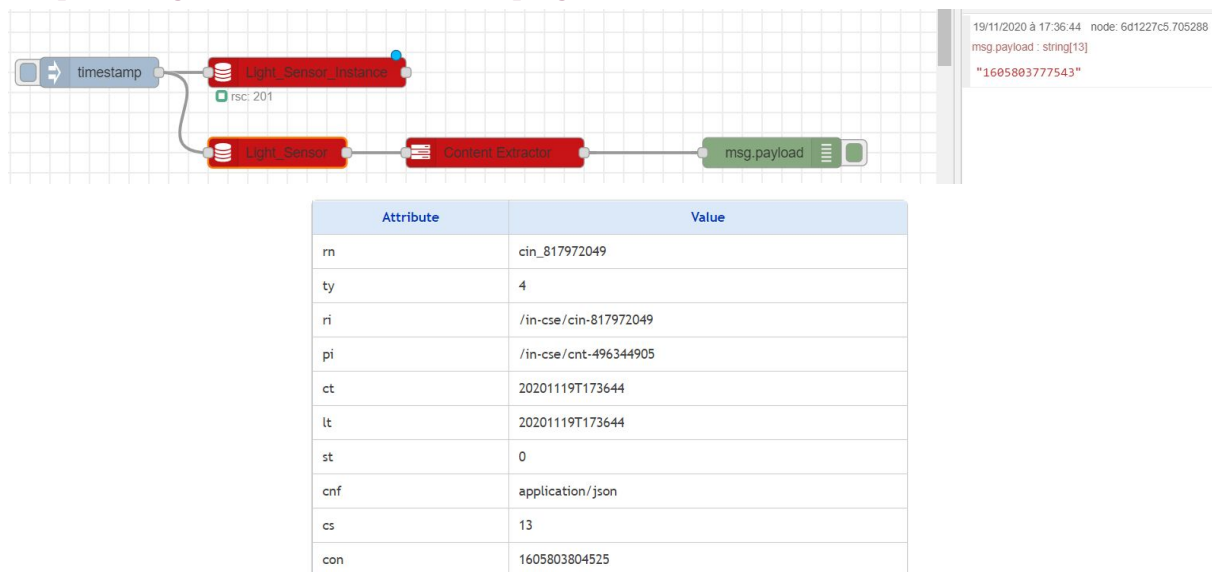# MiddleWare for the IoT
TP N°4

BERRADA El Ghali
BERTA Pauline
CONCEICAO NUNES Joao

Fast application prototyping for IoT

Develop a high level application based on real IoT architecture thanks to Node-RED, Eclipse OM2M / LOM2M and MQTT.
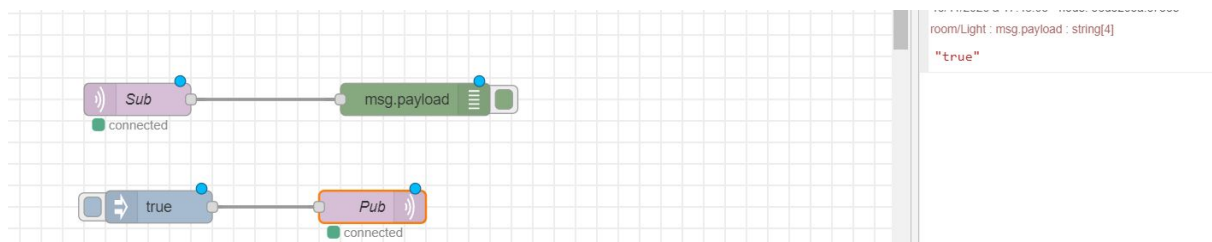
Application :

Simple test : get sensors values and display them :

