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Exercise 4: Connect and Query HSPC FHIR Server

EMR Integration using FHIR, IUC2019

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A. Table of Contents

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B. Purpose

The purpose of this exercise is to outline the steps and procedures needed to connect a 3rd party Iguana SMART on FHIR Application to a sandbox FHIR Server provided by Health Services Platform Consortium (HSPC), and to attempt a portion of one of the Da Vinci Use cases: The Clinical Data Exchange (CDex) use case.

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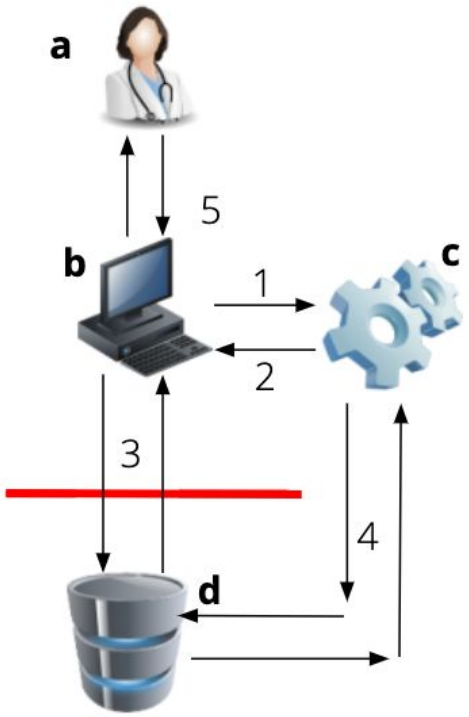
C. Architecture Diagram and Description

Components

A. **Consumer**: The user of the Iguana Application
B. **Application**: SMART on FHIR Iguana App
C. **Security System**: HSPC system that provides secure access to FHIR sandbox via tokens
D. **FHIR Server**: HSPC Sandbox FHIR server with data storage that provides API access



Workflow

1. Iguana App sends client id to HSPC Security System to start SMART Workflow
2. HSPC Security System sends back token to Iguana
3. Iguana requests FHIR resource from HSPC
4. FHIR server confirms with Security System credentials and sends resource back to Iguana
5. Clinician uses Iguana App to review resource

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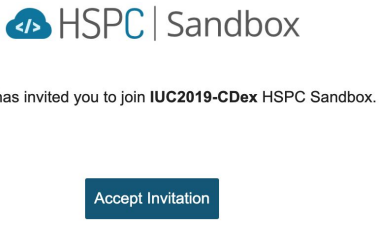
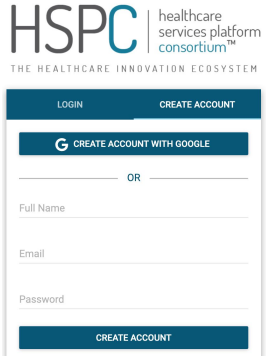
D. Prerequisites

This exercise requires the **FHIR App channel**, and **access to an HSPC FHIR Sandbox**. There will be an invitation sent out via email from **noreply@hspconsortium.org** to you to connect to the sandbox. Upon accepting, you will have the chance to create an account using your email to have complete access to the FHIR Sandbox, which has a virtual EHR, FHIR server, and other sample 3rd party applications.

Import the FHIR App Channel

Import the FHIR Channel from the repo provided by unzipping the folder, adding it to the list of known repositories, and importing it into the iguana dashboard.

