



Integration Cookbook

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Introduction

This cookbook consists of a set of examples of common tasks that developers may encounter while integrating Human API into a typical Insurance application workflow. It is intended to be both a tutorial and a reference guide. While it does not list all possible features, it should give a good overview of the principal functionality.

API endpoints

You may use 3 different API endpoints for the integration.

Scope	Endpoint URL	Description
Administration	admin.humanapi.co	Admin API Automate administrative features, such as managing users and application settings
Authentication	auth.humanapi.co	Authentication Service Provides primitives for identity and session management to access other services
Medical records	api.humanapi.co	Data API Access to medical and activity data.

Table 1 : API endpoints

API conventions

- All the API endpoints are accessible through HTTPS only.
- All the calls must be authenticated.
- Resource locators, Resource identifiers and data attributes are case sensitive.
- Dates are formatted with respect to ECMA-262 (a simplification of ISO 8601 Extended Format) as follows : YYYY-MM-DDTHH:mm:ss.sssZ
- The request and response content-type is application/json unless otherwise specified.

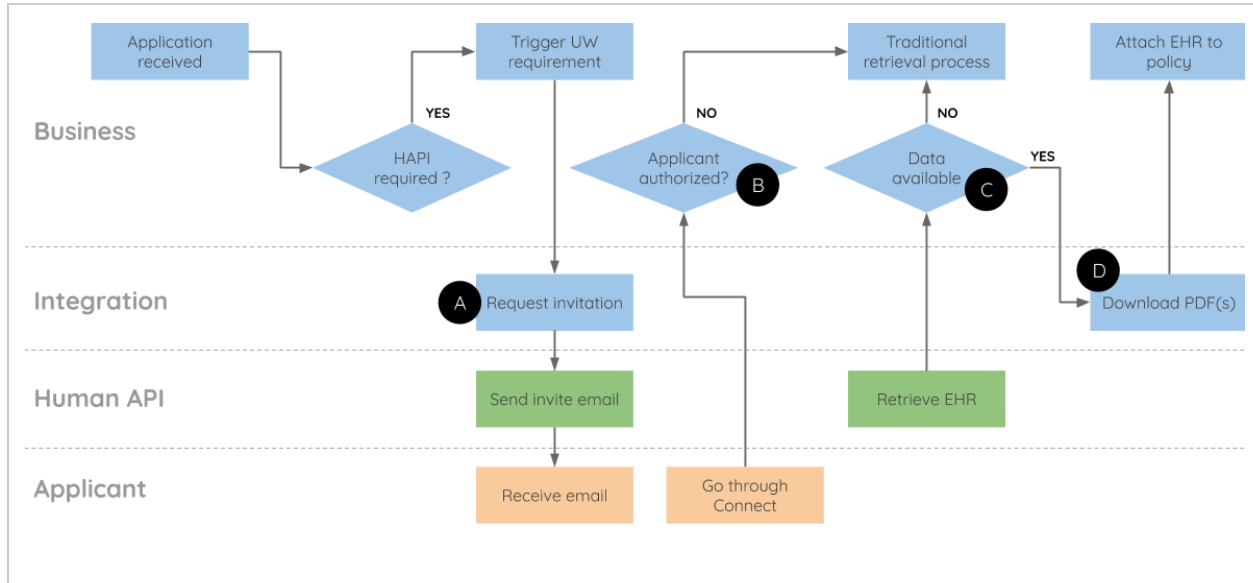
Before you start, pre-requisites

- You have an active client application and you have access to the Human API Portal.
- You have email delegation service setup (so we can send emails to your customers)
- You have a data notification endpoint setup (optional, but recommended).
- You have a status notification endpoint setup (optional but recommended).

If you don't have one of the above, or you're not sure, please get in touch with our support engineers. We're happy to help.

Visual Index

This visual index maps the typical insurance application workflow to specific sections in this document.



A Request that Human API sends an invitation email to a customer

Use the administration API to [invite a new user](#) (page 10).

B Human API notifies you when the customer declines or fails to participate

Use the [status notifications](#) (page 13) or poll the user endpoint on regular intervals (page 14).

C Human API notifies you when the customer grants authorization and later when the data is available.

