§170.315(G)(10) FHIR API Documentation

Practice Expert Version 2018

API Version 1.0.0.0

INTRODUCTION

In this documentation we are going list all the steps required to get to ensured wellbeing data based on the documentation of an open API. The API makes wellbeing data broadly accessible utilizing FHIR®, a set of clinical interoperability assets beneath the umbrella of the HL7 standards organization. FHIR is based on common web benchmarks can be come to through a Serene protocol in which each FHIR asset features a known URL.

This document describes the OAuth2.0 and OpenID flow for client applications to interact with FHIR-based information frameworks. This document explains the process for client application to authorize, authenticate and integrate with FHIR server.

We have followed the documentation provided by Hl7 to OAuth2.0 Authorization flow.

(Ref. http://hl7.org/fhir/smart-app-launch/toc.html)

FHIR Endpoints

Please consider that FHIR endpoints for test and production server are subject to change.

Production Endpoint

- **FHIR:** https://sfp-proxy7042.azurewebsites.net/fhir
- **Authentication Server:** https://sfp-proxy7042.azurewebsites.net /oauth2

Types of Authentication supported on the FHIR server for the Client Applications:

- Symmetric Authentication (performed using client id and client secret).
  (This authentication flow explained in detail here - [HL7.FHIR.UV.SMART-APP-LAUNCH\Example App Launch for Symmetric Client Auth - FHIR](#))

- Asymmetric Authentication (performed using private key JWT)
  (This authentication flow explained in detail here - [HL7.FHIR.UV.SMART-APP-LAUNCH\Example App Launch for Asymmetric Client Auth](#))

- Public Clients(Performed with only client id)
  (This authentication flow explained in detail here - [HL7.FHIR.UV.SMART-APP-LAUNCH\Example App Launch for Public Client - FHIR v4.0.1](#))

Types of Smart-On-FHIR applications

- **Standalone App:** Clients with SMART on FHIR which has patient context, refresh token, and OpenID Connect (OIDC) identity token.
- **EHR Embedded App:** Illustrate the capacity to perform an EHR launch to SMART on FHIR Server.
- **Smart Backend Services App (Multi-patient authorization API):** These are server-to-server backend applications e.g. Export clinical information for numerous patients in a bunch. This app is framework level app without any UI.

Client Registration

Applications for SMART on FHIR must first register with Cal-Med API in order to be used. Please contact your Cal-Med support or send an email to noreply@cal-med.com to begin the registration process. If Cal-Med approves your request, you will be given an OAuth client id to use for any future requests that you make using the protocols detailed in the official SMART App Authorization Guide.

You will receive credentials after creating an account that will allow you to create an Authorization Grant and an Access Token.

Client App Registration Process

- Third-party application must sign the API Membership Agreement with following details:-
    1. The app name
    2. The necessary API/Scopes
    3. Redirect URLs
    4. Launch URL
    5. URL to JWK Set(this is only for the apps which supports asymmetric client authorization)

- The application is made by the EHR admin after affirming the app's enlistment parameters and communicates a Client_ID to the app.

    - FHIR APIs listed within the USCDI v1 core data set will be supported.
    - Only grants read operation on the FHIR server.

Retrieve .well-known/smart-configuration

In arrange to get dispatch setting and ask authorization to get to FHIR assets, the app finds the EHR FHIR server's SMART configuration metadata, including OAuth authorization_endpoint and token_endpoint URLs.

 FHIR server makes arrangement accessible from well-known endpoint. Client will be able get Authorization endpoint and token endpoint**.**

Request

GET 200 https://{FHIRServerURL} /.well-known/smart-configuration

Response

{

```
"response_types_supported": [
      "code",
      "id_token",
      "code id_token",
      "id_token token"
   ],
   "scopes_supported": [
      "openid",
      "profile",
      "email",
      "offline_access"
   ],
"capabilities": [
      "launch-standalone",
      "client-public",
      "Patient Access for Standalone Apps",
      "sso-openid-connect",
      "context-standalone-patient",
      "permission-offline",
      "permission-patient",
      "client-confidential-symmetric",
      "launch-ehr",
      "context-banner",
      "context-style",
      "context-ehr-patient",
```

```
        "permission-user"
    ],
    "token_endpoint": "https://{FHIRServerURL}/oauth2/token",
    "token_endpoint_auth_methods_supported": [
        "client_secret_post",
        "private_key_jwt",
        "client_secret_basic"
    ],
    "authorization_endpoint": "https://{FHIRServerURL}/oauth2/authorize",

}
```

Error codes

JSON response is returned from the FHIR Server along with the code

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

403: The user is not authorized for the operation. The user may not have access to the patient, or an invalid scope was provided.

Next step is to get the Authorization code from authorization server

The app supplies the following parameters to "authorize" endpoint which we mentioned above.

Parameters

1. response_type (required) – It has fix value: code
2. client_id (required) – The client's identifier
3. redirect_url(required) – Must match one of the client's pre-registered URIs.
4. launch(conditional)- This parameter is omitted in the Standalone Launch. For HER Launch, this must value received from HER.
5. scope(required) - The access that the app requires must be specified, along with scopes like patient/*.rs, openid, and fhirUser (if the app requires an authenticated patient identity), and either:

    launch value indicating that the app wishes to get launch context information from the EHR that has already been setup

    list of launch context specifications in the launch/patient form, which requests that the EHR create context on your behalf. Please refer to the supported scopes mentioned below.

6. state (required)- URL of the EHR resource server that the app wishes to access in order to retrieve FHIR data. This setting stops a real bearer token from going to a fake resource server. (Note that this aud value is the same as the launch's iss value in the case of an EHR launch flow.) Keep in mind that the resource parameter defined in RFC 8707 and the aud parameter are semantically similar. The aud option in SMART predates RFC8707, and we chose against renaming it for backwards compatibility. If feedback from implementers suggests that alignment would be beneficial, we might think about renaming the aud option in SMART in the future. Servers SHALL support the aud parameter for the current release and MAY allow a resource parameter as a replacement for aud.

Scopes Supported:

patient/*.read :- Permission to read and search any resource for the current patient

user/*.read :- Permission to read and write all resources that the current user can access

openid :- Permission to retrieve information about the current logged-in user

fhirUser

launch:- Permission to obtain launch context when app is launched from the EHR.

launch/patient:- When launching outside of the HER, ask for a patient to be selected at launch time.

offline_access:- Request a refresh_token that can be used to obtain a new access token to replace an expired one, even after the end-user no longer is online after the access token expires.

We mention offline_access scope as 'Maintain access to data you have given it access to'.

Please note that you can only deny this scope for the first time you are using the EHR/Standalone App. You cannot grant/deny this offline_access scope later on. If you have accepted this scope for the first time then your app will have offline_access scope enabled.

Please see the below screenshot for the offline_access scope. Arrowed scope is offline_access scope.
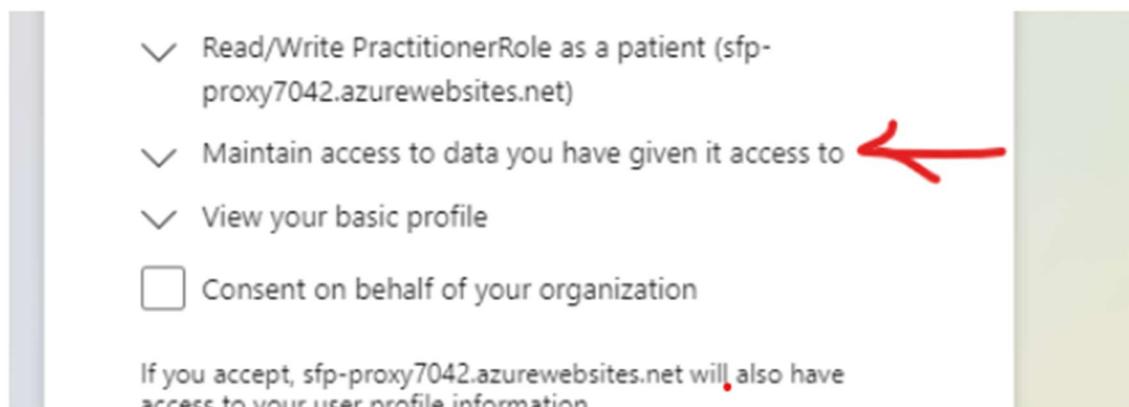
You can click on the checkbox to accept it.

Here is an illustration of an HTTP GET authorization request. You will enter your own values in the placeholders for [redirect uri], [client id], [launch token], [state], [code challenge], and [audience].

Request

https://{FHIRSERVER} /authorize?
response_type={samplecode} &
client_id={Application Client ID} &
redirect_uri={RedirecetURL} &
launch={launch text required for your application} &
scope={requested scopes for your application} &
aud={audience}

Example:-

https://{FHIRServerURL}/oauth/authorization?response_type=code&client_id=cleintid&redirect_uri=https%3A%2F%2Finferno.healthit.gov%2Finferno%2Foauth2%2Fstatic%2Fredirect&scope=launch%2Fpatient+openid+fhirUser+offline_access+patient%2FMedication.read+patient%2FAllergyIntolerance.read+patient%2FCarePlan.read+patient%2FCareTeam.read+patient%2FCondition.read+patient%2FDevice.read+patient%2FDiagnosticReport.read+patient%2FDocumentReference.read+patient%2FEncounter.read+patient%2FGoal.read+patient%2FImmunization.read+patient%2FLocation.read+patient%2FMedicationRequest.read+patient%2FObservation.read+patient%2FOrganization.read+patient%2FPatient.read+patient%2FPractitioner.read+patient%2FProcedure.read+patient%2FProvenance.read+patient%2FPractitionerRol e.read&state=26a45e37-7445-4e4a-b8fb-24144eccbdc4&aud=https%3A%2F%2Finferno.healthit.gov%2Freference-server%2Fr4

RESPONSE

The request from your application is examined by the EHR's authorization server. If the request is accepted, the authorization server adds the next query string argument and sends the browser to the redirect URL specified in the initial request.

- code: The access token will be exchanged for the authorization code contained in this parameter in the following step, which was created by the EHR.

- state: The exact value received from the client.

This is how redirect URL will look line. Please refer the URL below.

Location: https://{application name}/{string}?code={string}&state={string}

Example:-

https://inferno.healthit.gov/inferno/oauth2/static/redirect?code=SAMPLE_CODE.bGF1bmNoL3BhdGllbnQgb3BlbmlkIGZoaXJVc2VyIG9mZmxpbmVfYWNjZXNzIHBhdGllbnQvTWVkaWNhdGlvbi5yZWFkIHBhdGllbnQvQWxsZXJneUludG9sZXJhbmNlLnJlYWQgcGF0aWVudC9DYXJlUGxhbi5yZWFkIHBhdGllbnQvQ2FyZVRlYW0ucmVhZCBwYXRpZW50L0NvbmRpdGlvbi5yZWFkIHBhdGllbnQvRGV2aWNlLnJlYWQgcGF0aWVudC9EaWFnbm9zdGljUmVwb3J0LnJlYWQgcGF0aWVudC9Eb2N1bWVudFJlZmVyZW5jZS5yZWFkIHBhdGllbnQvRW5jb3VudGVyLnJlYWQgcGF0aWVudC9Hb2FsLnJlYWQgcGF0aWVudC9JbW11bml6YXRpb24ucmVhZCBwYXRpZW50L0xvY2F0aW9uLnJlYWQgcGF0aWVudC9NZWRpY2F0aW9uUmVxdWVzdC5yZWFkI

HBhdGllbnQvT2JzZXJ2YXRpb24ucmVhZCBwYXRpZW50L09yZ2FuaXphdGlvbi5yZWFkIHBhdGllbnQvUG
F0aWVudC5yZWFkIHBhdGllbnQvUHJhY3R
pdGlvbmVyLnJlYWQgcGF0aWVudC9Qcm9jZWR1cmUucmVhZCBwYXRpZW50L1Byb3ZlbmFuY2Uucm
VhZCBwYXRpZW50L1ByYWN0aXRpb25lcicJv bGUucmVhZCA=.ODU=&<mark>state</mark>=26a45e37-7445-4e4a-
b8fb-24144eccbdc4

After receiving the authorization code, your application sends an HTTP POST to the token endpoint using a Content-Type header with a value of "application/x-www-form-urlencoded" to exchange the code for a JSON object containing an access token and contextual data (ID token).

