MANITOU API - How to get onboard

Jul 22th 2021 - version 2.2

Description : **this document provides information on how to connect to the MANITOU API service for connected machines data, named Connected Solutions. The following key steps are for customer IT teams to go live with their MANITOU API solution upon agreement signature and terms & conditions acceptance.**

NEW **NOTE :** changes from the previously published version of this document are marked with the "new" symbol in the margin.

Preamble

MANITOU API is a data service in the form of APIs (Application Programming Interface) that provides the Customer access to protected resources, in coherence with the Customer's service level of subscription.

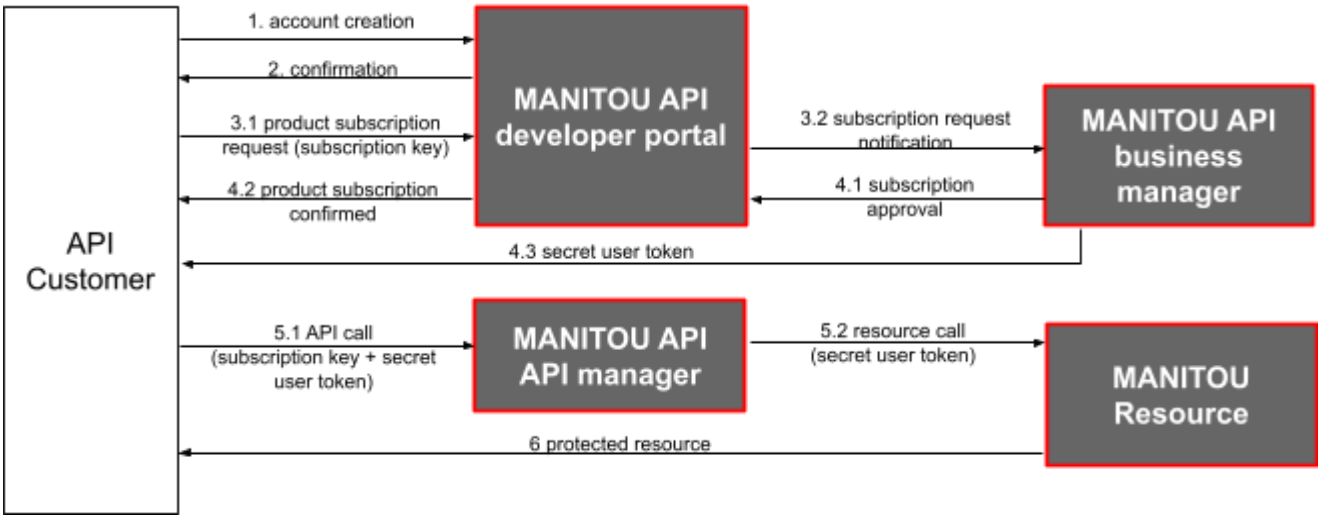
These APIs provide a wide range of features that help improve efficiency and productivity. All the features rely on the principles of RESTful APIs, which consider every accessible item as a resource with its unique id that can be used and reused.

Each API serves a specific set of information, but shares common features of results paging, attribute filtering, records sorting. All these features are described with examples in this document.

This documentation introduces the user to MANITOU API's security and access design. Another documentation is provided to the user, to explain the API usage and how to get the desired information from which API endpoint, under the name "MANITOU API - Using the service". It should be read after the present documentation.

Overview of the authorization process

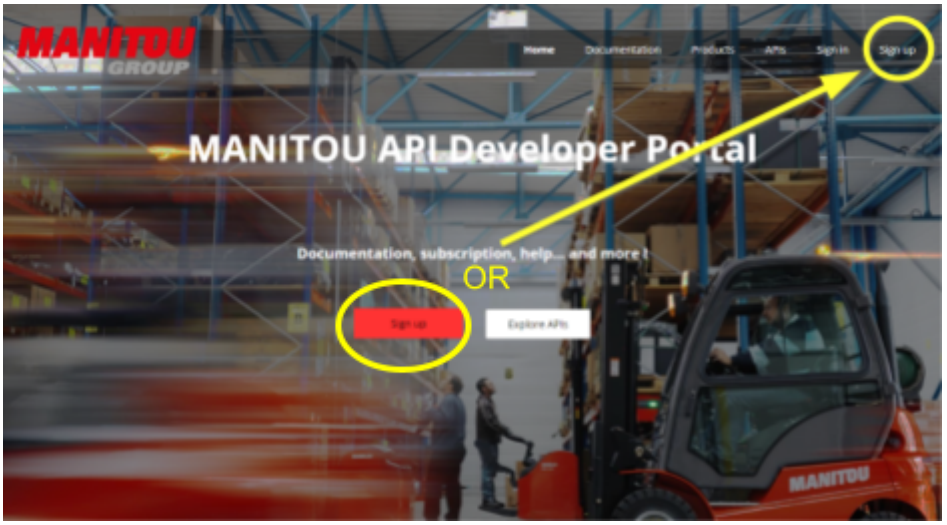
The following schema sums up the order of every step needed to interact successfully with MANITOU API.
Each will be described further down in this document.



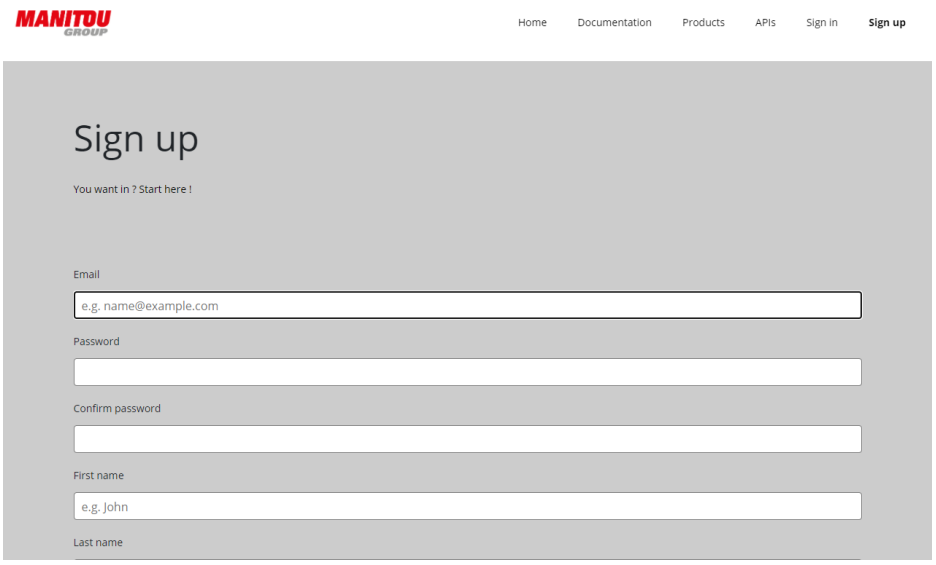
Steps 1 & 2 : account creation on the MANITOU API Developer portal

1. Account creation

The first step for every customer is to go create their account on the MANITOU API Developer portal : https://apiportal.manitou-group.com/



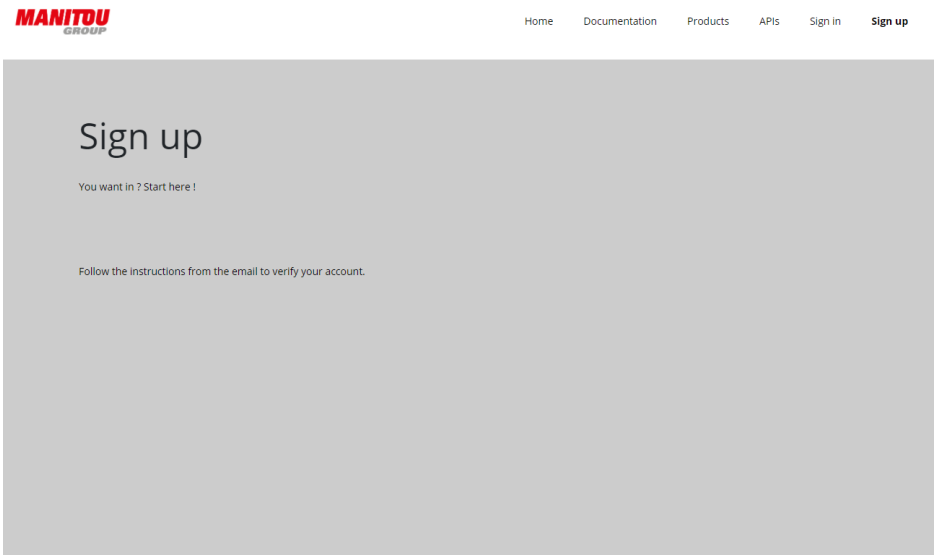
Click on “Sign up” on the upper right hand of the screen or in the middle of the screen.



