system. In this case these delegated parties are Data Processors, and they also subject to the PII considerations.

Suppliers of the systems purchased and commissioned by Data Controllers, and operated by Data Processors are not directly subject to the regulation.

3.4.3 Data subject rights

A GDPR data subject has several rights that should be reflected throughout the wider ID systems architecture.

The right to be forgotten

A subject may ask for her data to be deleted.

Depending on the purpose and the authority of the system this right may be restricted or blocked, however the deletion of non-essential PII data may be a requirement according to some local laws. The Data Controller should be able to justify why specific items of PII need to be retained against the subject’s wishes, and when there is no reason for retention then the automated purging of unnecessary data is generally recommended.

An example impact of this for API usage is where an enrolment client holds enrollee data until receiving a response via the API from the enrollment server to the effect that any client stored data can be deleted. The Data Processor operating the client is responsible to ensure this deletion is systematically applied. Typically this may be done with a configuration in the component product used.

Privacy by design

Systems should be designed to limit data collection, retention and accessibility.

This applies equally to APIs as to the system components themselves. No more data should be passed over an API than is required. A component passing or receiving data should consider how to minimize what new PII it collects, shares, and stores. The Data Controller should know by design what data is held and where; as well as which APIs are sharing what data.

An example of this principle for API usage can be where a credential management system receives PII over an API for credential production, then deletes the PII once the document is produced successfully. The system may limit its retained data to production audit data. A credential management system with a different set of responsibilities defined by the Data Controller may justify the retention of a wider set of PII, which might be replicated elsewhere in the system. A subject might ask to know where this data sits. The Controller should be able to tell the subject, and the Processor able to prove it.

Breach notifications

Supervisory powers vary globally. In the EU organizations have to notify their national supervisory authority in the event of a discovered data breach involving PII. They are given a 72 hour period to do this after becoming aware of the breach. The purpose of this notice period is to allow the organization to determine the nature and the impact of the data breach.

Data subjects have the right to be informed about data breaches involving their personal data.

By following the *Privacy by Design* approach, detection and data exposure can be assessed more accurately and quickly. Data is typically in transit between sub-systems, then at rest or in use within a given sub-system. When correctly implemented the OSIA API concept provides assurance against breaches at the API in-transit level. Combined with the knowledge of what data is stored, and where, this Privacy by Design approach assists in the detection of breaches.

At the time of GDPR's introduction the biggest issuing facing most organizations was not the implementation of new controls, but the discovery of where and what data was in their possession. The made it very difficult to know if data was ever compromised.

Risk and impact assessments

Looking at systems overall an organization has to perform a privacy impact assessment.

This describes what PII is collected, and how this is maintained, protected, and shared. This may be done as part of a wider ISO 27000 process including risk assessment, but this is not mandatory.

Today most providers of components within the OSIA framework will provide such a privacy impact assessment statement for their products, including the GDPR controls in that product.

Taken together with the OSIA API specification then these assessments can be compiled to an overall statement of system PII compliance.

Consent

Systems that deal with identity as their core subject matter may not be legally required to obtain consent for the capture and use of PII data. However, in this service-centric world more and more transactional and contextual data is captured, so this should not be assumed. If this data is to be collected then organizations have to obtain valid and explicit consent from the individuals.

The organizations must also be able to prove that they have gotten consent, not forgetting that in the EU individuals may withdraw their consent.

In the EU additional safeguards apply, where parental consent is required if personal data is to be collected about children under the age of 16.

An API usually indicates that the use or status of data is changing, so it should always be considered. Passing PII over an API requires that the consent covers the scope of this data sharing.

An example of this situation might be where an enrolment system captures biometric data to be loaded to a credential using an API. The Data Controller later decides that the same captured data will be passed via a new API to a biometric matching system. Both the Data Controller and Processor might find that they are processing this data contrary to the principle of consent. If consent matters in this case then the introduction of the new API may alert the user to a change of use. This is not to say that such changes only happen where APIs are concerned, but the OSIA API framework does represent different functions across Identity Management, and therefore indicates that consent may be a relevant consideration.

Data portability

The portability of requirement was conceived for both transparency and commercial reasons.

PII held should be usable by the Data Subject upon request. For privacy it may be held encrypted in the Data Processor system, but must be provided in a structured and commonly useable format to the Data Subject under reasonable terms of access.

An example scenario might be where a Data Subject wishes to have a copy of a child's birth record in a printed format or a format recognized by a third party. The concept of data portability may in some cases be implemented by a report service, or in some cases use an OSIA API to support the retrieval of personal attribute data to meet this demand.

3.4.4 What should OSIA API implementors do to prepare for safe PII?

1. Appoint someone as the organization's own GDPR or PII data expert. Someone who understands the Data Controller business requirements, and knows the technologies likely to be used for data processing.

2. GDPR is a good example of best practice in PII Management, but it is vital to understand the current local regulatory environment. Local existing laws and regulations take precedence unless subject to GDPR, and even then local laws may be stricter.
3. Use the OSIA API specification to understand the security organization of functional systems that might be needed and document an overall assessment of the PII privacy risk. Pay particular attention to sensitive data, and to the aggregation of PII.
4. Ensure that component suppliers understand and support the principles of good PII management, or GDPR. Most suppliers provide a description of how this is enforced in their products or systems. They may even provide a user manual and training for this function.
5. Document the design and lifecycle of data in the end-to-end system. The OSIA API Specification will help with this. It does not provide the full PII story, but it does provide the basis for the parts between components that the customer or its systems integrator will be responsible for.
6. Consider the Data Subject consent requirements, based on the functions that subject data will be subject to.
7. If the role is Data Controller, but not Data Processor then ensure that the organization used for Data Processing can understand and meet the guidelines for PII protection.
8. Remember that good planning and execution are essential, but it might be asked to prove correct operation. Systems logs and audit data should be available. This should include API usage to indicate where data has been transferred.

CHAPTER 4

OSIA Versions & Referencing

There will be a version for each interface. Each interface can be referenced in tenders as follows:

```
OSIA v. [version] - [interface name] v. [version number]
```

For instance below is the string to reference the *Notification* interface:

```
OSIA v. 2.0 - Notification v. 1.0.0
```

Below is the complete list of available interfaces with related versions:

OSIA Release	1.0.0	2.0.0	3.0.0	4.1.0	5.0.0
OSIA Release Date	mar-2019	jun-2019	nov-2019	jul-2020	dec-2020
Notification	.	1.0.0	1.0.0	1.1.0	1.2.0
UIN Management	1.0.0	1.0.0	1.0.0	1.1.0	1.2.0
Data Access	1.0.0	1.0.0	1.0.0	1.1.0	1.3.0
Enrollment Services	.	.	.	1.0.0	1.1.0
Population Registry Services	.	.	1.0.0	1.2.0	1.3.0
Biometrics Services	.	1.0.0	1.1.0	1.3.0	1.4.0
Credential Services	.	.	.	1.0.0	1.1.0
Relying Party Services	.	.	.		1.0.0

CHAPTER 5

Interfaces

The chapter below describes the specifications of all OSIA interfaces and related services.

5.1 Notification

See *Notification* for the technical details of this interface.

The subscription & notification process is managed by a middleware and is described in the following diagram:

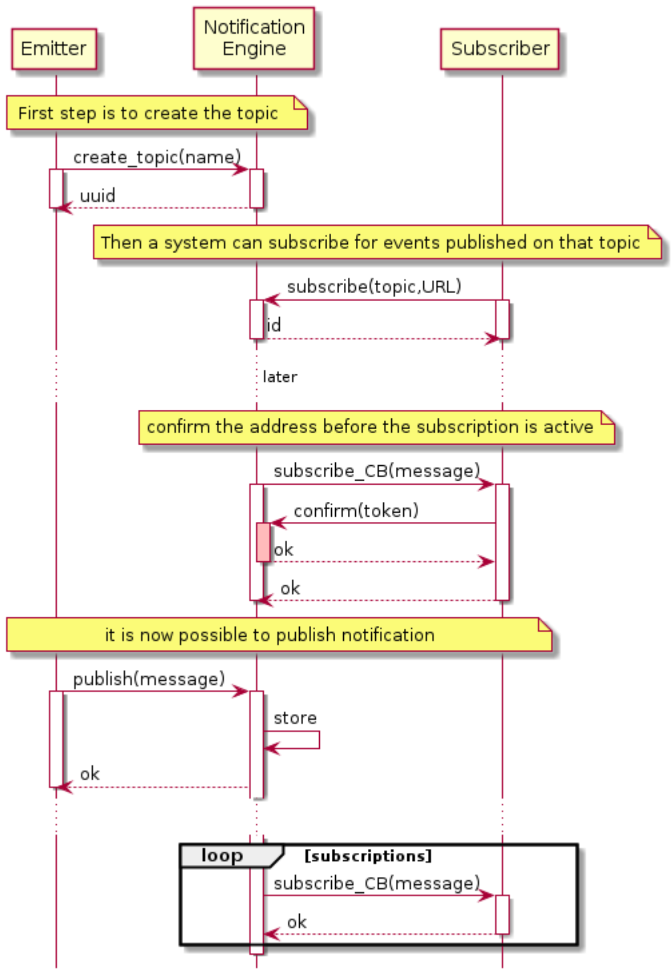

Emitter
Notification Engine
Subscriber
First step is to create the topic
create_topic(name)
uuid
Then a system can subscribe for events published on that topic
subscribe(topic,URL)
id
later
confirm the address before the subscription is active
subscribe_CB(message)
confirm(token)
ok
ok
it is now possible to publish notification
publish(message)
store
ok
loop
[subscriptions]
subscribe_CB(message)
ok

Fig. 5.1: Subscription & Notification Process

5.1.1 Services

For the Subscriber

`subscribe` (*topic*, *URL*)
Subscribe a URL to receive notifications sent to one topic

Authorization: `notif.sub.write`

Parameters

- **`topic`** (*`str`*) – Topic
- **`URL`** (*`str`*) – URL to be called when a notification is available

Returns a subscription ID

This service is synchronous.

`listSubscriptions` ()
Get all subscriptions

Authorization: `notif.sub.read`

Parameters **`URL`** (*`str`*) – URL to be called when a notification is available

Returns a subscription ID

This service is synchronous.

unsubscribe(*id*)
Unsubscribe a URL from the list of receiver for one topic

Authorization: `notif.sub.write`

Parameters **id** (*str*) – Subscription ID

Returns bool

This service is synchronous.

confirm(*token*)
Used to confirm that the URL used during the subscription is valid

Authorization: `notif.sub.write`

Parameters **token** (*str*) – A token send through the URL.

Returns bool

This service is synchronous.

For the Publisher

createTopic(*topic*)
Create a new topic. This is required before an event can be sent to it.

Authorization: `notif.topic.write`

Parameters **topic** (*str*) – Topic

Returns N/A

This service is synchronous.

listTopics()
Get the list of all existing topics.

Authorization: `notif.topic.read`

Returns N/A

This service is synchronous.

deleteTopic(*topic*)
Delete a topic.

Authorization: `notif.topic.write`

Parameters **topic** (*str*) – Topic

Returns N/A

This service is synchronous.

publish(*topic*, *subject*, *message*)
Notify of a new event all systems that subscribed to this topic

Authorization: `notif.topic.publish`

Parameters

- **topic** (*str*) – Topic
- **subject** (*str*) – The subject of the message
- **message** (*str*) – The message itself (a string buffer)

Returns N/A

This service is asynchronous (systems that subscribed on this topic are notified asynchronously).

5.1.2 Dictionaries

As an example, below there is a list of events that each component might handle.

Table 5.1: Event Type

Event Type	Emitted by CR	Emitted by PR
Live birth	✓	
Death	✓	
Fœtal Death	✓	
Marriage	✓	
Divorce	✓	
Annulment	✓	
Separation, judicial	✓	
Adoption	✓	
Legitimation	✓	
Recognition	✓	
Change of name	✓	
Change of gender	✓	
New person		✓
Duplicate person	✓	✓

5.2 Data Access

See *Data Access* for the technical details of this interface.

5.2.1 Services

`readPersonAttributes` (*UIN*, *names*)

Read person attributes.

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`UIN`** (`str`) – The person's UIN
- **`names`** (`list[str]`) – The names of the attributes requested

Returns a list of pair (name,value). In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

This service is synchronous. It can be used to retrieve attributes from CR or from PR.

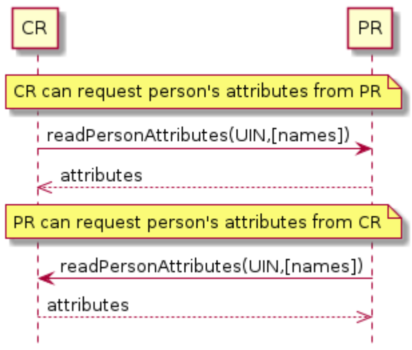

CR
PR
CR can request person's attributes from PR
readPersonAttributes(UIN,[names])
attributes
PR can request person's attributes from CR
readPersonAttributes(UIN,[names])
attributes

Fig. 5.2: `readPersonAttributes` Sequence Diagram

matchPersonAttributes(*UIN*, *attributes*)

Match person attributes. This service is used to check the value of attributes without exposing private data. The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.match` or `cr.person.match`

Parameters

- **UIN** (*str*) – The person's UIN
- **attributes** (*list[(str,str)]*) – The attributes to match. Each attribute is described with its name and the expected value

Returns If all attributes match, a *Yes* is returned. If one attribute does not match, a *No* is returned along with a list of (name,reason) for each non-matching attribute.

This service is synchronous. It can be used to match attributes in CR or in PR.

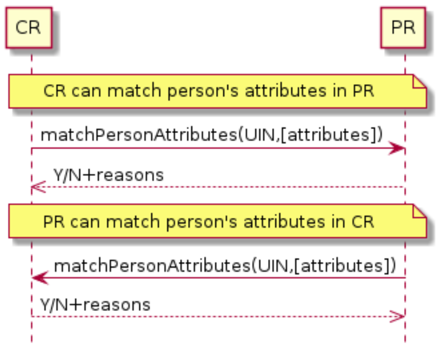

CR
PR
CR can match person's attributes in PR
matchPersonAttributes(UIN,[attributes])
Y/N+reasons
PR can match person's attributes in CR
matchPersonAttributes(UIN,[attributes])
Y/N+reasons

Fig. 5.3: `matchPersonAttributes` Sequence Diagram

verifyPersonAttributes(*UIN*, *expressions*)

Evaluate expressions on person attributes. This service is used to evaluate simple expressions on person's attributes without exposing private data The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.verify` or `cr.person.verify`

Parameters

- **UIN** (*str*) – The person's UIN
- **expressions** (*list[(str,str,str)]*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value

Returns A *Yes* if all expressions are true, a *No* if one expression is false, a *Unknown* if To be defined

This service is synchronous. It can be used to verify attributes in CR or in PR.

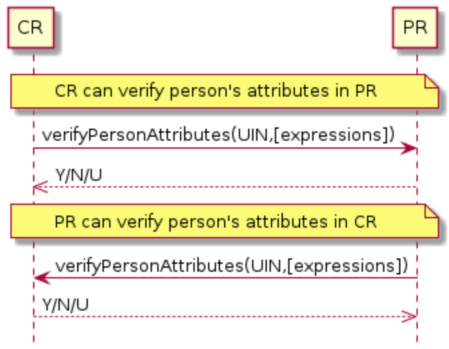

CR
PR
CR can verify person's attributes in PR
verifyPersonAttributes(UIN,[expressions])
Y/N/U
PR can verify person's attributes in CR
verifyPersonAttributes(UIN,[expressions])
Y/N/U

Fig. 5.4: `verifyPersonAttributes` Sequence Diagram

`queryPersonUIN` (*attributes*, *offset*, *limit*)

Query the persons by a set of attributes. This service is used when the UIN is unknown. The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – The attributes to be used to find UIN. Each attribute is described with its name and its value
- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `100`)

Returns a list of matching UIN

This service is synchronous. It can be used to get the UIN of a person.

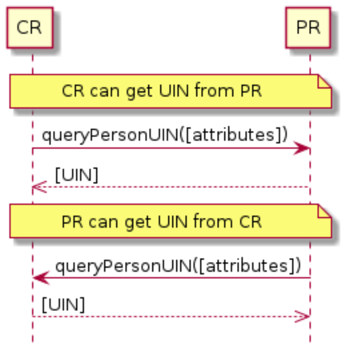


Fig. 5.5: `queryPersonUIN` Sequence Diagram

`queryPersonList` (*attributes*, *names*, *offset*, *limit*)

Query the persons by a list of attributes and their values. This service is proposed as an optimization of a sequence of calls to `queryPersonUIN()` and `readPersonAttributes()`.

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – The attributes to be used to find the persons. Each attribute is described with its name and its value

- **names** (*list[str]*) – The names of the attributes requested
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to `0`)
- **limit** (*int*) – The maximum number of items to return (optional, default to `100`)

Returns a list of lists of pairs (name,value). In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

This service is synchronous. It can be used to retrieve attributes from CR or from PR.

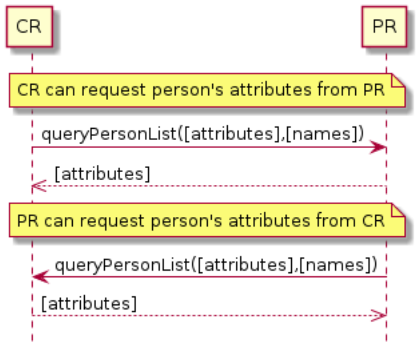

CR
PR
CR can request person's attributes from PR
queryPersonList([attributes],[names])
[attributes]
PR can request person's attributes from CR
queryPersonList([attributes],[names])
[attributes]

Fig. 5.6: `queryPersonList` Sequence Diagram

---

readDocument (*UINs*, *documentType*, *format*)

Read in a selected format (PDF, image, . . .) a document such as a marriage certificate.

Authorization: `pr.document.read` or `cr.document.read`

Parameters

- **UIN** (*list[str]*) – The list of UINs for the persons concerned by the document
- **documentType** (*str*) – The type of document (birth certificate, etc.)
- **format** (*str*) – The format of the returned/requested document

Returns The list of the requested documents

This service is synchronous. It can be used to get the documents for a person.

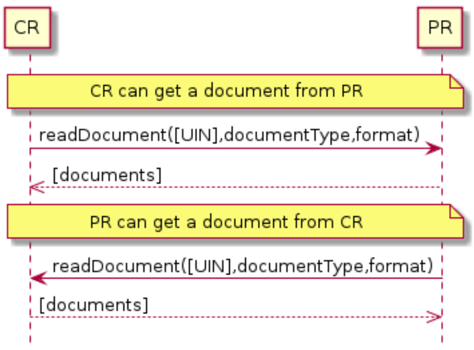

CR
PR
CR can get a document from PR
readDocument([UIN],documentType,format)
[documents]
PR can get a document from CR
readDocument([UIN],documentType,format)
[documents]

Fig. 5.7: `readDocument` Sequence Diagram

5.2.2 Dictionaries

As an example, below there is a list of attributes/documents that each component might handle.

Table 5.2: Person Attributes

Attribute Name	In CR	In PR	Description
UIN	✓	✓	
first name	✓	✓	
last name	✓	✓	
spouse name	✓	✓	
date of birth	✓	✓	
place of birth	✓	✓	
gender	✓	✓	
date of death	✓	✓	
place of death	✓		
reason of death	✓		
status		✓	Example: missing, wanted, dead, etc.

Table 5.3: Certificate Attributes

Attribute Name	In CR	In PR	Description
officer name	✓		
number	✓		
date	✓		
place	✓		
type	✓		

Table 5.4: Union Attributes

Attribute Name	In CR	In PR	Description
date of union	✓		
place of union	✓		
conjoint1 UIN	✓		
conjoint2 UIN	✓		
date of divorce	✓		

Table 5.5: Filiation Attributes

Attribute Name	In CR	In PR	Description
parent1 UIN	✓		
parent2 UIN	✓		

Table 5.6: Document Type

Document Type	Description
birth certificate	To be completed
death certificate	To be completed
marriage certificate	To be completed

5.3 UIN Management

See *UIN Management* for the technical details of this interface.

5.3.1 Services

`generateUIN` (*attributes*, *transactionID*)
    Generate a new UIN.

Authorization: `uin.generate`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – A list of pair (attribute name, value) that can be used to allocate a new UIN
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a new UIN or an error if the generation is not possible

This service is synchronous.

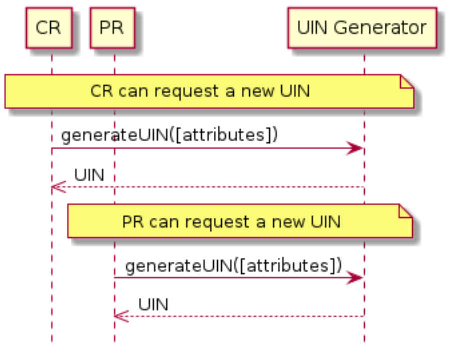


Fig. 5.8: `generateUIN` Sequence Diagram

5.4 Enrollment Services

This interface describes enrollment services in the context of an identity system. It is based on the following principles:

- When enrollment is done in one step, the CreateEnrollment can contain all the data and an additional flag (finalize) to indicate all data was collected.
- During the process, enrollment structure can be updated. Only the data that changed need to be transferred. Data not included is left unchanged on the server. In the following example, the biographic data is not changed.
- Images can be passed by value or reference. When passed by value, they are base64-encoded.
- Existing standards are used whenever possible, for instance preferred image format for biometric data is ISO-19794.

About documents

Adding one document or deleting one document implies that:

- The full document list is read (ReadEnrollment)
- The document list is altered locally to the enrollment client (add or delete)
- The full document list is sent back using the UpdateEnrollment service

5.4.1 Services

`createEnrollment` (*enrollmentID*, *enrollmentTypeId*, *enrollmentFlags*, *requestData*, *contextualData*, *biometricData*, *biographicData*, *documentData*, *finalize*, *transactionID*)

Insert a new enrollment.

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment. If the enrollment already exists for the ID an error is returned.
- **`enrollmentTypeId`** (*`str`*) – The enrollment type ID of the enrollment.
- **`enrollmentFlags`** (*`dict`*) – The enrollment custom flags.
- **`requestData`** (*`dict`*) – The enrollment data related to the enrollment itself.
- **`contextualData`** (*`dict`*) – Information about the context of the enrollment
- **`biometricData`** (*`list`*) – The enrollment biometric data.
- **`biographicData`** (*`dict`*) – The enrollment biographic data.
- **`documentData`** (*`list`*) – The enrollment biometric data.
- **`finalize`** (*`str`*) – Flag to indicate that data was collected.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`readEnrollment` (*enrollmentID*, *attributes*, *transactionID*)
Retrieve the attributes of an enrollment.

Authorization: `enroll.read`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment.
- **`attributes`** (*`set`*) – The (optional) set of required attributes to retrieve.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the enrollment data.

`updateEnrollment` (*enrollmentID*, *enrollmentTypeId*, *enrollmentFlags*, *requestData*, *contextualData*, *biometricData*, *biographicData*, *documentData*, *finalize*, *transactionID*)
Update an enrollment.

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment. If the enrollment already exists for the ID an error is returned.
- **`enrollmentTypeId`** (*`str`*) – The enrollment type ID of the enrollment.
- **`enrollmentFlags`** (*`dict`*) – The enrollment custom flags.
- **`requestData`** (*`dict`*) – The enrollment data related to the enrollment itself.
- **`contextualData`** (*`dict`*) – Information about the context of the enrollment
- **`biometricData`** (*`list`*) – The enrollment biometric data, this can be partial data.
- **`biographicData`** (*`dict`*) – The enrollment biographic data.
- **`documentData`** (*`list`*) – The enrollment biometric data, this can be partial data.
- **`finalize`** (*`str`*) – Flag to indicate that data was collected.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

partialupdateEnrollment (*enrollmentID*, *enrollmentTypeId*, *enrollmentFlags*, *requestData*, *contextualData*, *biometricData*, *biographicData*, *documentData*, *finalize*, *transactionID*)

Update part of an enrollment. Not all attributes are mandatory. The payload is defined as per **RFC 7396**.

