DIGITAL REFERRAL PRESCRIPTION

Integration Guide

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

Contact 1st line: integration-support@ehealth.fgov.be







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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

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

Target groups
Physician
Nurse
Patient
Midwife (before 2018) ¹
Radiologue

2.

The current date for the production is January 2026

¹Midwives 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

UHMEP ("Unaddressed Health Message Exchange Platform") is an exchange platform that stores referral prescriptions and medical proposals and makes them available to healthcare professionals and patients.

The goal of this project is to 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.).

UHMEP 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 who wish to interface with the UHMEP API quickly.

This integration guide is intended for all companies interested in integrating various UHMEP digital referral prescription 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 the Digital Referral Prescription 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 APIProWeb AppWeb 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
--	-------------------------

1.

6.2. Flows

Currently, the project Digital Referral Prescription 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.	Full technical integration needed with UHMEP API and dependencies, complex maintenance.
eHealth Onboarding	Only request roles	Roles, IAM client, Token exchange documents	Roles, IAM client, Token exchange documents
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.

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

6.2.1. Pro Web App (Simple Flow */)

The pro web app has the fastest flow when using digital referral prescriptions. 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.

<u>A</u> Before accessing the Pro web app:

- Send your NISS to <u>integration-support@ehealth.fgov.be</u> and ask to be set as a <u>NURSE</u> and a <u>PHYSICIAN</u> in the ACC environment to test the UHMEP project.
- Create Therapeutic link see <u>6.3.1.1 Create therapeutic link</u>
- Activate your Informed Consent see <u>6.2.1.2 Give informed consent</u>

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

6.2.1.1. Create therapeutic link

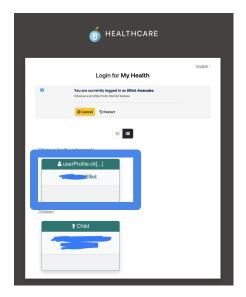
The Pro web app (and the Digital referral prescription project) rely on therapeutic link between a patient and a prescriber and/or caregiver. Without a therapeutic link a prescriber or a caregiver can't see the list of prescriptions of a patient.

If you plan to perform a test of the application you need to create a therapeutic link between the patient and the prescriber/caregiver and the patient.

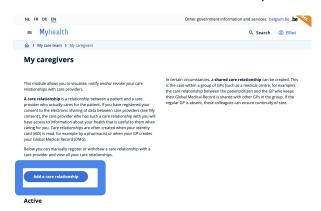
To do that, the patient needs to follow these steps:

1. Go to https://wwwacc.myhealth.belgium.be/my/care-and-support/relationships

2. Log as the patient



3. Click on "Add a care relationship"



4. Select the professional category (Doctor, nurse, etc)



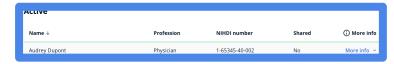
5. Enter his/her firstname lastname and click on search



6. Select his/her name using the checkbox and click on add



7. The therapeutic link was added



8. Repeat for all other needed profession

Note: if you can't find the name a physician or a nurse refer the first step of the yellow rectangle above "Before accessing the Pro web app

1.

6.2.1.2. Give informed consent

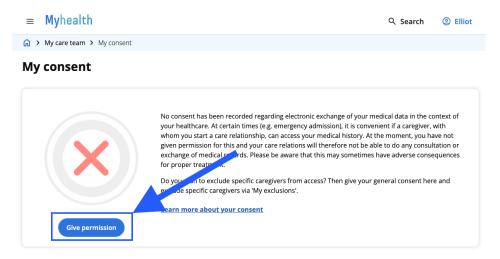
The Pro web app (and the Digital referral prescription project) rely also on informed consent. Informed consent is the process by which a patient voluntarily agrees to a medical treatment or procedure after being fully informed about what it implies.

Without it prescriber or a caregiver can't see the list of prescriptions of a patient and this is deactivated by default in the ACC environment.

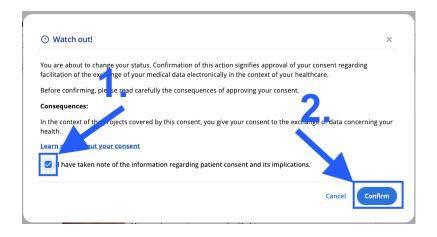
If you plan to do a test of the application your patient needs to have it enabled.

To do that, the patient needs to follow these steps:

- 1. Go to https://wwwacc.myhealth.belgium.be/my/care-and-support/consent
- 2. Click on give permission



3. Tick the checkbox and confirm



Note: The project does not support M2M (Machine to Machine) at the moment

6.2.2. Web Component (Intermediate Flow)

These web components are small applications designed to be integrated directly into the integrator's ecosystem for implementing the digital referral prescription 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



To integrate with the Web components you **need** to fulfill two kinds of docs:

- IAM Token Exchange (2 docs)
- IAM Connect doc (1 doc)

Those are **mandatory** to move forward with integration See related topics in 9. Resources and links

Tips: a showcase is available on Git see <u>9. Resources and links</u>

1 Note: The project does not support M2M (Machine to Machine) at the moment

6.2.3. UHMEP FHIR API (Complex Flow W)

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 (see 7.2.3) and support user authentication via I.AM Connect – HealthCare Client (Realm Healthcare for persons).
- 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).
- IAM Token Exchange: Exchanging the user token via IAM Token Exchange is mandatory. A signed security commitment is also required.
- 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 Digital Referral 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 the UHME FHR API you need to fulfill two kinds of docs:

- IAM Token Exchange (2 docs)
- IAM Connect doc (1 doc)

Those are **mandatory** to move forward with integration See related topics in 9. Resources and links

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

Testing the integration of UHMEP FHIR API

7.1. IAM Connect

7.1.1. IAM Connect Onboarding 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 Digital Referral Prescription project.

