



Canada Health Infoway

Gazelle Platform Self-Testing User Guide

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- General Guidance 2
 - Introduction 2
 - Abbreviations / Glossary..... 2
 - Self-Testing Approach 2
- Registration in Gazelle 2
 - Account Registration..... 2
 - Add User Information 3
 - Add Organization Information 4
 - Account Approval..... 6
 - Login to Gazelle..... 6
 - Switch to Test Session..... 7
 - Register Additional Users..... 7
 - System Registration 9
 - Add a System..... 9
 - Add Profiles/Actors 11
 - Add Dependencies 12
 - Complete Registration 13
- Testing in Gazelle 14
 - Test Scenarios 14
 - Test Prerequisites 16
 - Test Execution..... 16
 - Test Verification 17
 - Test Evidence 20

General Guidance

Introduction

The Gazelle Platform is a framework that facilitates testing Interoperability of IT systems within the healthcare industry.

Infoway is leveraging Gazelle to provide a conformance testing platform for the pan-Canadian Digital Health Interoperability specifications, such as pan-Canadian Patient Summary (PS-CA).

One important concept to consider when testing on the Gazelle platform is IHE profiles, which are standard specifications recommended to be used to solve a set of use cases, based on actors and transactions. The testing in Gazelle is based on IHE profiles, or on similar specifications that are closely following the IHE paradigm.

There are multiple tools and functionalities within the Gazelle platform. In this guide the focus is on the Gazelle Test Manager and the Gazelle Proxy, when using Gazelle Platform for Self-testing.

The instructions within this guide aim to offer a fundamental introduction to getting started and becoming acquainted with the available tools, as well as the general testing process. Users are encouraged to expand upon this knowledge and as they are getting more familiar with the environments and the testing process.

Abbreviations / Glossary

IHE	Integrating the Healthcare Enterprise
SUT	System under Test

Self-Testing Approach

Self-testing is comprised of a series of no-peer tests, conducted independently by implementers against simulators on the Gazelle platform to validate their conformance to the specifications. Testing teams are responsible for determining the quantity and scope of tests they will conduct and verifying results. The main tools recommended for self-testing are the Gazelle Test Manager and the Gazelle Proxy.

Specification test scenarios can also be found in Gazelle. The scenarios in Gazelle may be focused on a single Actor and Transaction, or multiple Actors and corresponding transactions whereby actors and transactions can be grouped together in the same test scenario. For example, CA:FeX can be grouped together with the IUA profile, adding support for authorization. During the self-testing, participants are to focus on the actors and transactions that are applicable for their particular implementations.

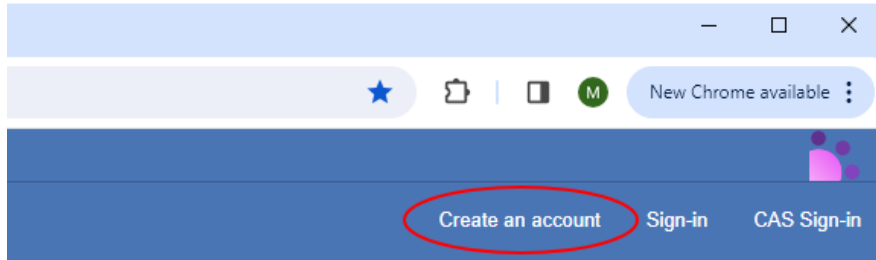
The transactions executed during the test are sent through the Gazelle proxy that captures the transaction request and response for analysis.

Registration in Gazelle

For support with the registration process, contact Infoway support at interoperability@infoway-inforoute.ca.

Account Registration

Navigate to the Gazelle website <https://pancanadianio.ca/gazelle> and click Create an Account



Here you can register yourself as a user, and also register your organization with Gazelle.

Add User Information

Fill in all the user information that appear on the screen.

Register User Information

Please use this form in order to edit user information.