ERROR

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

403: The user is not authorized for the operation. The user may not have access to the patient, or an invalid scope was provided.

Next step is to get Access Token

For Public Apps Client secret is not required, so authentication is not required for the Public Apps. Because the client originates from a known, https-protected endpoint that is stated and enforced by the redirect uri, the end-to-end system can still be secured.

For Confidential Apps, authentication is required because it has client id and client secret. Confidential app can use Asymmetric Authentication if available or it can use Symmetric Authentication.

There are two different requests to get access token based on the authentication type. In the case of Symmetric ("client issues an HTTP POST to the token endpoint URL of the EHR authorization server using content-type application/x-www-form-urlencoded. Create a client authentication assertion and get the arguments ready for the POST to the token API in the case of the asymmetric authentication app.

Parameters

1. grant_type (required) – authorization_code for symmetric and client_credentials for asymmetric
2. code (required) – code received from the authorization server
3. redirect_url(required) – redirect_url used in the authorization request.
4. client_id(conditional)- This is only required for public apps and omitted for the confidential apps.
5. client_assertion_type(conditional) – Required for asymmetric authentication.
6. client_assertion(conditional) – Required for asymmetric authentication.
7. scope(conditional)- system/*.read

Symmetric Authentication Request

https://[FHIRServerURL]/oauth/token

Payload

grant_type=authorization_code&code=SAMPLE_CODE.bGF1bmNoL3BhdGllbnQgb3BlbmlkIGZoaXJVc2Vy IG9mZmxpbmVfYWNjZXNzIHBhdGllbnQvTWVkaWNhdGlvbi5yZWFkIHBhdGllbnQvQWxsZXJneUludG9sZX JhbmNlLnJlYWQgcGF0aWVudC9DYXJlUGxhbi5yZWFkIHBhdGllbnQvQ2FyZVRlYW0vTWVkaWNhdGlvbi5yZ WFkIHBhdGllbnQvQWxsZXJneUludG9sZXJhbmNlLnJlYWQgcGF0aWVudC9DYXJlUGxhbi5yZWFkIHBhdGllb nQvQ2FyZVRlYQvTWVkaWNhdGlvbi5yZWFkIHBhdGllbnQvQWxsZXJneUludG9sZXJhbmNlLnJlYWQgcGF0a WVudC9DYXJlUGxhbi5yZWFkIHBhdGllbnQvQ2FyZVRlYQvTWVkaWNhdGlvbi5yZWFkIHBhdGllbnQvQWxsZ XJneUludG9sZXJhbmNlLnJlYWQgcGF0aWVudC9DYXJlUGxhbi5yZWFkIHBhdGllbnQvQ2FyZVRlY QvTWVkaWNhdGlvbi5yZWFkIHBhdGllbnQvQWxsZXJneUludG9sZXJhbmNlLnJlYWQgcGF0aWVudC9DYXJl UGxhbi5yZWFkIHBhdGllbnQvQ2FyZVRlY
&redirect_uri=https%3A%2F%2Finferno.healthit.gov%2Finferno%2Foauth2%2Fstatic%2Fredirect

Asymmetric Authentication Request

client_assertion=eyJ0eXAiOiJKV1QiLCJhbGciOiJFUzM4NCIsImtpZCI6IjRiNDlhNzM5ZDFlYjExNWIzMjI1ZjRjZ
jliZWI2ZDFiIn0.eyJpc3MiOiJleUpoYkdjaU9pSklVekkxTmlJc0luUjVjQ0k2SWtwWFZDSXNJbXRwWkNJNkluS
mxaMmx6ZEhaGRHbHZiaTEwYjJ0bGJpSjkuZXlKcWQydHpYM1Z5YkNJNkltaDBkSEE2THk4eE1DNHhOUzR
5TlRJdU56TXZhVtWlhKdWJ5OHVkMlZzYkMxcmJtOTNiaTlxZDJ0ekxtHpiMjRpTENKaFkkyTmxjM05VYjJ0
bGJuTkZSEJwY21WSmJpSTZNVFVzSW1saGRDRSTZNVFU1TnpReE16RTVOWDAucTR2NE1zYzc0a041MDZL
VFowcV9taW55YXBKdzBnd2xUNk1fdWlMNzNTNCIsInN1YiI6ImV5SmhiR2NpT2lKSVV6STFOaUlzSW5SNW
NDSTZJa3BYVkNJc0ltdHBaQ0k2SW5KbFoybHpkSEpvWEdsdmppMTBiMnRsYmlKOS5leUpxZDJ0elgzVmliQ0k
2SW1oMGRJQTZMeTh4TUM0eE5TNHlOVEl1TnpNdmFXNW1aWEp1Ynk4dWQyVnNiQzFyYm05M2JpOXF
kMnR6TG1wZmlyNGlMQ0poWTJObGMzTlViMnRsYm5ORmVlQnBjbVZKYmlJNk1UVXNJbWxoY0ZNJNk1UV
TVOelF4TXppNU5YMC5xNHY0TXNjNzRrTjUwNktWJbxX21pbnlhcEp3MGd3bFQ2TV91aUw3M1M0IiwiYX
VkIjoiaHR0cHM6Ly9pbmZlcm5vLmhlYWx0aGl0Lmdvdi9yZWZlcmVuY2Utc2VydmVyL29hdXRoL2J1bGstdG
9rZW4iLCJleHAiOjE2NTMxMDY4ODgsImp0aSI6ImZmZjA5YjIxMjhiOWRmNmU3MGU5MWQ2ZDUwMGQx
MmFmYmU2YWE4N2FhMjJlZjVhMjc5YjZhNTI0YzA0NmM1ZWEifQ.tlx7jIu9wn7QdHHdWyUMf9otY0r7eX
62LuVF3kZOsjjw-
CPglqdbDtOKiuBQ9doduW4zyk3fs6k48XpAEQLsSXajfEJeDy9ujWdSmpAHEC0xYHQSzajekdwlDSBRA&clie
nt_assertion_type=urn%3Aietf%3Aparams%3Aoauth%3Aclient-assertion-
type%3Ajwtbearer&grant_type=client_credentials&scope=system%2F%2A.read

Response

The EHR authorization server MUST provide a JSON object with an access token or a message informing the user that their request for authorization has been rejected. The following arguments are part of the JSON structure:

Parameters

access_token(required) – access token issued by the authorization server.

token_type(required) – Fixed value:Bearer

expires_in(recommended) –lifetime of the access token

scope(required) – scopes on the resources for the client

id_token(optional) – Authenticated user identity and user details, if requested

refresh_token(optional)- Token that can be used to generate new access token.

Sample Response

{

"access_token": "

eyJhbGciOiJIUzM4NCIsInR5cCI6IkpXVCJ9.eyJvaWQiOiJiNDcxZTNmNy04Y2Y5LTQ3YjItOWI3MC01NzI2NDdjOWU5MzMiLCJ0aWQiOiIxNGQyMTI2Ny1hNmRkLTQxNzctOWI4YS02Y2Q4MmYyMzM5ZTciLCJmaGlyVXNlciI6IlBhdGllbnQvMjZiOGY0ZjUtNDQxZi00ODFlLWI1MGEtMGNkMjY1ZGY0ZjA4Iiwic2NvcGUiOiZmapclVzZXIgbGF1bmNoLnBhdGllbnQgcGF0aWVudC5NZWRpY2F0aW9uLnJlYWQgcGF0aWVudC5BbGxlcmd5SW50b2xlcmFuY2UucmVhZCBwYXRpZW50LkNhcmVQbGFuLnJlYWQgcGF0aWVudC5DYXJlVGVhbS5yZWFkIHBhdGllbnQuQ29uZGl0aW9uLnJlYWQgcGF0aWVudC5EZXZpY2UucmVhZCBwYXRpZW50LkRpYWdub3N0aWNSZXBvcnQucmVhZCBwYXRpZW50LkRvY3VtZW50UmVmZXJlbmNlLnJlYWQgcGF0aWVudC5FbmNvdW50ZXIucmVhZCBwYXRpZW50LkdvYWwucmVhZCBwYXRpZW50LkltbXVuaXphdGlvbi5yZWFkIHBhdGllbnQuTG9jYXRpb24ucmVhZCBwYXRpZW50Lk1lZGljYXRpb25SZXF1ZXN0LnJlYWQgcGF0aWVudC5PYnNlcnZhdGlvbi5yZWFkIHBhdGllbnQuT3JnYW5pemF0aW9uLnJlYWQgcGF0aWVudC5QYXRpZW50LnJlYWQgcGF0aWVudC5QcmFjdGl0aW9uZXIucmVhZCBwYXRpZW50LlByb2NlZHVyZS5yZWFkIHBhdGllbnQuUHJvdmVuYW5jZS5yZWFkIHBhdGllbnQuUHJhY3RpdGlvbmVyUm9sZS5yZWFkIiwiaXNzIjoiaHR0cHM6Ly9maGlyLXByb3h5LmF6dXJlaGVhbHRoY2FyZWFwaXMuY29tIiwiYXVkIjoiZjliZjdiMmItMWY5ZS00ODkwLTgwODEtZDI5NDg1MTk0OTViIiwic3ViIjoiWWtYYUUpvM3B3M0t2QnpfSVhwQ1pfVC1TUxQQmppVFp6NNERXUC1HUTRSNCIsIm5iZiI6MTY3MDExODMyOSwiZXhwIjoxNjcwMTIxOTI4LCJpYXQiOjE2NzAxMTgzMjl9.ckQ_C9TZospeCLn
xpWgr3hTM8CCpAiZp5vC0DyLGX_QhWnXPS32nVXAWqkaacyRQ