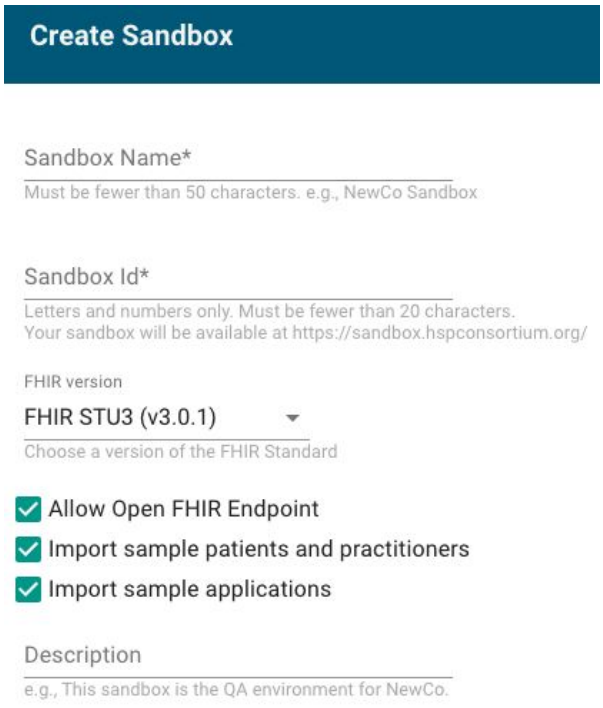
Create An Account

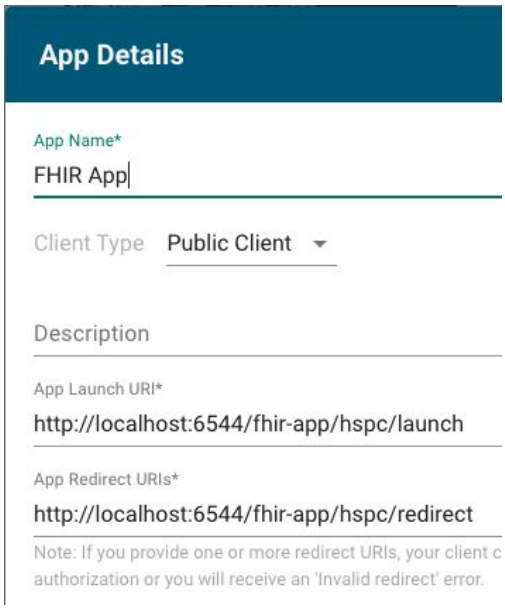
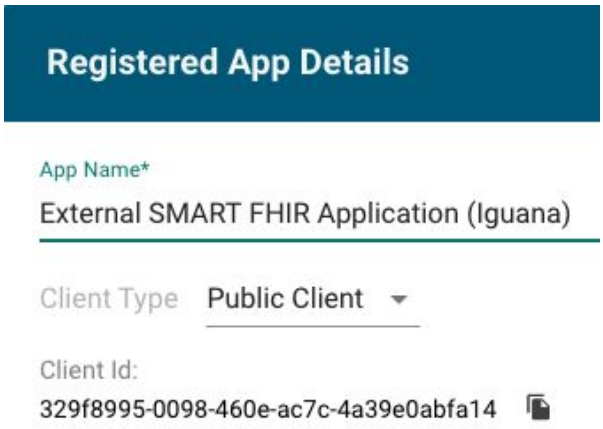
1. From the email sent by **noreply@hspconsortium.org,** click on Accept invitation.	
2. After being redirected, click the **CREATE ACCOUNT** tab and sign up using a google account, or email.	

3. Once verified, sign in and click on the **IUC2019-CDex** Sandbox to access the EHR.	

Create Your own FHIR server

In the event you were unable to receive the invitation, or would like to create your own server, the steps for that can be found here.

1. After creating an account, click on the “ NEW SANDBOX ” in the top right and provide a name for your FHIR server. For the FHIR Version, select version 3. In addition, check the “Allow open endpoint” box.	

2. In the left panel select the “Apps” Icon, and then on the far right, click the + icon to create your Application that will launch the workflow necessary to run the external Iguana Application. Provide a name for the App, and use the parameters below for the launch and redirect urls respectively: a. http://localhost:6544/fhir-app/hspc/launch b. http://localhost:6544/fhir-app/hspc/redirect	
3. Take note of the Client ID generated under the settings pane of the Application. This will be used in the exercise below.	

Prerequisite Considerations

Depending on the url used to connect to your Iguana, you may need to set up the FHIR channel and FHIR server App differently. If your Iguana dashboard url and http url is in the default localhost:6543 and localhost:6544 format, no changes are needed. **If they do differ:**

- Change the Launch and redirect urls in the previous section from localhost:6544 to your environment specific url
- Inside the FHIR App’s from HTTPS Translator component, change line 38 of the api/main/hspc/redirect/get.lua module from localhost:6544 to your environment specific http url.

