# Pääsuke X-Road API descriptions

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## 1. Introduction

#### 1.1 Versions

Version	Description and changes		
0.2.0	First public draft with the services that are offered by parties who keep mandates on their side and want to publish that info to Pääsuke		
0.2.1	Added chapter "3. X-road services offered by Pääsukese to query mandates that are stored in Pääsuke"		
0.2.2	Added chapters "4. X-road services to modify mandates that are stored in Pääsuke" and "5. Integration with Pääsuke without implementing any X-road services"		
0.3.1	Improved terminology and indroduced different types of namespaces (parent, child, standalone and external).		
	Header parameters changed back to query parameters (except "If-Modified-Since")		
	Added chapter 3. "X-road services offered by Pääsukese to query mandates that are stored in Pääsuke" together with new endpont getNamespaces		
	Person type INDIVIDUAL changed to NATURAL_PERSON.		
	Smaller adjustments and parameters.		
0.4.0	Shortened "namespace" to "ns" everywhere. Added ns path parameter to all methods that change state.		
	New endpoints addMandateToDelegate, addMandateSubdelegate, removeAllMandatesFromDelegate		
	Added chapter 1.2. Preface to this document.		

0.4.1 Changed the Translations object ("2letterLangCode":"translation") changed parent\_namespace parentNamespace

Person type LEGAL\_ENTITY changed to LEGAL\_PERSON (so it matches better with NATURAL\_PERSON)

#### 1.2 Preface

Pääsuke is a system that:

- 1. Medium and larger-scale e-services offer x-road endpoints for Pääsuke to query the mandates and display them to the representees and to the delegates
- 2. Smaller-scale e-services use Pääsuke to store the mandates centrally. Users log in to Pääsuke to add and edit the mandates that are valid in that system. These smaller-scale systems pull mandates from Pääsuke when the user logs in to their system.
- 3. For some systems, Pääsuke offers a combination of these two integration patterns.

This is why there are many endpoints and when reading this document it is important to keep in mind which pattern is going to be implemented.

#### 1.3 Terminology

- Pääsuke central access rights management system hosted in eesti.ee
- RIA Riigi Infosüsteemi Amet, agency that develops and runs eesti.ee and Pääsuke
- institution some party who has a self-service system that either pulls mandates from Pääsuke and/or has mandates declared in the system and publishes them in Pääsuke.
- representee (previously named represented person) the person (most commonly a private limited company) that can be represented in eservices
- delegate the person who has been given the mandate to represent some representee. Delegate normally always has the right to represent
  oneself (except if the person doesn't possess active legal capacity in Estonian piiratud teovõime)
- namespace a group of roles that are maintained by a single provider. Read more from chapter 1.2.1
- role a group of privileges to be used in an e-service that can be granted to delegate by the representee. Role always belongs to a namespace.
   Read more from chapter 1.2.2
- mandate a role that is given to a delegate under some representee. Mandates can have a start date, and end date and some mandates can be sub-delegated (in Estonian "edasi delegeerima").

#### 1.3.1 What is a namespace

In this document names of namespaces are written in capital letters. If a namespace is written in pair with a role then we use a colon as a separator.

Any institution can own and query roles from multiple namespaces.

Namespaces can be standalone (regular namespaces) or form parent-child relationships to provide grouping (in Estonian "katusrollide funktsionaalsus").

- STANDALONE namespace (regular namespace)
- PARENT namespace used to group together global roles ("katusrollid"), in programming terms each role in the parent namespace is like an interface
- CHILD namespace (in programming terms each role in the child namespace is like an implementation of a global role and it is allowed to have
  more than one implementation of the same role)

Besides these types, there are AUTOMATIC namespaces. Roles in automatic namespaces are automatically assigned based on external property, for example, a role in a such namespace could be assigned automatically to a person after becoming a management board member.

There are several options for organizing roles into namespaces:

- Several institutions come together and together form a single namespace.
  - For example institutions active in agriculture could come together and define a common namespace "AGRICULTURE"
  - Institutions would agree with themselves which institution is maintaining the roles in this namespace
  - o this is the most recommended solution for new systems as this is the easiest to understand for anyone operating in this field.
- Every institution always has at least one namespace (with their name)
  - This namespace could cover all (or most of) the roles of that institution. For example, the Estonian Tax and Customs Board has the namespace "EMTA".
- For one institution it is also possible to have multiple standalone namespaces.
  - This is only recommended for existing applications and not for new ones.
  - o For example, Statistikaamet is going to have separate namespaces for two separate systems: "STAT-ESTAT" and "STAT-SSO".