Use either the [status notifications](#) (page 13) or [data notifications](#) (page 16). Alternatively, you can poll the API on regular intervals to check for user status or [available reports](#) (page 16).

D Request summary report (or another report) from Human API

If you are using notifications, [download relevant reports](#) directly from the API (page 21). Otherwise, you can [retrieve a list of all available reports](#) (page 20) for a given user then download the relevant files.

Authentication

All requests to Human API must be authenticated. Your calls should have a bearer token which you can get from our authentication service.

Get a token

First, you get a token by issuing a POST request to our authentication service with your application's credentials (`client_id` and `secret`) and a `client_user_id`.

You should POST to `/v1/connect/token` or `/v1/admin/token` respectively to get an access token or a client token.

Below, an example request to retrieve an access token :

```
POST /v1/connect/token HTTP/1.1
Host: auth.humanapi.co
Content-Type: application/json
Cache-Control: no-cache

{
  "client_id": "your_client_id",
  "client_secret": "your_client_secret",
  "client_user_id": "policy_number",
  "type" : "access"
}
```

Attribute	Type	Description
type	String	The type of token you need. An "access" token or "client" token.
client_id	String	Your client application identifier, provided to you by Human API
client_secret	String	Your client application secret, provided to you by Human API
client_user_id	String	Your unique identifier of the user (policy number). This is required only when "type=access".

Table 2 : Token request attributes

A successful response to the request above should look like this :

```
{
  "access_token": "your-access-token",
  "expires_in": 86400,
  "token_type": "Bearer",
  "refresh_token": "Rz0MpkCQVmdkZ3"
}
```

Attribute	Type	Description
access_token client_token	String	The token which you can use for authenticated calls.
expires_in	Long	The token's lifetime, in seconds. Tokens are valid for 24 hours by default.
token_type	String	Which type of Auth header can this token be used for. Currently the value is always "Bearer"
refresh_token	String	This is reserved for future use.

Table 3 : Token response attributes

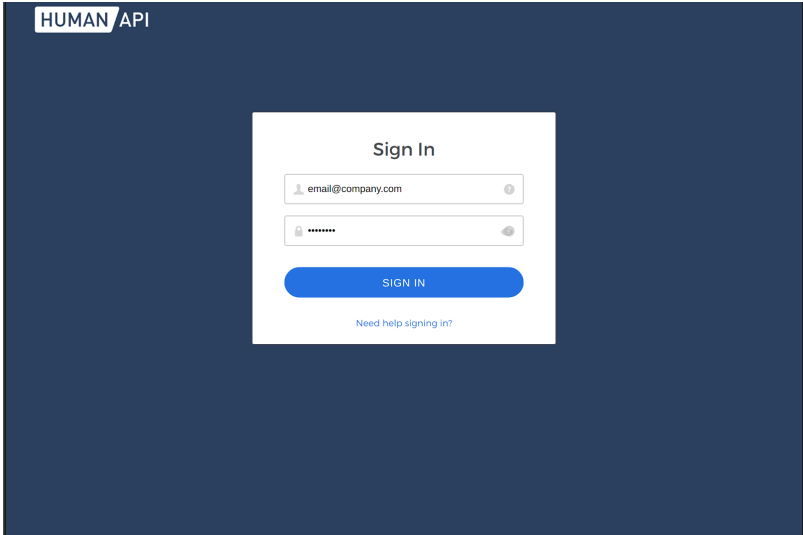
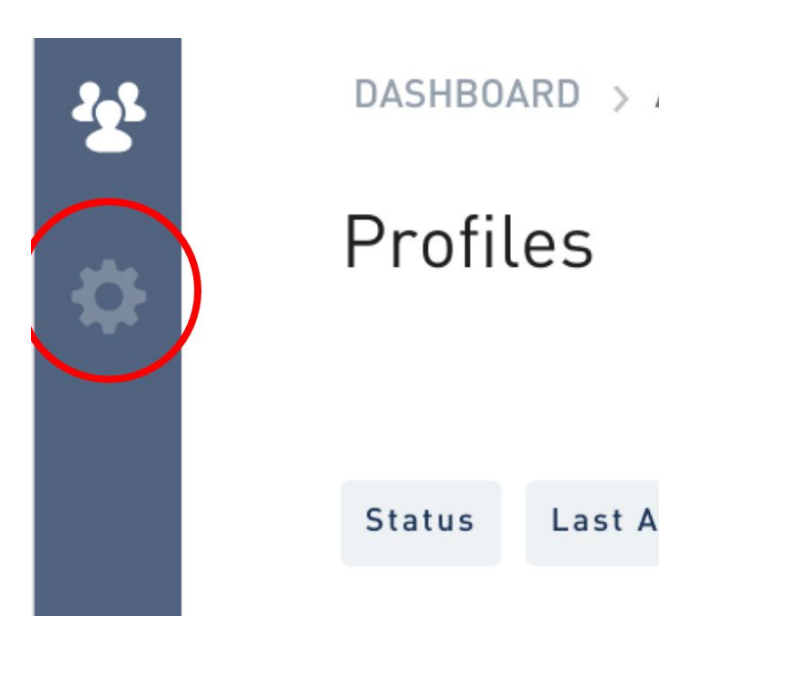
Issue an authenticated call