E. Exercise: Connect and Query HSPC FHIR Server

At this point, the components that have been prepared are:

- Iguana Smart FHIR App
- HSPC FHIR Sandbox

To complete the exercise, we must do 3 things:

1. Turn on the **Exercise 4: SMART FHIR Client** channel, authenticate, and add our Client ID to our app
2. Launch our app from within the HSPC EHR system, and authenticate Iguana to allow access to the EHR.
3. Query a patient's record according to part of the Da Vinci use case.

1. Turn on, Authenticate and add Client ID to FHIR App

1. Open Google Chrome and navigate to Iguana (**localhost:6543**), and sign in.
2. Once signed in, turn on the **Exercise 4: SMART FHIR Client** channel.

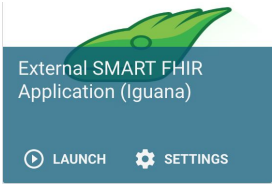
3. Click on the channel's 

component, and then on the new page, click the link located beside the URL path: http://localhost:6544/fhir-app/
4. Sign into the application. The default credentials for logging in are:
    a. Username: **admin**
    b. Password: **password**
5. Once authenticated select the 

tab and insert the Client ID below into the application: **`329f8995-0098-460e-ac7c-4a39e0abfa14.`** If you created your own FHIR server, use the Client ID obtained in step 3 of the **Create Your own FHIR Server** section.

2. Launch our app from within the HSPC EHR system

6. In another tab, navigate to the HSPC FHIR Sandbox (re-sign in if needed).
7. Click on the **IUC2019-CDex, or Custom FHIR Sandbox** to access the EHR.
8. Click on the Apps tab in the left panel to access **Registered Apps** and click **Launch** on the **External SMART FHIR Application (Iguana),** or your own Application if you created a custom one**.**



