

DOC-simulnet

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I. A 2 MINUTES TUTORIAL

This notebbok explains how to run a simation from the simulnet module.

A. Running the simulation

Once the following configuration files have been filled : simulnet.ini agent.ini emsolver.ini communication.ini

The simulation can be started with the method runsimul

```
Layout graphs are loaded from /home/uguen/Bureau/
wait 0.1
wait 0.1
Processing save results, please wait
```

```
[<pylayers.mobility.agent.Agent at 0x36a2790>,
<pylayers.mobility.agent.Agent at 0x36a2950>,
<pylayers.mobility.agent.Agent at 0x36a2890>,
<pylayers.mobility.agent.Agent at 0x36a2810>]
```

```
Agent ID: 1
Agent name: Person_ID1
Agent mass: 80
```

```
position vector: (30.0533, 2.7772, 0.0000)
velocity vector: (0.1494, 0.8244, 0.0000)
acceleration vector: (-0.0915, 0.4152, 0.0000)
```

```
waiting time in room: 1.0
coordinates of its target: (30.1670, 4.9950, 0.0000)
a list coordinates of its intermediate target: [(18.9000,
```

B. Analysis of the saved results

Data are stored into S.save.save dictionary. If asked in simulnet.ini, those data are stored in a matfile in ‘

Node # 1

```
emitted power {'rat1': 0}
sensitivity node {'rat1': -80}
type ag
```

```
At time stamp 0:
true position [ 18.90762689  2.53145395]
estimated position [ nan  nan]
```

```
On rat1
Received powers [-90.7282282  3.          ]
TOA [ 63.25263999  0.3          ]
```

C. Description of inner organization of the Simulation object

1) list of involved agents : All agents (mobile and anchors) are gathered in a list of agents. Notice that anchors are static agents.

All moving agents have the following mechanical attributes which have an influence on mobility.

II. NETWORK ATTRIBUTES

The network is a graph:

- Nodes of the graph represent Agents or access points
- Edges of the graph represent radio link between nodes

The node is a dictionary which contains the following keys :

- ‘PN’ : Personnal Network (described in the following)
- ‘RAT’ : A list of RAT of which it belongs
- ‘p’ : true position
- ‘pe’ : estimated position if it has been computed by the node itself (cf. location tutorial)
- ‘t’ : A time stamp
- ‘type’: Its type (‘ag’ : for agent or ‘ap’ for access point)

example with node ‘1’

Each node are link by the edge of the graph

The edge is a dictionary which contains the following keys :

example with node ‘1’