Once you get a token, you can use it to make calls to an API endpoint by appending an Authorization header. The header is the same regardless of the type of token.

The example below shows a call to retrieve medications history for a user :

```
GET /v1/human/medical/medications HTTP/1.1
Host: api.humanapi.co
Content-Type: application/json
Cache-Control: no-cache
Authorization: Bearer <access token>
```


Where to find the “client Id” and “client Secret” ?

	<p>1- Login to the Human API Portal</p>				
	<p>2- Click on the settings button for your app.</p>				
<p>General</p> <hr/> <p>CREDENTIALS</p> <table border="1" data-bbox="443 1646 938 1719"><tr><td>Client Id</td><td>xx</td></tr><tr><td>Client Secret*</td><td>xx</td></tr></table> <p><small>*These values should be kept securely on your server. Only ClientId is needed for support requests.</small></p>	Client Id	xx	Client Secret*	xx	<p>3- In the “General” section, you’ll find your client Id and secret.</p>
Client Id	xx				
Client Secret*	xx				

Inviting a new user to Connect

In many cases, a [direct integration](#) in your website or mobile app is not possible because the user is not interacting with you online. In some other cases, the user visits your website but they have already left by the time you know that you need them to share their medical records.

As an alternative to a direct integration, you can initiate the authorization process asynchronously by requesting that we send an invite to the customer. That's equivalent to creating a new user for your app. To do so, simply issue an authenticated call to the Admin API with your *client token*.

The request looks like this :

```
POST /api/v1/users HTTP/1.1
Host: admin.humanapi.co
Content-Type: application/json
Cache-Control: no-cache
Authorization : Bearer your-client-token

{
  "clientId": "policy_number",
  "clientEmail": "maxwell@starfleet.org",
  "firstName": "Maxwell",
  "lastName": "Forrest",
  "dateOfBirth": "1968-02-13T00:00:00.000Z",
  "suggestedSources": ["Max Forrest M.D.", "Angel Memorial Hospital"],
  "autoInvite": true
}
```

Attribute	Type	Description
clientId	String	(required) Your unique identifier of the user, such as the policy number.
clientEmail	Email	(required) A valid contact email address for the user
firstName	String	(optional) First name

lastName	String	(optional) Last name
dateOfBirth	Date	(optional)
suggestedSources	Array	(optional) A list of names of healthcare providers you'd like the user to authorize. This is just a hint for the user.
autoInvite	Bool	(required) set this flag to true if you want Human API to invite the user to connect, false otherwise.

Table 4 : New Invite request attributes

If the request is successful, you'll get a response with status 202 and the user details in the body. A successful response to the request above should look like this :

```
{
  "clientId": "your-policy-number",
  "humanId": "ef14404e9860776f6300e3e4cb10f84a",
  "firstName": "Maxwell",
  "lastName": "Forrest",
  "dateOfBirth": "1968-02-13T00:00:00.000Z",
  "suggestedSources": ["Max Forrest M.D.", "Angel Memorial Hospital"],
  "createdAt": "2020-02-21T18:23:21.445Z",
  "updatedAt": "2020-02-21T18:23:21.445Z",
  "status": "Invited",
  "inviteLink": "https://hapi-link.humanapi.co/..."
}
```

The **humanId** attribute is Human API's unique identifier for the user. Make sure that you keep it for later use.