Parent-child namespaces are described in chapter 1.2.3.

#### 1.3.2 What is a role

Roles usually have descriptive names that indicate the profession that needs that role (Accountant) or what the owner can do (like Job.Ad.Editor).

Pääsuke is not limiting what the owner of the role can do in any of the systems that are pulling roles from Pääsuke.

If some institution AgencyX declares a role Editor and then it is solely the responsibility of Agency X to:

- · Decide what anyone who has a mandate for that role can do
- Declare the title and description of that role

Properties of a role:

- the role belongs to a namespace
- the role has a name (unique identifier, not shown out) that is unique in that namespace
- the role has a title (in Estonian, English, and Russian)
- the role can have a description (in Estonian, English, and Russian)

#### 1.3.3 Namespaces with parent-child relation

RIA defines global roles (in Estonian katusrollid) that can be supported by multiple institutions.

The idea behind this is that some of the roles repeat in many institutions and Pääsuke wants to hide the complexity from the persons giving mandates.

Let's look at this using an example. RIA has created a parent namespace "GLOBAL-B" with following configuration

Definition of a namespace			
namespace	GLOBAL-B		
type	PARENT		
parent namespace	<null></null>		

This namespace contains the following roles:

Definition of roles					
namespace	GLOBAL-B	GLOBAL-B	GLOBAL-B		
role	Accountant	Human_Resources_Specialist	Data_viewer		
title in Estonian	Raamatupidaja	Personalitöötaja	Andmete vaataja		

However, it is not possible for anyone to grant roles to some delegate from such a namespace (that is declared as type=PARENT).

Any institution can decide to support all or only a selection of these roles. Let's say the Estonian Tax and Customs Board (EMTA) has added support for all 3 roles.

For this Pääsuke has defined a separate namespace for EMTA:

Definition of a namespace				
namespace	GLOBAL-B_EMTA			
type	CHILD			
parent namespace	GLOBAL-B			

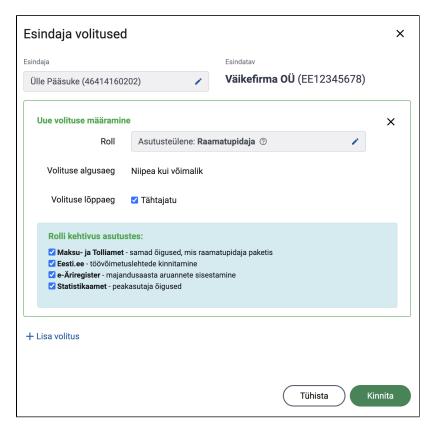
In this namespace there are definitions of the same 3 roles with the same names for the roles (descriptions are different):

Definition of roles						
namespace	GLOBAL-B_EMTA	GLOBAL-B_EMTA	GLOBAL-B_EMTA			
role	Accountant	Human_Resources_Specialist	Data_viewer			
title in Estonian	Raamatupidaja	Personalitöötaja	Andmete vaataja			

If there is some other institution that only wants to add support for Data\_viewer then it gets its own child namespace (that points to GLOBAL-B parent namespace) and only declares Data\_viewer role.

The following screenshot demonstrates how the Accountant role will be visible to the end user who starts to assign the Accountant role to some employee:

The screenshot assumes there are 4 agencies that support that role:



The person that is assigning the role can untick some of the institutions. Eventually when the person clicks confirm (Kinnita) Pääsuke performs one POST request to add the role for each institution.

So if the person didn't untick anything then Pääsuke will make 4 separate post requests to add 4 separate roles.

#### 1.4 Notes

#### 1.4.1 Playing with the mock services over X-Road

A mock service has been set up in ee-dev X-Road that mimics the expected behaviour of a system providing such services.

You can send requests against that services to better understand how the service has to work.

From the HTTP request examples throughout this document the X-Road specific headers (headers beginning with X-Road-...) are removed.

