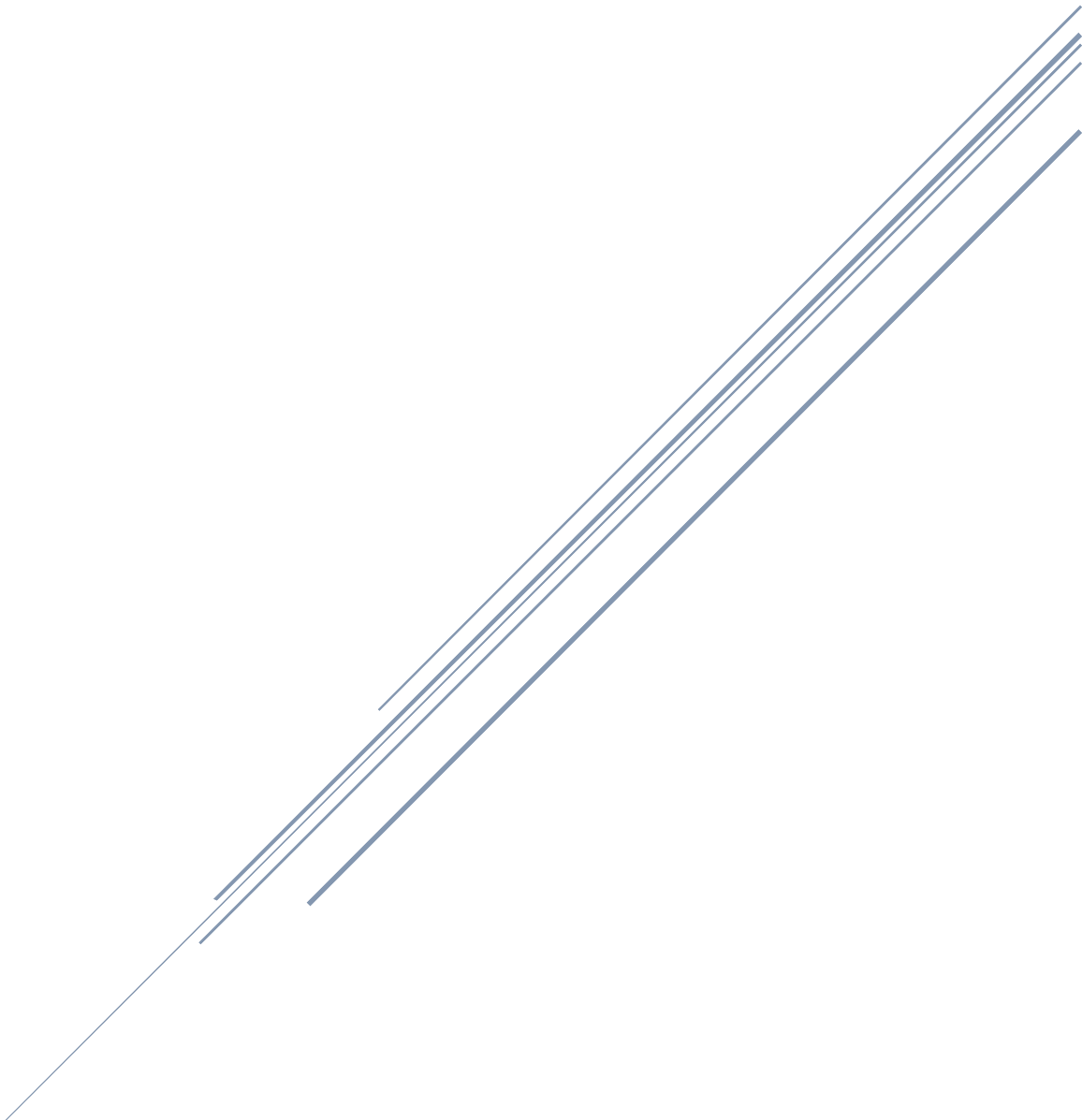


AXIOM API DOCUMENTATION



Contents

Introduction	2
Term of Use	2
Connecting to the server	3
Authorizing - Obtaining an Access Token	4
Obtaining an Access Token.....	4
API Details	6
Searching the patients - Finding patient ID.....	6
Requesting patient’s Specific Data Category Resource.....	7
Error Handling	14
FAQ’s	14

All information within this document is relevant to Axiom Version 7 and higher.