",

"refresh_token": " 61077034-9040-4c77-9c03-557c07ea4f04 ",

"patient": " 26b8f4f5-441f-481e-b50a-0cd265df4f08 ",

"scope": "launch/patient openid fhirUser offline_access patient/*.read ",

"need_patient_banner": false,

"id_token": "

eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiIsImtpZCI6IjJaUXBBM1VwYmpBVhZR2FYRUpzOGxXMFRPSSJ9.eyJhd
WQiOiJmOWJmN2IyYi0xZjllLTQ4OTAtODA4MS1kMjk0ODUxOTQ5NWIiLCJpc3MiOiJodHRwczovL2xvZ2luLm1pY3
Jvc29mdG9ubGluZS5jb20vMTRkMjEyNjctYTZkZC00MTc3LTliOGEtNmNhODJmMjMzOWU3L3YyLjAiLCJpYXQiOjE
2NzAxMTgwMjksIm5iZiI6MTY3MDExODAyOSwiZXhwIjoxNjcwMTIxOTI5LCJpZGAiOiJodHRwczovL3N0cy53aW5kb
3dzLm5ldC85MTg4MDQwZC02YzY3LTRjNWItYjExMi0zNmEzMDRiNjZkYWQvIiwibmFtZSI6InRob21hcyBtYWdhbW
kiLCJvaWQiOiJiNDcxZTNmNy04Y2Y5LTQ3YjItOWI3MC01NzI2NDdjOWU5MzMiLCJwcmVmZXJyZWRfdXNlcm5hb
WUiOiJ0bWFnYW1pQGNhbC1tZWQuY29tIiwicmgiOiIwLkFXOEFaeExTRk4ybWQwQR2JppbXlvTHlNNTVkDd2X21lS
DVCSWdkJSFNsSVVaU1Z0dkFETS4iLCJzdWIiOiJZa1hRSm8zcHczS3ZCdl9JWHBDWl9ULFFNTFBCamJUWno0R
FdQLUdRNFI0IiwidGlkIjoiMTRkMjEyNjctYTZkZC00MTc3LTliOGEtNmNhODJmMjMzOWU3Iiwid XRpIjoiNGZxRUdEVj
RNa1NKKQzZFUjZzNnNZBQSIsInZlciI6IjIuMCIsImZoaXJVc2VyIjoiUGF0aWVudC8yNmI4ZjRmNS00NDFmLTQ4MWUt
YjUwYS0wY2QyNjVkZjRmMDgifQ.oc2vX3Bl7OV4_fHBAXlVP_34QVdAB2jLOrRq0Tqr0hMWfVmw82fs-
PK1SKBxxtZlyxjATBG-A5hR-
jwLp7Yx0FT0vKKv6WBw9ZhfNSM9SWOXwtbIoON0G2Me_IpQAKYAdgWfOwqUjAZX58yPFV6bbyK3ID48yUOcrDJi
J3xOpdNgo8Ek5pyBz-yMNvJGqS4ZqQda1gyhFeCrYVdfXWYs4enQBCJyJIpAXjIcnS74_oyZ_IA4IlYi4LrzkrOM-
p5wekfdrZWt2c7WqT99E7WgSWtjA4LdQpMxRLSAu406VxlX_2Y66hcXX6y3dCNLhDVXedzWaTGIyBlma2rmZWm3
nA

",

"smart_style_url": " https://{FHIRServerURL} /.well-known/smart-configuration?smartstyle ",

"token_type": "bearer",

```
  "expires_in": 3600

}
```

Error Codes

JSON response is returned from the FHIR Server.

    200: The request was processed appropriately.

    400: Invalid parameter.

    401: The request did not have a valid authorization token or none was provided. Obtain a valid
    authorization token and add it to the authorization header.

    500: Internal Server Error

The Authorization code flow is completed here for the EHR APP.

USE OF FHIR API

The app can access protected EHR data by making an FHIR API call to the FHIR endpoint on the EHR resource server with a valid access token.

When requesting resources using the FHIR Resource API, only GET request types are accepted. The following resources are supported:

FHIR Resource

Allergies and Intolerances

Assessment and Plan of Treatment

CareTeam

Clinical Notes(Diagnostic Reports and DocumentReference)

Encounter

Goals

Health Concerns - US Core Condition Profile

Immunization

Laboratory - US CORE LABORATORY RESULT OBSERVATION PROFILE & US CORE DIAGNOSTICREPORT

Medications

Patient Demographics - US Core Patient Profile

Problem

Procedures

Provenance

Observation

Unique Device Identifier(s) for Patient's Implantable Device(s)

Location

Organization

Practitioner

Vital Signs

ALLERGIES AND INTOLERANCES US CORE ALLERGYINTOLERANCE PROFILE

US Core AllegyIntolerance Profile

US Core Data Element	FHIR Resource Field
Substance(Drug class)	AllergyIntolerance.code(Snomed CT)
Substance(Medication)	AllergyIntolerance.code (RxNorm)
Reaction	AllergyIntolerance.reaction

Allergy Intolerance

This resource is called using different search parameters by following ways-

1. Retrieve AllergyIntolerance resource with no parameters

Request:-
GET https://FHIR_URL/AllergyIntolerance
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngsasasasasasasasa

2. Retrieve AllergyIntolerance resource using parameter ID

Request:-
GET https://FHIR_URL/AllergyIntolerance/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/AllergyIntolerance?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Search Parameter Combination Summary:

Parameter	Type	Example
clinical-status	Token	GET [base]/AllergyIntolerance?clinical-status=active
patient	Reference	GET [base]/AllergyIntolerance?patient=1
Patient+clinical-status	Reference+Token	GET [base]/AllergyIntolerance?patient=1&clinical-status=active

Code: 200(success)

```json
{
    "resourceType": "AllergyIntolerance",
    "id": "294cb24f-000f-49b5-8ab8-2f676080fd08",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2022-11-23T20:25:46.583+00:00",
        "source": "#iLFSV7OLv0KF8dmQ",
        "profile": [
            "http://hl7.org/fhir/us/core/StructureDefinition/us-core-allergyintolerance"
        ]
    },
    "clinicalStatus": {
        "coding": [
            {
                "system": "http://terminology.hl7.org/CodeSystem/allergyintolerance-clinical",
                "code": "inactive"
            }
        ]
    },
    "verificationStatus": {
        "coding": [
            {
                "system": "http://terminology.hl7.org/CodeSystem/allergyintolerance-verification",
                "code": "confirmed"
            }
        ]
    },
    "type": "allergy",
    "category": [
        "food"
    ],
    "criticality": "low",
    "code": {
        "coding": [
            {
                "system": "http://snomed.info/sct",
                "code": "300916003",
                "display": "Latex allergy"
            }
        ],
        "text": "Latex allergy"
    },
```

```json
    "patient": {
      "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "recordedDate": "1941-10-14T18:33:18-05:00",
    "reaction": [
      {
        "manifestation": [
          {
            "coding": [
              {
                "system": "http://snomed.info/sct",
                "code": "271807003",
                "display": "skin rash"
              }
            ],
            "text": "skin rash"
          }
        ]
      }
    ]
  }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

ASSESSMENT AND PLAN OF TREATMENT - US CORE CAREPLAN PROFILE

US Core CarePlan Profile

US Core Data Element	FHIR Resource Field
narrative summary	CarePlan.text
Status	CarePlan.status
Intent	CarePlan.intent
Category	CarePlan.category
Patient	CarePlan.subject

CarePlan

This resource is called using different search parameters by following ways-

1. Retrieve CarePlan resource with no parameters

Request:-
GET https://FHIR_URL/CarePlan
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve CarePlan resource using parameter ID

Request:-
GET https://FHIR_URL/CarePlan/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/CarePlan?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasas

Parameter	Type	Example
category	Token	GET [base]/CarePlan?category=assess-plan
patient	reference	GET [base]/CarePlan?patient=1
patient+category	reference+token	GET [base]/CarePlan?patient=1&category=assess-plan

code 200

```
{
    "resourceType": "CarePlan",
    "id": "dfd8d5a2-1fcc-4942-9430-245e0e593436",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:29.300+00:00",
        "source": "#iLFSV7OLv0KF8dmQ",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-careplan"]
    },
    "text": {
        "status": "generated",
        "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\">Care Plan for Diabetes self
management plan.<br/>Activities: <ul><li>Diabetes self management plan</li><li>Diabetes self
management plan</li></ul><br/>Care plan is meant to treat Prediabetes.</div>"
    },
    "status": "active",
    "intent": "order",
    "category": [{
        "coding": [{
            "system": "http://hl7.org/fhir/us/core/CodeSystem/careplan-category",
            "code": "assess-plan"
        }]
    }, {
        "coding": [{
            "system": "http://snomed.info/sct",
            "code": "698360004",
            "display": "Diabetes self management plan"
        }],
        "text": "Diabetes self management plan"
    }],
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "period": {
        "start": "1975-01-30T18:33:18-05:00"
    },
    "careTeam": [{
        "reference": "CareTeam/c4664949-a5d9-4678-a746-9ecaf8670ede"
    }],
    "addresses": [{
        "reference": "Condition/f8cab26c-4b4d-4b19-87e5-d1dff5677451"
    }],
```

```json
"activity": [{
    "detail": {
        "code": {
            "coding": [{
                "system": "http://snomed.info/sct",
                "code": "160670007",
                "display": "Diabetic diet"
            }],
            "text": "Diabetic diet"
        },
        "status": "in-progress",
        "location": {
            "reference": "Location/ca3ee226-241e-4c21-bafd-158cbe4a1c88",
            "display": "PCP170967"
        }
    }
},
{
    "detail": {
        "code": {
            "coding": [{
                "system": "http://snomed.info/sct",
                "code": "229065009",
                "display": "Exercise therapy"
            }],
            "text": "Exercise therapy"
        },
        "status": "in-progress",
        "location": {
            "reference": "Location/ca3ee226-241e-4c21-bafd-158cbe4a1c88",
            "display": "PCP170967"
        }
    }
},
{
"detail": {
    "code": {
     "coding": [
      {
       "system": "http://loinc.org",
       "code": "3141-9",
       "display": "Weight Measured"
      },
      {
       "system": "http://snomed.info/sct",
       "code": "27113001",
       "display": "Body weight"
      }
```

```
        ]
      },
      "status": "completed",
      "statusReason": {
        "text": "Achieved weight loss to mitigate diabetes risk."
      },
      "doNotPerform": false,
      "scheduledTiming": {
        "repeat": {
          "frequency": 1,
          "period": 1,
          "periodUnit": "d"
        }
      },
      "location": {
        "display": "Patient's home"
      },
      "performer": [
        {
          "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
        }
      ]
    }

  }]
}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid
authorization token and add it to the authorization header.