If you want to test te queries then you always need to add the following x-road headers and the accept parameter:

```
curl \
  -H "accept: application/json" \
  -H "X-Road-Client: ee-dev/GOV/70001234/generic-consumer"\
  -H "X-Road-User-Id: EE39912310123" \
  -H "X-Road-Id: 08544bbd2f41473800309d16bd81c64c0f54193d84b53f8ad287446a2aacdf5e" \
  -X GET "https://security-server/r1/ee-dev/GOV/70006317/volitused-mock/volitused-estat/v1/roles"
```

You need to make following replacements:

- ee-dev/GOV/70001234/generic-consumer replace with your own details. RIA needs to grant access to this x-road client.
- replace https://security-server with your security server IP/DNS.
- You need to set X-Road-User-ID to your own personal id code.

#### 1.5 Different types of X-Road services in Pääsuke

When considering X-Road services they come in two different types:

- X-Road services that are consumed by Pääsuke itself. There are two types:
  - "standardized services" are used by Pääsuke to get mandate-related information from systems that keep mandates on their side (like EMTA and STAT). These services used standardized API so Pääsuke could dynamically add new providers in future.
  - o all kinds of x-road services used by Pääsuke. These services are not standardized and not covered in this document.
- X-Road services that are provided by Pääsuke. There are two types of such services:
  - o services to query mandate info
  - services to add mandate info into Pääsuke (employee of an e-service who keeps all its mandates in Pääsuke can insert mandates into the system)

# 2. Standard X-Road services that are consumed by Pääsuke

These services are used to show all the mandates from a central system. This way the representee has visibility all over the Estonian e-services of the mandates that are currently valid.

Pääsuke uses the following services to query systems that among other things store mandates. These services are called standard services and although data providers are different (Statistics Estonia, Estonian Tax and Customs Board, etc) these systems have all agreed to use the same query and data format.

This data that is pulled is displayed in Pääsuke UI (that is going to reside under eesti.ee)

#### 2.1. Clarifications

#### 2.1.1 Historical data is not returned

The services only return mandates that are currently valid or will become valid in the future. Records that are no longer valid are not available through this API.

### 2.2 Query "getRoles"

```
CURL query

curl -H "If-Modified-Since: 2022-11-12T00:00:00+02:00" \
   -X GET \
   "https://security-server/rl/ee-dev/GOV/70006317/volitused-mock/volitused-estat/vl/roles"
```

This guery returns all the roles with translations in Estonian, English, and Russian.

Role names can contain the following symbols:

- uppercase letters (A-Z)
- lowercase letters (a-z)
- numbers (0-9)
- underscore (\_)
- dash (-)
- a dot (.)

The role name must be unique in the namespace.

The role name is not displayed to the user, it is the identifier of the role. It is recommended to use short names for roles.

When 'If-Modified-Since' is included in the request the service responds with HTTP Status code 304 if nor roles have been changed since that time. Otherwise, all results (that match the filters) are returned (even the ones that have modified time earlier than the If-Modified-Since parameter).

#### 2.3 Query "getRepresenteeDelegatesWithMandates"

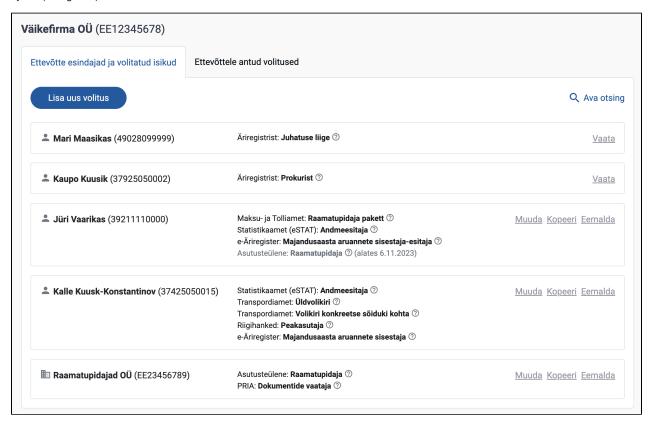
```
CURL query

curl -X GET \
    "https://security-server/rl/ee-dev/GOV/70006317/volitused-mock/volitused-estat/vl/representees/
{representee}/delegates/mandates"
```

Returns all delegates, who have a right to represent the representee currently or in the future.

#### 2.3.1 View "Ettevõtte esindajad ja volitatud isikud"

This query is used to serve the following view in the Pääsuke UI. It displays all mandates that the representee has given out to others or that are assigned by law (Äriregistrist).



