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# oktalib Documentation

*Release 2.0.2*

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A python library for interfacing with OKTA's api

- Documentation: <https://oktalib.readthedocs.org/en/latest>

## 1.1 Development Workflow

The workflow supports the following steps

- lint
- test
- build
- document
- upload
- graph

These actions are supported out of the box by the corresponding scripts under `_CI/scripts` directory with sane defaults based on best practices. Sourcing `setup_aliases.ps1` for windows powershell or `setup_aliases.sh` in bash on Mac or Linux will provide with handy aliases for the shell of all those commands prepended with an underscore.

The bootstrap script creates a `.venv` directory inside the project directory hosting the virtual environment. It uses `pipenv` for that. It is called by all other scripts before they do anything. So one could simple start by calling `_lint` and that would set up everything before it tried to actually lint the project

Once the code is ready to be delivered the `_tag` script should be called accepting one of three arguments, patch, minor, major following the semantic versioning scheme. So for the initial delivery one would call

```
$ _tag --minor
```

which would bump the version of the project to 0.1.0 tag it in git and do a push and also ask for the change and automagically update `HISTORY.rst` with the version and the change provided.

So the full workflow after git is initialized is:

- repeat as necessary (of course it could be test - code - lint :) ) \* code \* lint \* test
- commit and push
- develop more through the code-lint-test cycle
- tag (with the appropriate argument)
- build
- upload (if you want to host your package in pypi)
- document (of course this could be run at any point)

## 1.2 Important Information

This template is based on pipenv. In order to be compatible with requirements.txt so the actual created package can be used by any part of the existing python ecosystem some hacks were needed. So when building a package out of this **do not** simple call

```
$ python setup.py sdist bdist_egg
```

**as this will produce an unusable artifact with files missing.** Instead use the provided build and upload scripts that create all the necessary files in the artifact.

## 1.3 Project Features

- Manages groups, users and applications

## 1.4 Todo

- This code is MVP. It requires a lot of optimizations and extensions.
- Things to do are, try to make the retrieving faster and implement smart caching for entities.



## CHAPTER 2

---

### Installation

---

At the command line:

```
$ pip install oktalib
```

Or, if you have virtualenvwrapper installed:

```
$ mkvirtualenv oktalib  
$ pip install oktalib
```

Or, if you are using pipenv:

```
$ pipenv install oktalib
```



## CHAPTER 3

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### Usage

---

To develop on oktalib:

```
# The following commands require pipenv as a dependency

# To lint the project
_CI/scripts/lint.py

# To execute the testing
_CI/scripts/test.py

# To create a graph of the package and dependency tree
_CI/scripts/graph.py

# To build a package of the project under the directory "dist/"
_CI/scripts/build.py

# To see the package version
_CI/scripts/tag.py

# To bump semantic versioning [--major|--minor|--patch]
_CI/scripts/tag.py --major|--minor|--patch

# To upload the project to a pypi repo if user and password are properly provided
_CI/scripts/upload.py

# To build the documentation of the project
_CI/scripts/document.py
```

To use oktalib in a project:

```
from oktalib import Okta
okta = Okta(url, token)
```

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```
# Working with groups

# enumerate groups in okta
for group in okta.groups:
    print group.name

# create a group
group = okta.create_group(GROUP_NAME, GROUP_DESCRIPTION)

# or get an existing one
group = okta.get_group_by_name(GROUP_NAME)

# delete a group
okta.delete_group(GROUP_NAME)

# or
group = okta.get_group_by_name(GROUP_NAME)
group.delete()

# add a user to a group
group.add_user_by_login(USERNAME)


# Working with users

# enumerate users in okta
for user in okta.users:
    print user.login

# create a user
user = okta.create_user(FIRST_NAME,
                        LAST_NAME,
                        EMAIL,
                        OKTA_USERNAME)