First name *

Last name *

Email *

Username (e.g., msmith) *

value is required

Password *

Password confirmation *

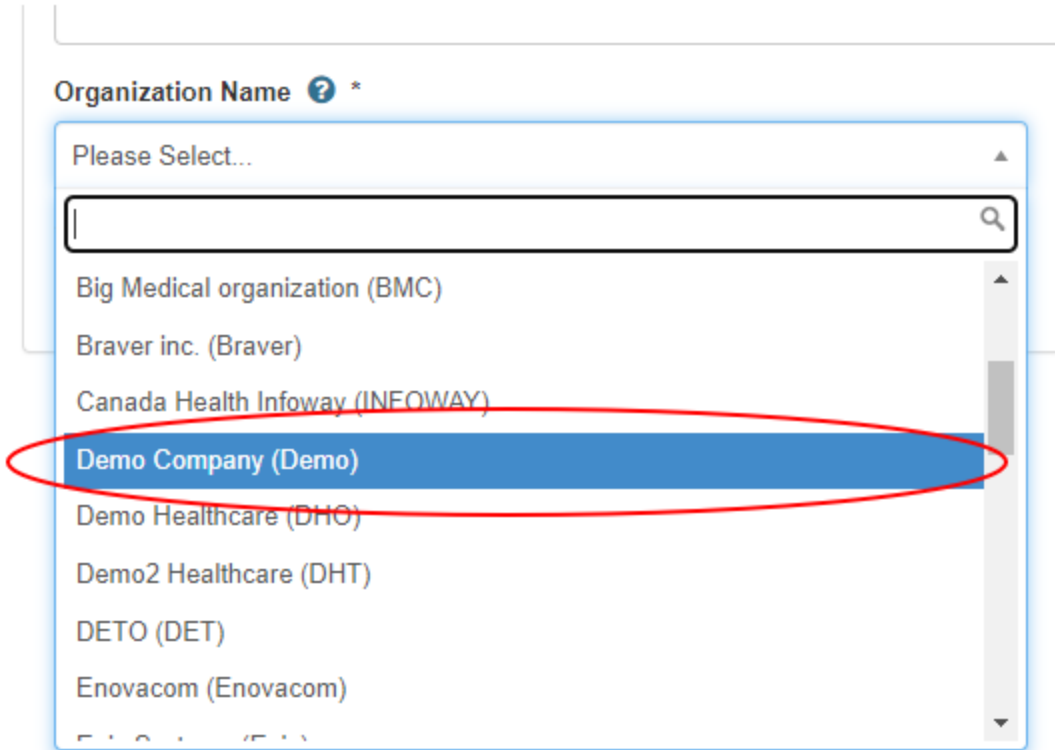
Organization Name ? *

* required fields

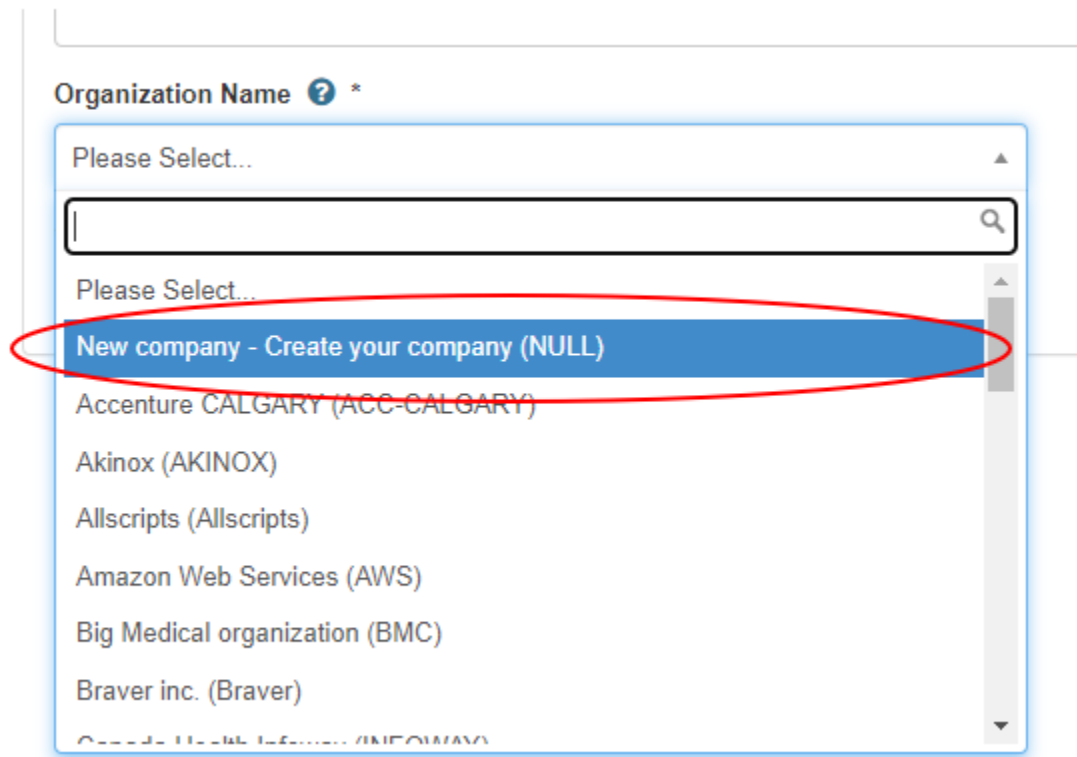
Add Organization Information

When completing the organization information, there are two options, depending whether your organization already has been registered with Gazelle. To find out, click on the Organization Name dropdown and search for your organization.

- a) If your organization name is already in the list of organizations registered with Gazelle, select your organization and then click Save.



b) If your organization is not registered with Gazelle, select New company - Create your company.



A new section will appear, allowing you to add your organization's information. Fill in all the organization information that appear on the screen and then click Save.