Authorization: `enroll.write`

Parameters

- **enrollmentID** (*str*) – The ID of the enrollment. If the enrollment already exists for the ID an error is returned.
- **enrollmentTypeId** (*str*) – The enrollment type ID of the enrollment.
- **enrollmentFlags** (*dict*) – The enrollment custom flags.
- **requestData** (*dict*) – The enrollment data related to the enrollment itself.
- **contextualData** (*dict*) – Information about the context of the enrollment
- **biometricData** (*list*) – The enrollment biometric data, this can be partial data.
- **biographicData** (*dict*) – The enrollment biographic data.
- **documentData** (*list*) – The enrollment biometric data, this can be partial data.
- **finalize** (*str*) – Flag to indicate that data was collected.
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error.

finalizeEnrollment (*enrollmentID*, *transactionID*)

When all the enrollment steps are done, the enrollment client indicates to the enrollment server that all data has been collected and that any further processing can be triggered.

Authorization: `enroll.write`

Parameters

- **enrollmentID** (*str*) – The ID of the enrollment.
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error.

deleteEnrollment (*enrollmentID*, *transactionID*)

Deletes the enrollment

Authorization: `enroll.write`

Parameters

- **enrollmentID** (*str*) – The ID of the enrollment.
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error.

findEnrollments (*expressions*, *offset*, *limit*, *transactionID*)

Retrieve a list of enrollments which match passed in search criteria.

Authorization: `enroll.read`

Parameters

- **expressions** (*list[(str,str,str)]*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to `0`)
- **limit** (*int*) – The maximum number of items to return (optional, default to `100`)

- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the matching enrollment list.

createBuffer (*enrollmentId*, *data*, *digest*)

This service is used to send separately the buffers of the images. Buffers can be sent any time from the enrollment client prior to the create or update.

Authorization: `enroll.buf.write`

Parameters

- **enrollmentID** (*str*) – The ID of the enrollment.
- **data** (*image*) – The buffer data.
- **transactionID** (*string*) – The client generated transactionID.
- **digest** (*string*) – The digest (hash) of the buffer used by the server to check the integrity of the data received.

Returns a status indicating success or error and in case of success the buffer ID.

readBuffer (*enrollmentId*, *bufferId*)

This service is used to get the data of a buffer.

Authorization: `enroll.buf.read`

Parameters

- **enrollmentID** (*str*) – The ID of the enrollment.
- **bufferID** (*str*) – The ID of the buffer.
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the data of the buffer and a digest.

5.4.2 Attributes

The “attributes” parameter used in “read” calls is used to provide a set of identifiers that limit the amount of data that is returned. It is often the case that the whole data set is not required, but instead, a subset of that data. Where possible, existing standards based identifiers should be used for the attributes to retrieve.

E.g. For surname/familyname, use OID 2.5.4.4 or id-at-surname.

Some calls may require new attributes to be defined. E.g. when retrieving biometric data, the caller may only want the meta data about that biometric, rather than the actual biometric data.

5.4.3 Transaction ID

The `transactionID` is a string provided by the client application to identity the request being submitted. It can be used for tracing and debugging.

5.4.4 Data Model

Table 5.7: Enrolment Data Model

Type	Description	Example
Enrollment	Set of person data which are captured.	TBD
Document Data	The document data of the enrollment.	TBD
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Biographic Data	a dictionary (list of names and values) giving the biographic data of interest for the biometric services.	TBD
Enrollment Flags	a dictionary (list of names and values) for custom flags.	TBD
Request Data	a dictionary (list of names and values) for data related to the enrollment itself (the operator, the station, the data, etc.).	TBD
Contextual Data	A dictionary (list of names and values) attached to the context of establishing the identity	`operatorName`, `enrollmentDate`, etc.
Attributes	a dictionary (list of names and values or *range* of values) describing the attributes to return. Attributes can apply on biographic data, document data, request data, or enrollment flag data.	TBD
Expressions	Each expression is described with the attribute's name, the operator (one of $<$, $>$, $=$, $>=$, $<=$, $!=$) and the attribute value	TBD

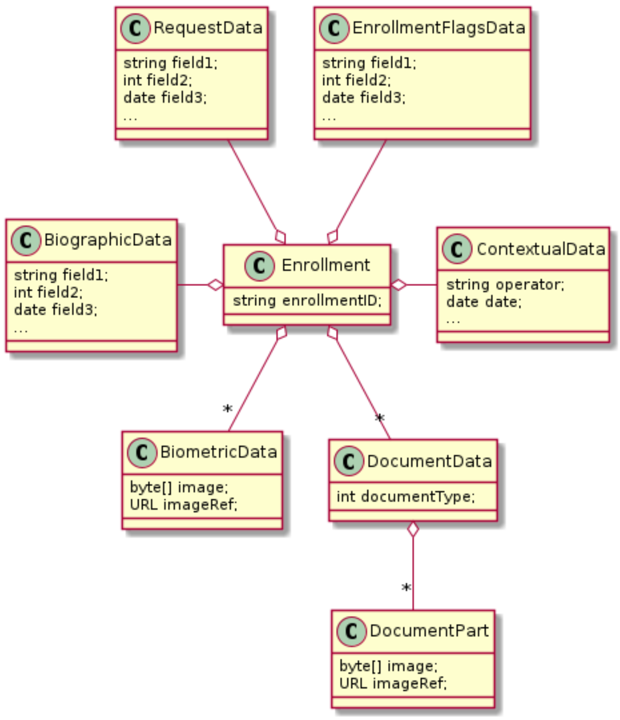


Fig. 5.9: Enrollment Data Model

5.5 Population Registry Services

This interface describes services to manage a registry of the population in the context of an identity system. It is based on the following principles:

- It supports a history of identities, meaning that a person has one identity and this identity has a history.
- Images can be passed by value or reference. When passed by value, they are base64-encoded.
- Existing standards are used whenever possible.
- This interface is complementary to the data access interface. The data access interface is used to query the persons and uses the reference identity to return attributes.
- The population registry can store the biometric data or can rely on the ABIS subsystem to do it. The preferred solution, for a clean separation of data of different nature and by application of GDPR principles, is to put the biometric data only in the ABIS. Yet many existing systems store biometric data with the biographic data and this specification gives the flexibility to do it.

See *Population Registry Management* for the technical details of this interface.

5.5.1 Services

`findPersons` (*expressions*, *group*, *reference*, *gallery*, *offset*, *limit*, *transactionID*)
Retrieve a list of persons which match passed in search criteria.

Authorization: `pr.person.read`

Parameters

- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value
- **`group`** (*`bool`*) – Group the results per person and return only personID

- **reference** (*bool*) – Limit the query to the reference identities
- **gallery** (*string*) – A gallery ID used to limit the search
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to `0`)
- **limit** (*int*) – The maximum number of items to return (optional, default to `100`)
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the matching person list.

createPerson (*personID*, *personData*, *transactionID*)
Create a new person.

Authorization: `pr.person.write`

Parameters

- **personID** (*str*) – The ID of the person. If the person already exists for the ID an error is returned.
- **personData** – The person attributes.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

readPerson (*personID*, *transactionID*)
Read the attributes of a person.

Authorization: `pr.person.read`

Parameters

- **personID** (*str*) – The ID of the person.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error and in case of success the person data.

updatePerson (*personID*, *personData*, *transactionID*)
Update a person.

Authorization: `pr.person.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **personData** (*dict*) – The person data.

Returns a status indicating success or error.

deletePerson (*personID*, *transactionID*)
Delete a person and all its identities.

Authorization: `pr.person.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

mergePerson (*personID1*, *personID2*, *transactionID*)
Merge two person records into a single one. Identity ID are preserved and in case of duplicates an error is returned and no changes are done. The reference identity is not changed.

Authorization: `pr.person.write`

Parameters

- **personID1** (*str*) – The ID of the person that will receive new identities
- **personID2** (*str*) – The ID of the person that will give its identities. It will be deleted if the move of all identities is successful.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

---

createIdentity (*personID*, *identityID*, *identity*, *transactionID*)
Create a new identity in a person. If no identityID is provided, a new one is generated. If identityID is provided, it is checked for uniqueness and used for the identity if unique. An error is returned if the provided identityID is not unique.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **identity** – The new identity data.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

readIdentity (*personID*, *identityID*, *transactionID*)
Read one or all the identities of one person.

Authorization: `pr.identity.read`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity. If not provided, all identities are returned.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error, and in case of success a list of identities.

updateIdentity (*personID*, *identityID*, *identity*, *transactionID*)
Update an identity. An identity can be updated only in the status `claimed`.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **identity** – The identity data.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

`partialUpdateIdentity` (*personID*, *identityID*, *identity*, *transactionID*)
Update part of an identity. Not all attributes are mandatory. The payload is defined as per **RFC 7396**. An identity can be updated only in the status `claimed`.

Authorization: `pr.identity.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`identityID`** (*`str`*) – The ID of the identity.
- **`identity`** – Part of the identity data.

Returns a status indicating success or error.

`deleteIdentity` (*personID*, *identityID*, *transactionID*)
Delete an identity.

Authorization: `pr.identity.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`identityID`** (*`str`*) – The ID of the identity.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

`setIdentityStatus` (*personID*, *identityID*, *status*, *transactionID*)
Set an identity status.

Authorization: `pr.identity.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`identityID`** (*`str`*) – The ID of the identity.
- **`status`** (*`str`*) – The new status of the identity.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

`defineReference` (*personID*, *identityID*, *transactionID*)
Define the reference identity of one person.

Authorization: `pr.reference.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`identityID`** (*`str`*) – The ID of the identity being now the reference.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

`readReference` (*personID*, *transactionID*)
Read the reference identity of one person.

Authorization: `pr.reference.read`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error and in case of success the reference identity.

`readGalleries` (*transactionID*)
Read the ID of all the galleries.

Authorization: `pr.gallery.read`

Parameters **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error, and in case of success a list of gallery ID.

`readGalleryContent` (*galleryID*, *transactionID*, *offset*, *limit*)
Read the content of one gallery, i.e. the IDs of all the records linked to this gallery.

Authorization: `pr.gallery.read`

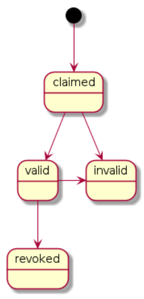
Parameters

- **`galleryID`** (*`str`*) – Gallery whose content will be returned.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `1000`)

Returns a status indicating success or error. In case of success a list of person/identity IDs.

5.5.2 Data Model

Table 5.8: Population Registry Data Model

Type	Description	Example
Gallery	A group of persons related by a common purpose, designation, or status. A person can belong to multiple galleries.	`VIP`, `Wanted`, etc.
Person	Person who is known to an identity assurance system. A person record has: • a status, such as `active` or `inactive`, defining the status of the record (the record can be excluded from queries based on this status), • a physical status, such as `alive` or `dead`, defining the status of the person, • a set of identities, keeping track of all identity data submitted by the person during the life of the system, • a reference identity, i.e. a consolidated view of all the identities defining the current correct identity of the person. It corresponds usually to the last valid identity but it can also include data from previous identities.	N/A
Identity	The attributes describing an identity of a person. An identity has a status such as: `claimed` (identity not yet validated), `valid` (the identity is valid), `invalid` (the identity is confirmed as not valid), `revoked` (the identity cannot be used any longer). An identity can be updated only in the status `claimed`. The proposed transitions for the status are represented below. It can be adapted if needed.  The attributes are separated into two categories: the biographic data and the contextual data.	N/A
Biographic Data	A dictionary (list of names and values) giving the biographic data of the identity	`firstName`, `lastName`, `dateOfBirth`, etc.
Contextual Data	A dictionary (list of names and values) attached to the context of establishing the identity	`operatorName`, `enrollmentDate`, etc.
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Document	The document data (images) attached to the identity and used to validate it.	Birth certificate, invoice

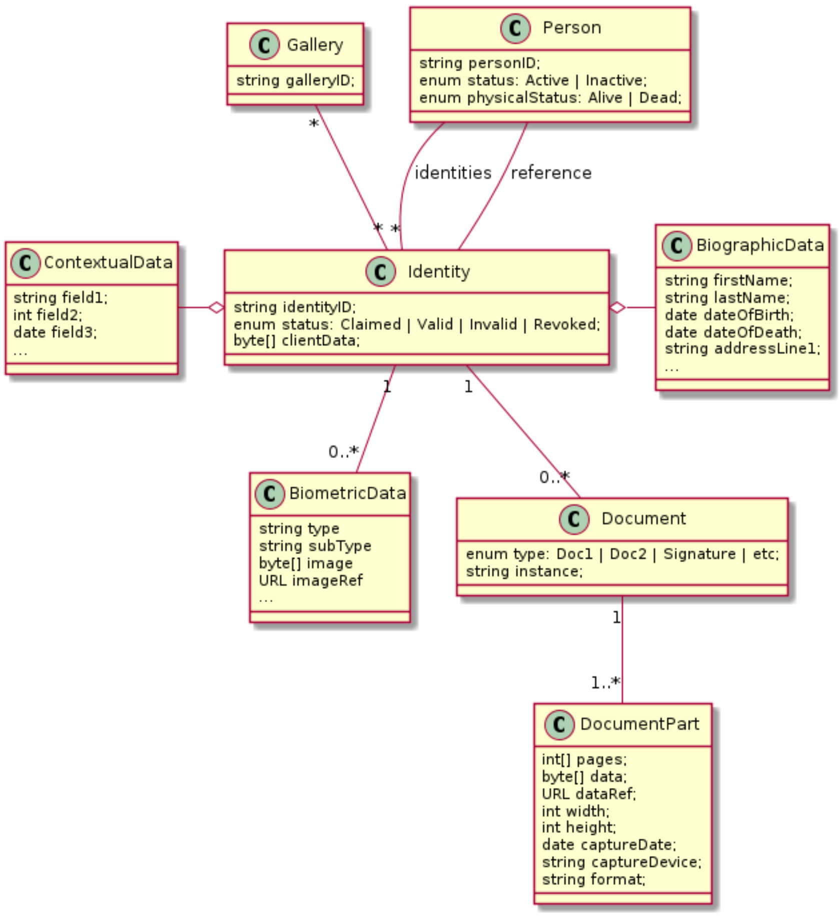


Fig. 5.10: Population Registry Data Model

5.6 Biometrics

This interface describes biometric services in the context of an identity system. It is based on the following principles:

- It supports only multi-encounter model, meaning that an identity can have multiple set of biometric data, one for each encounter.
- It does not expose templates (only images) for CRUD services, with one exception to support the use case of credentials with biometrics.
- Images can be passed by value or reference. When passed by value, they are base64-encoded.
- Existing standards are used whenever possible, for instance preferred image format for biometric data is ISO-19794.

About synchronous and asynchronous processing

Some services can be very slow depending on the algorithm used, the system workload, etc. Services are described so that:

- If possible, the answer is provided synchronously in the response of the service.
- If not possible for some reason, a status *PENDING* is returned and the answer, when available, is pushed to a callback provided by the client.

If no callback is provided, this indicates that the client wants a synchronous answer, whatever the time it takes.

If a callback is provided, this indicates that the client wants an asynchronous answer, even if the result is immediately available.

See *Biometrics* for the technical details of this interface.

5.6.1 Services

`createEncounter` (*personID*, *encounterID*, *galleryID*, *biographicData*, *contextualData*, *biometricData*, *clientData*, *callback*, *transactionID*, *options*)

Create a new encounter. No identify is performed.

Authorization: `abis.encounter.write`

Parameters

- **`personID`** (*`str`*) – The person ID. This is optional and will be generated if not provided
- **`encounterID`** (*`str`*) – The encounter ID. This is optional and will be generated if not provided
- **`galleryID`** (*`list (str)`*) – the gallery ID to which this encounter belongs. A minimum of one gallery must be provided
- **`biographicData`** (*`dict`*) – The biographic data (ex: name, date of birth, gender, etc.)
- **`contextualData`** (*`dict`*) – The contextual data (ex: encounter date, location, etc.)
- **`biometricData`** (*`list`*) – the biometric data (images)
- **`clientData`** (*`bytes`*) – additional data not interpreted by the server but stored as is and returned when encounter data is requested.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `algorithm`.

Returns a status indicating success, error, or pending operation. In case of success, the person ID and the encounter ID are returned. In case of pending operation, the result will be sent later.

`readEncounter` (*personID*, *encounterID*, *callback*, *transactionID*, *options*)

Read the data of an encounter.

Authorization: `abis.encounter.read`

Parameters

- **`personID`** (*`str`*) – The person ID
- **`encounterID`** (*`str`*) – The encounter ID. This is optional. If not provided, all the encounters of the person are returned.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of success, the encounter data is returned. In case of pending operation, the result will be sent later.

updateEncounter (*personID*, *encounterID*, *galleryID*, *biographicData*, *contextualData*, *biometricData*, *callback*, *transactionID*, *options*)

Update an encounter.

Authorization: `abis.encounter.write`

Parameters

- **personID** (*str*) – The person ID
- **encounterID** (*str*) – The encounter ID
- **galleryID** (*list (str)*) – the gallery ID to which this encounter belongs. A minimum of one gallery must be provided
- **biographicData** (*dict*) – The biographic data (ex: name, date of birth, gender, etc.)
- **contextualData** (*dict*) – The contextual data (ex: encounter date, location, etc.)
- **biometricData** (*list*) – the biometric data (images)
- **clientData** (*bytes*) – additional data not interpreted by the server but stored as is and returned when encounter data is requested.
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **options** (*dict*) – the processing options. Supported options are `priority`, `algorithm`.

Returns a status indicating success, error, or pending operation. In case of success, the person ID and the encounter ID are returned. In case of pending operation, the result will be sent later.

deleteEncounter (*personID*, *encounterID*, *callback*, *transactionID*, *options*)

Delete an encounter.

Authorization: `abis.encounter.write`

Parameters

- **personID** (*str*) – The person ID
- **encounterID** (*str*) – The encounter ID. This is optional. If not provided, all the encounters of the person are deleted.
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **options** (*dict*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of pending operation, the operation status will be sent later.

mergeEncounter (*personID1*, *personID2*, *callback*, *transactionID*, *options*)

Merge two sets of encounters into a single set. Merging a set of *N* encounters with a set of *M* encounters will result in a single set of *N*+*M* encounters. Encounter ID are preserved and in case of duplicates an error is returned and no changes are done.

Authorization: `abis.encounter.write`

Parameters

- **personID1** (*str*) – The ID of the person that will receive new encounters
- **personID2** (*str*) – The ID of the person that will give its encounters

- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of pending operation, the result will be sent later.

`readTemplate` (*personID*, *encounterID*, *biometricType*, *biometricSubType*, *templateFormat*, *qualityFormat*, *callback*, *transactionID*, *options*)

Read the generated template.

Authorization: `abis.encounter.read`

Parameters

- **`personID`** (*`str`*) – The person ID
- **`encounterID`** (*`str`*) – The encounter ID.
- **`biometricType`** (*`str`*) – The type of biometrics to consider (optional)
- **`biometricSubType`** (*`str`*) – The subtype of biometrics to consider (optional)
- **`templateFormat`** (*`str`*) – the format of the template to return (optional)
- **`qualityFormat`** (*`str`*) – the format of the quality to return (optional)
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of success, a list of template data is returned. In case of pending operation, the result will be sent later.

`setEncounterStatus` (*personID*, *encounterID*, *status*, *transactionID*)

Set an encounter status.

Authorization: `abis.encounter.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`encounterID`** (*`str`*) – The encounter ID.
- **`status`** (*`str`*) – The new status of the encounter.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

`readGalleries` (*callback*, *transactionID*, *options*)

Read the ID of all the galleries.

Authorization: `abis.gallery.read`

Parameters

- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. A list of gallery ID is returned, either synchronously or using the callback.

readGalleryContent (*galleryID*, *callback*, *transactionID*, *offset*, *limit*, *options*)
Read the content of one gallery, i.e. the IDs of all the records linked to this gallery.

Authorization: `abis.gallery.read`

Parameters

- **galleryID** (*str*) – Gallery whose content will be returned.
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to `0`)
- **limit** (*int*) – The maximum number of items to return (optional, default to `1000`)
- **options** (*dict*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. A list of persons/encounters is returned, either synchronously or using the callback.

---

identify (*galleryID*, *filter*, *biometricData*, *callback*, *transactionID*, *options*)
Identify a person using biometrics data and filters on biographic or contextual data. This may include multiple operations, including manual operations.

Authorization: `abis.identify`

Parameters

- **galleryID** (*str*) – Search only in this gallery.
- **filter** (*dict*) – The input data (filters and biometric data)
- **biometricData** – the biometric data.
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **options** (*dict*) – the processing options. Supported options are `priority`, `maxNbCand`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A list of candidates is returned, either synchronously or using the callback.

identify (*galleryID*, *filter*, *personID*, *callback*, *transactionID*, *options*)
Identify a person using biometrics data of a person existing in the system and filters on biographic or contextual data. This may include multiple operations, including manual operations.

Authorization: `abis.verify`

Parameters

- **galleryID** (*str*) – Search only in this gallery.
- **filter** (*dict*) – The input data (filters and biometric data)
- **personID** – the person ID
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `maxNbCand`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A list of candidates is returned, either synchronously or using the callback.

`verify` (*galleryID*, *personID*, *biometricData*, *callback*, *transactionID*, *options*)
Verify an identity using biometrics data.

Authorization: To be defined

Parameters

- **`galleryID`** (*`str`*) – Search only in this gallery. If the person does not belong to this gallery, an error is returned.
- **`personID`** (*`str`*) – The person ID
- **`biometricData`** – The biometric data
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A status (boolean) is returned, either synchronously or using the callback. Optionally, details about the matching result can be provided like the score per biometric and per encounter.

`verify` (*biometricData1*, *biometricData2*, *callback*, *transactionID*, *options*)
Verify that two sets of biometrics data correspond to the same person.

Authorization: To be defined

Parameters

- **`biometricData1`** – The first set of biometric data
- **`biometricData2`** – The second set of biometric data
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A status (boolean) is returned, either synchronously or using the callback. Optionally, details about the matching result can be provided like the score per the biometric.

5.6.2 Options

Table 5.9: Biometric Services Options

Name	Description
`priority`	Priority of the request. Values range from `0` to `9`. `0` indicates the lowest priority, `9` indicates the highest priority.
`maxNbCand`	The maximum number of candidates to return.
`threshold`	The threshold to apply on the score to filter the candidates during an identification, authentication or verification.
`algorithm`	Specify the type of algorithm to be used.
`accuracyLevel`	Specify the accuracy expected of the request. This is to support different use cases, when different behavior of the ABIS is expected (response time, accuracy, consolidation/fusion, etc.).

5.6.3 Data Model

Table 5.10: Biometric Data Model

Type	Description	Example
Gallery	A group of persons related by a common purpose, designation, or status. A person can belong to multiple galleries.	TBD
Person	Person who is known to an identity assurance system.	TBD
Encounter	Event in which the client application interacts with a person resulting in data being collected during or about the encounter. An encounter is characterized by an *identifier* and a *type* (also called *purpose* in some context). An encounter has a status indicating if this encounter is used in the biometric searches. Allowed values are `active` or `inactive`.	TBD
Biographic Data	a dictionary (list of names and values) giving the biographic data of interest for the biometric services.	TBD
Filters	a dictionary (list of names and values or *range* of values) describing the filters during a search. Filters can apply on biographic data, contextual data or encounter type.	TBD
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Candidate	Information about a candidate found during an identification	TBD
CandidateScore	Detailed information about a candidate found during an identification. It includes the score for the biometrics used. It can also be extended with proprietary information to better describe the matching result (for instance: rotation needed to align the probe and the candidate)	TBD
Template	A computed buffer corresponding to a biometric and allowing the comparison of biometrics. A template has a format that can be a standard format or a vendor-specific format.	N/A

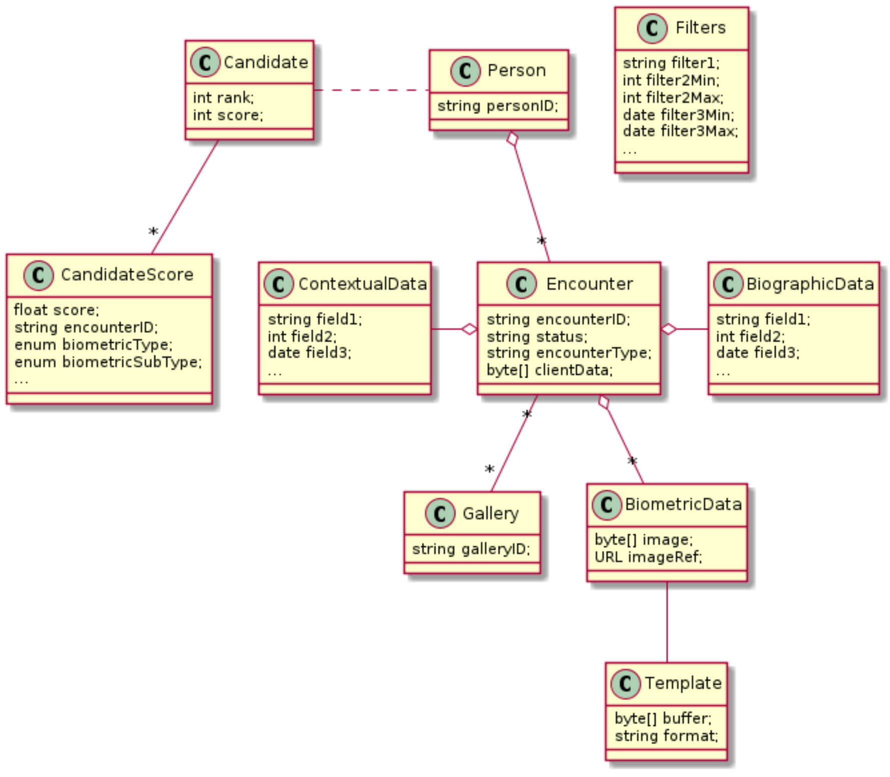


Fig. 5.11: Biometric Data Model

5.7 Credential Services

This interface describes services to manage credentials and credential requests in the context of an identity system.