500: Internal Server Error

CARETEAM US CORE CARETEAM PROFILE

US Core CareTeam Profile

US Core Data Element	FHIR Resource Field
Patient	CareTeam.subject
participant role	CareTeam.participant[i].role (where i is the index of participant)
careteam member name	CareTeam.participant[i].member.name (where i is the index of participant)
careteam member identifier	CareTeam.participant[i].member.identifier
careteam member location	CareTeam.managingOrganization
careteam member telecom	CareTeam.telecom

Care Team

This resource is called using different search parameters by following ways-

1. Retrieve Care Team resource with no parameters

Request:-
GET https://FHIR_URL/CareTeam
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve CareTeam resource using parameter ID

Request:-
GET https://FHIR_URL/CareTeam/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/CareTeam?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
status	Token	GET [base]/CareTeam?status=active
patient	Reference	GET [base]/CareTeam?patient=1
patient+status	reference+token	GET [base]/CarePlan?patient=1&status=active
Status	token	GET [base]/CarePlan?

		status=active,inactive

Code 200

```json
{
    "resourceType": "CareTeam",
    "id": "c4664949-a5d9-4678-a746-9ecaf8670ede",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:29.300+00:00",
        "source": "#iLFSV7OLv0KF8dmQ",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-careteam"]
    },
    "status": "active",
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "period": {
        "start": "2019-10-10T19:33:18-04:00"
    },
    "participant": [{
        "role": [{
            "coding": [{
                "system": "http://snomed.info/sct",
                "code": "116154003",
                "display": "Patient"
            }],
            "text": "Patient"
        }],
        "member": {
            "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08",
            "display": "Mr. Dustin31 Ritchie586"
        }
    }, {
        "role": [{
            "coding": [{
                "system": "http://snomed.info/sct",
                "code": "223366009",
                "display": "Healthcare professional (occupation)"
            }],
            "text": "Healthcare professional (occupation)"
        }],
        "member": {
```

```
        "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",
        "display": "Dr. Blossom971 Christiansen251"
      }
    }, {
      "role": [{
        "coding": [{
          "system": "http://snomed.info/sct",
          "code": "224891009",
          "display": "Healthcare services (qualifier value)"
        }],
        "text": "Healthcare services (qualifier value)"
      }],
      "member": {
        "reference": "Organization/fa6b5098-3e8b-4e9b-9fe4-cfc6f2927238",
        "display": "PCP170967"
      }
    }],
    "reasonCode": [{
      "coding": [{
        "system": "http://snomed.info/sct",
        "code": "26929004",
        "display": "Alzheimer's disease (disorder)"
      }],
      "text": "Alzheimer's disease (disorder)"
    }],
    "managingOrganization": [{
      "reference": "Organization/fa6b5098-3e8b-4e9b-9fe4-cfc6f2927238",
      "display": "PCP170967"
    }]
  }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

CLINICAL NOTES - US CORE DOCUMENTREFERENCE

Us core [DocumentReference](#)

- o FHIR Resource: DocumentReference

  - • Consultation Note
  - • Discharge Summary Note
  - • History & Physical
  - • Progress Note

- o FHIR Resource: DocumentReference, DiagnosticReport

  - • Imaging Narrative
  - • Laboratory Report Narrative
  - • Pathology Report Narrative
  - • Procedure Note

US Core Data Element	FHIR Resource Field
Status	documentReference.status
document category	documentReference.category
Code	documentReference.type
Patient	documentReference.subject
MIME type	documentReference.content.Typeformat
document URL	documentReference.content.attachment

Document Type	LOINC Code
Consultation Note	11488-4
History & Physical	34117-2
Procedure Note	28570-0
Progress Note	11506-3

Document Reference

This resource supports the [Common Clinical Notes](#).

This resource is called using different search parameters by following ways-

1. Retrieve Document Reference resource with no parameters

Request:-
GET https://FHIR_URL/DocumentReference
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Document Reference resource using parameter ID

Request:-
GET https://FHIR_URL/DocumentReference/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/DocumentReference?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
id	token	GET [base]/DocumentReference?id=1
category(Consult Note)	Token	GET [base]/DocumentReference?category=11488-4
category(History&Physical)	Token	GET [base]/DocumentReference?category=34117-2
category(Progress Note)	token	GET [base]/DocumentReference?category=11506-3
category(Procedure Note)	Token	GET [base]/DocumentReference?category=28570-0
patient	reference	GET [base]/DocumentReference?patient=1
type	Token	GET [base]/DocumentReference?type=34117-2
date	Date	GET [base]/DocumentReference?date=2015-06-22
Patient+category+date	token+reference	GET [base]/DocumentReference?patient=1&category=34117-2&date=2015-06-22

Code 200

```
    {
  "resourceType": "DocumentReference",
  "id": "6f85ef1b-0da1-4779-9b54-48b685ca53d7",
  "meta": {
    "versionId": "1",
    "lastUpdated": "2021-03-23T19:36:29.300+00:00",
    "source": "#iLFSV7OLv0KF8dmQ",
```

```json
      "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-documentreference"]
   },
   "identifier": [{
      "system": "urn:ietf:rfc:3986",
      "value": "urn:uuid:39345668-54a0-e9fc-0462-2412a3a80e06"
   }],
   "status": "superseded",
   "type": {
      "coding": [{
         "system": "http://loinc.org",
         "code": "28570-0",
         "display": "Procedure note"
      }],
      "text": "Procedure note"
   },
   "category": [{
      "coding": [{
         "system": "http://hl7.org/fhir/us/core/CodeSystem/us-core-documentreference-
category",
         "code": "clinical-note",
         "display": "Clinical Note"
      }]
   }],
   "subject": {
      "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
   },
   "date": "2018-10-04T19:33:18.715-04:00",
   "author": [{
      "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",
      "display": "Dr. Blossom971 Christiansen251"
   }],
   "custodian": {
      "reference": "Organization/68a5c3dc-d421-48e8-aa5d-a14fd8642ae8",
      "display": "PCP170967"
   },
   "content": [{
      "attachment": {
         "contentType": "application/pdf",
         "url": "https://www.w3.org/WAI/ER/tests/xhtml/testfiles/resources/pdf/dummy.pdf"
      },
      "format": {
         "system": "http://ihe.net/fhir/ValueSet/IHE.FormatCode.codesystem",
         "code": "urn:ihe:iti:xds:2017:mimeTypeSufficient",
         "display": "mimeType Sufficient"
      }
   }],
   "context": {
      "encounter": [{
```

```
          "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
      }],
      "period": {
          "start": "2018-10-04T19:33:18-04:00",
          "end": "2018-10-04T19:48:18-04:00"
      }
   }
}
```

Error Codes

JSON response is returned from the FHIR Server.

> 200: The request was processed appropriately.

> 400: Invalid parameter.

> 401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

> 500: Internal Server Error

ENCOUTER US CORE ENCOUNTER PROFILE

US Core Encounter Profile

US Core Data Element	FHIR Resource Field
status	Encounter.status
classification	Encounter.class
type	Encounter.type
patient	Encounter.subject

Encounter

This resource is called using different search parameters by following ways-

4. Retrieve Encounter resource with no parameters

Request:-
GET https://FHIR_URL/Encounter
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

5. Retrieve Encounter resource using parameter ID

Request:-
GET https://FHIR_URL/Encounter/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

6. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Encounter?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasas

Parameter	Type	Example
_id	token	GET [base]/Encounter?_id=1
patient	Reference	GET [base]/Encounter?patient=1

Code 200

{
    "resourceType": "Encounter",
    "id": "63b9a51e-8db9-4aaa-b477-aa0c50fdb28d",
    "meta": {

```json
      "versionId": "1",
      "lastUpdated": "2021-03-23T19:36:29.300+00:00",
      "source": "#iLFSV7OLv0KF8dmQ",
      "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-encounter"]
   },
   "identifier": [{
      "use": "official",
      "system": "https://github.com/synthetichealth/synthea",
      "value": "061392cf-de92-6873-a410-52c062aea490"
   }],
   "status": "finished",
   "class": {
      "system": "http://terminology.hl7.org/CodeSystem/v3-ActCode",
      "code": "AMB"
   },
   "type": [{
      "coding": [{
         "system": "http://snomed.info/sct",
         "code": "410620009",
         "display": "Well child visit (procedure)"
      }],
      "text": "Well child visit (procedure)"
   }],
   "subject": {
      "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
   },
   "participant": [{
      "type": [{
         "coding": [{
            "system": "http://terminology.hl7.org/CodeSystem/v3-ParticipationType",
            "code": "PPRF",
            "display": "primary performer"
         }],
         "text": "primary performer"
      }],
      "period": {
         "start": "1957-10-24T19:33:18-04:00",
         "end": "1957-10-24T19:48:18-04:00"
      },
      "individual": {
         "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",
         "display": "Dr. Blossom971 Christiansen251"
      }
   }],
   "reasonCode": [
      {
        "coding": [
          {
```

```json
              "system": "http://snomed.info/sct",
              "code": "444814009",
              "display": "Viral sinusitis (disorder)"
            }
          ]
        }
      ],
      "hospitalization": {
        "dischargeDisposition": {
          "coding": [
            {
              "system": "http://www.nubc.org/patient-discharge",
              "code": "01",
              "display": "Discharged to home care or self care (routine discharge)"
            }
          ],
          "text": "Discharged to home care or self care (routine discharge)"
        }
      },
      "period": {
        "start": "1957-10-24T19:33:18-04:00",
        "end": "1957-10-24T19:48:18-04:00"
      },
      "location": [{
        "location": {
          "reference": "Location/ca3ee226-241e-4c21-bafd-158cbe4a1c88",
          "display": "PCP170967"
        }
      }],
      "serviceProvider": {
        "reference": "Organization/fa6b5098-3e8b-4e9b-9fe4-cfc6f2927238",
        "display": "PCP170967"
      }
    }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

GOALS - US CORE GOAL PROFILE

US Core Goal Profile

US Core Data Element	FHIR Resource Field
status	Encounter.status
goal description	Encounter.class
patient	Encounter.type

Goal

This resource is called using different search parameters by following ways-

1. Retrieve Goal resource with no parameters

    Request:-
    GET https://FHIR_URL/Goal
    Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Goal resource using parameter ID

    Request:-
    GET https://FHIR_URL/Goal/1
    Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

    Request:-
    GET https://FHIR_URL/Goal?[parameter=value]&_revinclude=Provenance:target Authorization:
    Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasas

Parameter	Type	Example
patient	reference	GET [base]/Goal?patient=1

Code 200

```
{
    "resourceType": "Goal",
    "id": "3cfadb39-d3b2-4efb-b9e7-504c6dd529d0",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:29.300+00:00",
```

```json
        "source": "#iLFSV7OLv0KF8dmQ",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-goal"]
    },
    "lifecycleStatus": "active",
    "description": {
        "coding": [{
            "system": "http://snomed.info/sct",
            "code": "281004",
            "display": "Alcoholic dementia"
        }],
        "text": "Alcoholic dementia"
    },
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "target": [{
        "dueDate": "2020-12-07"
    }]
}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

HEALTH CONCERNS - US CORE CONDITION PROFILE

US Core Condition Profile

US Core Data Element	FHIR Resource Field
Status	Condition.status
Category	Condition.category (like health concerns, problems, and encounter diagnoses).
Code	Condition.code (ICD-10-CM/Snomed)
patient	Condition.subject

Condition

This resource is called using different search parameters by following ways-

4. Retrieve Condition resource with no parameters

Request:-
GET https://FHIR_URL/Condition
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

5. Retrieve Condition resource using parameter ID

Request:-
GET https://FHIR_URL/Condition/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

6. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Condition?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasas

Parameter	Type	Example
patient	reference	GET [base]/Condition?patient=1

Code 200

```
{
    "resourceType": "Condition",
    "id": "f8cab26c-4b4d-4b19-87e5-d1dff5677451",
    "meta": {
```

```json
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:17.299+00:00",
        "source": "#E1VolYkq84D3M96u",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-condition"]
    },
    "clinicalStatus": {
        "coding": [{
            "system": "http://terminology.hl7.org/CodeSystem/condition-clinical",
            "code": "resolved"
        }]
    },
    "verificationStatus": {
        "coding": [{
            "system": "http://terminology.hl7.org/CodeSystem/condition-ver-status",
            "code": "confirmed"
        }]
    },
    "category": [{
        "coding": [{
            "system": "http://terminology.hl7.org/CodeSystem/condition-category",
            "code": "encounter-diagnosis",
            "display": "Encounter Diagnosis"
        }]
    }],
    "code": {
        "coding": [{
            "system": "http://snomed.info/sct",
            "code": "10509002",
            "display": "Acute bronchitis (disorder)"
        }],
        "text": "Acute bronchitis (disorder)"
    },
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "onsetDateTime": "1958-12-21T00:11:45-05:00",
    "abatementDateTime": "1958-12-28T00:11:45-05:00",
    "recordedDate": "1958-12-21T00:11:45-05:00"
}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