Organization Name ? *

New company - Create your company (NULL) ▼

Create a new institution

Organization Name *

Organization Keyword (eg. 'BMC' for Big Medical organization) *

Type of organization ? *

Please Select... ▼

organization URL *

* required fields

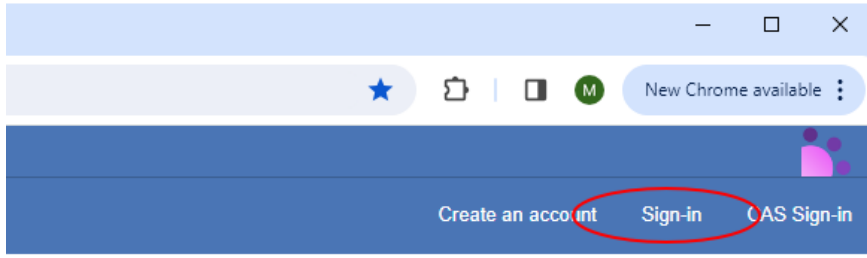
Save

Account Approval

Wait for the Gazelle administrators to approve your account creation (this process may take a few hours). In case there is a need to expedite the approval process, send an email to the support team for prioritization.

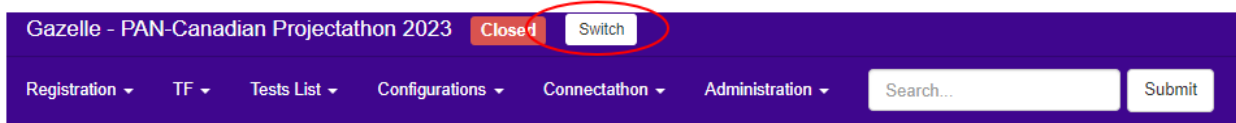
Login to Gazelle

Once your account registration is approved and your account is activated, navigate to the Gazelle website <https://pancanadianio.ca/gazelle> and click Sign-in to login to Gazelle.

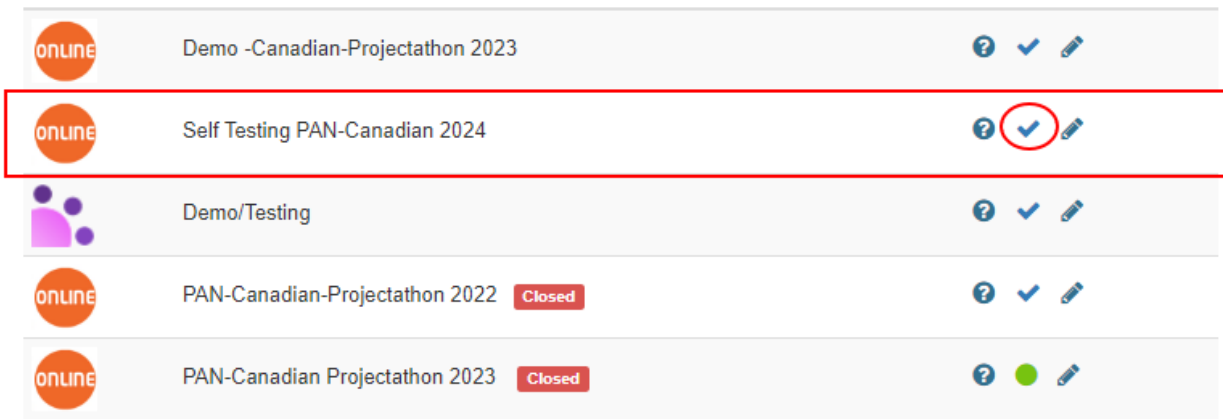


Switch to Test Session

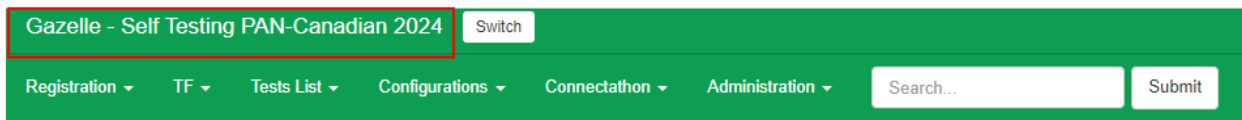
Once logged in, ensure that you are operating in the “Gazelle - Self Testing PAN-Canadian 2024” session. If not, click “Switch” to select the appropriate session.



From the list of available sessions, choose the session Self Testing PAN-Canadian 2024.