5.7.1 Services

`createCredentialRequest` (*personID*, *credentialProfileID*, *additionalData*, *transactionID*)
Request issuance of a secure credential.

Authorization: `cms.request.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`credentialProfileID`** (*`str`*) – The ID of the credential profile to issue to the person.
- **`additionalData`** (*`dict`*) – Additional data relating to the requested credential profile, e.g. credential lifetime if overriding default, delivery addresses, etc.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error. In the case of success, a credential request identifier.

`readCredentialRequest` (*credentialRequestID*, *attributes*, *transactionID*)
Retrieve the data/status of a credential request.

Authorization: `cms.request.read`

Parameters

- **`credentialRequestID`** (*`str`*) – The ID of the credential request.

- **`attributes`** (*`set`*) – The (optional) set of required attributes to retrieve.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error, and in case of success the issuance data/status.

`updateCredentialRequest` (*credentialRequestID*, *additionalData*, *transactionID*)
Update the requested issuance of a secure credential.

Authorization: `cms.request.write`

Parameters

- **`credentialRequestID`** (*`str`*) – The ID of the credential request.
- **`transactionID`** (*`string`*) – The client generated transactionID.
- **`additionalData`** (*`dict`*) – Additional data relating to the requested credential profile, e.g. credential lifetime if overriding default, delivery addresses, etc.

Returns a status indicating success or error.

`deleteCredentialRequest` (*credentialRequestID*, *transactionID*)
Delete/cancel the requested issuance of a secure credential.

Authorization: `cms.request.write`

Parameters

- **`credentialRequestID`** (*`str`*) – The ID of the credential request.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`findCredentials` (*expressions*, *transactionID*)
Retrieve a list of credentials that match the passed in search criteria.

Authorization: `cms.credential.read`

Parameters

- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error, in the case of success the list of matching credentials.

`readCredential` (*credentialID*, *attributes*, *transactionID*)
Retrieve the attributes/status of an issued credential. A wide range of information may be returned, dependant on the type of credential that was issued, smart card, mobile, passport, etc.

Authorization: `cms.credential.read`

Parameters

- **`credentialID`** (*`str`*) – The ID of the credential.
- **`attributes`** (*`set`*) – The (optional) set of required attributes to retrieve.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error, in the case of success the requested data will be returned.

suspendCredential (*credentialID*, *additionalData*, *transactionID*)
Suspend an issued credential. For electronic credentials this will suspend any PKI certificates that are present.

Authorization: `cms.credential.write`

Parameters

- **credentialID** (*str*) – The ID of the credential.
- **additionalData** (*dict*) – Additional data relating to the request, e.g. reason for suspension.
- **transactionID** (*string*) – The (optional) client generated transactionID.

Returns a status indicating success or error.

unsuspendCredential (*credentialID*, *additionalData*, *transactionID*)
Unsuspend an issued credential. For electronic credentials this will unsuspend any PKI certificates that are present.

Authorization: `cms.credential.write`

Parameters

- **credentialID** (*str*) – The ID of the credential.
- **additionalData** (*dict*) – Additional data relating to the request, e.g. reason for unsuspension.
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error.

revokeCredential (*credentialID*, *additionalData*, *transactionID*)
Revoke an issued credential. For electronic credentials this will revoke any PKI certificates that are present.

Authorization: `cms.credential.write`

Parameters

- **credentialID** (*str*) – The ID of the credential.
- **additionalData** (*dict*) – Additional data relating to the request, e.g. reason for revocation.
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error.

setCredentialStatus (*credentialID*, *status*, *reason*, *requester*, *comment*, *transactionID*)
Change the status of a credential. This is an extension of the revoke/suspend services, supporting more statuses and transitions.

Authorization: `cms.credential.write`

Parameters

- **credentialID** (*str*) – The ID of the credential.
- **status** (*string*) – The new status of the credential
- **reason** (*string*) – A text describing the cause of the change of status
- **requester** (*string*) – The client generated transactionID.
- **comment** (*string*) – A free text comment
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error.

findCredentialProfiles(*expressions*, *transactionID*)
Retrieve a list of credential profils that match the passed in search criteria

Authorization: `cms.profile.read`

Parameters

- **expressions** (*list[(str,str,str)]*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=, ! =) and the attribute value
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error, and in case of success the matching credential profile list.

5.7.2 Attributes

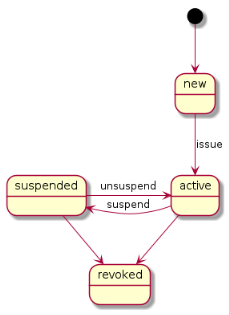
The "attributes" parameter used in "read" calls is used to provide a set of identifiers that limit the amount of data that is returned. It is often the case that the whole data set is not required, but instead, a subset of that data. @@ -128,7 +128,7 @@ attributes to retrieve.

E.g. For surname/familyname, use OID 2.5.4.4 or id-at-surname.

Some calls may require new attributes to be defined. E.g. when retrieving biometric data, the caller may only want the meta data about that biometric, rather than the actual biometric data.

5.7.3 Data Model

Table 5.11: Credential Data Model

Type	Description	Example
Credential	The attributes of the credential itself The proposed transitions for the status are represented below. It can be adapted if needed.  new issue suspended unsuspend suspend active revoked	ID, status, dates, serial number
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Biographic Data	a dictionary (list of names and values) giving the biographic data of interest for the biometric services.	first name, last name, date of birth, etc.
Request Data	a dictionary (list of names and values) for data related to the request itself.	Type of credential, action to execute, priority

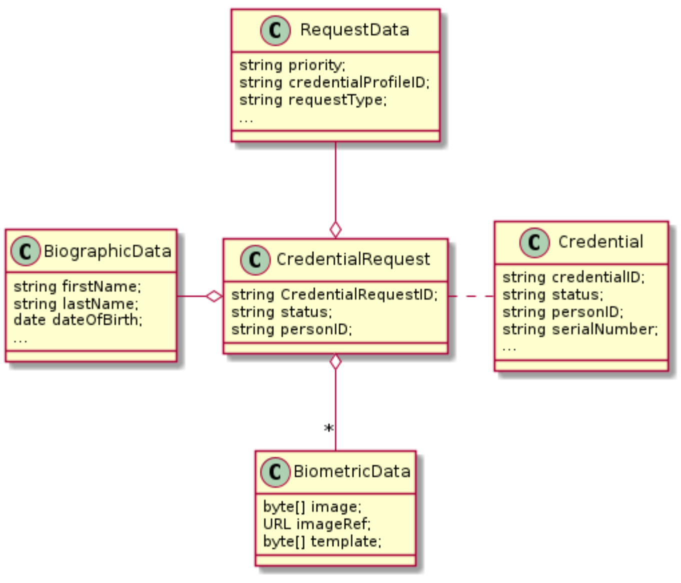


Fig. 5.12: Credential Data Model

5.8 ID Usage

ID Usage consists of a set of services implemented on top of identity systems to favour third parties consumption of identity data. The services can be classified in three sets:

- Relying Party API: submitting citizen ID attributes for validation

  The purpose of the Relying Party (RP) API is to extend the use of government-issued identity to registered third party services. The individual will submit their ID attributes to the relying party in order to enroll for, or access, a particular service. The relying party will leverage the RP API to access the identity management system and verify the individual's identity. In this way, external relying parties can quickly and easily verify individuals based on their government issued ID attributes.

  Use case applications: telco enrolment

  The RP API enables a telco operator to check an individual's identity when applying for a service contract. The telco relies on the government to confirm that the attributes submitted by the individual match against the data held in the database therefore being able to confidently identify the new subscriber. This scenario can be replicated across multiple sectors including banking and finance.

- Digital Credential Management API: delegating digital issuance to third parties

  The purpose of the Digital Credential Management (DCM) API is to enable external wallet providers to manage government issued digital credentials distribution, storage and usage.

  Use case applications: digital driver license

  The DCM API enables individuals to request a digital driver license as a digital credential in their selected wallet to use for online and offline identification. The user initiates a request for digital driver license using the Digital Credential Distribution System (DCDS) frontend, which sends the request to the identity management system. The Credential Management System (CMS) then issues the digital credential by dedicated API endpoint of the DCDS.

- Federation API: user-initiated attributes sharing

The purpose of the federation API is to enable the user to share their attributes with a chosen relying party using well-known internet protocol: OpenID Connect. The relying party benefits from the government's verified attributes.

Use case applications: on-line registration to gambling website

The Federation API enables individuals to log-in with their government credential (log-in/password) and share verified attributes ex. age (above 18) with the relying party.

5.8.1 Relying Party API

`verifyIdentity` (*Identifier*, *attributeSet*)

Verify an Identity based on an identifier (UIN, token…) and a set of Identity Attributes. Verification is strictly matching all provided identity attributes to compute the global Boolean matching result.

Authorization: *id.verify*

Parameters

- **`Identifier`** (*`str`*) – The person's Identifier
- **`attributeSet`** (*`list[str]`*) – A set of identity attributes associated to the identifier and to be verified by the system

Returns Y or N

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

`identify` (*attributeSet*, *outputAttributeSet*)

Identify possibly matching identities against an input set of attributes. Returns an array of predefined datasets as described by outputAttributeSet.

Note: This service may be limited to some specific government RPs

Authorization: *id.identify*

Parameters

- **`attributeSet`** (*`list[str]`*) – A list of pair (name,value) requested
- **`outputAttributeSet`** (*`list[str]`*) – An array of attributes requested

Returns Y or N

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

`readAttributes` (*Identifier*, *outputAttributeSet*)

Get a list of identity attributes attached to a given identifier.

Authorization: *id.read*

Parameters

- **`Identifier`** (*`str`*) – The person's Identifier
- **`outputAttributeSet`** (*`list[str]`*) – defining the identity attributes to be provided back to the caller

Returns An array of the requested attributes

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

`readAttributeSet` (*Identifier*, *AttributeSetName*)

Get a set of identity attributes as defined by attributeSet, attached to a given identifier.

Authorization: *id.set.read*

Parameters

- **`Identifier`** (*`str`*) – The person's Identifier
- **`attributeSetName`** (*`str`*) – The name of predefined attributes set name

Returns An array of the requested attributes

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

5.8.2 Attribute set

When identity attributes are exchanged, they are included in an attribute set, possibly containing groups like biographic data, biometric data, document data, contact data… This structure is extensible and may be complemented with other data groups, and each group may contain any number of attribute name / attribute value pairs.

5.8.3 Attribute set name

Attribute sets are by definition structures with variable and optional content, hence it may be useful to pre-agree on a given attribute set content and name between two or more systems in a given project scope.

Any string may be used to define an attribute set name, but in the scope of this specification following names are reserved and predefined:

"DEFAULT_SET_01"	Minimum demographic data	First name Last name DoB Place of birth
"DEFAULT_SET_02"	Minimum demographic and portrait	Minimum demographic data + portrait
"DEFAULT_SET_EIDAS"	Set expected to comply with eIDAS pivotal attributes.	TBD

5.8.4 Output Attribute set

To specify what identity attributes are expected in return when performing e.g. an identify request or a read attributes.

CHAPTER 6

Components

This chapter describes for each component the interfaces that it MAY implement.

6.1 Enrollment Component

The enrollment component MAY implement the following interfaces:

6.1.1 Enrollment Services

This interface describes enrollment services in the context of an identity system. It is based on the following principles:

- When enrollment is done in one step, the CreateEnrollment can contain all the data and an additional flag (finalize) to indicate all data was collected.
- During the process, enrollment structure can be updated. Only the data that changed need to be transferred. Data not included is left unchanged on the server. In the following example, the biographic data is not changed.
- Images can be passed by value or reference. When passed by value, they are base64-encoded.
- Existing standards are used whenever possible, for instance preferred image format for biometric data is ISO-19794.

About documents

Adding one document or deleting one document implies that:

- The full document list is read (ReadEnrollment)
- The document list is altered locally to the enrollment client (add or delete)
- The full document list is sent back using the UpdateEnrollment service

Services

`createEnrollment` (*enrollmentID*, *enrollmentTypeId*, *enrollmentFlags*, *requestData*, *contextualData*, *biometricData*, *biographicData*, *documentData*, *finalize*, *transactionID*)

Insert a new enrollment.

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment. If the enrollment already exists for the ID an error is returned.
- **`enrollmentTypeId`** (*`str`*) – The enrollment type ID of the enrollment.
- **`enrollmentFlags`** (*`dict`*) – The enrollment custom flags.
- **`requestData`** (*`dict`*) – The enrollment data related to the enrollment itself.
- **`contextualData`** (*`dict`*) – Information about the context of the enrollment
- **`biometricData`** (*`list`*) – The enrollment biometric data.
- **`biographicData`** (*`dict`*) – The enrollment biographic data.
- **`documentData`** (*`list`*) – The enrollment biometric data.
- **`finalize`** (*`str`*) – Flag to indicate that data was collected.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`readEnrollment` (*enrollmentID*, *attributes*, *transactionID*)

Retrieve the attributes of an enrollment.

Authorization: `enroll.read`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment.
- **`attributes`** (*`set`*) – The (optional) set of required attributes to retrieve.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the enrollment data.

`updateEnrollment` (*enrollmentID*, *enrollmentTypeId*, *enrollmentFlags*, *requestData*, *contextualData*, *biometricData*, *biographicData*, *documentData*, *finalize*, *transactionID*)

Update an enrollment.

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment. If the enrollment already exists for the ID an error is returned.
- **`enrollmentTypeId`** (*`str`*) – The enrollment type ID of the enrollment.
- **`enrollmentFlags`** (*`dict`*) – The enrollment custom flags.
- **`requestData`** (*`dict`*) – The enrollment data related to the enrollment itself.
- **`contextualData`** (*`dict`*) – Information about the context of the enrollment
- **`biometricData`** (*`list`*) – The enrollment biometric data, this can be partial data.
- **`biographicData`** (*`dict`*) – The enrollment biographic data.
- **`documentData`** (*`list`*) – The enrollment biometric data, this can be partial data.
- **`finalize`** (*`str`*) – Flag to indicate that data was collected.

- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`partialupdateEnrollment` (*enrollmentID*, *enrollmentTypeId*, *enrollmentFlags*, *requestData*, *contextualData*, *biometricData*, *biographicData*, *documentData*, *finalize*, *transactionID*)

Update part of an enrollment. Not all attributes are mandatory. The payload is defined as per **RFC 7396**.

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment. If the enrollment already exists for the ID an error is returned.
- **`enrollmentTypeId`** (*`str`*) – The enrollment type ID of the enrollment.
- **`enrollmentFlags`** (*`dict`*) – The enrollment custom flags.
- **`requestData`** (*`dict`*) – The enrollment data related to the enrollment itself.
- **`contextualData`** (*`dict`*) – Information about the context of the enrollment
- **`biometricData`** (*`list`*) – The enrollment biometric data, this can be partial data.
- **`biographicData`** (*`dict`*) – The enrollment biographic data.
- **`documentData`** (*`list`*) – The enrollment biometric data, this can be partial data.
- **`finalize`** (*`str`*) – Flag to indicate that data was collected.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`finalizeEnrollment` (*enrollmentID*, *transactionID*)

When all the enrollment steps are done, the enrollment client indicates to the enrollment server that all data has been collected and that any further processing can be triggered.

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`deleteEnrollment` (*enrollmentID*, *transactionID*)

Deletes the enrollment

Authorization: `enroll.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`findEnrollments` (*expressions*, *offset*, *limit*, *transactionID*)

Retrieve a list of enrollments which match passed in search criteria.

Authorization: `enroll.read`

Parameters

- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value

- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `100`)
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the matching enrollment list.

`createBuffer` (*enrollmentId*, *data*, *digest*)

This service is used to send separately the buffers of the images. Buffers can be sent any time from the enrollment client prior to the create or update.

Authorization: `enroll.buf.write`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment.
- **`data`** (*`image`*) – The buffer data.
- **`transactionID`** (*`string`*) – The client generated transactionID.
- **`digest`** (*`string`*) – The digest (hash) of the buffer used by the server to check the integrity of the data received.

Returns a status indicating success or error and in case of success the buffer ID.

`readBuffer` (*enrollmentId*, *bufferId*)

This service is used to get the data of a buffer.

Authorization: `enroll.buf.read`

Parameters

- **`enrollmentID`** (*`str`*) – The ID of the enrollment.
- **`bufferID`** (*`str`*) – The ID of the buffer.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the data of the buffer and a digest.

Attributes

The “attributes” parameter used in “read” calls is used to provide a set of identifiers that limit the amount of data that is returned. It is often the case that the whole data set is not required, but instead, a subset of that data. Where possible, existing standards based identifiers should be used for the attributes to retrieve.

E.g. For surname/familyname, use OID 2.5.4.4 or id-at-surname.

Some calls may require new attributes to be defined. E.g. when retrieving biometric data, the caller may only want the meta data about that biometric, rather than the actual biometric data.

Transaction ID

The `transactionID` is a string provided by the client application to identity the request being submitted. It can be used for tracing and debugging.

Data Model

Table 6.1: Enrolment Data Model

Type	Description	Example
Enrollment	Set of person data which are captured.	TBD
Document Data	The document data of the enrollment.	TBD
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Biographic Data	a dictionary (list of names and values) giving the biographic data of interest for the biometric services.	TBD
Enrollment Flags	a dictionary (list of names and values) for custom flags.	TBD
Request Data	a dictionary (list of names and values) for data related to the enrollment itself (the operator, the station, the data, etc.).	TBD
Contextual Data	A dictionary (list of names and values) attached to the context of establishing the identity	`operatorName`, `enrollmentDate`, etc.
Attributes	a dictionary (list of names and values or *range* of values) describing the attributes to return. Attributes can apply on biographic data, document data, request data, or enrollment flag data.	TBD
Expressions	Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=, !=) and the attribute value	TBD

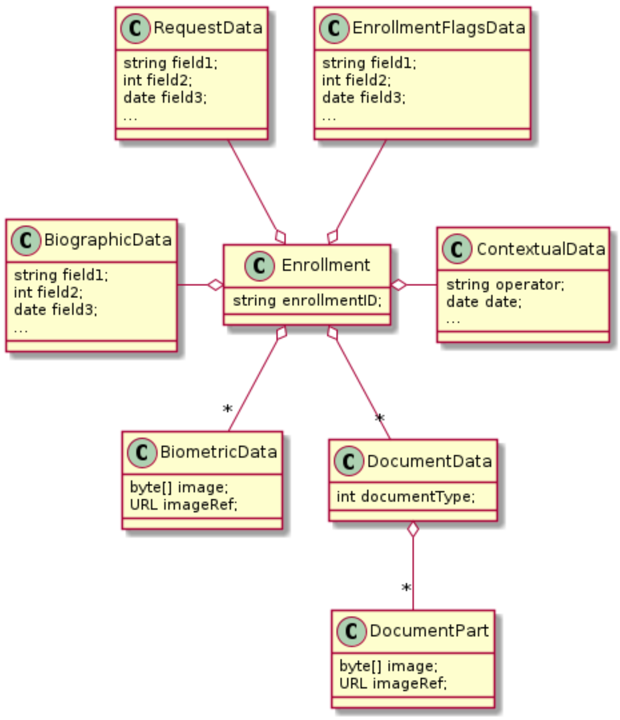


Fig. 6.1: Enrollment Data Model

6.2 Population Registry

The population registry component MAY implement the following interfaces:

6.2.1 Notification

See *Notification* for the technical details of this interface.

The subscription & notification process is managed by a middleware and is described in the following diagram:

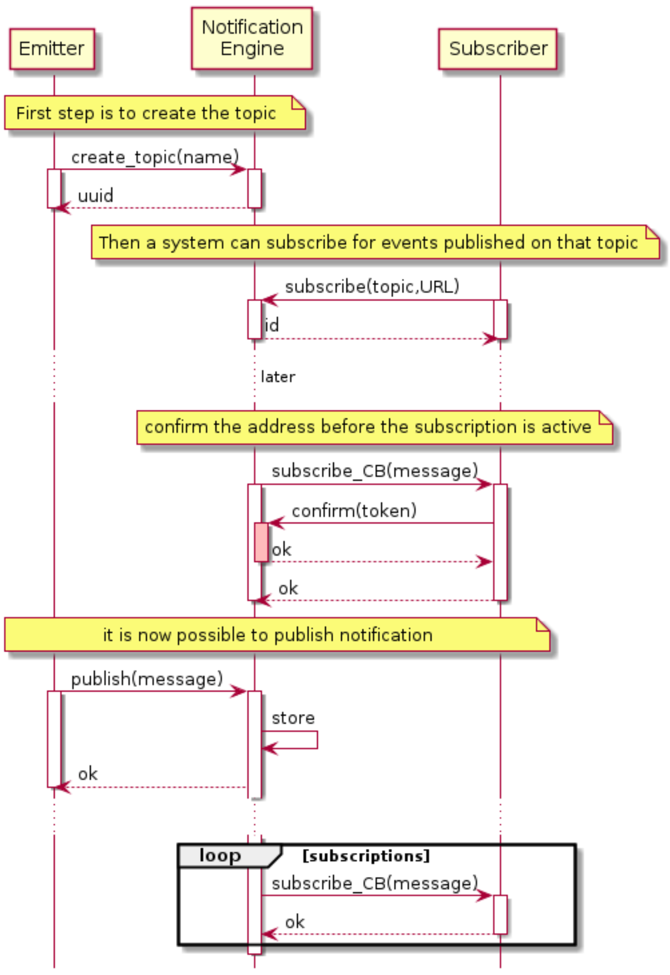

Emitter
Notification Engine
Subscriber
First step is to create the topic
create_topic(name)
uuid
Then a system can subscribe for events published on that topic
subscribe(topic,URL)
id
later
confirm the address before the subscription is active
subscribe_CB(message)
confirm(token)
ok
ok
it is now possible to publish notification
publish(message)
store
ok
loop
[subscriptions]
subscribe_CB(message)
ok

Fig. 6.2: Subscription & Notification Process

Services

For the Subscriber

`subscribe` (*topic*, *URL*)

Subscribe a URL to receive notifications sent to one topic

Authorization: `notif.sub.write`

Parameters

- **`topic`** (*`str`*) – Topic
- **`URL`** (*`str`*) – URL to be called when a notification is available

Returns a subscription ID

This service is synchronous.

`listSubscriptions` ()

Get all subscriptions

Authorization: `notif.sub.read`

Parameters **`URL`** (*`str`*) – URL to be called when a notification is available

Returns a subscription ID

This service is synchronous.

unsubscribe(*id*)

Unsubscribe a URL from the list of receiver for one topic

Authorization: `notif.sub.write`

Parameters **id** (*str*) – Subscription ID

Returns bool

This service is synchronous.

confirm(*token*)

Used to confirm that the URL used during the subscription is valid

Authorization: `notif.sub.write`

Parameters **token** (*str*) – A token send through the URL.

