Introduction

The PhytoSense web service allows collecting, real-time processing and visualising all your sensor data. Use our API to send data from internet connected data loggers, servers, computers or custom hardware to our cloud service for storage and processing. Visualisation can be done using the PhytoSense software or your own custom application or website. It also offers a powerful user management and permission system.

General URL structure

Each PhytoSense API call should follow this general URL structure. More details about the various components are given in the sections below.

[PROTOCOL]://[SERVER]/PhytoSense/[VERSION]/[ORGANISATION]/[RESOURCE]?[APP_KEY]

Example:
https://www.phytosense.net/PhytoSense/v1/Organisation/Setups?app_key=1f2a3k4e5k6e7y

[PROTOCOL]	The protocol should always be 'https' in order for the username and password to be encrypted.
[SERVER]	A valid PhytoSense server. The general PhytoSense server is 'www.phytosense.net'. For more information about the servers, see the 'LogIn' section.
[VERSION]	Currently only version 'v1' is supported.
[ORGANISATION]	A valid PhytoSense organisation. For more information about organisations, see the 'LogIn' section.
[RESOURCE]	The path of the resource you are trying to access.
[APP_KEY]	A valid PhytoSense application key. For more information about application keys, see the 'Authentication and Application Keys' section.

Data format

All data exchanges with PhytoSense are done by default through XML. However, a limited number of API calls also support JSON output through a 'json=1' query parameter. If available, this will be indicated in the description below.

Date/time format

Dates and times in PhytoSense are specified using a YYYY-MM-DD hh:mm:ss' format.
All date/times are assumed to be in the local time of the place where the data is/was collected.
No UTC times are used. Conversions to UTC can be made using the setup time zone identifier (see the 'Setups' section).

A valid date/time:
      2022-01-05 18:05:00

Invalid date/times:
    2022-01-05 (no time)
    18:05:00 (no date)
    2022-01-05 18:05 (no seconds)
    2022-1-5 18:05:00 (no trailing zeros in the date)
    22-01-05 18:05:00 (no 4 digit year)

Authentication and Application Keys

Each API call to PhytoSense should use 'Basic' http authentication with a username and password. The username should be associated with a PhytoSense account. Only PhytoSense administrators can create new PhytoSense accounts/users. Only the /LogIn call should use an email address and password for authentication. For more information, see the '/LogIn' section.

For each call an 'app_key' query parameters should also be added (app_key=[VALID_KEY]). This allows PhytoSense to know which 'application' is making the calls. Examples of 'applications' are the PhytoSense desktop application, the Particle web service which is used to send data to PhytoSense or other external websites or services. Each application should use a unique key which can be generated by a PhytoSense administrator.

DeviceTransformation (data retrieval)

The 'DeviceTransformation' resource allows access to the data from device transformations.

GET

The **/DeviceTransformation/[TRANSFORMATION_ID]? channel=[TRANSFORMATIONCHANNEL_ID]** GET request returns data from a specific channel from a specific device transformation.

The **/DeviceTansformation/[TRANSFORMATION_ID]? channel=[TRANSFORMATIONCHANNEL_ID]&setup_id=[SETUP_ID]** GET request returns data from a specific channel from a specific transformation belonging to a device of a specific setup.

[TRANSFORMATION_ID] and [TRANSFORMATIONCHANNEL_ID] should be a valid ids from 'DeviceTransformations'.

These calls typically result in large amounts of data and should be avoided as much as possible. Please use the query parameters described below to limit the amount of data being returned.

Query parameters

from	Retrieve data starting from the specified data/time (included).
till	Retrieve data starting until the specified data/time (included).
before	Retrieve data starting before the specified data/time (not included).
after	Retrieve data starting after the specified data/time (not included).
json	Indicates whether JSON output should be generated. 0 or 1.
limit	Limit the response to this amount of data points. This will randomly filter out excess data points until the required number of data points is reached. This will result in different data points each time the call is made. Extremely useful when a condensed overview of a large time series is needed.

All date/times should be in 'YYYY-MM-DD**T**hh:mm:ss' format (**note the T between the date and time**).
You cannot combine 'before' and 'till' or 'after' and 'from' parameters.

Permissions

In order to retrieve transformation data, 'Device' (not 'Devices') or 'Setup' (not 'Setups') read permissions are needed. When using 'Setup' permissions, the 'setup_id' parameter **MUST** be specified.

Example requests

https://www.phytosense.net/PhytoSense/v1/[ORGANISATION]**/DeviceTransformation/**
[TRANSFORMATION_ID]?channel=[TRANSFORMATIONCHANNEL_ID]
&setup_id=[SETUP_ID]&app_key=[KEY]

https://www.phytosense.net/PhytoSense/v1/[ORGANISATION]**/DeviceTransformation/**
[TRANSFORMATION_ID]?channel=[TRANSFORMATIONCHANNEL_ID]
&setup_id=[SETUP_ID]&from=2022-05-12T09:00:00&before=2022-05-12T09:05:00&app_key=[
KEY]

https://www.phytosense.net/PhytoSense/v1/[ORGANISATION]**/DeviceTransformation/**
[TRANSFORMATION_ID]?channel=[TRANSFORMATIONCHANNEL_ID]
&setup_id=[SETUP_ID]&from=2022-05-12T09:00:00&before=2022-05-12T09:05:00&json=1&a
pp_key=[KEY]

https://www.phytosense.net/PhytoSense/v1/[ORGANISATION]**/DeviceTransformation/**
[TRANSFORMATION_ID]?channel=[TRANSFORMATIONCHANNEL_ID]
&setup_id=[SETUP_ID]&from=2022-05-12T09:00:00&json=1&limit=10&app_key=[KEY]

Example responses

xml version (channel = 0)
```
<?xml version="1.0" encoding="utf-8"?>
<PhytoSenseReply>
<DeviceTransformationChannelValues
     DeviceTransformationId="18076"
     DeviceTransformationChannelId="0"
     GetDateTime="2022-05-12 10:40:16">
     <DeviceTransformationChannelValue
          DateTime="2022-05-12 09:00:00"
          Value="0.0921162894844043"/>
     <DeviceTransformationChannelValue
          DateTime="2022-05-12 09:02:30"
          Value="0.0918563960822752"/>
</DeviceTransformationChannelValues>
</PhytoSenseReply>
```

json version (channel = 0)
```
{"DTCVS":[{"DT":"2022-05-12 09:00:00","VAL":"0.0921162894
844043"},{"DT":"2022-05-12 09:02:30","VAL":"0.0918563960822752"}]}
```

json version (channel = 0), from 2022-05-12 09:00:00, limited to 10 data points
```
{"DTCVS":[{"DT":"2022-05-12 09:05:00","VAL":"0.0986384790576556"},
{"DT":"2022-05-12 09:12:30","VAL":"0.103495525726126"},{"DT":"2022-05-12
09:22:30","VAL":"0.100124700865457"},{"DT":"2022-05-12
09:50:00","VAL":"0.0896034090579247"},{"DT":"2022-05-12
09:52:30","VAL":"0.094522303386349"},{"DT":"2022-05-12
10:12:30","VAL":"0.0959551398783167"},{"DT":"2022-05-12
10:37:30","VAL":"0.0952167316483936"},{"DT":"2022-05-12
10:42:30","VAL":"0.089732048897279"},{"DT":"2022-05-12
10:57:30","VAL":"0.099965859859216"},{"DT":"2022-05-12
11:02:30","VAL":"0.098892514790784"}]}
```