9. Click the first patient in the list to start the application.

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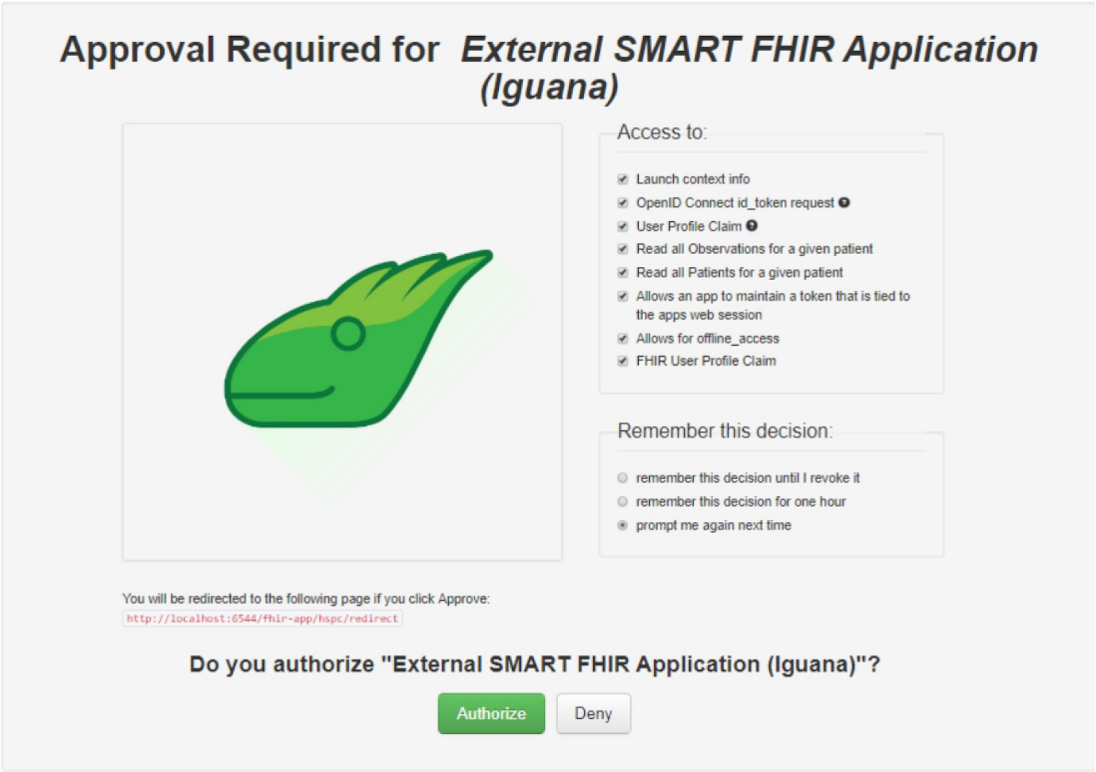
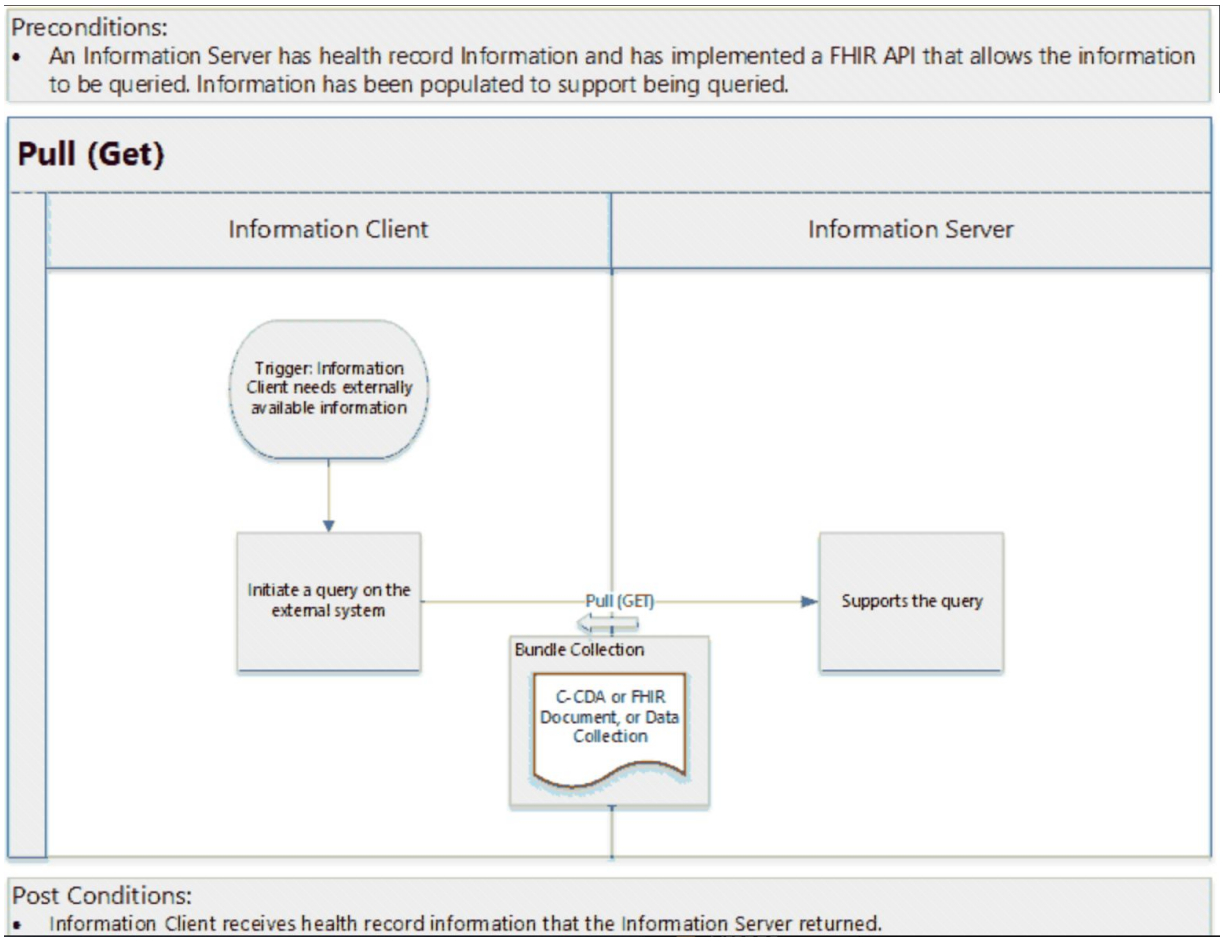
10. Click **Authorize** on the new page that opened up to allow Iguana access to the EHR and FHIR server.