Introduction

This documentation will cover the walkthrough on how to access and utilize the Axiom API feature that HiMS offers. This tutorial will take you through the process from start to finish as if you were accessing this tool for the first time. FAQ's can be found at the bottom of this document. If you experience any issues or have any questions, please reach out to axiomsupport@hmsfirst.com

1. Axiom API Server is a read-only RESTful API
2. API version: 1.0 (latest)
3. Authorization Standard: OAuth 2.0 with JWT
4. Base URL: <https://api.hmsfirst.com>
5. Developer documents <https://api.hmsfirst.com/developers/index.html>

Term of Use

This section discusses the terms and conditions of using the HiMS Patient Access API. The Patient Access API documentation, access link, and materials including Patient Access API support of the FHIR® Specification have been made available to developers and clients for development and testing. Clients and Developers may use the Materials with adherence to the below terms and conditions:

1. License. Subject to the terms and conditions of this Agreement, HiMS agrees to provide Client access to Client's customer information with HiMS through the API. HiMS grants to Client a limited, nontransferable, nonexclusive license for the term of this Agreement to access and use the API and the software used by HiMS at the API solely to access Client's customer information. Client may display and print for its own use and for the use of Client's employer information received via the API that pertains to Client or Client's employer and its business with HiMS. In the event Client or Client's employer is no longer a customer or partner of HiMS, Client shall immediately cease using the API.
2. Restrictions on Use. Client shall not, directly or indirectly, (i) license, sell, lease, assign or otherwise transfer Content on the API or API software, (ii) alter or permit a third party to alter any part of the Content, API or API software; (iii) access or use any Content, information or materials of any third party available at the API; (iv) use or permit the use

of the API, Content or API software except for the Client’s access to its own customer information; (v) distribute copies of information, materials or Content found on the API in any form (including by e-mail or other electronic means), without prior written permission, or (vi) disassemble, decompile, reverse engineer or otherwise attempt to derive source code or other trade secrets from the API software.

3. Passwords. Clients and Developers are responsible for maintaining the confidentiality of logon information, and are fully responsible for all activities that occur under their password or user name. You agree (a) to immediately notify HiMS Corporation of any unauthorized use of your password or user name or any other breach of security, and (b) to ensure that you exit from your account at the end of each session.
4. Security. Applications must not contain any malware, malicious or harmful code, program, or other internal component (e.g., computer viruses, Trojan horses, “backdoors”) which could damage, destroy, or adversely affect the Patient Access API Platform, services, or other software, firmware, hardware, data, systems, services, or networks.
5. Acceptance. Your access to and browsing of this Web API constitutes your full acceptance of these Legal Terms and Conditions. The documentation and materials are provided as-is with no other warranties expressed or implied. HiMS Corporation may, at its sole discretion, update, modify, change, add or remove the Terms and Conditions (or any part thereof) at any time and with or without notice. HiMS may also change, terminate, suspend or discontinue any aspect of the API, including the availability of any features on the API with or without notice. Client’s continued use of the API following the posting of such changes constitutes Client’s agreement to be bound by the changes. Client agrees that HiMS Corporation shall not be liable to Client or to any third party for any modification, suspension or discontinuation of the API or Terms of Use.

Connecting to the server

The server is accessed by clients through an https connection.

IMPORTANT: Local customer security policies must be in place to prevent unauthorized monitoring or eavesdropping of connections to the server.

