eReferral

Integration Guide

This document is a manual for integrating into eReferral project. It provides guidelines and instructions to ensure seamless participation in the project.

Contact : integration-support@ehealth.fgov.be

1. Contents

2.   Document version

Version	Status	Date	Author	Description
0.1	Draft	01/06/24	Smals	Initial version
1.0	Published	18/10/24	Smals	First release
1.1	Published	28/10/24	Smals	Update token exchange flow and links
1.2	Published	28/01/25	Smals	How to add therapeutic link
1.3	Published	30/01/25	Smals	Typo in the scope
1.4	Published	24/03/25	Smals	Update eHealth docs links, added WC links and other clarifications
1.5	Published	09/04/25	Smals	Update global schema and link for token exchange
1.6	Published	9/05/25	Smals	Adding radiology, update flow, adding first line contact, removed deadlink, added patient link
1.7	Published	18/06/25	Smals	Adding new nihdi:uhmep:hcp scope in section 7.2.2 "IAM document".
1.8	Published	11/07/25	Smals	Simplification of the document
1.9	Published	29/07/25	Smals	Added new test cases
2.0	Published	10/09/25	Smals	Update IAM connect procedure
3.0	Final	11/02/26	Smals	eReferral project name, M2M Realm Client

3. Glossary

Term	Meaning
ACC	Acceptation environment, this is the more stable environment before the production one
"blinded" Pseudonymization	The eHealth Blinded Pseudonymization REST service prevents the association of personal and medical data whether they are in the database, in transit on the network, or used during processing. This service generates a unique pseudonym for each patient to keep their identity private and secure.
DRP	Digital Referral Prescription
FHIR	FHIR (Fast Healthcare Interoperability Resources) is a standard framework created by HL7 (Health Level Seven International) to facilitate the exchange of healthcare information electronically.
IAM	Identity & Access Management
PSS	Prescription Search Support
SSIN	Social Security Identification Number
UHMEP	Unaddressed Health Message Exchange Platform - FHIR API

4. Preface

This is an ongoing project, meaning that only the following target groups are currently supported:

Individual HealthCare	Organization (M2M Client)
- Physician - Nurse - Patient - Midwife (before 2018)[1]	- HOME_SERVICES - GROUPOFNURSES - REEDUCATION - OTD_PHARMACY - GUARD_POST - HOSPITAL - MEDICAL_HOUSE - OFFICE_DOCTORS - GROUPOFDOCTORS

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[1] Midwives who graduated before October 1, 2018 can perform the same acts as nursing practitioners; midwives who graduated after September 30, 2018 can perform certain nursing acts (only in the fields of maternity, fertility, neonatology and gynecology). In addition to their INAMI midwife number, these two groups of caregivers receive an INAMI nursing practitioner number with a 4X2 or 4X6 qualification code,even if they do not have a nursing practitioner VISA.

5. Introduction

eReferral is an exchange platform that stores digitize referral prescriptions and medical proposals to facilitate their processing and exchange among various stakeholders: the patient, the caregiver, and the prescriber.

Referral prescriptions are non-drug prescriptions that a patient receives from their doctor (the prescriber) for a particular issue. A referral prescription is carried out by the caregiver. For example, it may be a prescription for wound care, an X-ray, etc.

A medical proposal results from the reverse process, where the caregiver creates a medical proposal for the prescriber for an issue they have identified in the patient. This could be a proposal to extend a treatment or to initiate a new treatment.

Digitizing referral prescriptions and medical proposals will reduce administrative burden by decreasing the use of paper versions and enabling the instant retrieval of specific prescriptions. Additionally, the prescription can be simultaneously accessed by different stakeholders, which was not possible with paper versions.

Another advantage of this digitization is the centralization of all this information in a single location, the UHMEP database. This centralization will enable INAMI to perform statistical analyses and implement certain controls (data analysis, trend anticipation, etc.).

eReferral also provides a **web application** that interfaces with the **UHMEP FHIR API**. This application utilizes **three web components** that allow for the creation, viewing, and interaction with citizen prescriptions. These web components are made available to integrators.

This integration guide is intended for all companies interested in integrating various eReferral solutions. We will present the different methods to achieve this and outline the procedures to follow to be recognized as certified integrators.

