

Gazelle Platform Self-Testing User Guide

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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.

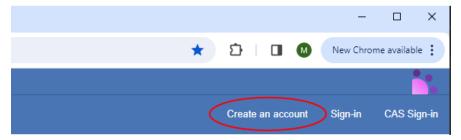
The transactions executed during the test are sent through the Gazelle proxy that captures the transaction request and response for analysis.

Registration in Gazelle

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

Create an Account

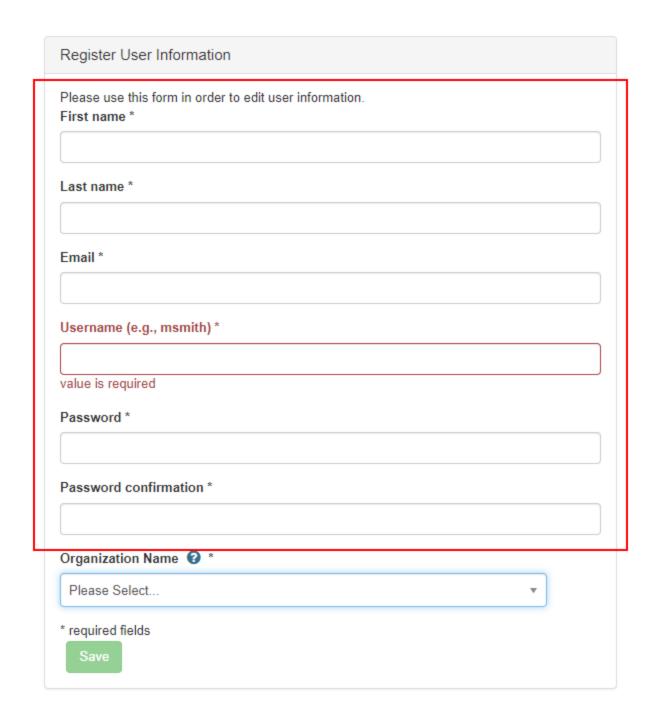
Navigate to the Gazelle website https://pancanadianio.ca/gazelle and click Create an Account



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

Add User Information

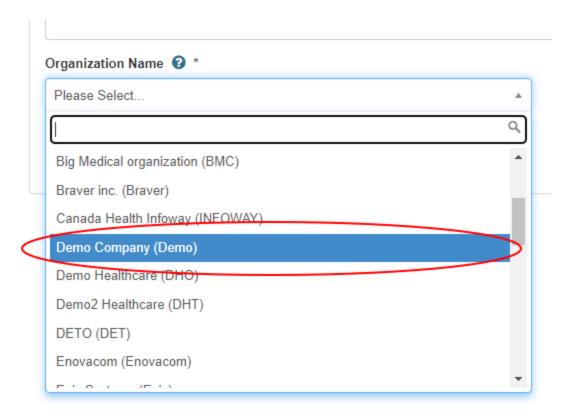
Fill in all the user information that appear on the screen.



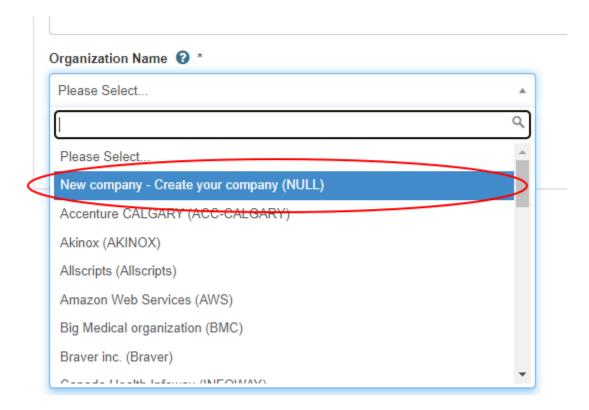
Add Organization Information

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.

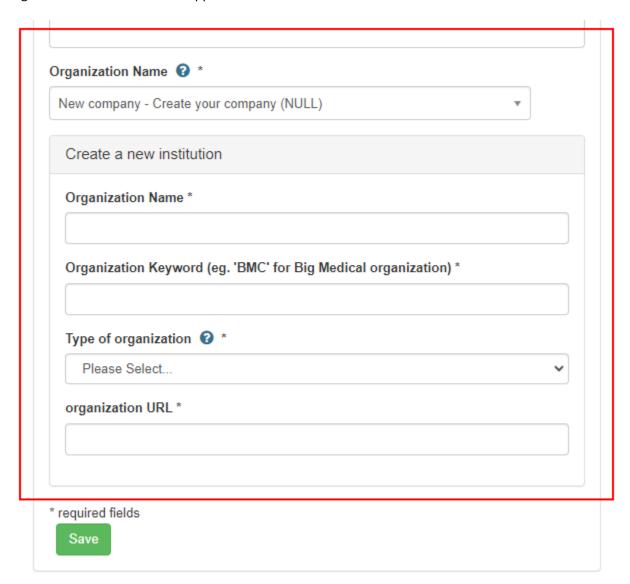
a) If your organization name is already in the list of organizations registered with Gazelle, select your organization and then click Save.



