Microsoft Health Cloud API

By using this document and the Microsoft Health Cloud API, you agree to be bound by the Terms of Use. Further, if accepting on behalf of a company, then you represent that you are authorized to act on your company’s behalf.

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1 INTRODUCTION

Interested in building your new application or service to access Microsoft Health data? Want to integrate Microsoft Health data in your existing application? Now you can with the Microsoft Health Cloud API. The REST-based Microsoft Health Cloud APIs provides comprehensive user fitness and health data in an easy to consume format (JSON) that will allow you to enhance the experiences of your apps and services with real-time data from the Microsoft Health service.

2 GETTING STARTED

This document details the steps to get started with the Microsoft Health Cloud APIs.

2.1 ACCOUNT CREATION AND APPLICATION REGISTRATION

In order to connect to the Microsoft Health Cloud APIs, you will need a Microsoft Account with a registered application.

Remember that each app registered with Microsoft Account Developer Center is associated with the Microsoft account used for login to https://account.live.com/developers/applications. We recommend that you use a developer account instead of a personal account.

- To learn more about developer accounts, please visit https://msdn.microsoft.com/en-us/library/windows/apps/hh868184.aspx
- To sign up for a Microsoft account, please visit http://account.microsoft.com.
- Please make sure your Microsoft account is associated with a valid email address so we can keep you up-to-date on our latest status and releases.

To register your application in the Microsoft Account Developer Center, visit https://account.live.com/developers/applications. This will provide the client id and client secret that can be used within your application to authorize against Microsoft Health Cloud APIs.

App Settings

Client ID: 000000004015

Client secret: ThSblicgK6mNA7zY2BLu
Include URLs for your application’s privacy policy and Terms of Use:

If developing an application, please select “Yes” for Mobile or Desktop Client app” in “My applications/<your app name>/API Settings”.

Look in the Application Authentication Scheme and Workflow section or sample application for information about using client id and secret to build authorization workflows within your application.
2.2 AUTHENTICATION SCHEME

Microsoft Health Cloud API uses “Microsoft account (formerly Live Id)” token-based OAuth (Open Authorization) 2.0 authentication, a standard for token-based authentication and authorization.

OAuth allows an end user's account information to be used by third-party services, such as Microsoft Account, without exposing the user's password. To read more about OAuth 2.0, please visit [http://tools.ietf.org/html/rfc6749](http://tools.ietf.org/html/rfc6749).

Every Microsoft Health Cloud API call requires an access token using an HTTPS header in the request, in the following format:

```
Authorization: Bearer {token}
```

Please refer to the Application Authentication Scheme and Workflow section below or our sample app for information about building authorization workflows using OAuth within your application or service.

2.3 AUTHORIZATION SCOPES

The Microsoft Health Service supports five different scopes (or access types) for different types of user data. The developer needs to explicitly request authorization from each user to access their Microsoft Health data.

<table>
<thead>
<tr>
<th>Scope Name</th>
<th>Scope Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>mshealth.ReadProfile</td>
<td>ReadProfile will be able to access your profile. Your profile includes things like your name, gender, weight, and age. Your email address will not be shared.</td>
</tr>
<tr>
<td>mshealth.ReadActivityHistory</td>
<td>ReadActivityHistory will be able to access your daily and historical activity information. Your activity history includes things like your runs, workouts, sleep, and daily steps.</td>
</tr>
<tr>
<td>mshealth.ReadDevices</td>
<td>ReadDevices will be able to access information about the devices associated with your Microsoft Health account.</td>
</tr>
<tr>
<td>mshealth.ReadActivityLocation</td>
<td>ReadActivityLocation will be able to access the location information for your activities.</td>
</tr>
</tbody>
</table>
Offline_access will be able to receive a refresh token so it can work offline even when the user isn't active.

Based on scopes, the following will be shown to user at the consent page of the app or service.

Once the user authorizes access, Microsoft account will provide your application with a delegation ticket that you can use to authenticate with the Microsoft Health Cloud APIs. Please look in the Application Authentication Scheme and Workflow section below if you need more details about application authentication and the authorization workflow.

3 USING THE API

The Microsoft Health Cloud API is a cloud-based service that enables developers to access health and fitness data via REST APIs. All requests are made over HTTPS and the data is presented using JSON.

3.1 ACCESSING THE API

In order to make a successful call to Microsoft Health Cloud API, the following is required:

- A URL formed to meet the requirements of the desired request. The host for all API requests is api.microsoftofthehealth.net
Valid version

The OAuth token issued to application session in the header

A valid example of such a request is given below

GET /v1/me/Profile HTTP/1.1
Authorization: bearer EwCoAvF0BAAUkWhN6f8b00+=

If the API request is successful, the response will be the JSON with 200 return code.

HTTP/1.1 200 OK
Content-Type: application/json; charset=utf-8
{
  "firstName": "Jon",
  "lastName": "Dumont",
  "lastUpdateTime": "2015-05-20T18:39:29.461+00:00",
  "birthdate": "1980-03-01T20:44:18.851+00:00",
  "postalCode": "",
  "gender": "Male",
  "height": 1680,
  "weight": 5465,
  "preferredLocale": "en-us"
}

Please refer to the API Request Parameters section to see the parameters for every API.
3.2 API URLs

<table>
<thead>
<tr>
<th>API</th>
<th>Verb</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>V1/me/Profile</td>
<td>GET</td>
<td>Gets the user profile for the specified user.</td>
</tr>
<tr>
<td>V1/me/Devices</td>
<td>GET</td>
<td>Gets associated devices (Microsoft Band and phones) for a user.</td>
</tr>
<tr>
<td>V1/me/Devices/{DeviceId}</td>
<td>GET</td>
<td>Gets particular devices for a user.</td>
</tr>
<tr>
<td>V1/me/Activities</td>
<td>GET</td>
<td>Gets user activities for a specified date range or ID.</td>
</tr>
<tr>
<td>V1/me/Summaries/{period}</td>
<td>GET</td>
<td>Gets daily or hourly summaries for a date range.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Date ranges are start time plus two days for hourly summaries.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• There is no range restriction for daily summaries.</td>
</tr>
</tbody>
</table>

The JSON response for each of the APIs is explained in Microsoft Health Objects section below.

3.3 Versioning

The Microsoft Health Cloud APIs are versioned so that existing applications and services are not affected when changes are introduced. The following are few example of the non-breaking versus breaking changes:

<table>
<thead>
<tr>
<th>Non-Breaking changes</th>
<th>Breaking Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Addition of new values in JSON response</td>
<td>• Removal of existing values in JSON response</td>
</tr>
<tr>
<td></td>
<td>• Changing the type of values</td>
</tr>
<tr>
<td></td>
<td>• Moving types into different sub-groups or entities</td>
</tr>
</tbody>
</table>

Versions are specified as part of the URL, required on every request. The following example illustrates how the parameter is specified:

```
GET https://api.microsofthealth.net/v1/me/Profile/
```

We recommend that you use the same version for a particular URL request across your application. This is especially true when new API versions introduce attributes or operations that are not recognized by previous versions. Mixing API version can have unintended consequences and should be avoided.
3.4 Time & Time Zones

The Microsoft Health Cloud APIs use the ISO 8601 time format and support both UTC and local time. Note that you must also URL encode the times. For example, request to get daily summaries looks like the following:

**Local Time**

/v1/me/Summaries/Daily?startTime=2015-05-05T16%3A04%3A49.8578590-07%3A00&endTime=2015-05-06T16%3A04%3A49.840-07%3A00

**UTC Time**


Following ISO8601 convention, the time duration is specified in P[n]DT[n]H[n]M[n]S format.

3.5 Throttling & Usage Restrictions

The Microsoft Health service limits requests on a per-user basis, or more accurately, per access token. These limits are in place to make sure that individuals and apps do not adversely affect the experience of other users. The rate limit is given below.

