
Sunspear Documentation

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Sunspear is a library for storing activity streams. It is an implementation of the [JSON Activity Stream 1.0](#) specification. Currently, Sunspear only supports `Riak` as a storage backend, however, it is modular enough to allow the use of custom backend.

Contents:

1.1 Introduction

Sunspear is a python library which provides an API to store and manage activity stream items.

1.1.1 What it is

Sunspear is a library which allows you to add feeds and activity streams to your applications. It serializes these activities and feed items as described in the [JSON Activity Stream 1.0](#) specifications.

The specifications look scary, dull and boring (and they are), but essentially, an activity for:

```
``John Doe`` added ``Jane Doe`` to the group ``Party Planning``
```

boils down to:

```
{
  "actor": {
    "objectType": "user",
    "displayName": "John Doe",
    "id": "user:1234", # Totally optional, it will be generated for you if you don't provide one
    "title": "Manager",
    "foo": "bar"
  },
  "object": {
    "objectType": "user",
    "displayName": "Jane Doe",
    "title": "Devloper",
    "foo": "baz"
  },
  "target": {
    "objectType": "group",
    "displayName": "Party Planning"
  },
  "bar": "bee",
  "verb": "added"
}
```

The main takeaway points are:

- An activity is composed of objects.
- An activity must define an actor, verb and object.

- An object must define an `objectType` and a `displayName`
- objects and activities may contain arbitrary attributes.

Note: For more info, see the specifications for [activity](#) and [object](#).

Sunspear also implements parts of some extensions to the specifications. More specifically, [Audience Targeting](#) and [Responses](#).

1.1.2 What it isn't

Sunspear strictly deals with storage and retrieval of JSON activity stream items. It does not include all adequate indexes that allow you to build a fully fledged feed system.

For indexing, you'll probably want to use something like [Sandsnake](#), a sorted index backed by [redis](#).

1.2 Quick Start Guide

1.2.1 Usage

Sunspear provides a very simple api managing activity stream items

Initialize

You initialize `sunspear` by providing `sunspear.clients.SunspearClient` with an instance of a backend. All backends are located in `sunspear.backends` and extend the `sunspear.backend.base.BaseBackend`:

```
from sunspear.backends.RiakBackend import RiakBackend
from sunspear.clients import SunspearClient

import datetime

client = SunspearClient(RiakBackend(**{
    "host_list": [{'port': 8087}],
    "defaults": {'host': '127.0.0.1'},
}))
```

Create Objects

Once you have a reference to the `SunspearClient`, you can, create objects:

```
obj = client.create_object({
    "objectType": "user",
    "displayName": "John Doe",
    "email": "jdoe@gmail.com",
    "id": "user:1234",
})
```

Note: If you do not specify the `id` of an object, one will be automatically generated for you. This also applies for the published date.

Create Activity

You can also create an activity. As per the [JSON Activity Stream 1.0](#) specifications, an activity must have a `verb`, `actor` and an `object`.

Creating an activity for:

```
John Doe created the team "Marketing"
```

may look something like this:

```
activity = client.create_activity({
    "verb": "create",
    "actor": "user:1234",
    "object": {
        "objectType": "team",
        "displayName": "Marketing",
    },
})
```

Couple of interesting things to note here:

1. We used the `id` for the actor instead of the full blown object because we created the object earlier.
2. We didn't specify an `id` for our team object. One will be automatically generated.
3. The verb is arbitrary. It can be anything except for [response and activity summary verbs](#). For list a list of common verbs and objects you may want to use, see the [Activity Base Schema](#).
4. `create_activity` returns the fully parsed activity.

Note: The reason you can't use [response and activity summary verbs](#) is because **Sunspear** uses some of them internally.

Create Responses

You can create responses to activities such as liking an activity or replying to an activity. Sunspear supports a few of the response types described [here](#).

All methods that create responses, return the newly created response activity and the original activity the response was created for with the response activity embedded.

Note: **Sunspear** does responses a little bit differently than what is describe in the [specifications](#).

Responses themselves are fully fledged activities and not objects. This was ultimately done to provide maximum flexibility.

Create a Reply

You can create replies to activities.

```
reply_activity, original_activity = client.create_reply(activity['id'], "user:1234",
    "This is my Reply!")
```

Create a Like

You can like activities.

```
like_activity, original_activity = client.create_like(activity['id'], "user:1234")
```

Delete Reply

```
original_activity = client.delete_reply(reply_activity["id"])
```

Delete Like

```
original_activity = client.delete_like(reply_activity["id"])
```

Get Activities

You can get activities by providing a list of ids.

```
client.get_activities([activity["id"], "1234", "3456"])
```

Note: If the activity with the id does not exist, it is simply ignored.