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.

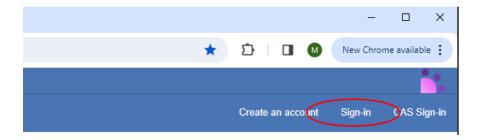


Account Approval

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.

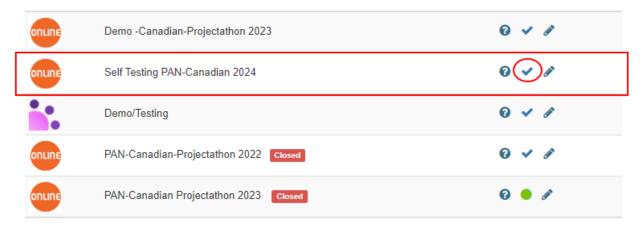


Switch to Test Session

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



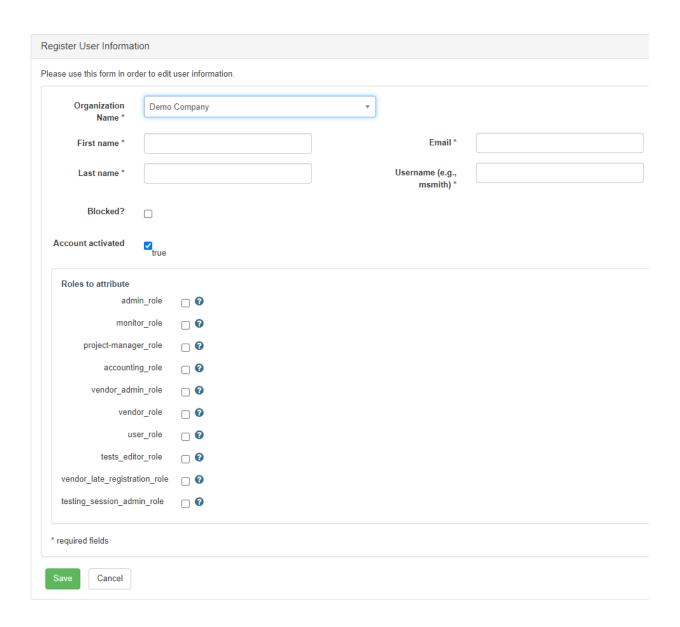
Then click on the on Add a user



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.

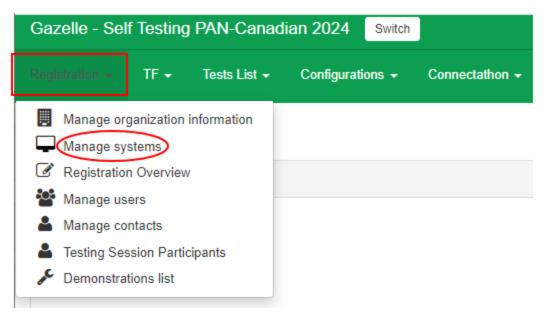


Register Your Systems

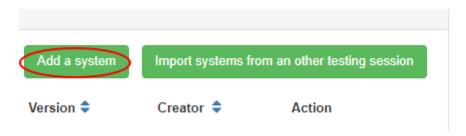
To perform tests on the Gazelle platform, you must register your system in Gazelle and add Profiles/Actors to your system.