<table>
<thead>
<tr>
<th>Max Requests Per Second</th>
<th>Max Requests Per Minute</th>
<th>Response Bandwidth per minute</th>
<th>Timeout for violation</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>500</td>
<td>1 MB</td>
<td>30 seconds</td>
</tr>
</tbody>
</table>

When an application exceeds the rate limit for a given API endpoint, the Microsoft Health Cloud API will return an HTTP 429 “Too Many Requests” response code and API requests will be rejected for 30 seconds.

If you hit the rate limit on a given endpoint, this is the body of the HTTP 429 message that you will see:

```
{
   "error": {
      "code": "TooManyRequests",
      "message": "Client application has been throttled and should not attempt to repeat the request until an amount of time has elapsed."
   }
}```
We ask that you honor the rate limit. If your application abuses the rate limits, it will be blocked, and you will be unable to get a response from the API. If your application has been blocked and you think there has been an error, you can contact the email address in the Support section.

### 3.6 Pagination

The Microsoft Health Cloud API supports pagination on requests that can respond with large collections, such as the collection returned by activities or summaries APIs. Each of these responses contains a limited number of items set by maxPagesize.

The maximum page size for different API requests is as follows:

<table>
<thead>
<tr>
<th>API Request</th>
<th>Max Pagesize</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summaries (Daily)</td>
<td>31</td>
</tr>
<tr>
<td>Summaries (Hourly)</td>
<td>48</td>
</tr>
<tr>
<td>Activities</td>
<td>1000</td>
</tr>
</tbody>
</table>

If the response is paged, it will also contain a nextPage property. To obtain the next page of items, pass this value of nextPage in the next API request. Repeat this process to page through the full collection. For the last page, nextPage will be absent.

For an example of pagination, calling the summaries method returns a response with nextPage:

```json
{
  "summaries": [
    ...
  ],
  "itemCount": 10
}
```
To get the next page of activities, simply pass the value of this URL in the next request:

```
```

As before, the response to this request includes nextPage, which can be passed in to get the next page of results. Continue this cycle to get new pages.

**Note:** Page URLs become stale over time, since the Microsoft Health app is continually uploading data to the Microsoft Health Cloud. If new items have been added to a list since you started paginating, they might not appear in the results. If you hold a page URL for some time and want to continue paging, it might be better to restart pagination by repeating the original request.
3.7 ERROR CODES

Errors are returned using standard HTTP error code syntax. The following HTTP status codes should be expected.

<table>
<thead>
<tr>
<th>Status code</th>
<th>Status message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>400</td>
<td>Bad Request</td>
<td>Cannot process the request because it is malformed or incorrect.</td>
</tr>
<tr>
<td>401</td>
<td>Unauthorized</td>
<td>Required authentication information is either missing or not valid for the resource.</td>
</tr>
<tr>
<td>403</td>
<td>Forbidden</td>
<td>Access is denied to the requested resource. The user might not have enough permission.</td>
</tr>
<tr>
<td>404</td>
<td>Not Found</td>
<td>The requested resource doesn’t exist.</td>
</tr>
<tr>
<td>429</td>
<td>Too Many Requests</td>
<td>Client application has been throttled and should not attempt to repeat the request until an amount of time has elapsed.</td>
</tr>
<tr>
<td>500</td>
<td>Internal Server Error</td>
<td>There was an internal server error while processing the request.</td>
</tr>
</tbody>
</table>

The error response is a single JSON object. The object contains a single property named `error`, which includes all of the details of the error message. Additional information is included in the body of the failed call. Here is an example of a full JSON error body:

```json
{
    "error": {
        "code": "NotFound",
        "message": "Device not found",
        "innererror": {
            "code": "NotFound",
            "message": "there was no device found for deviceid 2c7538fb-9cae-4987-9931-cd43604e6419"
        }
    }
}
```
**Important:** Error messages are not localized and are intended for the developer to reference. They shouldn't be displayed directly to the user.

### 3.8 Units of Measurements

Microsoft Health Cloud API uses the following for units of measurement across the APIs, unless otherwise specified.

#### 3.8.1.1 Metric System

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Length</strong></td>
<td>Centimeters (cm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Grams (g)</td>
</tr>
<tr>
<td><strong>Height</strong></td>
<td>Millimeters (mm)</td>
</tr>
<tr>
<td><strong>Temperature</strong></td>
<td>Celsius (°C)</td>
</tr>
<tr>
<td><strong>Speed</strong></td>
<td>Centimeters / second (cm/s)</td>
</tr>
<tr>
<td><strong>Pace</strong></td>
<td>Milliseconds / meter (ms/m)</td>
</tr>
</tbody>
</table>
Microsoft Health Cloud API introduces four different “objects” to the developer:

- **UserProfile**
- **Device**
- **Activity**
- **Summary**

Consumers of these objects should tolerate the addition of new fields and variance in ordering of fields. Not all fields appear in all contexts. It is safe to consider a nulled field, an empty set, and the absence of a field as the same thing.

### 4.1 UserProfile
The UserProfile object contains the general profile of the person using Microsoft Band.

#### 4.1.1.1 JSON Representation

```json
{
    "firstName": "Jon",
    "middleName": null,
    "lastName": "Dumont",
    "lastUpdateTime": "2015-05-08T18:03:29.528+00:00",
    "birthdate": "1975-03-22T17:00:00",
    "postalCode": "98007",
    "gender": "Male",
    "height": 1750,
    "weight": 7000,
}
```

#### 4.1.1.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FirstName</td>
<td>String</td>
<td>First name of the person</td>
</tr>
<tr>
<td>MiddleName</td>
<td>String</td>
<td>Middle name of the person</td>
</tr>
<tr>
<td>LastName</td>
<td>String</td>
<td>Last name of the person</td>
</tr>
<tr>
<td>LastUpdateTime</td>
<td>DateTime</td>
<td>The last time profile was updated</td>
</tr>
</tbody>
</table>
4.2 DEVICE

The Device object represents a device that collects and sends user data to the Microsoft Health service. An example of such a device is the Microsoft Band. Another example is the iPhone 5s or Microsoft Lumia 330, if the user has enabled the option to send steps to Microsoft Health App.

For more information on the multi-device scenario, please read http://lumiaconversations.microsoft.com/2015/04/22/microsoft-health-and-microsoft-band-update/

4.2.1.1 JSON Representation

```
{
    "deviceProfiles":
    {
        "id":"d3048b0c-f6a7-441b-967d-666d9ce5e986 ",
        "displayName":Microsoft Band,
        "lastSuccessfulSync":"2015-06-01T00:00:00+00:00"
        "deviceFamily":"Band"
    },
    {
        "id":"FFFF1300-FFFF-FFFF-6929-454E2D001160",
        "displayName":Nokia 630,
        "lastSuccessfulSync":"2015-01-01T00:00:00+00:00"
        "deviceFamily":"Windows"
    }
}
```
### 4.2.1.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>String</td>
<td>The id of the device</td>
</tr>
<tr>
<td>DisplayName</td>
<td>String</td>
<td>Display name of the device</td>
</tr>
<tr>
<td>LastSuccessfulSync</td>
<td>DateTime</td>
<td>Last successful time of the device sync</td>
</tr>
<tr>
<td>DeviceFamily</td>
<td>Enum</td>
<td>Different device family types; supported values are Band, Windows, Android, iOS</td>
</tr>
</tbody>
</table>

### 4.3 Activity

The Activity object represents activities a user has completed using the tiles on the Microsoft Band. An example of an activity is sleep. Another example is a run activity.

The different activity types exposed by Microsoft Health are as follows:

- Run
- Bike
- Free Play (Workout)
- Guided Workout
- Golf
- Sleep

Each of these is discussed in detail in this section.

#### 4.3.1 Run Activity

Run provides the relevant data for a user’s running session. In addition to the general activity data, Run also provides the following:

- Performance summary
- Distance summary

#### 4.3.1.1 JSON Representation