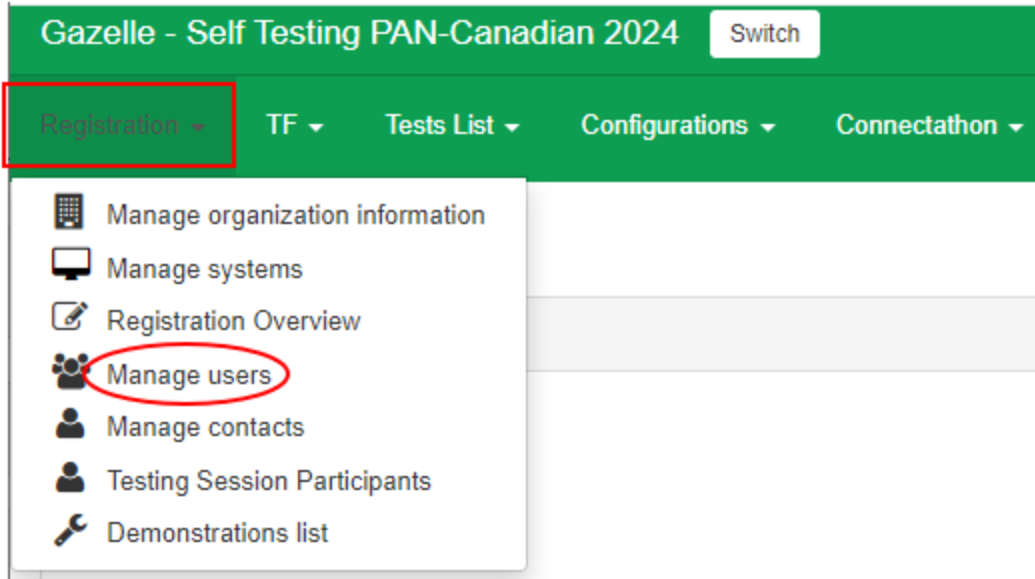


Click the checkmark to be redirected to the Self Testing PAN-Canadian 2024 testing session



Register Additional Users

Once you registered an account with Gazelle, you can register additional users within your organization. In the top menu, click on Registration > Manage users



Then click on the on Add a user

Fill in all the fields in the form. Select one or more roles that will be associated with the user. Examples of roles:

- vendor_admin_role – An administrator of a system or organization. This role includes the ability to add or delete users from the organization and manage the system under test.
- vendor_role – A basic vendor with limited administrative capabilities.

After you finished completing the form, click Save.

Register User Information

Please use this form in order to edit user information.

Organization Name *	<input type="text" value="Demo Company"/>		
First name *	<input type="text"/>	Email *	<input type="text"/>
Last name *	<input type="text"/>	Username (e.g., msmith) *	<input type="text"/>
Blocked?	<input type="checkbox"/>		
Account activated	<input checked="" type="checkbox"/> true		

Roles to attribute

- admin_role ?
- monitor_role ?
- project-manager_role ?
- accounting_role ?
- vendor_admin_role ?
- vendor_role ?
- user_role ?
- tests_editor_role ?
- vendor_late_registration_role ?
- testing_session_admin_role ?

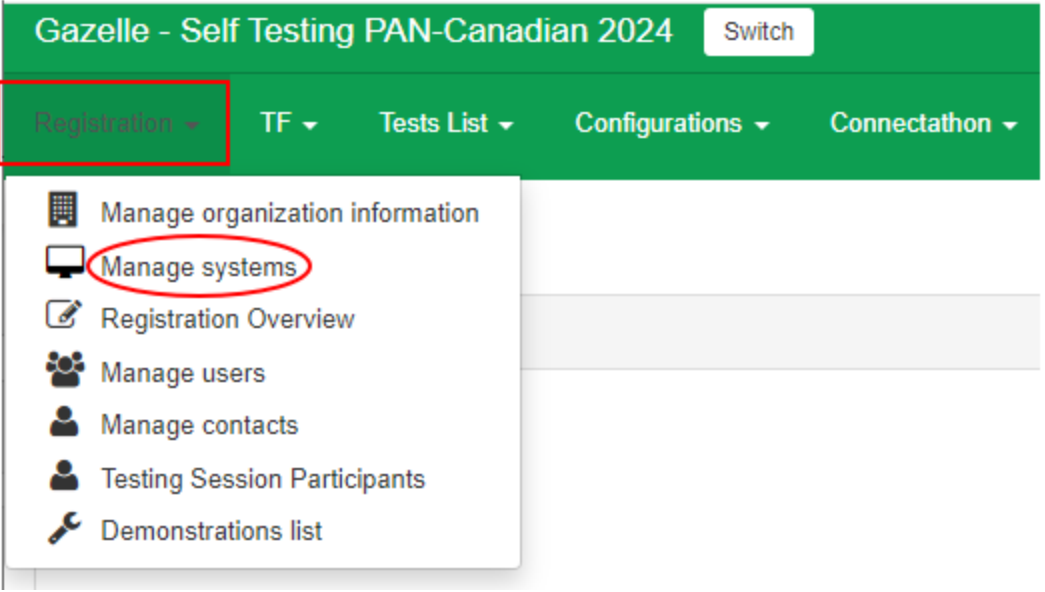
* required fields

System Registration

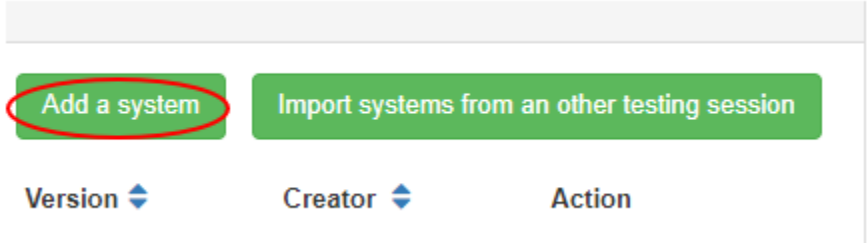
To perform tests on the Gazelle platform, you must register your system in Gazelle and add Profiles/Actors to your system.