IMMUNIZATIONS - US CORE IMMUNIZATION PROFILE

[US Core Immunization](#) Profile

US Core Data Element	FHIR Resource Field
Status	immunization.status
vaccine code	immunization.vaccineCode
Date	immunization.occurence
patient	immunization.patient

Immunization

This resource is called using different search parameters by following ways-

7. Retrieve Immunization resource with no parameters

Request:-
GET https://FHIR_URL/Immunization
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

8. Retrieve Immunization resource using parameter ID

Request:-
GET https://FHIR_URL/Immunization/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

9. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Immunization?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
patient	Reference	GET [base]/Immunization?patient=1

Code 200

```
{
    "resourceType": "Immunization",
    "id": "5fbb8a20-8eb4-456d-969a-e805e1f5ab9f",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:29.300+00:00",
        "source": "#iLFSV7OLv0KF8dmQ",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-immunization"]
    },
    "status": "completed",
    "statusReason": {
        "coding": [
            {
                "system": "https://fhir.cerner.com/eb2384f8-839e-4c6e-8b29-
18e71db1a0b1/codeSet/30440",
                "code": "679607",
                "display": "Patient Refuses",
                "userSelected": true
            },
            {
                "system": "http://snomed.info/sct",
                "code": "591000119102",
                "display": "Vaccine refused by patient (situation)",
                "userSelected": false
            }
        ],
        "text": "Patient Refuses"
    },

    "vaccineCode": {
        "coding": [{
            "system": "http://hl7.org/fhir/sid/cvx",
            "code": "113",
            "display": "Td (adult) preservative free"
        }],
        "text": "Td (adult) preservative free"
    },
    "patient": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
```

```
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "occurrenceDateTime": "2002-07-04T19:33:18-04:00",
    "primarySource": true,
    "location": {
        "reference": "Location/ca3ee226-241e-4c21-bafd-158cbe4a1c88",
        "display": "PCP170967"
    }
}
}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

LABORATORY - US CORE LABORATORY RESULT OBSERVATION PROFILE & US CORE DIAGNOSTICREPORT

US Core Laboratory Result Observation Profile & US Core Diagnostic Report Profile for Laboratory Results Reporting.

Laboratory Result Observation:

US Core Data Element	FHIR Resource Data
Status	Observation.status
category	Observation.category
LOINC Code	Observation.code
Patient	Observation.subject

DiagnosticReport for Laboratory:

US Core Data Element	FHIR Resource Data
status	DiagnosticReport.status
category	DiagnosticReport.category

Code	DiagnosticReport.code
Patient	DiagnosticReport.subject
Time	DiagnosticReport.issued
reported time	DiagnosticReport.effective

Diagnostic Report

This resource is called using different search parameters by following ways-

10. Retrieve Diagnostic Report resource with no parameters

Request:-
GET https://FHIR_URL/DiagnosticReport
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

11. Retrieve Diagnostic Report resource using parameter ID

Request:-
GET https://FHIR_URL/DiagnosticReport/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

12. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/DiagnosticReport?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
category(Radiology)	token	GET [base]/Immunization?patient=1
category (Laboratoey Result)	token	GET [base]/DiagnosticReport?category=LAB
patient	reference	GET [base]/DiagnosticReport?patient=1
code (Radiology)	token	GET [base]/DiagnosticReport?code=LP29684-5
date	Date	GET [base]/DiagnosticReport?date=2015-06-22T00:00:00.00%2B00:00
patient+category+date	type+reference+date	GET [base]/DiagnosticReport?patient=1&category=LAB&date=2015- 06-22

patient+code+date	token+reference+date	GET [base]/DiagnosticReport?patient=1&code=LP29684-5&date=2015-06-22
patient+code	token+reference	GET [base]/DiagnosticReport?patient=1&code=LP29684-5
patient+category	token+reference	GET [base]/DiagnosticReport?patient=1&category=LAB

Code 200

```
{
    "resourceType": "DiagnosticReport",
    "id": "a000b675-b1a7-4917-b445-0e02037d2a09",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:17.299+00:00",
        "source": "#E1VolYkq84D3M96u",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-diagnosticreport-
note"]
    },
    "status": "final",
    "category": [{
        "coding": [{
            "system": "http://loinc.org",
            "code": "LP29684-5",
            "display": "Radiology"
        }],
        "text": "Radiology"
    }],
    "code": {
        "coding": [{
            "system": "http://loinc.org",
            "code": "11506-3",
            "display": "Progress note"
        }],
        "text": "Progress note"
    },
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "effectiveDateTime": "1940-09-06T01:11:45-04:00",
    "issued": "1940-09-06T01:11:45.131-04:00",
    "performer": [{
        "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",
```

```
        "display": "Dr. Melvin857 Torp761"
    }],
    "presentedForm": [{
        "contentType": "text/plain",
        "data":
```
"CjE5NDAtMDktMDYKCiMgQ2hpZWYgQ29tcGxhaW50Ck5vIGNvbXBsYWludHMuCgojIEhpc3Rvcn
kgb2YgUHJlc2VudCBJbGxuZXNzCkx1Y2llbjQwOCBpcyBhIDUgbW9udGgtb2xkIG5vbi1oaXNwYW5p
YyB3aGl0ZSBtYWxlLgoKIyBTb2NpYWwgSGlzdG9yeQogUGF0aWVudCBoYXMgbmV2ZXIgc21va2V
kIGFuZCBpcyBhbiBhbGNvaG9saWMuCgpQYXRpZW50IGNvbWVzIGZyb20gYSBoaWdoIHNvY2lvZW
WNvbm9taWMgYmFja2dyb3VuZC4gUGF0aWVudCBjdXJyZW50bHkgaGFzIEJsdWUgQ3Jvc3MgQ
mx1ZSBTaGllbGQuCgojIEFsbGVyZ2llcwpObyBBbm93biBBbGxlcmdpZXMuCgojIE1lZGljYXRpb25zC
k5vIEFjdGl2ZSBNZWRpY2F0aW9ucy4KCiMgQXNzZXNzbWVudCBhbmQgUGxhbgoKIjIFBsYW4K
ClRoZSBmb2xsb3dpbmcgcHJvY2VkdXJlcyB3ZXJlIGNvbnR1Y3RlZDoKLSBtZWRpY2F0aW9uIHJl29
uY2lsaWF0aW9uIChwcm9jZWR1cmUpCg=="
```
    }]
}
```

Error Codes

JSON response is returned from the FHIR Server.

    200: The request was processed appropriately.

    400: Invalid parameter.

    401: The request did not have a valid authorization token or none was provided. Obtain a valid
    authorization token and add it to the authorization header.

    500: Internal Server Error

MEDICATIONS - US CORE MEDICATION PROFILE, US CORE MEDICATIONREQUEST PROFILE, US CORE ALLERGYINTOLERANCE PROFILE

US Core Medication Profile & US Core MedicationRequest Profile.

Laboratory Result Observation:

US Core Data Element	FHIR Resource Data
status	medicationRequest.status
intent code	medicationRequest.intent
medication	medicationRequest.medication
Patient	medicationRequest.subject

date when entered	medicationRequest.authoredOn
Prescriber	medicationRequest.requester

Medication

This resource is called using different search parameters by following ways-

1. Retrieve Medication resource with no parameters

Request:-
GET https://FHIR_URL/Medication
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Medication resource using parameter ID

Request:-
GET https://FHIR_URL/Medication/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Medication?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Medication Request

This resource is called using different search parameters by following ways-

1. Retrieve Medication Request resource with no parameters

Request:-
GET https://FHIR_URL/MedicationRequest
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve MedicationRequest resource using parameter ID

Request:-
GET https://FHIR_URL/MedicationRequest/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/MedicationRequest?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasas
4. Retrieve the "_include" information with any request using the following:

Request:-
GET
https://FHIR_URL/MedicationRequest?[parameter=value]&_include=MedicationRequest:medi
cation Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

Parameter	Type	Example
status	token	GET [base]/MedicationRequest?status=active,stopped
intent	token	GET [base]/MedicationRequest?intent=filler-order,instance-order
patient	reference	GET [base]/MedicationRequest?patient=1
patient+intent+status	reference+token	GET [base]/MedicationRequest?patient=1&intent=fillerorder&status=active

Code 200
MedicationRequest
```
{
    "resourceType": "MedicationRequest",
    "id": "7cd14edf-e59c-4734-9823-a2f45749a635",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:17.299+00:00",
        "source": "#E1VolYkq84D3M96u",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-medicationrequest"]
    },
    "status": "stopped",
```

```
      "intent": "order",
      "medicationCodeableConcept": {
         "coding": [{
            "system": "http://www.nlm.nih.gov/research/umls/rxnorm",
            "code": "313988",
            "display": "Furosemide 40 MG Oral Tablet"
         }],
         "text": "Furosemide 40 MG Oral Tablet"
      },
      "subject": {
         "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
      },
      "encounter": {
         "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
      },
      "authoredOn": "1975-05-02T01:11:45-04:00",
      "requester": {
         "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",
         "display": "Dr. Melvin857 Torp761"
      },
      "reasonReference": [{
         "reference": "Condition/f8cab26c-4b4d-4b19-87e5-d1dff5677451"
      }],
      "dosageInstruction": [{
         "sequence": 1,
         "text": "Take as needed.",
         "asNeededBoolean": true
      }]
   }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

PATIENT DEMOGRAPHICS - US CORE PATIENT PROFILE

US Core Patient Profile.

Patient Resource:

US Core Data Element	FHIR Resource Data
First Name Middle Name	Patient.name.given
Last Name	Patient.name.family
Previous Name	Patient.name
Suffix	Patient.name.suffix
Date of Birth	Patient.birthDate
US Core Race Extension	Patient.extension.race
US Core Extension Ethnicity	Patient.extension.ethnicity
Preferred Language	Patient.communication
Address	Patient.address
Phone Number	Patient.telecom
US Core Birth Sex Extension	Patient.extension.BirthSex

Patient

This resource is called using different search parameters by following ways-

1. Retrieve Patient resource with no parameters

Request:-
GET https://FHIR_URL/Patient
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Patient resource using parameter ID

Request:-
GET https://FHIR_URL/Patient/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Patient?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example

_id	token	GET [base]/Patient?_id=1
birthdate	date	GET [base]/Patient?birthdate=1970-05-01
family	string	GET [base]/Patient?family=Smith
gender	token	GET [base]/Patient?gender=Male
identifier	token	GET [base]/Patient?identifier=1
name	string	GET [base]/Patient?name=Dan
birthdate+family	date+string	GET [base]/Patient?birthdate=1970-05-01&family=Smith
family+gender	string+token	GET [base]/Patient?family=Smith&gender=Male
birthdate+name	date+string	GET [base]/Patient?birthdate=1970-05-01&name=Dan
gender+name	token+string	GET [base]/Patient?gender=male&name=Dan