```json
{
    "activityType": "Run",
    "pausedDuration": null,
    "splitDistance": 160934,
    "mapPoints": null,
    "id": "2519709299999999999",
}```
"userId": null,
"deviceId": null,
"startTime": "2015-05-11T19:00:00+00:00",
"endTime": "2015-05-11T21:00:00+00:00",
"dayId": "2015-05-11T00:00:00+00:00",
"createdTime": "0001-01-01T00:00:00+00:00",
"createdBy": null,
"name": "!^%@$%^##%!@$#%^%@!$#^%@!",
"duration": "PT2H",
"performanceSummary": {  
   "finishHeartRate": 55,
   "recoveryHeartRateAt1Minute": null,
   "recoveryHeartRateAt2Minutes": null,
   "heartRateZones": {  
      "underAerobic": 120,
      "aerobic": null,
      "anaerobic": null,
      "fitnessZone": null,
      "healthyHeart": null,
      "redline": null,
      "overRedline": null
   }
 },
"distanceSummary": {  
   "period": "Activity",
   "totalDistance": 575920,
   "totalDistanceOnFoot": null,
   "actualDistance": 575920,
   "maxElevation": 0,
   "minElevation": 0,
   "waypointDistance": 2500,
"speed": null,
"pace": 1250173,
"overallPace": null
},
"minuteSummaries": null,
"caloriesBurnedSummary": {
    "period": "Activity",
    "totalCalories": 186
},
"heartRateSummary": {
    "period": "Activity",
    "averageHeartRate": 55,
    "peakHeartRate": 55,
    "lowestHeartRate": 55
}
},

4.3.1.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PerformanceSummary</td>
<td>Object</td>
<td>Summary of performance data, see Performance Summary</td>
</tr>
<tr>
<td>DistanceSummary</td>
<td>Object</td>
<td>Summary of distance data, see Distance Summary</td>
</tr>
<tr>
<td>PausedDuration</td>
<td>Duration</td>
<td>Length of time the user was paused during the run</td>
</tr>
<tr>
<td>SplitDistance</td>
<td>Long</td>
<td>Split distance during the run</td>
</tr>
<tr>
<td>Id</td>
<td>string</td>
<td>The unique identifier of the activity</td>
</tr>
<tr>
<td>UserId</td>
<td>string</td>
<td>The user identifier of the person who completed the activity</td>
</tr>
<tr>
<td>DeviceId</td>
<td>string</td>
<td>The device (Microsoft Band) that created the activity</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the activity</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the activity</td>
</tr>
<tr>
<td>DayId</td>
<td>DateTime</td>
<td>The date when this activity was created</td>
</tr>
</tbody>
</table>
### 4.3.2 Bike Activity

Bike provides the relevant data of a user’s bike session. In addition to the general activity data, run also provides the following:

- **Performance summary**
- **Distance summary**

#### 4.3.2.1 JSON Representation

```json
"bikeActivities": [

  {
    "activityType": "Bike",
    "activitySegments": [

    ],
    "performanceSummary": {
      "finishHeartRate": 120,
      "recoveryHeartRateAt1Minute": 109,
      "recoveryHeartRateAt2Minutes": 102,
      "heartRateZones": {
```
"overRedline": 2

"distanceSummary": {
    "period": "Activity",
    "totalDistance": 11433,
    "actualDistance": 11492,
    "elevationGain": 200,
    "maxElevation": 11400,
    "minElevation": 11200,
    "waypointDistance": 2500
},
"splitDistance": 160934,
"id": "2519726547949954190",
"startTime": "2015-04-21T19:53:25.0045809+00:00",
"endTime": "2015-04-21T19:54:56.0045809+00:00",
"dayId": "2015-04-21T00:00:00+00:00",
"createdTime": "0001-01-01T00:00:00+00:00",
"name": "@!#$%@&*()_+\{|>:"<>?,./;[",
"duration": "PT1M31S",
"caloriesBurnedSummary": {
    "period": "Activity",
    "totalCalories": 13
},
"heartRateSummary": {
    "period": "Activity",
    "averageHeartRate": 120,
    "peakHeartRate": 125,
    "lowestHeartRate": 106
}
### 4.3.2.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PerformanceSummary</td>
<td>Object</td>
<td>Summary of performance data, see Performance Summary</td>
</tr>
<tr>
<td>DistanceSummary</td>
<td>Object</td>
<td>Summary of distance data, see Distance Summary</td>
</tr>
<tr>
<td>SplitDistance</td>
<td>Long</td>
<td>Split distance during the run</td>
</tr>
<tr>
<td>Id</td>
<td>string</td>
<td>The unique identifier of the activity</td>
</tr>
<tr>
<td>UserId</td>
<td>string</td>
<td>The user identifier of the person who completed the activity</td>
</tr>
<tr>
<td>DeviceId</td>
<td>string</td>
<td>The device (Microsoft Band) which created the activity</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the activity</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the activity</td>
</tr>
<tr>
<td>DayId</td>
<td>DateTime</td>
<td>The date when this activity was created</td>
</tr>
<tr>
<td>CreatedTime</td>
<td>DateTime</td>
<td>The time when this activity was created</td>
</tr>
<tr>
<td>CreatedBy</td>
<td>String</td>
<td>The application which created this activity</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>The name of this activity</td>
</tr>
<tr>
<td>Duration</td>
<td>Duration</td>
<td>The length of the activity</td>
</tr>
<tr>
<td>ActivityType</td>
<td>Object</td>
<td>The activity type such as Run, Sleep, Bike, FreePlay (workout), Guided workout</td>
</tr>
<tr>
<td>Calories Burned Summary</td>
<td>Object</td>
<td>Summary of calories related data, see CaloriesBurnedSummary</td>
</tr>
<tr>
<td>Heart Rate Summary</td>
<td>Object</td>
<td>Summary of heart rate data; see HeartRateSummary</td>
</tr>
<tr>
<td>Activity Segments(optional)</td>
<td>Object</td>
<td>Summary of activity segments; see Segments</td>
</tr>
<tr>
<td>Minute Summary (optional)</td>
<td>Object</td>
<td>Minute-by-minute summary during the activity; see Minute Details</td>
</tr>
<tr>
<td>Map points (optional)</td>
<td>Object</td>
<td>Summary of GPS points during the activity; see Map Points</td>
</tr>
</tbody>
</table>

### 4.3.3 Free Play (Workout) Activity

Free play (also called Workout in Microsoft Band Tiles) contains the relevant data from a user’s workout activity.

In addition to the general activity data, run also providers the following:
Performance summary
Distance summary

4.3.3.1 JSON Representation

```json
{
    "activityType": "FreePlay",
    "activitySegments": [],

    "performanceSummary": {
        "finishHeartRate": 111,
        "recoveryHeartRateAt1Minute": null,
        "recoveryHeartRateAt2Minutes": null,
        "heartRateZones": {
            "underAerobic": null,
            "aerobic": null,
            "anaerobic": null,
            "fitnessZone": 60,
            "healthyHeart": null,
            "redline": null,
            "overRedline": null
        }
    },

    "distanceSummary": null,
    "pausedDuration": null,
    "splitDistance": null,
    "mapPoints": null,
    "id": "2519709371999999999",
    "userId": null,
    "deviceId": null,
    "startTime": "2015-05-11T17:00:00+00:00",
}
```
"endTime": "2015-05-11T17:59:59+00:00",
"dayId": "2015-05-11T00:00:00+00:00",
"createdTime": "0001-01-01T00:00:00+00:00",
"createdBy": null,
"name": null,
"duration": "PT59M59S",
"minuteSummaries": null,
"caloriesBurnedSummary": {
  "period": "Activity",
  "totalCalories": 413
},
"heartRateSummary": {
  "period": "Activity",
  "averageHeartRate": 111,
  "peakHeartRate": 114,
  "lowestHeartRate": 111
},
"properties": null