Note: Only SSL/TLS connections (TLS 1.0 or higher) are accepted. All plaintext connections will be refused.

Note: Please limit your connection frequency to a value appropriate for your use case. Connection attempts which are more frequent than permitted by the bandwidth allocation for the data resource are not allowed.

Authorizing - Obtaining an Access Token

Client authentication can be performed using a username and a strong password. The end-user should obtain these credentials directly from the healthcare organizations from which they wish to access data.

Prior to making API requests, the client application must obtain an Access Token from the associated Authorization Server. The client software must support the OAuth 2.0 authorization code grant flow as detailed in RFC 6749.

Obtaining an Access Token

Returns json data about a user access token

- **URL:** {BASE_URL}/login
- **Method:** POST
- **URL Params:** None
- **Data Params:**

Content type: application/json

Required:

username: [string]
password: [string]

Format:

```
{
  "username": "string",
  "password": "string"
}
```

- **Success Response:**

Code: 200

Content:

```
{
  "userId": integer,
  "username": "string",
  "displayName": "string",
  "tokenType": "string",
  "accessToken": "string",
  "expiresInMinutes": integer
}
```

- **Error Response:**

Code: 417 Expectation failed

Content:

```
{
  "id": "14ed3baba7d243dcb5b7fd3e6b79ea92",
  "statusCode": 417,
  "message": "User not found"
}
```

- **Curl example:**

Request

```
curl -X POST "https://api.hmsfirst.com/login" -H "accept: application/json" -H
"Content-Type: application/json" -d '{"username":"string","password":"string"}'
```

Response

```
{
  "userId": 1234,
  "username": "tester",
  "displayName": "Alice Newman",
  "tokenType": "Bearer",
  "accessToken":
"eyJhbGciOiJIU2U1IiwiaXNjaW50eSI6ImVudCJlbnMiOiJBMjU2Q0JDLUhTNTUyIiwiaWF0Ijoi
1520888888.2apmns1Qck-AEZ8t8YMx_03U93kU0_twEtAo88j_A_Zr0Ej5_1wgk7HBXH9obfVOZFRkeno1Hq8SPb2EppeqQ-
QobWL0PU8H.smvLDUN1MFvIUrMRUL2Zfg.eUaONZQX2xUUWJ_F9V9YULE6sQ",
  "expiresInMinutes": 60
}
```

API Details

Searching the patients - Finding patient ID

Returns json data about the list of matching patients

- **URL:** {BASE_URL}/patient
- **Method:** GET
- **Header:**
Authorization: Bearer [accessToken]
- **URL Params:** At least 1 or more optional params is required

Optional:

firstName: [string]

lastName: [string]

dob: [string] (yyyy-MM-dd or MM/dd/yyyy)

gender: [string] (F or M or UNK)

address: [string]

phone: [string]

cellPhone: [string]

- **Data Params:** None
- **Success Response:**

Code: 200

Content:

```
[
  {
    "patientId": integer,
    "firstName": "string",
    "lastName": "string",
    "dob": "string",
    "gender": "string",
    "address": "string",
    "phone": "string",
    "cellPhone": "string"
  }
]
```

- **Error Response:**

Code: 401 Unauthorized

Content: Empty

Code: 400 Bad request

Content:

```
{
  "id": "14ed3baba7d243dcb5b7fd3e6b79ea92",
  "statusCode": 400,
  "message": "At least one of the parameters is present in the request"
}
```

- **Curl example:**

Request

```
curl -X GET "https://api.hmsfirst.com/patient?firstName=alice&lastName=newman" -H
"accept: application/json" -H "Authorization: Bearer accessToken"
```

Response

```
[
  {
    "patientId": 81987,
    "firstName": "ALICE",
    "lastName": "NEWMAN",
    "dob": "1970-05-01T00:00:00",
    "gender": "F",
    "address": "1357 Amber Dr Beaverton OR 97006",
    "phone": "5557231544",
    "cellPhone": "+1(555)777-1234"
  }
]
```