3. Query a patient's record according to part of the Da Vinci use case

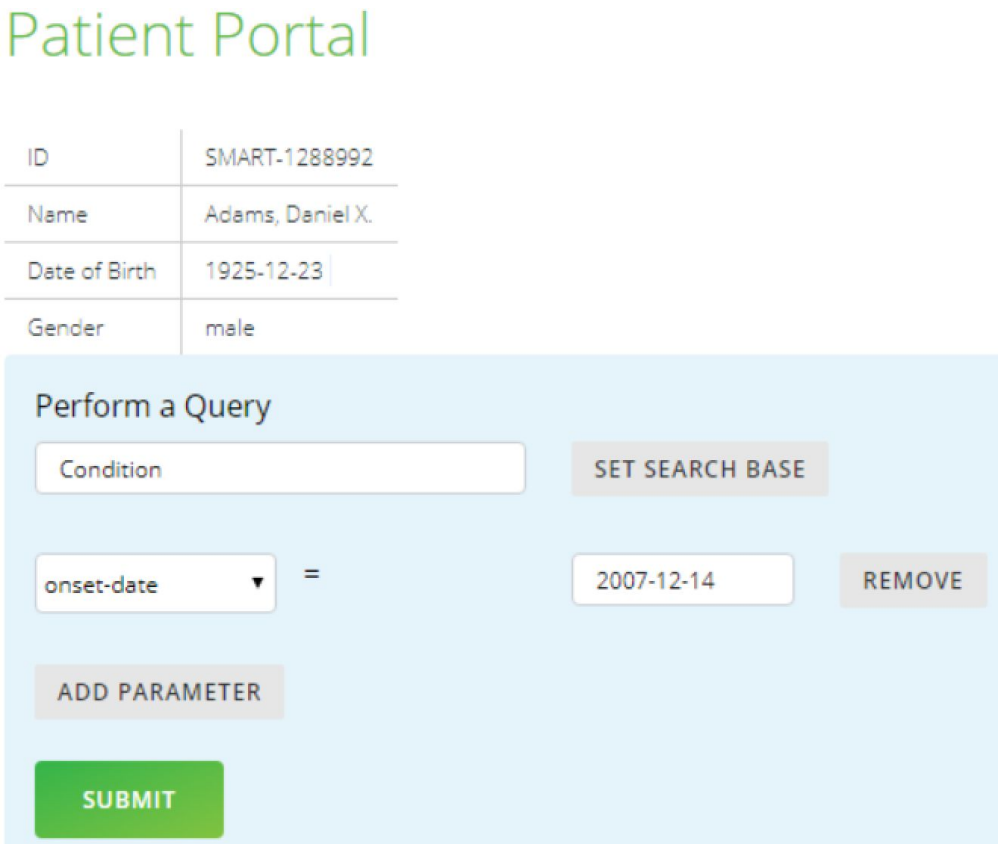
The part of the use case that we will conduct of the CDex use case is the simplest one, the **Pull (Get)** request.

Task: Payer (Client) queries the Provider (Server) for specific patient for a condition date corresponding to **`2007-12-14.`**



1. In the Iguana SMART FHIR App, click the **START** button beside the patient we've authenticated for.

2. Under the Patient Portal, set the search base to **Condition** and hit **Set Search Base.** Then, click **Add Parameter.** Select **onset-date** and put The following date into the text field beside it: `2007-12-14`



3. Click **SUBMIT.** At this point, an array containing the result query should be returned for viewing. To see more information for each row if it is not shown, click on [DEPTH REACHED] to see the field