4.3.3.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PausedDuration</td>
<td>Duration</td>
<td>Length of the user was paused during the run</td>
</tr>
<tr>
<td>SplitDistance</td>
<td>Long</td>
<td>Split distance during the run</td>
</tr>
<tr>
<td>Id</td>
<td>string</td>
<td>The unique identifier of the activity</td>
</tr>
<tr>
<td>UserId</td>
<td>string</td>
<td>The user identifier of the person who completed the activity</td>
</tr>
<tr>
<td>DeviceId</td>
<td>string</td>
<td>The device (Microsoft Band) which created the activity</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the activity</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the activity</td>
</tr>
<tr>
<td>DayId</td>
<td>DateTime</td>
<td>The date when this activity was created</td>
</tr>
</tbody>
</table>
### 4.3.4 Guided Workout Activity

Guided Workout provides the relevant data for a user’s guided workout session. In addition to the general activity data, guided workout also provides the following:

- **Performance summary**

#### 4.3.4.1 JSON Representation

```json
"guidedWorkoutActivities": [
    [
        "activityType": "GuidedWorkout",
        "cyclesPerformed": 1,
        "roundsPerformed": 5,
        "repetitionsPerformed": 289,
        "workoutPlanId": "ST-MW-9016",
        "performanceSummary": {
            "finishHeartRate": 152,
            "recoveryHeartRateAt1Minute": 123,
            "recoveryHeartRateAt2Minutes": 110,
        }
    ]
]```
"heartRateZones": {
    "underAerobic": 1,
    "aerobic": 5,
    "anaerobic": 4,
    "fitnessZone": 6,
    "healthyHeart": 1,
    "redline": 1
}
,"id": "2519709421219467015",
"startTime": "2015-05-11T15:37:58.0532984+00:00",
"endTime": "2015-05-11T15:53:58.0532984+00:00",
"dayId": "2015-05-11T00:00:00+00:00",
"createdTime": "0001-01-01T00:00:00+00:00",
"name": "1st GWO",
"duration": "PT16M",
"caloriesBurnedSummary": {
    "period": "Activity",
    "totalCalories": 184
},
"heartRateSummary": {
    "period": "Activity",
    "averageHeartRate": 142,
    "peakHeartRate": 167,
    "lowestHeartRate": 76
}
}
4.3.4.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>string</td>
<td>The unique identifier of the activity</td>
</tr>
<tr>
<td>UserId</td>
<td>string</td>
<td>The user identifier of the person who completed the activity</td>
</tr>
<tr>
<td>DeviceId</td>
<td>string</td>
<td>The device (Microsoft Band) which created the activity</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the activity</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the activity</td>
</tr>
<tr>
<td>DayId</td>
<td>DateTime</td>
<td>The date when this activity was created</td>
</tr>
<tr>
<td>CreatedTime</td>
<td>DateTime</td>
<td>The time when this activity was created</td>
</tr>
<tr>
<td>CreatedBy</td>
<td>String</td>
<td>The application which created this activity</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>The name of this activity</td>
</tr>
<tr>
<td>Duration</td>
<td>Duration</td>
<td>The length of the activity</td>
</tr>
<tr>
<td>ActivityType</td>
<td>Object</td>
<td>The activity type such as Run, Sleep, Bike, FreePlay (workout), Guided workout</td>
</tr>
<tr>
<td>Calories Burned Summary</td>
<td>Object</td>
<td>Summary of calories related data, see CaloriesBurnedSummary</td>
</tr>
<tr>
<td>Heart Rate Summary</td>
<td>Object</td>
<td>Summary of heart rate data, see HeartRateSummary</td>
</tr>
<tr>
<td>Activity Segments</td>
<td>Object</td>
<td>Summary of activity segments, see Segments</td>
</tr>
<tr>
<td>Minute Summary</td>
<td>Object</td>
<td>Minute-by-minute summary during the activity, see Minute Details</td>
</tr>
<tr>
<td>Map points</td>
<td>Object</td>
<td>Summary of GPS points during the activity, see Map Points</td>
</tr>
<tr>
<td>CyclesPerformed</td>
<td>Int</td>
<td>Number of complete workout cycles performed</td>
</tr>
<tr>
<td>RoundsPerformed</td>
<td>Int</td>
<td>Number of rounds/circuit rounds performed</td>
</tr>
<tr>
<td>RepetitionsPerformed</td>
<td>Int</td>
<td>Numbers of repetitions performed</td>
</tr>
<tr>
<td>WorkoutPlanId</td>
<td>Int</td>
<td>Workout plan id</td>
</tr>
</tbody>
</table>

4.3.5 Golf Activity

Golf provides the relevant data for a user’s golf session.

4.3.5.1 JSON Representation

```json
{
    
}
"golfActivities": [
  {
    "activityType": "Golf",
    "activitySegments": [
      {
        "holeNumber": 1,
        "stepCount": 32,
        "distanceWalked": 2496,
        "segmentId": 63569091608604,
        "startTime": "2015-06-05T09:00:08.603+00:00",
        "endTime": "2015-06-05T09:12:56.603+00:00",
        "duration": "PT12M48S",
        "heartRateSummary": {
          "period": "Unknown"
        },
        "caloriesBurnedSummary": {
          "period": "Unknown",
          "totalCalories": 18
        },
        "segmentType": "GolfHole"
      },
      "totalStepCount": 32,
      "totalDistanceWalked": 216,
      "parOrBetterCount": 2,
      "longestDriveDistance": 181790,
      "longestStrokeDistance": 182158,
      "id": "2519688059922051338",
      "startTime": "2015-06-05T09:00:07.794+00:00",
      "endTime": "2015-06-05T15:40:32.794+00:00",
      "dayId": "2015-06-05T00:00:00.000+00:00",
      "duration": "PT6H40M25S",
    ]
  },
```
"caloriesBurnedSummary": {
    "period": "Activity",
    "totalCalories": 522
},
"heartRateSummary": {
    "period": "Activity"
}
```

### 4.3.5.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>string</td>
<td>The unique identifier of the activity</td>
</tr>
<tr>
<td>UserId</td>
<td>string</td>
<td>The user identifier of the person who completed the activity</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the activity</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the activity</td>
</tr>
<tr>
<td>DayId</td>
<td>DateTime</td>
<td>The date when this activity was created</td>
</tr>
<tr>
<td>ActivityType</td>
<td>Object</td>
<td>The activity type such as Run, Sleep, Bike, FreePlay (workout), Guided workout</td>
</tr>
<tr>
<td>TotalStepCount</td>
<td>Int</td>
<td>The total number of steps a user took during the activity</td>
</tr>
<tr>
<td>TotalDistanceWalked</td>
<td>Int</td>
<td>The total distance a user walked during the activity</td>
</tr>
<tr>
<td>ParOrBetterCount</td>
<td>Int</td>
<td>The number of holes played where the user scored par or better during the activity</td>
</tr>
<tr>
<td>LongestDriveDistance</td>
<td>Int</td>
<td>The distance of the longest drive hit by the user during the activity</td>
</tr>
<tr>
<td>LongestStrokeDistance</td>
<td>Int</td>
<td>The distance of the longest stroke hit by the user during the activity</td>
</tr>
<tr>
<td>Calories Burned Summary</td>
<td>Object</td>
<td>Summary of calories related data, see CaloriesBurnedSummary</td>
</tr>
<tr>
<td>Heart Rate Summary</td>
<td>Object</td>
<td>Summary of heart rate data, see HeartRateSummary</td>
</tr>
</tbody>
</table>
**4.3.5.3 Golf Segment**

<table>
<thead>
<tr>
<th>Field</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HoleNumber</strong></td>
<td>Int</td>
<td>The hole number on the golf course</td>
</tr>
<tr>
<td><strong>StepCount</strong></td>
<td>Int</td>
<td>The steps taken by the user for the hole</td>
</tr>
<tr>
<td><strong>DistanceWalked</strong></td>
<td>Int</td>
<td>The distance walked by the user for the hole</td>
</tr>
</tbody>
</table>
4.3.6 Sleep Activity
Sleep provides the relevant data from a user’s sleep session, regardless of whether the session was manually started or was auto-detected.

