



Registration-Authority-Service

Evidence Import API

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1 Introduction

1.1 Objective and Goal of this Document

This document describes the interface used to import the evidence data into Swisscom Registration Authority Service (RA-Service). The focus of the document is the semantics and examples, the formal RESTful API specification ("Swagger Documentation") is available at <https://rasp.scapp.swisscom.com/swagger-ui.html>.

The intended Audience is developer and architect.

1.2 Overview of RA-Service

(You can skip this section if you already know the features of RA Service.)

RA Service has implemented the following business functions:

- Encrypted storage of ID document metadata (according to legal regulation on electronic signatures), ID document images, and linked authenticator identifiers (MSISDN, Mobile ID Serial Number or PWD/OTP Serial Number) of the ID document holder
- Encrypted storage of the evidences of the ID registration process (vetter's data and signature, ID document, signed user consent)
- User Consent flow in the ID registration process
- RESTful API for verifying user metadata, the linked MSISDN, and the compliance level of ID registration process for digital signature purpose
- RESTful API for authentication of privileged users with Mobile ID
- Admin Web UI for managing RA Agents (people who identify end users) and privileged RA Service users (Standard RA Agent, Master RA Agent, Global RA Agent, RA Operator), for managing tenants, and for managing status of registered users
- Mobile Application for iOS and Android (RA-App) for supporting the face-to-face ID proofing process and for submitting ID document images
- Standalone UI Application for exporting the evidences (with embedded ID document images).
- RESTful API for importing ID document metadata, ID document images, MSISDN and ID registration evidences for digital signature in the banking context.
- RESTful API for authentication of privileged users with PWD/OTP.
- e-Learning Workflow for education / certification of RA Agents.
- Management of Terms & Conditions

1.3 Common usage sequence of Evidence Import API

The Evidence Import API is usually invoked in the following sequence. Details of each call are described in later chapters.

1. If the API client is not yet authenticated, or the previous "session" token (JWT token) has expired, the API client must call the service authentication API. After successful authentication, RA service returns an "session" token (JWT token), which the API client should include in all subsequence service calls.



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- The API client calls POST /evidences/import to import a new evidence or to replace an existing evidence. On successful creation of the evidence record in RA Service, RA Service returns the evidence enriched with other meta data (e.g. evidence id, evidence status, compliant assurance level for digital signature).

1.4 Service Endpoints

The productive and test environment of RA Service is running in the Swisscom internal Application Cloud (*.scapp.swisscom.com). The service endpoints are accessible from Internet. Note that the both environments share the same public IP address.

Additional test / development environments are available for internal usage.

environment	Service endpoint
Production	https://ras.scapp.swisscom.com/api
Pre-production (Test)	https://rasp.scapp.swisscom.com/api

For verification of connectivity to RA Service, the GET /info service call can be used. The call does not require authentication.

Example using curl (for production environment):

```
curl -X GET "https://rasp.scapp.swisscom.com/api/info" -H "accept: application/vnd.sc.ras.api-info.v1+json"
```

The service response should have HTTP Response Code 200, and a HTTP body with a small JSON object like:

```
{
  "version" : "2.40.0.20",
  "buildDate" : "2020-05-06T12:52:16Z",
  "environment" : "cloud,preprod"
}
```

1.5 Terms

term	Description
ID attributes	Personal identifiable information of a natural person used in digital signature context. Examples are surname, given name, citizenship.
Identity proofing	Identity proofing is the process to verify identifying attribute to be entered into an identity management system and to establish that the identifying attributes pertain to the subject to be enrolled. [iso29003:2018, sect.4.1]
Identity proofing evidence	Information that documents the Identity proofing process
RA Service tenant	It frequently corresponds to a company, which imports ID attributes and evidences to RA Service and/or consumes ID attributes stored in RA Service. Each imported evidence has a tenant attribute attached to it. A RA Service tenant has a set of server-side configuration parameters which governs the import and consumption



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evidence	The term refers to ID Proofing evidence if there is no ambiguousness in the context.
tenant	The term refers to RA Service tenant if there is no ambiguousness in the context.
contextual evidence	A contextual evidence is an evidence that fulfill a specific Level of Assurance (LoA) of a legal signature standard (jurisdiction), but it has additional constraint in the usage. For example, ZERTES requires that the evidence verified with a video identification method can only be used in the business context of financial intermediaries. The context is modelled in RA-Service as the tenant.

