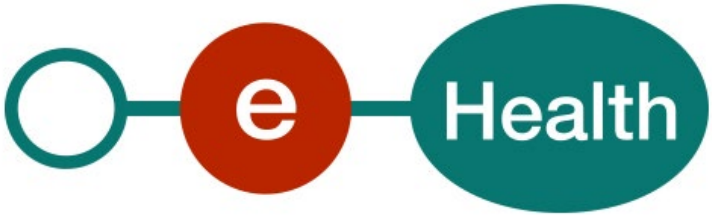

Identity & Authorization Management (IAM)
eXchange
Technical specifications

Version 1.1

eHealth platform
Willebroekkaai 38
38, Quai de Willebroek
1000 BRUSSELS

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To the attention of: “IT expert” willing to integrate this web service.

1. Document management

1.1 Document history

Version	Date	Author	Description of changes / remarks
1.0	09/09/2021	eHealth platform	Initial version
1.1	29/05/2024	eHealth platform	Deletion Par 9: Annex A – Security commitment from the Trusted Platform This document is available on the portal of the eHealth platform.

2. Introduction

2.1 Goal of the service

In today's clouded world, thin clients have become more and more popular at the expense of fat clients.

In addition, all major browsers (most widely used thin clients) have given up support for Java Applets making it possible to embed full Java applications into a browser.

The Service Oriented Architecture (SOA) of the eHealth platform and its partners has so far been designed around a few protocols and principles that work rather well from system to system between the eHealth platform and its partners or with full Java or .net software packages on the desktops of the customers. However, when using simple thin clients such as a browser, things get more difficult, especially if that thin client is running on a mobile device.

Our services currently use:

- SOAP Protocol as extra layer above the HTTP Protocol to transport messages between client and server
- WS-Security for authentication, confidentiality and integrity of the messages sent between client and server
- Trusted certificates, issued by recognized Certificate Authorities (CA) to verify identity tokens (X509, SAML assertion)
- Triple-wrapped CMS messages to encrypt data end to end from (identified) sender to both known and unknown receivers.

To facilitate integration with existing eHealth and/or partner services, IAM eXchange can be used.

IAM eXchange issues SAML Holder-of-Key (HOK) session tokens, which assert that a client has a valid eHealth profile.

The SAML token can be used to authenticate the client to most eHealth or partner services by signing the Body of SOAP messages with the Private Key that corresponds with the Public Key mentioned in the SAML token which proves that the client is the legitimate owner of the token.

2.2 Goal of the document

This document is not a development or programming guide for internal applications. Instead, it provides functional and technical information and allows an organization to integrate and use the eHealth platform service.

However, in order to interact in a smooth, homogeneous and risk controlled way with a maximum of partners, these partners must commit to comply with the requirements of specifications, data format and release processes of the eHealth platform as described in this document.

Technical and business requirements must be met in order to allow the integration and validation of the eHealth platform service in the client application.

It should be used in complement to the Swagger API, which describes the interface of the service and the structure of the request and responses.

2.3 eHealth platform document references

On the portal of the eHealth platform, you can find all the referenced documents.[1]. These versions or any following versions can be used for the eHealth platform service.

[1] ***https://ehealth.fgov.be/ehealthplatform***

ID	Title	Version	Date	Author
1	IAM Connect – Mobile integration	1.8	09/08/2023	eHealth platform
2	SOA – Error guide	1.0	10/06/2021	eHealth platform
3	Request test case template	3.0	22/02/2018	eHealth platform
4	Swagger API IAM-Exchange	N.A.	N.A.	eHealth platform

2.4 External document references

All documents can be found through the internet. They are available to the public, but not supported by the eHealth platform.

ID	Title	Source	Date	Author
1	OAuth 2.0 Token Exchange	***https://datatracker.ietf.org/doc/html/rfc8693***	01/2020	M.Jones (Microsoft) A.Nadalin (Microsoft) B. Campbell (Ping Identity) J.Bradley (Yubico) C. Mortimore (Visa)

3. Support

3.1 Helpdesk eHealth platform

3.1.1 Certificates

In order to access the secured eHealth platform environment you have to obtain an eHealth platform certificate, used to identify the initiator of the request. In case you do not have one, please consult the chapter about the eHealth Certificates on the portal of the eHealth platform

- ***https://www.ehealth.fgov.be/ehealthplatform/nl/ehealth-certificaten***
- ***https://www.ehealth.fgov.be/ehealthplatform/fr/certificats-ehealth***

For technical issues regarding eHealth platform certificates

- Acceptance: ***acceptance-certificates@ehealth.fgov.be***
- Production: ***support@ehealth.fgov.be***

3.1.2 For issues in production

eHealth platform contact centre:

- Phone: 02 788 51 55 (on working days from 7 am till 8 pm)
- Mail: ***support@ehealth.fgov.be***
- *Contact Form :*
  - ***https://www.ehealth.fgov.be/ehealthplatform/nl/contact*** (Dutch)
  - ***https://www.ehealth.fgov.be/ehealthplatform/fr/contact*** (French)

3.1.3 For issues in acceptance

Integration-support@ehealth.fgov.be

3.1.4 For business issues

- regarding an existing project: the project manager in charge of the application or service
- regarding a new project or other business issues: ***info@ehealth.fgov.be***