4.3.6.1 JSON Representation

```json
{
    "activityType": "Sleep",
    "activitySegments": [],
    "awakeDuration": "P1DT3H23M",
    "sleepDuration": "P14DT9H42M",
    "numberOfWakeups": 3,
    "fallAsleepDuration": "PT8H57M",
    "sleepEfficiencyPercentage": 95,
    "totalRestlessSleepDuration": "PT4H35M30S",
    "totalRestfulSleepDuration": "PT1H10M12S",
    "restingHeartRate": 63,
    "fallAsleepTime": "2015-05-11T08:25:56.202+00:00",
    "wakeupTime": "2015-05-11T14:27:35.755+00:00",
    "id": "2519709685807976512",
    "userId": null,
    "deviceId": null,
    "startTime": "2015-05-11T08:16:59.2023487+00:00",
    "endTime": "2015-05-11T14:30:04.2023487+00:00",
    "dayId": "2015-05-11T00:00:00+00:00",
    "createdTime": "0001-01-01T00:00:00+00:00",
    "createdBy": null,
    "name": null,
    "duration": "PT6H13M5S",
    "minuteSummaries": null,
    "caloriesBurnedSummary": {
        "period": "Activity",
    }
}
```
"totalCalories": 492
},
"heartRateSummary": {
    "period": "Activity",
    "averageHeartRate": 74,
    "peakHeartRate": 110,
    "lowestHeartRate": 56
},
"properties": null
}

### 4.3.6.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>string</td>
<td>The unique identifier of the activity</td>
</tr>
<tr>
<td>UserId</td>
<td>string</td>
<td>The user identifier of the person who completed the activity</td>
</tr>
<tr>
<td>DeviceId</td>
<td>string</td>
<td>The device (Microsoft Band) which created the activity</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the activity</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the activity</td>
</tr>
<tr>
<td>DayId</td>
<td>DateTime</td>
<td>The date when this activity was created</td>
</tr>
<tr>
<td>CreatedTime</td>
<td>DateTime</td>
<td>The time when this activity was created</td>
</tr>
<tr>
<td>CreatedBy</td>
<td>String</td>
<td>The application which created this activity</td>
</tr>
<tr>
<td>Name</td>
<td>String</td>
<td>The name of this activity</td>
</tr>
<tr>
<td>Duration</td>
<td>Duration</td>
<td>The length of the activity</td>
</tr>
<tr>
<td>ActivityType</td>
<td>Object</td>
<td>The activity type such as Run, Sleep, Bike, FreePlay (workout), Guided workout</td>
</tr>
<tr>
<td>Calories Burned Summary</td>
<td>Object</td>
<td>Summary of calories related data, see CaloriesBurnedSummary</td>
</tr>
<tr>
<td>Heart Rate Summary</td>
<td>Object</td>
<td>Summary of heart rate data, see HeartRateSummary</td>
</tr>
<tr>
<td>Activity Segments(optional)</td>
<td>Object</td>
<td>Summary of activity segments, see Segments</td>
</tr>
<tr>
<td>Minute Summary (optional)</td>
<td>Object</td>
<td>Minute-by-minute summary during the activity, see Minute Details</td>
</tr>
<tr>
<td><strong>Map points (optional)</strong></td>
<td><strong>Object</strong></td>
<td><strong>Summary of GPS points during the activity, see Map Points</strong></td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------</td>
<td>----------------------------------------------------------</td>
</tr>
<tr>
<td>AwakeDuration</td>
<td>Duration</td>
<td>Length of time user was awake during sleep session</td>
</tr>
<tr>
<td>SleepDuration</td>
<td>Duration</td>
<td>Total time of sleep activity</td>
</tr>
<tr>
<td>NumberOfWakes</td>
<td>Int</td>
<td>Number of wakeups</td>
</tr>
<tr>
<td>FallAsleepDuration</td>
<td>Duration</td>
<td>Length of time it took user to fall asleep</td>
</tr>
<tr>
<td>SleepEfficiencyPercentage</td>
<td>Int</td>
<td>Ratio of time asleep to total sleep</td>
</tr>
<tr>
<td>TotalRestlessSleepDuration</td>
<td>Duration</td>
<td>Total length of restless sleep in minutes</td>
</tr>
<tr>
<td>TotalRestfulSleepDuration</td>
<td>Duration</td>
<td>Total length of restful sleep in minutes</td>
</tr>
<tr>
<td>RestingHeartRate</td>
<td>Int</td>
<td>Resting heart rate during the sleep</td>
</tr>
<tr>
<td>FallAsleepTime</td>
<td>DateTime</td>
<td>Date and time of the day user fell asleep</td>
</tr>
<tr>
<td>WakeupTime</td>
<td>DateTime</td>
<td>Date and time of the day user woke up</td>
</tr>
</tbody>
</table>
4.4 **GENERAL ACTIVITY DATA**

This section captures the different activity data exposed by activities.

4.4.1 **Heartrate Zones**

Heart rate zones reflect exercise intensity and its effects on cardiovascular system.

4.4.1.1 **JSON Representation**

```
"heartRateZones": {
    "underAerobic": 1,
    "aerobic": 5,
    "anaerobic": 4,
    "fitnessZone": 6,
    "healthyHeart": 1,
    "redline": 1
}
```

4.4.1.2 **Properties**

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UnderAerobic</td>
<td>Int</td>
<td>Minutes under the Aerobic zone</td>
</tr>
<tr>
<td>Aerobic</td>
<td>Int</td>
<td>Minutes in the Aerobic zone</td>
</tr>
<tr>
<td>Anaerobic</td>
<td>Int</td>
<td>Minutes in the Anaerobic zone</td>
</tr>
<tr>
<td>FitnessZone</td>
<td>Int</td>
<td>Minutes in the fitness zone</td>
</tr>
<tr>
<td>Healthy Heart</td>
<td>Int</td>
<td>Minutes in the healthy heart zone</td>
</tr>
<tr>
<td>RedLine</td>
<td>Int</td>
<td>Minutes in the Redline zone</td>
</tr>
<tr>
<td>OverRedLine</td>
<td>Int</td>
<td>Minutes over the Redline zone</td>
</tr>
</tbody>
</table>
4.4.2 Activity Segment
Each of the activities in Microsoft Health can be divided into segments. These segments are created automatically when the user achieves a milestone (for example, reaching a mile mark during a run) or can be set by users (suspending and resuming an activity).

Each of the segments contains the same information as the activity, but the data is limited to that segment.

4.4.2.1 JSON Representation

```
{  
    "activitySegments": [  
        {  
            "segmentId": 635670725398665693,  
            "startTime": "2015-04-22T01:04:12.133+00:00",  
            "endTime": "2015-04-22T03:03:27.133+00:00",  
            "duration": "PT1H59M15S",  
            "heartRateSummary": {  
                "period": "Activity",  
                "averageHeartRate": 99,  
                "peakHeartRate": 124,  
                "lowestHeartRate": 70  
            },  
            "caloriesBurnedSummary": {  
                "period": "Activity",  
                "totalCalories": 517  
            },  
            "segmentType": "Run"  
        }  
    ]
}
```
4.4.3 Minute Details
The Minute summaries provide the details of every minute during the activity. It contains the same information as the activity, but is limited to that minute.