Add a System

To add your system to Gazelle, in the top menu, click on Registration > Manage systems



Then click on the on Add a system



Fill in all fields in the screen, then click Save. For the field System Type, select the value OTHER. The Version field is not mandatory. The owner is populated by default by Gazelle; generally, it is the user who initiated the system creation.

System creation

Add a system

Register a new system for your organization

Please use this form in order to edit information of this system.

Organization Keyword

System/Product name *

System type *

System keyword

Version

Owner *

* required fields

Add Profiles/Actors

Once you registered your system, you should be able to see it in Gazelle. To find it, click on Registration > Manage systems. Click on the System Keyword for your system that you created, as in the example below.

Systems management

Registered systems search

Organization Keyword	All organizations	x	
Registration status	Please Select...	x	
Organization Name	System keyword	System/Product name	Is a tool ?
DHO	OTHER_DHO_Self	Demo_Self	false

In the upcoming System Viewer screen, click on the tab Profiles/Actors then click on Edit, and then on the green button to add the profiles that you would like to test for your system.

System edition

OTHER_DHO_Self - Demo_Self In progress

System summary **Profiles/Actors** Self Testing PAN-Canadian 2024 Demonstrations Admin section Notes

This product implements all transactions required in the IHE Technical Framework to support the IHE Integration Profiles, Actors and Options listed below.

Click on this link to add IHE implementations (Actors / Integration Profiles / Integration Profile Options) to this system.

Integration profile	Actor	Integration Profile Option	Requested testing type
---------------------	-------	----------------------------	------------------------

Click on this link to add IHE implementations (Actors / Integration Profiles / Integration Profile Options) to this system.

Search Criteria

Domain	CAN-IO - pan-Canadian Interoperability	x	Actor	Show all	x
Integration profile	Show all	x	Int Prof. option	Show all	x

Integration profile	Actor	Integration Profile Option	Add this IHE implementation to this system
pan-Canadian FHIR Exchange (CA:FeX)	CA:FeX - Data Consumer	None	Add this IHE implementation to this system
pan-Canadian FHIR Exchange (CA:FeX)	CA:FeX - Data Recipient	None	Add this IHE implementation to this system
pan-Canadian FHIR Exchange (CA:FeX)	CA:FeX - Data Responder	None	Add this IHE implementation to this system
pan-Canadian FHIR Exchange (CA:FeX)	CA:FeX - Data Source	None	Add this IHE implementation to this system

Add Dependencies

If the Missing dependencies check Result button appears, it means that among the profiles you have already added, some are dependent on others that need to be implemented and added to your system. To add these dependencies, you can click on the orange button to add them from the suggested list.

System edition

OTHER_DHO_Self - Demo_Self In progress

[System summary](#) [Profiles/Actors](#) [Self Testing PAN-Canadian 2024](#) [Demonstrations](#) [Admin section](#) [Notes](#)

This product implements all transactions required in the IHE Technical Framework to support the IHE Integration Profiles, Actors and Options listed below.

[Click on this link to add IHE implementations \(Actors / Integration Profiles / Integration Profile Options\) to this system.](#)


[Generate IHE Integration Statement \(PDF\)](#)

Missing Dependencies Check Result

[Remove all IHE implementations associated to Demo_Self](#)

Integration profile	Actor	Integration Profile Option	Requested testing type	Testing type reviewed	Testing type	Action
CA:FeX - pan-Canadian FHIR Exchange (CA:FeX)	CA:FeX - Consumer - CA:FeX - Data Consumer	NONE - None	N/A		Thorough	Remove

IHE implementations listed above are automatically saved

To add missing dependencies, click on the  button (see following screenshot)

Missing Dependencies Check Result

List of possible missing Dependencies according to the Technical Framework (pick the one you need)

Rule not matched

Name: CA:FeX - Consumer/CA:FeX or CA:FeX - Source/CA:FeX requires AUTH_CLIENT/IUA

Missing:

 AUTH_CLIENT/IUA 

Rule not matched

Name: */CA:FeX/* requires TIME_CLIENT/CT

Missing:

 TIME_CLIENT/CT 

Complete Registration

Return to the System Summary tab, then update the registration status in the Registration status field. Change the status from In progress to Completed.