Requesting patient's Specific Data Category Resource

Returns json data about the patient's CCDS

- **URL:** {BASE_URL}/ccds/data
- **Method:** GET
- **Header:**

Authorization: Bearer [accessToken]

- **URL Params:**

Required:

patientId: [integer]

Optional:

startDate: [string] (yyyy-MM-dd or MM/dd/yyyy)

endDate: [string] (yyyy-MM-dd or MM/dd/yyyy)

getProblem: [boolean] (default is true)

getMedication: [boolean] (default is true)

getAllergy: [boolean] (default is true)

getLaboratory: [boolean] (default is true)

getVitalSign: [boolean] (default is true)

getProcedure: [boolean] (default is true)

getCareTeamMember: [boolean] (default is true)

getImmunization: [boolean] (default is true)

getImplantableDevice: [boolean] (default is true)

getAssessment: [boolean] (default is true)

getPlanOfTreatment: [boolean] (default is true)

getGoal: [boolean] (default is true)

getHealthConcern: [boolean] (default is true)

- **Data Params:** None

- **Success Response:**

Code: 200

Content:

```
{
  "patientId": 0,
  "firstName": "string",
  "lastName": "string",
  "dob": "2020-12-17T06:20:41.659Z",
  "gender": "string",
  "streetAddress1": "string",
  "cityName": "string",
}
```

```
"state": "string",
"postalCode5": "string",
"phone": "string",
"cellPhone": "string",
"preferLanguage": {
  "languageCode": "string",
  "languageName": "string"
},
"ethnicity": {
  "ethnicityCode": "string",
  "ethnicityValue": "string"
},
"smokingStatus": {
  "smokingStatusGUID": "string",
  "smokingStatusCode": "string",
  "smokingStatusDescription": "string",
  "smokingStatusYear": 0
},
"racess": [
  {
    "ccdCode": "string",
    "hL7Code": "string",
    "value": "string",
    "precedence": "string"
  }
],
"problems": [
  {
    "snomedctCode": "string",
    "problemDate": "2020-12-17T06:20:41.659Z",
    "problemDesc": "string",
    "problemStatus": "string",
    "problemCode": "string",
    "problemObservationGUID": "string",
    "problemStartDate": "2020-12-17T06:20:41.659Z",
    "problemEndDate": "2020-12-17T06:20:41.659Z",
    "problemType": "string",
    "actorId": "string",
    "actorLName": "string",
    "actorFName": "string"
  }
],
"medications": [
  {
    "drugName": "string",
    "instructions": "string",
    "medStatus": "string",
    "startDate": "2020-12-17T06:20:41.659Z",
    "endDate": "2020-12-17T06:20:41.659Z",
    "days": "string",
    "count": "string",
    "strength": "string",
    "medicationForm": "string",
    "medicationCode": "string",
    "performerFName": "string",
    "performerLName": "string"
  }
],
"allergies": [
  {
    "code": "string",
```

```

    "status": "string",
    "startDate": "2020-12-17T06:20:41.659Z",
    "rxNorm": "string",
    "description": "string",
    "reactionCode": "string",
    "reaction": "string",
    "observationCode": "string",
    "performerFName": "string",
    "performerLName": "string",
    "performerId": "string",
    "severityCode": "string",
    "severity": "string"
  }
],
"labs": [
  {
    "orderCode": "string",
    "cptCode": "string",
    "requestDate": "2020-12-17T06:20:41.659Z",
    "panelName": "string",
    "resultTime": "2020-12-17T06:20:41.659Z",
    "results": [
      {
        "observationGUID": "string",
        "testDescription": "string",
        "result": "string",
        "units": "string",
        "referenceRange": "string",
        "isAbnormal": true,
        "runDate": "2020-12-17T06:20:41.659Z"
      }
    ]
  }
],
"vitals": [
  {
    "vitalsNurse": "string",
    "vitalsDate": "2020-12-17T06:20:41.659Z",
    "vitalsHeightUnit": "string",
    "vitalsHeight": "string",
    "vitalsWeightUnit": "string",
    "vitalsWeight": "string",
    "vitalsHeartRate": "string",
    "vitalsSystolic": "string",
    "vitalsDiastolic": "string",
    "vitalsComments": "string",
    "vitalsWaist": "string",
    "vitalsTempUnit": "string",
    "vitalsTemp": "string",
    "vitalsBMI": "string"
  }
],
"procedures": [
  {
    "procedureCode": "string",
    "procedureDate": "2020-12-17T06:20:41.659Z",
    "encounterCode": "string",
    "encounterStartDate": "2020-12-17T06:20:41.659Z",
    "encounterEndDate": "2020-12-17T06:20:41.659Z",
    "encounterSiteId": "string",
    "serviceCode": "string",