4.4.3.1 JSON Representation

```
"minuteSummaries": [

  {
    "userId": "89809f49-ba78-4d6e-9819-679b3185abf7",
    "startTime": "2015-04-16T20:05:00+00:00",
    "endTime": "2015-04-16T20:06:00+00:00",
    "period": "Minute",
    "duration": "PT1M",
    "stepsTaken": 0,
    "caloriesBurnedSummary": {
      "period": "Minute"
    },
    "heartRateSummary": {
      "period": "Minute"
    },
    "distanceSummary": {
      "period": "Minute",
      "totalDistance": 0,
      "totalDistanceOnFoot": 0
    }
  }
],
```

4.4.3.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UserId</strong></td>
<td><strong>String</strong></td>
<td>Unique identifier of the user in the Microsoft Health service</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------</td>
<td>-------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>StartTime</strong></td>
<td><strong>DateTime</strong></td>
<td>Start time of the period</td>
</tr>
<tr>
<td><strong>EndTime</strong></td>
<td><strong>DateTime</strong></td>
<td>End time of the period</td>
</tr>
<tr>
<td><strong>Period</strong></td>
<td><strong>Object</strong></td>
<td>Length of time bucket; see <a href="#">Period</a></td>
</tr>
<tr>
<td><strong>Duration</strong></td>
<td><strong>TimeSpan</strong></td>
<td>Time duration in ISO8601 format</td>
</tr>
<tr>
<td><strong>Steps</strong></td>
<td><strong>Int</strong></td>
<td>Total number of steps taken during the duration</td>
</tr>
<tr>
<td><strong>CaloriesBurnedSummary</strong></td>
<td><strong>Object</strong></td>
<td>Summary of calories related data, see <a href="#">CaloriesBurnedSummary</a></td>
</tr>
<tr>
<td><strong>HeartRateSummary</strong></td>
<td><strong>Object</strong></td>
<td>Summary of heart rate data, see <a href="#">HeartRateSummary</a></td>
</tr>
<tr>
<td><strong>DistanceSummary</strong></td>
<td><strong>Object</strong></td>
<td>Summary of distance data, see <a href="#">DistanceSummary</a></td>
</tr>
</tbody>
</table>
4.4.4 Map Point
Map points help provide the location of the user at a particular time, from the starting point until the end of the activity. Requesting location information requires that the application or service requests explicit user consent to mshealth.ReadActivityLocation offer. For more on offers, read through the Authorization Scopes section.

4.4.4.1 JSON Representation

```json
"mapPoints": [
  {
    "mapPointType": "Start",
    "ordinal": 0,
    "heartRate": 77,
    "scaledPace": 84,
    "isPaused": false,
    "isResume": false
  },
  {
    "secondsSinceStart": 314,
    "mapPointType": "Waypoint",
    "ordinal": 1,
    "actualDistance": 2500,
    "totalDistance": 2500,
    "heartRate": 107,
    "pace": 3030000,
    "scaledPace": 2,
    "speed": 33,
    "location":
    {
      "latitude": 10,
      "longitude": 20,
      "elevationFromMeanSeaLevel": 30
    }
  }
]
```


```json
{
  "isPaused":false,
  "isResume":false
},
{
  "secondsSinceStart": 398,
  "mapPointType": "End",
  "ordinal": 25,
  "actualDistance": 6241,
  "totalDistance": 6240,
  "heartRate": 84,
  "scaledPace": 100,
  "isPaused": true,
  "isResume": false
}
}
```

### 4.4.4.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SecondsSinceStart</td>
<td>Int</td>
<td>The number of seconds that have elapsed since mapping began</td>
</tr>
<tr>
<td>MapPointType</td>
<td>Object</td>
<td>Start, End, Split, Waypoint</td>
</tr>
<tr>
<td>Ordinal</td>
<td></td>
<td>Absolute ordering of this point relative to other points</td>
</tr>
<tr>
<td>ActualDistance</td>
<td>Long</td>
<td>Distance, not including distance travel while activity was paused</td>
</tr>
<tr>
<td>TotalDistance</td>
<td>Long</td>
<td>Distance from start point to this map point</td>
</tr>
<tr>
<td>HeartRate</td>
<td>Int</td>
<td>Heart rate at the closest time to this map point during the activity</td>
</tr>
<tr>
<td>Pace</td>
<td>Int</td>
<td>Time divided by Total Distance</td>
</tr>
<tr>
<td>ScaledPace</td>
<td>Int</td>
<td>An integer between 0 and 100 which represents the place between slowest and fastest pace; used to generate heat map or graph.</td>
</tr>
<tr>
<td>Speed</td>
<td>Int</td>
<td>Actual Distance divided by time</td>
</tr>
</tbody>
</table>
4.4.5 GPS Point

GPS point provides the latitude and longitude related data for an activity. This value is set only when GPS is enabled.

4.4.5.1 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SpeedOverGround</td>
<td>Int</td>
<td>Speed over ground in meters/second</td>
</tr>
<tr>
<td>Latitude</td>
<td>Int</td>
<td>Latitude in degrees</td>
</tr>
<tr>
<td>Longtitude</td>
<td>Int</td>
<td>Longitude in degrees</td>
</tr>
<tr>
<td>ElevationFromMeanSeaLevel</td>
<td>Int</td>
<td>Elevation from mean sea level</td>
</tr>
<tr>
<td>EstimatedHorizontalError</td>
<td>Int</td>
<td>Estimated horizontal error in meters</td>
</tr>
<tr>
<td>EstimatedVerticalError</td>
<td>Int</td>
<td>Estimated vertical error in meters</td>
</tr>
</tbody>
</table>
4.5 SUMMARY
The Summary object provides a sum-up of user data on an hourly or daily basis. This data is divided into several sub-groups:

<table>
<thead>
<tr>
<th>Steps</th>
<th>The total number of steps taken in the time period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calories Burned</td>
<td>The total calories burned in the time period</td>
</tr>
<tr>
<td>Heart Rate</td>
<td>The average, peak, and lowest heart rate in the time period</td>
</tr>
<tr>
<td>Distance</td>
<td>Distance-related measures in the time period</td>
</tr>
</tbody>
</table>

4.5.1.1 JSON Representation

```json
{
   "summaries": [
      {
         "userId": "1560c1d-0cfd-4ced-9766-4dfb2166034",
         "startTime": "2015-05-10T00:00:00+00:00",
         "endTime": "2015-05-11T00:00:00+00:00",
         "period": "Daily",
         "duration": "P1D",
         "stepsTaken": 5877,
         "caloriesBurnedSummary": {
            "period": "Daily",
            "totalCalories": 2810
         },
         "heartRateSummary": {
            "period": "Daily",
            "averageHeartRate": 58,
            "peakHeartRate": 109,
            "lowestHeartRate": 45
         },
         "distanceSummary": {
            "period": "Daily",
```
4.5.1.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UserId</td>
<td>String</td>
<td>Unique identifier of the user in the Microsoft Health service</td>
</tr>
<tr>
<td>StartTime</td>
<td>DateTime</td>
<td>Start time of the period</td>
</tr>
<tr>
<td>EndTime</td>
<td>DateTime</td>
<td>End time of the period</td>
</tr>
<tr>
<td>Period</td>
<td>Object</td>
<td>Length of time bucket; see Period</td>
</tr>
<tr>
<td>Duration</td>
<td>TimeSpan</td>
<td>Time duration in ISO8601 format</td>
</tr>
<tr>
<td>Steps</td>
<td>Int</td>
<td>Total number of steps taken during the duration</td>
</tr>
<tr>
<td>CaloriesBurnedSummary</td>
<td>Object</td>
<td>Summary of calories related data, see CaloriesBurnedSummary</td>
</tr>
<tr>
<td>HeartRateSummary</td>
<td>Object</td>
<td>Summary of heart rate data, see HeartRateSummary</td>
</tr>
<tr>
<td>DistanceSummary</td>
<td>Object</td>
<td>Summary of distance data, see DistanceSummary</td>
</tr>
<tr>
<td>ActiveHours</td>
<td>int</td>
<td>Number of active hours in the period; used for “daily summary”</td>
</tr>
</tbody>
</table>
4.5.1 Calories Burned Summary

Calories Burned provides calories burned during the period, using Microsoft Health algorithms.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Object</td>
<td>Length of time bucket; see Period</td>
</tr>
<tr>
<td>TotalCalories</td>
<td>Int</td>
<td>Total calories burned in the period</td>
</tr>
</tbody>
</table>

4.5.2 Heartrate Summary

Heartrate provides the heartrate data during the period, using Microsoft Health algorithms.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Object</td>
<td>Length of time bucket; see Period</td>
</tr>
<tr>
<td>AverageHeartRate</td>
<td>Byte</td>
<td>Average heart rate during the period</td>
</tr>
<tr>
<td>PeakHeartRate</td>
<td>Byte</td>
<td>Peak heart rate during the period</td>
</tr>
<tr>
<td>LowestHeartRate</td>
<td>Byte</td>
<td>Lowest heart rate during the period</td>
</tr>
</tbody>
</table>

4.5.3 Distance Summary

Distance summary provides the distance and time related metrics (speed, pace, et al) for an activity. This data is calculated from sensors.