# or get an existing one
user = okta.get_user_by_login(USER_LOGIN)

# delete a user
okta.delete_user(USER_NAME)

# get groups of reference user
user = okta.get_user_by_login(USER_LOGIN)
groups = user.get_member_groups()
# or
user = okta.get_user_by_login(USER_LOGIN)
user.delete()
```

Contributions are welcome, and they are greatly appreciated! Every little bit helps, and credit will always be given.

### 4.1 Submit Feedback

If you are proposing a feature:

- Explain in detail how it would work.
- Keep the scope as narrow as possible, to make it easier to implement.

#### 4.1.1 Get Started!

Ready to contribute? Here's how to set up *oktalib* for local development.

1. Clone your fork locally:

```
$ git clone https://github.com/schubergphilis/oktalib.git
```

2. Install your local copy into a virtualenv. Assuming you have virtualenvwrapper installed, this is how you set up your clone for local development:

```
$ mkvirtualenv oktalib
$ cd oktalib/
$ python setup.py develop
```

3. Create a branch for local development:

```
$ git checkout -b name-of-your-bugfix-or-feature
```

Now you can make your changes locally.

4. Commit your changes and push your branch to the server:

```
$ git add .  
$ git commit -m "Your detailed description of your changes."  
$ git push origin name-of-your-bugfix-or-feature
```

#### 5. Submit a merge request

## 5.1 oktalib package

### 5.1.1 Subpackages

oktalib.entities package

Submodules

oktalib.entities.core module

Main code for core.