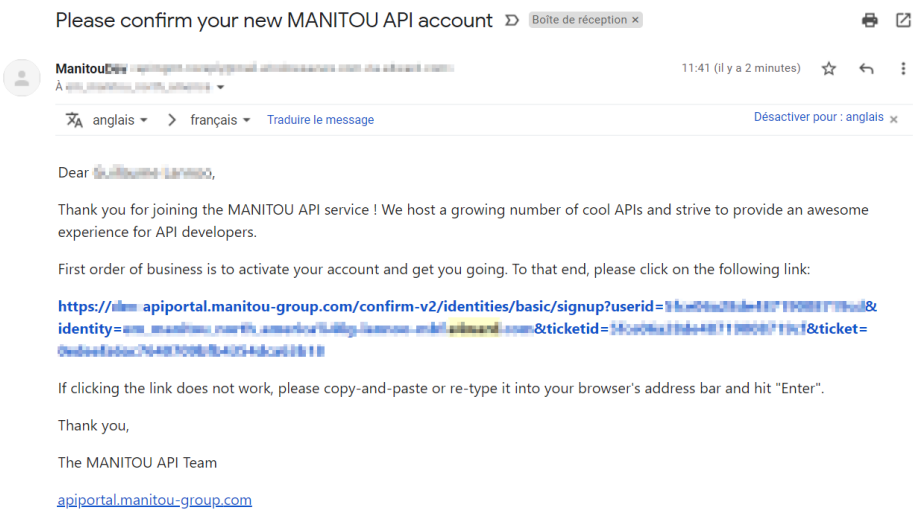
Fill in the form that appears in the sign up screen, enter the captcha value and click on the “sign up” button.

⇒ **NOTE** : please provide a valid professional email address in the first field.
It is important to understand that this address will be the one receiving notifications related to the life of the subscription.
The recipient should be an individual with sufficient technical knowledge to handle operations related to an API portal account.

2. Account confirmation

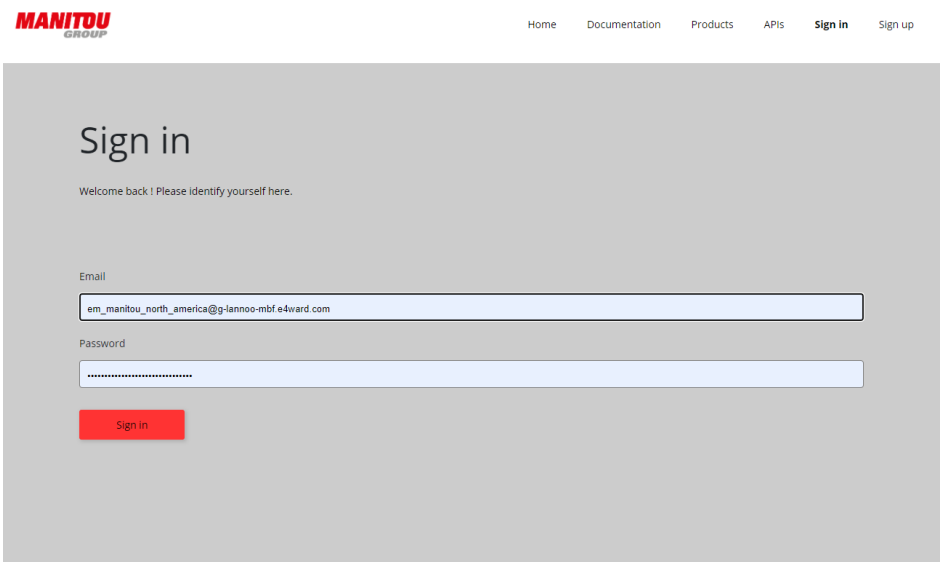


If everything went right, this screen will appear, prompting you to follow the instructions in the verification email you’ll receive, to confirm your account creation.



Upon reception of the confirmation email, click on the link provided to activate your account.

⇒ **NOTE** : some users may not find the account creation email in their inbox, but may find it in their “spam” folder, incorrectly identified as spam.



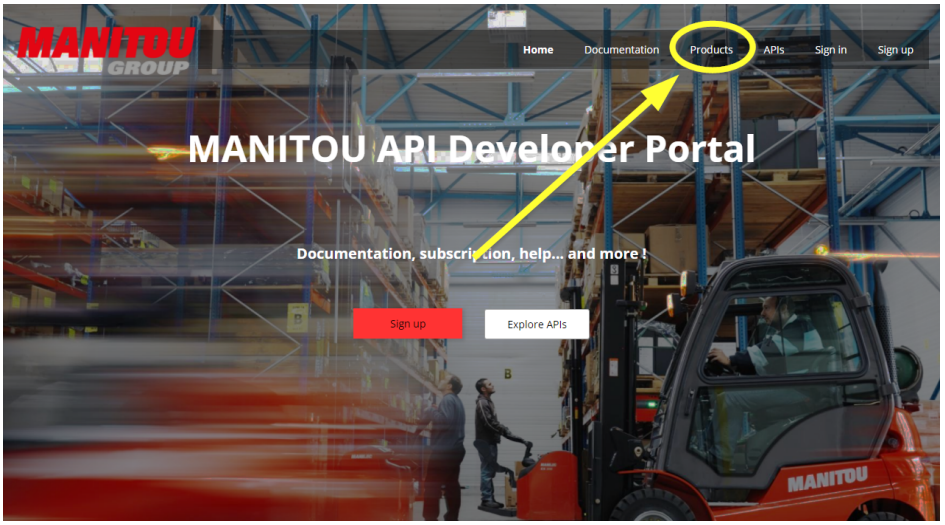
Following the link provided in the confirmation email, you’ll end up on the “sign in” page of the developer portal.
Just enter your email and password, and you’re in.

Steps 3 & 4 : subscribe to a MANITOU API product

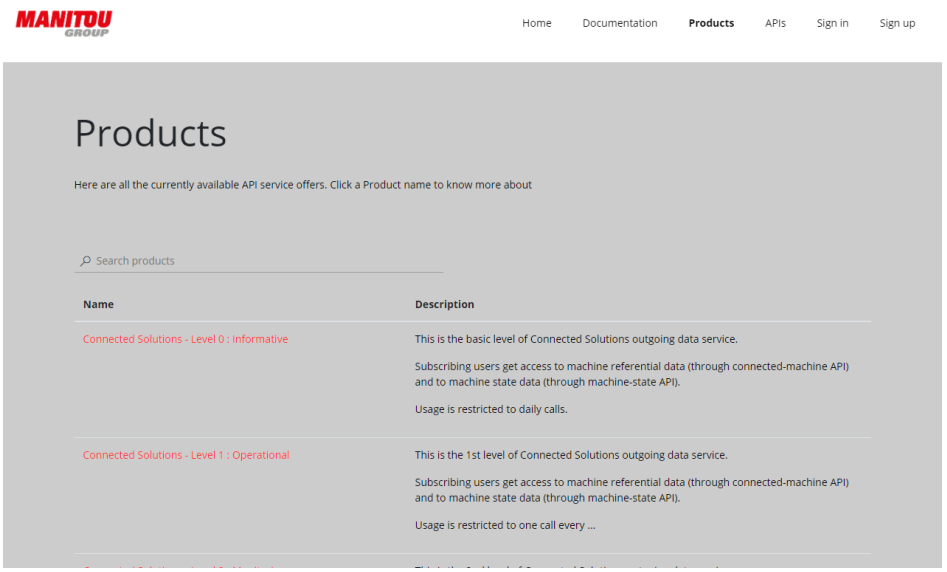
MANITOU API delivers a lot of different services, which are all available as Products. A Product delivers access to a defined set of APIs, applying an access restriction and usage policy that matches a defined level of service.

A Customer can request a subscription to any Product at any time. An agreement must exist between MANITOU Group and the Customer to accept a Product subscription.

