PURRMETRIX API: DEVELOPER'S NOTES

For advanced customers and developers, the Purrmetrix service includes a customer API to allow data retrieval.

The API allows time series data to be accessed as JSON objects. API requests are made using HTTPS POST requests with message body specifying the parameters of the request.

GETTING YOUR API KEY

API keys are available to customers holding an advanced account and can be issued on request . Please contact info@purrmetrix.com. Once issued, they can be found on the 'Organise Team' page of your account.

FINDING YOUR DATA - DATA ENDPOINTS

There are 4 API endpoints provided. The first allows access to via kitten identifiers, the second takes a view identifier and returns data for all the kittens in the given view, the third gives the most recent data for all the kittens in a view, and the forth allows alarms to be reset.

Endpoint	URL
kitten	https://account.purrmetrix.com/api/v0/kittens
view	https://account.purrmetrix.com/api/v0/views
now	https://account.purrmetrix.com/api/v0/now
alarm	https://account.purrmetrix.com/api/v0/alarm

A view identifier can be found by publishing a view (open the view dialogue box and click 'embeddable link for this view'). The token is embedded in the view. For example:
https://account.purrmetrix.com/view/rU7h5gSB4NngCwa7edChw7TdSByEI65jIFyzzuUbI6U?s=1529700128&e=1529703728&t=click

In either case the request body must specify an API key for the data access, the start and end times of the span to be recovered, a metric, and a specification for the kittens or view to be recovered. The request body should be sent as of type application/x-www-form-urlencoded

DETAILED FIELD DESCRIPTIONS

Field	Type	Description			Example
api_key	32 hexadecimal string	A unique APIkey[1]			6adb52cec423f9f1731cc3dd84bc4483
start[3]	integer	A unix timestamp specifying the start of the timespan in seconds since epoch			1474546280
end[3]	integer	A unix timestamp specifying the end of the timespan in seconds since epoch			1474546440
metric	4 character string	The data metric	**metric**	**meaning**	temp
			temp	Temperature in °C	
			humi	Relative Humidity in %	
			mvmt	Movement activity	
			cco2	[CO2] in ppm	
kids	[integer]	An array of unique kitten identifiers.			[4083674,4083688]
... or view	32 hexadecimal string	A unique view key[2]			6adb52cec423f9f1731cc3dd84bc4483
action	string	action to take[4]			arm

1.As issued to your team and available on the 'Organise Team' page of your account.
2. Can be extracted from the URL of a view publication.
3. Not needed for now and alarm endpoints.
4. Only in the alarm endpoint.

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TIMESTAMPS

The timespan must be specified between a pair of Unix timestamps. These are integers representing the number of seconds that have elapsed since the start of the current Epoch (1/1/1970 00:00:00). The start timestamp must be a smaller integer than the end timestamp.

AGGREGATION

Data returned is aggregated. By default a maximum of 200 time points are returned. Thus if a long timespan is requested each of the returned time points will consist of the average value of the requested metric over a period of 1/200th of the requested span

VALID RESPONSES

The API returns data as JSON documents.

VIEW AND KITTENS ENDPOINT

The returned document is an array of objects, one for each of the kittens queried, or one for each of the kittens in the view queried. Each object contains a metric field, a kid field (indicating the kitten for which the data pertains) and a data field. The data field is an object containing the data points. The keys of the object are the timestamps of the individual points and the values of the keys the values of the metric

THE NOW ENDPOINT

The now endpoint returns an array of JSON objects, one for each kitten in the view.