References

[iso29003]	ISO/IEC 29003:2018, "Information technology — Security techniques — Identity proofing"
[ras.swagger]	https://ras.scapp.swisscom.com/swagger-ui.html



2 Service Authentication

2.1.1 Request

POST /auth/login: with empty http body

Request Parameters in HTTP Header

Name	Type	description
X-Auth-Tenant	String	A name that RA Service has assigned to the API client
X-Auth-Key	String	An opaque string that RA Service has given to the API client. The value is security sensitive and must be protected appropriately.

Example (data sent over the wire):

```
POST https://rasp.scapp.swisscom.com/api/auth/login HTTP/1.1
TE: deflate,gzip;q=0.3
Connection: TE, close
Host: rasp.scapp.swisscom.com
User-Agent: Ras::RasClient/0.01
X-Auth-Key: QIxFmKTJlCN0gVutJGkhWjDbROzEOYKU
X-Auth-Tenant: demo01
```

2.1.2 Response

HTTP status code	Description
200	Authentication is successful. The HTTP body contains the JWT token, also referred to as "session token" in this document <ul style="list-style-type: none"> The JWT Token should be cached on the client side and inserted as a HTTP header in all subsequent service calls in the request header : Authorization: Bearer <JWT Token> The JWT Token has a preconfigured life time (default: 24 hours). RA Client can periodically login to get a fresh JWT Token before the existing JWT expires. However, login should not be attempted too frequently because X-Auth-Key should be used only infrequently for security reason.
404	If the Content-Type of the response is not application/json, the underlying infrastructure fails temporarily. The client MIGHT retry the request The recommended maximum number of retries is 2, the 1 st retry 15 second after the initial request, the 2 nd retry 35 seconds after the initial request.
502, or 503	Underlying infrastructure fails temporarily. The client MIGHT retry the request The same retry algorithm as in status code 404 should be used.

Example (data received over the wire for example in Chap. 2.1.1):

```
HTTP/1.1 200 OK
Cache-Control: no-cache, no-store, max-age=0, must-revalidate
```



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```
Content-Length: 457
Content-Type: application/json;charset=ISO-8859-1
Date: Tue, 10 Jul 2018 11:52:17 GMT
Expires: 0
Pragma: no-cache
Strict-Transport-Security: max-age=31536000 ; includeSubDomains
X-Content-Type-Options: nosniff
X-Frame-Options: DENY
X-Vcap-Request-Id: 6b6fa16e-bcc5-48a4-5e0f-34820a3bb1de
X-Xss-Protection: 1; mode=block
Connection: close