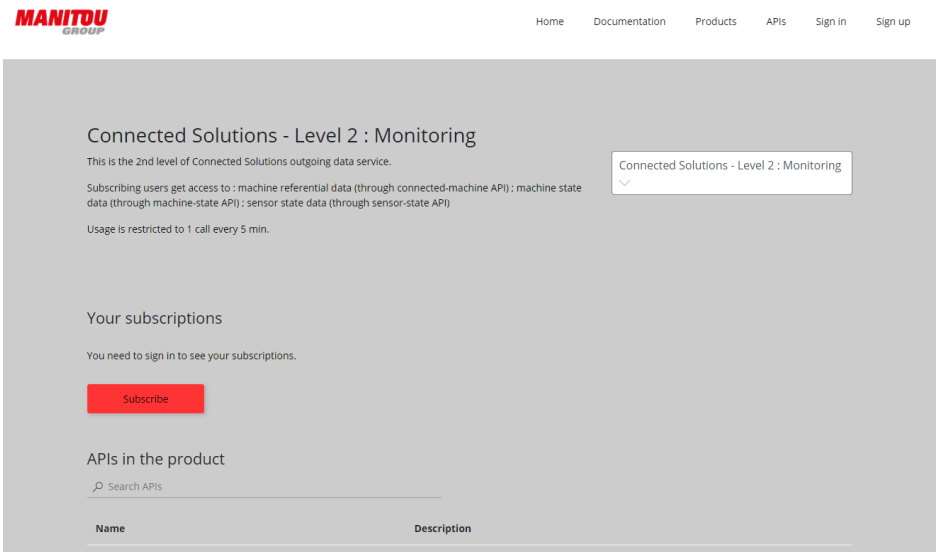
3.1 Product subscription request



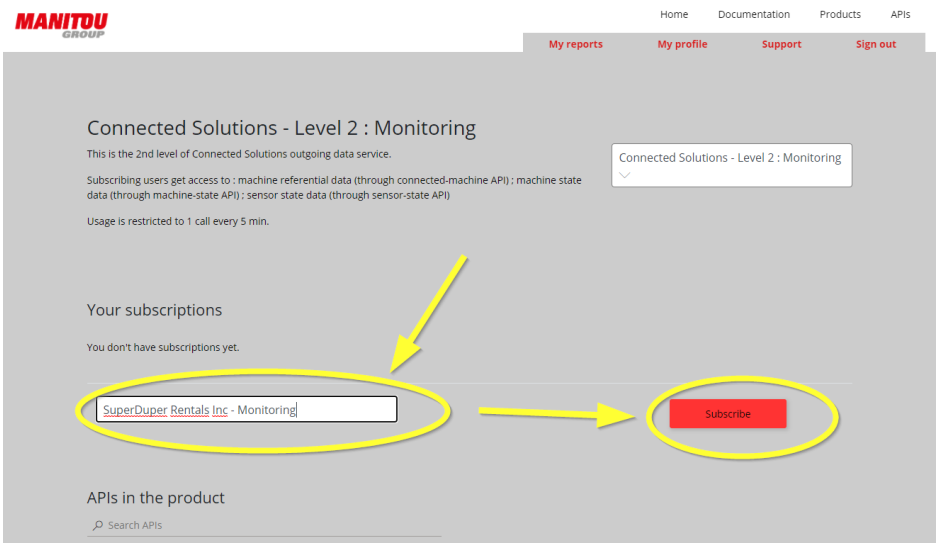
From the MANITOU API Developer Portal, access to the “Products” page



The Products page lets the Customer explore the possibilities of each product. Choose the product you wish to subscribe to and click on it.



Once on the product page, you can request a subscription. This is the screen that appears if you're not signed id to the portal. Be sure to sign in with the user you've created at steps 1 & 2.

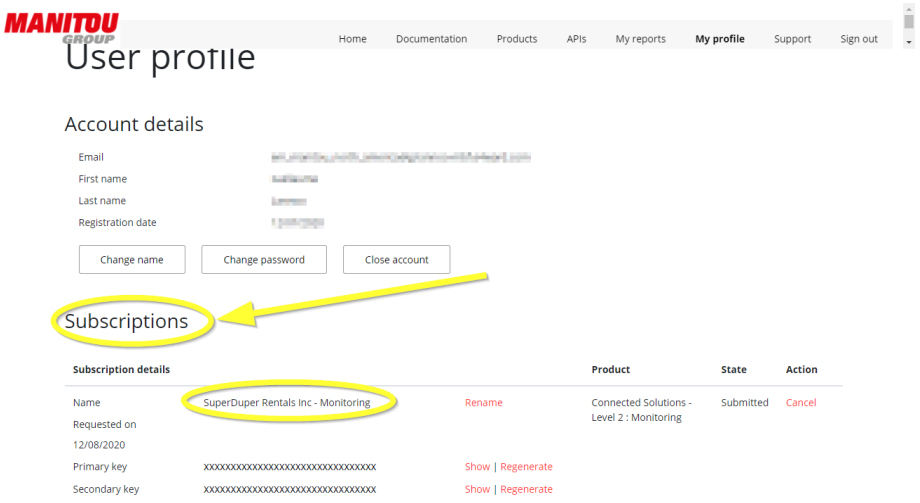


Type in the name for your subscription then click the "Subscribe" button.

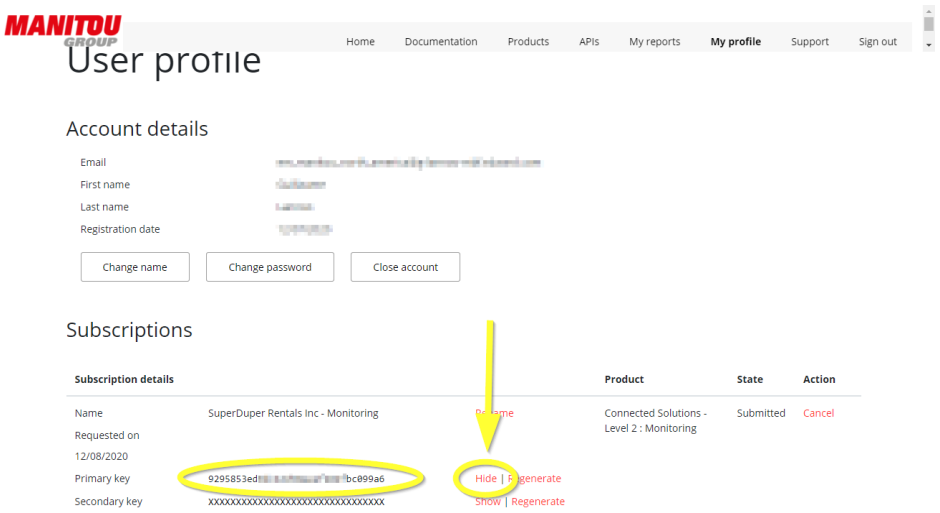
⇒ **NOTE** : as a good practice, the name of the subscription should be explicit enough to identify clearly the Customer company and, when it exists, the data collector company.

For example, in the case where the Customer company is autonomous in using the MANITOU API service, the subscription should be named "Customer company name - XXX".

If the Customer company uses the services of a data collector company, the subscription should be name "Data collector company name - Customer company name - XXX"



If the subscription request is successful, your user profile page will appear, showing a new line in the “subscriptions” section.

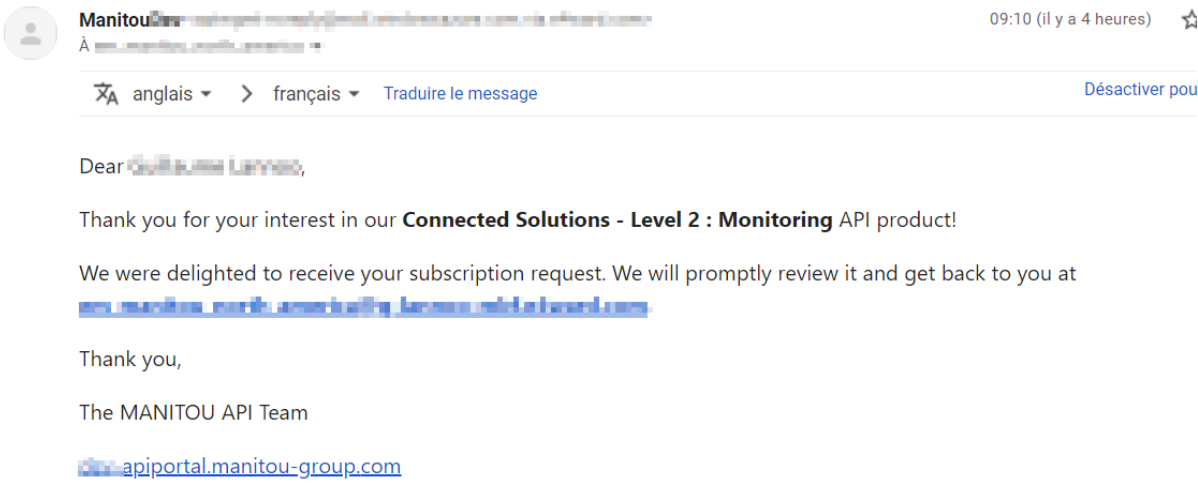


You will need a subscription key to perform API calls later on.
For each of your subscriptions, a pair of primary and secondary keys are generated.
Only you can access these subscription keys, one of which will be required to perform API calls.

⇒ **NOTE** : You can regenerate any of these keys if you think they have been compromised. When regenerating one key, you can still be calling APIs using the other one.

⇒ **NOTE** : the subscription keys are provided without regard to the subscription being effectively active.
The subscription request must be approved for the keys to be used to call APIs.