Returns bool

This service is synchronous.

For the Publisher

createTopic(*topic*)

Create a new topic. This is required before an event can be sent to it.

Authorization: `notif.topic.write`

Parameters **topic** (*str*) – Topic

Returns N/A

This service is synchronous.

listTopics()

Get the list of all existing topics.

Authorization: `notif.topic.read`

Returns N/A

This service is synchronous.

deleteTopic(*topic*)

Delete a topic.

Authorization: `notif.topic.write`

Parameters **topic** (*str*) – Topic

Returns N/A

This service is synchronous.

publish(*topic*, *subject*, *message*)

Notify of a new event all systems that subscribed to this topic

Authorization: `notif.topic.publish`

Parameters

- **topic** (*str*) – Topic
- **subject** (*str*) – The subject of the message
- **message** (*str*) – The message itself (a string buffer)

Returns N/A

This service is asynchronous (systems that subscribed on this topic are notified asynchronously).

Dictionaries

As an example, below there is a list of events that each component might handle.

Table 6.2: Event Type

Event Type	Emitted by CR	Emitted by PR
Live birth	✓	
Death	✓	
Fœtal Death	✓	
Marriage	✓	
Divorce	✓	
Annulment	✓	
Separation, judicial	✓	
Adoption	✓	
Legitimation	✓	
Recognition	✓	
Change of name	✓	
Change of gender	✓	
New person		✓
Duplicate person	✓	✓

6.2.2 Data Access

See *Data Access* for the technical details of this interface.

Services

`readPersonAttributes` (*UIN*, *names*)
Read person attributes.

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`UIN`** (*`str`*) – The person's UIN
- **`names`** (*`list[str]`*) – The names of the attributes requested

Returns a list of pair (name,value). In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

This service is synchronous. It can be used to retrieve attributes from CR or from PR.

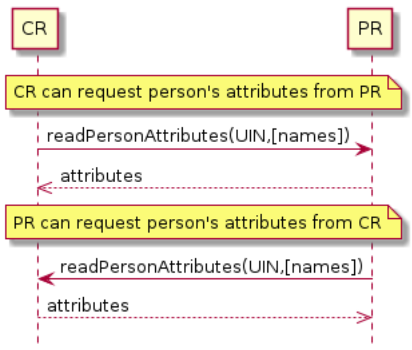

CR
PR
CR can request person's attributes from PR
readPersonAttributes(UIN,[names])
attributes
PR can request person's attributes from CR
readPersonAttributes(UIN,[names])
attributes

Fig. 6.3: `readPersonAttributes` Sequence Diagram

`matchPersonAttributes` (*UIN*, *attributes*)
Match person attributes. This service is used to check the value of attributes without exposing private data. The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.match` or `cr.person.match`

Parameters

- **`UIN`** (*`str`*) – The person's UIN
- **`attributes`** (*`list[(str,str)]`*) – The attributes to match. Each attribute is described with its name and the expected value

Returns If all attributes match, a *Yes* is returned. If one attribute does not match, a *No* is returned along with a list of (name,reason) for each non-matching attribute.

This service is synchronous. It can be used to match attributes in CR or in PR.

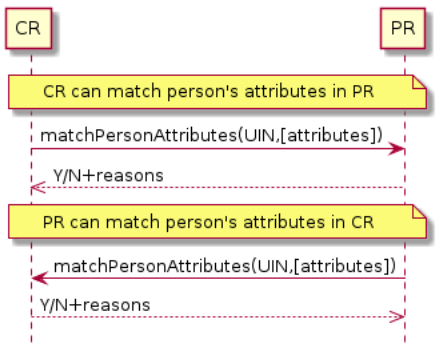

CR
PR
CR can match person's attributes in PR
matchPersonAttributes(UIN,[attributes])
Y/N+reasons
PR can match person's attributes in CR
matchPersonAttributes(UIN,[attributes])
Y/N+reasons

Fig. 6.4: `matchPersonAttributes` Sequence Diagram

`verifyPersonAttributes` (*UIN*, *expressions*)
Evaluate expressions on person attributes. This service is used to evaluate simple expressions on person's attributes without exposing private data The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.verify` or `cr.person.verify`

Parameters

- **`UIN`** (*`str`*) – The person's UIN
- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value

Returns A *Yes* if all expressions are true, a *No* if one expression is false, a *Unknown* if To be defined

This service is synchronous. It can be used to verify attributes in CR or in PR.

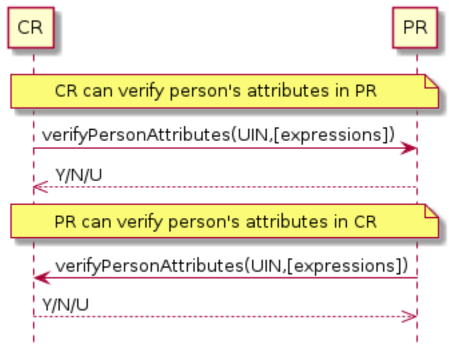

CR
PR
CR can verify person's attributes in PR
verifyPersonAttributes(UIN,[expressions])
Y/N/U
PR can verify person's attributes in CR
verifyPersonAttributes(UIN,[expressions])
Y/N/U

Fig. 6.5: `verifyPersonAttributes` Sequence Diagram

`queryPersonUIN` (*attributes*, *offset*, *limit*)

Query the persons by a set of attributes. This service is used when the UIN is unknown. The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – The attributes to be used to find UIN. Each attribute is described with its name and its value
- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `100`)

Returns a list of matching UIN

This service is synchronous. It can be used to get the UIN of a person.

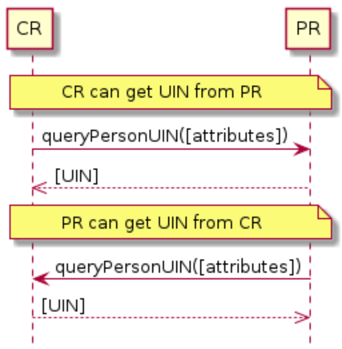


Fig. 6.6: `queryPersonUIN` Sequence Diagram

`queryPersonList` (*attributes*, *names*, *offset*, *limit*)

Query the persons by a list of attributes and their values. This service is proposed as an optimization of a sequence of calls to `queryPersonUIN()` and `readPersonAttributes()`.

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – The attributes to be used to find the persons. Each attribute is described with its name and its value

- **names** (*list[str]*) – The names of the attributes requested
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to 0)
- **limit** (*int*) – The maximum number of items to return (optional, default to 100)

Returns a list of lists of pairs (name,value). In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

This service is synchronous. It can be used to retrieve attributes from CR or from PR.

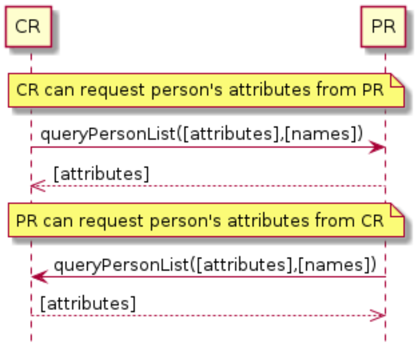

CR
PR
CR can request person's attributes from PR
queryPersonList([attributes],[names])
[attributes]
PR can request person's attributes from CR
queryPersonList([attributes],[names])
[attributes]

Fig. 6.7: `queryPersonList` Sequence Diagram

---

readDocument (*UINs*, *documentType*, *format*)

Read in a selected format (PDF, image, . . .) a document such as a marriage certificate.

Authorization: `pr.document.read` or `cr.document.read`

Parameters

- **UIN** (*list[str]*) – The list of UINs for the persons concerned by the document
- **documentType** (*str*) – The type of document (birth certificate, etc.)
- **format** (*str*) – The format of the returned/requested document

Returns The list of the requested documents

This service is synchronous. It can be used to get the documents for a person.

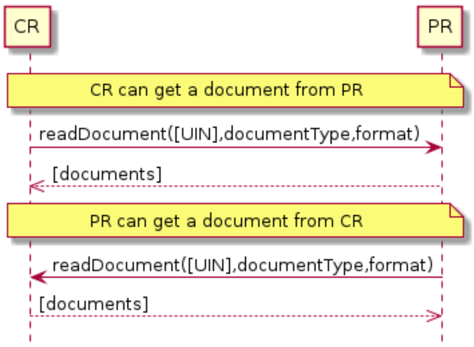

CR
PR
CR can get a document from PR
readDocument([UIN],documentType,format)
[documents]
PR can get a document from CR
readDocument([UIN],documentType,format)
[documents]

Fig. 6.8: `readDocument` Sequence Diagram

Dictionaries

As an example, below there is a list of attributes/documents that each component might handle.

Table 6.3: Person Attributes

Attribute Name	In CR	In PR	Description
UIN	✓	✓	
first name	✓	✓	
last name	✓	✓	
spouse name	✓	✓	
date of birth	✓	✓	
place of birth	✓	✓	
gender	✓	✓	
date of death	✓	✓	
place of death	✓		
reason of death	✓		
status		✓	Example: missing, wanted, dead, etc.

Table 6.4: Certificate Attributes

Attribute Name	In CR	In PR	Description
officer name	✓		
number	✓		
date	✓		
place	✓		
type	✓		

Table 6.5: Union Attributes

Attribute Name	In CR	In PR	Description
date of union	✓		
place of union	✓		
conjoint1 UIN	✓		
conjoint2 UIN	✓		
date of divorce	✓		

Table 6.6: Filiation Attributes

Attribute Name	In CR	In PR	Description
parent1 UIN	✓		
parent2 UIN	✓		

Table 6.7: Document Type

Document Type	Description
birth certificate	To be completed
death certificate	To be completed
marriage certificate	To be completed

6.2.3 Population Registry Services

This interface describes services to manage a registry of the population in the context of an identity system. It is based on the following principles:

- It supports a history of identities, meaning that a person has one identity and this identity has a history.
- Images can be passed by value or reference. When passed by value, they are base64-encoded.
- Existing standards are used whenever possible.

- This interface is complementary to the data access interface. The data access interface is used to query the persons and uses the reference identity to return attributes.
- The population registry can store the biometric data or can rely on the ABIS subsystem to do it. The preferred solution, for a clean separation of data of different nature and by application of GDPR principles, is to put the biometric data only in the ABIS. Yet many existing systems store biometric data with the biographic data and this specification gives the flexibility to do it.

See *Population Registry Management* for the technical details of this interface.

Services

`findPersons` (*expressions*, *group*, *reference*, *gallery*, *offset*, *limit*, *transactionID*)

Retrieve a list of persons which match passed in search criteria.

Authorization: `pr.person.read`

Parameters

- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value
- **`group`** (*`bool`*) – Group the results per person and return only personID
- **`reference`** (*`bool`*) – Limit the query to the reference identities
- **`gallery`** (*`string`*) – A gallery ID used to limit the search
- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `100`)
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error and in case of success the matching person list.

`createPerson` (*personID*, *personData*, *transactionID*)

Create a new person.

Authorization: `pr.person.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person. If the person already exists for the ID an error is returned.
- **`personData`** – The person attributes.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

`readPerson` (*personID*, *transactionID*)

Read the attributes of a person.

Authorization: `pr.person.read`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error and in case of success the person data.

updatePerson (*personID*, *personData*, *transactionID*)

Update a person.

Authorization: `pr.person.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **personData** (*dict*) – The person data.

Returns a status indicating success or error.

deletePerson (*personID*, *transactionID*)

Delete a person and all its identities.

Authorization: `pr.person.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

mergePerson (*personID1*, *personID2*, *transactionID*)

Merge two person records into a single one. Identity ID are preserved and in case of duplicates an error is returned and no changes are done. The reference identity is not changed.

Authorization: `pr.person.write`

Parameters

- **personID1** (*str*) – The ID of the person that will receive new identities
- **personID2** (*str*) – The ID of the person that will give its identities. It will be deleted if the move of all identities is successful.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

---

createIdentity (*personID*, *identityID*, *identity*, *transactionID*)

Create a new identity in a person. If no identityID is provided, a new one is generated. If identityID is provided, it is checked for uniqueness and used for the identity if unique. An error is returned if the provided identityID is not unique.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **identity** – The new identity data.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

readIdentity (*personID*, *identityID*, *transactionID*)

Read one or all the identities of one person.

Authorization: `pr.identity.read`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity. If not provided, all identities are returned.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error, and in case of success a list of identities.

updateIdentity(*personID*, *identityID*, *identity*, *transactionID*)

Update an identity. An identity can be updated only in the status `claimed`.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **identity** – The identity data.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

partialUpdateIdentity(*personID*, *identityID*, *identity*, *transactionID*)

Update part of an identity. Not all attributes are mandatory. The payload is defined as per **RFC 7396**. An identity can be updated only in the status `claimed`.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **identity** – Part of the identity data.

Returns a status indicating success or error.

deleteIdentity(*personID*, *identityID*, *transactionID*)

Delete an identity.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

setIdentityStatus(*personID*, *identityID*, *status*, *transactionID*)

Set an identity status.

Authorization: `pr.identity.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity.
- **status** (*str*) – The new status of the identity.

- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

---

defineReference (*personID*, *identityID*, *transactionID*)
Define the reference identity of one person.

Authorization: `pr.reference.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **identityID** (*str*) – The ID of the identity being now the reference.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

readReference (*personID*, *transactionID*)
Read the reference identity of one person.

Authorization: `pr.reference.read`

Parameters

- **personID** (*str*) – The ID of the person.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error and in case of success the reference identity.

---

readGalleries (*transactionID*)
Read the ID of all the galleries.

Authorization: `pr.gallery.read`

Parameters **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error, and in case of success a list of gallery ID.

readGalleryContent (*galleryID*, *transactionID*, *offset*, *limit*)
Read the content of one gallery, i.e. the IDs of all the records linked to this gallery.

Authorization: `pr.gallery.read`

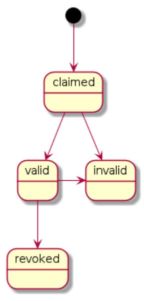
Parameters

- **galleryID** (*str*) – Gallery whose content will be returned.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to `0`)
- **limit** (*int*) – The maximum number of items to return (optional, default to `1000`)

Returns a status indicating success or error. In case of success a list of person/identity IDs.

Data Model

Table 6.8: Population Registry Data Model

Type	Description	Example
Gallery	A group of persons related by a common purpose, designation, or status. A person can belong to multiple galleries.	`VIP`, `Wanted`, etc.
Person	Person who is known to an identity assurance system. A person record has: • a status, such as `active` or `inactive`, defining the status of the record (the record can be excluded from queries based on this status), • a physical status, such as `alive` or `dead`, defining the status of the person, • a set of identities, keeping track of all identity data submitted by the person during the life of the system, • a reference identity, i.e. a consolidated view of all the identities defining the current correct identity of the person. It corresponds usually to the last valid identity but it can also include data from previous identities.	N/A
Identity	The attributes describing an identity of a person. An identity has a status such as: `claimed` (identity not yet validated), `valid` (the identity is valid), `invalid` (the identity is confirmed as not valid), `revoked` (the identity cannot be used any longer). An identity can be updated only in the status `claimed`. The proposed transitions for the status are represented below. It can be adapted if needed.  The attributes are separated into two categories: the biographic data and the contextual data.	N/A
Biographic Data	A dictionary (list of names and values) giving the biographic data of the identity	`firstName`, `lastName`, `dateOfBirth`, etc.
Contextual Data	A dictionary (list of names and values) attached to the context of establishing the identity	`operatorName`, `enrollmentDate`, etc.
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Document	The document data (images) attached to the identity and used to validate it.	Birth certificate, invoice

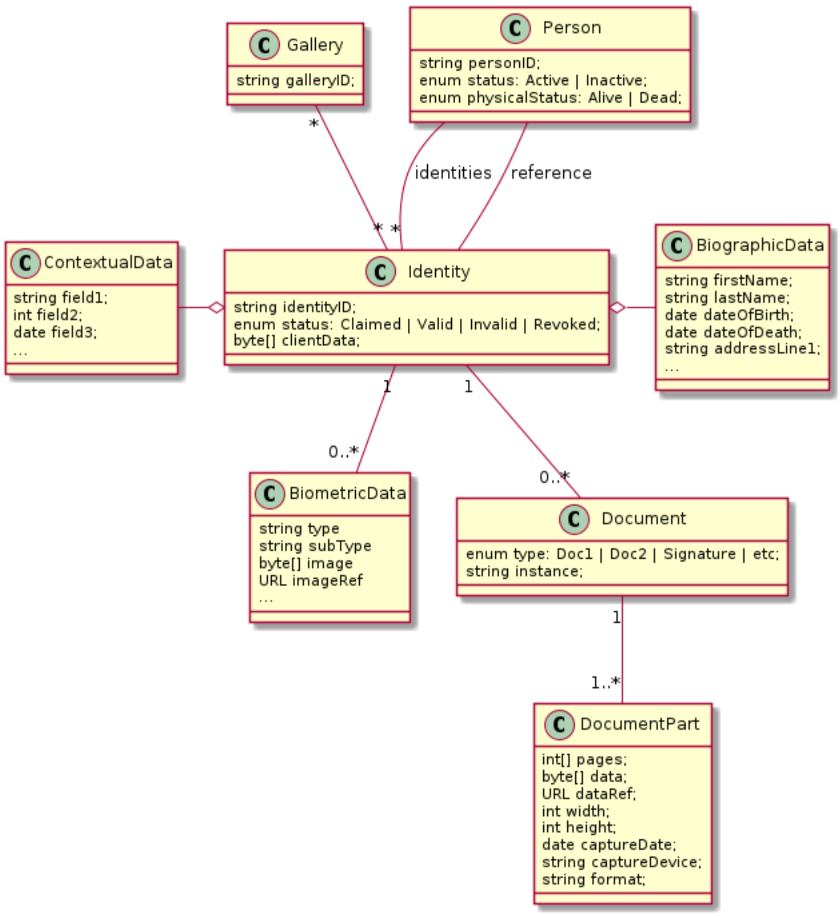


Fig. 6.9: Population Registry Data Model

6.3 Civil Registry

The civil registry component MAY implement the following interfaces:

6.3.1 Notification

See *Notification* for the technical details of this interface.

The subscription & notification process is managed by a middleware and is described in the following diagram:

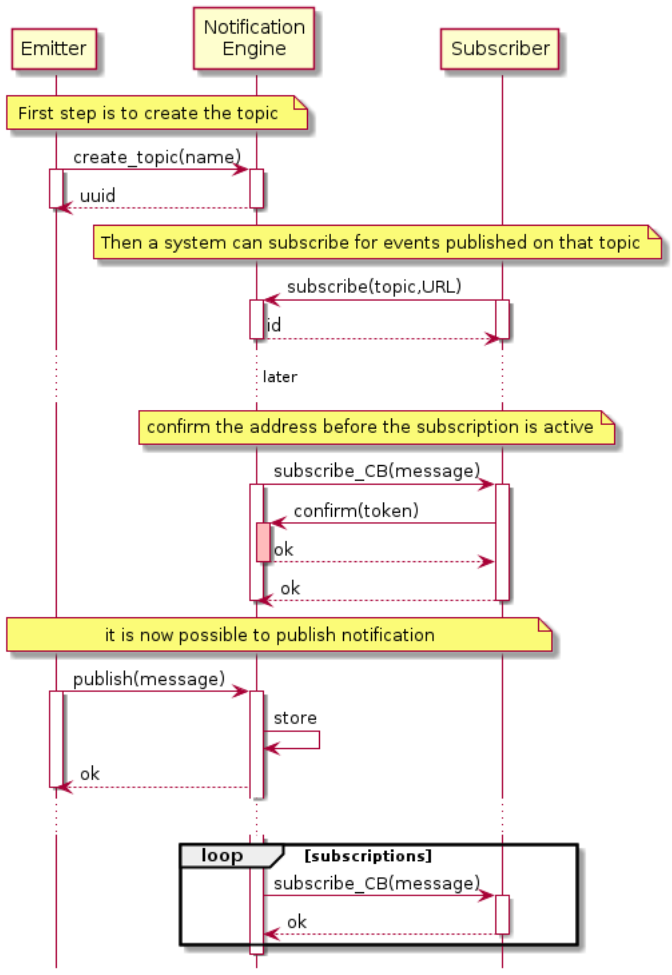

Emitter
Notification Engine
Subscriber
First step is to create the topic
create_topic(name)
uuid
Then a system can subscribe for events published on that topic
subscribe(topic,URL)
id
later
confirm the address before the subscription is active
subscribe_CB(message)
confirm(token)
ok
ok
it is now possible to publish notification
publish(message)
store
ok
loop
[subscriptions]
subscribe_CB(message)
ok

Fig. 6.10: Subscription & Notification Process

Services

For the Subscriber

`subscribe` (*topic*, *URL*)
Subscribe a URL to receive notifications sent to one topic

Authorization: `notif.sub.write`

Parameters

- **`topic`** (*`str`*) – Topic
- **`URL`** (*`str`*) – URL to be called when a notification is available

Returns a subscription ID

This service is synchronous.

`listSubscriptions` ()
Get all subscriptions

Authorization: `notif.sub.read`

Parameters **`URL`** (*`str`*) – URL to be called when a notification is available

Returns a subscription ID

This service is synchronous.

`unsubscribe`(*id*)
Unsubscribe a URL from the list of receiver for one topic

Authorization: `notif.sub.write`

Parameters **`id`** (*`str`*) – Subscription ID

Returns bool

This service is synchronous.

`confirm`(*token*)
Used to confirm that the URL used during the subscription is valid

Authorization: `notif.sub.write`

Parameters **`token`** (*`str`*) – A token send through the URL.

Returns bool

This service is synchronous.

For the Publisher

`createTopic`(*topic*)
Create a new topic. This is required before an event can be sent to it.

Authorization: `notif.topic.write`

Parameters **`topic`** (*`str`*) – Topic

Returns N/A

This service is synchronous.

`listTopics`()
Get the list of all existing topics.

Authorization: `notif.topic.read`

Returns N/A

This service is synchronous.

`deleteTopic`(*topic*)
Delete a topic.

Authorization: `notif.topic.write`

Parameters **`topic`** (*`str`*) – Topic

Returns N/A

This service is synchronous.

`publish`(*topic*, *subject*, *message*)
Notify of a new event all systems that subscribed to this topic

Authorization: `notif.topic.publish`

Parameters

- **`topic`** (*`str`*) – Topic
- **`subject`** (*`str`*) – The subject of the message
- **`message`** (*`str`*) – The message itself (a string buffer)

Returns N/A

This service is asynchronous (systems that subscribed on this topic are notified asynchronously).

Dictionaries

As an example, below there is a list of events that each component might handle.

Table 6.9: Event Type

Event Type	Emitted by CR	Emitted by PR
Live birth	✓	
Death	✓	
Fœtal Death	✓	
Marriage	✓	
Divorce	✓	
Annulment	✓	
Separation, judicial	✓	
Adoption	✓	
Legitimation	✓	
Recognition	✓	
Change of name	✓	
Change of gender	✓	
New person		✓
Duplicate person	✓	✓

6.3.2 Data Access

See *Data Access* for the technical details of this interface.

Services

`readPersonAttributes` (*UIN*, *names*)

Read person attributes.

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`UIN`** (*`str`*) – The person's UIN
- **`names`** (*`list[str]`*) – The names of the attributes requested

Returns a list of pair (name,value). In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

This service is synchronous. It can be used to retrieve attributes from CR or from PR.

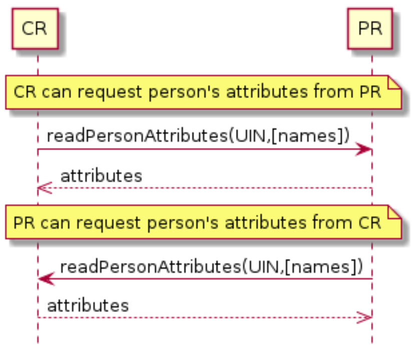

CR
PR
CR can request person's attributes from PR
readPersonAttributes(UIN,[names])
attributes
PR can request person's attributes from CR
readPersonAttributes(UIN,[names])
attributes

Fig. 6.11: `readPersonAttributes` Sequence Diagram

`matchPersonAttributes`(*UIN*, *attributes*)

Match person attributes. This service is used to check the value of attributes without exposing private data. The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.match` or `cr.person.match`

Parameters

- **`UIN`** (*`str`*) – The person's UIN
- **`attributes`** (*`list[(str,str)]`*) – The attributes to match. Each attribute is described with its name and the expected value

Returns If all attributes match, a *Yes* is returned. If one attribute does not match, a *No* is returned along with a list of (name,reason) for each non-matching attribute.