#### 2.3.2 View "Ettevõtte <ettevõttenimi> poolt antud volituste edasivolitused"

In the future, Pääsuke will have a view to see a list of sub-delegators. Let's look at the following screenshot:



Screenshot describes the following situation. Väikefirma OÜ (EE12345678) has given roles GLOBAL:Accountant and PRIA:DocumentViewer to Raamatupidajad OÜ (EE23456789) with the right to sub-delegate these roles (so Raamatupidajad OÜ can further delegate it to its employees).

Now Raamatupidajad OÜ has sub-delegated (by pressing "Volita edasi") this role to its employees Reijo Raamatukogu and Raili Raamatukoi.

Now a representative of Raamatupidajad OÜ wants to know to whom Raamatupidajad OÜ has sub-delegated these mandates. For that the representative opens "Ettevõttele antud volitused" in the row of "Väikefirma OÜ" he clicks "List sub-delegators" (Vaata edasivolitusi).

UI asks the back end to perform the following query to several parties who support Accountant mandate:

```
CURL query

curl -X GET \
    "https://security-server/r1/ee-dev/GOV/70006317/volitused-mock/volitused-estat/v1/representees/EE1111111
/delegates/mandates
    ?namespace=AGENCYX
    &subDelegatedBy=EE23456789"
```

And the query returns Raamatupidajad OÜ employees Reijo Raamatukogu and Raili Raamatukoi as these mandates were subdelegated by Raamatupidajad OÜ (EE22222222).

If Väikefirma OÜ has given mandates to other parties then they are not returned (since in the query there is subDelegatedBy filter parameter in place).

#### 2.3.3 View "Minu esindajad"

In the future natural person can use Pääsuke to see what kind of natural persons he/she has given mandates to represent himself/herself. To show the mandates the application also performs the query described at the beginning of this paragraph (2.3).

#### 2.4 Query getDelegateRepresenteesWithMandates

**GET** 

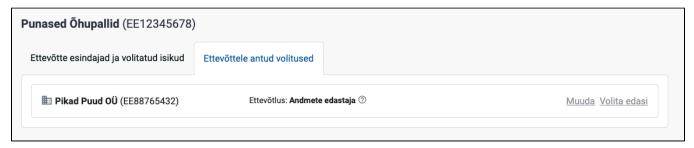
```
curl -X GET \
    "https://security-server/rl/ee-dev/GOV/70006317/volitused-mock/volitused-estat/vl/delegates/{delegate}
/representees/mandates"
```

Returns all representees that the delegate has the right to represent.

This query serves the following UI-s.

#### 2.4.1 View "Ettevõttele antud volitused"

Ettevõte (näit raamatupidamisbüroo) vaatab, millised teised ettevõtted talle on volitusi andnud.



in the future, there will be UI to display the list of persons that points to view "Ettevõtte <ettevõttenimi> poolt antud volituste edasivolitused" described above

#### 2.4.2 View "Mulle antud volitusted"

Natural person opens Pääsuke to see what kind of mandates he has been given anywhere in the Estonian e-services (that are present in Pääsuke).



#### 2.5 Query removeMandateFromDelegate

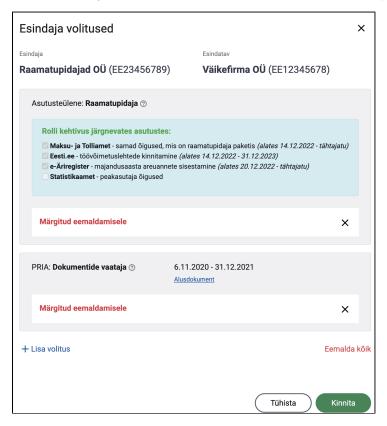
```
curl -X DELETE \
    "https://security-server/rl/ee-dev/GOV/70006317/volitused-mock/volitused-estat/vl/ns/{ns}/representees/
{representeeIdentifier}/delegates/{delegateIdentifier}/mandates/{mandateIdentifier}"
```

Removes role from a delegate in the given namespace (denoted  $\{ns\}$ ).

Values of representeeldentifier, delegateldentifier, and mandateldentifier are taken by Pääsuke from the output of the query that produced the list (link with rel "xroadDelete").

#### 2.5.1 View to remove mandates from delegate

Serves the following view of the Pääsuke UI. This view allows the user to individually pick the mandates to be removed.



For each mandate that was selected for removal - Pääsuke performs this delete request.