```
class oktalib.entities.core.Entity (okta_instance, data)  
    Bases: object
```

The core object of okta.

**created\_at**

The date and time of the group's creation.

**Returns** The datetime object of when the group was created

**Return type** datetime

**id**

The id of the entity.

**Returns** The internal id of the entity

**Return type** basestring

**last\_updated\_at**

The date and time of the entity's last update.

**Returns** The datetime object of when the entity was last updated

**Return type** datetime

**url**

The url of the entity.

**Returns** None in the core entity.

All objects inheriting from this would either expose this from their data or construct and overwrite this.

## oktalib.entities.entities module

Main code for entities.

**class** `oktalib.entities.entities.Application` (*okta\_instance*, *data*)

Bases: `oktalib.entities.core.Entity`

Models the apps in okta.

**accessibility**

The accessibility of the application.

**Returns** The accessibility of the application

**Return type** dictionary

**activate** ()

Activates the application.

**Returns** True on success, False otherwise

**Return type** bool

**add\_group\_by\_id** (*group\_id*)

Adds a group to the application.

**Parameters** *group\_id* – The id of the group to add

**Returns** True on success, False otherwise

**add\_group\_by\_name** (*group\_name*)

Adds a group to the application.

**Parameters** *group\_name* – The name of the group to add

**Returns** True on success, False otherwise

**assign\_group\_to\_saml\_user\_roles** (*group\_id*, *role*, *saml\_roles*)

Assigns an okta group to an okta application with saml user roles.

**Parameters**

- *group\_id* – The id of the group to be associated
- *role* – The aws role that okta uses to assume SAML roles in other accounts
- *saml\_roles* – the SAML Roles to be assumed

**Returns** The status of the assignment( True or False )

**Return type** Bool

**credentials**

The credentials of the application.

**Returns** The credentials of the application



**Return type** dictionary

**deactivate()**

Deactivates the application.

**Returns** True on success, False otherwise

**Return type** bool

**features**

The features of the application.

**Returns** The features of the application

**Return type** dictionary

**get\_associated\_saml\_roles()**

Returns the Saml IAM Roles associated with the application.

**Returns** List of saml iam roles

**Return type** list

**get\_group\_assignment\_by\_group\_name(name)**

Retrieves a group assignment by a group name.

**Parameters** **name** – The name of the group assignment to retrieve.

**Returns** The matching group assignment if found else None.

**Return type** group\_assignment (*GroupAssignment*)

**get\_user\_assignment\_by\_email(email)**

Retrieves a user assignment by a user email.

**Parameters** **email** – The email of the user assignment to retrieve.

**Returns** The matching user assignment if found else None.

**Return type** user\_assignment (*UserAssignment*)

**group\_assignments**

The group assignments to the application.

**Returns** A generator of group assignments for application

**Return type** generator

**groups**

The groups of the application.

**Returns** A generator of Group objects for the groups of the application

**Return type** generator

**label**

The label of the application.

**Returns** The label of the application

**Return type** basestring

**name**

The name of the application.

**Returns** The name of the application

**Return type** basestring

#### **notification\_settings**

The notification settings of the application.

**Returns** The notification settings of the application

**Return type** dictionary

#### **remove\_group\_by\_id** (*group\_id*)

Removes a group from the application.

**Parameters** **group\_id** – The id of the group to remove

**Returns** True on success, False otherwise

#### **remove\_group\_by\_name** (*group\_name*)

Removes a group from the application.

**Parameters** **group\_name** – The name of the group to remove

**Returns** True on success, False otherwise

#### **settings**

The settings of the application.

**Returns** The settings of the application

**Return type** dictionary

#### **sign\_on\_mode**

The sign on mode of the application.

**Returns** The sign on mode of the application

**Return type** basestring

#### **sign\_on\_settings**

The sign on settings of the application.

**Returns** The sign on settings of the application

**Return type** dictionary

#### **status**

The status of the application.

**Returns** The status of the application

**Return type** basestring

#### **url**

The url of the application.

**Returns** The url of the application

**Return type** string

#### **user\_assignments**

The user assignments to the application.

**Returns** A generator of user assignments for application

**Return type** generator

#### **users**

The users of the application.

**Returns** A generator of User objects for the users of the application

**Return type** generator

**visibility**

The visibility of the application.

**Returns** The visibility of the application

**Return type** dictionary

**class** `oktalib.entities.entities.Group` (*okta\_instance, data*)

Bases: `oktalib.entities.core.Entity`

Models the group object of okta.

**add\_to\_application\_with\_label** (*application\_label*)

Adds the group to an application.

**Parameters** `application_label` – The label of the application to add the group to

**Returns** True on success, False otherwise

**add\_user\_by\_id** (*id\_*)

Adds a user to the group.

**Parameters** `id` – The id of the user to add

**Returns** True on success, False otherwise

**add\_user\_by\_login** (*login*)

Adds a user to the group.

**Parameters** `login` – The login of the user to add

**Returns** True on success, False otherwise

**applications**

The applications of the group.

**Returns** A generator of Application objects for the applications of the group

**Return type** generator

**delete** ()

Deletes the group from okta.

**Returns** True on success, False otherwise

**Return type** bool

**description**

The description of the group.

**Returns** The description of the group

**Return type** string

**last\_membership\_updated\_at**

The date and time of the group's last membership update.