3.2 Product subscription request notification



You will receive an email notifying you of your request for a product subscription.
At the same time, a member of the business team at MANITOU will be warned of your subscription request, which will initiate the request review process

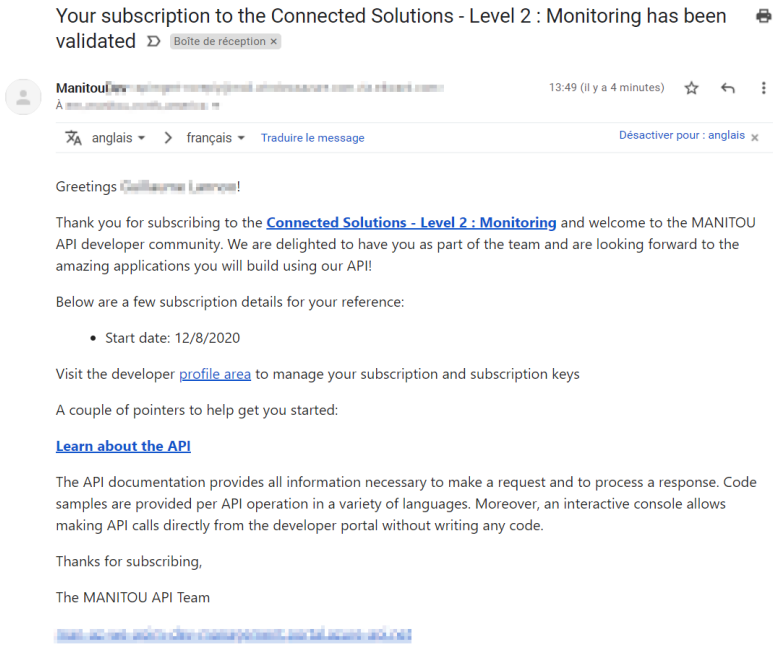
4.1 Subscription approval

The Customer subscription will be accepted by the business team as soon as every part of the service agreement is in good order.

In some cases, the agreement may have been prepared in advance, so the operation will be really fast.

Other times, if the Customer delegates the technical operations to an external Consultant, the subscription approval can be lengthened for a few days.

4.2 Product subscription confirmed



Your subscription to the Connected Solutions - Level 2 : Monitoring has been validated Boîte de réception ×

Manitou [redacted] 13:49 (il y a 4 minutes)

anglais › français Traduire le message Désactiver pour : anglais ×

Greetings [redacted]!

Thank you for subscribing to the **Connected Solutions - Level 2 : Monitoring** and welcome to the MANITOU API developer community. We are delighted to have you as part of the team and are looking forward to the amazing applications you will build using our API!

Below are a few subscription details for your reference:

- Start date: 12/8/2020

Visit the developer profile area to manage your subscription and subscription keys

A couple of pointers to help get you started:

Learn about the API

The API documentation provides all information necessary to make a request and to process a response. Code samples are provided per API operation in a variety of languages. Moreover, an interactive console allows making API calls directly from the developer portal without writing any code.

Thanks for subscribing,

The MANITOU API Team

[redacted]

This is the email you'll receive, confirming your subscription has been accepted by the business team and is now active.

4.3 Secret user token

As part of our 2-factor authentication mechanism, an additional key named "secret user token" is needed to get access to the protected resources exposed through MANITOU API.

The business team will generate and send the Customer a secret user token as soon as the subscription is activated.

Steps 5 & 6 : calling APIs

5.1 API call

According to the restriction defined in the usage policies of the Product, the Customer can now send an API call to the endpoint of his choice, using his subscription key and his secret user token.

Considering that APIs can be the subject of upgrades and changes, which could imply a need for the Customer to stop using it while adapting to the evolutions, MANITOU

API provides a solution for continuity of service.
The Customer just has to indicate what version of the API is being called. This way, the adaptation to evolutions of version 2 can be dealt with while still using version 1.

All these informations are transmitted as headers along the API call, as follows :

Header name	Header value
`Ocp-Apim-Subscription-Key`	Customer subscription key (primary or secondary)
`X-token`	Customer secret user token
`api-version`	Version number (v1, v2, etc.)

5.2 Resource call

Once the API call has been authorized by the API manager, it is dispatched to the resource server with the secret user token as a second security factor and the API version, to ensure the response will be in the format expected by the Customer.

6. Protected resource delivery

The resource server will then answer the request with the proper data set.

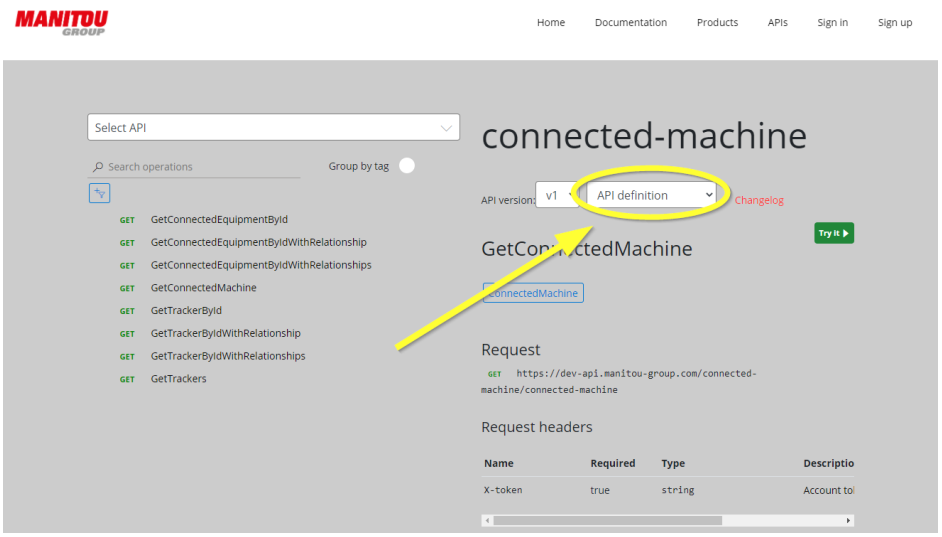
> ⇒ **NOTE** : the description of the best way to make use of the methods and resources exposed through MANITOU API is detailed in separate documents covering this topic for each APIs of a given Product range.
> For example, the API usage recommendations for the "Connected Solutions" product range is covered in the document named "MANITOU API - Connected Solutions - Using the service"

API definition, API testing and getting code snippets

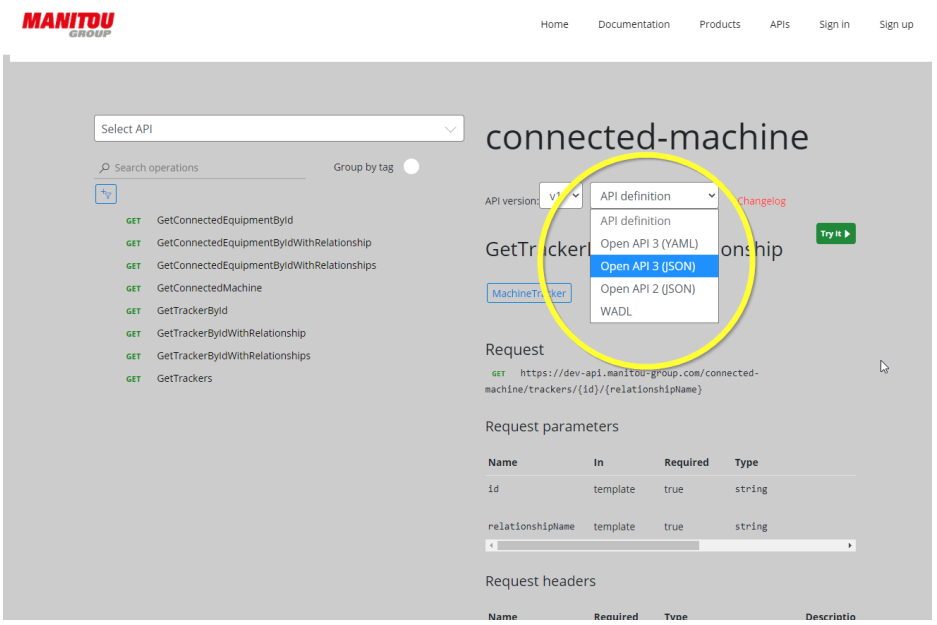
The MANITOU API Developer Portal, among providing the Customer with detailed information on the APIs, gives the opportunity to test our APIs and use bits of code written in several coding languages to help the Customer boost the integration of MANITOU APIs in his system.

Getting the API definition

Navigate to the API you want to address using the Portal's navigation menus and links.



Notice the "API definition" drop-down menu appearing close to the API version number.