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period</td>
<td>Object</td>
<td>Length of time bucket; see Period</td>
</tr>
<tr>
<td>TotalDistance</td>
<td>Long</td>
<td>Total distance in the period</td>
</tr>
<tr>
<td>TotalDistanceOnFoot</td>
<td>Long</td>
<td>Total distance covered on foot</td>
</tr>
<tr>
<td>ActualDistance</td>
<td>Long</td>
<td>Absolute distance, including any paused time</td>
</tr>
<tr>
<td>ElevationGain</td>
<td>Int</td>
<td>Cumulative elevation gain during the period</td>
</tr>
<tr>
<td>ElevationLoss</td>
<td>Int</td>
<td>Cumulative elevation loss during the period</td>
</tr>
<tr>
<td>MaxElevation</td>
<td>Int</td>
<td>Maximum elevation during the period</td>
</tr>
<tr>
<td>MinElevation</td>
<td>Int</td>
<td>Minimum elevation during the period</td>
</tr>
<tr>
<td>WayPointDistance</td>
<td>Long</td>
<td>Distance in cm used to waypoint the GPS data</td>
</tr>
<tr>
<td>Speed</td>
<td>Int</td>
<td>Total Period distance divided by period duration</td>
</tr>
<tr>
<td>Pace</td>
<td>Int</td>
<td>Period duration divided by total period distance</td>
</tr>
<tr>
<td>OverallPace</td>
<td>Int</td>
<td>Duration of all periods divided by distance of all periods</td>
</tr>
</tbody>
</table>
4.5.4 Performance Summary

Performance summary captures the heart rate at the end of the activity as well data about heart rate zones.

4.5.4.1 JSON Representation

```
"performanceSummary": {
    "finishHeartRate": 152,
    "recoveryHeartRateAt1Minute": 123,
    "recoveryHeartRateAt2Minutes": 110,
    "heartRateZones": {
        "underAerobic": 1,
        "aerobic": 5,
        "anaerobic": 4,
        "fitnessZone": 6,
        "healthyHeart": 1,
        "redline": 1
    }
}
```

4.5.4.2 Properties

<table>
<thead>
<tr>
<th>Property Name</th>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FinishHeartRate</td>
<td>Object</td>
<td>Heart rate when user finished the activity</td>
</tr>
<tr>
<td>HeartRateZones</td>
<td>Object</td>
<td>Summary of heart rate zones, see HeartRate Zones</td>
</tr>
<tr>
<td>RecoveryHeartRateAt1Minute</td>
<td>Duration</td>
<td>Heart rate at one minute after the activity is finished</td>
</tr>
<tr>
<td>RecoveryHeartRateAt2Minutes</td>
<td>Long</td>
<td>Heart rate at two minutes after the activity is finished</td>
</tr>
</tbody>
</table>

4.6 Period

Period defines the duration in which to display the summary. The currently supported values are:

<table>
<thead>
<tr>
<th>Period</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly</td>
<td>Divides the day(s) into hourly buckets and shows the data per hour</td>
</tr>
<tr>
<td>Daily</td>
<td>Summarizes the data on daily basis</td>
</tr>
<tr>
<td>Minute</td>
<td>Summarizes the data on a minute basis</td>
</tr>
</tbody>
</table>
4.7 **API Request Parameters**

4.7.1 **Profile**  
**Resource URL:** `<version>/me/Profile`

4.7.2 **Devices**  
**Resource URL**  
- `<version>/me/Devices`
- `<version>/me/Devices/{Deviceid}`

4.7.3 **Summaries**  
**Resource URL**  
- `<version>/me/Summaries/{period}?startTime={StartTime}&endTime={endTime}&deviceIds={deviceId}&maxPagesize={maxPageSize}`

Date ranges are start time plus two days for hourly summaries. There is no range restriction for daily summaries.

**Parameters**

<table>
<thead>
<tr>
<th>Arguments</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period (required)</td>
<td>Daily or Hourly</td>
</tr>
<tr>
<td>startTime (required)</td>
<td>Start time for data. Start time is inclusive.</td>
</tr>
<tr>
<td>endTime (optional)</td>
<td>End time for data. End time is exclusive.</td>
</tr>
<tr>
<td>deviceId(s) (optional)</td>
<td>Filter for particular device id</td>
</tr>
<tr>
<td>maxPageSize (optional)</td>
<td>Maximum page size</td>
</tr>
</tbody>
</table>
4.7.4 Activities

Resource URL

- `<version>/me/Activities/{ActivityIds}?startTime={startTime}&endTime={endTime}&activityIncludes={activityIncludes}&activityTypes={activityTypes}&deviceIds={deviceIds}&splitDistanceType={splitDistanceType}&maxPageSize={maxPageSize}

Parameters

<table>
<thead>
<tr>
<th>Arguments</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActivityIds</td>
<td>List of particular ids to get</td>
</tr>
<tr>
<td>startTime (required)</td>
<td>Start time for data. Start time is inclusive.</td>
</tr>
<tr>
<td>endTime (required)</td>
<td>End time for data. End time is exclusive.</td>
</tr>
<tr>
<td>activityTypes (optional)</td>
<td>Filtering for activity types using comma-separated list. Values are</td>
</tr>
<tr>
<td></td>
<td>- Run</td>
</tr>
<tr>
<td></td>
<td>- Sleep</td>
</tr>
<tr>
<td></td>
<td>- FreePlay</td>
</tr>
<tr>
<td></td>
<td>- GuidedWorkout</td>
</tr>
<tr>
<td></td>
<td>- Bike</td>
</tr>
<tr>
<td></td>
<td>- Golf</td>
</tr>
<tr>
<td>activityIncludes (optional)</td>
<td>Provides additional details for each activity. Values are using comma-separated list:</td>
</tr>
<tr>
<td></td>
<td>- Details: provides breakdown of activity into segments</td>
</tr>
<tr>
<td></td>
<td>- MinuteSummaries: provides data at each minute interval; see Minute Details for details</td>
</tr>
<tr>
<td></td>
<td>- MapPoints: provides breakdown of activity per distance intervals; see Map Points for details</td>
</tr>
<tr>
<td>deviceIds (optional)</td>
<td>Filter for particular device id using comma-separated list</td>
</tr>
<tr>
<td>splitDistanceType (optional)</td>
<td>Distance; options are miles or kilometers. If not specified, miles is default.</td>
</tr>
<tr>
<td>maxPageSize (optional)</td>
<td>Maximum page size</td>
</tr>
</tbody>
</table>

Special Notes

When filtering on particular activity ids, please note the following:

- If other parameters are applied that exclude the activity (i.e. a date range is passed in which is outside of where the activity id is) the results will come back empty
- Results may be unpredictable if there is a mismatch between activity type and activityid (i.e. you pass in an activity id of a sleep, but pass in activityType=Run)

4.8 Application Authentication Scheme and Workflow

The work flow for getting the access token is as follows.
Step 1. Get an authentication code
To start the sign-in process within your application or web service, use a web browser or web browser control to load a URL request.