3.2 Status

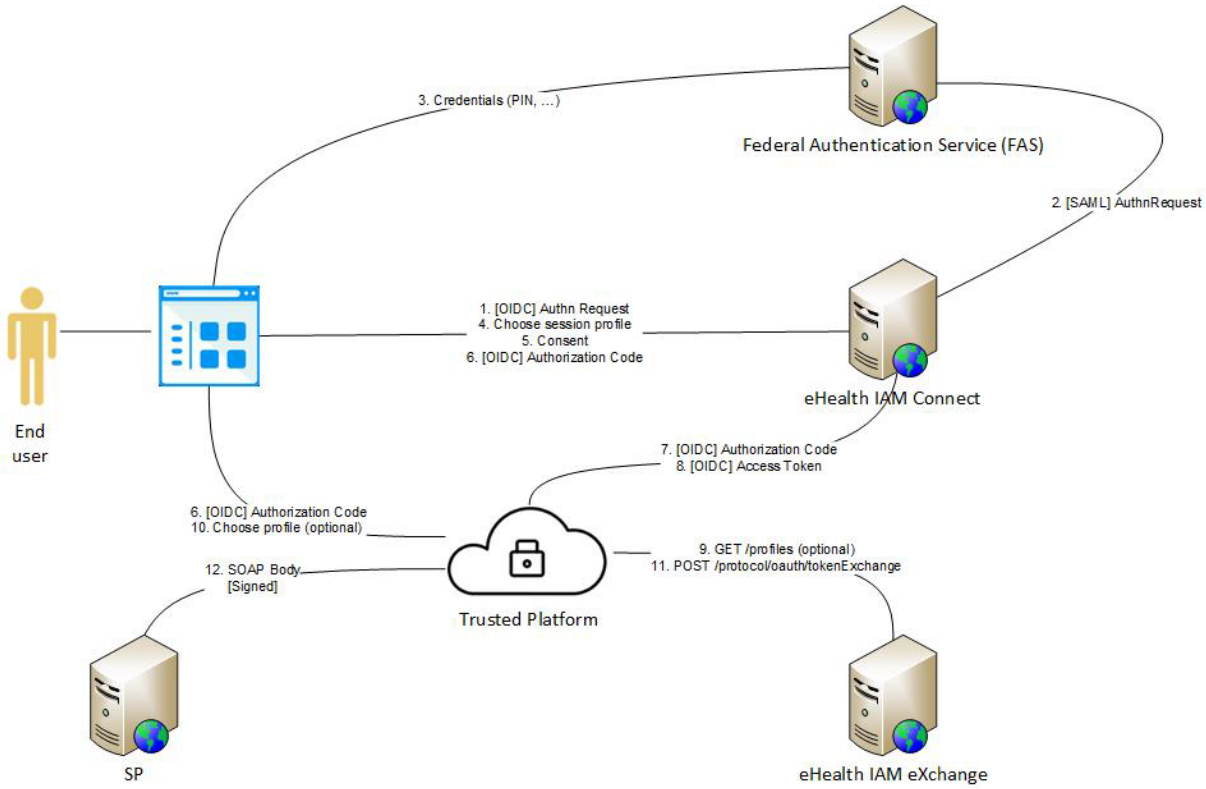
The website ***https://status.ehealth.fgov.be*** is the monitoring and information tool for the ICT functioning of the eHealth services that are partners of the Belgian eHealth system.

4. Global overview

In this section, we describe the 2 major ways to use IAM eXchange :

- IAM eXchange for Trusted Platforms
- IAM eXchange for technical clients

4.1 Process overview for Trusted Platforms



The end user uses his browser to contact (at least) one service provider (SP).

The client initiates the login (1) protocol with IAM Connect (Authorization Server).

IAM Connect relies on FAS service (2) for the authentication mechanism. End user is invited to provide his PIN (3) (or other credentials depending on the authentication method supported).

If the authentication succeeds, IAM Connect will propose a list of profiles[2] for the end user authenticated (4).

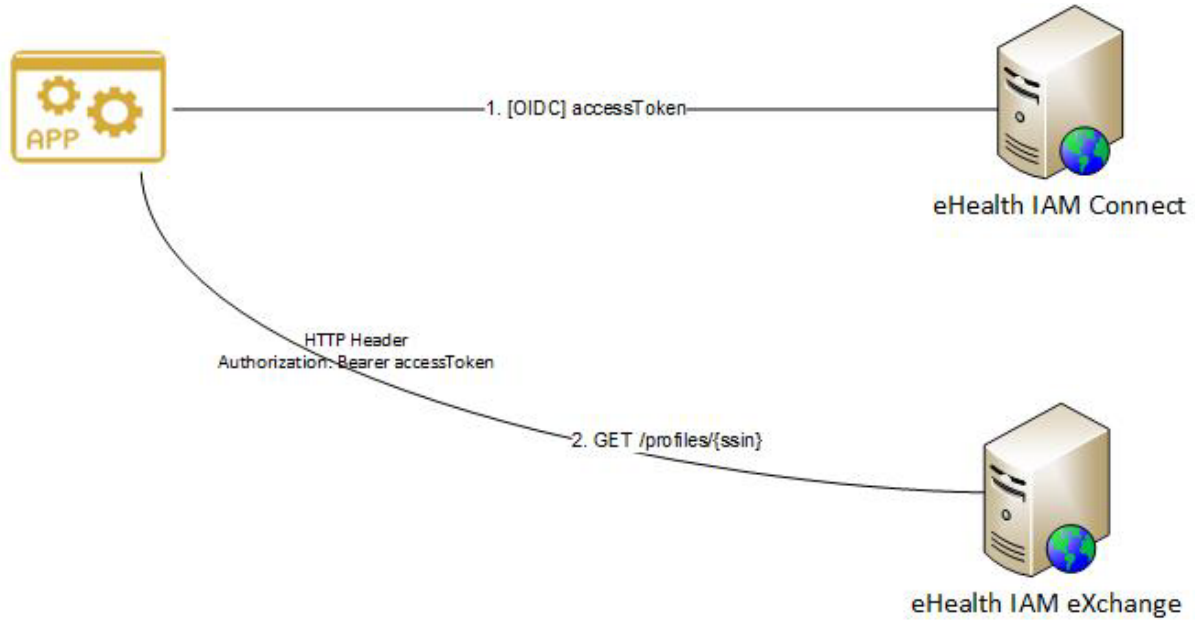
As the client will perform actions in the name of the end user, the latter must give his consent to the client in order to continue (5).

An AuthorizationCode is then sent from IAM Connect to the Trusted platform (6). With the AuthorizationCode, the Trusted Platform can obtain an Access Token (7, 8) which can be used to interact with IAM eXchange (9, 10, 11).

The SAML token obtained (11) can then be used by the Trusted Platform to contact the service provider in secured way (12).

[2] *Supported profiles are managed by the eHealth platform. Depending on the profile selected, the SAML HOK assertion may contain different attributes.*

4.2 Process overview for technical clients



The client uses client credentials flow to request an accessToken (1) with IAM Connect (Authorization Server).