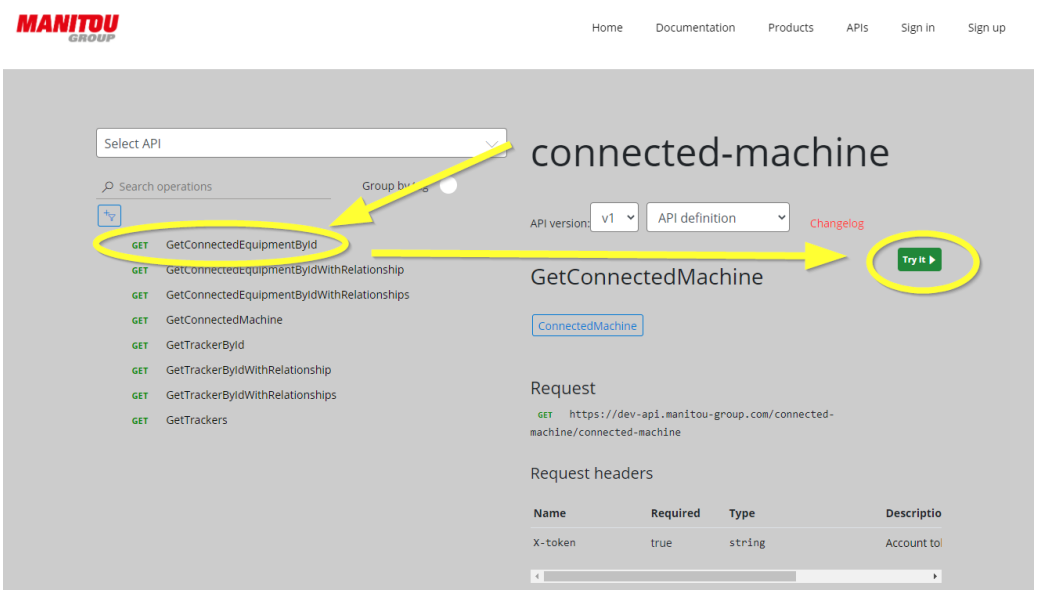
Clicking on this menu shows the list of API definition formats available for the Customer.

Simply click on the desired definition format to retrieve the standard API definition file.

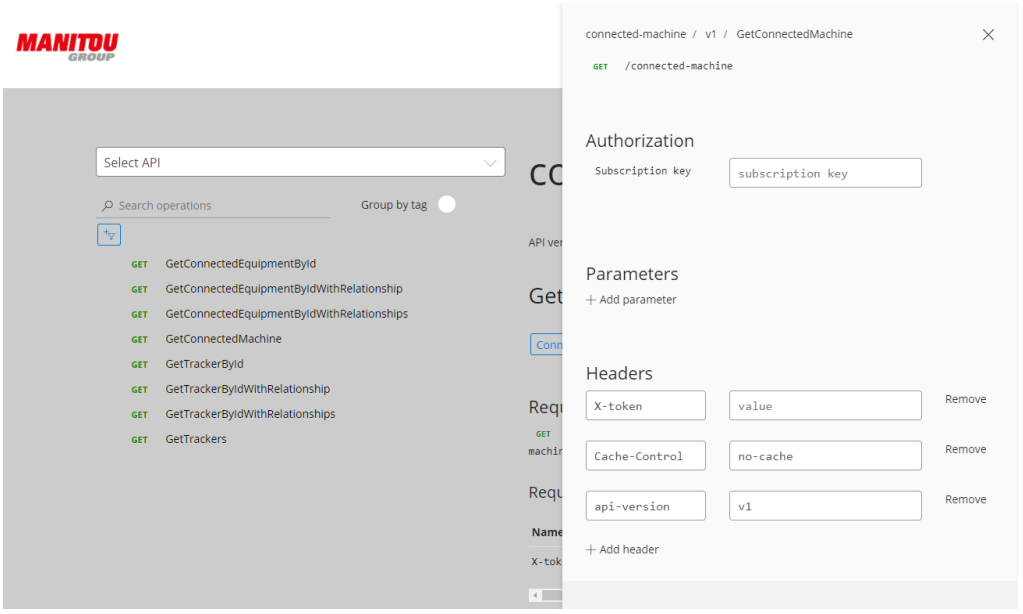
⇒ **NOTE** : the OpenAPI format is also known as Swaggerhub format.

Testing the API

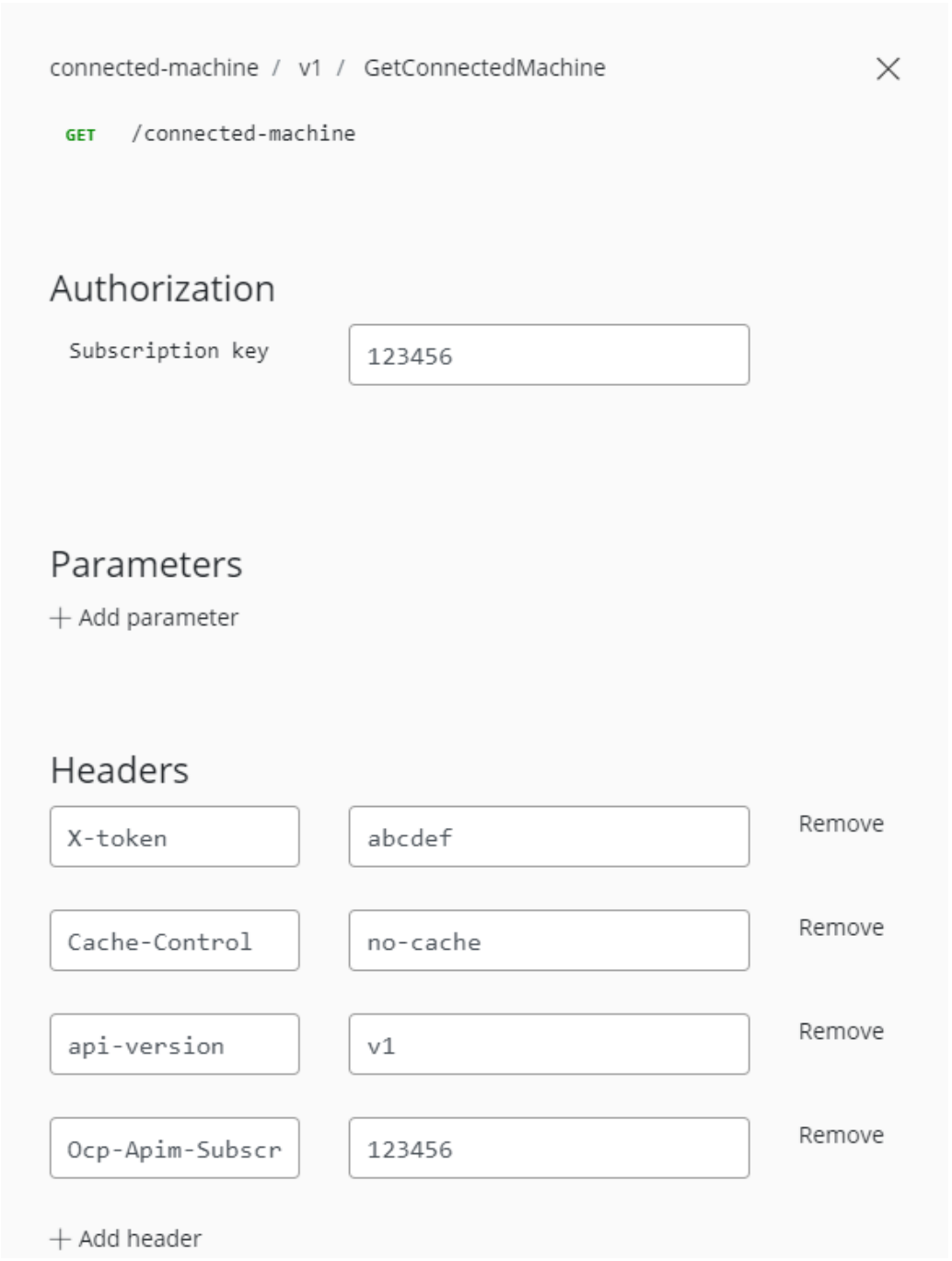
Navigate to the API you want to address using the Portal's navigation menus and links, then select the API method you need.



Click on the green "Try it >" button to show the side panel dedicated to testing.