Request

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>client_id</td>
<td>string</td>
<td>The client ID created for your app.</td>
</tr>
<tr>
<td>scope</td>
<td>string</td>
<td>A space-separated list of authorization scopes that your app requires.</td>
</tr>
<tr>
<td>redirect_uri</td>
<td>string</td>
<td>The redirect URL that the browser is sent to when authentication is complete. Use this redirect URL for mobile and desktop applications: <a href="https://login.live.com/oauth20_desktop.srf">https://login.live.com/oauth20_desktop.srf</a></td>
</tr>
</tbody>
</table>

Response
Upon successful authentication and authorization of your application, the web browser will be redirected to the redirect URL with additional parameters added to the URL.


Step 2. Redeem the code for access tokens
After you have received the code value, you can redeem this code for a set of tokens that allow you to authenticate with the Microsoft Health Cloud API.

Request
To redeem the code, make the following request:

POST https://login.live.com/oauth20_token.srf?client_id={client_id}&redirect_uri={redirect_uri}&client_secret={client_secret}&code={code}&grant_type=authorization_code

The request body is a properly encoded URL string, with some required parameters.

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>client_id</td>
<td>string</td>
<td>The client ID value created for your application.</td>
</tr>
<tr>
<td>Parameter name</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>--------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>redirect_uri</td>
<td>string</td>
<td>The redirect URL that the browser is sent to when authentication is complete. This should match the redirect_uri in the first request.</td>
</tr>
<tr>
<td>client_secret</td>
<td>string</td>
<td>The client secret created for your application.</td>
</tr>
<tr>
<td>code</td>
<td>string</td>
<td>The authorization code you received in the first authentication request.</td>
</tr>
</tbody>
</table>

Note: For web apps, the domain portion of the redirect URI must match the domain portion of the redirect URL that you specified in the app.

**Response**
If the call is successful, the response for the POST request contains a JSON string that includes several properties, including access_token, authentication_token, and refresh_token (if you requested the offline_access scope).

```json
{
    "token_type":"bearer",
    "expires_in": 3600,
    "scope":"mshealth.ReadDevices",
    "access_token":"EwCo...AA==",
    "refresh_token":"eyJh...9323"
}
```

<table>
<thead>
<tr>
<th>Response Parameter name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>token_type</td>
<td>string</td>
<td>Authorization type: “Bearer” in this case</td>
</tr>
<tr>
<td>expires_in</td>
<td>long</td>
<td>The amount of time in seconds when the access token is valid. You can request a new access token by using the refresh token (if available), or by repeating the authentication request from the beginning.</td>
</tr>
<tr>
<td>scope</td>
<td>string</td>
<td>A space-separated list of scopes that your app requires.</td>
</tr>
<tr>
<td>access_token</td>
<td>string</td>
<td>Access token to authenticate against Microsoft Health Cloud APIs</td>
</tr>
<tr>
<td>Parameter name</td>
<td>Value</td>
<td>Description</td>
</tr>
<tr>
<td>----------------</td>
<td>-----------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>refresh_token</td>
<td>string</td>
<td>The refresh token you received previously</td>
</tr>
</tbody>
</table>

**Step 3. Calling Microsoft Health Cloud API**
You can now store and use the access_token provided to make authenticated requests to the Microsoft Health Cloud API.

GET https://api.microsoftofthehealth.net/v1/me/Profile/
Authorization: bearer EwCo...AA==

**Step 4. Get a new access token or refresh token (optional)**
If your app has requested access to offline_access, this step will return a refresh_token that can be used to generate additional access tokens after the initial token has expired.

**Request**
To redeem the refresh token for a new access token, make the following request:

GET https://login.live.com/oauth20_token.srf?client_id={client_id}&redirect_uri={redirect_uri}&client_secret={client_secret}&refresh_token={refresh_token}&grant_type=refresh_token

The request body is a properly encoded URL string, with some required parameters.

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>client_id</td>
<td>string</td>
<td>The client ID created for your application.</td>
</tr>
<tr>
<td>redirect_uri</td>
<td>string</td>
<td>The redirect URL that the browser is sent to when authentication is complete. This should match the redirect_uri value used in the first request.</td>
</tr>
<tr>
<td>client_secret</td>
<td>string</td>
<td>The client secret created for your application.</td>
</tr>
<tr>
<td>refresh_token</td>
<td>string</td>
<td>The refresh token you received previously.</td>
</tr>
</tbody>
</table>
Note: For web apps, the domain portion of the redirect URL must match the domain portion of the redirect URL that you specified in the application.

**Response**

If the call is successful, the response for the POST request contains a JSON string that includes several properties, including access_token, authentication_token, and refresh_token (if you requested the offline_access scope).

```json
{
    "token_type":"bearer",
    "expires_in": 3600,
    "scope":"mshealth.ReadDevices",
    "access_token":"EwCo...AA==",
    "refresh_token":"eyJh...9323"
}
```

<table>
<thead>
<tr>
<th>Response Parameter name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>token_type</td>
<td>string</td>
<td>Authorization type: “Bearer” in this case</td>
</tr>
<tr>
<td>expires_in</td>
<td>long</td>
<td>The amount of time in seconds when the access token is valid. You can request a new access token by using the refresh token (if available), or by repeating the authentication request from the beginning.</td>
</tr>
<tr>
<td>scope</td>
<td>string</td>
<td>A space-separated list of authorization scopes that your app requires.</td>
</tr>
<tr>
<td>access_token</td>
<td>string</td>
<td>Access token to authenticate against Microsoft Health Cloud APIs</td>
</tr>
<tr>
<td>refresh_token</td>
<td>string</td>
<td>The refresh token you received previously</td>
</tr>
</tbody>
</table>

**Step 5. Log Out (Optional)**

To sign a user out, perform the following steps:

1. Delete any cached access_token or refresh_token values you've previously received from the OAuth flow.
2. Perform any sign out actions in your application (for example, cleaning up local state, removing any cached items, etc.).
3. Make a call to the authorization web service using this URL:
This call will remove any cookies that enable single sign-on to occur and ensure that next time your app launches the sign in experience, the user will be requested to enter a username and password to continue.

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Value</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>client_id</td>
<td>string</td>
<td>The client ID created for your application.</td>
</tr>
<tr>
<td>redirect_uri</td>
<td>string</td>
<td>The redirect URL that the browser is sent to when authentication is complete. This should match the redirect_uri value used in the first request.</td>
</tr>
</tbody>
</table>

After removing the cookie, the browser will be redirected to the redirect URL you provided. When the browser loads your redirect page, no authentication query string parameters will be set, and you can infer the user has been logged out.

5 SAMPLE APPLICATION

There is a sample Windows application available to help you get starting with the Microsoft Health Cloud API. To use the sample Windows application, you will need:

  - During installation, please select "Windows SDK 8.1" to install the Windows SDK.

To download and run the sample Windows application:

1) Navigate to: [http://developer.microsofthealth.com/CloudAPI](http://developer.microsofthealth.com/CloudAPI)
2) Click on the “Sample Application” link to download MicrosoftHealthSample.zip. Extract all files in the zipped folder:
   - MicrosoftHealthSample
     - MicrosoftHealthSample.Shared
     - MicrosoftHealthSample.Windows
     - MicrosoftHealthSample.WindowsPhone
   - MicrosoftHealthSample.sln
4) Select Open Project, browse to your local folder and select MicrosoftHealthSample.sln
5) You will be prompted to sign in and get a developer license the first time if you don’t already have one.
6) Drop down the View menu and select Solution Explorer.
7) In the Solution Explorer panel, open MicrosoftHealthSample.Shared/MainPage.cs at the bottom of the list and update the clientId and clientSecret strings.
   The clientId and clientSecret can be obtained from
https://account.live.com/developers/applications. Refer to the Account Creation and Application Registration for more information.

8) Build and run the solution.
9) Click "Sign In" and enter the username and password for the Microsoft Account associated with your Microsoft Health data.
10) Use the buttons to view your Microsoft Health data.
11) Please note that "Get Profile" is intentionally broken to demonstrate the error returned if the user has not authorized the right scope.

6 SUPPORT

Please reach out to mshealth@microsoft.com for issues.