Code 200

```
Patient
{
    "resourceType": "Patient",
    "id": "26b8f4f5-441f-481e-b50a-0cd265df4f08",
    "meta": {
      "versionId": "10",
      "lastUpdated": "2022-11-25T01:13:47.527+00:00",
      "source": "#AsIWLaUTqdaQcJ09",
      "profile": [
         "http://hl7.org/fhir/us/core/StructureDefinition/us-core-patient"
      ]
    },
    "text": {
      "status": "generated",
      "div": "<div xmlns=\"http://www.w3.org/1999/xhtml\">Generated by <a
href=\"https://github.com/synthetichealth/synthea\">Synthea</a>.Version identifier: v2.6.1-3-
g50f4f58f\n .  Person seed: -7901283747506674198  Population seed: 3</div>"
    },
    "extension": [
      {
        "extension": [
          {
            "url": "ombCategory",
            "valueCoding": {
              "system": "http://terminology.hl7.org/CodeSystem/v3-NullFlavor",
              "code": "UNK",
              "display": "unknown"
            }
          },
          {
            "url": "text",
            "valueString": "unknown"
          }
```

```
        ],
        "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-race"
      },
      {
        "extension": [
          {
            "url": "ombCategory",
            "valueCoding": {
              "system": "http://terminology.hl7.org/CodeSystem/v3-NullFlavor",
              "code": "UNK",
              "display": "unknown"
            }
          },
          {
            "url": "text",
            "valueString": "unknown"
          }
        ],
        "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-ethnicity"
      },
      {
        "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-birthsex",
        "valueCode": "M"
      }
    ],
    "identifier": [
      {
        "system": "https://github.com/synthetichealth/synthea",
        "value": "d831ec91-c7a3-4a61-9312-7ff0c4a32134"
      },
      {
        "type": {
          "coding": [
            {
              "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
              "code": "MR",
              "display": "Medical Record Number"
            }
          ],
          "text": "Medical Record Number"
        },
        "system": "http://hospital.smarthealthit.org",
        "value": "d831ec91-c7a3-4a61-9312-7ff0c4a32134"
      },
      {
        "type": {
          "coding": [
            {
```

```json
                    "system": "http://terminology.hl7.org/CodeSystem/v2-0203",
                    "code": "DL",
                    "display": "Driver's License number"
                }
            ],
            "text": "Driver's License number"
        },
        "system": "urn:oid:2.16.840.1.113883.4.3.25",
        "value": "S99921496"
    }
],
"name": [
    {
        "use": "official",
        "family": "Bosco882",
        "given": [
            "Lucien408"
        ],
        "prefix": [
            "Mr."
        ],
        "suffix": [
            "PharmD"
        ]
    },
    {
        "use": "old",
        "family": "Adam586",
        "given": [
            "John12"
        ],
        "prefix": [
            "Mr."
        ],
        "period": {
            "start": "1940-09-05",
            "end": "1992-04-30"
        }
    }
],
"telecom": [
    {
        "system": "phone",
        "value": "555-510-6254",
        "use": "home"
    }
],
"gender": "male",
```

```
"birthDate": "1940-03-29",
"deceasedDateTime": "1977-07-14T08:17:45+00:00",
"address": [
  {
    "extension": [
      {
        "extension": [
          {
            "url": "latitude",
            "valueDecimal": 42.674176102041564
          },
          {
            "url": "longitude",
            "valueDecimal": -71.31980043648745
          }
        ],
        "url": "http://hl7.org/fhir/StructureDefinition/geolocation"
      }
    ],
    "line": [
      "934 Olson Highlands"
    ],
    "city": "Lowell",
    "state": "MA",
    "postalCode": "01854",
    "country": "US",
    "period": {
      "start": "1940-03-29"
    }
  }
],
"maritalStatus": {
  "coding": [
    {
      "system": "http://terminology.hl7.org/CodeSystem/v3-MaritalStatus",
      "code": "M",
      "display": "Married"
    }
  ],
  "text": "Married"
},
"multipleBirthBoolean": false,
"communication": [
  {
    "language": {
      "coding": [
        {
          "system": "urn:ietf:bcp:47",
```

```
                    "code": "en-US",
                    "display": "English (United States)"
                }
            ],
            "text": "English (United States)"
        }
    }
]
}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

PROBLEMS - US CORE CONDITION PROFILE

US Core Condition Profile

US Core Data Element	FHIR Resource Data
Status	Condition.status
category	Condition.category
code	Condition.code
patient	Condition.subject

Condition

This resource is called using different search parameters by following ways-

1. Retrieve Immunization resource with no parameters

Request:-
GET https://FHIR_URL/Condition

Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Condition resource using parameter ID

Request:-
GET https://FHIR_URL/Condition/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Condition?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
patient	Reference	GET [base]/Condition?patient=1

Code 200

```
{

    "resourceType": "Condition",

    "id": "f8cab26c-4b4d-4b19-87e5-d1dff5677451",

    "meta": {

        "versionId": "1",

        "lastUpdated": "2021-03-23T19:36:17.299+00:00",

        "source": "#E1VolYkq84D3M96u",

        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-condition"]

    },

    "clinicalStatus": {

        "coding": [{

            "system": "http://terminology.hl7.org/CodeSystem/condition-clinical",

            "code": "resolved"
```

```json
        }]
      },
      "verificationStatus": {
        "coding": [{
          "system": "http://terminology.hl7.org/CodeSystem/condition-ver-status",
          "code": "confirmed"
        }]
      },
      "category": [{
        "coding": [{
          "system": "http://terminology.hl7.org/CodeSystem/condition-category",
          "code": "encounter-diagnosis",
          "display": "Encounter Diagnosis"
        }]
      }],
      "code": {
        "coding": [{
          "system": "http://snomed.info/sct",
          "code": "10509002",
          "display": "Acute bronchitis (disorder)"
        }],
        "text": "Acute bronchitis (disorder)"
      },
      "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
```

```
        },

        "encounter": {

            "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"

        },

        "onsetDateTime": "1958-12-21T00:11:45-05:00",

        "abatementDateTime": "1958-12-28T00:11:45-05:00",

        "recordedDate": "1958-12-21T00:11:45-05:00"

    }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

PROCEDURES - US CORE PROCEDURE PROFILE

US Core Procedure Profile

US Core Data Element	FHIR Resource Data
Status	Procedure.status
procedure code	Procedure.code
Procedure performed date	Procedure.performed
Patient	Procedure.subject

Procedure

This resource is called using different search parameters by following ways-

1. Retrieve Procedure resource with no parameters

Request:-
GET https://FHIR_URL/Procedure
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Procedure resource using parameter ID

Request:-
GET https://FHIR_URL/Procedure/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Procedure?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
patient	reference	GET [base]/Procedure?patient=1
date	Date	GET [base]/Procedure?date=2015-06-22T00:00:00.00+00:00
Patient+date	reference+date	GET [base]/Procedure?patient=1&date=2015-06-22

Code 200

```
{

    "resourceType": "Procedure",

    "id": "16b495e0-c8d7-4ea4-8805-ac9a9498321c",

    "meta": {

        "versionId": "1",

        "lastUpdated": "2021-03-23T19:36:17.299+00:00",

        "source": "#E1VolYkq84D3M96u",

        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-procedure"]
```

```json
        },
    "status": "completed",
    "code": {
        "coding": [{
            "system": "http://snomed.info/sct",
            "code": "430193006",
            "display": "Medication Reconciliation (procedure)"
        }],
        "text": "Medication Reconciliation (procedure)"
    },
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "performedPeriod": {
        "start": "1962-06-01T01:11:45-04:00",
        "end": "1962-06-01T01:26:45-04:00"
    },
    "location": {
        "reference": "Location/ca3ee226-241e-4c21-bafd-158cbe4a1c88",
        "display": "PCP87052"
    }
}
```

Error Codes

JSON response is returned from the FHIR Server.

> 200: The request was processed appropriately.

> 400: Invalid parameter.

> 401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

> 500: Internal Server Error

PROVENANCE - US CORE PROVENANCE PROFILE

US Core Provenance Profile

US Core Data Element	FHIR Resource Data
resources that Provenance is supporting	Provenance.target
date and time	Provenance.occurred
author organization	Provenance.agent.OnBehalfOf

Provenance

> This resource is called using different search parameters by following ways-

> 1. Retrieve Provenance resource with no parameters

> Request:-
> GET https://FHIR_URL/Provenance
> Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

> 2. Retrieve Provenance resource using parameter ID

Request:-
GET https://FHIR_URL/Provenance/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

Code 200

```
{

    "resourceType": "Provenance",

    "id": "4cd711ad-666c-4a7b-921f-f50263dd6993",

    "meta": {

      "versionId": "3",

      "lastUpdated": "2022-11-28T21:14:59.73+00:00",

      "source": "#AsIWLaUTqdaQcJ09",

      "profile": [

        "http://hl7.org/fhir/us/core/StructureDefinition/us-core-provenance"

      ]

    },

    "target": [

      {

        "reference": "Observation/37553093-101f-4b4a-b1df-9ab3876fcd21"

      },

      {

        "reference": "Observation/37553093-101f-4b4a-b1df-9ab3876fcd21"

      },

      {

        "reference": "Observation/8072196c-70a8-4276-9eb4-95b06a1aa81c"
```

```
    },
    {
        "reference": "Observation/9fd1652e-410c-432f-9720-5080e4fbeede"
    },
    {
        "reference": "Observation/ef58f7e1-5ae8-416b-bb78-42d3020b2aeb"
    },
    {
        "reference": "Observation/ad35bbe9-9d70-485c-bbe6-5100e02a39af"
    },
    {
        "reference": "Observation/1032c2ee-8472-4665-b6c2-d8c377d72627"
    },
    {
        "reference": "Observation/2d753946-f2f7-4ac5-ad1b-0b44309dde9f"
    },
    {
        "reference": "Observation/18d0daa1-4679-477a-9c36-36fa1a27f002"
    },
    {
        "reference": "Observation/b5615b1d-ff40-449c-ba3c-693781428cf8"
    },
    {
        "reference": "Observation/92f204c5-0e5c-4cd2-b68e-62c50761182f"
    },
```

```
{

    "reference": "Observation/b5615b1d-ff40-449c-ba3c-693781428cf8"

},

{

    "reference": "Goal/3cfadb39-d3b2-4efb-b9e7-504c6dd529d0"

},

{

    "reference": "DiagnosticReport/d9485460-9c04-478e-8cd8-985267906e63"

},

{

    "reference": "Device/f1a01e39-456b-4d79-9140-a73f145d95dd"

},

{

    "reference": "AllergyIntolerance/294cb24f-000f-49b5-8ab8-2f676080fd08"

},

{

    "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"

},

{

    "reference": "Location/ca3ee226-241e-4c21-bafd-158cbe4a1c88"

},

{

    "reference": "Organization/68a5c3dc-d421-48e8-aa5d-a14fd8642ae8"

},

{
```

```json
      "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59"

    },

    {

      "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"

    },

    {

      "reference": "Observation/6afc8d43-f621-400d-b3e1-b69d10ff34f1"

    },

    {

      "reference": "Procedure/16b495e0-c8d7-4ea4-8805-ac9a9498321c"

    },

    {

      "reference": "DiagnosticReport/a000b675-b1a7-4917-b445-0e02037d2a09"

    },

    {

      "reference": "DocumentReference/6f85ef1b-0da1-4779-9b54-48b685ca53d7"

    },

    {

      "reference": "Organization/68a5c3dc-d421-48e8-aa5d-a14fd8642ae8"

    },

    {

      "reference": "Condition/f8cab26c-4b4d-4b19-87e5-d1dff5677451"

    },

    {

      "reference": "MedicationRequest/7cd14edf-e59c-4734-9823-a2f45749a635"
```

```json
      },
      {
        "reference": "Immunization/5fbb8a20-8eb4-456d-969a-e805e1f5ab9f"
      },
      {
        "reference": "CareTeam/c4664949-a5d9-4678-a746-9ecaf8670ede"
      },
      {
        "reference": "CarePlan/dfd8d5a2-1fcc-4942-9430-245e0e593436"
      }
    ],
    "recorded": "1977-07-15T01:11:45.131-04:00",
    "agent": [
      {
        "type": {
          "coding": [
            {
              "system": "http://terminology.hl7.org/CodeSystem/provenance-participant-type",
              "code": "author",
              "display": "Author"
            }
          ],
          "text": "Author"
        },
        "who": {
```

```
        "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",

        "display": "Dr. Melvin857 Torp761"

      },

      "onBehalfOf": {

        "reference": "Organization/68a5c3dc-d421-48e8-aa5d-a14fd8642ae8",

        "display": "PCP87052"

      }

    },

    {

      "type": {

        "coding": [

          {

            "system": "http://hl7.org/fhir/us/core/CodeSystem/us-core-provenance-
participant-type",

            "code": "transmitter",

            "display": "Transmitter"

          }

        ],

        "text": "Transmitter"

      },

      "who": {

        "reference": "Practitioner/3f3f8115-6724-44c6-91fc-bdc525812e59",

        "display": "Dr. Melvin857 Torp761"

      },

      "onBehalfOf": {

        "reference": "Organization/68a5c3dc-d421-48e8-aa5d-a14fd8642ae8",
```

```
                    "display": "PCP87052"

                }

            }

        ]

    }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid
authorization token and add it to the authorization header.

500: Internal Server Error

US CORE OBSERVATION PROFILE

US Core Observation Profile

US Core Data Element	FHIR Resource Data
Status	Observation.status
Code	Observation.code
smoking status recorded date	Observation.effective
Patient	Observation.subject
Value	Observation.value

Observation

This resource is called using different search parameters by following ways-

1. Retrieve Observation resource with no parameters

Request:-

GET https://FHIR_URL/Observation
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Observation resource using parameter ID

Request:-
GET https://FHIR_URL/Observation/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Observation?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
category(laboratory)	reference	GET [base]/Procedure?patient=1
category(vital signs)	Date	GET [base]/Procedure?date=2015-06-22T00:00:00.00+00:00
patient	reference+date	GET [base]/Procedure?patient=1&date=2015-06-22
code(Smoking status)	token	GET [base]/Observation?code=72116-2
code(Weight for height)	token	GET [base]/Observation?code=77606-2
code(BMI)	token	GET [base]/Observation?code=59576-9
code(Pulse Oximetry)	Token	GET [base]/Observation?code=2708-6
code(Body height)	Token	GET [base]/Observation?code=8302-2
code(Body Temperature)	token	GET [base]/Observation?code=8310-5
code(Blood pressure)	token	GET [base]/Observation?code=85354-9
code(Body Weight)	token	GET [base]/Observation?code=29463-7
code(Head Occipital)	Token	GET [base]/Observation?code=8289-1
code(Heart Rate)	Token	GET [base]/Observation?code=8867-4
code(Respiratory rate)	Token	GET [base]/Observation?code=9279-1
date	Date	GET [base]/Observation?date=2015-06-22
Patient+code	reference+token	GET [base]/Observation?patient=1&code=8867-4
Patient+category	reference+token	GET [base]/Observation?patient=1&category=laboratory

Json response example for Smoking Status - https://www.hl7.org/fhir/us/core/Observation-some-day-smoker.html
Json response example for Pediatric Weight for Height –
https://www.hl7.org/fhir/us/core/Observation-pediatric-wt-example.json.html
Laboratory Result-https://www.hl7.org/fhir/us/core/Observation-blood-glucose.json.html
Pediatric BMI for Age-https://www.hl7.org/fhir/us/core/Observation-pediatric-bmi-example.html

Pulse Oximetry-https://www.hl7.org/fhir/us/core/Observation-oxygen-saturation.json.html
Pediatric Head Occipital-frontal Percentile-https://www.hl7.org/fhir/us/core/Observation-ofc-percentile.json.html

Code 200

