



Clinical Data Interoperability Services Setup Instructions (General)

This document provides setup procedures for REDCap's "Clinical Data Interoperability Services" functionality. These are general instructions that are applicable for connecting REDCap to any Electronic Health Record (EHR) system that has enabled the "SMART on FHIR" web services. For instructions that are catered specifically to your local EHR vendor (e.g., Epic, Cerner), check inside the zip file containing this file to see if there is a "Setup Instructions-XXXXX" file for your specific EHR vendor. If not, please continue by using this document regarding how to set up this functionality in REDCap.

SETUP: Create a FHIR client and enter configuration values into REDCap

1. Ask your local EHR technical team if the **FHIR web services have been enabled in the EHR**. If not, you cannot proceed to the next step until they have been enabled.
2. Ask your EHR contact person to **create a new FHIR app/client** for you in the EHR system. This client is akin to an API user for the EHR.
3. When registering your app/client, make sure it is set as a **provider-facing client**, not a patient-facing client. (NOTE: Cerner will instead use Client Credentials, which is a system-level client.)
4. Go to the REDCap Control Center page "Clinical Data Interoperability Services" and obtain the "Redirect URL" somewhat near the top of the page, and **add the REDCap Redirect URL to your FHIR client** (e.g., <https://redcap.vanderbilt.edu/ehr.php>). This will whitelist your REDCap installation in the FHIR client.
5. All of the following **API methods need to be enabled** for your client (these may be named slightly differently in your EHR):
 - Patient
 - Observation (Labs, Vitals, Core Characteristics)
 - Condition
 - MedicationOrder (DSTU2) or Medication (R4)
 - Immunization
 - AllergyIntolerance
 - AdverseEvent
 - Encounter
6. For your FHIR client, make sure that the client is set to **Use OAuth2** and is able to **Refresh Tokens**.
7. **Obtain the Client ID and the Client Secret** from your EHR contact person. (Make sure that the Client Secret is the secret value itself and not the stored hashed value of the secret.)
8. **Obtain the Base URL endpoint** for the FHIR web services. Your EHR contact person can provide this.
9. **Obtain the patient identifier for medical record numbers**. This will be a string value typically beginning with "urn:oid:" – e.g., urn:oid:1.1.1.1.1.1. (NOTE: This may not be required for some EHRs.)
10. **Enter the information gathered above into the REDCap Control Center** page "Clinical Data Interoperability Services".

Tell the EHR how to launch REDCap from inside the EHR user interface

As of REDCap 9.5.2, users are no longer required to launch the REDCap window embedded in the EHR (it is only optional), but instead they may log in to the EHR directly from REDCap after being prompted in the REDCap user interface, after which they may immediately begin to pull clinical data from the EHR. In this way, adding the REDCap launch button inside your EHR is merely optional but is still recommended since it provides a very easy and streamlined way of adding new patients to a REDCap project while inside the EHR interface.

Your local EHR contact person should know how to add a launch button, link, or menu item to your EHR's user interface so that it will perform a SMART on FHIR launch to your FHIR client, which will call REDCap using the

parameters set up in the instructions above. Each EHR vendor will have its own different setup and process for accomplishing this.

Typically, you will want REDCap to be launched as an embedded window (e.g., iframe) inside the EHR interface.

Important note: When the EHR launches REDCap, the REDCap URL that gets called must contain the “user” parameter in the query string, in which the parameter’s value is the user’s EHR username (e.g., <https://redcap.vanderbilt.edu/ehr.php?user=taylorr4>). Without the “user” parameter in the URL, REDCap will not be able to identify who the EHR user is.

Once the REDCap launch point has been set up in the EHR, when clicked/triggered by an EHR user, it should first prompt the user to select a patient, and then it will launch REDCap inside the EHR. It will ask the user to log in to REDCap using their REDCap username/password, which will only be required the first time they launch REDCap from within the EHR. A REDCap page will then be shown and allow the user to select their Clinical Data Pull projects (i.e., REDCap projects in which Clinical Data Pull is enabled) so that they may utilize those projects in that EHR-specific view of REDCap. Then patients can easily be added to REDCap projects from that page, as well as have a patient’s clinical data adjudicated and imported into one or more REDCap projects. If for some reason the REDCap page does not load correctly inside the EHR, please check the configuration values on the REDCap Control Center page “Clinical Data Interoperability Services” to ensure they are correct.