LIA-Python ASS description

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LIA

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Abbrevations

|  |  |
| --- | --- |
| AAS-ID | Asset Administration Shell Identifikation |
| C/S | Client Server |
| CfP | Call for Proposal |
| IP | Internet Protocol |
| JSON | JavaScript Object Notation |
| OPC UA | Open Plattform Communication Unified Architecture |
| Pub | Publisher |
| SP | Service Provider |
| SR | Service Requester |
| Sub | Subscriber |
| TCP | Transmission Control Protocol |
| UDP | User Datagram Protocol |
| VDE | Verband der Elektrotechnik Elektronik Informationstechnik |
| VDI | Verein Deutscher Ingenieure |
| LIA | Lehrstuhl Integrierte Automation |

# Purpose of the AAS

# AAS software description

## AAS internal functionality

### Architecture

Class Diagram and General Picture

Links to the Item Please add

### Interactions between modules

### Module interfaces

Base Module : Contains the list of all other modules, it loads and manages them.

<https://github.com/harishpakala/PythonAASxServer/blob/main/src/main/pyaasServer.py>

EndPoint Handler:

### Module description

## AAS north bound interfaces

## AAS PUB-SUB Server Interface

## AAS software structure

### AAS source code location

<https://github.com/harishpakala/PythonAASxServer>

### Used tools and libraries including their versions

paho-mqtt>=1.5.0

Flask>=1.1.2

Flask-RESTful>=0.3.8

requests>=2.24.0

opcua>=0.98.13

APScheduler>=3.6.3

jsonpickle>=2.2.0

jsonschema>=3.2.0

python-dotenv>=0.14.0

# AAS server generation

## AAS server generation inputs

## AAS server configuration

Environment Variables <https://github.com/harishpakala/PythonAASxServer/blob/main/.env>

LIA\_AAS\_RESTAPI\_HOST\_EXTERN=localhost

LIA\_AAS\_RESTAPI\_PORT\_EXTERN=60011

LIA\_AAS\_MQTT\_HOST=localhost

LIA\_AAS\_MQTT\_PORT=1883

LIA\_PUBSUB\_LISTNER\_HOST=localhost

LIA\_PUBSUB\_LISTNER\_PORT=4051

## AAS server generation outputs

# AAS usage

## AAS http/Rest interface

<http://localhost:60011/shells>

<http://localhost:60011/concept-descriptions>

<http://localhost:60011/submodels>

[http://localhost:60011/shells/<path:aasIdentifier](http://localhost:60011/shells/%3cpath:aasIdentifier)>

[http://localhost:60011/concept-descriptions/<path:cdIdentifier](http://localhost:60011/concept-descriptions/%3cpath:cdIdentifier)>

[http://localhost:60011/submodels/<path:submodelIdentifier>/submodel](http://localhost:60011/submodels/%3cpath:submodelIdentifier%3e/submodel)

[http://localhost:60011/submodels/<path:submodelIdentifier>/submodel/submodel-elements/<path:idShortPath](http://localhost:60011/submodels/%3cpath:submodelIdentifier%3e/submodel/submodel-elements/%3cpath:idShortPath)>

[http://localhost:60011/shells/<path:aasIdentifier>/aas/submodels](http://localhost:60011/shells/%3cpath:aasIdentifier%3e/aas/submodels)

[http://localhost:60011/submodels/<path:submodelIdentifier>/submodel/submodel-elements](http://localhost:60011/submodels/%3cpath:submodelIdentifier%3e/submodel/submodel-elements)

[http://localhost:60011/shells/<path:aasIdentifier>/submodels/<path:submodelIdentifier>/submodel/submodel-elements/<path:idShortPath](http://localhost:60011/shells/%3cpath:aasIdentifier%3e/submodels/%3cpath:submodelIdentifier%3e/submodel/submodel-elements/%3cpath:idShortPath)>

[http://localhost:60011/shells/<path:aasIdentifier>/aas](http://localhost:60011/shells/%3cpath:aasIdentifier%3e/aas)

[http://localhost:60011/shells/<path:aasIdentifier>/aas/asset-information](http://localhost:60011/shells/%3cpath:aasIdentifier%3e/aas/asset-information)

## AAS Client UI Visualisation

## AAS Client PUB Sub

# Literature

[1] blablabla