{
  "token" : "eyJhbGciOiJIUzUxMiJ9..._Ge5XolCnEJ5IsOcSeGS23Q"
}
```

2.1.3 Notes

If a client of RA Service itself is a multiple-tenant system and the imported ID attributes cannot be consumed by different tenants of the RA Service client, the client should use a distinct X-Auth-Tenant, X-Auth-Key tuple for each of its tenant, and should maintain the mapping between X-Auth-Tenant value and received session tokens.



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3 Evidence Import

3.1 Evidence data

The evidence object in RA Service combines 6 different information items.

1. user's mobile phone number, used as the identifier of the user in RA Service.
2. the person's ID document data, e.g. names, birthday, nationality, ID document expiry date.
3. the data which proves the compliance of a registration process, e.g. photo(s) proving the face-to-face verification, photo(s) of presented ID documents, and/or audio files recorded in a remote registration session.
4. the language of the user, used in RA Service UI (e.g. Term & Conditions) and RA Service messages (e.g. SMSs, consent confirmation requests).
5. the user's consent for using Swisscom All-In-Signing Service (AIS).
6. the verified identifier of the authenticator (Mobile ID, PWD+SMSOTP) which will be used to authenticate the user.

The first 4 items are mandatory for import of evidences. The imported data is only usable for signature purpose when all items are defined.

3.2 Create a new evidence

The operation is used to import an evidence into RA. It supports the following use cases, triggered by different combination of special request parameters.

Table 1 Different use cases of evidence import

use case	request parameters	
	userId	enforceArchive
User consent for using Swisscom AIS is managed by RA Service	absent	absent or false
User consent for using Swisscom AIS is managed by RA client	non-empty	absent or false
Imported evidence is only for archival purpose, not for digital signature	not-empty	true
Not supported	absent	true

3.2.1 Request

POST /identifications: with a JSON object in HTTP request body

Request Parameters

Name	type	m	description
msisdn	string	m	Mobile number of the user being registered. Consists of 7..15 digits, including country code, without leading 0 or '+' prefix Example 41791234567
language	string	m	The correspondence language of the user.



			<p>Contains the 2-char ISO language code.</p> <p>Example: DE</p> <ul style="list-style-type: none"> The information is used in RA Service for SMS messages, Mobile ID messages, UI language in Web, Term & Condition document. <p>RA Service currently supports 4 languages: DE, FR, IT, EN</p>
ID document data			
surname	string	m	<p>Surname of the user as printed in the ID document.</p> <p>Example: Mustermann</p> <p>Names in Machine-Readable-Zone (MRZ) may be abbreviated due to space restriction. In this case, the unabbreviated names on idFrontSide (s. definition below) should be used.</p>
givenName	string	m	<p>Given name of the user as printed in the ID document.</p> <p>Example: Hans</p> <p>Names in Machine-Readable-Zone (MRZ) may be abbreviated due to space restriction. In this case, the unabbreviated names on idFrontSide (s. definition below) should be used.</p>
countryCode	string	m	<p>The country of citizenship of the ID document holder.</p> <p>Contains either ISO 3166-1 alpha-2 or alpha-3 country code.</p> <p>Example: CHE</p>
identityType	string	m	<p>Type of the ID document, takes one of the following values:</p> <p>PAS: national passport</p> <p>IDC: Identity card. In the context of RA Service, the issuing country of an identity card and the citizenship of the document holder is always identical.</p>
serialNumber	string	m	<p>Serial Number of the ID document.</p> <p>Example: C1234567</p> <p>The combination of issuerCountryCode, idDocumentType, and serialNumber uniquely identifies an ID document.</p>
idExpiryDate	string	m	<p>Expiry date of the ID document.</p> <p>Digits with hyphen-minus, formatted as YYYY-MM-DD</p>
dateOfBirth	string	o	<p>The date of birth of ID document holder.</p> <p>Digits with hyphen-minus, formatted as YYYY-MM-DD</p> <p>Note that MM and DD in ID-documents may contain the special value 00 for unknown birthday, as defined by regulation. These special values are accepted by RA Service.</p>
placeOfBirth	string	see desc.	<p>The place of birth or the place where the identity is registered (national register), may be Bürgerort for Swiss citizens</p>



			<ul style="list-style-type: none"> For document type PAS and IDC, this attribute is contained in ID document but not in the Machine Readable Zone of a document. For swiss residence permit document, this attribute is not contained in the ID document. The attribute must <ul style="list-style-type: none"> be absent, if the ID document has no placeOfBirth information, contain the value of placeOfBirth as present in ID document, if it can be retrieved automatically or entered manually before import, contain the special value "SEE_DOC_IMAGES", if the information of placeOfBirth is available in ID document (thus retrievable after import) but cannot be extracted from ID document before import.
Compliance proof			
pdf	string	m	<p>A base64-encoded string containing a PDF document which proves the compliance of the user registration process.</p> <p>The PDF must be digitally signed. The public key used in the signature must be pre- configured in the RA Service by the RA Service Provider (i.e. Swisscom).</p> <p>The public key shall be provided to RA Service Provider (e.g. via e-Mail) by the RA Service tenant before the import API can be used.</p> <p>More than one public keys can be configured for a RA Service tenant</p> <p>Supported Cryptographical Parameters:</p> <p>Key type: RSA</p> <p>Key Length: 3072-bit or longer</p>
Other attributes			
additionalAttributes	Json object	o	<p>Additional optional attributes. These attributes</p> <ul style="list-style-type: none"> are not verified by RA-Service, cannot be used as criterion to search for an evidence, semantics of keys and values are agreed between client and RA Service.
claimedIdentity	string	o	The value was the name of tenant used in the service authentication (value of X-Auth-Tenant). The input value is ignored in the current release.
userId	string	o	See Table 1. Semantics of the value is defined by client.
enforceArchive	boolean	o	See Table 1

Legend:

Column m: m=mandatory in finalized record, o=optional.

Additional request attributes are optional and are documented in the Swagger API [ras.swagger]



Example of a 200 response to request in Chap. 3.2.1(recorded HTTP traffic)

HTTP/1.1 200 OK

Cache-Control: no-cache, no-store, max-age=0, must-revalidate

Connection: close

Date: Thu, 07 May 2020 10:02:22 GMT

Pragma: no-cache

Content-Language: en

Content-Type: application/json;charset=UTF-8

Content-Length: 423613

Expires: 0

Set-Cookie: JSESSIONID=(snipped); Path=/; HttpOnly

Set-Cookie: __VCAP_ID__=4ac6ea01-4e18-4ef4-5f13-f8f2; Path=/; HttpOnly

Strict-Transport-Security: max-age=15768000; includeSubDomains

X-Content-Type-Options: nosniff

X-Frame-Options: DENY

X-Request-Id: 287e8b60-1f06-471a-aa7b-255e231e95b9

X-Session-Id: (snipped)

X-Vcap-Request-Id: ec0bd3f6-afdd-46f4-43ef-d857fc552daf

X-Xss-Protection: 1; mode=block