The project requires the registration of your client via the I.AM Connect – HealthCare Client Registration form (see <u>9</u>. 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 infor	mation	
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 may be contacted by eHealth for information on the onboarding request.	Name: Jhon Doe 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.)

	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.	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☐ Confidential client
	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 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 reused 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, leave the field empty.	 web-origins ssin profile roles pseudo:api:pseudonymize pseudo:api:identify nihdi:uhmep:pseudo nihdi:uhmep:hcp

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]
	n certificate JWKS: only to be filled s form. (This information does no	d out if you have selected the option "Confidential ot apply to public clients.)
Туре *	Please specify the type of identifier mentioned in your eHealth certificate.	☐ EHP (EHP institution)
		☐ EHP-CTRL_ORGANISM (control organism)
		☐ CBE (institution)
		☐ CBE-CONSORTIUM (consortium)
		☐ 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)

Identifier *	Please state the value of your certificate identifier (string value).	□ 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) Software name
Application ID	If your eHealth certificate contains an application ID, please state it here. If not, leave this field empty.	software-name

7.2. 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.

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 Digital Referral Prescription project, see the cookbook (9. Resources and links)

1.

7.2.1. Security Commitment for IAM Token Exchange

The documents

- 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 <u>9.Resources and links</u>

The signature of these documents is required in the integration with the UHMEP FHIR API and Web Components solutions.

7.3. Test cases

To verify your configuration once you completed the IAM and token exchange onboarding, you can run the following tests cases.

7.3.1. Web component test cases

Before you start:

- Send your NISS to <u>integration-support@ehealth.fgov.be</u> and ask to be set as a NURSE and a PHYSICIAN in the ACC environment to test the UHMEP project.
- Pull the example on github (see <u>9.Resources and links</u>)
- Integrate it into your solution
- Change the client ID, realm, and NISS
- Fill the IAM connect and Token Exchange documents

Test Case 1: As an authenticated prescriber, using the 'create' web component, I can create a digital referral prescription for a patient.

Test Case 2: As an authenticated prescriber, using the 'list' web component I can see a list containing digital referral prescriptions.

Test Case 3: As an authenticated prescriber, using the 'detail' web component I can see the details of a prescription.

Test Case 4: As an authenticate caregiver, using the 'detail' web component I can see the details of a prescription.

Test Case 5: As an authenticated caregiver, using the 'create' web component, I can create an annex 81 for a patient.

7.3.2. UHMEP Fhir API test cases

Before you start:

- Send your NISS to <u>integration-support@ehealth.fgov.be</u> and ask to be set as a NURSE and a PHYSICIAN in the ACC environment to test the UHMEP project.
- Pull the Postman environment on http://bit.ly/4eGZkc0
- Pull the Postman collection on https://bit.ly/48ZwyCe
- Change the client ID, realm, and NISS
- Fill the IAM connect and Token Exchange documents

Test Case 1: As an authenticated Prescriber, create a valid digital referral prescription with "Diabetic education for patients with care path" template for a patient.

Test Case 2: As an authenticated Prescriber / Caregiver, I want to consult a valid digital referral prescription with "Diabetic education for patients with care path" template for a patient.

Test Case 3: As an authenticated Prescriber / Caregiver, I want to consult a list of prescriptions for a patient.

Test Case 4: As an authenticated prescriber, I want to consult a list of prescriptions that I have created.

Test Case 5: As an authenticated Caregiver, I want to consult a list of prescriptions assigned to me.

Test Case 6: As an authenticated Caregiver, create a valid annex 81 for a patient.

7.4. 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 Digital Referral 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 deployment.
- 2. Set up a custom terminology server retrieving SNOMED CT codes from NRC.

More info see 9.Resources and links

7.5. 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 <u>9.Resources and links</u>

8. 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

9. Resources and links

Related topic	Related topic Resource	
Fhir	Fhir test server registration form	1.0
Create therapeutic link	Add a care relationship	
Active your Consent	Active your consent in ACC environment (eHealth)	N/A
Git	Github smals-belgium	N/A
IAM Connect	IAM Connect Healthcare realm client registration request form	2.1
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

10. FAQ

ID	Question	Answer
1.	How do I reach for help?	See <u>8. Contacts</u>
2.	Where do I download examples of code?	See <u>9. Resources and links</u>
3.	How do I get my access to the project?	See <u>8. Contacts</u>
4.	What is pseudonymization?	See . <u>Pseudo Lib</u>
5.	IAM configuration, is it possible to use wildcards?	Yes
6.	IAM configuration, is it possible to give several URLs?	Yes, see <u>7.2.2. Onboarding document</u>
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?	It is mandatory to onboard with the IAM token exchange for the use of UHMEP FHIR API and Web Components solutions.
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 <u>8. Contacts</u>
13.	SSO, what is possible, and what is not? Is it available?	Yes it is possible, see the doc on the eHealth platform <u>link</u>
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 <u>6.3.1.1 Create therapeutic link</u> See <u>6.3.1.2 Give informed consent</u>