The **inviteLink** attribute is the URL of the landing page, hosted by Human API, where the user can start the authorization process.

Cancel an invitation

In some cases, you may want to abort the authorization process, for example, after reaching a decision on the case earlier than expected. You can “cancel” the process at any time by deleting the user.

To delete the user, send a DELETE request, authenticated with your *client token*, identifying the user by their **humanId**.

The request looks like this :

```
DELETE /api/v1/users/ef14404e9860776f6300e3e4cb10f84a HTTP/1.1
Host: admin.humanapi.co
Content-Type: application/json
Cache-Control: no-cache
Authorization: Bearer your-client-token
```

A successful request yields a response with 200 status code and an empty body.

This operation is irreversible. Once you cancel an invite, the user is permanently deleted. If you want them to participate again. You have to start over and [create a new user](#).

After deleting the user :

- We will stop further communications, such as reminder emails.
- We will stop sending status notifications.
- The customer won't be able to authorize healthcare providers.

Checking the user status

After an invite is sent, you may want to know the status of the authorization (or lack thereof). You can do so either by subscribing to status notifications or polling the API on regular intervals.

Status notifications

If you have a status notification endpoint configured, we will post a notification to your endpoint whenever the user's status changes.

A user notification looks like this :

```
{
  "clientId":"12345678",
  "endpoint":"https://admin.humanapi.co/api/v1/users",
  "humanId":"ef14404e9860776f6300e3e4cb10f84a",
  "updatedAt":"2020-01-30T21:20:54.316Z",
  "property":"status",
  "value":"Declined"
}
```

Attribute	Type	Description
clientId	String	Your unique identifier for the user (policy number)
endpoint	URL	The endpoint where additional information about the user is available. This is always set to "https://admin.humanapi.co/api/v1/users"
humanId	String	Human API's unique identifier of the user.
updatedAt	Date	The exact timestamp when the change occurred.
property	String	Set to "status" when the user's status has changed.
value	String	The user's current status. Refer to table 6 below for details.

Table 5 : Status notification payload attributes

Please remember to comply with the specifications and respond to all notifications, not just those of interest, in less than 3 seconds.

Poll the API to check the user status

To get the list of all the reports available for a given user, you can issue a call to the API's /users endpoint, identifying the user by their **humanId**. The request must be authenticated by your *client token*.

```
GET /api/v1/users/ef14404e9860776f6300e3e4cb10f84a HTTP/1.1
Host: admin.humanapi.co
Content-Type: application/json
Cache-Control: no-cache
Auth: Bearer your-client-token
```

An example of a successful response to the request above, a user profile :

```
{
  "clientId": "your-policy-number",
  "humanId": "ef14404e9860776f6300e3e4cb10f84a",
  "firstName": "Maxwell",
  "lastName": "Forrest",
  "dateOfBirth": "1968-02-13T00:00:00.000Z",
  "createdAt": "1968-02-13T00:00:00.000Z",
  "updatedAt": "1968-02-13T00:00:00.000Z",
  "status": "Declined"
}
```

A quick guide to user status

Below, the values you may encounter for the status attribute :

Status	Description
Invited	The user record was created and an invite was sent.
Engaged	The user opened the link and engaged in the authorization process.
Declined	The user explicitly declined to participate.
Syncing	The user authorized access to at least one provider and the sync operation is in progress.

All Synced	We have successfully retrieved data from all the healthcare providers.
Some Synced	We have successfully retrieved data from some of the healthcare providers.
Error	We are unable to send an invite to the user or unable to retrieve data
Attn Required	We need the user to perform an action before we proceed (such as accepting the terms and conditions in the Patient portal)
Disconnected	The user has disconnected all the providers to whom they had previously authorized access.

Table 6 : Relevant user status values

Checking for data availability

Human API retrieves the data from Healthcare providers as soon as the user grants an authorization. The retrieval process is asynchronous by design.

When the data becomes available, within a few minutes to a few hours, we will send you notifications. Alternatively, you can check by making a request to the data API.

If you elect to use pub/sub notifications, you will know that data is available when you get a user status notification or a data notification.