6. Integration flow

This chapter will explain how to integrate with eReferral project.

The chapter is divided into sections, the global flow overview and the three main sections explained.

6.1   Prerequisite

This flow is designed to guide integrators through the optimal integration process.

To request to register as a candidate, it is requested that all integrators introduce themselves and their company by sending an email to integration-support@ehealth.fgov.be with the following info:

What	Description	Example
First and last name	The first name and last name of the company's contact person	John Doe
Organization	The software integrator company name	Aqme Care
Professional email address	The email address that should be used to contact the software integrator	john.doe@aqme.be
Short description of the access request	Description of the reason why the company is willing to integrate the project	We are a leading actor in the radiology industry providing services for all Belgian hospitals and are eager to use your web component within our web solution.
Which solution we are interested in	Choose which solution you are willing to use (1-n)	● UHMEP FHIR API ● ProWeb App ● Web Component
Users type of your solution	Which medical discipline uses your software for the creation, consultation of the prescription, and its execution?	General Practitioners, Nurses, Dentist,....
Volumetry	The target average amount of prescriptions treated by your services	200 prescriptions a day

6.2   eReferral solutions

Currently, eReferral project offers 3 possible integrations, which will be described in this section.

	PRO WEB APP	WEB COMPONENTS	UHMEP FHIR API
Description	**Simple Flow** 🚀 No integration needed, nor maintenance.	**Intermediate Flow** Simple technical integration and maintenance needed.	**Complex Flow** 🧑🏾 Full technical integration needed with UHMEP API and dependencies, complex maintenance.
eHealth Onboarding	Only Individual Healthcare provider	• Individual Healthcare provider • Or M2M Client	• Individual Healthcare provider • Or M2M Client
Technical constraints	N/A	Framework integration	FHIR, Pseudonymization, Terminology Server, Prescription Search Support API, Token management, …
Registration tests	N/A	Required. Administrative doc to fill and demo that the web components were well integrated.	Required. The full registration testing and proof need to be performed.

💡 Note: Several bricks can be used simultaneously (Eg. pro web app + 1 web component or pro web app integrated within your software).

6.3   Pro Web App (Simple Flow 🚀)

The pro web app has the fastest flow when using eReferral. The Pro web app is a fully functional solution that includes the whole solution to create, list, and consult details of a digital referral prescription. The onboarding is straightforward, as prescribers, caregivers, and patients simply need to authenticate themselves via the provided link to access and start using the app according to their needs.

The application does not allow authentication on behalf of an organization, but only as an individual healthcare provider.

> ⚠️ **Before** accessing the Pro web app:
>
> - Send your NISS to integration-support@ehealth.fgov.be and ask to be set as a **NURSE** and a **PHYSICIAN** in the ACC environment to test the UHMEP project.
> - Create Therapeutic link
> - Activate your Informed Consent

Role	Link
Caregiver	https://wwwacc.referral-prescription.ehealth.fgov.be/frontend/app/hcp
Prescriber	https://wwwacc.referral-prescription.ehealth.fgov.be/frontend/app/hcp
Patient	https://wwwacc.referral-prescription.ehealth.fgov.be/frontend/app/patient

6.4   Web Component (Intermediate Flow)

These web components are small applications designed to be integrated directly into the integrator's ecosystem for implementing eReferral project. By utilizing these components, integrators can significantly reduce the work required for full integration. Additionally, they will not need to foresee any type of registration to access the referral prescription materials.

There are 3 web components currently accessible via GIT:

- List
- Create
- Detail

https://github.com/smals-belgium/shared-referral-prescription-webcomponent

> ⚠️ **Warning:**
>
> To integrate with this solution, you can choose between 2 authentication methods:

Tips: a showcase is available on Git see 9. Resources and links

6.5 UHMEP FHIR API (Complex Flow 🐌)

Integrators with existing software can access all referral prescription functionalities via API, under the following conditions:

- **eHealth Authentication**: Your software must be onboarded with eHealth
- **Pseudonymization**: API calls must use a pseudonymized SSIN. As a Trusted Platform, you're responsible for transforming SSINs using the eHealth blinded pseudonymization service. Smals recommends using its pseudo Java/JavaScript libraries for this purpose (see Git).
- **FHIR Standard** : The UHMEP API uses specific models for each referral prescription type and care proposal, based on the international FHIR standard. These models are adapted to the Belgian context by the eHealth standardization team. FHIR defines how medical data is structured and exchanged between systems.
- **FHIR Terminology Server:** to support the eReferral Project, a terminology server is needed to access SNOMED CT codes. (see 7.4)
- **Prescription Search Support (PSS) integration** is a must in order to create radiology prescriptions (see 7.5).