```
{
  "id" : "5eb3dcadc1a34e0012cf2245",
  "msisdn" : "41790000200",
  "surname" : "Mustermann",
  "givenName" : "Hans",
  "language" : "en",
  "countryCode" : "CHE",
  "identityType" : "idc",
  "serialNumber" : "C1234567",
  "idExpiryDate" : "2026-05-09",
  "dateOfBirth" : "1970-01-01T00:00:00Z",
  "placeOfBirth" : "SEE_DOC_IMAGES",
  "evidenceStatus" : "waitingForUserConfirmation",
  "createdDate" : "2020-05-07T10:02:21.830993",
  "createdBy" : "docu-c1",
  "lastModifiedDate" : "2020-05-07T10:02:22.27793",
  "lastModifiedBy" : "docu-c1",
  "pdfKey" : "Sbf...(snipped)",
  "pdf" : "WVd...(snipped)",
  "claimedIdentity" : "docu-c1",
  "tenantName" : "docu-c1",
  "tenantClaimedIdentities" : [ "docu-c1" ],
  "tenantEvidenceValidity" : "contextual",
  "jurisdictions" : [ {
    "jurisdiction" : "ZERTES",
    "initialAssuranceLevel" : 4,
    "currentAssuranceLevel" : 4
  } ]
}
```



Example (recorded HTTP traffic)

Import of an evidence for signature purpose. The client has previously authenticated (as encoded in the header Authorization). The user's consent of using RA Service / AIS is managed by RA Service. The evidence contains the minimal set of attributes. Important HTTP header / fields are in bold.

POST <https://rasp.scapp.swisscom.com/api/evidences/import> HTTP/1.1

TE: deflate,gzip;q=0.3

Connection: TE, close

Accept: application/json

Accept-Language: en

Authorization: Bearer eyJhbGciOiJIUzUxMiJ9..._Ge5XolCnEJ5IsOcSeGS23Q

Host: rasp.scapp.swisscom.com

User-Agent: Ras::RasClient/0.01

Content-Type: application/vnd.sc.ras.evidence.v1+json

Content-Length: 3142673

```
{
  "msisdn": "41790000200",
  "language": "de",
  "surname": "Mustermann",
  "givenName": "Hans",
  "countryCode": "CHE",
  "identityType": "PAS",
  "serialNumber": "C1234567",
  "idExpiryDate": "2026-05-09T00:00:00.000Z",
  "dateOfBirth": "1970-01-01",
  "placeOfBirth": "SEE_DOC_IMAGES",
  "pdf": "JVBE... (snipped) ...NCg=="
}
```

3.2.2 Response

HTTP status code	description
200	The evidence has been successfully imported. The response body contains essentially the request enriched with an internal unique id assigned to the evidence, and server-side status information (e.g. evidenceStatus, tenantEvidenceValidity). A client usually does not need to interpret the attributes in the response body. The semantics of the attributes is not described in details further.
404	If the Content-Type of the response is not application/json, the underlying infrastructure fails temporarily. The client MIGHT retry the request The recommended maximum number of retries is 2, the 1 st retry 15 second after the initial request, the 2 nd retry 35 seconds after the initial request.
500	Client-side (e.g. invalid parameter) or server-side application error.
502, or 503	Underlying infrastructure fails temporarily. The client MIGHT retry the request The same retry algorithm as in status code 404 should be used.



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4 Evidence Query

4.1 Query of evidence for qualified signature

RA Service client can use the verification API for AIS to indirectly query whether a user has completed the registration process for Qualified Signature in a specific context or in any context.

4.1.1 Request

POST /evidences/verify with a JSON object in HTTP request body

Request Parameters

Name	type	m	description
claimedIdentity	string	o	The queried context of Qualified Signature. If the parameter is absent, the "global" context is queried. A user who has been registered for "global" context can sign in any context.
msisdn	string	m	The registered mobile phone number of the user
givenName	string	m	The registered given name of the user. It must be specified as part of distinguishedName
surname	string	m	The registered surname of the user. It must be specified as part of distinguishedName
countryCode	string	m	The registered nationality of the user. It must be specified as part of distinguishedName
distinguishedName	string	m	Combines the parameters givenName, surname, and countryCode in form of string representation of a X.500 Distinguished Name (RFC 4514). The common-name RDN of the distinguished name cannot be empty.
assuranceLevel	string	m	Must be set to 4 in query for Qualified Signature
jurisdiction	string	o	The eligible jurisdiction of evidence. Default: zertes

4.1.2 Response

HTTP status code	description
200	The user has been registered for the context, and the registration is compliant for Qualified Signature. RA Service returns the public ID of the evidence object which proves the compliance of referred registration process. The ID is returned as the json attribute <code>evidenceId</code> in the HTTP response body.
404	If content type is <code>application/json</code> and the <code>statusCode</code> attribute in response is 404, the user has not been registered for a context or the registration is not compliant for Qualified Signature. Otherwise the underlying infrastructure fails temporarily. The client MIGHT retry the request



HTTP status code	description
	The recommended maximum number of retries is 2, the 1 st retry 15 second after the initial request, the 2 nd retry 35 seconds after the initial request.
500	Client-side (e.g. invalid parameter) or server-side application error.
502, or 503	Underlying infrastructure fails temporarily. The client MIGHT retry the request The same retry algorithm as in status code 404 should be used.

Example 1: contextual query, 200 response

The request queries the registration status of a user in the context docu-c1 for Qualified Signature according to ZERTES. The response is positive.