```json
{
    "resourceType": "Observation",
    "id": "6afc8d43-f621-400d-b3e1-b69d10ff34f1",
    "meta": {
        "versionId": "2",
        "lastUpdated": "2022-09-15T15:50:30.798+00:00",
        "source": "#AsIWLaUTqdaQcJ09",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-smokingstatus"]
    },
    "status": "final",
    "category": [{
        "coding": [{
            "system": "http://terminology.hl7.org/CodeSystem/observation-category",
            "code": "social-history",
            "display": "Social History"
        }]
    }],
    "code": {
        "coding": [{
            "system": "http://loinc.org",
            "code": "72166-2",
            "display": "Tobacco smoking status NHIS"
        }],
        "text": "Tobacco smoking status NHIS"
    },
    "subject": {
        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"
    },
    "encounter": {
        "reference": "Encounter/63b9a51e-8db9-4aaa-b477-aa0c50fdb28d"
    },
    "effectiveDateTime": "1974-04-26T01:11:45-04:00",
    "issued": "1974-04-26T01:11:45.131-04:00",
    "valueCodeableConcept": {
        "coding": [{
            "system": "http://snomed.info/sct",
            "code": "266919005",
            "display": "Never smoker"
        }],
        "text": "Never smoker"
    }
}
```

Error Codes

JSON response is returned from the FHIR Server.

> 200: The request was processed appropriately.

> 400: Invalid parameter.

> 401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

> 500: Internal Server Error

UNIQUE DEVICE IDENTIFIER(S) FOR PATIENT'S IMPLANTABLE DEVICE(S) - US CORE IMPLANTABLEDEVICE PROFILE

US Core ImplantableDevice Profile

US Core Data Element	FHIR Resource Data
Code	Device.type
Patient	Device.patient
UDI	Device.udiCarrier.deviceIdentifier
Manufacture date	Device.manufactureDate
Expiration date	Device.expirationDate
Lot number	Device.lotNumber
Serial number	Device.serialNumber

Device(Implantable Device)

> This resource is called using different search parameters by following ways-

> 1. Retrieve Device resource with no parameters

> Request:-
> GET https://FHIR_URL/Device

Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Device resource using parameter ID

Request:-
GET https://FHIR_URL/Device/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. Retrieve the "_revinclude" information with any request using the following:

Request:-
GET https://FHIR_URL/Device?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwusasasasasasasasas

Parameter	Type	Example
patient	Reference	GET [base]/Device?patient=1

Code 200

{

   "resourceType": "Device",

   "id": "f1a01e39-456b-4d79-9140-a73f145d95dd",

   "meta": {

      "versionId": "1",

      "lastUpdated": "2021-03-23T19:36:29.300+00:00",

      "source": "#iLFSV7OLv0KF8dmQ",

      "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-implantable-device"]

   },

   "udiCarrier": [{

      "deviceIdentifier": "43069338026389",

      "carrierAIDC":
"iVBORw0KGgoAAAANSUhEUgAAAioAAAB2CAIAAABpgS9BAAADHUlEQVR42u3aXY+iMBiAUbrZ//+Xuxcm
punXvkABNedczahAReWZdkxbIee8bVtK6f3zS3tLaXTv6/b5nttHtuMZHaW8JXJvu8/4GNp72+NGxhN5jvPn
Hn8tInubn4fIfiKjHZ35+fth1bM49g4/dpaOfWrOnk7X829449/ciOfzcjrFX/FV73f4sfdexWdv8fOvB9G17T4
70

FW/+WkfOw8ufDQBuJz8AyA8A8gMA8gOA/ACA/AAgPwAgPwDIDwDIDwDyA4D8AID8ACA/ACA/AMgPA
MgPAPIDAPIDgPwAID8AID8AyA8AyA8A8gMA8gOA/ACA/AAgPwDIDwDIDwDyAwDyA4D8AID8ACA/ACA/
AMgPAPIDAPIDgPwAgPwAID8AID8AyA8AyA8A8gOA/ACA/AAgPwAgPwDIDwDIDwDyAwDyA4D8ACA/AC
A/AMgPAMgPAPIDAPIDgPwAgPwAID8AyA8AyA8A8gMA8gOA/ACA/AAgPwAgPwDIDwDyAwDyA4D8AID8
ACA/ACA/AMgPAMgPAPIDgPw4BQDIDwDyAwDyA4D8AID8ACA/ACA/AMgPAMgPAPIDgPwAgPwAID8AID
8AfJuUc3YWADD7AUB+AOACf50CrpBSqm65dJn3dbgDhyjHeWaEKS1bx141pAefAsgPT7rzWpZzboO3d5yf
c/39wCHBchbfYGXDPmdIYPYDW/dv+fev3eWm93pa+bDycjy/4p9cwhoNafRzdZTJM9o1pPYo5eajExI/evdk
PrX6h/zAstgEO9FtUtmeqkDdDYP7PJPJ4Bylu/mufXaLMip39Zj40bttO3nqQH54XnvZ6oZk19XtGy+FB8bcV
me0k//uPHh0q3zID7/fpPlS1fK518LN29nY1UOqgn1Pm3UI+eEHtbOfdrXnqTnH1dOshV/svrQQVtu4h2++8
UB7tqOrPccuu8GtRnOa6l/xB/6TtHxIVzx3MyHMfvid2ET+pp53qNpq/kWv97Jetc/gd+RGaQxuPj/62iHN5y7
Bo1cns/yqoZkQd1wivL34xskT8O0svgFg9gOA2Q8AyA8Av+MfJjJq5w+06kcAAAAASUVORK5CYII="

    }],

    "status": "active",

    "distinctIdentifier": "43069338026389",

    "manufactureDate": "2000-03-02T18:33:18-05:00",

    "expirationDate": "2025-03-17T19:33:18-04:00",

    "lotNumber": "1134",

    "serialNumber": "842026117977",

    "deviceName": [{

        "name": "Implantable defibrillator, device (physical object)",

        "type": "user-friendly-name"

    }],

    "type": {

        "coding": [{

            "system": "http://snomed.info/sct",

            "code": "72506001",

            "display": "Implantable defibrillator, device (physical object)"

        }],

        "text": "Implantable defibrillator, device (physical object)"

```
    },

    "patient": {

        "reference": "Patient/26b8f4f5-441f-481e-b50a-0cd265df4f08"

    }

}
```

Error Codes

JSON response is returned from the FHIR Server.

> 200: The request was processed appropriately.

> 400: Invalid parameter.

> 401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

> 500: Internal Server Error

LOCATION

[US Core Location](#) Profile

US Core Data Element	FHIR Resource Data
Name	Location.name

Location

This resource is called using different search parameters by following ways-

1. Retrieve Location resource with no parameters

Request:-
GET https://FHIR_URL/Location
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Location resource using parameter ID

Request:-
GET https://FHIR_URL/Location/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

Parameter	Type	Example
name	string	GET [base]/Location?name=Location Name
address	string	GET [base]/Location?address=1234 City Lane

Code 200

```
{

    "resourceType": "Location",

    "id": "ca3ee226-241e-4c21-bafd-158cbe4a1c88",

    "meta": {

        "versionId": "1",

        "lastUpdated": "2021-03-23T19:36:17.299+00:00",

        "source": "#E1VolYkq84D3M96u",
```

```json
      "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-location"]
    },

    "status": "active",

    "name": "PCP87052",

    "telecom": [{

        "system": "phone",

        "value": "(555) 555-5555"

    }],

    "address": {

        "line": ["1540 BRIDGE ST"],

        "city": "DRACUT",

        "state": "MA",

        "postalCode": "01826-2611",

        "country": "US"

    },

    "position": {

        "longitude": -71.30068,

        "latitude": 42.679722999999996

    },

    "managingOrganization": {

        "reference": "Organization/fa6b5098-3e8b-4e9b-9fe4-cfc6f2927238",

        "display": "PCP87052"