⚠️ **Warning:**

To integrate with this solution, you can choose between 2 authentication methods:

- As an Individual Healthcare provider using IAM connect Healthcare client realm flow.
- As an organization using IAM Connect M2M client realm flow.

The documents and information to be completed vary depending on the solution chosen.

In order to integrate with the FHIR "UHMEP" API, in addition to eHealth service documentation, you will need technical information on GitHub

- Cookbook
- Error code list
- Pseudonymization libraries
- Test scenarios

7. How to authenticate with eReferral solutions?

7.1 Authenticate as an individual healthcare provider using IAM Healthcare realm client

To get onboarded as an individual healthcare, please refer to the following documents:

7.1.1 IAM Connect Healthcare realm client registration document

⌀ The document can be downloaded via 9. Resources and links under the name "**IAM Connect Healthcare realm client registration request form".**

The Identity Access Management (IAM) Connect service is an authentication service provided by the eHealth platform. Its goal is to gather the necessary information to authenticate and authorize traffic coming from a server, granting it in a secure way the required access to utilize certain services, such as the eReferral project.

The project requires the registration of your client via the I.AM Connect – HealthCare Client Registration form (see 9. Resources and links). Each healthcare professional or entity must register upfront and gain access to the platform for managing and accessing patient prescriptions, requiring human authentication and identity verification.

Here below, find a list of needed information that would need to be provided (*current version 2.1*) as well as some examples.

Information (fields with an * are mandatory)	Explanation and allowed values	Example
General client information		
Request date *	Please state the date on which you are submitting this request form.	**01/03/2025**
Partner organization *	Please state the full name of the partner organization that is requesting the IAM on-boarding.	**Aqme Care**
Contact person *	Please state the full name, email address and phone number of the person that	Name: **Jhon Doe**

	may be contacted by eHealth for information on the on-boarding request. Note that this contact person may be contacted for questions related to business- as well as technical aspects, so the contact person is expected to coordinate with all relevant departments within your organization.	Email address: **jhon.doe@aqmecare.be** (Feel free to add additional email addresses or a group mail address in case more people need to be kept informed.) Phone number: **0470/12.34.56**
Brief description of the purpose of your application and of the requested client. *	Please describe briefly what the purpose of your application is.	**Aqme care is currently building an application so patient can access to their prescriptions on the way…..**
Public or confidential client? *	Please indicate which of the two available authentication flows your application uses (select only one option): **Public client**: Your application is either a distributed software, or a webapp that runs 100% on the client of the end user. (It is not possible in this case to generate a private key to authenticate the application.) The user authenticates directly with eHealth IDP and FAS. Authorization code flow: PKCE integration. **Confidential client**: Your application runs partly on the server(s) of a recognized partner organization (private keys are used to authenticate the application). The user authenticates directly with eHealth IDP and FAS. Authorization code flow: an access token is sent by the client-component to the	☐ **Public client** ☐ **Confidential client**

	server-component of the recognized organization.	
Client ID *	The IAM client ID is the unique identifier of the IAM Connect client configured by eHealth for the partner. In case the partner organization already has an existing IAM Connect Healthcare client, the partner can choose (or not) to request for the existing client to be re-used and adapted. (In some cases, though this is not possible, and in that case, eHealth will have to configure a new client.)	software-name
Scopes	**Scopes are boundaries that are defined to technically limit the use of the IAM client to the purpose/application for which it is requested.** **In case your request for an IAM client is in the context of an onboarding procedure for a specific application, check the onboarding documentation of that application for guidelines on scopes to be filled out in this field. If the documentation mentions no scopes,**	• **Openid** • **Iam:connect:exchange** • **Iam:authz** • **web-origins** • **ssin** • **profile** • **roles** • **pseudo:api:pseudonymize** • **pseudo:api:identify** • **nihdi:uhmep:pseudo** • **nihdi:uhmep:hcp**