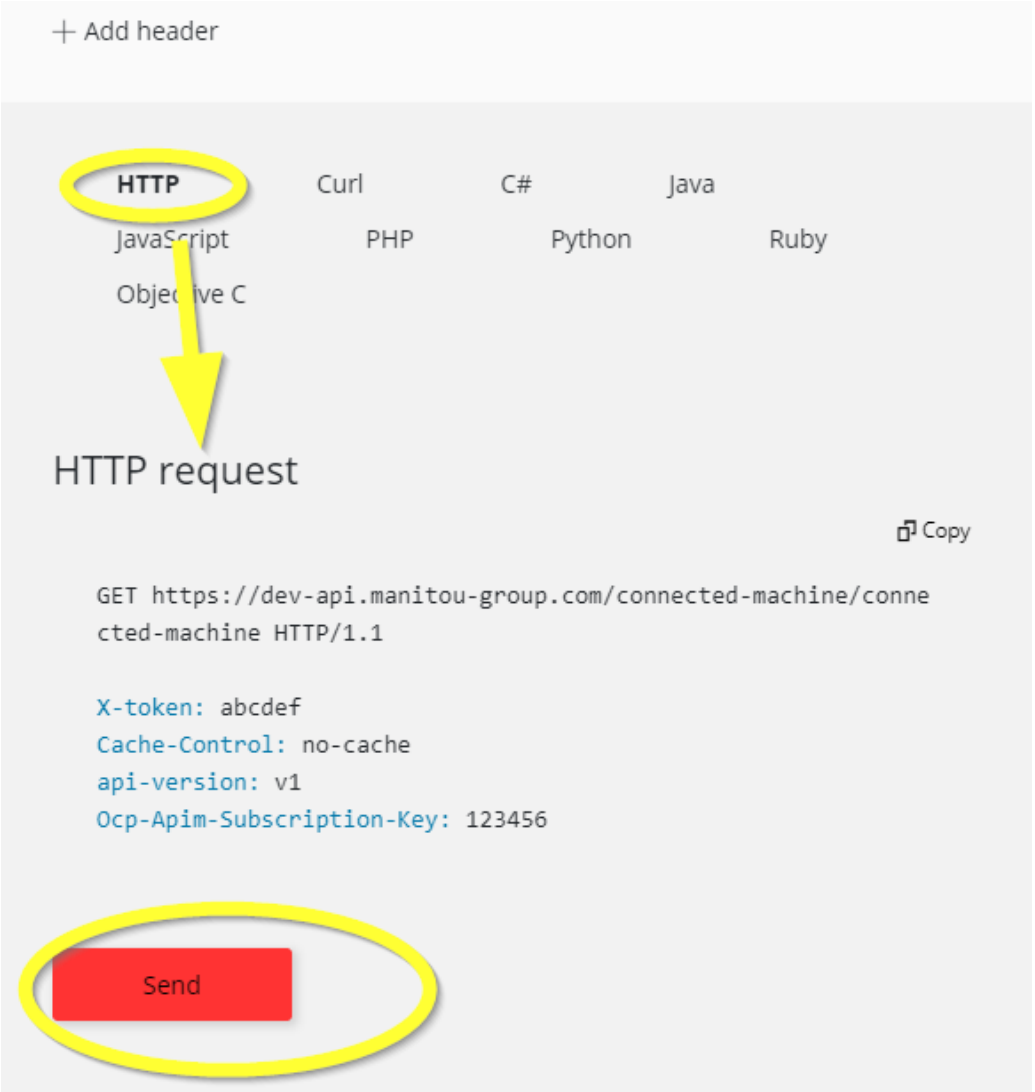


This panel lets you fill in whatever value you need to try the API out.



Here is an example of values you can enter.

Notice that the Ocp-Apim-SUbscription-Key header is added automatically as soon as you enter a value in the “Authorization / Subscription key” field at the top.



As shown on this screenshot, an HTTP request has been prepared, filled with the values entered previously.

Click on the “Send” button to test the API with the parameters entered earlier.

Getting code snippets

On the same screen where the API can be tested, the Customer can retrieve useful code snippets.

Of course, the Customer can use the “Copy” button on the right of the screen to get the text of the default HTTP request.

Additionally, clicking on the name of each language will produce a code snippet, written in that language, designed to help the Customer integrate it quickly into his own system to interact with the API with minimal coding effort.

Here is an example of a generated Curl command, including the values of headers provided earlier on.

Best practices

It is important to remember that API services are designed to answer the major concerns of customers : availability and responsiveness.
The way users interact with such a service has a huge impact on these concerns, so it is necessary to follow a few recommendations in order to get the best from MANITOU API.

Keep page size low

Depending on which API endpoint the user is sending requests to and how many resources the user should be receiving, one might expect a few data records... or several hundreds of them.
Considering that MANITOU API doesn't know beforehand how much data a user is trying to retrieve, it's practically impossible to guarantee short response times with potentially large amounts of data.

One way around this problem is to implement a paging feature, which lets the user obtain a limited number of results in a first "page", and provide the user with the information on how many other results pages are available and how to obtain the next page.

MANITOU API lets the user specify the page size when placing a call, in order to adapt the data volume to the user's information system capacities.
One might be tempted to set the page size to a very high number, in order to obtain all the data needed in one single exchange.

This is contradictory to the objective of fast responsiveness of any API service: if the page size is too high and the results are complex to build, the user might experience a time out message instead of receiving any data.
This would mean the system didn't have enough time to pack the results within the normal response time frame.

Please follow this best practice : keep the page size low.

Pinpoint what you want

An API service aims at providing as much versatility as possible, to let the user obtain all the information needed, and only the information needed.

Data needs vary a lot from user to user, and from product range to product range. This is the reason why MANITOU API gives a lot of possibilities to apply multiple filters and sort data, so that one gets only useful information from the service.

MANITOU API gives the best results and the best performance when using an adequate set of filters to select precisely the data, within given value and/or time frames.

One can be tempted to retrieve a lot of data and pick from it what's needed, but that is far less efficient than relying on the service which can pick it for you and eliminate anything superfluous.

Please follow this best practice : pinpoint what you want

Avoid hammering

When using live data products, the data delivered by MANITOU API comes to the user as fast as possible through a series of technical components tailored for performance.

One could be led to think that the best way to get all the data and not miss anything is to make API calls with a high frequency.

This practice is called hammering, and it creates unnecessary load on the service.

In some extreme cases, this may lead to a degradation of the service level and could be identified as a malignant behaviour by network protection components which may shut off connections to prevent a system failure by overload.

This is completely avoidable : our service lets the Customer subscribe to the option of accessing data history, so the Customer can request data marked with a given time frame rather than repeating calls to the API to be sure not to miss anything.

Please follow this best practice : avoid hammering

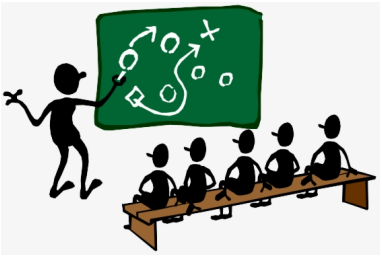
Design a request strategy suited for your data needs

The data delivered by MANITOU API comes to you as fast as possible, but it first has to be made available to the system itself.

For example, when considering data coming from connected machines, a number of frequent real-life events can limit or hinder mobile data transmission by the machine : indoor or subterranean operation, low mobile coverage location, bad reception due to external factors, mobile network saturation episode, etc.
While waiting to transmit its data, the connected machine buffers its event messages and will release them as soon as it recovers connectivity.

From the user's point of view, it can look like data is missing, when in fact it just hasn't been delivered yet. It's not a fault in the service : the machine may just not have been in the conditions needed to send it.

The data will finally be delivered, and then you'll be able to find it when requesting it, but in the meantime you'll have experienced a incomplete data set, which may cause problems depending on your data needs, especially if you're doing analytic calculations.



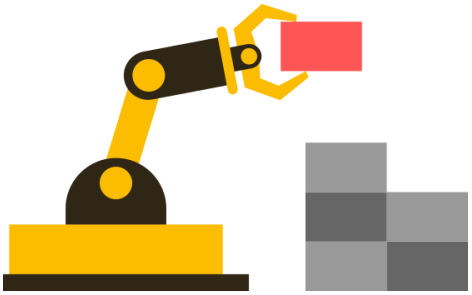
So the rule of thumb goes as follows : if you need to use machine data for alerting purposes, then regular, short time range API calls are the way to go.
If you need to use machine data for analysis and intelligence purposes, then less frequent, larger time range API calls will give you the best result.
If you need both, do both, preferably separately.

Please follow this best practice : design a realistic data request strategy.

NEW

Pick only what matters

Each API endpoint and method exposes attributes describing all aspects of the resources the user is acquiring...but not all the use cases request all attributes to be used.



MANITOU API lets the user indicate explicitly which data fields are needed, so that it's not necessary anymore to parse through a whole list if all you need is just one datum.
Use the `fields` parameter to tell the API what part(s) of the data set you're interested in.

This is a clever way to simplify development and accelerate response time, and also a good way to prevent compatibility issues in the long run : current and future customer needs may well end up in the addition of several attributes to several methods of several endpoints. By practicing "cherry picking", the user is safe from errors due to receiving more attributes than expected and is already good to go when additional data comes up in the package.

Please follow this best practice : pick only what matters.