With this accessToken, the client can request (2) the list of profiles (for the SSIN provided in input) to IAM eXchange.

Technical clients do not have the possibility to perform any exchange with IAM eXchange. The exchange functionality is dedicated to trusted platforms.

5. Step-by-step

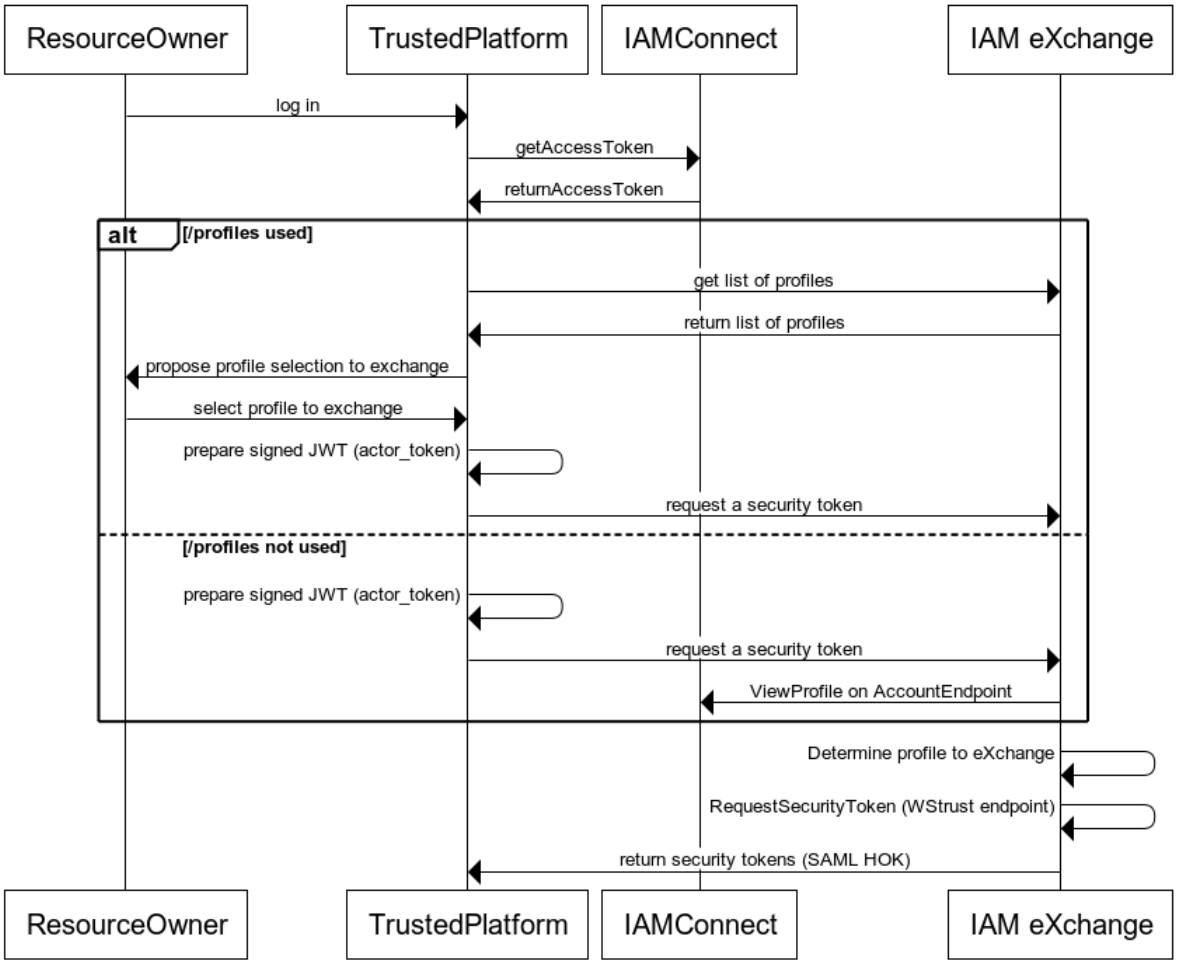
5.1 Technical requirements

5.1.1 Tracing

To use this service, the request SHOULD contain the following two http header values (see RFC https://www.w3.org/Protocols/rfc2616/rfc2616-sec3.html#sec3.8):

1. **User-Agent**: information identifying the software product and underlying technical stack/platform.
    - Pattern: {company}/{package-name}/{version} {platform-company}/{platform-package-name}/{platform-package-version}
    - Regular expression for each subset (separated by a space) of the pattern: [[a-zA-Z0-9-\/]*\/[0-9a-zA-Z-_.]*
    - Examples:
      User-Agent: MyCompany/myProduct/62.310.4 eHealth/Technical/3.19.0
      User-Agent: Topaz-XXXX/123.23.X Taktik/freeconnector/XXXXX.XXX
2. **From**: email-address that can be used for emergency contact in case of an operational problem
    - Examples:
      From: info@mycompany.be

5.2 Process overview for Trusted platform



5.2.1 eHealth platform authentication

In order to use IAM eXchange service, the Trusted Platform must be able to obtain an accessToken. The Trusted Platform must use the Authorization Code flow to initiate the login protocol (see IAM Connect – Mobile integration for more information).

Two roles are available :

- profile : this role must be present in the accessToken in order to retrieve the list of profiles of the authenticated end user
- token-exchange : this role must be present in the accessToken in order to use token exchange

The Trusted Platform MUST request the client scope *iam:exchange:tokenexchange.*

If the Trusted Platform wants to use the */profiles* operation, the client scope *iam:exchange:profile* is also required.

5.2.2 GET /profiles

The operation must be used to retrieve the list of profiles of the authenticated end user.

The Trusted Platform may use this operation to propose to the end user which profile he/she wants to exchange with */protocol/oauth/tokenExchange* (see section 5.2.3.1).

If this operation is not used by the Trusted Platform, the exchange will only rely on the eHealth profile selected by the end user in eHealth IDP (see section 5.2.3.2).

In this section, we assume that the TrustedPlatform is already configured and recognised by the eHealth platform (see section 5.2.1).

5.2.2.1 Request

No specific input.

5.2.2.2 Response

If the operation succeeds, the result may contain a list of profiles (JSON format).