For example:

```
[
 {
   "metric": "temp",
   "kid": 4083674,
   "data": {
     "1474546290": 24.139999389648438,
     .
     .
    }
  },
 {
   "metric": "temp",
   "kid": 4083688,
   "data": {
     "1474546290": 19.8,
     .
     .
    }
  }
]
```

THE ALARM ENDPOINT

The alarm endpoint returns a JSON object;

```
{
    "id": "SgYjQPOubDz3lDXS65S3q8FWE8vKG_wJHj9RjKdMQda",
    "state": "triggered -> armed",
    "kittens": 2
}
```

THE NOW ENDPOINT

The now endpoint returns an array of JSON objects, one for each kitten in the view.


```
[
   {
       "kid": 5136863,
       "label": "Derek",
       "lastSeen": "2017-12-08T13:37:30.000Z",
       "lastValue": {
           "rssi": 57,
           "temp": 15.05,
           "acti": 43572,
           "volt": 2.9
       },
       "lastT": {
           "temp": 1512740250,
           "acti": 1512740250,
           "rssi": 1512740250,
           "volt": 1512740193
       }
   },
   {
       "kid": 6707133,
       "label": "Banjax",
       "lastValue": {
           "rssi": 79,
           "acti": 13,
           "temp": 11.81,
           "humi": 58.15,
           "volt": 2.88
       },
       "lastT": {
           "rssi": 1512740230,
           "acti": 1512740184,
           "temp": 1512740230,
           "humi": 1512740230,
           "volt": 1512740008
       },
       "lastSeen": "2017-12-08T13:37:10.000Z"
   }
]
```


ERROR RESPONSES

If the start time is after the end time the API will simply return an empty data set.
If either the start or end times are not valid timestamps the API will return an empty dataset.
If the APIKey is invalid, or has expired, the API will return a 401 error


```
{
 "error": 401,
 "message": "Invalid API key."
}
```

EXAMPLES OF THE USE OF THE API

PYTHON

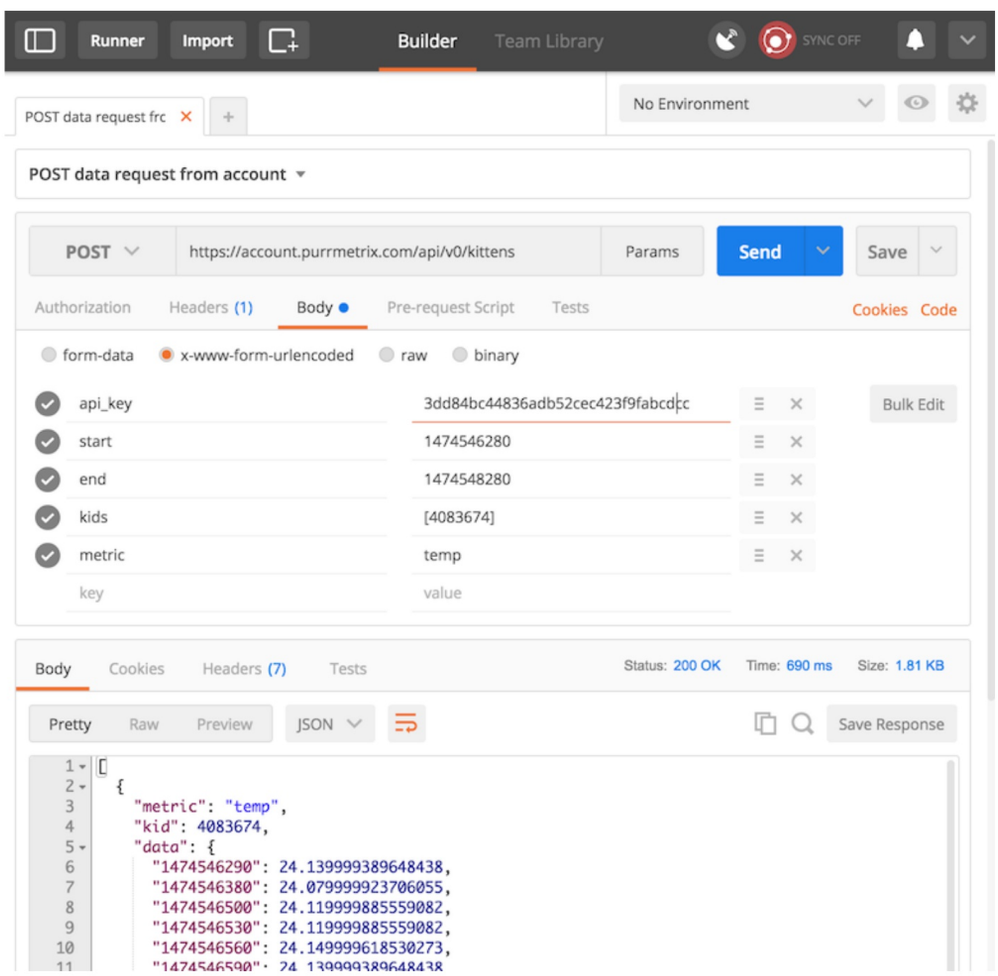
Putting this altogether, for example using the Python requests libary:

```
url = "https://account.purrmetrix.com/api/v0/kittens"
payload = "api_key=806c17f12879d694433ccaa77138c7a8"
payload += "&start=1486966000"
payload += "&end=1487053000"
payload += "&kids=[4083674,4083688]"
payload += "&metric=temp"
headers = {'cache-control': 'no-cache','content-type': 'application/x-www-form-urlencoded'}
response = requests.request('POST', url, data=payload, headers=headers)
data = requests.text
```