Confidentiality reminder

Take care of your subscription keys : **these are the keys to your API data !**

→ don't share them by email
→ don't write them down
→ keep them unknown from every people that don't specifically need them

If you think the confidentiality of these informations have been compromised, remember to notify MANITOU as soon as possible.

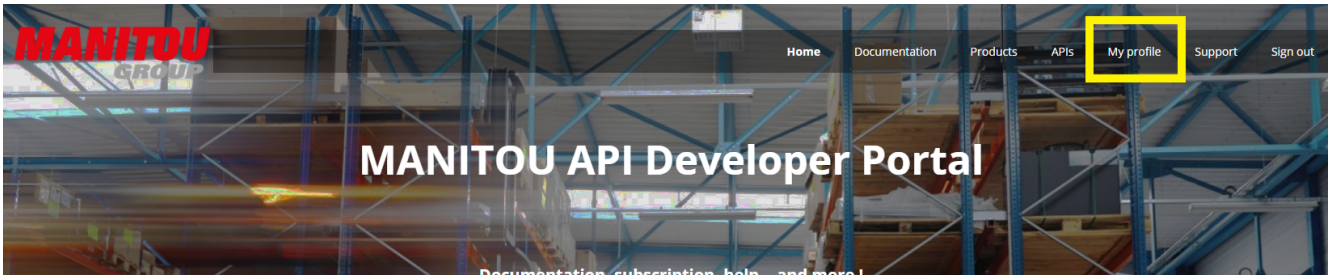
As a good practice, we recommend you use a dedicated password vault software to store these keys, and remove any written record of it from anywhere else.

We also remind you that the MANITOU API developer portal lets you renew secret keys anytime you want, without a need for MANITOU to intervene : just go to your user page, then to the subscriptions section, and select "renew" near the subscription key that needs renewal. That's it !

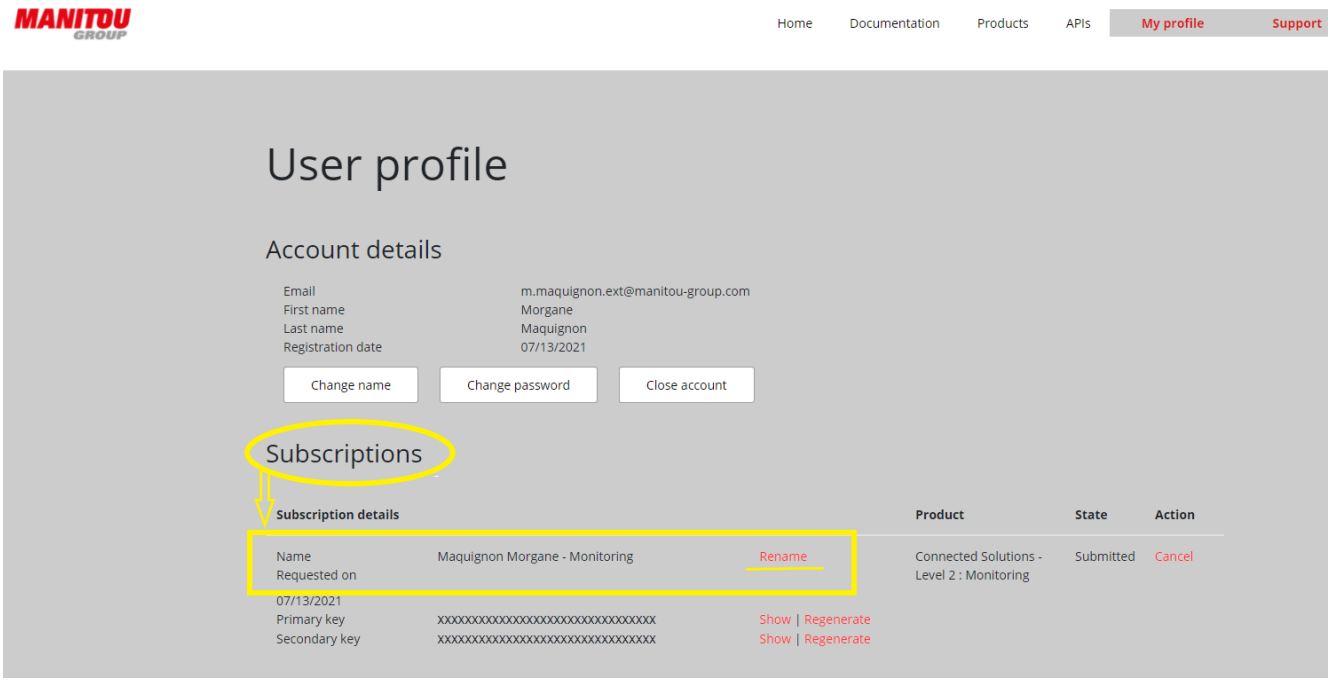
FAQ

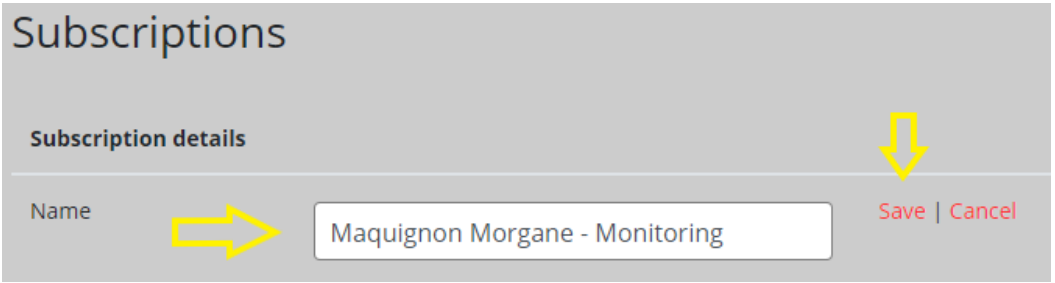
1. **How do I rename my subscription?**

To change your subscription you need to connect to the Manitou API Developer Portal and click on “My profile”.



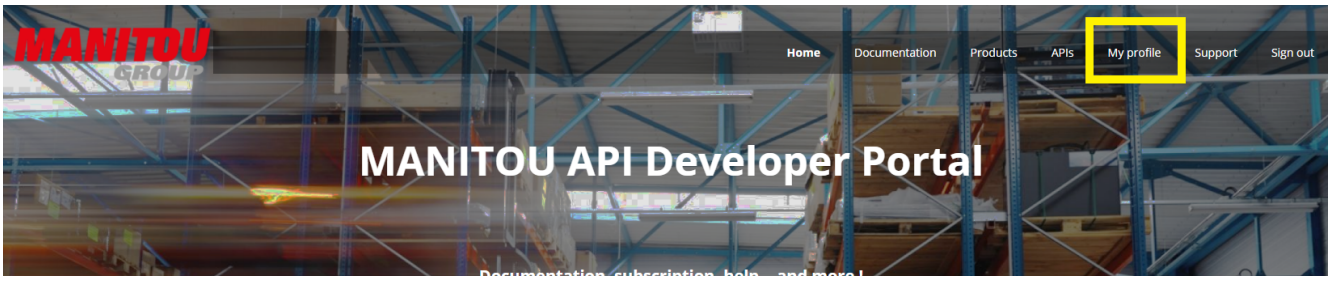
In the “Subscriptions” paragraph, click on "Rename", then change the name and click on "Save".



