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# AppNexus-client

Oct 30, 2018



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General purpose Python client for the AppNexus API.

This library exists because most of the open-source solutions we found were for specific AppNexus tasks, such as reporting. Our solution, however, is meant to be used with any AppNexus service.

As it heavily relies on the AppNexus API, we advise you to read its [documentation](#).

This client uses models in the same way that database ORM would do, but you can also hook it to your own data representation class, or simply use Python dictionaries.



# CHAPTER 1

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## Install

---

```
$ pip install appnexus-client
```





### 2.1 Services

A service is an endpoint on the AppNexus API, representing an entity such as a creative. Here is the complete list of services usable with AppNexus-client: AccountRecovery, AdProfile, AdQualityRule, AdServer, Advertiser, BatchSegment, Brand, Broker, Browser, BudgetSplitter, Campaign, Carrier, Category, ChangeLog, ChangeLogDetail, City, ContentCategory, Country, Creative, CreativeFormat, Currency, CustomModel, CustomModelHash, CustomModelLogit, CustomModelLUT, CustomModelParser, Deal, DealBuyerAccess, DealFromPackage, DMA, DeviceMake, DeviceModel, DomainAuditStatus, DomainList, ExternalInvCode, InsertionOrder, InventoryAttribute, InventoryResold, IPRangeList, Label, Language, LineItem, LineItemModel, Lookup, ManualOfferRanking, MediaSubtype, MediaType, Member, MemberProfile, MobileApp, MobileAppInstance, MobileAppInstanceList, MobileAppStore, NativeCustomKey, ObjectLimit, OperatingSystem, OperatingSystemExtended, OperatingSystemFamily, OptimizationZone, Package, PackageBuyerAccess, PaymentRule, Pixel, Placement, PlatformMember, PostalCode, Profile, ProfileSummary, Publisher, Region, Report, ReportStatus, Search, Segment, Site, TechnicalAttribute, Template, ThirdpartyPixel, User, UsergroupPattern, VisibilityProfile

### 2.2 Connecting

First of all, you need to connect the client to AppNexus. One simple way is to use the `connect` function with your credentials:

```
from appnexus import connect

connect("my-username", "my-password")
```

From there, you can use all the features of the library.

## 2.3 Models

A model in AppNexus-client is an abstraction for a service. Most of them are already declared and you just have to import them.

You can access the fields of an AppNexus just like any object: `entity.field_name`

For example, to print the name of each and every city registered in AppNexus, you could do:

```
from appnexus import City

for city in City.find():
    print(city.name)
```

You can also retrieve a single result (the first one returned by the API) using the `find_one` method:

```
city = City.find_one(id=1337)
```

## 2.4 Filtering and sorting

Sorting with AppNexus-client is easy: just give a `sort` parameter with a value indicating which field is sorted in which order (`asc` or `desc`). This parameter will be supplied to the AppNexus API which will return a sorted response.

You can filter entities using parameters of the methods `find` and `find_one`. Each parameter stand as a new filter for the field it is named after. For example, you can search for cities whose `country_code` field is equal to “FR” and sort them by name:

```
for city in City.find(country_code="FR", sort="name.desc"):
    print(city.name)
```

The parameters you give to the `find` and `find_one` methods are translated into query parameters for the requests being send. For example, the snippet `Creative.find(state="active", advertiser_id=[1, 2, 3])` will result in a get request on `http://api.appnexus.com/creative?state=active&advertiser_id=1,2,3`

Please search in the AppNexus API [documentation](#) to understand the meaning of each parameter.

## 2.5 Custom data representation

By default, AppNexus-client relies on [Thingy](#) to represent data as objects.

But you can also hook your own data representation class. For this, you must use a function that exposes this signature:

```
function(client, service, object)
```

The `client` argument is an `AppNexusClient` instance. `service` is the string representation of the service to which the object belongs. `object` is a dictionary containing the data about the AppNexus entity. The return value of this function will be used as the data representation.

To use this function and get the desired data representation, you must pass it to the client as the `representation` keyword argument.

If you want your data to be in the form of simple dictionaries rather than [Thingy](#) instances, AppNexus-client provides a `raw` representation that you can use pretty easily:

```
from appnexus.representations import raw

connect("username", "password", representation=raw)
```

But if, for example, you would prefer to get lists of tuples, you would have to craft your own representation function:

```
def custom_representation(client, service_name, object):
    return object.items()

connect("username", "password", representation=custom_representation)
```

## 2.6 Reports

Retrieving report data has 3 steps:

1. Creating a report
2. Checking if the report is ready to download
3. Downloading the report

```
from appnexus import Report

json = {
    "report_type": "network_analytics",
    "columns": [
        "clicks",
        "total_convs",
        "insertion_order_id",
        "line_item_id",
    ],
    "report_interval": "lifetime",
    "format": "csv"
}

report = Report(json).save()
data = report.download()
```

The download method on Report object takes care of checking if the report is available for download and retries it by default for 3 times with an interval of 1 second. The number of retries can be overridden by passing the parameter `retry_count` to the download method:

```
data = report.download(retry_count=5)
```

## 2.7 Changelogs

The ChangeLog service allows to retrieve information about changes that have been made to an object of those services: campaign, insertion-order, line-item and profile.