Get Objects

You can get objects by providing a list of ids.

```
client.get_objects([obj["id"], "1234", "3456"])
```

Note: If the object with the id does not exist, it is simply ignored.

Developer Guide

3.1 Sunsppear Client

3.1.1 sunsppear.clients

class `sunsppear.clients.SunsppearClient` (*backend*, ***kwargs*)

The class is used to create, delete, remove and update activity stream items. This is the main class you use to interact with `sunsppear`

clear_all ()

Deletes all activity stream data

clear_all_activities ()

Deletes all activities data

clear_all_objects ()

Deletes all objects data

create_activity (*actstream_dict*)

Creates an activity. You can provide objects for activities as dictionaries or as ids for already existing objects.

If you provide a dictionary for an object, it is saved as a new object. If you provide an object id and the object does not exist, it is saved anyway, and returned as an empty dictionary when retrieving the activity.

Parameters *actstream_dict* (*dict*) – a dictionary representing the activity we want to store in the backend.

create_like (*activity*, *actor*, *content*='', *extra*={}, ***kwargs*)

Creates a like for an activity.

Parameters

- **activity** (*a string or dict*) – the activity we want to create the sub-item for
- **actor** (*a string or dict*) – the object creating the sub-activity
- **content** (*a string or dict*) – a string or an object representing the content of the sub-activity
- **extra** (*dict*) – additional data the is to be included as part of the sub-activity activity

create_object (*object_dict*)

Creates an object that can be used as part of an activity. If you specific and object with an id that already exists, that object is overridden.

Parameters **object_dict** (*dict*) – a dictionary representing the object we want to store in the backend.

create_reply (*activity*, *actor*, *content*, *extra*={}, ***kwargs*)

Creates a `reply` for an activity.

Parameters

- **activity** (*a string or dict*) – the activity we want to create the sub-item for
- **actor** (*a string or dict*) – the object creating the sub-activity
- **content** (*a string or dict*) – a string or an object representing the content of the sub-activity
- **extra** (*dict*) – additional data the is to be included as part of the sub-activity activity

delete_activity (*activity_id*, ***kwargs*)

Deletes an activity item and all associated sub items

Parameters **activity_id** (*string*) – The id of the activity we want to create a reply for

delete_like (*activity_id*, ***kwargs*)

Deletes a `like` made on an activity. This will also update the corresponding activity.

Parameters **activity_id** (*string*) – the id of the like activity to delete.

delete_reply (*activity_id*, ***kwargs*)

Deletes a `reply` made on an activity. This will also update the corresponding activity.

Parameters **activity_id** (*string*) – the id of the reply activity to delete.

get_activities (*activity_ids*=[], ***kwargs*)

Gets a list of activities. Specific backends may support other arguments. Please see reference of the specific backends to see all `kwargs` supported.

Parameters **activity_ids** (*list*) – The list of activities you want to retrieve

get_backend ()

The backend the client was initialized with.

Returns reference to the backend the client was initialized with.

get_objects (*object_ids*=[])

Gets a list of objects by `object_ids`.

Parameters **object_ids** (*list*) – a list of objects

3.2 Sunspear Client

3.2.1 sunspear.backends.base

class `sunspear.backends.base.BaseBackend`

activity_create (*activity*, ***kwargs*)

Stores a new activity to the backend.

Parameters **activity** (*dict*) – a dict representing the activity

Returns a dict representing the newly stored activity

activity_delete (*activity*, ***kwargs*)

Performs the task of actually deleting the activity from the backend.

Parameters **activity** (*dict*) – a dict representing the activity

activity_exists (*activity*, ***kwargs*)

Determines if an *activity* already exists in the backend.

Parameters **activity** (*dict*) – the activity we want to determine if it exists

Returns True if the activity exists, otherwise False

activity_get (*activity*, ***kwargs*)

activity_update (*activity*, ***kwargs*)

Performs the actual task of updating the activity in the backend.

Parameters **activity** (*dict*) – a dict representing the activity

Returns a dict representing the newly stored activity

clear_all_activities ()

Clears all activities from the backend.

clear_all_objects ()

Clears all objects from the backend.

create_activity (*activity*, ***kwargs*)

Stores a new *activity* in the backend. If an object with the same id already exists in the backend, a `SunspearDuplicateEntryException` is raised. If an ID is not provided, one is generated on the fly.

Activities that provide objects as dictionaries have their objects processed and stored using `create_obj`, and the objects are replaced with their id's within the activity.

Parameters **activity** (*dict*) – activity we want to store in the backend

Raises `SunspearDuplicateEntryException` if the record already exists in the database.

Returns dict representing the new activity.

create_obj (*obj*, ***kwargs*)

Stores a new *obj* in the backend. If an object with the same id already exists in the backend, a `SunspearDuplicateEntryException` is raised. If an ID is not provided, one is generated on the fly.