Add a System

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



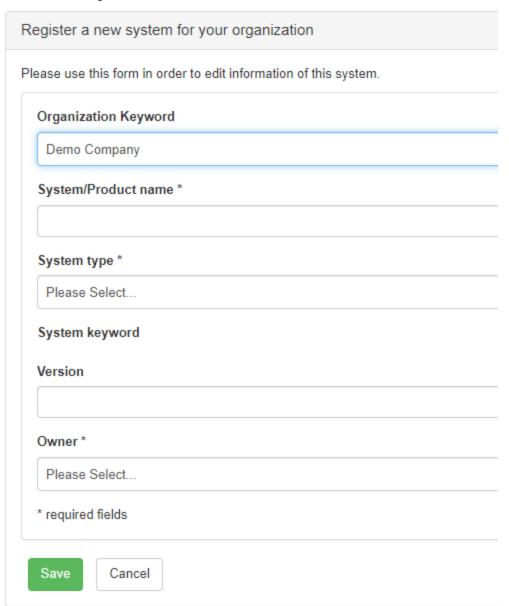
Then click on the on Add a system



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

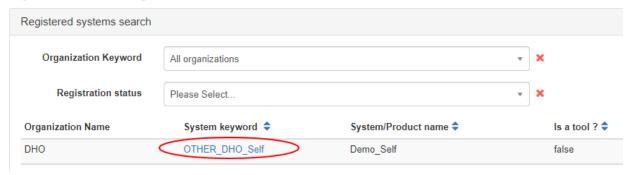
Add a system



Add Profiles/Actors

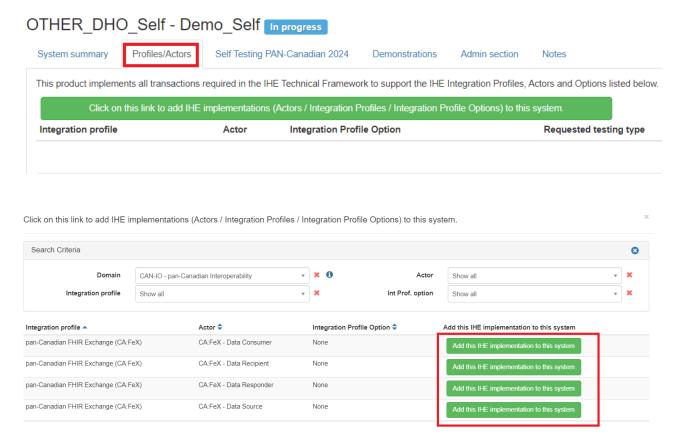
Once you registered your system, you should be able to see it in Gazelle. To find it, click on Registration > Manage systems. Click on the System Keyword for your system that you created, as in the example below.

Systems management



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

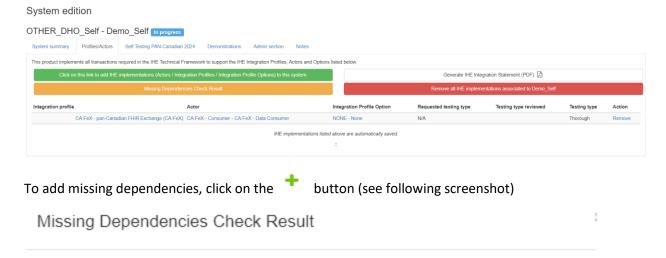


Add Dependencies

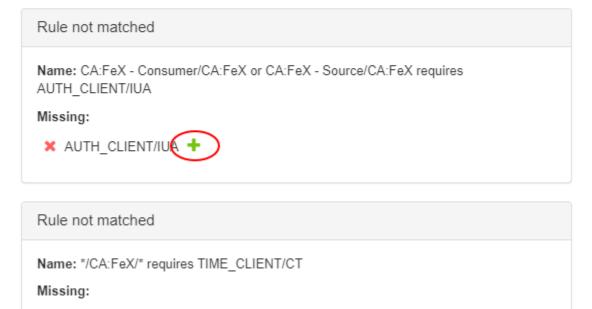
If the Missing dependencies check Result button appears, it means that among the profiles you have already added, some are dependent on others that missing in your system. Follow the instructions below to register the corresponding actors that are suggested as dependencies.

To add the dependencies, click on the orange button to select them from the suggested list.

Note: You can skip this step for the dependent profiles/actors that are not implemented by your system. If this is the case, the Gazelle warnings will not be resolved as indicated by the orange button.



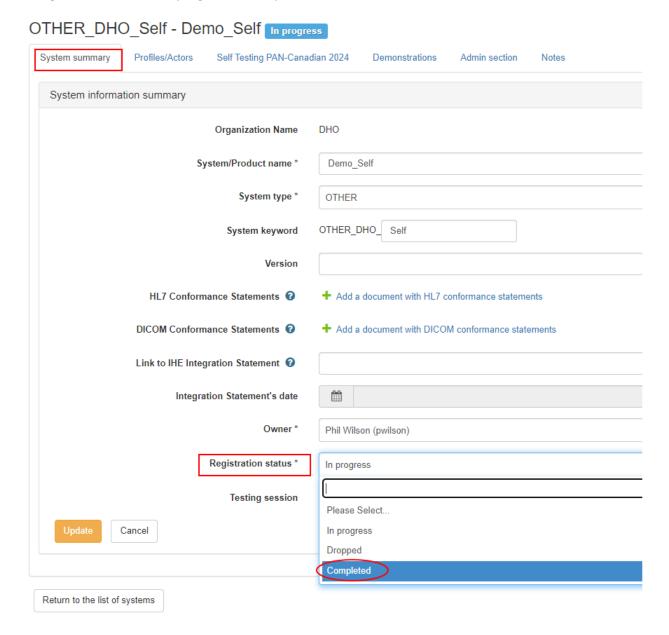
List of possible missing Dependencies according to the Technical Framework (pick the one you need)



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.