For example, you can print the date of every change that was made on a campaign:

```
from appnexus import Campaign
```

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```
campaign = Campaign.find_one()
for change in campaign.changelog:
    print(change.created_on)
```

For more information on a change, you can use the `ChangeLogDetail` service with the returned `transaction_id` as a parameter:

```
from appnexus import ChangeLogDetail

detail = ChangeLogDetail.find_one(service="campaign",
                                  resource_id=change.resource_id,
                                  transaction_id=change.transaction_id)
print(detail.user_full_name)
```

## CHAPTER 3

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### Tests

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To run AppNexus-client tests:

- install developers requirements with `pip install -r requirements.txt`;
- run `pytest`.



## CHAPTER 4

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License

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MIT





## 5.1 API reference

### 5.1.1 Client

```
class appnexus.client.AppNexusClient (username=None, password=None, test=False, representation=None, token_file=None)  
    Represents an active connection to the AppNexus API  
append (service_name, json, **kwargs)  
base_url  
check_errors (response, data)  
    Check for errors and raise an appropriate error if needed  
connect (username, password, test=None, representation=None, token_file=None)  
connect_from_file (filename)  
create (service_name, json, **kwargs)  
    Create a new AppNexus object  
delete (service_name, *ids, **kwargs)  
    Delete an AppNexus object  
error_codes = {'RATE_EXCEEDED': <class 'appnexus.exceptions.RateExceeded'>}  
error_ids = {'NOAUTH': <class 'appnexus.exceptions.NoAuth'>}  
find (service_name, arguments=None, representation=None, **kwargs)  
get (service_name, **kwargs)  
    Retrieve data from AppNexus API  
load_token (token_file=None)  
meta (service_name)  
    Retrieve meta-informations about a service
```

```
modify (service_name, json, **kwargs)  
    Modify an AppNexus object  
save_token ()  
test_url = 'https://api-test.appnexus.com/'  
update_token ()  
    Request a new token and store it for future use  
url = 'https://api.appnexus.com/'  
appnexus.client.connect (*args, **kwargs)  
appnexus.client.find (*args, **kwargs)
```

### 5.1.2 Cursor

```
class appnexus.cursor.Cursor (client, service_name, representation, **specs)  
    Represents a cursor on collection of AppNexus objects  
  
    batch_size = 100  
  
    clone ()  
  
    common_keys = set(['num_elements', 'dbg_info', 'status', 'start_element', 'count'])  
  
    count ()  
        Returns the number of elements matching the specifications  
  
    extract_data (page)  
        Extract the AppNexus object or list of objects from the response  
  
    first  
        Extract the first AppNexus object present in the response  
  
    get_page (start_element=0, num_elements=None)  
        Get a page (100 elements) starting from start_element  
  
    iter_pages (skip_elements=0)  
  
    limit (number)  
        Limit the cursor to retrieve at most number elements  
  
    size ()  
        Return the number of elements of the cursor with skip and limit  
  
    skip (number)  
        Skip the first number elements of the cursor
```

### 5.1.3 Exceptions

```
exception appnexus.exceptions.AppNexusException (response=None)  
    Represents a generic AppNexus Exception  
  
exception appnexus.exceptions.RateExceeded (response=None)  
    Exception raised when the client reached the rate limit  
  
exception appnexus.exceptions.NoAuth (response=None)  
    Exception raised when the client's authentication expired
```

**exception** appnexus.exceptions.**BadCredentials** (*response=None*)  
 Exception raised when wrong credentials are provided

### 5.1.4 Model

```
class appnexus.model.Model (*args, **kwargs)
    Generic model for AppNexus data

    client = <appnexus.client.AppNexusClient object>

    classmethod connect (username, password)

    classmethod constructor (client, service_name, obj)

    classmethod count (**kwargs)

    classmethod create (payload, **kwargs)

    classmethod delete (*args, **kwargs)

    classmethod find (**kwargs)

    classmethod find_one (**kwargs)

    classmethod meta ()

    classmethod modify (payload, **kwargs)

    save (**kwargs)

    service_name = 'model'
```

### Services

```
class appnexus.model.AccountRecovery (*args, **kwargs)
class appnexus.model.AdProfile (*args, **kwargs)
class appnexus.model.AdQualityRule (*args, **kwargs)
class appnexus.model.AdServer (*args, **kwargs)
class appnexus.model.Advertiser (*args, **kwargs)
class appnexus.model.BatchSegment (*args, **kwargs)
class appnexus.model.Brand (*args, **kwargs)
class appnexus.model.Broker (*args, **kwargs)
class appnexus.model.Browser (*args, **kwargs)
class appnexus.model.BudgetSplitter (*args, **kwargs)
class appnexus.model.Campaign (*args, **kwargs)
class appnexus.model.Carrier (*args, **kwargs)
class appnexus.model.Category (*args, **kwargs)
class appnexus.model.ChangeLog (*args, **kwargs)
class appnexus.model.ChangeLogDetail (*args, **kwargs)
class appnexus.model.City (*args, **kwargs)
```