This service is synchronous. It can be used to match attributes in CR or in PR.

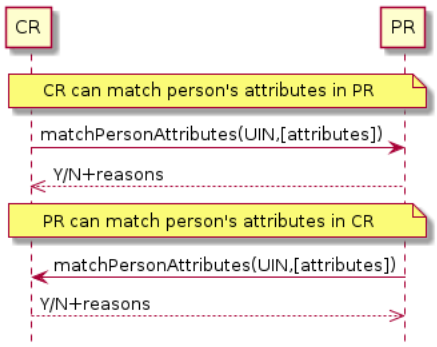

CR
PR
CR can match person's attributes in PR
matchPersonAttributes(UIN,[attributes])
Y/N+reasons
PR can match person's attributes in CR
matchPersonAttributes(UIN,[attributes])
Y/N+reasons

Fig. 6.12: `matchPersonAttributes` Sequence Diagram

`verifyPersonAttributes`(*UIN*, *expressions*)

Evaluate expressions on person attributes. This service is used to evaluate simple expressions on person's attributes without exposing private data The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.verify` or `cr.person.verify`

Parameters

- **`UIN`** (*`str`*) – The person's UIN
- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value

Returns A *Yes* if all expressions are true, a *No* if one expression is false, a *Unknown* if To be defined

This service is synchronous. It can be used to verify attributes in CR or in PR.

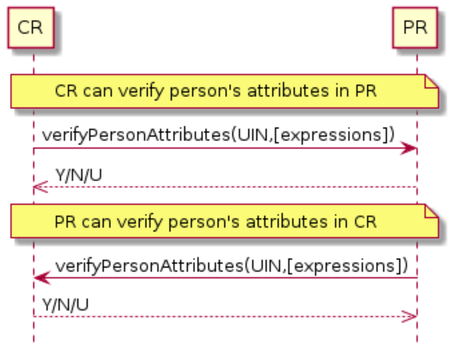

CR
PR
CR can verify person's attributes in PR
verifyPersonAttributes(UIN,[expressions])
Y/N/U
PR can verify person's attributes in CR
verifyPersonAttributes(UIN,[expressions])
Y/N/U

Fig. 6.13: `verifyPersonAttributes` Sequence Diagram

`queryPersonUIN` (*attributes*, *offset*, *limit*)

Query the persons by a set of attributes. This service is used when the UIN is unknown. The implementation can use a simple comparison or a more advanced technique (for example: phonetic comparison for names)

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – The attributes to be used to find UIN. Each attribute is described with its name and its value
- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `100`)

Returns a list of matching UIN

This service is synchronous. It can be used to get the UIN of a person.

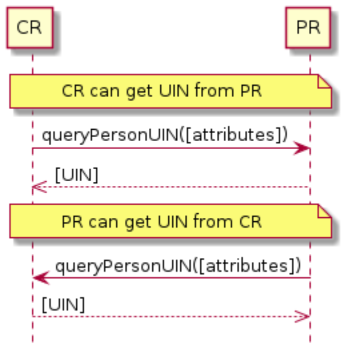


Fig. 6.14: `queryPersonUIN` Sequence Diagram

`queryPersonList` (*attributes*, *names*, *offset*, *limit*)

Query the persons by a list of attributes and their values. This service is proposed as an optimization of a sequence of calls to `queryPersonUIN()` and `readPersonAttributes()`.

Authorization: `pr.person.read` or `cr.person.read`

Parameters

- **`attributes`** (*`list[(str,str)]`*) – The attributes to be used to find the persons. Each attribute is described with its name and its value

- **names** (*list[str]*) – The names of the attributes requested
- **offset** (*int*) – The offset of the query (first item of the response) (optional, default to `0`)
- **limit** (*int*) – The maximum number of items to return (optional, default to `100`)

Returns a list of lists of pairs (name,value). In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

This service is synchronous. It can be used to retrieve attributes from CR or from PR.

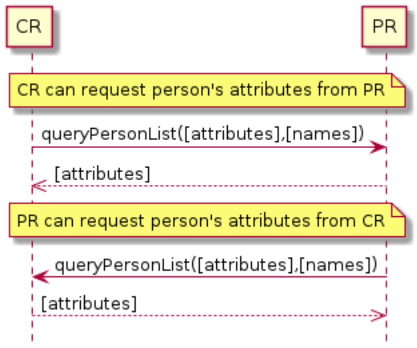

CR
PR
CR can request person's attributes from PR
queryPersonList([attributes],[names])
[attributes]
PR can request person's attributes from CR
queryPersonList([attributes],[names])
[attributes]

Fig. 6.15: `queryPersonList` Sequence Diagram

---

readDocument (*UINs*, *documentType*, *format*)

Read in a selected format (PDF, image, ...) a document such as a marriage certificate.

Authorization: `pr.document.read` or `cr.document.read`

Parameters

- **UIN** (*list[str]*) – The list of UINs for the persons concerned by the document
- **documentType** (*str*) – The type of document (birth certificate, etc.)
- **format** (*str*) – The format of the returned/requested document

Returns The list of the requested documents

This service is synchronous. It can be used to get the documents for a person.

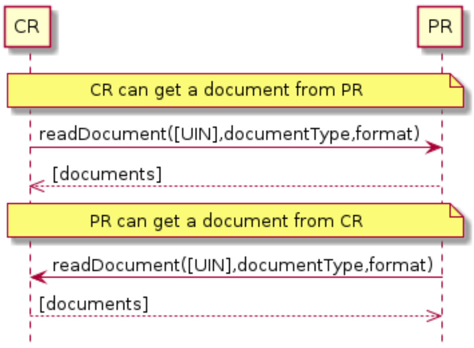

CR
PR
CR can get a document from PR
readDocument([UIN],documentType,format)
[documents]
PR can get a document from CR
readDocument([UIN],documentType,format)
[documents]

Fig. 6.16: `readDocument` Sequence Diagram

Dictionaries

As an example, below there is a list of attributes/documents that each component might handle.

Table 6.10: Person Attributes

Attribute Name	In CR	In PR	Description
UIN	✓	✓	
first name	✓	✓	
last name	✓	✓	
spouse name	✓	✓	
date of birth	✓	✓	
place of birth	✓	✓	
gender	✓	✓	
date of death	✓	✓	
place of death	✓		
reason of death	✓		
status		✓	Example: missing, wanted, dead, etc.

Table 6.11: Certificate Attributes

Attribute Name	In CR	In PR	Description
officer name	✓		
number	✓		
date	✓		
place	✓		
type	✓		

Table 6.12: Union Attributes

Attribute Name	In CR	In PR	Description
date of union	✓		
place of union	✓		
conjoint1 UIN	✓		
conjoint2 UIN	✓		
date of divorce	✓		

Table 6.13: Filiation Attributes

Attribute Name	In CR	In PR	Description
parent1 UIN	✓		
parent2 UIN	✓		

Table 6.14: Document Type

Document Type	Description
birth certificate	To be completed
death certificate	To be completed
marriage certificate	To be completed

6.4 UIN Generator

The UIN generator component MAY implement the following interfaces:

6.4.1 UIN Management

See *UIN Management* for the technical details of this interface.

Services

generateUIN (*attributes*, *transactionID*)

Generate a new UIN.

Authorization: `uin.generate`

Parameters

- **attributes** (*list[(str, str)]*) – A list of pair (attribute name, value) that can be used to allocate a new UIN
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a new UIN or an error if the generation is not possible

This service is synchronous.

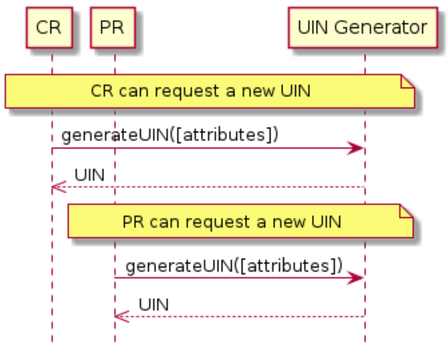


Fig. 6.17: `generateUIN` Sequence Diagram

6.5 ABIS

The ABIS component MAY implement the following interfaces:

6.5.1 Biometrics

This interface describes biometric services in the context of an identity system. It is based on the following principles:

- It supports only multi-encounter model, meaning that an identity can have multiple set of biometric data, one for each encounter.
- It does not expose templates (only images) for CRUD services, with one exception to support the use case of credentials with biometrics.
- Images can be passed by value or reference. When passed by value, they are base64-encoded.
- Existing standards are used whenever possible, for instance preferred image format for biometric data is ISO-19794.

About synchronous and asynchronous processing

Some services can be very slow depending on the algorithm used, the system workload, etc. Services are described so that:

- If possible, the answer is provided synchronously in the response of the service.

- If not possible for some reason, a status *PENDING* is returned and the answer, when available, is pushed to a callback provided by the client.

If no callback is provided, this indicates that the client wants a synchronous answer, whatever the time it takes.

If a callback is provided, this indicates that the client wants an asynchronous answer, even if the result is immediately available.

See *Biometrics* for the technical details of this interface.

Services

`createEncounter` (*personID*, *encounterID*, *galleryID*, *biographicData*, *contextualData*, *biometricData*, *clientData*, *callback*, *transactionID*, *options*)

Create a new encounter. No identify is performed.

Authorization: `abis.encounter.write`

Parameters

- **`personID`** (*`str`*) – The person ID. This is optional and will be generated if not provided
- **`encounterID`** (*`str`*) – The encounter ID. This is optional and will be generated if not provided
- **`galleryID`** (*`list (str)`*) – the gallery ID to which this encounter belongs. A minimum of one gallery must be provided
- **`biographicData`** (*`dict`*) – The biographic data (ex: name, date of birth, gender, etc.)
- **`contextualData`** (*`dict`*) – The contextual data (ex: encounter date, location, etc.)
- **`biometricData`** (*`list`*) – the biometric data (images)
- **`clientData`** (*`bytes`*) – additional data not interpreted by the server but stored as is and returned when encounter data is requested.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `algorithm`.

Returns a status indicating success, error, or pending operation. In case of success, the person ID and the encounter ID are returned. In case of pending operation, the result will be sent later.

`readEncounter` (*personID*, *encounterID*, *callback*, *transactionID*, *options*)

Read the data of an encounter.

Authorization: `abis.encounter.read`

Parameters

- **`personID`** (*`str`*) – The person ID
- **`encounterID`** (*`str`*) – The encounter ID. This is optional. If not provided, all the encounters of the person are returned.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of success, the encounter data is returned. In case of pending operation, the result will be sent later.

`updateEncounter` (*personID*, *encounterID*, *galleryID*, *biographicData*, *contextualData*, *biometricData*, *callback*, *transactionID*, *options*)

Update an encounter.

Authorization: `abis.encounter.write`

Parameters

- **`personID`** (*`str`*) – The person ID
- **`encounterID`** (*`str`*) – The encounter ID
- **`galleryID`** (*`list (str)`*) – the gallery ID to which this encounter belongs. A minimum of one gallery must be provided
- **`biographicData`** (*`dict`*) – The biographic data (ex: name, date of birth, gender, etc.)
- **`contextualData`** (*`dict`*) – The contextual data (ex: encounter date, location, etc.)
- **`biometricData`** (*`list`*) – the biometric data (images)
- **`clientData`** (*`bytes`*) – additional data not interpreted by the server but stored as is and returned when encounter data is requested.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `algorithm`.

Returns a status indicating success, error, or pending operation. In case of success, the person ID and the encounter ID are returned. In case of pending operation, the result will be sent later.

`deleteEncounter` (*personID*, *encounterID*, *callback*, *transactionID*, *options*)

Delete an encounter.

Authorization: `abis.encounter.write`

Parameters

- **`personID`** (*`str`*) – The person ID
- **`encounterID`** (*`str`*) – The encounter ID. This is optional. If not provided, all the encounters of the person are deleted.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of pending operation, the operation status will be sent later.

`mergeEncounter` (*personID1*, *personID2*, *callback*, *transactionID*, *options*)

Merge two sets of encounters into a single set. Merging a set of *N* encounters with a set of *M* encounters will result in a single set of *N*+*M* encounters. Encounter ID are preserved and in case of duplicates an error is returned and no changes are done.

Authorization: `abis.encounter.write`

Parameters

- **`personID1`** (*`str`*) – The ID of the person that will receive new encounters

- **personID2** (*str*) – The ID of the person that will give its encounters
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **options** (*dict*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of pending operation, the result will be sent later.

readTemplate (*personID*, *encounterID*, *biometricType*, *biometricSubType*, *templateFormat*, *qualityFormat*, *callback*, *transactionID*, *options*)
Read the generated template.

Authorization: `abis.encounter.read`

Parameters

- **personID** (*str*) – The person ID
- **encounterID** (*str*) – The encounter ID.
- **biometricType** (*str*) – The type of biometrics to consider (optional)
- **biometricSubType** (*str*) – The subtype of biometrics to consider (optional)
- **templateFormat** (*str*) – the format of the template to return (optional)
- **qualityFormat** (*str*) – the format of the quality to return (optional)
- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.
- **options** (*dict*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. In case of success, a list of template data is returned. In case of pending operation, the result will be sent later.

setEncounterStatus (*personID*, *encounterID*, *status*, *transactionID*)
Set an encounter status.

Authorization: `abis.encounter.write`

Parameters

- **personID** (*str*) – The ID of the person.
- **encounterID** (*str*) – The encounter ID.
- **status** (*str*) – The new status of the encounter.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

Returns a status indicating success or error.

---

readGalleries (*callback*, *transactionID*, *options*)
Read the ID of all the galleries.

Authorization: `abis.gallery.read`

Parameters

- **callback** – The address of a service to be called when the result is available.
- **transactionID** (*str*) – A free text used to track the system activities related to the same transaction.

- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. A list of gallery ID is returned, either synchronously or using the callback.

`readGalleryContent` (*galleryID*, *callback*, *transactionID*, *offset*, *limit*, *options*)
Read the content of one gallery, i.e. the IDs of all the records linked to this gallery.

Authorization: `abis.gallery.read`

Parameters

- **`galleryID`** (*`str`*) – Gallery whose content will be returned.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`offset`** (*`int`*) – The offset of the query (first item of the response) (optional, default to `0`)
- **`limit`** (*`int`*) – The maximum number of items to return (optional, default to `1000`)
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`.

Returns a status indicating success, error, or pending operation. A list of persons/encounters is returned, either synchronously or using the callback.

`identify` (*galleryID*, *filter*, *biometricData*, *callback*, *transactionID*, *options*)
Identify a person using biometrics data and filters on biographic or contextual data. This may include multiple operations, including manual operations.

Authorization: `abis.identify`

Parameters

- **`galleryID`** (*`str`*) – Search only in this gallery.
- **`filter`** (*`dict`*) – The input data (filters and biometric data)
- **`biometricData`** – the biometric data.
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*`str`*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*`dict`*) – the processing options. Supported options are `priority`, `maxNbCand`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A list of candidates is returned, either synchronously or using the callback.

`identify` (*galleryID*, *filter*, *personID*, *callback*, *transactionID*, *options*)
Identify a person using biometrics data of a person existing in the system and filters on biographic or contextual data. This may include multiple operations, including manual operations.

Authorization: `abis.verify`

Parameters

- **`galleryID`** (*`str`*) – Search only in this gallery.
- **`filter`** (*`dict`*) – The input data (filters and biometric data)
- **`personID`** – the person ID
- **`callback`** – The address of a service to be called when the result is available.

- **`transactionID`** (*str*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*dict*) – the processing options. Supported options are `priority`, `maxNbCand`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A list of candidates is returned, either synchronously or using the callback.

`verify` (*galleryID*, *personID*, *biometricData*, *callback*, *transactionID*, *options*)
Verify an identity using biometrics data.

Authorization: To be defined

Parameters

- **`galleryID`** (*str*) – Search only in this gallery. If the person does not belong to this gallery, an error is returned.
- **`personID`** (*str*) – The person ID
- **`biometricData`** – The biometric data
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*str*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*dict*) – the processing options. Supported options are `priority`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A status (boolean) is returned, either synchronously or using the callback. Optionally, details about the matching result can be provided like the score per biometric and per encounter.

`verify` (*biometricData1*, *biometricData2*, *callback*, *transactionID*, *options*)
Verify that two sets of biometrics data correspond to the same person.

Authorization: To be defined

Parameters

- **`biometricData1`** – The first set of biometric data
- **`biometricData2`** – The second set of biometric data
- **`callback`** – The address of a service to be called when the result is available.
- **`transactionID`** (*str*) – A free text used to track the system activities related to the same transaction.
- **`options`** (*dict*) – the processing options. Supported options are `priority`, `threshold`, `accuracyLevel`.

Returns a status indicating success, error, or pending operation. A status (boolean) is returned, either synchronously or using the callback. Optionally, details about the matching result can be provided like the score per the biometric.

Options

Table 6.15: Biometric Services Options

Name	Description
`priority`	Priority of the request. Values range from `0` to `9`. `0` indicates the lowest priority, `9` indicates the highest priority.
`maxNbCand`	The maximum number of candidates to return.
`threshold`	The threshold to apply on the score to filter the candidates during an identification, authentication or verification.
`algorithm`	Specify the type of algorithm to be used.
`accuracyLevel`	Specify the accuracy expected of the request. This is to support different use cases, when different behavior of the ABIS is expected (response time, accuracy, consolidation/fusion, etc.).

Data Model

Table 6.16: Biometric Data Model

Type	Description	Example
Gallery	A group of persons related by a common purpose, designation, or status. A person can belong to multiple galleries.	TBD
Person	Person who is known to an identity assurance system.	TBD
Encounter	Event in which the client application interacts with a person resulting in data being collected during or about the encounter. An encounter is characterized by an *identifier* and a *type* (also called *purpose* in some context). An encounter has a status indicating if this encounter is used in the biometric searches. Allowed values are `active` or `inactive`.	TBD
Biographic Data	a dictionary (list of names and values) giving the biographic data of interest for the biometric services.	TBD
Filters	a dictionary (list of names and values or *range* of values) describing the filters during a search. Filters can apply on biographic data, contextual data or encounter type.	TBD
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Candidate	Information about a candidate found during an identification	TBD
CandidateScore	Detailed information about a candidate found during an identification. It includes the score for the biometrics used. It can also be extended with proprietary information to better describe the matching result (for instance: rotation needed to align the probe and the candidate)	TBD
Template	A computed buffer corresponding to a biometric and allowing the comparison of biometrics. A template has a format that can be a standard format or a vendor-specific format.	N/A

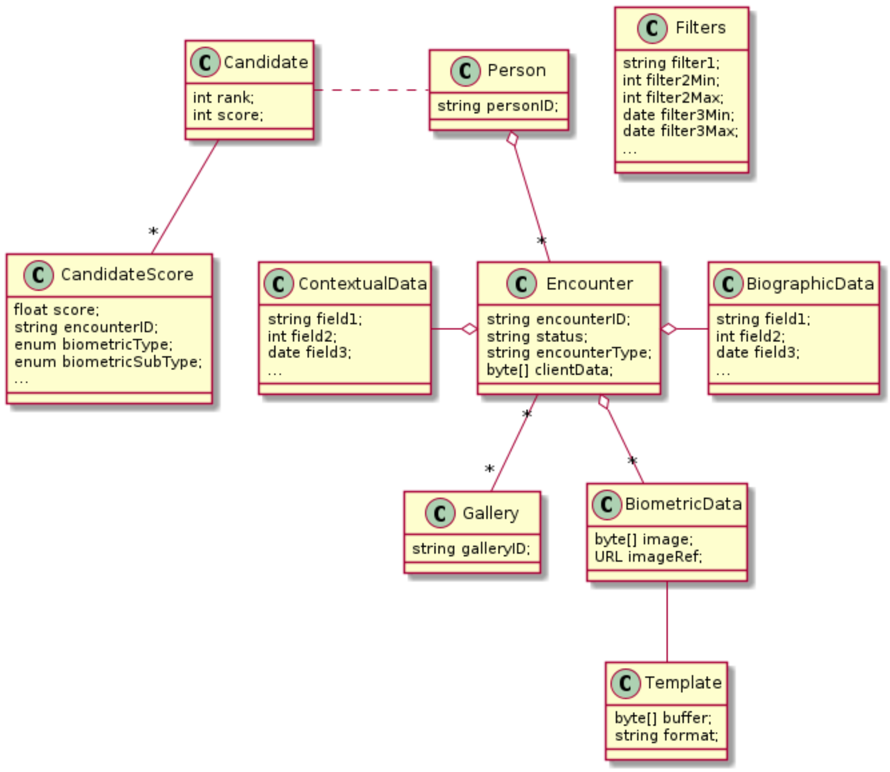


Fig. 6.18: Biometric Data Model

6.6 Credential Management System

The credential management system component MAY implement the following interfaces:

6.6.1 Credential Services

This interface describes services to manage credentials and credential requests in the context of an identity system.

Services

`createCredentialRequest` (*personID*, *credentialProfileID*, *additionalData*, *transactionID*)
Request issuance of a secure credential.

Authorization: `cms.request.write`

Parameters

- **`personID`** (*`str`*) – The ID of the person.
- **`credentialProfileID`** (*`str`*) – The ID of the credential profile to issue to the person.
- **`additionalData`** (*`dict`*) – Additional data relating to the requested credential profile, e.g. credential lifetime if overriding default, delivery addresses, etc.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error. In the case of success, a credential request identifier.

`readCredentialRequest` (*credentialRequestID*, *attributes*, *transactionID*)
Retrieve the data/status of a credential request.

Authorization: `cms.request.read`

Parameters

- **`credentialRequestID`** (*`str`*) – The ID of the credential request.
- **`attributes`** (*`set`*) – The (optional) set of required attributes to retrieve.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error, and in case of success the issuance data/status.

`updateCredentialRequest` (*credentialRequestID*, *additionalData*, *transactionID*)
Update the requested issuance of a secure credential.

Authorization: `cms.request.write`

Parameters

- **`credentialRequestID`** (*`str`*) – The ID of the credential request.
- **`transactionID`** (*`string`*) – The client generated transactionID.
- **`additionalData`** (*`dict`*) – Additional data relating to the requested credential profile, e.g. credential lifetime if overriding default, delivery addresses, etc.

Returns a status indicating success or error.

`deleteCredentialRequest` (*credentialRequestID*, *transactionID*)
Delete/cancel the requested issuance of a secure credential.

Authorization: `cms.request.write`

Parameters

- **`credentialRequestID`** (*`str`*) – The ID of the credential request.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`findCredentials` (*expressions*, *transactionID*)
Retrieve a list of credentials that match the passed in search criteria.

Authorization: `cms.credential.read`

Parameters

- **`expressions`** (*`list[(str,str,str)]`*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=) and the attribute value.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error, in the case of success the list of matching credentials.

`readCredential` (*credentialID*, *attributes*, *transactionID*)
Retrieve the attributes/status of an issued credential. A wide range of information may be returned, dependant on the type of credential that was issued, smart card, mobile, passport, etc.

Authorization: `cms.credential.read`

Parameters

- **`credentialID`** (*`str`*) – The ID of the credential.
- **`attributes`** (*`set`*) – The (optional) set of required attributes to retrieve.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error, in the case of success the requested data will be returned.

`suspendCredential` (*credentialID*, *additionalData*, *transactionID*)
Suspend an issued credential. For electronic credentials this will suspend any PKI certificates that are present.

Authorization: `cms.credential.write`

Parameters

- **`credentialID`** (*`str`*) – The ID of the credential.
- **`additionalData`** (*`dict`*) – Additional data relating to the request, e.g. reason for suspension.
- **`transactionID`** (*`string`*) – The (optional) client generated transactionID.

Returns a status indicating success or error.

`unsuspendCredential` (*credentialID*, *additionalData*, *transactionID*)
Unsuspend an issued credential. For electronic credentials this will unsuspend any PKI certificates that are present.