Element	Description
firstName	First name of the authenticated end user
lastName	Last name of the authenticated end user
ssin	SSIN of the authenticated end user
children	Child/children of the authenticated end user. Each child is represented with the following elements - ssin - firstName - lastName Child/children is/are not listed if the Trusted Platform is not concerned by this profiles subset.
mandators	Mandator(s) of the authenticated end user The mandate type(s) detected are specified in serviceNames for each mandator. Each service name listed corresponds to exactly one mandate type. For examples : *medicaldatamanagement (Gestion des données de santé/ Beheer van gezondheidsgegevens)*, *recipe* (*Mandat de prescription/ Voorschriftenvolmacht*) Mandators are not listed if the Trusted Platform is not concerned by this profiles subset.
organizations	Organizations related to the authenticated end user. Organizations are not listed if the Trusted Platform is not concerned by this profiles subset.

Example without profile found :

```
{
  "firstName": "John",
  "lastName": "Doe",
  "ssin": "12345678912”
}
```

Example with mandates and children:

```
{
  "firstName": "John",
  "lastName": "Doe",
  "ssin": "12345678912",
```

```
  "children": [  {
    "lastName": "Doe",
    "firstName": "Junior1",
    "ssin": "23456789123"
  },
  {
    "lastName": "Doe",
    "firstName": "Junior2",
    "ssin": "34567891234"
  }],
  "mandators": [  {
    "firstName": "Grandfather",
    "lastName": "Doe",
    "ssin": "01234567891",
    "name": "Doe Grandfather",
    "serviceNames": ["medicaldatamanagement"]
  }]
}
```


5.2.3 POST /protocol/oauth/tokenExchange

The operation must be used to exchange an access token into SAML HOK assertion.

This operation cannot be used by the Trusted Platform without a valid accessToken (obtained after a successful end user login). This accessToken is not sufficient. The Trusted Platform must also generate a signed JWT (see section 5.2.3.1).

In this section, we assume that the Trusted Platform is already configured and recognised by the eHealth platform (see section 5.2.1).

5.2.3.1 JWT token generation

The client application (the Trusted Platform) authenticates itself by signing a JWT (RFC7519) with its private key. The generated token will be used during exchange operation (it must be set in actor_token parameter – see section 5.2.3.2.1).

Example:

Header


```
{
  "alg": "RS256"
}
```


Payload


```
{
  "iss": "frontendclient",
  "exp": 1516906514,
  "iat": 1513602283,
  "jti": "id123456"
}
```


Fields in the JWT payload are mandatory:

- iss: 'Issuer" identifies the principal that issued the JWT. It corresponds to the client id of the Trusted Platform.
- exp: "Expiration Time", identifies the expiration time on or after which the JWT must not be accepted.
- iat: "Issued At", identifies the time at which the JWT was issued
- jti: "JWT ID", provides a unique identifier for the JWT.

If the Trusted Platform uses */profiles*, the Trusted platform should add a claim (*sub*) representing the subject in the payload.

Example with sub claim :

```
Header
            {
              "alg": "RS256"
            }
Payload
            {
              "iss": "frontendclient",
              "exp": 1516906514,
              "iat": 1513602283,
              "jti": "id123456",
              "sub": "90e9cedc5a771dce969c1388c4508783"
            }
```

The value of this element MUST correspond to one of the sub claim presented in the access token (under claim may_act).

Example of may_act issued within an access token :

```
"may_act": [
  {
    "sub": "90e9cedc5a771dce969c1388c4508783",
    "userProfile": {
      "children": [
        {
          "ssin": "23456789123"
        }
      ]
    }
  },
  {
    "sub": "cedc5a771dce969c1388c450878390e9",
    "userProfile": {
      "children": [
        {
          "ssin": "34567891234"
        }
      ]
    }
  },
  {
    "sub": "8a0f71a0d8a302166d4baa403954e511",
    "userProfile": {
      "mandators": [
        {
          "ssin": "01234567891"
        }
      ]
    }
  }
]
```

5.2.3.2 Exchange access token

With the obtained access token and with the signed JWT, it is now possible to perform the exchange.

5.2.3.2.1 Request

In the Form Data, add the following parameters :

- *grant_type* : fixed value "urn:ietf:params:oauth:grant-type:token-exchange" indicates that a token exchange is being performed
- *requested_token_type* : fixed value “urn:ietf:params:oauth:token-type:saml1”
- *actor_token* : security token that represents the identity of the acting party. It corresponds to the JWT generated by the Trusted Platform (see section 5.2.3.1).

- *actor_token_type* : fixed value “urn:ietf:params:oauth:token-type:jwt”
- *subject_token* : security token that represents the identity of the party on behalf of whom the request is being made. Typically, the subject of this token will be the subject of the security token issued in response to this request.
- *subject_token_type* : fixed value “urn:ietf:params:oauth:token-type:access_token”
- *audience* must be empty
- *scope* must be empty
- *resource* must be empty

Example:

POST *https://api.ehealth.fgov.be/iam/v2/protocol/oauth/tokenExchange* HTTP/1.1

Host: as.example.com

Content-Type: application/x-www-form-urlencoded

grant_type=urn%3Aietf%3Aparams%3Aoauth%3Agrant-type%3Atoken-exchange

&requested_token= urn%3Aietf%3Aparams%3Aoauth%3Atoken-type%3Asaml1

&actor_token= **<signed token>**

&actor_token_type= urn%3Aietf%3Aparams%3Aoauth%3Atoken-type%3Ajwt

&subject_token=**<acces token>**

&subject_token_type=urn%3Aietf%3Aparams%3Aoauth%3Atoken-type%3Aaccess_token

5.2.3.2.2 Response

If the operation succeeds, the result may contain an access_token (in JSON format).