System Configuration

Note: This section is only applicable for systems that have registered server-side actors. If you only have client-side systems, you do not need to perform any configurations in Gazelle.

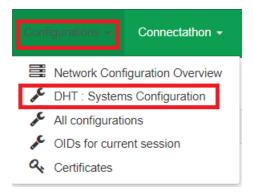
The purpose of System Configuration in Gazelle is to collect the information necessary to open channels in the proxy, where the data exchange of each transaction will be recorded during testing.

Note: A prerequisite to configuring your system in Gazelle is for your servers to have a single static IP address.

For any issues or questions regarding configuration, contact Infoway team at interoperability@infoway-inforoute.ca.

Add Network Configuration

To create a configuration for your system, in the top menu click Configurations > [Your Organization] : Systems Configuration.



Initially, if no network or system configuration has been saved, the configuration page appears empty.

Configurations



To create a network configuration, click on the Add Network Config button. The network configuration editing window will appear.

Configuration edition



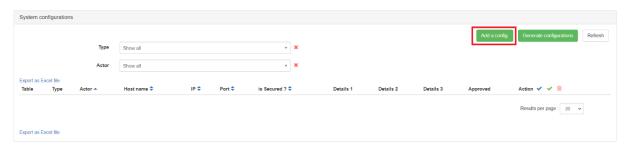
Optionally modify the hostname, enter the system's IP address, and click Save.

A success message will appear.

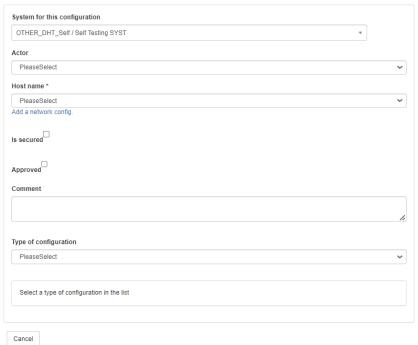


Add System Configuration

Once you save your network configuration, you will be redirected to the Systems Configuration page. Click on the Add System Config button.



Add a config.

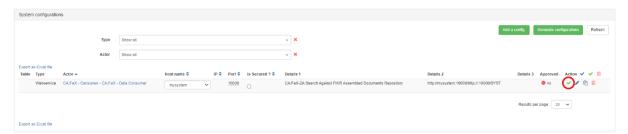


Fill in the information in the form and click Save. A success message will appear.

Note: The hostname corresponds to the hostname entered during the network configuration.



Your system configuration will appear on the Systems Configuration page. If you are certain about the information, you can approve the system configuration by clicking on the corresponding green checkmark.



A proxy port (generally displayed in red within parentheses) will be automatically assigned to your system.

Verify Configuration

Once your configurations are complete and approved, you can verify the proxy ports that are assigned to your system.

In the top menu click Configurations > [Your Organization] : Systems Configuration.

Your system(s) information will be displayed, indicating:

- The last recorded network configuration (Host name column)
- The IP address and port associated with the system
- The port used by the proxy (in red, within parentheses)



To check the port assigned to your system in the proxy, login to the Gazelle proxy using the URL: https://pancanadianio.ca/proxy and click on the Channels List menu.

Note: The display of the port assigned to the system is not immediate in the proxy, as it includes a manual step that must be performed by the Gazelle administrators.



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.



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

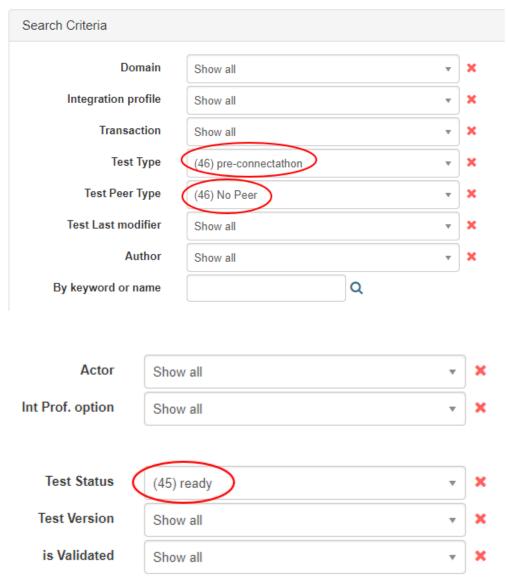


Gazelle will display the list of available tests.

