
PySOSA

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CHAPTER 1

Introduction

PySOSA is a python module for building SOSA based RDF graphs

The LANDRS (Linked And Networked DRoneS) project amongst other things works to create an ontology and building an OpenAPI specification for creating a Restful API for building linked data native drone data applications. LANDRS is a Sloan Foundation funded project to build open source APIs for managing scientific data on drones through the use of web standards and linked data technologies.

CHAPTER 2

PySOSA Guide

Here is the guide to use PySOSA: <https://github.com/landrs-toolkit/PySOSA>

SOSA (Sensor, Observation, Sample, and Actuator) is a lightweight but self-contained core ontology for its elementary classes and properties. You may find useful information on SOSA here <https://www.w3.org/TR/vocab-ssn/#SOSAPlatform> PySOSA implementation was guided by the sosa resource shared above.

For testing PySOSA: `$ python -m unittest test_Platform.py`

PySOSA Modules & Classes

Class : implementation link

1. Platform : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Platform.py>
2. Sensor : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Sensor.py>
3. Observation : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Observation.py>
4. Actuator : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Actuator.py>
5. ActuatableProperty : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/ActuatableProperty.py>
6. Sampler : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Sampler.py>
7. FeatureofInterest : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/FeatureofInterest.py>
8. Procedure: <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Procedure.py>
9. Actuation : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Actuation.py>
10. Sampling : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/Sampling.py>
11. ObservableProperty : <https://github.com/landrs-toolkit/PySOSA/blob/master/PySOSA/ObservableProperty.py>

Example of PySOSA Features

Some functions you can invoke on the PySOSA modules:

- `set_Platform_id()`
- `get_URI()`
- `add_sensor()`
- `remove_sensor()`
- `add_Observation()`
- `add_Actuator()`
- `remove_actuator()`
- `set_dateTime()`

This is how you would add a sensor to the Platform

Adding a sensor to a Platform algorithm:

```
""" Add a sensor to the platform """
```

Args:

sensor (str): The sensor object

Returns:

str: a list of sensors, platform with sensors added to it

4.1 Python code snippet

```
def add_sensor(self, sensor):
```

```
    #check if it is a sensor before adding
```

```
if isinstance(sensor, Sensor): #add sensor to list
    self.sensors.append(sensor)
    #add sensor to rdf graph
    obsgraph.add((self.platform_id, cfg.sosa.hosts, sensor.label))
else:
    raise Exception('Type error: object not of type Sensor')
```

How to Use PySOSA?

More details To Be Announced!

PySOSA is A python module for building RDF graphs using the W3C SOSA (Sensors, Observations, Samples, and Actuators) ontology. For more see <https://github.com/landrs-toolkit/PySOSA>. In short PySOSA implements a python-based Linked-Data API for Networked Drones.

1. Discover the SOSA Features
2. check out the PySOSA repo
3. clone the repo into your Pycharm IDE and run the tests

CHAPTER 6

Contributing

When contributing to this repository, please first discuss the change you wish to make via an issue, email, or any other method with the maintainers of this repository before making a change.

See a summary of instructions to guide how you can contribute.

1. Fork the Project repo
2. Create your Feature Branch (git checkout -b feature/AmazingFeature)
3. Commit your Changes (git commit -m 'Add some AmazingFeature')
4. Push to the Branch (git push origin feature/AmazingFeature)
5. Open a Pull Request
6. You can also get in touch via email landrs@nd.edu or visit <https://www.landrs.org/>

CHAPTER 7

How to install from Pypi

Pre Requisites. Before using, you must have the following: **Installation.** Install using pip: `pip install pysosa` [Link to pysosa pypi](#) **Configuration.** Configure all connection parameters on the IDE **Downloading the code!** Run Your function **Checking your recently installed package.**

CHAPTER 8

License

PySOSA is published openly under Apache 2.0 <https://www.apache.org/licenses/LICENSE-2.0>

CHAPTER 9

Contacts

- Get in touch with us on the landrs website <https://www.landrs.org/>
- Email us at landrs@nd.edu
- Twitter Handle <https://twitter.com/DroneData4Good>

CHAPTER 10

Indices and tables

- `genindex`
- `modindex`
- `search`