OTHER_DHO_Self - Demo_Self In progress

System summary | Profiles/Actors | Self Testing PAN-Canadian 2024 | Demonstrations | Admin section | Notes

System information summary

Organization Name	DHO
System/Product name *	<input type="text" value="Demo_Self"/>
System type *	<input type="text" value="OTHER"/>
System keyword	<input type="text" value="OTHER_DHO_Self"/>
Version	<input type="text"/>
HL7 Conformance Statements ?	+ Add a document with HL7 conformance statements
DICOM Conformance Statements ?	+ Add a document with DICOM conformance statements
Link to IHE Integration Statement ?	<input type="text"/>
Integration Statement's date	<input type="text" value=""/>
Owner *	Phil Wilson (pwillson)
Registration status *	<input type="text" value="In progress"/>
Testing session	<input type="text" value=""/>

Please Select...

In progress

Dropped

Completed

Testing in Gazelle

Test Scenarios

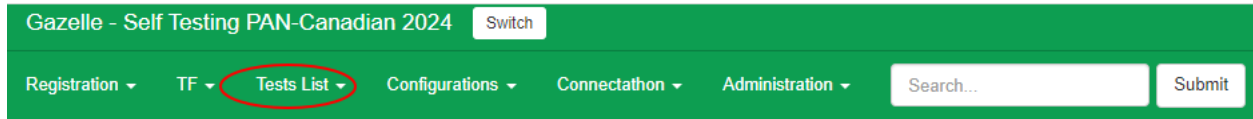
To access the test scenarios that are available, navigate to the Gazelle Test Manager using the URL: <https://pancanadianio.ca/gazelle>

Once logged in, ensure that you are operating in the "Gazelle - Self Testing PAN-Canadian 2024" session. If not, click "Switch" to select the appropriate session.

Gazelle - PAN-Canadian Projectathon 2023 Close Switch

Registration ▾ TF ▾ Tests List ▾ Configurations ▾ Connectathon ▾ Administration ▾

Once you successfully accessed Self Testing PAN-Canadian 2024 session, In the top menu, click on Tests List.



Gazelle will display the list of available tests.

In the search Criteria, select the options:

- Test Type: pre-connectathon
- Test Peer Type: No Peer
- Test Status: ready

Search Criteria

Domain	Show all	✘
Integration profile	Show all	✘
Transaction	Show all	✘
Test Type	(46) pre-connectathon	✘
Test Peer Type	(46) No Peer	✘
Test Last modifier	Show all	✘
Author	Show all	✘
By keyword or name	<input type="text"/>	🔍

Actor	Show all	✘
Int Prof. option	Show all	✘
Test Status	(45) ready	✘
Test Version	Show all	✘
is Validated	Show all	✘

Use the filters provided to further narrow down the list of tests that are relevant to your implementation. Use the x next to each field to clear the filters.

Keyword ▲	Version ◆	Status ◆
00_Connectivity_Testing[CA]	CAN-IO 2023	ready ▼
00_GazelleTesting_CheatSheet[CA]	CAN-IO 2023	ready ▼
00_IUA-Registration[CA]	CAN-IO 2023	ready ▼
01_PS-CA_Validation[CA]	CAN-IO 2023	ready ▼
CA:Aud_Log_Creation[CA]	CAN-IO 2023	ready ▼
CA:Aud_Log_Retrieval[CA]	CAN-IO 2023	ready ▼
CA:FeX-1_DataRecipient[CA]	CAN-IO 2023	ready ▼
CA:FeX-1_DataRecipient_IUA[CA]	CAN-IO 2023	ready ▼
CA:FeX-1_DataSource[CA]	CAN-IO 2023	ready ▼
CA:FeX-1_DataSource_IUA[CA]	CAN-IO 2023	ready ▼

Test Prerequisites

Typically, there are prerequisites required for execution of each test scenario, depending on the actors that are implemented by your SUT.

For instance, for server-side actors, the Gazelle administrator needs to open a channel in the proxy and add the server certificate to the proxy trust store. For IUA actors there are prerequisites that are aligned with the configurations required by OAuth2.

Note: The tests that have the names starting with the prefix 00, contain information and instructions that are useful before starting the testing process.

Test Execution

Select and click on a test that is applicable for the actors and transactions applicable of your particular implementation. Your SUT can be either on the client side or on the server side, and your tests will be performed against the corresponding simulator. For easy identification, the name of the No-Peer scenario includes the name of the Profile, Transaction and Actor that is played by your SUT.

Follow the instructions and steps described in the Test Scenario.

Generally, each test scenario has different sections, such as Prerequisites, Description, and more.

The test contains the most important details needed to perform the test. It includes a diagram describing the actors and transactions and steps to perform during the test. It also includes an evaluation section with instructions how to verify the test results.

At the bottom of the page there are information regarding the Test roles and the main steps that to be executed for the test.