User status notifications

If you have a status notification endpoint configured, we will post a notification to your endpoint whenever the user's status changes. A notification with a status set to "All Synced" or "Some Synced" means that data is available. You can refer to the [user status section](#) above for more details.

Data notifications

If you use Human API's data notifications feature, we will post a notification to your endpoint whenever a new report is available or when an existing report is updated.

Unlike user status notifications, the data notifications are more granular. We will tell you exactly which type of report is available. You get a separate notification for each report.

A report notification looks like this :

```
{
  "type": "unity",
  "endpoint": "https://api.humanapi.co/v1/human/medical/reports",
  "objectId": "a2549f89f15a1cf03e6b4e21",
  "updatedAt": "2020-01-30T21:20:54.316Z",
  "humanId": "ef14404e9860776f6300e3e4cb10f84a",
  "action": "created"
}
```


Attribute	Type	Description
type	String	Designates the type of report.
action	String	Set to “created” or “updated” respectively when the report is created for the first time or if it’s a subsequent update.
endpoint	URL	The endpoint where additional information about the report is available. This is always “.../v1/human/medical/reports”
humanId	String	Human API’s unique identifier of the user
updatedAt	Date	The exact timestamp of update or creation

Table 7 : Data notification payload attributes

You can distinguish a report notification from others by checking the value of its “endpoint” attribute, which is always set to “<https://api.humanapi.co/v1/human/medical/reports>”.

To identify the user, you can match their humanId attribute to your records. The humanId is supplied to you when the user was [initially created](#).

Please remember to comply with the specifications and respond to ALL notifications, not just those of interest, in less than 3 seconds.

Regular polls

If you don’t have notifications setup, your alternative (not recommended) is to poll the API on regular intervals to check which reports are available. You can refer to the next section ([Retrieving the list of available reports](#)) to implement this solution

Downloading medical records

What are reports?

Reports are distinct representations of electronic health records. Different reports are designed to serve different use cases. Human readable reports are available in PDF or HTML while reports for programmatic use cases are available as JSON.

Reports are compiled shortly after we get an authorization from an individual and retrieve the data from their healthcare providers. There are several ways for developers to know exactly when a report is available to download.

There are different ways to download a report. Either manually from our [Enterprise Portal](#) or automatically, using the API or an automated "push" delivery system.

PATIENT RECORD GENERATED BY

HUMAN API

Arthuretta Plasty
1 Main St. Anytown, CA 98765, US

DATE OF BIRTH: 01/27/1958 GENDER: Female RACE: N/A ETHNICITY: N/A

Sources

SOURCE NAME	RECORD RETRIEVED ON
Starfleet Medical	Feb 03, 2020 at 6:25:51 pm

Social History

TOBACCO USE
Never smoker

ALCOHOL USE
Yes

Medications

PRESCRIPTION	INSTRUCTIONS	DOSAGE	FREQUENCY	START DATE	END DATE
ALBUTEROL IN	Take as directed as needed				11-12-2019
ALPRAZolam (XANAX PO)	Take by mouth.				09-11-2018
Acetaminophen 500 Mg Po Tabs	Take 2 tablets by mouth every 8 hours for 10 days.		3.0/day	11-27-2019	
Albuterol Sulfate 108 (90 BASE) MCG/ACT Inhalation AEPB	Inhale 2 puffs every 4 hours as needed.				
Aliendronate Sodium 70 Mg Po Tabs	Take 1 tablet by mouth once a week.			07-31-2017	09-05-2017
Aspirin 325 Mg Po Tbec	Take 1 tablet by mouth every 12 hours.		2.0/day	11-27-2019	
Aspirin 81 MG PO TBDP	Take by mouth.				
Celecoxib 200 Mg Po Caps	Take 1 capsule by mouth 2 times a day.		2/day	11-27-2019	
Diss 100 Mg Po Caps	Take 1 capsule by mouth 2 times a day.		2/day	11-27-2019	
Escitalopram Oxalate (LEXAPRO PO)	Take by mouth. pt. takes 1.25 every other day		1/day		11-12-2019
Estradiol (ESTRACE) 0.1 MG/GM vaginal	1 gm vaginally ONE times			01-01-2016	09-14-2017

Example report rendered as a PDF document.