# 3. X-road services offered by Pääsukese to query mandates that are stored in Pääsuke.

The following services are optimized to be queried often and returned fast. Internally a read-only replica or other similar systems might be used to ensure high availability.

NB! When playing with the mock service and testing services described in chapters 3.1 and 3.2 always set Namespace to "AGENCYX" this way the mock service responds correctly.

#### 3.1 Query getDelegateRepresentees

```
curl -X GET
    "https://security-server/r1/ee-dev/GOV/70006317/volitused-mock/volitused-estat/v1/delegates/{delegate}
/representees
    ?namespace=AGENCYX
    &representeeType=LEGAL_ENTITY
    &hasRoleIn=AGENCYX%3AEditor"
```

Returns all representees, who the delegate has the right to represent in given namespace(s).

#### 3.1.1 Filtering options

Parameters:

- representeeType (comma separated) LEGAL\_ENTITY (include legal entities) or NATURAL\_PERSON (include individuals)
- hasRoleIn (comma separated) filter out representees where the delegate doesn't have any of the listed roles

#### **3.1.2 Output**

List of matching representees without mandates.

Sample response:

```
[
    "type": "LEGAL_ENTITY",
    "name": "Raamatupidajad OÜ",
    "identityCodeCountry": "EE",
    "identityCode": "10689305",
    "links": [
        "href": "xroad:/namespaces/GLOBAL/representees/EE10689305/delegates/EE60102030405/mandates",
        "rel": "delegateMandates"
    ]
    "type": "LEGAL_ENTITY",
    "name": "Suurfirma AS",
    "identityCodeCountry": "EE",
    "identityCode": "10234958",
    "links": [
        "href": "xroad:/namespaces/GLOBAL/representees/EE10234958/delegates/EE60102030405/mandates",
        "rel": "delegateMandates"
    1
]
```

#### 3.2 Query getRepresenteeDelegateWithMandates

```
Query

curl -X GET
    "https://security-server/r1/ee-dev/GOV/70006317/volitused-mock/volitused-estat/v1/representees/
{representee}/delegates/{delegate}/mandates
    ?namespace=AGENCYX"
```

#### 3.2.1 Filtering options

Parameters:

• hasRoleIn (comma separated) - For filtering out representees where the delegate doesn't have any of the roles in the list.

#### 3.2.2 Output

Lists active mandates of the delegate under representee.

Expired mandates or mandates that will become in effect in the future are not returned.

It is possible that in Pääsuke some end user has sevaral mandates with the same role.

These identical mandates could differ by validFrom or expiration date or other properties (right ot subdelegate).

But this service only returns every role once. This is the reason why id-s are not returned and validFrom is not returned.

If mandate will become invalid at the end of the current date only then the validThrough is included, otherwise it is null. This request is made on 31. October 2022 and the validThrough date informs that this mandate will become expired at end of today.

```
"representee": {
  "type": "LEGAL_ENTITY",
  "name": "Suurfirma AS",
  "identityCodeCountry": "EE",
  "identityCode": "10234958"
"delegate": {
  "type": "NATURAL_PERSON",
  "name": "Jüri Juurikas",
  "identityCodeCountry": "EE",
  "identityCode": "60102030405"
},
"mandates": [
    "namespace": "GLOBAL",
    "role": "ACCOUNTANT"
    "namespace": "GLOBAL",
    "role": "JURIST",
    "validThrough": "2022-10-31"
]
```

#### 3.3 Query getNamespaces

# CURL query curl -X GET

"https://security-server/rl/ee-dev/GOV/70006317/volitused-mock/volitused-estat/vl/ns"

Get available namespace configuration.

Namespace name can contain:

- uppercase letters (A-Z)
- numbers (0-9)
- dash
- underscore
- dot

The namespace value is not shown to the end user.

#### **3.3.1 Output**

Some of the less important fields (translations, owner, hiddenDescription) are removed

```
[
    "namespace": "GLOBAL1",
    "parentNamespace": null,
    "title": [
        "et": "Asutusteülesed katusrollid"
    ],
    "type": "PARENT"
    "namespace": "LHV_GLOBAL1",
    "parent_namespace": "GLOBAL1",
    "title": [
        "et": "LHV pank"
      }
    "type": "CHILD",
    "namespace": "AUTOM_BUSINESSREG",
    "parent_namespace": null,
    "title": [
        "et": "Äriregistri andmete põhjal automaatselt lisatavad ja eemaldatavad rollid"
    "type": "AUTOMATIC"
```

## 3.4 Query getRoles

# CURL query curl -H "If-Modified-Since: 2022-11-12T00:00:00+02:00" \ -X GET "https://security-server/rl/ee-dev/GOV/70006317/volitused-mock/volitused-estat/vl/roles ?namespace=AGENCYX"

This query returns all the matching roles with translations in Estonian, English and Russian.