**Returns** The datetime object of when the group's memberships were last updated

**Return type** datetime

**name**

The name of the group.

**Returns** The name of the group

**Return type** string

**object\_classes**

The classes of the group.

**Returns** The tuple of the classes of the group

**Return type** tuple

**profile**

The profile of the group.

**Returns** The profile of the group

**Return type** dict

**remove\_from\_application\_with\_label** (*application\_label*)

Removes the group from an application.

**Parameters** **application\_label** – The label of the application to remove the group from

**Returns** True on success, False otherwise

**remove\_user\_by\_id** (*id\_*)

Remove a user from the group.

**Parameters** **id** – The id of the user to remove

**Returns** True on success, False otherwise

**remove\_user\_by\_login** (*login*)

Removes a user from the group.

**Parameters** **login** – The login of the user to remove

**Returns** True on success, False otherwise

**type**

The type of the group.

**Returns** The name of the type of the group

**Return type** string

**url**

The url of the group.

**Returns** The url of the group

**Return type** string

**users**

The users of the group.

**Returns** A generator of User objects for the users of the group

**Return type** generator

**class** `oktalib.entities.entities.GroupAssignment` (*okta\_instance, data*)

Bases: `oktalib.entities.entities.Group`

Models the group assignment object of okta for apps.

**priority**

The priority of the group assignment.

**Returns** The priority of the group.

**Return type** int

**profile\_role**

Profile role.

**profile\_saml\_roles**

Profile saml roles.

**class** `oktalib.entities.entities.User` (*okta\_instance, data*)

Bases: `oktalib.entities.core.Entity`

Models the user object of okta.

**activate** ()

Activate the user.

**Returns** True on success, False otherwise

**activated\_at**

The date and time of the users's activation.

**Returns** The datetime object of when the user was activated

**Return type** datetime

**city**

The city of the user.

**Returns** The city of the user

**Return type** string

**contry\_code**

The contry code of the user.

**Returns** The country code of the user

**Return type** string

**credentials**

The credentials of the user.

**Returns** The credentials of the user

**Return type** dictionary

**deactivate** ()

Deactivate the user.

**Returns** True on success, False otherwise

**delete** ()

Deletes the user from okta.

**Returns** True on success, False otherwise

**Return type** bool

**department**

The department of the user.

**Returns** The department of the user

**Return type** string

**display\_name**

The display name of the user.

**Returns** The display name of the user

**Return type** string

**email**

The email of the user.

**Returns** The email of the user

**Return type** string

**employee\_number**

The employee number of the user.

**Returns** The employee number of the user

**Return type** string

**expire\_password()**

Expires the user's password.

**Returns** True on success, False otherwise

**first\_name**

The first name of the user.

**Returns** The first name of the user

**Return type** string

**groups**

Lists the groups the user is a member of.

**Returns** A generator of Group objects for which the user is member of

**Return type** generator

**last\_login\_at**

The date and time of the users's last login.

**Returns** The datetime object of when the user last logged in

**Return type** datetime

**last\_name**

The last name of the user.

**Returns** The last name of the user

**Return type** string

**locale**

The locale of the user.

**Returns** The locale of the user

**Return type** string

**login**

The login of the user.

**Returns** The login of the user

**Return type** string

**manager**

The manager of the user.

**Returns** The manager of the user

**Return type** string

**mobile\_phone**

The mobile phone of the user.

**Returns** The mobile phone of the user

**Return type** string

**organization**

The organization of the user.

**Returns** The organization of the user

**Return type** string

**password\_changed\_at**

The date and time of the users's last password change.

**Returns** The datetime object of when the user last changed password

**Return type** datetime

**primary\_phone**

The primary phone of the user.

**Returns** The primary phone of the user

**Return type** string

**reset\_password()**

Resets the user's password.

**Returns** True on success, False otherwise

**second\_email**

The second email of the user.

**Returns** The second email of the user

**Return type** string

**set\_password(password)**

Set a password for the user.

**Returns** True on success, False otherwise

**set\_temporary\_password()**

Sets a temporary password for the user.

**Returns** Password on success, None otherwise

**Return type** string

**status**

The status of the user.

**Returns** The status of the user

**Return type** string

**status\_changed\_at**

The date and time of the users's status change.

**Returns** The datetime object of when the user had last changed status

**Return type** datetime

**street\_address**

The street address of the user.

**Returns** The street address of the user

**Return type** string

**suspend()**

Suspends the user.

**Returns** True on success, False otherwise

**title**

The title of the user.

**Returns** The title of the user

**Return type** string

**unlock()**

Unlocks the user.

**Returns** True on success, False otherwise

**unsuspend()**

Unsusends the user.

**Returns** True on success, False otherwise

**update\_password(*old\_password*, *new\_password*)**

Changes the user's password.

**Returns** True on success, False otherwise

**update\_profile(*new\_profile*)**

Update a user's profile in okta.

**Parameters** *new\_profile* – A object with attributes to change (example: {'profile': {'first-Name': 'Test'}})

**Returns** True or False depending on success

**Return type** Bool

**update\_security\_question(*password*, *question*, *answer*)**

Changes the user's security question and answer.

**Returns** True on success, False otherwise

**url**

The url of the user.

**Returns** The url of the user

**Return type** string

**zip\_code**

The zip code of the user.

**Returns** The zip code of the user

**Return type** string