Types of available reports and formats

You may want the data to be organized and presented differently to meet your use case. You may need to see the entirety of a patient’s medical record or a concise version. You may want to have the data organized historically or grouped by types. You may want to surface specific details only, such as lab results.

We provide a set of standard reports representing the same underlying patient medical record. You can download the reports in JSON, HTML or PDF.

Below, a list of the standard reports that we make available.

Code	Description	Available formats		
		JSON	HTML	PDF
unity	<p>Health summary</p> <p>A concise longitudinal view of the patient's key medical data that is divided into sections including:</p> <ul style="list-style-type: none"> - Demographics, social history, list of prescriptions, conditions, procedures and vitals. - List of Encounters including reason for visit and associated diagnoses for in-person and remote care. - Test results. <p>This report is built separately for each healthcare provider. Each provider authorized by the end consumer will have their own report.</p>	✓	✓	✓
ccdraw	<p>Complete medical record</p> <p>The entire medical record of a patient , directly rendered from the CCD-A documents. This report renders the data as close as it can get to the original charts retrieved from the source EHR.</p> <p>This report is generated only when the user connects a data source that provides CCDA files. It’s typically not available from pharmacies or independent lab networks.</p> <p>This report is built separately for each healthcare provider. Each provider authorized by the end consumer may have their own report.</p>		✓	✓

apidata	<p>Bulk export of the clinical API</p> <p>This report aggregates the output of the main clinical API endpoints for a given individual. It's equivalent to calling all the Clinical API endpoints (except ccd and narratives) and concatenating the responses together.</p>	✓		
timeline	<p>Chronological health history</p> <p>This is a longitudinal view of a user's data organized in a timeline.</p>	✓		
healthcheck	<p>Health check</p> <p>Includes the full patient's vitals, labs and test results history.</p>		✓	✓
highlights	<p>Highlights summary</p> <p>Includes readings and trend graphs for key labs and vitals over the last 24 months. As well as build information (height, weight, ...) and social history</p>		✓	✓

Table 8 : List of standard reports

The standard report set covers the majority of use cases. If you don't find what you need in this list, you can either request a custom report, or build your own. We're happy to help in both cases.

Retrieving the list of available reports

You can request a list of all the available reports for a given user, if any. If you have implemented the notification feature, you don't need to do this. You can skip ahead to [downloading the report](#).

To get the list of all the reports available for a given user, you can issue an [authenticated call](#) to the API's `/human/medical/reports` endpoint.

```
GET /v1/human/medical/reports HTTP/1.1
Host: api.humanapi.co
Content-Type: application/json
Cache-Control: no-cache
Authorization: Bearer your-access-token
```

An example of a successful response to the request above, showing 2 available reports :

```
[
  {
    "id": "5e2f95696f90f40019a992b7",
    "createdAt": "2020-01-28T01:59:05.049Z",
    "updatedAt": "2020-01-28T01:59:33.312Z",
    "name": "apidata"
  },
  {
    "id": "5e2f95696f90f40019a992ba",
    "createdAt": "2020-01-28T01:59:05.049Z",
    "updatedAt": "2020-01-28T01:59:33.312Z",
    "name": "unity",
    "organization": {
      "href": "/medical/organizations/5b1daf3f079c652eaf41fd23",
      "id": "5b1daf3f079c652eaf41fd23",
      "name": "Starfleet Medical"
    }
  }
]
```

Download a report

To get the content of a report, you can issue an authenticated call to the `/human/medical/reports` endpoint, using an access token and identifying the report by its unique id.

Below, an example request to retrieve a PDF version of the report identified by "123456" (the "id" of the report).

```
GET /v1/human/medical/reports/123456/raw?format=pdf HTTP/1.1
Host: api.humanapi.co
Content-Type: application/json
Cache-Control: no-cache
Authorization: Bearer your-access-token
```

Some reports are available in multiple formats (JSON, HTML, or PDF). To specify which format you want, you can include a query string parameter "format" and set its value to the desired format (pdf, json or html). The response body will contain the data and the "content-type" header will be set accordingly (e.g: text/html when the format is html).

If you request a report in a format that is not supported, the API will return an error response with a status code of 400 or 415.

Questions? You can send an email to support@humanapi.co for enquiries and support requests. We are happy to help.