This query needs to be called only to verify that Pääsuke has correct list of roles and the translations are correct.

#### 3.3.1 Filtering options

- When 'If-Modified-Since' is included in the request the service responds HTTP Status code 304 if nor roles have been changed since that time. Otherwise all results (that match the filters) are returned (even the ones that have modified time earlier than If-Modified-Since parameter).
- can filter by namespace

# 4. X-road services to modify mandates that are stored in Pääsuke

An e-service can keep all its mandates in Pääsuke so that granting new mandates for that system would take place in eesti.ee.

But there are cases where the end user will interact directly with e-service provider so that the e-service provider has to enter the mandates manually. For example the end user could present power of attorney to get access to e-service.

For that use case there are additional x-road services to add mandates manually.

#### 4.1 Service addMandatesToDelegate

Post request:

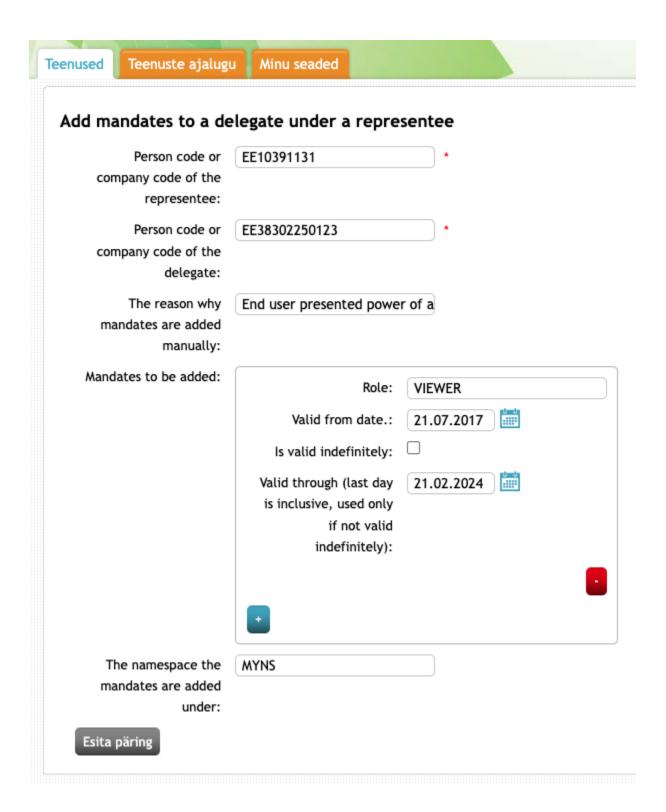
```
curl -X 'POST' \
  'https://security-server/r1/ee-dev/GOV/70006317/volitused-mock/volitused-estat/v1/representees/EE10391131
/delegates/EE38302250123/mandates' \
  -H 'Content-Type: application/json'
```

With following payload:

If there is end date then instead of validThrough attribute the caller has to provide:

```
"validIndefinitely": true
```

This x-road service is designed to be Misp2 compatible so that these requests can be made with MISP2 portal. The User interface in MISP2 for that service looks like this:



# 5. Integration with Pääsuke without implementing any X-road services

Currently to most of Estonian government e-services the authentication is provided by Tara.

For any e-service using Tara there is no need to implement x-road services as Tara provides a signed proof to e-services about the authenticated person.

GovSSO is Tara with SSO and it provides single sign-on functionality on top of Tara.

It would be technically possible for GovSSO to offer additional UI flows for authenticated user to select a representee.

This way GovSSO would provide the selected representee as part of OpenID connect flow together with details of authenticated person.

If the user later wants to switch to a different representee then that would be possible as the e-service would anyway have to keep the session alive with GovSSO.

To switch are representee the e-service would have to send the user's browser back to GovSSO for that and the user would return with details of the selected representee that would be signed by GovSSO.

This integration pattern is currently seeking interested parties. Please connect with Pääsuke team if you would be interested in using that flow.