```

```

    "serviceName": "string",
    "codeSet": "string",
    "performerFName": "string",
    "performerLName": "string",
    "performerId": "string",
    "procedureStatus": "string"
  }
],
"careTeamMembers": [
  {
    "performerId": "string",
    "performerFirstName": "string",
    "performerLastName": "string",
    "performerAddress1": "string",
    "performerCity": "string",
    "performerState": "string",
    "performerZip": "string",
    "performerCountry": "string",
    "performerPhone": "string",
    "jobAliasDesc": "string",
    "providerName": "string"
  }
],
"immunizations": [
  {
    "dateGiven": "2020-12-17T06:20:41.659Z",
    "vaccineDescription": "string",
    "vaccineId": "string",
    "comments": "string",
    "lotNum": "string",
    "manufacturerName": "string",
    "empId": "string",
    "empFName": "string",
    "empLName": "string",
    "strength": "string",
    "unit": "string",
    "unitDesc": "string",
    "routeCode": "string",
    "injectionSiteValue": "string",
    "notAdministered": "string",
    "presumedImmunity": "string",
    "visPresentedDate": "2020-12-17T06:20:41.659Z",
    "source": "string",
    "vfc": "string",
    "lotExpired": "2020-12-17T06:20:41.659Z",
    "route": "string",
    "orderingProvider": "string",
    "facility": "string",
    "protectionDate": "2020-12-17T06:20:41.659Z",
    "protectionIndicator": "string",
    "publicityCode": "string"
  }
],
"implantableDevices": [
  {
    "guid": "string",
    "deviceGUID": "string",
    "deviceCode": "string",
    "deviceDesc": "string",
    "deviceSerialNumber": "string",
    "comments": "string",

```

```
    "startDate": "2020-12-17T06:20:41.659Z",
    "endDate": "2020-12-17T06:20:41.659Z",
    "quantity": 0
  }
],
"assessments": [
  {
    "assessGUID": "string",
    "assessment": "string",
    "startDate": "2020-12-17T06:20:41.659Z"
  }
],
"planOfTreatments": [
  {
    "guid": "string",
    "snomedConceptId": "string",
    "type": "string",
    "description": "string",
    "date": "2020-12-17T06:20:41.659Z"
  }
],
"goals": [
  {
    "goalId": "string",
    "goalCode": "string",
    "goalDescription": "string",
    "goalDetails": "string",
    "startDate": "string",
    "goalDate": "string",
    "authorFirstName": "string",
    "authorLastName": "string",
    "priorityCode": "string",
    "priorityDescription": "string"
  }
],
"healthConcerns": [
  {
    "healthConcernId": 0,
    "startDate": "string",
    "type": "string",
    "subType": "string",
    "details": "string"
  }
]
}
```

- **Error Response:**

Code: 401 Unauthorized

Content: Empty

Code: 400 Bad request

Content:

```
{
  "id": "14ed3baba7d243dcb5b7fd3e6b79ea92",
  "statusCode": 400,
  "message": "Bad request"
}
```