Parameters **obj** (*dict*) – obj we want to store in the backend

Raises `SunspearDuplicateEntryException` if the record already exists in the database.

Returns dict representing the new obj.

create_sub_activity (*activity*, *actor*, *content*, *extra={}*, *sub_activity_verb=''*, ***kwargs*)

Creates a new sub-activity as a child of *activity*.

Parameters

- **activity** (*a string or dict*) – the activity we want to create the sub-item for
- **actor** (*a string or dict*) – the object creating the sub-activity
- **content** (*a string or dict*) – a string or an object representing the content of the sub-activity

- **extra** (*dict*) – additional data the is to be included as part of the sub-activity activity
- **sub_activity_verb** (*string*) – the verb of the sub activity

Returns a tuple containing the new sub activity and the original activity the sub activity was created for.

delete_activity (*activity*, ***kwargs*)

Deletes an existing activity from the backend.

Parameters **activity** (*dict*) – a dict representing the activity

Raises `SunspearInvalidActivityException` if the activity doesn't have a valid id.

delete_obj (*obj*, ***kwargs*)

Deletes an existing obj from the backend.

raises:

- `SunspearInvalidObjectException` – if the obj doesn't have a valid id.

Parameters **obj** (*dict*) – a dict representing the obj

Raises `SunspearInvalidObjectException`

delete_sub_activity (*sub_activity*, *sub_activity_verb*, ***kwargs*)

Deletes a sub_activity made on an activity. This will also update the corresponding activity.

Parameters

- **sub_activity** (*string*) – the id of the reply activity to delete
- **sub_activity_verb** (*string*) – the verb of the sub activity

get_activity (*activity_ids=[]*, ***kwargs*)

Gets an activity or a list of activities from the backend.

Parameters **activity_ids** (*list*) – a list of ids of activities that will be retrieved from the backend.

Returns a list of activities. If an activity is not found, a partial list should be returned.

get_new_id ()

Generates a new unique ID. The default implementation uses `uuid1` to generate a unique ID.

Returns a new id

get_obj (*obj_ids=[]*, ***kwargs*)

Gets an obj or a list of activities from the backend.

Parameters **obj** (*list*) – a list of ids of activities that will be retrieved from the backend.

Returns a list of activities. If an obj is not found, a partial list should be returned.

obj_create (*obj*, ***kwargs*)

Stores a new obj to the backend.

Parameters **obj** (*dict*) – a dict representing the obj

Returns a dict representing the newly stored obj

obj_delete (*obj*, ***kwargs*)

obj_exists (*obj*, ***kwargs*)

Determines if an `object` already exists in the backend.

Parameters `obj` (*dict*) – the activity we want to determin if it exists

Returns `True` if the object exists, otherwise `False`

`obj_get` (*obj*, ***kwargs*)

`obj_update` (*obj*, ***kwargs*)

`sub_activity_create` (*activity*, *actor*, *content*, *extra*=`{}`, *sub_activity_verb*='',
sub_activity_attribute='', ***kwargs*)

Creates a new sub-activity as a child of *activity*.

Parameters

- **activity** (*a string or dict*) – the activity we want to create the sub-item for
- **actor** (*a string or dict*) – the object creating the sub-activity
- **content** (*a string or dict*) – a string or an object representing the content of the sub-activity
- **extra** (*dict*) – additional data the is to be included as part of the sub-activity activity
- **sub_activity_verb** (*string*) – the verb of the sub activity
- **sub_activity_attribute** (*string*) – the attribute in the activity the sub-activity will be a part of

Returns a tuple containing the new sub activity and the original activity the sub activity was created for.

`sub_activity_delete` (*sub_activity*, *sub_activity_verb*, ***kwargs*)

`update_activity` (*activity*, ***kwargs*)

Updates an existing activity in the backend. If the object does not exist, it is created in the backend.

Parameters **activity** (*dict*) – a dict representing the activity

Raises `SunspearInvalidActivityException` if the activity doesn't have a valid id.

Returns a dict representing the newly stored activity

`update_obj` (*obj*, ***kwargs*)

Updates an existing obj in the backend. If the object does not exist, it is created in the backend.

raises:

- `SunspearInvalidObjectException` – if the obj doesn't have a valid id.

Parameters **obj** (*dict*) – a dict representing the obj

Raises `SunspearInvalidObjectException`

Returns a dict representing the newly stored obj

3.2.2 sunspear.backends.riak

References

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4.1.1 Authors

Sentry was originally written and is maintained by Numan Sachwani.

A lit of additional contributors can be seen on [GitHub](#).

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Version 2.0, January 2004

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