```
class oktalib.entities.entities.UserAssignment (okta_instance, data)
```

Bases: *oktalib.entities.entities.User*

Models the user assignment object of okta for apps.

**email**

The email of the user.

**Returns** The email of the user.

**Return type** email (str)

**group**

The group that the user assignment refers to.

**Returns** The group that the user assignment refers to.

**Return type** group (*Group*)

**profile\_role**

Profile role.

**profile\_saml\_roles**

Profile saml roles.

## Module contents

entities package.

Import all parts from entities here

## 5.1.2 Submodules

### 5.1.3 oktalib.oktalib module

Main code for oktalib.

```
class oktalib.oktalib.Okta (host, token)
```

Bases: object

Models the api of okta.

**applications**

The applications configured in okta.

**Returns** The generator of applications configured in okta

**Return type** generator

```
assign_group_to_application (application_label, group_name)
```

Assigns a group to an application.

**Parameters**

- **application\_label** – The label of the application to assign the group to
- **group\_name** – The group name to assign to the application

**Returns** True on success, False otherwise

```
create_group (name, description)
```

Creates a group in okta.

#### Parameters

- **name** – The name of the group to create
- **description** – The description of the group to create

**Returns** The created group object on success, None otherwise

**create\_user** (*first\_name, last\_name, email, login, password=None, enabled=True*)  
Creates a user in okta.

#### Parameters

- **first\_name** – The first name of the user
- **last\_name** – The last name of the user
- **email** – The email of the user
- **login** – The login of the user
- **password** – The password of the user
- **enabled** – A flag whether the user should be enabled or not Defaults to True

**Returns** The created user on success, None otherwise

**Return type** *User*

**delete\_group** (*name*)  
Deletes a group from okta.

**Parameters** **name** – The name of the group to delete

**Returns** True on success, False otherwise

**Return type** bool

**Raises** *InvalidGroup* – The group provided as argument does not exist.

**get\_application\_by\_id** (*id\_*)  
Retrieves an application by id.

**Parameters** **id** – The id of the application to retrieve

**Returns** Application Object

**get\_application\_by\_label** (*label*)  
Retrieves an application by label.

**Parameters** **label** – The label of the application to retrieve

**Returns** Application Object

**get\_group\_by\_id** (*group\_id*)  
Retrieves the group (of any type) by id.

**Parameters** **group\_id** – The id of the group to retrieve

**Returns** The group if a match is found else None

**Return type** *Group*

**get\_group\_by\_name** (*name*)  
Retrieves the first group (of any type) by name.

**Parameters** **name** – The name of the group to retrieve

**Returns** The group if a match is found else None

**Return type** *Group*

**get\_group\_type\_by\_name** (*name*, *group\_type*='OKTA\_GROUP')

Retrieves the group type of okta by name.

**Parameters**

- **group\_type** – The type of okta group to retrieve
- **name** – The name of the group to retrieve

**Returns** The group if a match is found else None

**Return type** *Group*

**get\_user\_by\_login** (*login*)

Retrieves a user by login.

**Parameters** **login** – The login to match the user with

**Returns** The user if found, None otherwise

**Return type** *User*

**groups**

The groups configured in okta.

**Returns** The generator of groups configured in okta

**Return type** generator

**remove\_group\_from\_application** (*application\_label*, *group\_name*)

Removes a group from an application.

**Parameters**

- **application\_label** – The label of the application to remove the group from
- **group\_name** – The name of the group to remove from the application

**Returns** True on success, False otherwise

**search\_groups\_by\_name** (*name*)

Retrieves the groups (of any type) by name.

**Parameters** **name** – The name of the groups to retrieve

**Returns** A list of groups if a match is found else an empty list

**Return type** list

**search\_users** (*value*)

Retrieves a list of users by looking into name, last name and email.