- **Curl example:**

Request

```
curl -X GET "
https://api.hmsfirst.com/ccds/data?GetProblem=false&GetMedication=false&GetAllergy=false&GetLaboratory=false&GetVitalSign=false&GetProcedure=false&GetCareTeamMember=false&GetImmunization=false&GetImplantableDevice=false&GetAssessment=false&GetPlanOfTreatment=false&GetGoal=false&GetHealthConcern=false&PatientId=81987" -H "accept: */*" -H
"Authorization: Bearer accessToken"
```

Response

```
{
  "PatientId": 81987,
  "FirstName": "ALICE",
  "LastName": "NEWMAN",
  "DOB": "1970-05-01T00:00:00",
  "Gender": "F",
  "StreetAddress1": "1357 Amber Dr",
  "CityName": "Beaverton",
  "State": "OR",
  "PostalCode5": "97006",
  "Phone": "(555)7231544",
  "CellPhone": "(555)7771234",
  "PreferLanguage": {
    "LanguageCode": "en",
    "LanguageName": "English"
  },
  "Ethnicity": {
    "EthnicityCode": "2186-5",
    "EthnicityValue": "Not Hispanic/Latino"
  },
  "SmokingStatus": {
    "SmokingStatusGUID": "CA4ED0AB-B684-4ED1-B3F0-741459D93FB2",
    "SmokingStatusCode": "449868002",
    "SmokingStatusDescription": "Current every day smoker",
    "SmokingStatusYear": 2020
  },
  "Races": [
    {
      "CCDCode": "2106-3",
      "HL7Code": "C",
      "Value": "White",
      "Precedence": "1"
    },
    {
      "CCDCode": "2108-9",
      "HL7Code": "I",

```

```

    "Value": "European",
    "Precedence": "2"
  }
],
"Problems": [],
"Medications": [],
"Allergies": [],
"Labs": [],
"Vitals": [],
"Procedures": [],
"CareTeamMembers": [],
"Immunizations": [],
"ImplantableDevices": [],
"Assessments": [],
"PlanOfTreatments": [],
"Goals": [],
"HealthConcerns": []
}

```

Error Handling

If the access token used in the request is invalid, expired, or the user has not been authorized to access the requested Resource, the API will return a 401 Unauthorized HTTP response.

If the request can be processed with expectation error, the API will return a 417 Expectation Failed HTTP response containing an OperationOutcome Resource with additional information.

Example:

```

{
  "id": "2fd5dc72d4194d67b789dc4698d9b4ef",
  "statusCode": 417,
  "message": "User not found"
}

```

FAQ's

Account Management / Authorization:

- I am not able to authorize my account. I forgot my password to the system.
 - Please email / contact the facility / organization to get your Patient Username / Password.
- I entered in my token during the authorization process and I am not able to login successfully?
 - Be sure to format as **Bearer {TOKEN}** including a white space between the two values. Additionally, verify that there are no quotations in your token, at the beginning or end.
- I logged in and I was able to search for my data, but now I am not able to access my information?

- The Token expires after 60 minutes. Please click on the padlock, click logout, and repeat the login steps found above?

Managing Errors:

- When using the Get commands I am receiving an error code like, 417?
 - This is due to an invalid Patient ID. Please ensure that you have retrieved / typed in the correct Patient ID from the above process / steps.
 - Additional in the Response Body field it will provide a message of the error:

```
{  
  "id": "c00f9c269b7a4e43bd60700d44b099c1",  
  "statusCode": 417,  
  "message": "Patient does not exist"  
}
```

Managing Dates and Filtering:

- I want my data for the just the last year?
 - When configuring the GET /ccds/data command, place your starting date and provide an End Date. So, if I wanted all of my patient data for the year of 2019 I would:
 - Start Date: 01/01/2019
 - End Date: 12/31/2019