	leave the field empty.	
Redirect URI *	To redirect the user after a successful authentication, a valid redirect URI is needed in the configuration. This URI is also used for redirecting the user after a logout.	**https://app-acc.software-name.be/iam-connect-endpoint/;** **http://localhost/iam-connect-endpoint/**
Optional URL's	The following URL's can, if available, be added to the client configuration: Root URL, Base URL Please note that ONLY ONE URL may be added for each of these.	☐ **Yes, I want a root URL to be added to the configuration: [state that URL here]** ☐ **Yes, I want a base URL to be added to the configuration: [state that URL here]**
Credentials eHealth certificate JWKS: only to be filled out if you have selected the option "Confidential client" higher in this form. (This information does not apply to public clients.)		
Type *	Please specify the type of identifier mentioned in your eHealth certificate.	☐ **EHP (EHP institution)** ☐ **EHP-CTRL_ORGANISM (control organism)** ☐ **CBE (institution)** ☐ **CBE-CONSORTIUM (consortium)public** ☐ **CBE-TREAT_CENTER (treatment center)** ☐ **NIHII-AMBU_SERVICE (ambulance service)** ☐ **NIHII-END-CAREER** ☑ **NIHII-GROUP_DOCTORS (group of doctors)** ☑ **NIHII-GROUP (group of nurses)** ☐ **NIHII-GUARD_POST (guard post)** ☐ **NIHII-HOME_SERVICES (home care services)** ☐ **NIHII-HOSPITAL (hospital)** ☐ **NIHII-ICP (integrated project)**

		☐ NIHII-LABO (laboratory)
		☐ NIHII-LEGAL_PSY (legalpsy)
		☐ NIHII-MEDICAL_HOUSE (medical house)
		☐ NIHII-OF_BAND (office bandagist)
		☐ NIHII-OFFICE_DOCTORS (office doctor)
		☐ NIHII-PALLIATIVE_CARE (palliative care)
		☐ NIHII-PHARMACY (pharmacy)
		☐ NIHII-OTD_PHARMACY (pharmacy OTD)
		☐ NIHII-PROT_ACC (protect accommodation)
		☐ NIHII-PSYCH_HOUSE (psychiatrist house)
		☐ NIHII-REEDUCATION (reeducation)
		☐ NIHII-RETIREMENT (retirement home)
		☐ NIHII-SORTING_CENTER (sorting center)
Identifier *	Please state the value of your certificate identifier (string value).	**Type of identifier (e.g. "NIHII institution")**
Application ID	If your eHealth certificate contains an application ID, please state it here. If not, leave this field empty.	**Application ID (if available)**

7.1.2 IAM Token exchange Flow

The use of the IAM Token exchange Flow is a security prerequisite for the use of the **UHMEP FHIR API and Web Components** solutions in the context of Healthcare realm client authentication.

Indeed, the IAM token will give users access to the solution but also has the rights of these users to the pseudonymization service. For security reasons, technical providers (such as Smals) cannot access these pseudonymization rights.

To avoid that happening, the **IAM Token exchange** has been put in place. Software Integrators will exchange the token obtained at the user connection for another token to call the UHMEP FHIR API and

Web Components. In this token exchanged, the right for the pseudonymization has been removed. The particularity of the patient token is that it will not contain the SSIN of the user connected. The patient's identifier will be pseudonymized and given in the user info token.

If you want more info about token exchange in context of eReferral project, see the cookbook (9. Resources and links)

7.1.3 Security Commitment for IAM Token Exchange

⌘ The signature of these documents is required:

- *IAM eXchange Annex A Security commitment from the Trusted Platform*
- *IAM Connect Token Exchange Security Commitment in the context of pseudonymization*

 BOTH needs to be downloaded via 9.Resources and links

> ⚠ The signature of these documents is required in Individual Healthcare authentication flow for the **UHMEP FHIR API and Web Components solutions**

7.2 Authenticate as an organization using IAM Connect M2M client realm

To get onboarded as an organization, please refer to the following documents.

7.2.1 Onboarding for eReferral M2M integration

📄 Read the **Onboarding procedure for eReferral M2M integration** to understand how to prepare your registration and which M2M parameters to provide.