Authorization: `cms.credential.write`

Parameters

- **`credentialID`** (*`str`*) – The ID of the credential.
- **`additionalData`** (*`dict`*) – Additional data relating to the request, e.g. reason for unsuspension.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`revokeCredential` (*credentialID*, *additionalData*, *transactionID*)
Revoke an issued credential. For electronic credentials this will revoke any PKI certificates that are present.

Authorization: `cms.credential.write`

Parameters

- **`credentialID`** (*`str`*) – The ID of the credential.
- **`additionalData`** (*`dict`*) – Additional data relating to the request, e.g. reason for revocation.
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

`setCredentialStatus` (*credentialID*, *status*, *reason*, *requester*, *comment*, *transactionID*)
Change the status of a credential. This is an extension of the revoke/suspend services, supporting more statuses and transitions.

Authorization: `cms.credential.write`

Parameters

- **`credentialID`** (*`str`*) – The ID of the credential.
- **`status`** (*`string`*) – The new status of the credential
- **`reason`** (*`string`*) – A text describing the cause of the change of status
- **`requester`** (*`string`*) – The client generated transactionID.
- **`comment`** (*`string`*) – A free text comment
- **`transactionID`** (*`string`*) – The client generated transactionID.

Returns a status indicating success or error.

findCredentialProfiles(*expressions*, *transactionID*)

Retrieve a list of credential profils that match the passed in search criteria

Authorization: `cms.profile.read`

Parameters

- **expressions** (*list[(str,str,str)]*) – The expressions to evaluate. Each expression is described with the attribute's name, the operator (one of <, >, =, >=, <=, !=) and the attribute value
- **transactionID** (*string*) – The client generated transactionID.

Returns a status indicating success or error, and in case of success the matching credential profile list.

Attributes

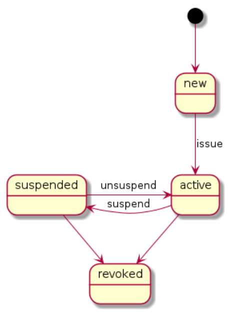
The "attributes" parameter used in "read" calls is used to provide a set of identifiers that limit the amount of data that is returned. It is often the case that the whole data set is not required, but instead, a subset of that data. @@ -128,7 +128,7 @@ attributes to retrieve.

E.g. For surname/familyname, use OID 2.5.4.4 or id-at-surname.

Some calls may require new attributes to be defined. E.g. when retrieving biometric data, the caller may only want the meta data about that biometric, rather than the actual biometric data.

Data Model

Table 6.17: Credential Data Model

Type	Description	Example
Credential	The attributes of the credential itself The proposed transitions for the status are represented below. It can be adapted if needed.  new issue suspended unsuspend suspend active revoked	ID, status, dates, serial number
Biometric Data	Digital representation of biometric characteristics. All images can be passed by value (image buffer is in the request) or by reference (the address of the image is in the request). All images are compliant with ISO 19794. ISO 19794 allows multiple encoding and supports additional metadata specific to fingerprint, palmprint, portrait, iris or signature. A biometric data can be associated to no image or a partial image if it includes information about the missing items (example: one finger may be amputated on a 4 finger image)	fingerprint, portrait, iris, signature
Biographic Data	a dictionary (list of names and values) giving the biographic data of interest for the biometric services.	first name, last name, date of birth, etc.
Request Data	a dictionary (list of names and values) for data related to the request itself.	Type of credential, action to execute, priority

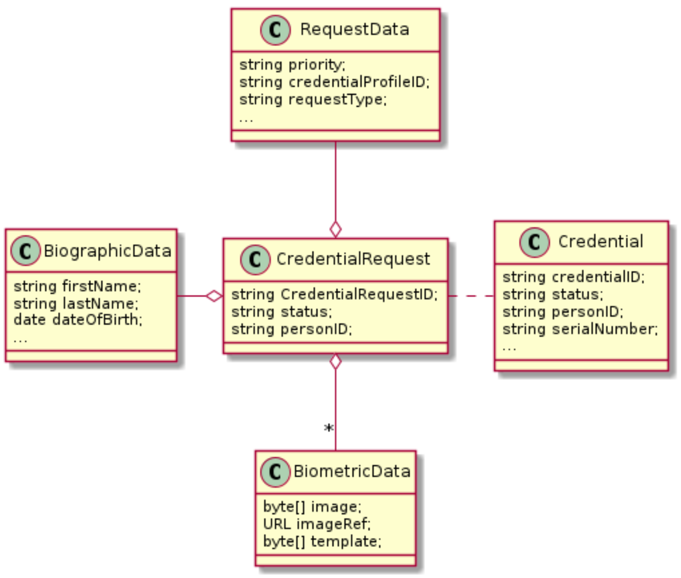


Fig. 6.19: Credential Data Model

6.7 ID Usage

The ID usage component MAY implement the following interfaces:

6.7.1 ID Usage

ID Usage consists of a set of services implemented on top of identity systems to favour third parties consumption of identity data. The services can be classified in three sets:

- Relying Party API: submitting citizen ID attributes for validation

  The purpose of the Relying Party (RP) API is to extend the use of government-issued identity to registered third party services. The individual will submit their ID attributes to the relying party in order to enroll for, or access, a particular service. The relying party will leverage the RP API to access the identity management system and verify the individual's identity. In this way, external relying parties can quickly and easily verify individuals based on their government issued ID attributes.

  Use case applications: telco enrolment

  The RP API enables a telco operator to check an individual's identity when applying for a service contract. The telco relies on the government to confirm that the attributes submitted by the individual match against the data held in the database therefore being able to confidently identify the new subscriber. This scenario can be replicated across multiple sectors including banking and finance.

- Digital Credential Management API: delegating digital issuance to third parties

  The purpose of the Digital Credential Management (DCM) API is to enable external wallet providers to manage government issued digital credentials distribution, storage and usage.

  Use case applications: digital driver license

  The DCM API enables individuals to request a digital driver license as a digital credential in their selected wallet to use for online and offline identification. The user initiates a request for digital driver license using the Digital Credential Distribution System (DCDS) frontend, which sends the request to the identity management system. The Credential Management System (CMS) then issues the digital credential by dedicated API endpoint of the DCDS.

- Federation API: user-initiated attributes sharing

  The purpose of the federation API is to enable the user to share their attributes with a chosen relying party using well-known internet protocol: OpenID Connect. The relying party benefits from the government's verified attributes.

  Use case applications: on-line registration to gambling website

  The Federation API enables individuals to log-in with their government credential (log-in/password) and share verified attributes ex. age (above 18) with the relying party.

Relying Party API

`verifyIdentity`(*Identifier*, *attributeSet*)

Verify an Identity based on an identifier (UIN, token...) and a set of Identity Attributes. Verification is strictly matching all provided identity attributes to compute the global Boolean matching result.

Authorization: *id.verify*

Parameters

- **`Identifier`** (*`str`*) – The person's Identifier
- **`attributeSet`** (*`list[str]`*) – A set of identity attributes associated to the identifier and to be verified by the system

Returns Y or N

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

`identify` (*attributeSet*, *outputAttributeSet*)

Identify possibly matching identities against an input set of attributes. Returns an array of predefined datasets as described by outputAttributeSet.

Note: This service may be limited to some specific government RPs

Authorization: *id.identify*

Parameters

- **`attributeSet`** (*`list[str]`*) – A list of pair (name,value) requested
- **`outputAttributeSet`** (*`list[str]`*) – An array of attributes requested

Returns Y or N

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

`readAttributes` (*Identifier*, *outputAttributeSet*)

Get a list of identity attributes attached to a given identifier.

Authorization: *id.read*

Parameters

- **`Identifier`** (*`str`*) – The person's Identifier
- **`outputAttributeSet`** (*`list[str]`*) – defining the identity attributes to be provided back to the caller

Returns An array of the requested attributes

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

`readAttributeSet` (*Identifier*, *AttributeSetName*)

Get a set of identity attributes as defined by attributeSet, attached to a given identifier.

Authorization: *id.set.read*

Parameters

- **`Identifier`** (*`str`*) – The person's Identifier
- **`attributeSetName`** (*`str`*) – The name of predefined attributes set name

Returns An array of the requested attributes

In case of error (unknown attributes, unauthorized access, etc.) the value is replaced with an error

Attribute set

When identity attributes are exchanged, they are included in an attribute set, possibly containing groups like biographic data, biometric data, document data, contact data… This structure is extensible and may be complemented with other data groups, and each group may contain any number of attribute name / attribute value pairs.

Attribute set name

Attribute sets are by definition structures with variable and optional content, hence it may be useful to pre-agree on a given attribute set content and name between two or more systems in a given project scope.

Any string may be used to define an attribute set name, but in the scope of this specification following names are reserved and predefined:

“DEFAULT_SET_01”	Minimum demographic data	First name Last name DoB Place of birth
“DEFAULT_SET_02”	Minimum demographic and portrait	Minimum demographic data + portrait
“DEFAULT_SET_EIDAS”	Set expected to comply with eIDAS pivotal attributes.	TBD

Output Attribute set

To specify what identity attributes are expected in return when performing e.g. an identify request or a read attributes.

CHAPTER 7

Annexes

7.1 Glossary

ABIS Automated Biometric Identification System

CR Civil Registry. The system in charge of the continuous, permanent, compulsory and universal recording of the occurrence and characteristics of vital events pertaining to the population, as provided through decree or regulation in accordance with the legal requirements in each country.

CMS Credential Management System

Credential A document, object, or data structure that vouches for the identity of a person through some method of trust and authentication. Common types of identity credentials include - but are not limited to — ID cards, certificates, numbers, passwords, or SIM cards. A biometric identifier can also be used as a credential once it has been registered with the identity provider.

(Source: ID4D Practioner's Guide)

Encounter Event in which the client application interacts with a person resulting in data being collected during or about the encounter. An encounter is characterized by an identifier and a type (also called purpose in some context).

(Source: ISO-30108-1)

Functional systems and registries Managing data including voter rolls, land registry, vehicle registration, passport, residence registry, education, health and benefits.

Gallery Group of persons related by a common purpose, designation, or status. Example: a watch list or a set of persons entitled to a certain benefit.

(Source: ISO-30108-1)

HTTP Status Codes The HTTP Status Codes are used to indicate the status of the executed operation. The available status codes are described by RFC 7231 and in the IANA Status Code Registry.

Mime Types Mime type definitions are spread across several resources. The mime type definitions should be in compliance with RFC 6838.

Some examples of possible mime type definitions:

```
text/plain; charset=utf-8
application/json
application/vnd.github+json
application/vnd.github.v3+json
application/vnd.github.v3.raw+json
application/vnd.github.v3.text+json
application/vnd.github.v3.html+json
application/vnd.github.v3.full+json
application/vnd.github.v3.diff
application/vnd.github.v3.patch
```

OSIA Open Standard Identity APIs

PR Population Registry. The system in charge of the recording of selected information pertaining to each member of the resident population of a country.

UIN Unique Identity Number.

7.2 Data Format

TBD: Conventions about data format in the interface: json, standards for date, images; structure of biographic data

7.3 Technical Specifications

7.3.1 Notification

This is version 1.2.0 of this interface.

Get the OpenAPI file: notification.yaml

Notification Services

- *create_topic*
- *list_topics*
- *delete_topic*
- *publish*
- *subscribe*
- *list_subscription*
- *unsubscribe*
- *confirm*

Services

Subscriber

`POST /v1/subscriptions`

Subscribe to a topic

Subscribes a client to receive event notification.

Subscriptions are idempotent. Subscribing twice for the same topic and endpoint (protocol, address) will return the same subscription ID and the subscriber will receive only once the notifications.

Scope required: `notif.sub.write`

Query Parameters

- **topic** (*string*) – The name of the topic for which notifications will be sent (Required)
- **protocol** (*string*) – The protocol used to send the notification
- **address** (*string*) – the endpoint address, where the notifications will be sent. (Required)
- **policy** (*string*) – The delivery policy, expressing what happens when the message cannot be delivered.

  If not specified, retry will be done every hour for 7 days.

  The value is a set of integer separated by comma:

  – countdown: the number of seconds to wait before retrying. Default: 3600.

  – max: the maximum max number of retry. -1 indicates infinite retry. Default: 168

Status Codes

- 200 OK – Subscription successfully created. Waiting for confirmation message.
- 400 Bad Request – Bad request
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "uuid": "string",
    "topic": "string",
    "protocol": "http",
    "address": "string",
    "policy": "string",
    "active": true
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: onEvent

POST {$request.query.address}

Status Codes

- 200 OK – Message received and processed.
- 500 Internal Server Error – Unexpected error

Request Headers

- *message-type* – the type of the message (Required)
- *subscription-id* – the unique ID of the subscription
- *message-id* – the unique ID of the message (Required)
- *topic-id* – the unique ID of the topic (Required)

Example request:

```
POST {$request.query.address} HTTP/1.1
Host: example.com
Content-Type: application/json
message-type: <VALUE>
subscription-id: <VALUE>
message-id: <VALUE>
topic-id: <VALUE>

{
    "type": "SubscriptionConfirmation",
    "token": "string",
    "topic": "string",
    "message": "string",
    "messageId": "string",
    "subject": "string",
    "subscribeURL": "https://example.com",
    "timestamp": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/subscriptions

Get all subscriptions

Scope required: `notif.sub.read`

Status Codes

- 200 OK – Get all subscriptions
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/subscriptions HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "uuid": "string",
        "topic": "string",
        "protocol": "http",
        "address": "string",
        "policy": "string",
```

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```
        "active": true
    }
]
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`DELETE /v1/subscriptions/{uuid}`

Unsubscribe from a topic

Unsubscribes a client from receiving notifications for a topic

Scope required: `notif.sub.write`

Parameters

- **`uuid`** (*`string`*) – the unique ID returned when the subscription was done

Status Codes

- 204 No Content – Subscription successfully removed
- 400 Bad Request – Bad request
- 404 Not Found – Subscription not found
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`GET /v1/subscriptions/confirm`

Confirm the subscription

Confirm a subscription

Scope required: `notif.sub.write`

Query Parameters

- **`token`** (*`string`*) – the token sent to the endpoint (Required)

Status Codes

- 200 OK – Subscription successfully confirmed
- 400 Bad Request – Bad request (invalid token)

- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/subscriptions/confirm?token=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Publisher

POST /v1/topics

Create a topic

Create a new topic. This service is idempotent.

Scope required: `notif.topic.write`

Query Parameters

- **name** (*string*) – The topic name (Required)

Status Codes

- 200 OK – Topic was created.
- 400 Bad Request – Bad request
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "uuid": "string",
    "name": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/topics

Get all topics

Scope required: `notif.topic.read`

Status Codes

- 200 OK – Get all topics
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/topics HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "uuid": "string",
        "name": "string"
    }
]
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

DELETE /v1/topics/{uuid}

Delete a topic

Delete a topic

Scope required: `notif.topic.write`

Parameters

- **uuid** (*string*) – the unique ID returned when the topic was created

Status Codes

- 204 No Content – Topic successfully removed
- 400 Bad Request – Bad request
- 404 Not Found – Topic not found
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/topics/{uuid}/publish

Post a notification to a topic.

Scope required: `notif.topic.publish`

Parameters

- **uuid** (*string*) – the unique ID of the topic

Query Parameters

- **subject** (*string*) – the subject of the message.

Status Codes

- 200 OK – Notification published
- 400 Bad Request – Bad request
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Notification Message

This section describes the messages exchanged through notification. All messages are encoded in `json`. They are generated by the emitter (the source of the event) and received by zero, one, or many receivers that have subscribed to the type of event.

Table 7.1: Event Type & Message

Event Type	Message

`liveBirth`	• `source`: identification of the system emitting the event
	• `uin` of the new born
	• `uin1` of the first parent (optional if parent is unknown)
	• `uin2` of the second parent (optional if parent is unknown)
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789",`
	`    "uin1": "123456789",`
	`    "uin2": "234567890"`
	`}`

`death`	• `source`: identification of the system emitting the event
	• `uin` of the dead person
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789"`
	`}`

`birthCancellation`	• `source`: identification of the system emitting the event
	• `uin` of the person whose birth declaration is being cancelled
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789",`
	`}`

`foetalDeath`	• `source`: identification of the system emitting the event
	• `uin` of the new born
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789"`
	`}`

`marriage`	• `source`: identification of the system emitting the event
	• `uin1` of the first conjoint
	• `uin2` of the second conjoint
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin1": "123456789",`
	`    "uin2": "234567890"`
	`}`

Continued on next page

Table 7.1 – continued from previous page

Event Type	Message

`divorce`	• `source`: identification of the system emitting the event
	• `uin1` of the first conjoint
	• `uin2` of the second conjoint
	Example:
	`{`
	    `"source": "systemX",`
	    `"uin1": "123456789",`
	    `"uin2": "234567890"`
	`}`

`annulment`	• `source`: identification of the system emitting the event
	• `uin1` of the first conjoint
	• `uin2` of the second conjoint
	Example:
	`{`
	    `"source": "systemX",`
	    `"uin1": "123456789",`
	    `"uin2": "234567890"`
	`}`

`separation`	• `source`: identification of the system emitting the event
	• `uin1` of the first conjoint
	• `uin2` of the second conjoint
	Example:
	`{`
	    `"source": "systemX",`
	    `"uin1": "123456789",`
	    `"uin2": "234567890"`
	`}`

`adoption`	• `source`: identification of the system emitting the event
	• `uin` of the child
	• `uin1` of the first parent
	• `uin2` of the second parent (optional)
	Example:
	`{`
	    `"source": "systemX",`
	    `"uin": "123456789",`
	    `"uin1": "234567890"`
	`}`

`legitimation`	• `source`: identification of the system emitting the event
	• `uin` of the child
	• `uin1` of the first parent
	• `uin2` of the second parent (optional)
	Example:
	`{`
	    `"source": "systemX",`
	    `"uin": "987654321",`
	    `"uin1": "123456789",`
	    `"uin2": "234567890"`
	`}`

Continued on next page

Table 7.1 – continued from previous page

Event Type	Message

`recognition`	• `source`: identification of the system emitting the event
	• `uin` of the child
	• `uin1` of the first parent
	• `uin2` of the second parent (optional)
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789",`
	`    "uin2": "234567890"`
	`}`

`changeOfName`	• `source`: identification of the system emitting the event
	• `uin` of the person
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789"`
	`}`

`changeOfGender`	• `source`: identification of the system emitting the event
	• `uin` of the person
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789"`
	`}`

`updatePerson`	• `source`: identification of the system emitting the event
	• `uin` of the person
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789"`
	`}`

`newPerson`	• `source`: identification of the system emitting the event
	• `uin` of the person
	Example:
	`{`
	`    "source": "systemX",`
	`    "uin": "123456789"`
	`}`

Continued on next page

Table 7.1 – continued from previous page

Event Type	Message
`duplicatePerson`	• `source`: identification of the system emitting the event • `uin` of the person to be kept • `duplicates`: list of uin for records identified as duplicates Example: `{ "source": "systemX", "uin": "123456789", "duplicates": [ "234567890", "345678901" ] }`

Note: Anonymized notification of events will be treated separately.

7.3.2 UIN Management

This is version 1.2.0 of this interface.

Get the OpenAPI file: uin.yaml

Services

`POST /v1/uin`

Request the generation of a new UIN. The request body should contain a list of attributes and their value, formatted as a json dictionary.

Scope required: `uin.generate`

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – UIN is generated
- 400 Bad Request – Unexpected error
- 401 Unauthorized – Client must be authenticated
- 403 Forbidden – Service forbidden
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/uin?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "firstName": "John",
    "lastName": "Doo",
    "dateOfBirth": "1984-11-19"
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

"1235567890"
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

7.3.3 Data Access

This is version 1.3.0 of this interface.

Get the OpenAPI file: dataaccess.yaml

Data Access Services

- *queryPersonList*
- *queryPersonUIN*
- *readPersonAttributes*
- *matchPersonAttributes*
- *verifyPersonAttributes*
- *readDocument*

Services

Person

GET /v1/persons

Query for persons using a set of attributes. Retrieve the UIN or the person attributes. This service is used when the UIN is unknown. Example: http://registry.com/v1/persons?firstName=John&lastName=Do&names=firstName

Scope required: `pr.person.read` or `cr.person.read`

Query Parameters

- **attributes** (*object*) – The attributes (names and values) used to query (Required)
- **names** (*array*) – The names of the attributes to return. If not provided, only the UIN is returned
- **offset** (*integer*) – The offset of the query (first item of the response)
- **limit** (*integer*) – The maximum number of items to return

Status Codes

- 200 OK – The requested attributes for all found persons (a list of at least one entry). If no names are given, a flat list of UIN is returned. If at least one name is given, a list of dictionaries (one dictionary per record) is returned.
- 400 Bad Request – Invalid parameter
- 401 Unauthorized – Client must be authenticated
- 403 Forbidden – Service forbidden
- 404 Not Found – No record found
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons?firstName=John&lastName=Do HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    "string"
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/persons/{uin}

Read attributes for a person. Example: http://registry.com/v1/persons/123456789?attributeNames=firstName&attributeNames=lastName&attributeNames=dob

Scope required: `pr.person.read` or `cr.person.read`

Parameters

- **uin** (*string*) – Unique Identity Number

Query Parameters

- **attributeNames** (*array*) – The names of the attributes requested for this person (Required)

Status Codes

- 200 OK – Requested attributes values or error description.
- 400 Bad Request – Invalid parameter

- 401 Unauthorized – Client must be authenticated
- 403 Forbidden – Service forbidden
- 404 Not Found – Unknown uin
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{uin}?attributeNames=%5B%27string%27%5D HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "firstName": "John",
    "lastName": "Doo",
    "dob": {
        "code": 1023,
        "message": "Unknown attribute name"
    }
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/persons/{uin}/match`

Match person attributes. This service is used to check the value of attributes without exposing private data.

The request body should contain a list of attributes and their value, formatted as a json dictionary.

Scope required: `pr.person.match` or `cr.person.match`

Parameters

- **`uin`** (*`string`*) – Unique Identity Number

Status Codes

- 200 OK – Information about non matching attributes. Returns a list of matching result. An empty list indicates all attributes were matching.
- 400 Bad Request – Invalid parameter
- 401 Unauthorized – Client must be authenticated
- 403 Forbidden – Service forbidden
- 404 Not Found – Unknown uin

- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{uin}/match HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "firstName": "John",
    "lastName": "Doo",
    "dateOfBirth": "1984-11-19"
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "attributeName": "firstName",
        "errorCode": 1
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/persons/{uin}/verify`

Evaluate expressions on person attributes. This service is used to evaluate simple expressions on person's attributes without exposing private data

The request body should contain a list of expressions.

Scope required: `pr.person.verify` or `cr.person.verify`

Parameters

- **`uin`** (*`string`*) – Unique Identity Number

Status Codes

- 200 OK – The expressions are all true (true is returned) or one is false (false is returned)
- 400 Bad Request – Invalid parameter
- 401 Unauthorized – Client must be authenticated
- 403 Forbidden – Forbidden access. The service is forbidden or one of the attributes is forbidden.
- 404 Not Found – Unknown uin

- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{uin}/verify HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

[
    {
        "attributeName": "firstName",
        "operator": "=",
        "value": "John"
    },
    {
        "attributeName": "dateOfBirth",
        "operator": "<",
        "value": "1990-12-31"
    }
]
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

true
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Document

GET /v1/persons/{uin}/document

Read in an unstructured format (PDF, image) a document such as a marriage certificate. Example: `http://registry.com/v1/persons/123456789/document?doctype=marriage&secondaryUin=234567890&format=pdf`

Scope required: `pr.document.read` or `cr.document.read`

Parameters

- **uin** (*string*) – Unique Identity Number

Query Parameters

- **secondaryUin** (*string*) – Unique Identity Number of a second person linked to the requested document. Example: wife, husband
- **doctype** (*string*) – The type of document (Required)

- **format** (*string*) – The expected format of the document. If the document is not available at this format, it must be converted. TBD: one format for certificate data. (Required)

Status Codes

- 200 OK – The document(s) is/are found and returned, as binary data in a MIME multi-part structure.
- 400 Bad Request – Invalid parameter
- 401 Unauthorized – Client must be authenticated
- 403 Forbidden – Service forbidden
- 404 Not Found – Unknown uin
- 415 Unsupported Media Type – Unsupported format
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{uin}/document?doctype=string&format=pdf HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Data Model

Person Attributes

When exchanged in the services described in this document, the persons attributes will apply the following rules:

Table 7.2: Person Attributes

Attribute Name	Description	Format
`uin`	Unique Identity Number	Text
`firstName`	First name	Text
`lastName`	Last name	Text
`spouseName`	Spouse name	Text
`dateOfBirth`	Date of birth	Date (iso8601). Example: `1987-11-17`
`placeOfBirth`	Place of birth	Text
`gender`	Gender	Number (iso5218). One of 0 (Not known), 1 (Male), 2 (Female), 9 (Not applicable)
`dateOfDeath`	Date of death	Date (iso8601). Example: `2018-11-17`
`placeOfDeath`	Place of death	Text
`reasonOfDeath`	Reason of death	Text
`status`	Status. Example: missing, wanted, dead, etc.	Text

Matching Error

A list of:

Table 7.3: Matching Error Object

Attribute	Type	Description	Mandatory
`attributeName`	String	Attribute name (See *Person Attributes*)	Yes
`errorCode`	32 bits integer	Error code. Possible values: `0` (attribute does not exist); `1` (attribute exists but does not match)	Yes

Expression

Table 7.4: Expression Object

Attribute	Type	Description	Mandatory
`attributeName`	String	Attribute name (See *Person Attributes*)	Yes
`operator`	String	Operator to apply. Possible values: <, >, =, >=, <=	Yes
`value`	string, or integer, or boolean	The value to be evaluated	Yes

Error

Table 7.5: Error Object

Attribute	Type	Description	Mandatory
`code`	32 bits integer	Error code	Yes
`message`	String	Error message	Yes

7.3.4 Enrollment

This is version 1.1.0 of this interface.