    }

}
```

Error Codes

JSON response is returned from the FHIR Server.

> 200: The request was processed appropriately.

> 400: Invalid parameter.

> 401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

> 500: Internal Server Error

ORGANIZATION USCORE ORGANIZATION PROFILE

US Core Organization Profile

US Core Data Element	FHIR Resource Data
Name	Organization.status
Status	Organization.name

Organization

> This resource is called using different search parameters by following ways-

> 1. Retrieve Organization resource with no parameters

> Request:-
> GET https://FHIR_URL/Organization
> Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

> 2. Retrieve Organization resource using parameter ID

> Request:-
> GET https://FHIR_URL/Location/1
> Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

Parameter	Type	Example
name	string	GET [base]/Organization?name=Agency Name
address	string	GET [base]/Organization?address=1234 City Lane

Code 200

```
{

    "resourceType": "Organization",

    "id": "68a5c3dc-d421-48e8-aa5d-a14fd8642ae8",

    "meta": {

      "versionId": "1",

      "lastUpdated": "2021-03-23T19:36:29.300+00:00",

      "source": "#iLFSV7OLv0KF8dmQ",

      "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-organization"]

    },

    "identifier": [      {

      "system": "https://github.com/synthetichealth/synthea",

      "value": "56090ab7-1f97-37ff-a434-194f9c6e5510"

      },

      {

      "system": "http://hl7.org/fhir/sid/us-npi",

      "value": "9999999999"

      },

      {

      "system": "urn:oid:2.16.840.1.113883.4.7",

      "value": "9999999999"

      }],
```

```json
    "active": true,

    "type": [{

       "coding": [{

          "system": "http://terminology.hl7.org/CodeSystem/organization-type",

          "code": "prov",

          "display": "Healthcare Provider"

       }],

       "text": "Healthcare Provider"

    }],

    "name": "PCP170967",

    "telecom": [{

       "system": "phone",

       "value": "413-221-0546"

    }],

    "address": [{

       "line": ["1111 ELM ST"],

       "city": "WEST SPRINGFIELD",

       "state": "MA",

       "postalCode": "01089-1540",

       "country": "US"

    }]

}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

Practitioner

US Core Practitioner Profile

US Core Data Element	FHIR Resource Data
Identifier (NPI)	Practitioner.identifier
Name	Practitioner.name

Practitioner

This resource is called using different search parameters by following ways-

1. Retrieve Practitioner resource with no parameters

Request:-
GET https://FHIR_URL/Practitioner
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Practitioner resource using parameter ID

Request:-
GET https://FHIR_URL/Practitioner/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

Parameter	Type	Example
name	String	GET [base]/Practitioner?name=Sally
address	String	GET [base]/Practitioner?identifier=102

Code 200

```json
{
    "resourceType": "Practitioner",
    "id": "3f3f8115-6724-44c6-91fc-bdc525812e59",
    "meta": {
        "versionId": "1",
        "lastUpdated": "2021-03-23T19:36:17.299+00:00",
        "source": "#E1VolYkq84D3M96u",
        "profile": ["http://hl7.org/fhir/us/core/StructureDefinition/us-core-practitioner"]
    },
    "identifier": [{
        "system": "http://hl7.org/fhir/sid/us-npi",
        "value": "9999958969"
    }],
    "active": true,
    "name": [{
        "family": "Torp761",
        "given": ["Melvin857"],
        "prefix": ["Dr."]
    }],
    "telecom": [{
        "extension": [{
            "url": "http://hl7.org/fhir/us/core/StructureDefinition/us-core-direct",
            "valueBoolean": true
        }],
```

```
                "system": "email",

                "value": "Melvin857.Torp761@example.com",

                "use": "work"

            }],

            "address": [{

                "line": ["1540 BRIDGE ST"],

                "city": "DRACUT",

                "state": "MA",

                "postalCode": "01826-2611",

                "country": "US"

            }],

            "gender": "female"

        }
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

Vital Signs – US CORE VITALSIGNS PROFILE

US Core VitalSigns Profile

Profile Name	LOINC
Vital signs panel	85353-1
Respiratory Rate	9279-1
Heart Rate	8867-4
Oxygen Saturation	2708-6
Body Temporature	8310-5
Body Height	8302-2
Head Circumference	9843-4
Body Weight	29463-7
Body Mass index	39156-5
Body pressure systolic and diastolic	85354-9
systolic blood pressure	8480-6
Dialostic Blood Pressure	8462-4

Vital Signs

This resource is called using different search parameters by following ways-

1. Retrieve Observation resource with no parameters

Request:-
GET https://FHIR_URL/Observation
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwu

2. Retrieve Observation resource using parameter ID

Request:-
GET https://FHIR_URL/Observation/1
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

3. retrieve the "_revinclude" information with any request using the following:-

Request:-
GET https://FHRI_URL/Observation?[parameter=value]&_revinclude=Provenance:target
Authorization: Bearer sntumgwar8ffwrama.hhgtf823.dlfjhimmakegbngwujhskajhskjahskajh

Parameter	Type	Example
category(vital-signs)	Token	GET [base]/Observation?category=vital- signs

Code 200

```
{
"resourceType": "Observation",
"id": "17e7797685b-e707227d-0cb5-4b28-bab2-ca1f4a1ba111",
"meta": {
"versionId": "1",
"lastUpdated": "2022-01-20T13:05:18.427Z",
"profile": [
"http://hl7.org/fhir/StructureDefinition/bodytemp",
"http://hl7.org/fhir/StructureDefinition/vitalsigns"
]
},
"status": "final",
"category": [
{
"coding": [
{
"system": "http://terminology.hl7.org/CodeSystem/observation-category",
"code": "vital-signs",
"display": "vital-signs"
}
]
}
],
"code": {
"coding": [
{
"system": "http://loinc.org",
"code": "8310-5",
"display": "Body temperature"
},
{
"system": "http://loinc.org",
"code": "8331-1",
"display": "Oral temperature"
}
],
"text": "Body temperature"
},
"subject": {
"reference": "Patient/17e77411359-8837d878-ea1e-45b5-bb89-882fdfb2be4b"
},
```

```json
"encounter": {
"reference": "Encounter/17e77566282-0c9c236b-f0bd-45e0-9c61-80991a376967"
},
"effectiveDateTime": "2009-08-19T19:33:18-04:00",
"issued": "2009-08-19T19:33:18.715-04:00",
"valueQuantity": {
"value": 37.799,
"unit": "Cel",
"system": "http://unitsofmeasure.org",
"code": "Cel"
}
}
```

Error Codes

JSON response is returned from the FHIR Server.

200: The request was processed appropriately.

400: Invalid parameter.

401: The request did not have a valid authorization token or none was provided. Obtain a valid authorization token and add it to the authorization header.

500: Internal Server Error

Terms and Conditions:

- **Thank you for using the California Medical System's Application Programming Interface (API).**

- **Please read the Terms and Conditions ("Terms", "Terms and Conditions") carefully before using the API and let us know if you have any questions.**

- **Your access to use the API is conditioned on your acceptance of and compliance with these terms.**

- **These terms apply to all customers, users, and third-party integrators who use Cal-Med API, Documentation, and services.**

- **By accessing or using the API, you agree to be bound by these Terms. If you disagree with any part of the terms, then you may not access Cal-Med Practice Expert or its API.**

- **If you are using the Certified Cal-Med API on behalf of a legal entity (i.e. a Clinical software services company), you represent that you have the proper authority to act on behalf of and bind the entity to these Terms, and by accepting, you accept on behalf of the entity (and all references to "you" in the Terms refer to the entity).**

- **We reserve the right to change or rescind this policy at any time without notice or obligation to the user other than updating this website, so please check it regularly. Your continued use of an API after a policy change constitutes the user is accepting the changes.**

1. **FEES**:
- There are no hidden charges for use of the Cal-Med FHIR API.
- If you have an agreement with Cal-Med systems relating to your access to and use of the FHIR API, any fees associated with your access to, and use of the API will be set forth therein.
- California Medical Systems may change and update the terms of usage from time to time; any changes will be made to this page. It is your responsibility to read any new updates to this page. The continued use of this API constitutes your acceptance of the updated terms. There is a $1500 per organization interface fee. There is no cost associated with patient use.

2. RESTRICTION:

- Subject to these Terms, Cal-Med Systems grants you a limited, non-exclusive, revocable, non-transferable, and non-sublicensable right to access and use the API and documentation made available to you on or through our website in connection with the integration of your products and/or services with Cal-Med systems. Your use of the API is subject to certain limitations on access, calls, and use as outlined in these Terms. Cal-Med may monitor your use of the API and Materials and use such information to improve the API and our services and to ensure your compliance with these Terms. All rights not expressly granted in the terms are reserved by Cal-Med and our licensors.
- If Cal-Med believes that you have attempted to exceed or violate these terms and conditions, we may temporarily or permanently block your ability to access and use the API and related products.
- You agree that in accessing or using the API or the Materials you will not:
    - sell, rent, lease, sublicense, redistribute, or syndicate access to the API or Products to any third party without prior written approval from Cal-Med.
    - Remove or alter any proprietary notices or marks on the API or Documents.
    - Use or access the API for purposes of monitoring the availability, performance, or functionality of our services or for any other benchmarking purposes.
    - Cause, assist, or permit any third party (including an end-user) to do any of the foregoing.
    - Derive specifications from, reverse engineer, reverse compile, and disassemble the API or Materials.

3. OBLIGATIONS:

- Developers are responsible for the products developed to consume the API. Developers are also responsible for complying with all applicable laws, including (but not limited to) those related to California Medical System's intellectual property rights. Resources available on the California Medical System's portal may require a customer to license additional functionality or build additional workflows.

4. LIMITATION:

- California Medical Systems may set and enforce limits on the use of its APIs. The user shall follow, and shall not try to circumvent, any limits documented within an API.

5. REGISTRATION PROCESS REQUIREMENTS:

- By submitting the request to access or accessing the APIs, the user agrees to the terms and conditions of Cal-Med.

6. REQUIREMENTS :

- Below are the minimum requirements needed to be fulfilled to use the Cal-Med API or to get support from Cal-Med.

  - **Minimum Software Requirements:**

    - Windows 7 or higher (32-bit or 64-bit)

    - 512 MB memory

    - 1.5+ GB free hard disk space.

    - 2MB/Sec Internet required.

  - **Software required for Remote Access**:

    - **Logmein.com –** Web accessible remote access. Free for a limited time.

  - California Medical System doesn't support direct installation on the iPad or Android Tablets.

7. MONITORING:

- Cal-Med may monitor the use of APIs to ensure the quality and performance of our API and to resolve an issue.

8. LIABILITY:

- Cal-Med is not responsible for any issue or damage arising from the failure of the APIs.

9. CONFIDENTIALITY:

- You may use the confidential information provided to you only as necessary in exercising your rights that is granted by Cal-Med systems.
- You may not disclose any of this confidential information to any third party without the California Medical system's prior written consent.
- Please note that we mention offline_access scope as 'Maintain access to data you have given it access to'. User can only grant/deny this scope for the first time user is using the HER/Standalone App. This scope has the ability to Request a refresh_token that can be used to obtain a new access token to replace an expired one, even after the end-user no longer is online after the access token expires.

- By Accepting these terms and conditions you agree that you will protect this confidential information from unauthorized use, access, or disclosure in the same manner that you would use to protect your own confidential and proprietary information of a similar nature and in any event with no less than a reasonable degree of care.