



oneM2M Device Simulator

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Motivation



- Device Simulator is a S/W that simply implements oneM2M API resource creation, inquiry, update, and deletion
- This is not interworking with real devices, but creates virtual devices and generates sensor-set values for each device
- In this tutorial, create a virtual device and then check the data of virtual device through the oneM2M platform

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Prerequisites

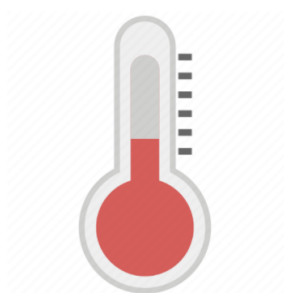
- S/W
 - Node.js
 - Visual Studio Code
 - <https://code.visualstudio.com/download>
 - cmdr(Terminal)
 - <https://cmdr.net/>
 - Device Simulator Source
 - https://github.com/loTKETI/oneM2M-Device_Simulator.git



oneM2M - Device Simulator

Device Simulator Overview

- Device simulator provides virtual devices which provides sensing and actuation from/to oneM2M platforms
- This is useful for simple projects without any physical devices



20 °C

Temperature

temp

Delete



41 %

Humidity

humi

Delete



683 Lux

Luminosity

lumi

Delete



1

Presence

presence

Delete



0

Lamp

lamp

Delete



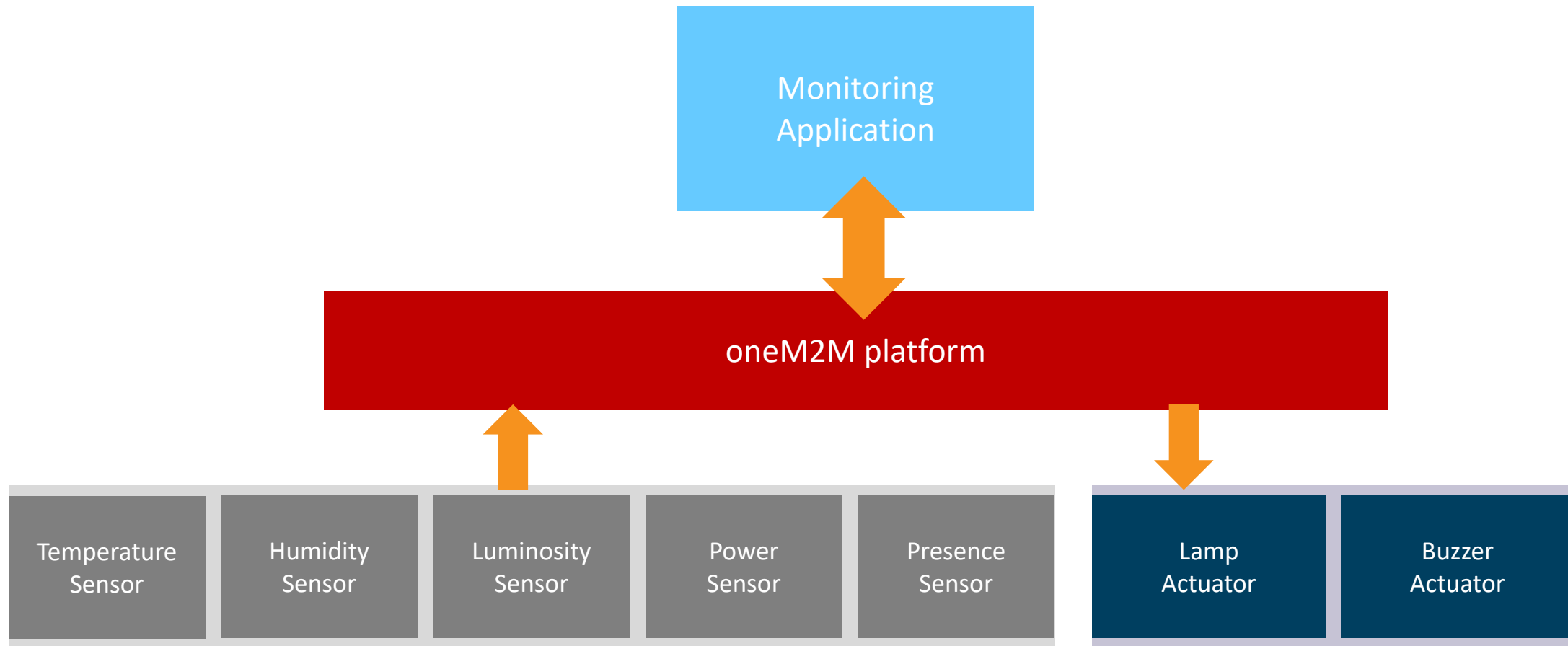
0

buzzer

buzzer

Delete

Components



Usage Guide



- Select a type and chose a name for your device then confirm to simulate a device
- Every simulated sensors (e.g. Temperature, Luminosity, Humidity, Power, Presence, etc.) will push data periodically to the oneM2M platform based on the configuration file
- It is possible to change the status of the actuators (e.g. Lamp, Buzzer, etc.) using the "update" button
- The new status will be published immediately to the oneM2M platform.
- You can delete any device by clicking on the "delete" button

Configuration

- Configuration (1) [required]
 - You can change the configuration by editing the config file ["default.json"](#) file located in the "config" folder.
 - You must check the "cse" settings before starting the simulator.

```
"cse": {  
  "ip": "127.0.0.1",  
  "port": 7579,  
  "id": "Mobius2",  
  "name": "Mobius",  
  "release": "1",  
  "acp_required": false  
},  
"app": {  
  "ip": "127.0.0.1",  
  "port": 8369  
},
```