Example :

{
"access_token":
"PD94bWwgdmVyc2lvbj0iMS4wIiBlbmNvZGluZz0iVVRGLTgiPz4NCjxBc3NlcnRpb24geG1sbnM9InVybjpvYXNpczpuYW1lczp0YzpTQU1MOjEu
MDphc3NlcnRpb24iIEFzc2VydGlvbklEPSJfZGU2ZGVkMTZlNGQzODQ3ZTk4MjM5NDY3MWFkZWY5MmIiIElzc3VlSW5zdGFudD0iMjAyMS0wO
S0wNlQxMzozOTo0Ni44MzIaIiBJc3N1ZXI9InVybjpiZTpmZ292OmVoZWFsdGg6c3RzOjFfMCIgTWFqb3JWZXJzaW9uPSIxIiBNaW5vclVlcnNpb24
9IjEiPg0KCTxDb25kaXRpb25zIE5vdEJlZm9yZT0iMjAyMS0wOS0wNlQxMzozNDo0Ni42NzIaIiBOb3RPbk9yQWZ0ZXI9IjIwMjEtMDktMDdUMDE
6Mzk6NDYuNjc5WiIvPg0KCTxBdXRoZW50aWNhdGlvblN0YXRlbWVudCBBdXRoZW50aWNhdGlvbkluc3RhbnQ9IjIwMjEtMDktMDZUMTM6M
zk6NDYuODM1WiIgQXV0aGVudGljYXRpb25NZXRob2Q9InVybjpvYXNpczpuYW1lczp0YzpTQU1MOjEuMDphbTpYNTA5LVBLSSI+DQoJCTxTdW
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mllZCIgTmFtZVF1YWxpZmllcj0idXJuOmJlOmZnb3Y6ZWhlYWx0aDppYW06ZXhjaGFuZ2UiPjEyMzQ1Njc4OTEyPC9OYW1lSWRlbnRpZmllcj4NC
gkJCTxTdWJqZWN0Q29uZmlybWF0aW9uPg0KCQkJCTxDb25maXJtYXRpb25NZXRob2Q+dXJuOm9hc2lzOm5hbWVzOnRjOlNBTUw6MS4wOm
NtOmhvbGRlci1vZi1rZXk8L0NvbmZpcm1hdGlvbk1dGhvZD4NCgkJCQk8ZHM6S2V5SW5mbyB4bWxuczpkcz0iaHR0cDovL3d3dy53My5vcmcv
MjAwMC8wOS94bWxkc2lnIyI+DQoJCQkJCTxkczpYNTA5RGF0YT4NCgkJCQkJCTxkczpYNTA5Q2VydGlmaWNhdGU+TUlJRnZqQ0NBNmFnQXdJ
QkFnSUlPNm1sT1E3dUcvQXdEUVlKS29aSWh2Y05BUUVMQlFBd2NqRUxNQWtHQTFVRUJoTUNRa1V4RVRBUApCZ05WQkFvTUNGcEZWRVZ
USUZOQk1Rd3dDZ1lEVlFRRkV3TXdNREV4UWpCQUJnTlZCQU1NT1ZwbGRHVnpRMjl1Wm1sa1pXNXpJRkJ5CmFYWmhkR1VnVkhKMWMzUW
dVRXRKSUMwZ1pVaGxZV3gwYUNCcGMzTjFhVzVuSUVOQklEQXdNVEFlRncweU1EQTBNRFl3TmpFMk5UQmEKRncweU16QTBNRGN3TmpFM
k5UQmFNSUd6TVFzd0NRWURWUVFHRXdKQ1JURWJNQmtHQTFVRUNnd1NSbVZrWlhKaGJDQkhiM1psY201dApaVzUwTVE4d0RRWURWUV
FMREFaRVJWWlBVRk14RnpBVkJnTlZCQXNNRGtOQ1JUMHdPREE1TXprME5ESTNNUmt3RndZRFZRUUxEQkJGClNFVkJURlJJTFZCTVFWUkdU
MUpOTVNFd0h3WURWUVFMREJobFNHVmhiSFJvTFhCc1lYUm1iM0p0SUVKbGJHZHBkVzB4SHpBZEJnTlYKQkFNTUZrTkNSVDB3T0RBNU16az
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zNGeEU1Y1R1amlQbW9GZ1lTaUpwWHFHbVF2allneDVXMzJSVmhOVHVDdkM5R1dabGNKNWllCnNXTDV2SFZuL2VzTytwcHQyZnIxNFpvR2F
0dnFPaUdsSlpvQitYZWorSWd1cXBTNjZMbkdya21TUzZNNkdjeS85bEVBSnFKUFRWU2oKUlRSRTRBajNxVXY4dEh6SWdweVZGWUNRL3NSSElV
eEpyS2lMcjhoM3NjdDdIdXdzNnRoaGNRZ2QzVmJkTGtFQ3pRUG1RMDlnbEdLbgp1bzFFNmV5K1pvYnJOTkJKUFhobzlVelNZQ0pPblArTDhFalZ
SSUowbFAzUFNMWnZRKzFPTXF3NjR1cWJkZzh3a241SW1UNFQ5bjFwCkRKNWNHbHBmZ20yMS96SE5VSHlROUx1b0MxeWpmNzNydVM3ei
s0M2pBZ01CQUFHamdnRVVNSUlCRURCRUJnZ3JCZ0VGQlFjQkFRUTQKTURZd05BWUlLd1lCQlFVSE1BR0dLR2gwZEhBNkx5OXZZM053TFdWb
0xYQjBjR3RwTG1OdmJtWnBaR1Z1Y3k1NlpYUmxjeTVqYjIwdwpIUVlEVlIwT0JCWUVGSjkvRlltMEFjSGc5V3ExeVU4WkpzMHZ4UDdWTUF3R0E
xVWRFd0VCL3dRQ01BQXdId1lEVlIwakJCZ3dGb0FVCkszR3ZWalBSM1RQbklSMUxJUkdzbTdjS0R4a3dTd1lEVlIwZkJFUXdRakJBb0Q2Z1BJWTZh
SFIwY0RvdkwyTnliQzFsYUMxd2RIQnlKYVM1amIyNW1hV1JsYm5NdWVtVjBaWE11WTI5dEwxcERSVWhRVkZCTFNVTkJNREF4TG1OeWJEQU9
CZ05WSFE4QkFmOEVCQU1DQmVBdwpIUVlEVlIwbEJCWXdGQVlJS3dZQkJRVUhBd0lHQ0NzR0FRVUZCd01FTUEwR0NTcUdTSWIzRFFFQkN3V
UFBNElDQVFCVzNpMG1vQzEvClkwbDhjcXhmZThKcW1jbi80RmZnWlBwUkNhNlp4aG9lL2lxTVJ1Yll5R3BubUhXV1FDRDVkZEhsWXNyRWkxM
kcydE9scWlNQ0R4YWEKVjNwUzdLN0NmK1h6MWx3ZEpKU253dnE3VGZsRkgyRlJSTTIrcnY0VXNqYlEvOEErMmFBOWhsZDFVM3hBNUpLWTli
cDhDOEx2VFBUQgpRalY5QndMTUNqMHVjTnRISXpkUmh4THMweDhCZHN1c1JqNFhMdUgwdUY4MXo2VXh3QzBIZ2YzcEZFbjJJU3FKZm5Pal