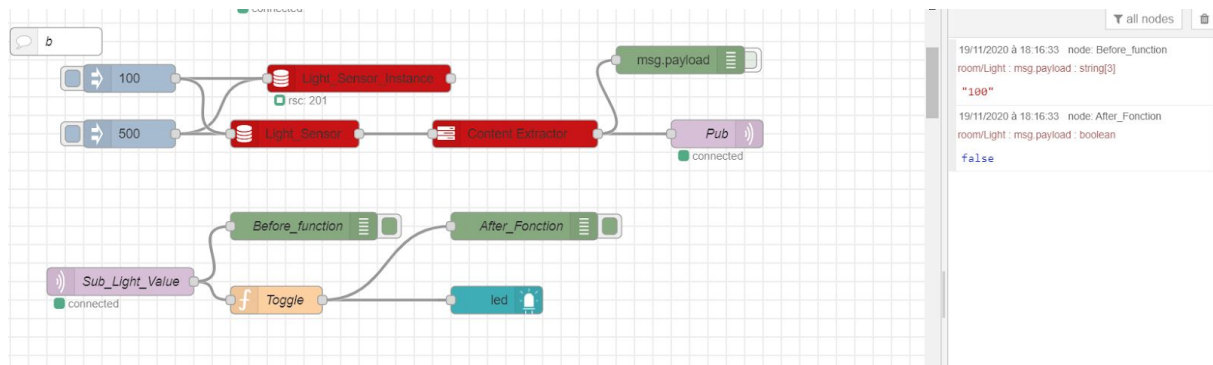| Attribute	Value
rn	cin_817972049
ty	4
ri	/in-cse/cin-817972049
pi	/in-cse/cnt-496344905
ct	20201119T173644
lt	20201119T173644
st	0
cnf	application/json
cs	13
con	1605803804525

As we can see in the pictures above, we created a value using the ContentInstance, and visualized it using the Content Extractor linked to the Sensor, here the Ligh_Sensor. We could verify the data was correct, using the OM2M web page created in Lab 3.

Then using the two MQTT nodes, we manage to send a message using the MQTT subscriptor:

Sensors and activators :

For this part we design a system based on an input on a light value, and with a subscription, we linked the data in order to activate a LED on Green or Red depending on the light value.

For example, for a value greater than 250 lux, we established that the led would be green, otherwise, it would be red. If we give 100 lux as the light value, the result, as it should, is :
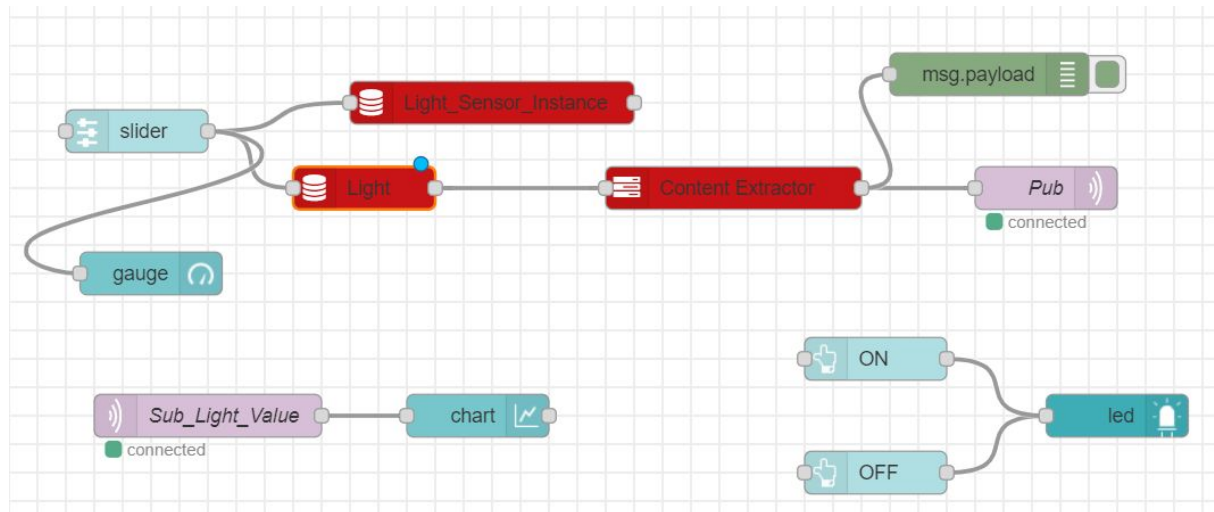

Dashboard :

For the dashboard, we design the following system, using the dashboard palette :

In this dashboard the slider sends a light value to the light sensor, to simulate a light variation. The first led shows if the light values are above 250 lux or note.

Then the chart represents the value sent to the light, and the two buttons control the second led. The node red flow is the following :

In conclusion we saw that NodeRed allows us to recover data and use it to work with some actuator, and even create dashboards. NodeRed is a very powerful tool with a lot of plugins. That's the major benefit of NodeRed, the variety of plugins available allowing the user to represent the system differently for the dashboards, but also for the flows. Because there are multiple nodes available, it is easy to adapt our solution to every technology in the market, like MQTT nodes etc

In addition to that, the only drawback could be the interface to design the dashboards. Some other tools can be easier and more fun to use like Grafana for example.