Configuration

- Configuration (2) [optional]
 - You can use the same template to add your own sensors and actuators in the "templates" section (Set the "stream" attribute to "up" for sensors and "down" for actuators).
 - Any new template added to the list will be incorporated by the simulator.

```
"templates": [{
  "stream": "up",
  "type": "Luminosity",
  "unit": "Lux",
  "min": 200,
  "max": 500,
  "freq": 5,
  "icon": "images/icon-sun.png"
},
{
  "stream": "down",
  "type": "Lamp",
  "unit": "",
  "min": 0,
  "max": 1,
  "icon": "images/icon-light.png"
},
]
```

Installation



- Install required node modules
 - Install the required node modules using the following command:
 - > npm install
 - Start oneM2M-Device-Simulator
 - > node app.js

```
C:\Users\Parkyun\Desktop\oneM2M-Device-Simulator (onem2m-virtual-devices@1.0.0)
λ npm install
npm WARN onem2m-virtual-devices@1.0.0 No repository field.

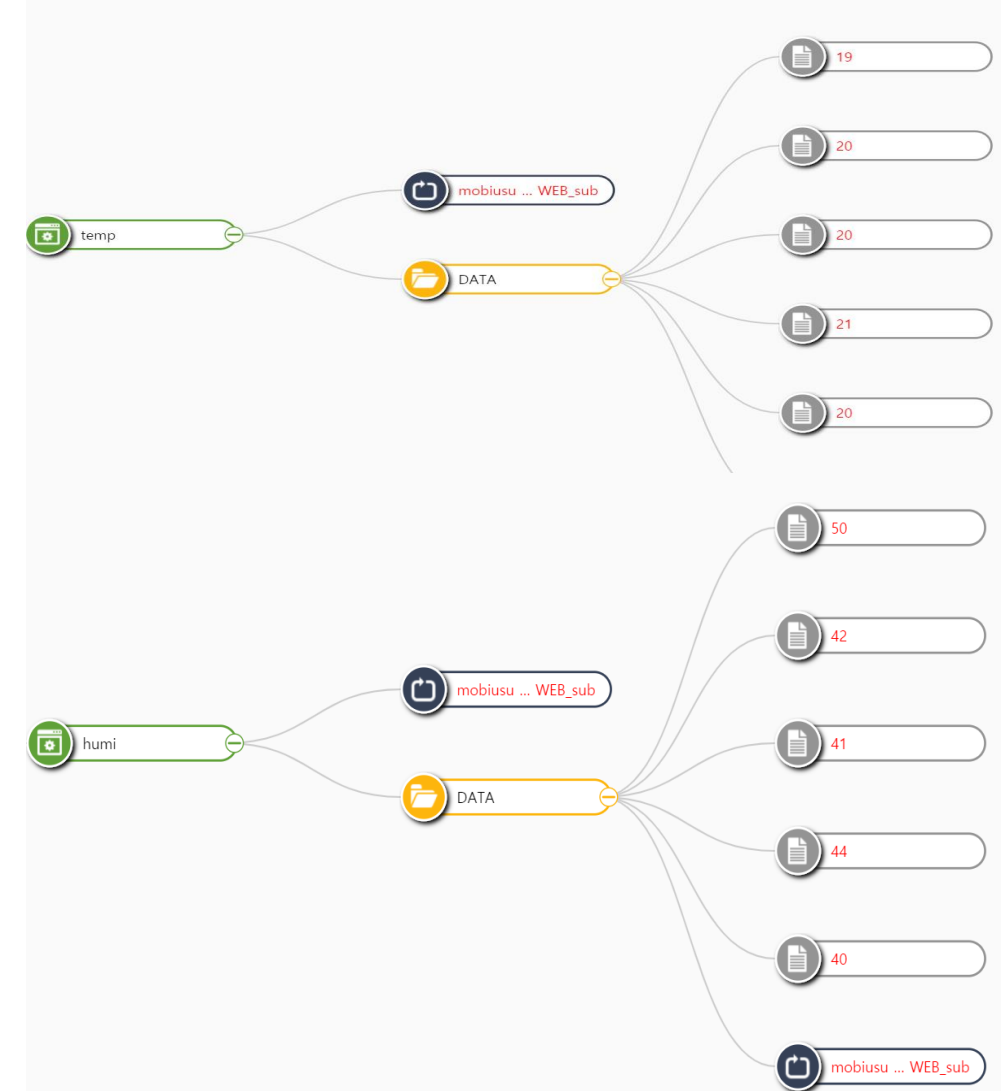
audited 98 packages in 0.653s
found 0 vulnerabilities

New minor version of npm available! 6.4.1 -> 6.14.8
Changelog: https://github.com/npm/cli/releases/tag/v6.14.8
Run npm install -g npm to update!
```

```
C:\Users\Parkyun\Desktop\oneM2M-Device-Simulator
λ node app.js
Simulator API listening on port 8369
```

Monitoring Device Simulator

- Create virtual sensors using the device simulator
 - Created data(resources) will be stored on the oneM2M platform
- Uploaded data in the platform can be monitored real-time on the resource browser



- You can send a RETRIEVE request to the Sensor devices using the 'POSTMAN' tool
 - ▶ Latest contentInstance RETRIEVE

```
GET http://127.0.0.1:7579/Mobius/temp/DATA/la

{
  "m2m:cin": {
    "pi": "3-20200921084450942",
    "ri": "4-20200921084450951",
    "ty": 4,
    "ct": "20200921T084450",
    "st": 1,
    "rn": "4-20200921084450951",
    "lt": "20200921T084450",
    "et": "20220921T084450",
    "cs": 2,
    "cr": "Stemp",
    "con": "21"
  }
}
```