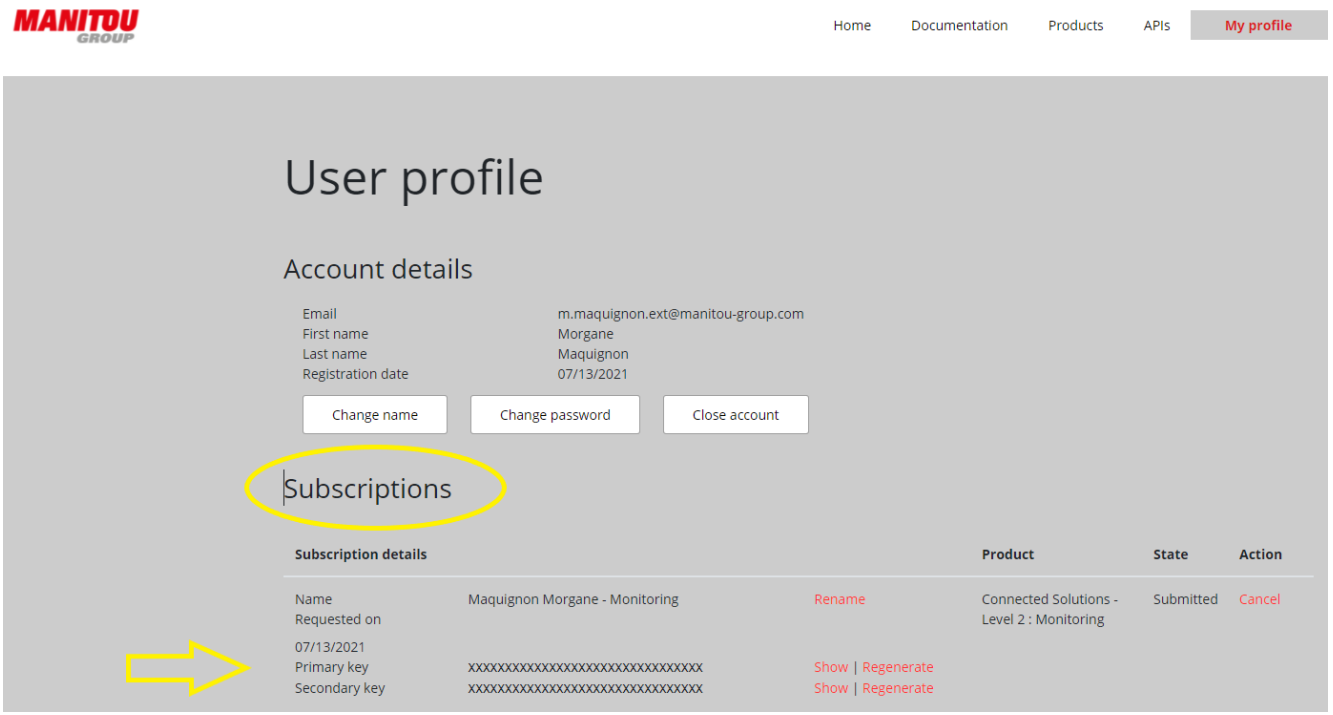


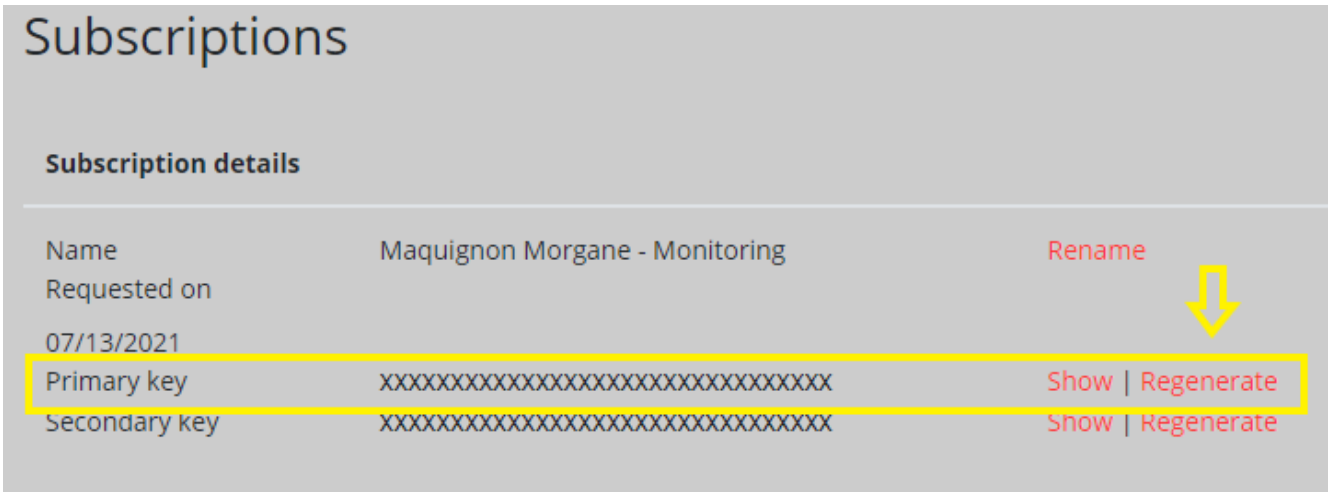
2. I want to renew my subscription key

To renew your subscription you need to connect to the Manitou API Developer Portal and click on “My profile”.



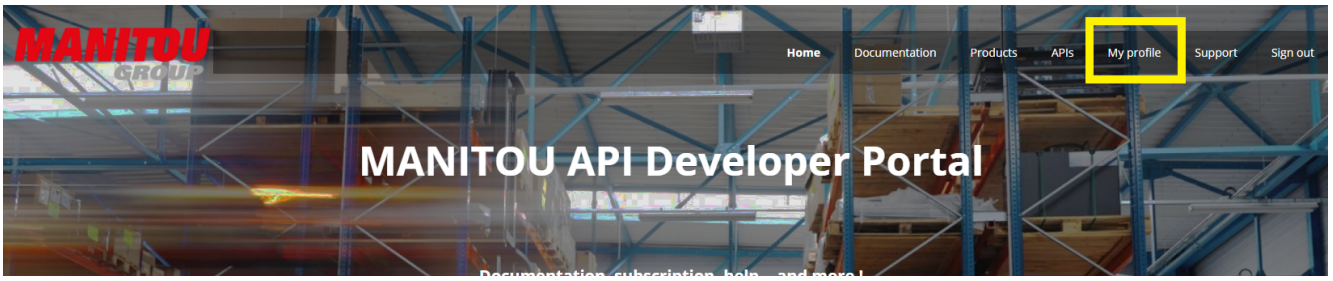
In the “Subscriptions” paragraph, click on “regenerate” for the subscription key you wish to renew (primary or secondary key).



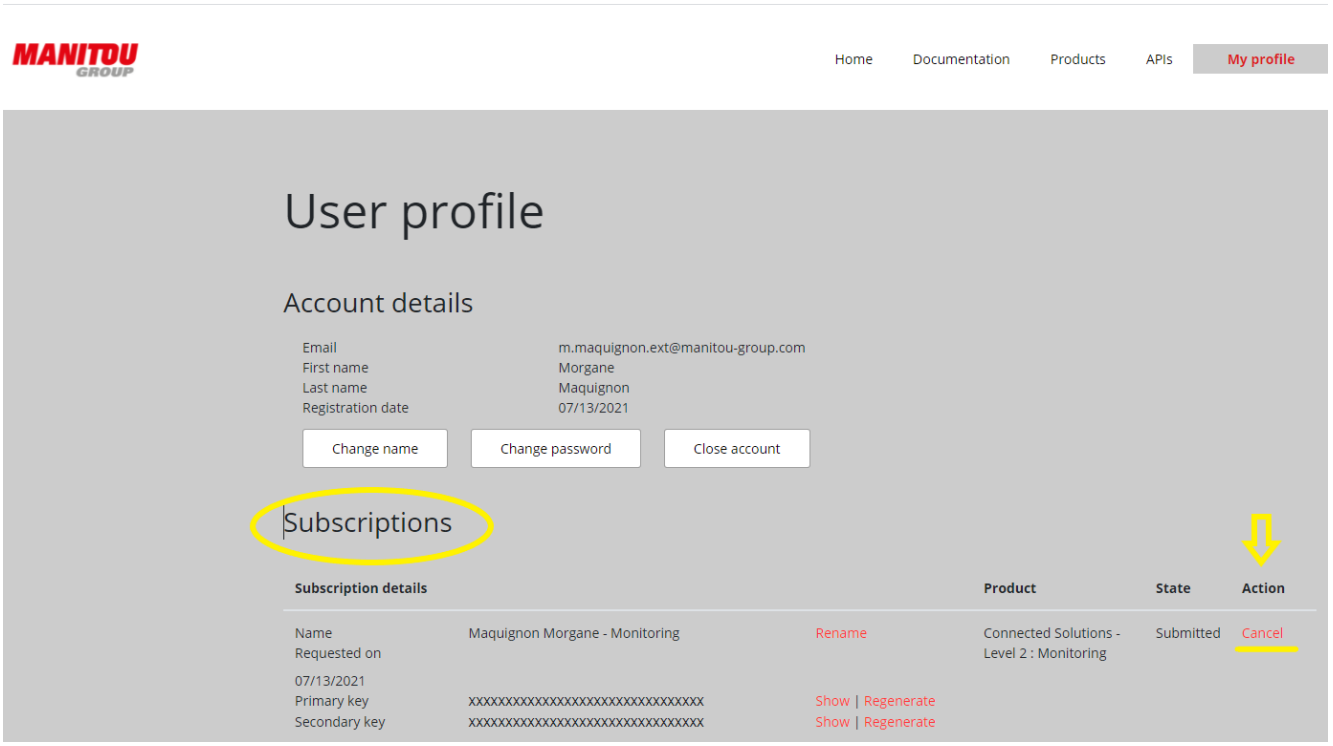


3. I want to close my subscription

To close your subscription you need to connect to the Manitou API Developer Portal and click on “My profile”.



In the “Subscriptions” paragraph, click on “Cancel” below the “Action” column header on the far right of the screen.



4. I want to modify my subscription

To modify your subscription, you must cancel the existing one and create a new one.
To do this, refer to point 3 of this FAQ and repeat the "How to get on board" process.