Get the OpenAPI file: enrollment.yaml

Enrollment Services

Services

Enrollment

`POST /v1/enrollments/{enrollmentId}`

Create one enrollment

Scope required: `enroll.write`

Parameters

- **`enrollmentId`** (*string*) – the id of the enrollment

Query Parameters

- **`finalize`** (*boolean*) – Flag to indicate that data was collected (default is false).
- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/enrollments/{enrollmentId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "enrollmentId": "string",
    "status": "FINALIZED",
    "enrollmentType": "string",
    "enrollmentFlags": [
        {
            "timeout": 3600,
            "other": "other"
        }
    ],
    "requestData": [
        {
            "requestType": "IDCARD_ISSUANCE",
            "deliveryPlace": "paris",
            "other": "other"
```

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```
        }
    ],
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "mimetype": "string",
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documentData": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "captureDate": "2020-12-17",
                    "captureDevice": "string",
                    "mimetype": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/enrollments/{enrollmentId}

Read one enrollment

Scope required: `enroll.read`

Parameters

- **enrollmentId** (*string*) – the id of the enrollment

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **attributes** (*array*) – The (optional) set of required attributes to retrieve. If not present all attributes will be returned.

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/enrollments/{enrollmentId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "enrollmentId": "string",
    "status": "FINALIZED",
    "enrollmentType": "string",
    "enrollmentFlags": [
        {
            "timeout": 3600,
            "other": "other"
        }
    ],
    "requestData": [
        {
            "requestType": "IDCARD_ISSUANCE",
            "deliveryPlace": "paris",
            "other": "other"
        }
    ],
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
```

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```
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "mimetype": "string",
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documentData": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "captureDate": "2020-12-17",
                    "captureDevice": "string",
                    "mimetype": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

PUT /v1/enrollments/{enrollmentId}

Update one enrollment

Scope required: `enroll.write`

Parameters

- **enrollmentId** (*string*) – the id of the enrollment

Query Parameters

- **finalize** (*boolean*) – Flag to indicate that data was collected (default is false).
- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
PUT /v1/enrollments/{enrollmentId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "enrollmentId": "string",
    "status": "FINALIZED",
    "enrollmentType": "string",
    "enrollmentFlags": [
        {
            "timeout": 3600,
            "other": "other"
        }
    ],
    "requestData": [
        {
            "requestType": "IDCARD_ISSUANCE",
            "deliveryPlace": "paris",
            "other": "other"
        }
    ],
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "mimetype": "string",
```

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```
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documentData": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "captureDate": "2020-12-17",
                    "captureDevice": "string",
                    "mimetype": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`PATCH /v1/enrollments/{enrollmentId}`

Update partially one enrollment

Update partially an enrollment. Payload content is a partial enrollment object compliant with RFC7396.

Scope required: `enroll.write`

Parameters

- **`enrollmentId`** (*`string`*) – the id of the enrollment

Query Parameters

- **`finalize`** (*`boolean`*) – Flag to indicate that data was collected (default is false).
- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
PATCH /v1/enrollments/{enrollmentId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "enrollmentId": "string",
    "status": "FINALIZED",
    "enrollmentType": "string",
    "enrollmentFlags": [
        {
            "timeout": 3600,
            "other": "other"
        }
    ],
    "requestData": [
        {
            "requestType": "IDCARD_ISSUANCE",
            "deliveryPlace": "paris",
            "other": "other"
        }
    ],
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "mimetype": "string",
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documentData": [
        {
            "documentType": "ID_CARD",
```

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```
                "documentTypeOther": "string",
                "instance": "string",
                "parts": [
                    {
                        "pages": [
                            1
                        ],
                        "data": "c3RyaW5n",
                        "dataRef": "https://example.com",
                        "width": 1,
                        "height": 1,
                        "captureDate": "2020-12-17",
                        "captureDevice": "string",
                        "mimetype": "string"
                    }
                ]
            }
        ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`DELETE /v1/enrollments/{enrollmentId}`

Delete one enrollment

Scope required: `enroll.write`

Parameters

- **`enrollmentId`** (*`string`*) – the id of the enrollment

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Delete successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

```

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```
{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

PUT /v1/enrollments/{enrollmentId}/finalize

Finalize one enrollment

Scope required: `enroll.write`

Parameters

- **enrollmentId** (*string*) – the id of the enrollment

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/enrollments

Retrieve a list of enrollments which match passed in search criteria

Scope required: `enroll.read`

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **offset** (*integer*) – The offset of the query (first item of the response)

- **limit** (*integer*) – The maximum number of items to return

Status Codes

- 200 OK – Query successful
- 400 Bad Request – Bad request
- 403 Forbidden – Query not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/enrollments?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

[
    {
        "attributeName": "firstName",
        "operator": "=",
        "value": "John"
    },
    {
        "attributeName": "dateOfBirth",
        "operator": "<",
        "value": "1990-12-31"
    }
]
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "enrollmentId": "string",
        "status": "FINALIZED",
        "enrollmentType": "string",
        "enrollmentFlags": [
            {
                "timeout": 3600,
                "other": "other"
            }
        ],
        "requestData": [
            {
                "requestType": "IDCARD_ISSUANCE",
                "deliveryPlace": "paris",
                "other": "other"
            }
        ],
        "contextualData": {
            "enrollmentDate": "2019-01-11"
        },
        "biographicData": {
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
```

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```
                "impressionType": "LIVE_SCAN_PLAIN",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "mimetype": "string",
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ],
        "documentData": [
            {
                "documentType": "ID_CARD",
                "documentTypeOther": "string",
                "instance": "string",
                "parts": [
                    {
                        "pages": [
                            1
                        ],
                        "data": "c3RyaW5n",
                        "dataRef": "https://example.com",
                        "width": 1,
                        "height": 1,
                        "captureDate": "2020-12-17",
                        "captureDevice": "string",
                        "mimetype": "string"
                    }
                ]
            }
        ]
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Buffer

POST /v1/enrollments/{enrollmentId}/buffer

Create a buffer

This service is used to send separately the buffers of the images

Scope required: `enroll.buf.write`

Parameters

- **`enrollmentId`** (*`string`*) – the id of the enrollment

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 201 Created – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Request Headers

- *Digest* – the buffer digest, as defined per RFC 3230.

Example request:

```
POST /v1/enrollments/{enrollmentId}/buffer?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/*
Authorization: Bearer cn389ncoiwuencr
Digest: SHA=thvDyvhfIqlvFe+A9MYgxAfm1q5=

ABCDEFG...
```

Example request:

```
POST /v1/enrollments/{enrollmentId}/buffer?transactionId=string HTTP/1.1
Host: example.com
Content-Type: image/*
Authorization: Bearer cn389ncoiwuencr
Digest: SHA=thvDyvhfIqlvFe+A9MYgxAfm1q5=

ABCDEFG...
```

Example response:

```
HTTP/1.1 201 Created
Content-Type: application/json

{
    "bufferId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
```

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```
    "code": 1,
    "message": "string"
}
```

GET /v1/enrollments/{enrollmentId}/buffer/{bufferId}

Read a buffer

This service is used to get the buffer of the images. The content type of the response is the content type used when the buffer was created.

Scope required: `enroll.buf.read`

Parameters

- **enrollmentId** (*string*) – the id of the enrollment
- **bufferId** (*string*) – the id of the buffer

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Response Headers

- *Digest* – the buffer digest, as defined per RFC 3230.

Example request:

```
GET /v1/enrollments/{enrollmentId}/buffer/{bufferId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/*
Digest: SHA=thvDyvhfIqlvFe+A9MYgxAfm1q5=

ABCDEFG...
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: image/*
Digest: SHA=thvDyvhfIqlvFe+A9MYgxAfm1q5=

ABCDEFG...
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json
Digest: SHA=thvDyvhfIqlvFe+A9MYgxAfm1q5=

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json
Digest: SHA=thvDyvhfIqlvFe+A9MYgxAfm1q5=

{
    "code": 1,
    "message": "string"
}
```

Data Model

To be completed

7.3.5 Population Registry Management

This is version 1.3.0 of this interface.

Get the OpenAPI file: pr.yaml

Population Registry Services

- *findPersons*
- *createPerson*
- *readPerson*
- *updatePerson*
- *deletePerson*
- *mergePerson*
- *readIdentities*
- *createIdentity*
- *createIdentityWithId*
- *readIdentity*
- *updateIdentity*
- *partialUpdateIdentity*
- *deleteIdentity*
- *setIdentityStatus*
- *defineReference*
- *readReference*
- *readGalleries*
- *readGalleryContent*

Services

Person

`POST /v1/persons`

Query for persons

Retrieve a list of personId corresponding to the records with one identity matching the criteria.

By default, all identities are used in the search.

Scope required: `pr.person.read`

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

- **group** (*boolean*) – Group all matching identities of one person and return only the personId
- **reference** (*boolean*) – Limit the query to the reference identity
- **gallery** (*string*) – Limit the query to the records belonging to this gallery
- **offset** (*integer*) – The offset of the query (first item of the response)
- **limit** (*integer*) – The maximum number of items to return

Status Codes

- 200 OK – Query successful. If the group parameter was set the identityId is not included in the response.
- 400 Bad Request – Bad request
- 403 Forbidden – Query not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

[
    {
        "attributeName": "firstName",
        "operator": "=",
        "value": "John"
    },
    {
        "attributeName": "dateOfBirth",
        "operator": "<",
        "value": "1990-12-31"
    }
]
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "personId": "string",
        "identityId": "string"
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
```

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```
    "message": "string"
}
```

POST /v1/persons/{personId}

Create one person

Scope required: `pr.person.write`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 201 Created – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{personId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "personId": "string",
    "status": "ACTIVE",
    "physicalStatus": "DEAD"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/persons/{personId}

Read one person

Scope required: `pr.person.read`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "personId": "string",
    "status": "ACTIVE",
    "physicalStatus": "DEAD"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`PUT /v1/persons/{personId}`

Update one person

Scope required: `pr.person.write`

Parameters

- **`personId`** (*`string`*) – the id of the person

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
PUT /v1/persons/{personId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "personId": "string",
    "status": "ACTIVE",
    "physicalStatus": "DEAD"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`DELETE /v1/persons/{personId}`

Delete a person and all its identities

Scope required: `pr.person.write`

Parameters

- **`personId`** (*string*) – the id of the person

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Delete successful
- 400 Bad Request – Bad request
- 403 Forbidden – Delete not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/persons/{personIdTarget}/merge/{personIdSource}

Merge two persons

Merge two person records into a single one. Identity ID are preserved and in case of duplicates an error is returned and no changes are done. If the operation is successful, the person merged is deleted.

Scope required: `pr.person.write`

Parameters

- **personIdTarget** (*string*) – the id of the person receiving new identities
- **personIdSource** (*string*) – the id of the person giving the identities

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Merge successful
- 400 Bad Request – Bad request
- 403 Forbidden – Merge not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Identity

GET /v1/persons/{personId}/identities

Read all the identities of a person

Scope required: `pr.identity.read`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}/identities?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "identityId": "string",
        "status": "CLAIMED",
        "galleries": [
            "string"
        ],
        "clientData": "c3RyaW5n",
        "contextualData": {
            "enrollmentDate": "2019-01-11"
        },
        "biographicData": {
            "firstName": "John",
            "lastName": "Doo",
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ],
        "documents": [
            {
                "documentType": "ID_CARD",
                "documentTypeOther": "string",
                "instance": "string",
```

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```
                "parts": [
                    {
                        "pages": [
                            1
                        ],
                        "data": "c3RyaW5n",
                        "dataRef": "https://example.com",
                        "width": 1,
                        "height": 1,
                        "format": "NONE",
                        "captureDate": "2020-12-17",
                        "captureDevice": "string"
                    }
                ]
            }
        ]
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/persons/{personId}/identities

Create one identity and generate its id

Scope required: `pr.identity.write`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Insertion successful
- 400 Bad Request – Bad request
- 403 Forbidden – Insertion not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{personId}/identities?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
```

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```
    "identityId": "string",
    "status": "CLAIMED",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documents": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "format": "NONE",
                    "captureDate": "2020-12-17",
                    "captureDevice": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "identityId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/persons/{personId}/identities/{identityId}`

Create one identity

Create one new identity for a person. The provided identityId is checked for validity and used for the new identity.

Scope required: `pr.identity.write`

Parameters

- **`personId`** (*`string`*) – the id of the person
- **`identityId`** (*`string`*) – the id of the identity

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 201 Created – Insertion successful
- 400 Bad Request – Bad request
- 403 Forbidden – Insertion not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{personId}/identities/{identityId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "identityId": "string",
    "status": "CLAIMED",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
```

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```
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documents": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "format": "NONE",
                    "captureDate": "2020-12-17",
                    "captureDevice": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/persons/{personId}/identities/{identityId}

Read one identity

Scope required: `pr.identity.read`

Parameters

- **personId** (*string*) – the id of the person
- **identityId** (*string*) – the id of the identity

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}/identities/{identityId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "identityId": "string",
    "status": "CLAIMED",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
```

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```
                "comment": "string"
            }
        ],
        "documents": [
            {
                "documentType": "ID_CARD",
                "documentTypeOther": "string",
                "instance": "string",
                "parts": [
                    {
                        "pages": [
                            1
                        ],
                        "data": "c3RyaW5n",
                        "dataRef": "https://example.com",
                        "width": 1,
                        "height": 1,
                        "format": "NONE",
                        "captureDate": "2020-12-17",
                        "captureDevice": "string"
                    }
                ]
            }
        ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

PUT /v1/persons/{personId}/identities/{identityId}

Update one identity

Scope required: `pr.identity.write`

Parameters

- **personId** (*string*) – the id of the person
- **identityId** (*string*) – the id of the identity

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record

- 500 Internal Server Error – Unexpected error

Example request:

```
PUT /v1/persons/{personId}/identities/{identityId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "identityId": "string",
    "status": "CLAIMED",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documents": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "format": "NONE",
                    "captureDate": "2020-12-17",
                    "captureDevice": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

PATCH /v1/persons/{personId}/identities/{identityId}

Update partially one identity

Update partially an identity. Payload content is a partial identity object compliant with RFC7396.

Scope required: `pr.identity.write`

Parameters

- **personId** (*string*) – the id of the person
- **identityId** (*string*) – the id of the identity

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
PATCH /v1/persons/{personId}/identities/{identityId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "galleries": [
        "G1",
        "G2"
    ],
    "biographicData": {
        "gender": null,
        "nationality": "FRA"
    }
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

```

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```
{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`DELETE /v1/persons/{personId}/identities/{identityId}`

Delete one identity

Scope required: `pr.identity.write`

Parameters

- **`personId`** (*`string`*) – the id of the person
- **`identityId`** (*`string`*) – the id of the identity

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Delete successful
- 400 Bad Request – Bad request
- 403 Forbidden – Delete not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`PUT /v1/persons/{personId}/identities/{identityId}/status`

Change the status of an identity

Scope required: `pr.identity.write`

Parameters

- **`personId`** (*`string`*) – the id of the person

- **identityId** (*string*) – the id of the identity

Query Parameters

- **status** (*string*) – The status of the identity (Required)
- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Reference

PUT /v1/persons/{personId}/identities/{identityId}/reference
Define the reference

Scope required: `pr.reference.write`

Parameters

- **personId** (*string*) – the id of the person
- **identityId** (*string*) – the id of the identity

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/persons/{personId}/reference

Read the reference

Scope required: `pr.reference.read`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}/reference?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "identityId": "string",
    "status": "CLAIMED",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "enrollmentDate": "2019-01-11"
    },
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
```

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```
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "documents": [
        {
            "documentType": "ID_CARD",
            "documentTypeOther": "string",
            "instance": "string",
            "parts": [
                {
                    "pages": [
                        1
                    ],
                    "data": "c3RyaW5n",
                    "dataRef": "https://example.com",
                    "width": 1,
                    "height": 1,
                    "format": "NONE",
                    "captureDate": "2020-12-17",
                    "captureDevice": "string"
                }
            ]
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Gallery

GET /v1/galleries

Read the ID of all the galleries

Scope required: `pr.gallery.read`

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/galleries?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    "string"
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/galleries/{galleryId}

Read the content of one gallery

Scope required: `pr.gallery.read`

Parameters

- **`galleryId`** (*string*) – the id of the gallery

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)
- **`offset`** (*integer*) – The offset of the query (first item of the response)

- **limit** (*integer*) – The maximum number of items to return

Status Codes

- 200 OK – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/galleries/{galleryId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "personId": "string",
        "identityId": "string"
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Data Model

To be completed

7.3.6 Biometrics

This is version 1.4.0 of this interface.

Get the OpenAPI file: abis.yaml

Biometrics Services

- *createEncounterNoIds*

Services

CRUD

POST /v1/persons

Create one encounter and generate ID for both the person and the encounter

Scope required: `abis.encounter.write`

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **algorithm** (*string*) – Hint about the algorithm to be used

Status Codes

- 200 OK – Operation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "encounterId": "string",
    "status": "ACTIVE",
    "encounterType": "string",
    "galleries": [
        "string"
    ],
```

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```
    "clientData": "c3RyaW5n",
    "contextualData": {
        "date": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json
```

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```
{
    "code": 1,
    "message": "string"
}
```

Callback: createResponse

`POST ${request.query.callback}`

Create one encounter and generate both IDs response callback

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/persons/{personId}/encounters`

Create one encounter and generate its ID

Create one encounter in the person identified by his/her id. If the person does not yet exist, it is created automatically.

Scope required: `abis.encounter.write`

Parameters

- **`personId`** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **algorithm** (*string*) – Hint about the algorithm to be used

Status Codes

- 200 OK – creation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Creation not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{personId}/encounters?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "encounterId": "string",
    "status": "ACTIVE",
    "encounterType": "string",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "date": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: createResponse

`POST ${request.query.callback}`

Create one encounter and generate its ID response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/persons/{personId}/encounters

Read all encounters of one person

Scope required: `abis.encounter.read`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 200 OK – Read successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}/encounters?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "encounterId": "string",
        "status": "ACTIVE",
        "encounterType": "string",
        "galleries": [
            "string"
```

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```
        ],
        "clientData": "c3RyaW5n",
        "contextualData": {
            "date": "2019-01-11"
        },
        "biographicData": {
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
                "impressionType": "LIVE_SCAN_PLAIN",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ]
    }
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: readAllResponse

POST ${request.query.callback}

Read all encounters response callback

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

[
    {
        "encounterId": "string",
        "status": "ACTIVE",
        "encounterType": "string",
        "galleries": [
            "string"
        ],
        "clientData": "c3RyaW5n",
        "contextualData": {
            "date": "2019-01-11"
        },
        "biographicData": {
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
                "impressionType": "LIVE_SCAN_PLAIN",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ]
    }
]
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json
```

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```
{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/persons/{personId}/encounters/{encounterId}

Create one encounter

Create one encounter in the person identified by his/her id. If the person does not yet exist, it is created automatically.

If the encounter already exists, an error 403 is returned.

Scope required: `abis.encounter.write`

Parameters

- **personId** (*string*) – the id of the person
- **encounterId** (*string*) – the id of the encounter

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **algorithm** (*string*) – Hint about the algorithm to be used

Status Codes

- 200 OK – Creation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Creation not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/persons/{personId}/encounters/{encounterId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "encounterId": "string",
    "status": "ACTIVE",
    "encounterType": "string",
    "galleries": [
        "string"
    ],
```

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```
    "clientData": "c3RyaW5n",
    "contextualData": {
        "date": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json
```

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```
{
    "code": 1,
    "message": "string"
}
```

Callback: createResponse

`POST ${request.query.callback}`

Create one encounter response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`GET /v1/persons/{personId}/encounters/{encounterId}`

Read one encounter

Scope required: `abis.encounter.read`

Parameters

- **`personId`** (*`string`*) – the id of the person
- **`encounterId`** (*`string`*) – the id of the encounter

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 200 OK – Read successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}/encounters/{encounterId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "encounterId": "string",
    "status": "ACTIVE",
    "encounterType": "string",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "date": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
```

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```
        }
    ]
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: readResponse

`POST ${request.query.callback}`

Read one encounter response callback

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
    "encounterId": "string",
    "status": "ACTIVE",
    "encounterType": "string",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "date": "2019-01-11"
    },
    "biographicData": {
```

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```
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`PUT /v1/persons/{personId}/encounters/{encounterId}`

Update one encounter

Scope required: `abis.encounter.write`

Parameters

- **`personId`** (*string*) – the id of the person
- **`encounterId`** (*string*) – the id of the encounter

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)
- **`callback`** (*string*) – the callback address, where the result will be sent when available

- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **algorithm** (*string*) – Hint about the algorithm to be used

Status Codes

- 200 OK – Operation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
PUT /v1/persons/{personId}/encounters/{encounterId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "encounterId": "string",
    "status": "ACTIVE",
    "encounterType": "string",
    "galleries": [
        "string"
    ],
    "clientData": "c3RyaW5n",
    "contextualData": {
        "date": "2019-01-11"
    },
    "biographicData": {
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: updateResponse

`POST ${request.query.callback}`

Update one encounter response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
    "personId": "string",
    "encounterId": "string"
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`DELETE /v1/persons/{personId}/encounters/{encounterId}`

Delete one encounter

Delete one encounter from the person identified by his/her id. If this is the last encounter in the person, the person is also deleted.

Scope required: `abis.encounter.write`

Parameters

- **`personId`** (*`string`*) – the id of the person
- **`encounterId`** (*`string`*) – the id of the encounter

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)
- **`callback`** (*`string`*) – the callback address, where the result will be sent when available
- **`priority`** (*`integer`*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 204 No Content – Delete successful
- 400 Bad Request – Bad request
- 403 Forbidden – Delete not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: deleteResponse

`POST ${request.query.callback}`
Delete one encounter response callback

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

"OK"
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/persons/{personIdTarget}/merge/{personIdSource}`
Merge two sets of encounters

Merge two sets of encounters into a single set. Merging a set of *N* encounters with a set of *M* encounters will result in a single set of *N*+*M* encounters. Encounter ID are preserved and in case of duplicates an error is returned and no changes are done.