In the search Criteria, select the options:

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

Test Status: ready



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.

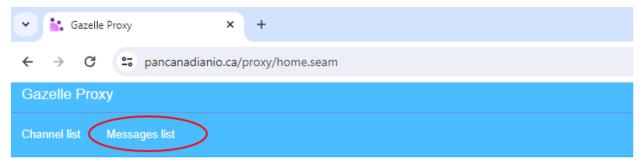
At the bottom of the page there are information regarding the Test roles and the main steps that to be executed for the test.

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

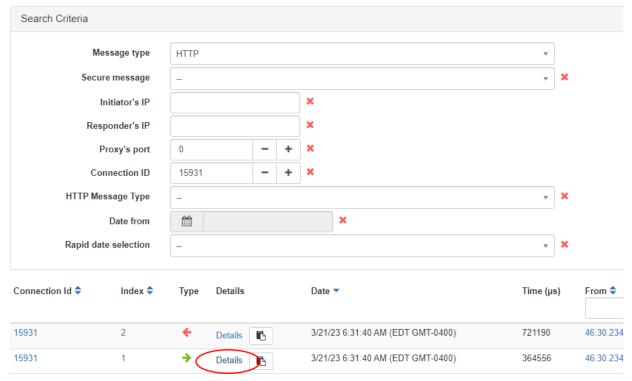
Search your message in the Message list. Typically, there are multiple messages exchanged for a transaction, where the proxy is displaying an index that indicates the order that the messages were exchanged, for example:

- 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

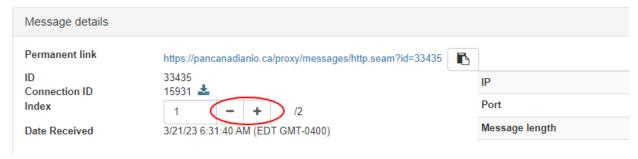
Click on Details to inspect the details for both the request and response message and verify that the request and response are correct and conforming to the pan-Canadian specifications.

Message List



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

HTTP Message



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

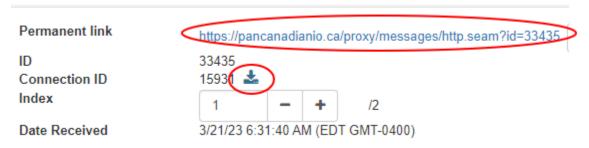






```
{
   "resourceType": "Bundle",
   "id": "Bundle-FulsomeClinicalScenario1",
   "meta": {
       "profile": [
            "http://fhir.infoway-inforoute.ca/io/psca/StructureDefinition/bundle-ca-ps"
   },
   "identifier": {
        "system": "http://fictional-identifier-system-uri.com",
        "value": "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>"
```

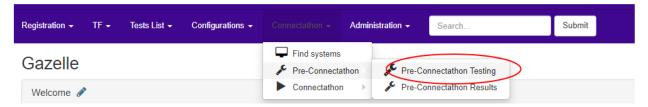
If you wish to save the evidence of the test execution, capture the Permanent link URL in the top corner for both the request and response message. You can also save the evidence by downloading the messages using the Download button.



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



Click on your system that you registered for the Projectathon

Click on the Number of tests to do



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

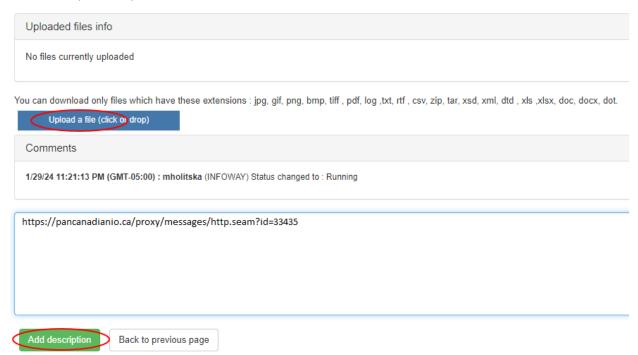
Notice that the same test might be shown multiple times, in case the same test is executed by different actors. To open the test scenario, click on the Globe icon.

Test	Integration Profile	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] 3	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.



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