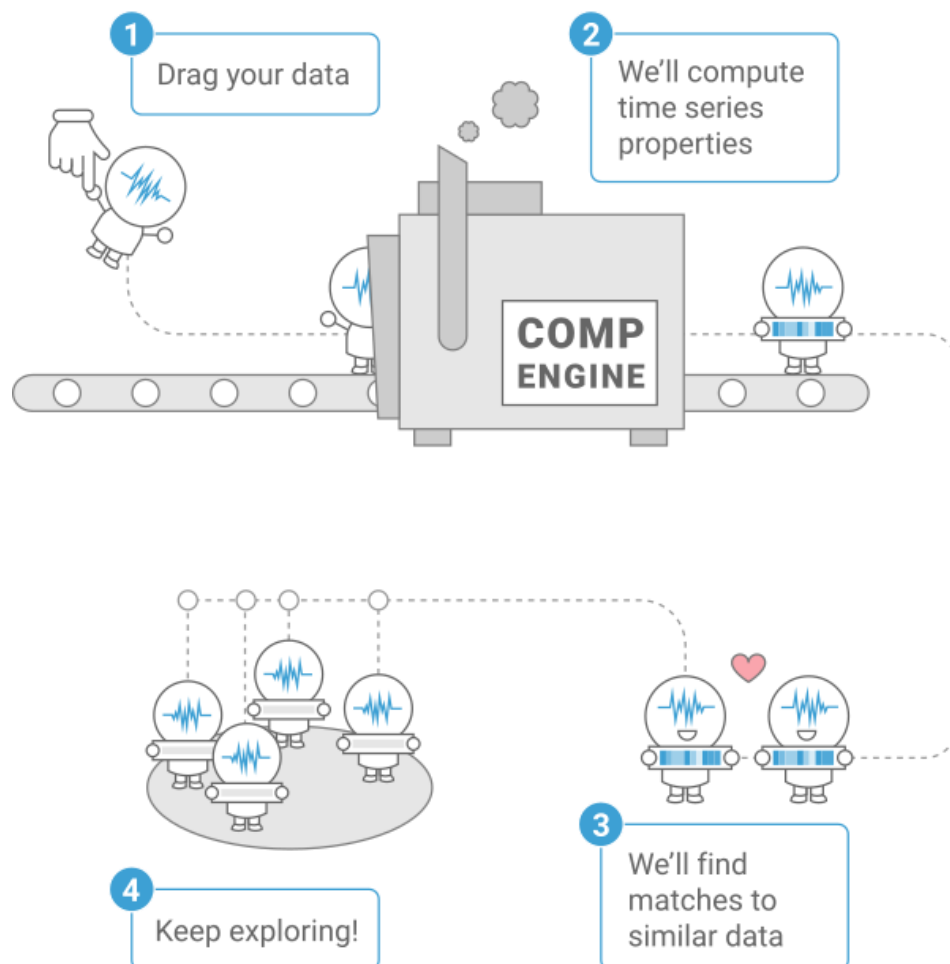# CompEngine

A self-organizing database of time-series data

Public API Documentation

Version 1.1

Last updated on 14th February 2019

About this document

The aim of this document is to outline the public interface to the CompEngine API. This API can be freely consumed by all parties without prior authentication, although we do request that you respect that our server resources are finite and that you limit requests to within reasonable limits.

How to consume the API

Transport

The API is available publicly, operating over layer 7 (HTTP) and adopting REST-based principles.

Encoding

All responses, unless specified otherwise, are returned in Javascript Object Notation (JSON). All responses are encoded in UTF-8.

Data returned may be compressed through either GZIP or DEFLATE, depending on the negotiations of the consumer with the API. Responses may be chunked.

Security

All communication to and from the API must be performed over HTTPS. Note that the certificate is rotated once a quarter and may change without notice. As such, it is recommended that you do not hardcode any certificate pinning procedure into any connection code on the consumer.

Response codes

The following response codes are used:

422 – Unprocessable Entity	The server understands the content type and syntax of the request entity, but was unable to process the contained instructions.
429 – Too Many Requests	The user has sent too many requests in a given amount of time.
200 - Okay	The request has succeeded.

HTTP Methods

All API endpoints require the correct usage of a HTTP method. At present, only GET is adopted. Note that any GET request is read-only, cacheable, and does not affect any of the objects you are querying.

Rate Limiting

Basic rate limiting is employed to ensure fair consumption of resources. A maximum of 60 requests per rolling minute is allowed per IP address. If you reach or exceed these limits, a *429: Too Many Requests* error code will be returned.

Paging

As per API best-practice, some requests will return results in pages, as it reduces load on the server and lowers request wait times.

API endpoint

The API can be accessed by forwarding requests to https://www.comp-engine.org/api/{uri}

Obtaining a specific time series

GET /api/public/timeseries?name={name}

Returns specific information on a given time series.

Parameter	Information
{name}	The name of the time series. Note that some time series may contain characters that require URI encoding as per [RFC 3986](#).

Successful response (sample)

```
{
  "id": "6f66caae-d00c-11e8-8e0c-74d43548bae1",
  "name": "01_2007-06-16_Teaching_your_brain_to_be_happy_2.4s_F4_b8",
  "description": "A description of the time series",
  "source": {
    "name": "Driven pendulum (BF)",
    "approvalStatus": "approved"
  },
  "tags": [
    {
      "name": "lillie",
      "slug": "lillie",
      "approvalStatus": "approved"
    }
      …continued…
  ],
  "samplingInformation": {
    "samplingRate": "124",
    "samplingUnit": "Unknown",
  },
  "category": {
    "name": "Light Curve",
    "approvalStatus": "approved"
  },
  "sfi": [
    {
      "name": "CO_Embed2_Basic_tau.incircle_1",
      "value": 100
    }
      …continued…
  ],
  "timeSeries": {
    "raw": [
      0.066218,
      0.051621,
      0.028244,
      0.011179,
      …continued…
    ]
  }
}
```

The raw time series is returned, alongside any meta data present. The "SFI" array contains the "special feature identification" information. Sampling information is optional, and the corresponding object may be *NULL* if none is provided.

The maximum length of a raw time series array is 10,000 elements which is the same limit enforced through the frontend portal.

Example via cURL:

```
curl -X GET \
  'https://www.comp-engine.org/api/public/timeseries?name=01_2007-06
16_Teaching_your_brain_to_be_happy_2.4s_F4_b8'
```

Obtaining all time series within a category in JSON format

GET /api/public/timeseries/filter?format=json&category={category}&page={page}

Returns specific information on a given time series category.

Parameter	Information
{category}	The name of the category to filter by. All children categories will also be included. Note that some categories may contain characters that require URI encoding as per RFC 3986.
{page}	Due to the number of time series that can be returned, a maximum of 10 time series are returned per request. Requests can be repeated with incremented page numbers to iterate through all the time series.

Successful response (sample)

```
{
    "pageSize": 10,
    "totalPages": 3,
    "currentPage": 1,
    "timeSeries": [
        array of JSON formatted the same as "Obtaining a specific time series"
    ]
}
```

The *pageSize* indicates how many time series are returned per page, which is fixed at 10. The *totalPages* attribute indicates how many pages are available, and the *currentPage* reflects the current page number passed by the consumer. Pages are indexed starting at zero.

Note that return payloads can be many megabytes in size and may take several seconds to generate.

Example via cURL:

```
curl -X GET \
  'https://www.comp-engine.org/api/public/timeseries/filter?format=json&category=Real&page=0'
```