Use this document to understand:

- Why your integration must use M2M Client Credentials
- What certificate information you must provide
- What information must be included in your onboarding request email

7.2.2 I.AM Connect – M2M Client Registration Request Form (v2.1)

📄 Use the I.AM Connect – M2M Client Registration Form to register your eReferral IAM client. This is the official eHealth form used to create your IAM Connect client.

You must request the following scopes:

- pseudo:api:pseudonymize
- pseudo:api:identify
- nihdi:uhmep:pseudo
- nihdi:uhmep:organization
- openid
- iam:authz

Submit the completed form to the eHealth Integration Support team together with the onboarding email.

7.2.3 Request your IAM Tokens

> ⚠ The token exchange service used in the individual Healthcare client flow DOES NOT exist in the M2M procedure

📄 Read the **Identity & Authorization Management (IAM) Mobile integration Technical specifications** to understand how to request your access tokens.

The IAM token will give access to the eReferral API but also the rights to the pseudonymization service. For security reasons, technical providers (such as Smals) cannot access these pseudonymization rights.

To avoid that happening, **2 tokens are required:**

1. A token for the pseudonymization calls
2. A token for the eReferral API The integrator must explicitly select the appropriate scopes and audience when requesting each token.

	Token to call the pseudonymization service	Token to call the eReferral API
Scopes requested	• pseudo:api:pseudonymize • pseudo:api:identify • nihdi:uhmep:pseudo • openid • iam:authz	• nihdi:uhmep:organization • openid • iam:authz

8. Mandatory testing in ACC before onboarding into production (to be carried out by the software supplier)

These tests must be carried out by the software integrators of the FHIR UHMEP API (authenticated as an individual Healthcare or as M2M) and by the integrators of the Web Components only if authentication is done via M2M.

Objective: prove that the basic eHealth services used have been implemented correctly.

8.1 Basic token verifications

- The software integrator must be able to request a token based on authentication information
- The software integrator must be able to use the token delivered by eHealth

The software integrator must provide the following information in a document that must be send to integration-support@eHealth.fgov.be:

Organizations

1. The delivered access token for your client ID (with full query and response).

Individual Healthcare actors

1. The delivered access token for your client ID (with full query and response).
2. The refresh token delivered for your client ID (with full query and response).

8.1.1 Integration-support verification

Integration support will verify the access token content:

- The claim "aud" corresponds to the identity of the client in the access token
- The scopes are:
    - Pseudo:api:pseudonymize
    - Pseudo:api:identify
    - Nihdi:uhmep:pseudo
- The roles "pseudonymize", "identify" are present in the "resource_access.ehealth-pseudo-api".
- The role "pseudo" is present in the "resource_access.nihdi-uhmep-api".
- For an individual only: there is a "userProfile" in the token containing the ssin of the professional and his discipline.

Example:

```
"resource_access": {
  "nihdi-uhmep-api": {
   "roles": [
     "pseudo"
   ]
  },
  "ehealth-pseudo-api": {
   "roles": [
     "identify",
     "pseudonymize"
   ]
  }
 },
 "scope": "openid pseudo:api:identify iam:authz pseudo:api:pseudonymize profile nihdi:uhmep:pseud
o",
```

8.2 IAM Connect token exchange

For security reasons, the token for the pseudonymization **must never be used** to call UHMEP.

A token exchange is mandatory to call the UHMEP FHIR API or to use the web components.

Test to be performed:

- Request the initial token
- Perform the token exchange
- Deliver the exchanged token

The software integrator must provide the following information in a document that must be send to integration-support@eHealth.fgov.be:

- The query for the token exchange in which we can verify
    - The non-exchanged token given as an input
    - The exchanged token received from eHealth (audience: nihdi-uhmep-fhir-hcp)

8.3 Pseudonymization with "blinded pseudonymization" service

- The participant must be able to create a pseudonym
- Is the 'multiple' method applied where needed ?
- Is caching applied for the pseudonym in transit ?
- Use Domain: uhmep_v1 (pseudonym in transit)
- ***Additional (2026)*** : the call for obtaining the static characteristics of a domain such as the elliptic curve and the size of the buffer using 'GET/domains/(domainkey) may only be executed ONE TIME during the development phase, because these informations don't change during the lifecycle of a domain.