POSTMAN

Using the Postman API tool a typical endpoint configuration is as below:

(In the Headers tab, configure a 'Content-Type' key to 'application/x-www-form-urlencoded'):



EXAMPLES OF THE USE OF THE API

JUPYTER

The Jupyter scripting environment can be used to collect and analyse data from Purrmetrix as shown below :

jupyter Purrmetrix API access template Last Checkpoint: 09/30/2016 (unsaved changes)

File Edit View Insert Cell Kernel Help Python 3

Code CellToolbar

A notebook to look for activity in kitten temperature data

The activity is assumed to be exhibited as higher frequency variations in the data as a result of mixing of air around the sensor

EGC 9/2016

First collect some useful code modules

In [21]:
```
import requests
import json
import numpy as np
import scipy as sp
from scipy import signal
import matplotlib.pyplot as plt
import time
import datetime
%matplotlib inline
```

Specify the date range

In [22]:
```
start = "28/Sep/2016 00:00"
end =   "30/Sep/2016 23:59"

kitten = 5108671

startT = datetime.datetime.strptime(start, "%d/%b/%Y %H:%M").timestamp()
endT   = datetime.datetime.strptime(end,   "%d/%b/%Y %H:%M").timestamp()
```

Collect the data

In [23]:
```
url = "https://account.purrmetrix.com/api/v0/kittens"

payload = "api_key=72f1625faa782bcf93b19ad146f480e2"
payload += "&start=%d&end=%d&kids=[%d]&metric=temp" % (startT,endT,kitten)
headers = {
    'cache-control': "no-cache",
    'content-type': "application/x-www-form-urlencoded"
}

response = requests.request("POST", url, data=payload, headers=headers)

recovered = json.loads(response.text)[0]
recovered
```

Out[23]:
```
{'data': {'1475017950': 22.672053473334604,
  '1475019245': 22.5943860082861,
  '1475020540': 22.547722963663507,
  '1475021835': 22.472550598310704,
  '1475023130': 22.35356766520148,
  '1475024425': 22.25139998872104,
  '1475025720': 22.1202522668369,
  '1475027015': 21.9973370586705,
  '1475028310': 21.871050096609004,
  '1475029605': 21.77949993926173,
  '1475030900': 21.64404263996064,
  '1475032195': 21.48678558117514,
  '1475033490': 21.409782102589066,
  '1475034785': 21.315080029878644,
  '1475036080': 21.207688968193,
```

SUPPORT

For further help and guidance please contact info@purrmetrix.com