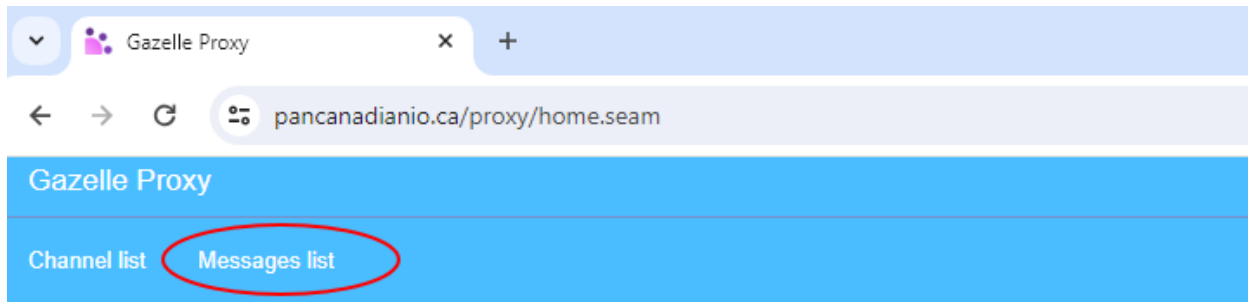
Note: It is strongly recommended to read through the entire test scenario before executing a test and ensure that the prerequisites are completed.

Test Verification

The transactions executed during the test are sent through the Gazelle proxy that captures the transaction request and response for analysis.

To verify the test results, login to the Gazelle Proxy using the URL: <https://pancanadianio.ca/proxy>

In the top menu I click on Message list



Welcome to Gazelle Proxy

Welcome to Gazelle Proxy. This application is used to capture messages exchanged between two systems under test.
Proxy is accessible at 149.202.25.56

Search your message in the Message list. Typically, there are multiple messages exchanged for a transaction, where the proxy is displaying an index that indicates the order that the messages were exchanged, for example:


- index 1 is the request message, and
- index 2 is the response message



To narrow down the search, use the filters available on the page as needed

Click on Details to inspect the details for both the request and response message and verify that the request and response are correct and conforming to the pan-Canadian specifications.

Message List

Search Criteria





Message type	HTTP	
Secure message	--	✘
Initiator's IP		✘
Responder's IP		✘
Proxy's port	0	- + ✘
Connection ID	15931	- + ✘
HTTP Message Type	--	✘
Date from		✘
Rapid date selection	--	✘

Connection Id	Index	Type	Details	Date	Time (µs)	From
15931	2	←	Details 	3/21/23 6:31:40 AM (EDT GMT-0400)	721190	46.30.234
15931	1	→	Details 	3/21/23 6:31:40 AM (EDT GMT-0400)	364556	46.30.234

In the detailed page, click the + and – buttons to navigate through the messages within the transaction.

HTTP Message

Message details

Permanent link	https://pancanadianio.ca/proxy/messages/http.seam?id=33435 
ID	33435
Connection ID	15931 
Index	1   /2
Date Received	3/21/23 6:31:40 AM (EDT GMT-0400)

IP
Port
Message length

Inspect the information of the exchanged messages, such as HTTP headers and body.

Type Headers

application/fhir+json

```
DefaultHttpRequest(chunked: false)
POST /cafex/Bundle?_pretty=false&_format=application%2Ffhir%2Bjson HTTP/1.1
Host: pancanadianio.ca:10001
Connection: keep-alive
sec-ch-ua: "Google Chrome";v="111", "Not(A:Brand";v="8", "Chromium";v="111"
accept: application/fhir+json
Content-Type: application/fhir+json
sec-ch-ua-mobile: ?0
User-Agent: Mozilla/5.0 (Macintosh; Intel Mac OS X 10_15_7) AppleWebKit/537.36 (KHTML, like G
sec-ch-ua-platform: "macOS"
Origin: https://ps-swagger.apibox.ca
Sec-Fetch-Site: cross-site
Sec-Fetch-Mode: cors
Sec-Fetch-Dest: empty
Referer: https://ps-swagger.apibox.ca/
Accept-Encoding: gzip, deflate, br
Accept-Language: cs,en;q=0.9,en-GB;q=0.8,de;q=0.7
Content-Length: 71678
```

Metadata


Message content



```
{
  "resourceType": "Bundle",
  "id": "Bundle-FulsomeClinicalScenario1",
  "meta": {
    "profile": [
      "http://fhir.infoway-inforoute.ca/io/psca/StructureDefinition/bundle-ca-ps"
    ]
  },
  "identifier": {
    "system": "http://fictional-identifier-system-uri.com",
    "value": "Bundle-Scenario1"
  },
  "type": "document",
  "timestamp": "2023-01-04T14:30:00+01:00",
  "entry": [
    {
      "fullUrl": "Composition/18fc14a1-303a-4c2e-9143-a8087cd3aeeb",
      "resource": {
        "resourceType": "Composition",
        "id": "18fc14a1-303a-4c2e-9143-a8087cd3aeeb",
        "meta": {
          "profile": [
            "http://fhir.infoway-inforoute.ca/io/psca/StructureDefinition/composition-ca-ps"
          ]
        },
        "text": {
          "status": "additional",
          "div": "
<div xmlns=\"http://www.w3.org/1999/xhtml\">Primary Problem: Right shoulder, arm and knee pain, with diag
</div>"