```
POST https://rasp.scapp.swisscom.com/api/evidences/verify HTTP/1.1
TE: deflate,gzip;q=0.3
Connection: TE, close
Accept: application/vnd.sc.ras.evidence.v1+json
Host: rasp.scapp.swisscom.com
User-Agent: Ras::RasClient/0.01
Content-Type: application/vnd.sc.ras.evidence.v1+json
Content-Length: 133

{"claimedIdentity":"docu-c1","distinguishedName":"gn=Hans,sn=Muster-
mann,cn=not-empty,c=CH","msisdn":"41790000200","assuranceLevel":4}
```

```
HTTP/1.1 200 OK
Connection: close
Date: Thu, 07 May 2020 12:06:21 GMT
Content-Language: en
Content-Length: 88
Content-Type: application/vnd.sc.ras.evidence.v1+json;charset=UTF-8
Set-Cookie: JSESSIONID={snipped}; Path=/; HttpOnly
Set-Cookie: __VCAP_ID__=4ac6ea01-4e18-4ef4-5f13-f8f2; Path=/; HttpOnly
Strict-Transport-Security: max-age=15768000; includeSubDomains
X-Request-Id: 9bd6da8b-2b62-493e-8957-d49197e2451a
X-Session-Id: {snipped}
X-Vcap-Request-Id: 294fdc53-134a-47fd-64f7-95b0b5bc19e5

{
  "evidenceId" : "RAS5eb3df21c1a34e0012cf224b",
  "serialNumber" : "SAS011k58obxyhr"
}
```

Example 2: "global" query, jurisdiction EIDAS, 404 response

The queries the registration status of a user for Qualified Signature according to EIDAS without any contextual restriction. The response is negative.



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```
POST https://rasp.scapp.swisscom.com/api/evidences/verify HTTP/1.1
TE: deflate,gzip;q=0.3
Connection: TE, close
Accept: application/vnd.sc.ras.evidence.v1+json
Host: rasp.scapp.swisscom.com
User-Agent: Ras::RasClient/0.01
Content-Type: application/vnd.sc.ras.evidence.v1+json
Content-Length: 128
```

```
{"distinguishedName":"gn=Hans,sn=Mustermann,cn=not-
empty,c=CH","msisdn":"41790000200","jurisdiction":"eidas","assuranceLevel":4}
```

```
HTTP/1.1 404 Not Found
Connection: close
Date: Thu, 07 May 2020 12:18:57 GMT
Content-Language: en
Content-Length: 148
Content-Type: application/json;charset=UTF-8
Set-Cookie: JSESSIONID={snipped}; Path=/; HttpOnly
Set-Cookie: __VCAP_ID__=361ecd86-997e-40b7-777b-0aaf; Path=/; HttpOnly
Strict-Transport-Security: max-age=15768000; includeSubDomains
X-Request-Id: af518410-7f47-485a-81b0-4563949492e6
X-Session-Id: {snipped}
X-Vcap-Request-Id: 69cd4c9f-f189-4629-4368-75286bd55b31
```

```
{
  "statusCode" : 404,
  "message" : "No confirmed evidences found for mobile number 41790000200",
  "exceptionClass" : "EntityNotFoundException"
}
```



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5 Document Control

Change Control

Version	Date	Executing OE	Description / Nature of tasks
1.0	07.05.2020	B2B-BPN-PFR-IDS	Update API description and examples for the current backend version (v2.40.0.11) Add description to special terms. For public release.
0.2	24.07.2018		Documentation completed for RA-Service up to version 2.20. For internal and restricted use only
0.1	12.07.2018		Initial version