If you test the service "blinded pseudonymization" you need to execute a "stand alone test" (1 testcase) and a "volume test" (multiple testcases) (to be able to test the use of the 'multiple' method and caching principle)

Cfr:

eHealth Pseudonymization v1 REST Richtlijnen en aanbevelingen v1.2

eHealth Pseudonymisation v1 REST Directives et recommandations v1.2

The software integrator must provide the following information in a document that must be send to integration-support@eHealth.fgov.be:

- The complete request sent to the REST pseudonymization service and the complete response received.

9. Additional Remarks

9.1 Terminology server and Snomed CT

SNOMED CT is a global clinical terminology enabling standardized coding and interoperability in healthcare. Belgium maintains its own extension, with Dutch and French translations, managed by the National Release Center (NRC).

To support the eReferral Project, a terminology server is needed to access SNOMED CT codes. During the UHMEP FHIR API integration, one integrator requested to use their own SNOMED-enabled terminology server.

Two possible approaches:

1. Use the official NRC Docker image, ready for deploymen
2. Set up a custom terminology server retrieving SNOMED CT codes from NRC.

More info see 9.Resources and links

9.2   Prescription Search Support (PSS) radiology integration

While creating a radiology prescription, the physician needs to be prompted with some advice given by PSS. During the implantation of the UHMEP FHIR API the software integrator needs to make an interface with the PSS project to retrieve recommendations.

More info see 9.Resources and links

10. Contacts

Question	Contact
1st line (General questions about integration or project or issue to log with eHealth)	integration-support@ehealth.fgov.be
Business project leader	pndv@riziv-inami.fgov.be
Technical support during onboarding	support-uhmep@smals.be

11. Resources and links

Related topic	Resource	Version
Fhir	**Fhir test server registration form**	1.0

Create therapeutic link	[Add a care relationship](#)	N/A
Active your Consent	[Active your consent in ACC environment (eHealth)](#)	N/A
Git	[Github smals-belgium](#)	N/A
IAM Connect Individual Healthcare realm	[IAM Connect Healthcare realm client registration request form](#)	2.2
IAM Connect M2M Client realm	[I.AM Connect – M2M Client registration](#)	
Prescription Search Support (PSS)	[Github smals-belgium](#)	N/A
Pseudonymization	[eHealth Pseudonymization doc](#)	1.0
Terminology server	[Technical info and docker image for the terminology server](#)	N/A
Token Exchange	[IAM eXchange Annex A Security commitment from the Trusted Platform](#)	1.7
Token Exchange	[IAM Connect Token Exchange Security Commitment in the context of pseudonymization](#)	1.1
Webcomponents showcase	See [Github smals-belgium WebComponent Showcase](#)	latest

12. FAQ

ID	Question	Answer
1.	**How do I reach for help?**	See *Contacts*
2.	**Where do I download examples of code?**	See *Resources and links*
3.	**How do I get my access to the project?**	See *Contacts*
4.	**What is pseudonymization?**	See . Pseudo Lib
5.	**IAM configuration, is it possible to use wildcards?**	Yes
7.	**What is the communication standard used within the project?**	Fhir
8.	**As an integrator can I only use one component?**	Yes they are independent and can be used independently
9.	**As an integrator can I onboard without IAM connect?**	No is it mandatory to onboard with IAM Connect
10.	**As an integrator, can I onboard without IAM Token exchange?**	For the Individual Healthcare Client Realm authentication, It is mandatory to onboard with the IAM token exchange for the use of UHMEP FHIR API and Web Components solutions. For the M2M realm client, You should not use the token but request a specific token for the call to the

		pseudonymization service and a specific token for the call to the UHMEP API.
11.	**What is the list of all authorized target groups?**	See section [target groups](#)
12.	**What if my target group is not present in the list**	Get in contact with the Business project leader. See *[Contacts](#)*
13.	**SSO, what is possible, and what is not?** **Is it available?**	Yes, it is possible, see the doc on the eHealth platform [link](#)
14.	**IAM connect, can I reuse an already existing Client ID**	Yes
15	**I can't use use the pro Web app**	Check that both informed consent and therapeutik links are set up in the ACC Env See [6.3.1.1 Create therapeutic link](#) See [6.3.1.2 Give informed consent](#)