```

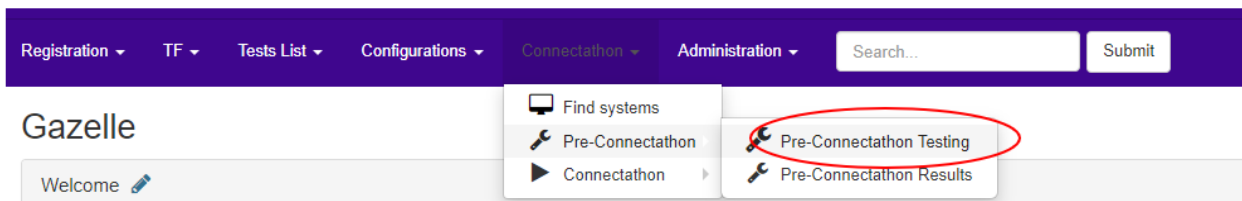
If you wish to save the evidence of the test execution, capture the Permanent link URL in the top corner for both the request and response message. You can also save the evidence by downloading the messages using the Download button.

Permanent link	https://pancanadianio.ca/proxy/messages/http.seam?id=33435
ID	33435
Connection ID	15931 
Index	1 - + /2
Date Received	3/21/23 6:31:40 AM (EDT GMT-0400)

Test Evidence

The activities described in this section are not mandatory to be executed for self-testing.

In the top menu, navigate to Connectathon > Pre-Connectathon > Pre-Connectathon Testing



The screenshot shows the top navigation bar of the Gazelle application. The menu items are: Registration, TF, Tests List, Configurations, Connectathon, and Administration. A search bar and a Submit button are also present. The 'Connectathon' menu is expanded, showing options: Find systems, Pre-Connectathon, Connectathon, Pre-Connectathon Testing (circled in red), and Pre-Connectathon Results.

















Click on your system that you registered for the Projectathon

Click on the Number of tests to do













System keyword	System/Product name (Version)	Number of tests to do
OTHER_DHO_Demo3	Demo3	19
TOOL_INFOWAY_PAT	INFOWAY_PAT	50

This opens a page where you can see all the actors in all your test scenarios

Notice that the same test might be shown multiple times, in case the same test is executed by different actors. To open the test scenario, click on the Globe icon.

Test	Integration Profile	Actor
00_IUA-Registration[CA]  	IUA	AUTH_CLIENT
01_PS-CA_Validation[CA]  	CA:FeX	CA:FeX - Source
CA:Aud_Log_Creation[CA]  	CA:AUD	ARR
CA:Aud_Log_Retrieval[CA]  	CA:AUD	ARR
CA:FeX-1_DataSource[CA]  	CA:FeX	CA:FeX - Source
CA:FeX-1_DataSource_IUA[CA]  	CA:FeX	CA:FeX - Source
CA:FeX-2A_DataConsumer[CA]  	CA:FeX	CA:FeX - Consumer
CA:FeX-2A_DataConsumer_IUA[CA]  	CA:FeX	CA:FeX - Consumer

Look for the test scenario that you executed earlier and select the test for the actor participant in your SUT. Click on the Return log file.

Test	Integration Profile	Actor	Int Prof. option	Option	Status	Action
00_IUA-Registration[CA]  	IUA	AUTH_CLIENT	NONE	R		Return log file
01_PS-CA_Validation[CA]  	CA:FeX	CA:FeX - Source	NONE	R		Return log file
CA:Aud_Log_Creation[CA]  	CA:AUD	ARR	NONE	R		Return log file
CA:Aud_Log_Retrieval[CA]  	CA:AUD	ARR	NONE	R		Return log file
CA:FeX-1_DataSource[CA]  	CA:FeX	CA:FeX - Source	NONE	R		Return log file
CA:FeX-1_DataSource_IUA[CA]  	CA:FeX	CA:FeX - Source	NONE	R		Return log file

This will take you to the page where you can upload your evidence. In the Comments section, copy and paste the permanent link that you captured earlier in the Gazelle proxy. Alternatively, use the Upload button to upload any files that contain evidence for the test results.

Uploaded files info

No files currently uploaded

You can download only files which have these extensions : jpg, gif, png, bmp, tiff , pdf, log ,txt, rtf , csv, zip, tar, xsd, xml, dtd , xls ,xlsx, doc, docx, dot.

Upload a file (click or drop)

Comments

1/29/24 11:21:13 PM (GMT-05:00) : mholitska (INFOWAY) Status changed to : Running

<https://pancanadianio.ca/proxy/messages/http.seam?id=33435>

Add description

Back to previous page

After verification is complete, test results are correct, and evidence is provided, you can change the status to "Verified by Vendor".