NseGJpeXJ4CldSRWgrRVFnQ3ZsNmovSzVvMEE0TWlkVEhzNHpaQ1BPR3FuazNibjg1VUEvNmEvVUpkcElrYlcxVTV4Q1pVWEVaRjFGNjZBZ2RH
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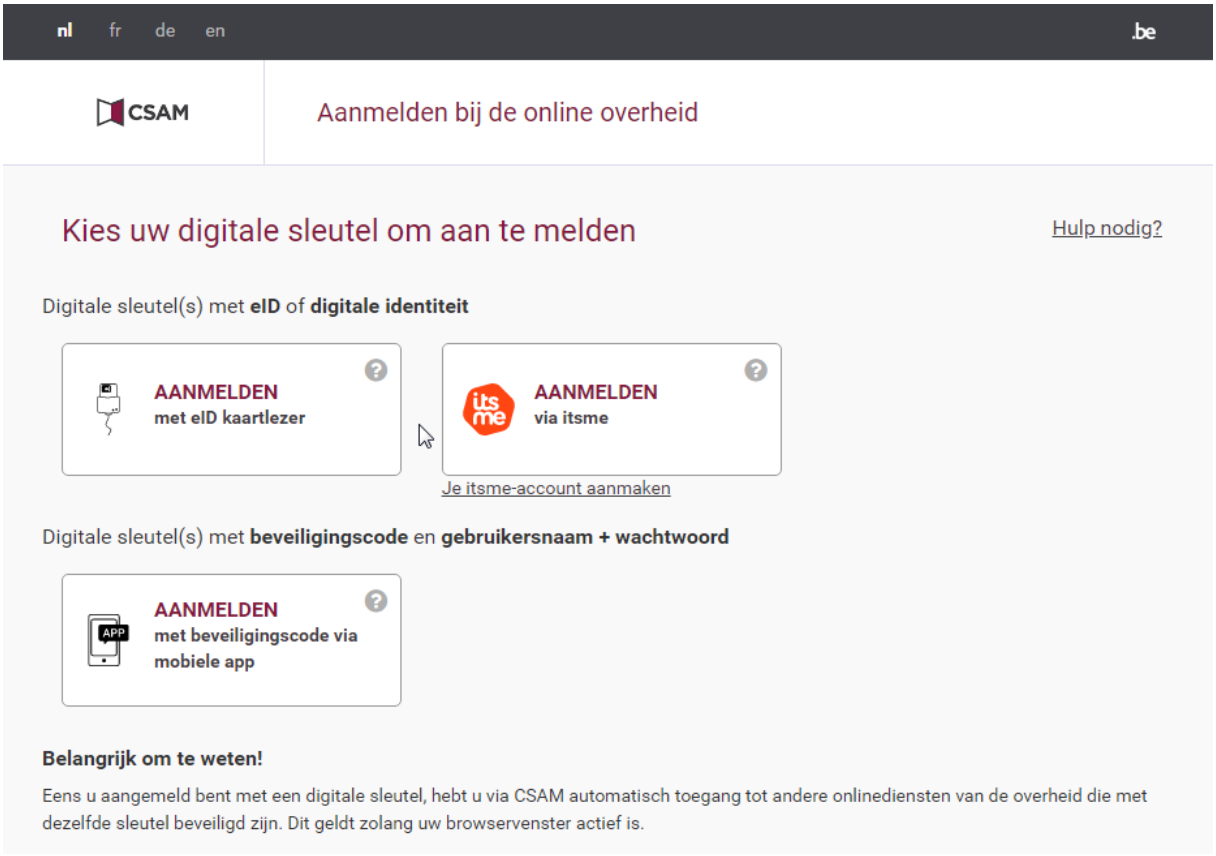
  "refresh_token": null,
  "issued_token_type": "urn:ietf:params:oauth:token-type:saml1",
  "scope": "",
  "token_type": "N_A",
  "expires_in": 43500
}

5.3 End user workflow

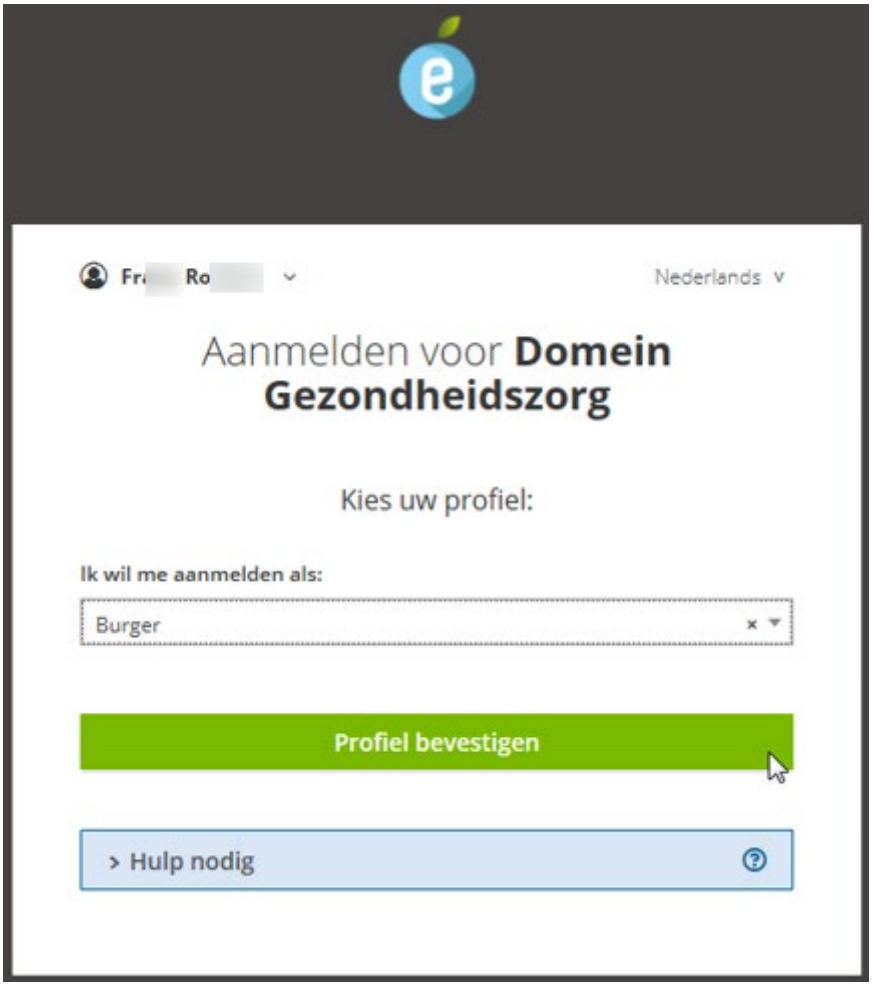
The end user needs to perform some actions in order to allow the client getting a SAML HOK token:

1. Authentication
   The end user must select one of the authentication methods proposed.



2. Profile selection

The end user has to select one of the available profiles in the dropdown list.



If the end user has no supported profile for the token eXchange, he will not be able to select any profile and the IDP will warn this end user.

3. Consent
The end user will have to give his/her consent

The end user can revoke his/her consent by using the account clients.

4. Choose another profile
If the Trusted Platform uses */profiles*, the end user may select within the application (Trusted Platform) some other profiles for the eXchange.

5.4 Process overview for technical clients

5.4.1 eHealth platform authentication

In order to use IAM eXchange service, the technical clients must be able to obtain an accessToken. The client must use the client credentials flow (see IAM Connect – Mobile integration for more information).

One role is available :

- profile-specific : this role must be present in the accessToken in order to retrieve the list of profiles for one individual person (identified by a SSIN)

The client MUST request the client scope *iam:exchange:profilespecific* during his onboarding.

5.4.2 GET /profiles/{ssin}

The operation must be used to retrieve the list of profiles for any individual identified by a SSIN.

In this section, we assume that the client is already configured and recognised by the eHealth platform (see section 5.4.1).

5.4.2.1 Request

Only one input must be provided : SSIN

Element	Description
ssin	SSIN of the individual person

Example (for ssin 12345678912):

GET https://api.ehealth.fgov.be/iam/v2/profiles/12345678912

5.4.2.2 Response

If the operation succeeds, the result may contain a list of profiles (JSON format).

Element	Description
ssin	SSIN of the authenticated end user
children	Child/children of the authenticated end user. Each child is represented with the following elements - SSIN - firstName - lastName Child/children is not listed if the Trusted Platform is not concerned by this profiles subset.
mandators	Mandator(s) of the authenticated end user The mandate type(s) detected are specified in serviceNames for each mandator. Each service name listed corresponds to exactly one mandate type. For examples : *medicaldatamanagement (Gestion des données de santé/ Beheer van gezondheidsgegevens)*, *recipe* (*Mandat de prescription/ Voorschriftenvolmacht*) Mandators are not listed if the Trusted Platform is not concerned by this profiles subset.
organizations	Organizations related to the authenticated end user.

	Organizations are not listed if the Trusted Platform is not concerned by this profiles subset.

Example without profile found :


```
{
  "ssin": "12345678912”
}
```


Example with mandates and children:


```
{
  "ssin": "12345678912",
  "children": [  {
    "lastName": "Doe",
    "firstName": "Junior1",
    "ssin": "23456789123"
  },
  {
    "lastName": "Doe",
    "firstName": "Junior2",
    "ssin": "34567891234"
  }],
  "mandators": [  {
    "firstName": "Grandfather",
    "lastName": "Doe",
    "ssin": "01234567891",
    "name": "Doe Grandfather",
    "serviceNames": ["medicaldatamanagement"]
  }]
}
```


5.5 Reference implementation

5.5.1 General description

The actual solution is based on RFC 8693 ‘OAuth 2.0 Token Exchange’

6. Risks and security

6.1 Risks & safety

6.1.1 End user consent

End user must give his consent to the client (the Trusted Platform) prior this client can use the end user credentials. The consent mechanism is present by default. No client will be able to act as the end user if the latter has not provided his consent once.

The end user can revoke his/her consent at any time.

If the user removes his consent for one client, this client cannot request a new access token and cannot exchange the token. But the client can still use a valid SAML token previously obtained.

6.1.2 Token validity period

When the end user gives his consent, the client (the trusted platform) can request a SAML HOK token during a given period.

The SAML HOK obtained has a limited validity period defined to 12 hours.

A more comprehensive set of security requirements is given in “IAM eXchange Annex A – Security commitment from the Trusted Platform”, available on the portal.

(See https://www.ehealth.fgov.be/ehealthplatform/nl/service-i.am-identity-access-management)

This document should be signed bu a legal representative of the entity or by the information security consultant.

7. Test and release procedure

7.1 Procedure

This chapter explains the procedures for testing and releasing an application in acceptation or production.

7.1.1 Initiation

If you intend to use the eHealth platform service, please contact ***info@ehealth.fgov.be***. The project department will provide you with the necessary information and mandatory documents.

7.1.2 Development and test procedure

You have to develop a client in order to connect to our WS. Most of the required info to integrate is published in the technical library on the portal of the eHealth platform.

Upon request, the eHealth platform provides you test cases (See Request testcase template) in order for you to test your client before releasing it in the acceptance environment.

7.1.3 Release procedure

When development tests are successful, you can request to access the acceptance environment of the eHealth platform. From this moment, you start the integration and acceptance tests. The eHealth platform suggests testing during minimum one month.

After successful acceptance tests, the partner sends his test and performance results with a sample of “eHealth request” and “eHealth answer” by email to his point of contact at the eHealth platform.