```
class appnexus.model.ContentCategory (*args, **kwargs)
class appnexus.model.Country (*args, **kwargs)
class appnexus.model.Creative (*args, **kwargs)
class appnexus.model.CreativeFormat (*args, **kwargs)
class appnexus.model.Currency (*args, **kwargs)
class appnexus.model.CustomModel (*args, **kwargs)
class appnexus.model.CustomModelHash (*args, **kwargs)
class appnexus.model.CustomModelLogit (*args, **kwargs)
class appnexus.model.CustomModelLUT (*args, **kwargs)
class appnexus.model.CustomModelParser (*args, **kwargs)
class appnexus.model.Deal (*args, **kwargs)
class appnexus.model.DealBuyerAccess (*args, **kwargs)
class appnexus.model.DealFromPackage (*args, **kwargs)
class appnexus.model.DMA (*args, **kwargs)
class appnexus.model.DeviceMake (*args, **kwargs)
class appnexus.model.DeviceModel (*args, **kwargs)
class appnexus.model.DomainAuditStatus (*args, **kwargs)
class appnexus.model.DomainList (*args, **kwargs)
class appnexus.model.ExternalInvCode (*args, **kwargs)
class appnexus.model.InsertionOrder (*args, **kwargs)
class appnexus.model.InventoryAttribute (*args, **kwargs)
class appnexus.model.InventoryResold (*args, **kwargs)
class appnexus.model.IPRangeList (*args, **kwargs)
class appnexus.model.Label (*args, **kwargs)
class appnexus.model.Language (*args, **kwargs)
class appnexus.model.LineItem (*args, **kwargs)
class appnexus.model.LineItemModel (*args, **kwargs)
class appnexus.model.Lookup (*args, **kwargs)
class appnexus.model.ManualOfferRanking (*args, **kwargs)
class appnexus.model.MediaSubtype (*args, **kwargs)
class appnexus.model.MediaType (*args, **kwargs)
class appnexus.model.Member (*args, **kwargs)
class appnexus.model.MemberProfile (*args, **kwargs)
class appnexus.model.MobileApp (*args, **kwargs)
class appnexus.model.MobileAppInstance (*args, **kwargs)
class appnexus.model.MobileAppInstanceList (*args, **kwargs)
```

```

class appnexus.model.MobileAppStore (*args, **kwargs)
class appnexus.model.NativeCustomKey (*args, **kwargs)
class appnexus.model.ObjectLimit (*args, **kwargs)
class appnexus.model.OperatingSystem (*args, **kwargs)
class appnexus.model.OperatingSystemExtended (*args, **kwargs)
class appnexus.model.OperatingSystemFamily (*args, **kwargs)
class appnexus.model.OptimizationZone (*args, **kwargs)
class appnexus.model.Package (*args, **kwargs)
class appnexus.model.PackageBuyerAccess (*args, **kwargs)
class appnexus.model.PaymentRule (*args, **kwargs)
class appnexus.model.Pixel (*args, **kwargs)
class appnexus.model.Placement (*args, **kwargs)
class appnexus.model.PlatformMember (*args, **kwargs)
class appnexus.model.PostalCode (*args, **kwargs)
class appnexus.model.Profile (*args, **kwargs)
class appnexus.model.ProfileSummary (*args, **kwargs)
class appnexus.model.Publisher (*args, **kwargs)
class appnexus.model.Region (*args, **kwargs)
class appnexus.model.Report (*args, **kwargs)

    download (retry_count=3, **kwargs)
    is_ready

class appnexus.model.ReportStatus (*args, **kwargs)
class appnexus.model.Search (*args, **kwargs)
class appnexus.model.Segment (*args, **kwargs)
class appnexus.model.Site (*args, **kwargs)
class appnexus.model.TechnicalAttribute (*args, **kwargs)
class appnexus.model.Template (*args, **kwargs)
class appnexus.model.ThirdpartyPixel (*args, **kwargs)
class appnexus.model.User (*args, **kwargs)
class appnexus.model.UsergroupPattern (*args, **kwargs)
class appnexus.model.VisibilityProfile (*args, **kwargs)

```

### 5.1.5 Representations

appnexus.representations.**raw** (*client, service, obj*)

### 5.1.6 Utils

**class** appnexus.utils.classproperty

appnexus.utils.normalize\_service\_name(*service\_name*, *delimiter*='-')

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