**Parameters** **value** – The value to match with

**Returns** The users if found, empty list otherwise

**Return type** list

**search\_users\_by\_email** (*email*)

Retrieves a list of users by email.

**Parameters** **email** – The email to match the user with

**Returns** The users if found, empty list otherwise

**Return type** list

#### **users**

The users configured in okta.

**Returns** The generator of users configured in okta

**Return type** generator

### 5.1.4 oktalib.oktalibexceptions module

Custom exception code for oktalib.

**exception** oktalib.oktalibexceptions.**ApiLimitReached**

Bases: Exception

The api limits are close to being reached.

**exception** oktalib.oktalibexceptions.**AuthFailed**

Bases: Exception

The authentication was not possible. Invalid token maybe.

**exception** oktalib.oktalibexceptions.**InvalidApplication**

Bases: Exception

The application provided is invalid.

**exception** oktalib.oktalibexceptions.**InvalidGroup**

Bases: Exception

The group provided is invalid.

**exception** oktalib.oktalibexceptions.**InvalidUser**

Bases: Exception

The user provided is invalid.

**exception** oktalib.oktalibexceptions.**ServerError**

Bases: Exception

A server has responded with an error code.

**exception** oktalib.oktalibexceptions.**UnableToUpdate**

Bases: Exception

Could not update use property.

### 5.1.5 Module contents

oktalib package.

Import all parts from oktalib here

## CHAPTER 6

---

### Credits

---

#### 6.1 Development Lead

- Costas Tyfoxylos <ctyfoxylos@schubergphilis.com>

#### 6.2 Contributors

- Yorick Hoorneman <yhoorneman@schubergphilis.com>



## CHAPTER 7

---

History

---





## CHAPTER 8

---

0.1.0 (25-05-2018)

---

- First release



## CHAPTER 9

---

1.0.0 (19-10-2018)

---

- Updated template to python3.7 Dropped support for python2.7



## CHAPTER 10

---

1.1.0 (23-10-2018)

---

- Added setting of user password capability



## CHAPTER 11

---

1.1.1 (25-10-2018)

---

- Updated template and dependencies





## CHAPTER 12

---

1.1.2 (17-12-2018)

---

- Updated requests version.



## CHAPTER 13

---

1.1.3 (11-01-2019)

---

- Updated requests module and fixed requirements generation.



## CHAPTER 14

---

1.1.4 (20-09-2019)

---

- Update get\_applicatio\_by\_id



## CHAPTER 15

---

1.1.5 (20-09-2019)

---

- Added limit





## CHAPTER 16

---

1.1.6 (23-09-2019)

---

- Fix applications method



## CHAPTER 17

---

1.1.7 (18-10-2019)

---

- bumped dependencies



## CHAPTER 18

---

1.1.8 (18-10-2019)

---

- Updated template and bumped dependencies



## CHAPTER 19

---

1.1.9 (19-12-2019)

---

- Added feature for aws application





## CHAPTER 20

---

1.1.10 (13-01-2020)

---

- Added api exhaustion backoff.



## CHAPTER 21

---

1.1.11 (13-01-2020)

---

- Corrected Pipfile.lock issue.



## CHAPTER 22

---

1.1.12 (09-06-2020)

---

- Bumped requests



## CHAPTER 23

---

1.1.13 (17-06-2020)

---

- fixed applications entity





## CHAPTER 24

---

1.2.0 (09-10-2020)

---

- bumped requests



## CHAPTER 25

---

1.3.0 (02-12-2020)

---

- Bumped requests



## CHAPTER 26

---

1.4.0 (15-03-2021)

---

- Added property setters for user attributes.



## CHAPTER 27

---

1.4.1 (26-04-2021)

---

- Bumped dependencies.





## CHAPTER 28

---

1.4.2 (08-06-2021)

---

- Bumped dependencies.



## CHAPTER 29

---

1.4.3 (08-06-2021)

---

- Updated reference of pypi to simple from legacy.



## CHAPTER 30

---

1.4.4 (08-06-2021)

---

- Updated pypi reference.



## CHAPTER 31

---

1.4.5 (08-06-2021)

---

- Reverted pypi reference to legacy.





## CHAPTER 32

---

1.5.0 (24-03-2022)

---

- Added User and Group assignment roles.



## CHAPTER 33

---

1.6.0 (28-03-2022)

---

- Made entities comparable.



## CHAPTER 34

---

1.6.1 (22-04-2022)

---

- Fixed bugs with api rate limiting courtesy of Yorick Hoorneman <[yhoorneman@schubergphilis.com](mailto:yhoorneman@schubergphilis.com)>



## CHAPTER 35

---

2.0.0 (30-01-2023)

---

- Fixed a nasty bug with activate and deactivate of applications being exposed as properties with bad side effects on introspection. Made most entities return as generators.





## CHAPTER 36

---

2.0.1 (28-02-2023)

---

- Testing release.



## CHAPTER 37

---

2.0.2 (07-03-2023)

---

- Test release.



## CHAPTER 38

---

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- `modindex`
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