Scope required: `abis.encounter.write`

Parameters

- **`personIdTarget`** (*`string`*) – the id of the person receiving new encounters
- **`personIdSource`** (*`string`*) – the id of the person giving the encounters

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)
- **`callback`** (*`string`*) – the callback address, where the result will be sent when available
- **`priority`** (*`integer`*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 204 No Content – Merge successful
- 400 Bad Request – Bad request
- 403 Forbidden – Merge not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: mergeResponse

`POST ${request.query.callback}`

Merge two persons response callback

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

"OK"
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

PUT /v1/persons/{personId}/encounters/{encounterId}/status
Update status of an encounter

Scope required: `abis.encounter.write`

Parameters

- **personId** (*string*) – the id of the person
- **encounterId** (*string*) – the id of the encounter

Query Parameters

- **status** (*string*) – New status of encounter (Required)
- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available

Status Codes

- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 204 No Content – Status has been updated
- 400 Bad Request – Bad request
- 403 Forbidden – Encounter status update not allowed
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: updateEncounterStatusResponse

`POST ${request.query.callback}`

Update encounter status response callback

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

"OK"
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/persons/{personId}/encounters/{encounterId}/templates
Read biometrics templates

Scope required: `abis.encounter.read`

Parameters

- **personId** (*string*) – the id of the person
- **encounterId** (*string*) – the id of the encounter

Query Parameters

- **biometricType** (*string*) – the type of biometrics to return
- **biometricSubType** (*string*) – the sub-type of biometrics to return
- **instance** (*string*) – Used to separate two distincts biometric items of the same type and subtype
- **templateFormat** (*string*) – the format of the template to return
- **qualityFormat** (*string*) – the format of the quality to return
- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 200 OK – Operation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record or unkown biometrics
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/persons/{personId}/encounters/{encounterId}/templates?transactionId=string HTTP/
↪1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "biometricType": "FACE",
        "biometricSubType": "UNKNOWN",
```

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```
        "instance": "string",
        "template": "c3RyaW5n",
        "templateFormat": "string",
        "quality": 1,
        "qualityFormat": "string",
        "vendor": "string",
        "algorithm": "string"
    }
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: readTemplateResponse

`POST ${request.query.callback}`

Read biometrics templates response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

[
    {
        "biometricType": "FACE",
        "biometricSubType": "UNKNOWN",
        "instance": "string",
        "template": "c3RyaW5n",
```

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```
        "templateFormat": "string",
        "quality": 1,
        "qualityFormat": "string",
        "vendor": "string",
        "algorithm": "string"
    }
]
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

DELETE /v1/persons/{personId}

Delete a person and all its encounters

Scope required: `abis.encounter.write`

Parameters

- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 204 No Content – Delete successful
- 400 Bad Request – Bad request
- 403 Forbidden – Delete not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
```

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```
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: deleteResponse

`POST ${request.query.callback}`
Delete a person response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

"OK"
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Search

POST /v1/identify/{galleryId}

Biometric identification

Identification based on biometric data from one gallery

Scope required: `abis.identify`

Parameters

- **galleryId** (*string*) – the id of the gallery

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **maxNbCand** (*integer*) – the maximum number of candidates
- **threshold** (*number*) – the algorithm threshold
- **accuracyLevel** (*string*) – the accuracy level expected for this request

Status Codes

- 200 OK – Request executed. Identification result is returned.
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Identification not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/identify/{galleryId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "filter": {
        "dateOfBirthMin": "1980-01-01",
        "dateOfBirthMax": "2019-12-31"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
```

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```
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "personId": "string",
        "rank": 1,
        "score": 1.0,
        "scoreList": [
            {
                "score": 1.0,
                "encounterId": "string",
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string"
            }
        ]
    }
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: identifyResponse

`POST ${request.query.callback}`

Biometric identification response callback

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

[
    {
        "personId": "string",
        "rank": 1,
        "score": 1.0,
        "scoreList": [
            {
                "score": 1.0,
                "encounterId": "string",
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string"
            }
        ]
    }
]
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/identify/{galleryId}/{personId}

Biometric identification based on existing data

Identification based on existing data from one gallery

Scope required: `abis.identify`

Parameters

- **galleryId** (*string*) – the id of the gallery
- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **maxNbCand** (*integer*) – the maximum number of candidates
- **threshold** (*number*) – the algorithm threshold
- **accuracyLevel** (*string*) – the accuracy level expected for this request

Status Codes

- 200 OK – Request executed. Identification result is returned.
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Identification not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/identify/{galleryId}/{personId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "dateOfBirthMin": "1980-01-01",
    "dateOfBirthMax": "2019-12-31"
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "personId": "string",
        "rank": 1,
        "score": 1.0,
        "scoreList": [
            {
                "score": 1.0,
                "encounterId": "string",
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string"
            }
        ]
    }
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: identifyResponse

`POST ${request.query.callback}`

Biometric identification based on existing data response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

[
    {
        "personId": "string",
        "rank": 1,
        "score": 1.0,
        "scoreList": [
            {
                "score": 1.0,
                "encounterId": "string",
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string"
            }
        ]
    }
]
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/verify/{galleryId}/{personId}

Biometric verification

Verification of one set of biometric data and a record in the system

Scope required: `abis.verify`

Parameters

- **galleryId** (*string*) – the id of the gallery
- **personId** (*string*) – the id of the person

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **threshold** (*number*) – the algorithm threshold
- **accuracyLevel** (*string*) – the accuracy level expected for this request

Status Codes

- 200 OK – Verification execution successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 404 Not Found – Unknown record
- 403 Forbidden – Verification not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/verify/{galleryId}/{personId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
```

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```
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "decision": true,
    "scores": [
        {
            "score": 1.0,
            "encounterId": "string",
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: verifyResponse

`POST ${request.query.callback}`
Biometric verification response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
    "decision": true,
    "scores": [
        {
            "score": 1.0,
            "encounterId": "string",
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string"
        }
    ]
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/verify

Biometric verification with two sets of data

Verification of two sets of biometric data

Scope required: `abis.verify`

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **threshold** (*number*) – the algorithm threshold
- **accuracyLevel** (*string*) – the accuracy level expected for this request

Status Codes

- 200 OK – Verification execution successful

- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Verification not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/verify?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "biometricData1": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "biometricData2": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "impressionType": "LIVE_SCAN_PLAIN",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "decision": true,
    "scores": [
        {
            "score": 1.0,
            "encounterId": "string",
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: verifyResponse

`POST ${request.query.callback}`

Biometric verification with two sets of data response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

{
```

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```
    "decision": true,
    "scores": [
        {
            "score": 1.0,
            "encounterId": "string",
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string"
        }
    ]
}
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Gallery

`GET /v1/galleries`

Read the ID of all the galleries

Scope required: `abis.gallery.read`

Query Parameters

- **`transactionId`** (*string*) – The id of the transaction (Required)
- **`callback`** (*string*) – the callback address, where the result will be sent when available
- **`priority`** (*integer*) – the request priority (0: lowest priority; 9: highest priority)

Status Codes

- 200 OK – Operation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/galleries?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    "string"
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: readGalleriesResponse

`POST ${request.query.callback}`

Read the ID of all the galleries response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

[
    "string"
]
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/galleries/{galleryId}

Read the content of one gallery

Scope required: `abis.gallery.read`

Parameters

- **galleryId** (*string*) – the id of the gallery

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)
- **callback** (*string*) – the callback address, where the result will be sent when available
- **priority** (*integer*) – the request priority (0: lowest priority; 9: highest priority)
- **offset** (*integer*) – The offset of the query (first item of the response)
- **limit** (*integer*) – The maximum number of items to return

Status Codes

- 200 OK – Operation successful
- 202 Accepted – Request received successfully and correct, result will be returned through the callback. An internal task ID is returned.
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/galleries/{galleryId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "personId": "string",
```

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```
        "encounterId": "string"
    }
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Callback: readGalleryContentResponse

`POST ${request.query.callback}`

Read the content of one gallery response callback

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Response is received and accepted.
- 403 Forbidden – Forbidden access to the service
- 500 Internal Server Error – Unexpected error

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json

[
    {
        "personId": "string",
        "encounterId": "string"
    }
]
```

Example request:

```
POST ${request.query.callback}?transactionId=string HTTP/1.1
Host: example.com
```

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```
Content-Type: application/error+json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Data Model

To be completed

7.3.7 Credential Services

This is version 1.1.0 of this interface.

Get the OpenAPI file: cms.yaml

Credential Services

Services

Credential Request

POST /v1/credentialRequests/{credentialRequestId}

Create a request for a credential

Scope required: `cms.request.write`

Parameters

- **credentialRequestId** (*string*) – the id of the credential request

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 201 Created – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentialRequests/{credentialRequestId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "credentialRequestId": "string",
    "status": "PENDING",
    "requestData": {
        "priority": "MEDIUM",
        "credentialProfileId": "ABC",
        "requestType": "FIRST_ISSUANCE",
        "validFromDate": "2020-10-08T18:38:56.085303",
        "validToDate": "2025-10-08T18:38:56.085303",
        "issuingAuthority": "OSIA",
        "deliveryAddress": {
            "address1": "11 Rue des Rosiers",
            "city": "Libourne",
            "postalCode": "33500",
            "country": "France"
        }
    },
    "personId": "string",
    "biographicData": {
        "title": "Mr",
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA",
        "email": "john.doo@example.com",
        "mobileNumber": 123456789
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "encounterId": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string",
            "template": "c3RyaW5n",
            "templateFormat": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/credentialRequests/{credentialRequestId}

Read a credential request

Scope required: `cms.request.read`

Parameters

- **credentialRequestId** (*string*) – the id of the credential request

Query Parameters

- **attributes** (*array*) – The (optional) set of attributes to retrieve
- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/credentialRequests/{credentialRequestId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "credentialRequestId": "string",
    "status": "PENDING",
    "requestData": {
        "priority": "MEDIUM",
        "credentialProfileId": "ABC",
        "requestType": "FIRST_ISSUANCE",
        "validFromDate": "2020-10-08T18:38:56.085303",
        "validToDate": "2025-10-08T18:38:56.085303",
        "issuingAuthority": "OSIA",
        "deliveryAddress": {
            "address1": "11 Rue des Rosiers",
            "city": "Libourne",
            "postalCode": "33500",
```

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```
            "country": "France"
        }
    },
    "personId": "string",
    "biographicData": {
        "title": "Mr",
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA",
        "email": "john.doo@example.com",
        "mobileNumber": 123456789
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "encounterId": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string",
            "template": "c3RyaW5n",
            "templateFormat": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

PUT /v1/credentialRequests/{credentialRequestId}

Update a credential request

Scope required: `cms.request.write`

Parameters

- **credentialRequestId** (*string*) – the id of the credential request

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
PUT /v1/credentialRequests/{credentialRequestId}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "credentialRequestId": "string",
    "status": "PENDING",
    "requestData": {
        "priority": "MEDIUM",
        "credentialProfileId": "ABC",
        "requestType": "FIRST_ISSUANCE",
        "validFromDate": "2020-10-08T18:38:56.085303",
        "validToDate": "2025-10-08T18:38:56.085303",
        "issuingAuthority": "OSIA",
        "deliveryAddress": {
            "address1": "11 Rue des Rosiers",
            "city": "Libourne",
            "postalCode": "33500",
            "country": "France"
        }
    },
    "personId": "string",
    "biographicData": {
        "title": "Mr",
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA",
        "email": "john.doo@example.com",
        "mobileNumber": 123456789
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "encounterId": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
```

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```
            ],
            "metadata": "string",
            "comment": "string",
            "template": "c3RyaW5n",
            "templateFormat": "string"
        }
    ]
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

DELETE /v1/credentialRequests/{credentialRequestId}

Delete a credential request

Scope required: `cms.request.write`

Parameters

- **credentialRequestId** (*string*) – the id of the credential request

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Delete successful
- 400 Bad Request – Bad request
- 403 Forbidden – Delete not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
```

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```
    "code": 1,
    "message": "string"
}
```

Credential

POST /v1/credentials

Retrieve a list of credentials that match the given search criteria

Scope required: `cms.credential.read`

Query Parameters

- **attributes** (*array*) – The (optional) set of required attributes to retrieve
- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentials?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

[
    {
        "attributeName": "string",
        "operator": "<",
        "value": "string"
    }
]
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "credentialId": "string",
        "status": "NEW",
        "statusOther": "string",
        "personId": "string",
        "credentialProfileId": "string",
        "issuedDate": "2020-12-17T15:35:45.060099",
        "expiryDate": "2020-12-17T15:35:45.060099",
        "serialNumber": "string"
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
```

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```
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/credentials/{credentialId}

Read a credential

Scope required: `cms.credential.read`

Parameters

- **credentialId** (*string*) – the id of the credential

Query Parameters

- **attributes** (*array*) – The (optional) set of required attributes to retrieve
- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
GET /v1/credentials/{credentialId}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "credentialId": "string",
    "status": "NEW",
    "statusOther": "string",
    "personId": "string",
    "credentialProfileId": "string",
    "issuedDate": "2020-12-17T15:35:45.060099",
    "expiryDate": "2020-12-17T15:35:45.060099",
    "serialNumber": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
```

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```
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/credentials/{credentialId}/suspend

Suspend a credential

Scope required: `cms.credential.write`

Parameters

- **credentialId** (*string*) – the id of the credential

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentials/{credentialId}/suspend?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "reason": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/credentials/{credentialId}/unsuspend`

Unsuspend a credential

Scope required: `cms.credential.write`

Parameters

- **`credentialId`** (*`string`*) – the id of the credential

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful
- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentials/{credentialId}/unsuspend?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "reason": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`POST /v1/credentials/{credentialId}/revoke`

Revoke a credential

Scope required: `cms.credential.write`

Parameters

- **`credentialId`** (*`string`*) – the id of the credential

Query Parameters

- **`transactionId`** (*`string`*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Update successful

- 400 Bad Request – Bad request
- 403 Forbidden – Update not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentials/{credentialId}/revoke?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "reason": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/credentials/{credentialId}/status

Change the status of a credential

Scope required: `cms.credential.write`

Parameters

- **credentialId** (*string*) – the id of the credential

Query Parameters

- **transactionId** (*string*) – The id of the transaction (Required)

Status Codes

- 204 No Content – Operation successful
- 400 Bad Request – Bad request
- 403 Forbidden – Operation not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentials/{credentialId}/status?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
```

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```
    "status": "string",
    "reason": "string",
    "requester": "string",
    "comment": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Credential Profile

`POST /v1/credentialProfiles`

Retrieve a list of credential profiles that match the given search criteria

Scope required: `cms.profile.read`

Query Parameters

- **`attributes`** (*array*) – The (optional) set of required attributes to retrieve
- **`transactionId`** (*string*) – The id of the transaction (Required)

Status Codes

- 200 OK – Read successful
- 400 Bad Request – Bad request
- 403 Forbidden – Read not allowed
- 404 Not Found – Unknown record
- 500 Internal Server Error – Unexpected error

Example request:

```
POST /v1/credentialProfiles?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

[
    {
        "attributeName": "string",
        "operator": "<",
        "value": "string"
    }
]
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "credentialProfileId": "string",
        "name": "string",
        "description": "string",
        "credentialType": "SMARTCARD",
        "defaultLifetime": 1
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Data Model

To be completed

7.3.8 ID Usage Services

Relying Party Services

This is version 1.0.0 of this interface.

Get the OpenAPI file: rp.yaml

Services

`POST /v1/verify/{identifier}`

Verify a set of attributes of a person.

Verify an Identity based on an identity identifier (UIN, token. . .) and a set of Identity Attributes. Verification is strictly matching all provided identity attributes to compute the global Boolean matching result.

Scope required: `id.verify`

Parameters

- **`identifier`** (*string*) – person identifier

Query Parameters

- **`identifierType`** (*string*) – Type of identifier (default “uin”, “token”, “documentNumber”, . . .)

- **verificationProofRequired** (*boolean*) – verification proof required on successful verification (default true)
- **transactionId** (*string*) – The client specified id of the transaction (Required)

Status Codes

- 200 OK – Verification execution successful
- 400 Bad Request – Bad Request, Validation Errors, . . .
- 401 Unauthorized – Unauthorized
- 403 Forbidden – Operation not allowed
- 404 Not Found – Identifier not Found
- 500 Internal Server Error – Internal server error

Example request:

```
POST /v1/verify/{identifier}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "credentialData": [
        {
            "credentialId": "string",
            "status": "NEW",
            "statusOther": "string",
            "personId": "string",
            "credentialType": "string",
            "issuedDate": "2020-12-17",
            "expiryDate": "2020-12-17",
            "serialNumber": "string"
        }
    ],
    "contactData": {
        "email": "John.Doo@osia.com",
        "phone1": "555666777",
```

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```
        "phone2": "555888999"
    }
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "verificationCode": 1,
    "verificationMessage": "string",
    "verificationProof": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

`GET /v1/attributes/{attributeSetName}/{identifier}`

Read a predefined set of a person's attributes.

Note security role must map the requested attributeSetName, e.g. id.DEFAULT_SET_01.read

Scope required: `id.ATTRIBUTESETNAME.read`

Parameters

- **`attributeSetName`** (*string*) – Predefined attribute set name describing what attributes are to be read. e.g. "DEFAULT_SET_01", "SET_BIOM_01", "EIDAS", . . .
- **`identifier`** (*string*) – person identifier

Query Parameters

- **`identifierType`** (*string*) – Type of identifier (default "uin", "token", "documentNumber", . . .)
- **`transactionId`** (*string*) – The client specified id of the transaction (Required)

Status Codes

- 200 OK – Operation successful, AttributeSet will contain fields as predefined by the attributeSetName and when value is available
- 400 Bad Request – Bad Request, Validation Errors, . . .
- 401 Unauthorized – Unauthorized
- 403 Forbidden – Operation not allowed
- 404 Not Found – Not Found
- 500 Internal Server Error – Internal server error

Example request:

```
GET /v1/attributes/{attributeSetName}/{identifier}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "credentialData": [
        {
            "credentialId": "string",
            "status": "NEW",
            "statusOther": "string",
            "personId": "string",
            "credentialType": "string",
            "issuedDate": "2020-12-17",
            "expiryDate": "2020-12-17",
            "serialNumber": "string"
        }
    ],
    "contactData": {
        "email": "John.Doo@osia.com",
        "phone1": "555666777",
        "phone2": "555888999"
    }
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/attributes/{identifier}

Read a variable set of a person's attributes.

Returns value of attributes listed in the request parameter 'OutputAttributeSet'

Scope required: `id.read`

Parameters

- **`identifier`** (*string*) – person identifier

Query Parameters

- **`identifierType`** (*string*) – Type of identifier (default "uin", "token", "documentNumber", . . .)
- **`transactionId`** (*string*) – The client specified id of the transaction (Required)

Status Codes

- 200 OK – Operation successful, AttributeSet will contain fields as defined by parameter outputAttributeSet and when value is available
- 400 Bad Request – Bad Request, Validation Errors, . . .
- 401 Unauthorized – Unauthorized
- 403 Forbidden – Operation not allowed
- 404 Not Found – Not Found
- 500 Internal Server Error – Internal server error

Example request:

```
POST /v1/attributes/{identifier}?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "outputBiographicData": [
        "string"
    ],
    "outputBiometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "biometricDataFields": [
                "string"
            ]
        }
    ],
    "outputCredentialData": [
        {
            "credentialType": "string",
            "credentialDataFields": [
                "string"
            ]
        }
    ],
    "outputContactData": [
```

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```
        "string"
    ]
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
    "biographicData": {
        "firstName": "John",
        "lastName": "Doo",
        "dateOfBirth": "1985-11-30",
        "gender": "M",
        "nationality": "FRA"
    },
    "biometricData": [
        {
            "biometricType": "FACE",
            "biometricSubType": "UNKNOWN",
            "instance": "string",
            "image": "c3RyaW5n",
            "imageRef": "https://example.com",
            "captureDate": "2020-12-17",
            "captureDevice": "string",
            "width": 1,
            "height": 1,
            "bitdepth": 1,
            "resolution": 1,
            "compression": "NONE",
            "missing": [
                {
                    "biometricSubType": "UNKNOWN",
                    "presence": "BANDAGED"
                }
            ],
            "metadata": "string",
            "comment": "string"
        }
    ],
    "credentialData": [
        {
            "credentialId": "string",
            "status": "NEW",
            "statusOther": "string",
            "personId": "string",
            "credentialType": "string",
            "issuedDate": "2020-12-17",
            "expiryDate": "2020-12-17",
            "serialNumber": "string"
        }
    ],
    "contactData": {
        "email": "John.Doo@osia.com",
        "phone1": "555666777",
        "phone2": "555888999"
    }
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

POST /v1/identify

Identify a set of persons matching provided partial attributes

Identify possibly matching identities against an input set of attributes. Returns an array of predefined datasets as described by outputDataSetName. Note this request may be asynchronous or synchronous.

Scope required: `id.identify`

Query Parameters

- **transactionId** (*string*) – The client specified id of the transaction (Required)

Status Codes

- 200 OK – Identification request execution successful
- 202 Accepted – Request received successfully and correct, result will be available later using the task ID returned
- 400 Bad Request – Bad Request, Validation Errors, . . .
- 401 Unauthorized – Unauthorized
- 403 Forbidden – Operation not allowed
- 404 Not Found – Identifier not Found
- 500 Internal Server Error – Internal server error

Example request:

```
POST /v1/identify?transactionId=string HTTP/1.1
Host: example.com
Content-Type: application/json
Authorization: Bearer cn389ncoiwuencr

{
    "attributeSet": {
        "biographicData": {
            "firstName": "John",
            "lastName": "Doo",
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
```

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```
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ],
        "credentialData": [
            {
                "credentialId": "string",
                "status": "NEW",
                "statusOther": "string",
                "personId": "string",
                "credentialType": "string",
                "issuedDate": "2020-12-17",
                "expiryDate": "2020-12-17",
                "serialNumber": "string"
            }
        ],
        "contactData": {
            "email": "John.Doo@osia.com",
            "phone1": "555666777",
            "phone2": "555888999"
        }
    },
    "outputAttributeSetName": "string"
}
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "biographicData": {
            "firstName": "John",
            "lastName": "Doo",
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ],
        "credentialData": [
            {
                "credentialId": "string",
                "status": "NEW",
```

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```
                "statusOther": "string",
                "personId": "string",
                "credentialType": "string",
                "issuedDate": "2020-12-17",
                "expiryDate": "2020-12-17",
                "serialNumber": "string"
            }
        ],
        "contactData": {
            "email": "John.Doo@osia.com",
            "phone1": "555666777",
            "phone2": "555888999"
        }
    }
]
```

Example response:

```
HTTP/1.1 202 Accepted
Content-Type: application/json

{
    "taskId": "string"
}
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

GET /v1/identify/{taskID}

Read the result of a previously sent identify request

Scope required: `id.identify`

Parameters

- **taskID** (*string*) – taskID to get result for.

Query Parameters

- **transactionId** (*string*) – The client specified id of the transaction (Required)

Status Codes

- 200 OK – Operation successful, array of AttributeSet is available
- 204 No Content – No content, taskID is valid but identify request is still ongoing, retry later
- 400 Bad Request – Bad Request, Validation Errors, . . .
- 401 Unauthorized – Unauthorized
- 403 Forbidden – Operation not allowed

- 404 Not Found – Not Found
- 500 Internal Server Error – Internal server error

Example request:

```
GET /v1/identify/{taskID}?transactionId=string HTTP/1.1
Host: example.com
Authorization: Bearer cn389ncoiwuencr
```

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

[
    {
        "biographicData": {
            "firstName": "John",
            "lastName": "Doo",
            "dateOfBirth": "1985-11-30",
            "gender": "M",
            "nationality": "FRA"
        },
        "biometricData": [
            {
                "biometricType": "FACE",
                "biometricSubType": "UNKNOWN",
                "instance": "string",
                "image": "c3RyaW5n",
                "imageRef": "https://example.com",
                "captureDate": "2020-12-17",
                "captureDevice": "string",
                "width": 1,
                "height": 1,
                "bitdepth": 1,
                "resolution": 1,
                "compression": "NONE",
                "missing": [
                    {
                        "biometricSubType": "UNKNOWN",
                        "presence": "BANDAGED"
                    }
                ],
                "metadata": "string",
                "comment": "string"
            }
        ],
        "credentialData": [
            {
                "credentialId": "string",
                "status": "NEW",
                "statusOther": "string",
                "personId": "string",
                "credentialType": "string",
                "issuedDate": "2020-12-17",
                "expiryDate": "2020-12-17",
                "serialNumber": "string"
            }
        ],
        "contactData": {
            "email": "John.Doo@osia.com",
            "phone1": "555666777",
            "phone2": "555888999"
        }
    }
]
```

Example response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Example response:

```
HTTP/1.1 500 Internal Server Error
Content-Type: application/json

{
    "code": 1,
    "message": "string"
}
```

Data Model

To be completed

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