Then the eHealth platform and the partner agree on a release date. The eHealth platform prepares the connection to the production environment and provides the partner with the necessary information. During the release day, the partner provides the eHealth platform with feedback on the test and performance tests.

For further information and instructions, please contact: ***integration-support@ehealth.fgov.be***.

7.1.4 Operational follow-up

Once in production, the partner using the eHealth platform service for one of his applications will always test first in the acceptance environment before releasing any adaptations of the application in production. In addition, he will inform the eHealth platform on the progress and test period.

7.2 Test cases

The eHealth platform recommends performing tests for all of the following cases:

For clients defined as a TrustedPlatorfm (with eXchange scope only)

- Request a SAML HOK token as a citizen (or as parent or as mandate holder or as healthcare professional)
- Use the SAML HOK token to call a protected service provider (example : WS SOAP KGSS)

For clients defined as a TrustedPlatorfm (with eXchange scope and profile scope)

- Consult with success a list of profiles (with one or more profiles)
- Request a SAML HOK token with one valid profile
- Use the SAML HOK token to call a protected service provider (example : WS SOAP KGSS)

For technical clients using client credentials flow :

- Consult with success a list of profiles for a valid SSIN (with one or more profiles)

8. Error and failure messages

Error codes originating from the eHealth platform for the IAM eXchange service are defined in the swagger file.

In the table below, you can find specific error messages for */protocol/oauth/tokenExchange*.

HTTP status code	Error code	Error message	Recommendation
400	invalid_client	SubjectToken Access Denied: Account Service ${httpStatusCode} ${httpStatusMessage}	Enduser may have revoked his/her consent. Contact eHealth support for investigation if it worked previously.
400	invalid_client	Reason : error while invoking webaccess endpoint	Contact eHealth support for investigation.
400	invalid_request	ActorToken Access Denied: Authorized Party of subjectToken {$subjectToken.azp} must be the same as issuer actorToken {$actorToken.iss}	Contact eHealth support for investigation if it worked previously.
400	invalid_request	SubjectToken Access Denied: realm_access role token-exchange missing.	Contact eHealth support for investigation if it worked previously.
400	invalid_request	Invalid input for field actor_token_type	Review and adapt the input (as described in this document).
400	invalid_request	Invalid input for field actor_token	Review and adapt the input (as described in this document).
400	invalid_request	ActorToken Access Denied: client {$issuer} not allowed (wrong signing algorithm)	Wrong signing algorithm (in JWT header). Review it and adapt the input (as described in this document).
400	invalid_client	ActorToken Access Denied: client {$issuer} not allowed	ActorToken used is not known. Contact eHealth support for investigation if it worked previously.
400	invalid_request	ActorToken Access Denied: client {$issuer} not allowed (wrong certificate)	Certificate used to generate the actorToken is not known at eHealth. Contact eHealth support to provide the new one.
400	invalid_client	ActorToken expired	A new actorToken must be generated.
400	invalid_request	Invalid input for field audience	Review and adapt the input (as described in this document).
400	unsupported_grant_type	Invalid input for field grant_type	Review and adapt the input (as described in this document).
400	invalid_request	Invalid input for field requested_token_type	Review and adapt the input (as described in this document).
400	invalid_request	Invalid input for field resource	Review and adapt the input (as described in this document).

400	invalid_scope	Invalid input for field scope	Review and adapt the input (as described in this document).
400	invalid_request	Invalid input for field subject_token	Review and adapt the input (as described in this document).
400	invalid_request	Invalid input for field subject_token_type	Review and adapt the input (as described in this document).
400	invalid_request	Invalid input for field subject_token	Review and adapt the input (as described in this document).
400	invalid_request	SubjectToken Access Denied: untrusted issuer [{${subjectToken.iss}}]	Your client is trying to use a token not suitable for this environment. Review your configuration.
400	invalid_request	Invalid input for field subject_token	Review and adapt the input (as described in this document).
400	invalid_client	SubjectToken expired	A new accessToken must be generated.
400	Invalid_request	SubjectToken Access Denied: Authentication level not satisfied.	Contact eHealth support for investigation if it worked previously.
401	unauthorized_client	ActorToken Access Denied: failed to resolve attributes (Profile ${profile})	Contact eHealth support for investigation.
401	unauthorized_client	ActorToken Access Denied: failed to determine profile (Profile option type ${profileOptionType})	Contact eHealth support for investigation.
401	unauthorized_client	ActorToken Access Denied: failed to resolve attributes (Profile {$profession})	Contact eHealth support for investigation.
401	unauthorized_client	SubjectToken Access Denied: Invalid authentication level.	Contact eHealth support for investigation.
500	unknown	Reason: unable to resolve signing key	Contact eHealth support for investigation.
500	unknown	Reason: error while invoking account endpoint	Contact eHealth support for investigation.
500	unknown	Reason: ${failureStatusMessage}	Contact eHealth support for investigation.
500	unknown	Reason: unable to extract assertion from backend (empty response)	Contact eHealth support for investigation.
500	unknown	Reason: unable to extract assertion from backend (invalid response)	Contact eHealth support for investigation.
500	unknown	Reason: unable to encode assertion	Contact eHealth support for investigation.
500	unknown	Reason: wrong issued_token_type received from backend	Contact eHealth support for investigation.
500	unknown	Reason: wrong token_type received from backend	Contact eHealth support for investigation.

500	unknown	Reason: unable to determine assertionLifetime	Contact eHealth support for investigation.

Error example (http status code 400):

```
{
  "error" : "invalid_client",
  "error_description" : "SubjectToken Access Denied: Account Service 401 Unauthorized",
  "error_uri" : null,
  "id" : "Id-1490f45e9e886f6fc635cd15"
}
```

In the table below, you can find specific error messages for */profiles/{ssin}*.

HTTP status code	Title	Detail	Recommendation
400	invalid_client	Invalid parameter: ${input} is not a valid SSIN.	Use a correct and valid input (SSIN)

Error example (http status code 400) :

```
{
   "type": "https://www.gcloud.belgium.be/rest/problems/badRequest",
   "title": "Bad Request",
   "status": 400,
   "detail": "Invalid parameter: 'a'  is not a valid SSIN.",
   "id": "Id-d5c7356182abed5af3d76ce2"
}
```