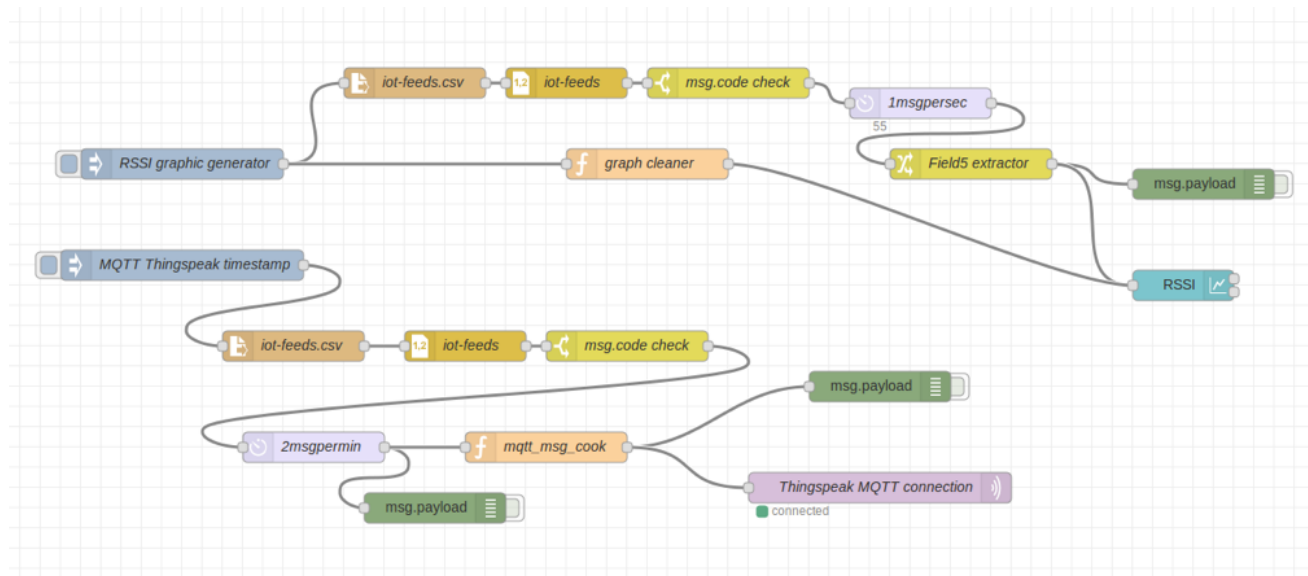


Node-red flow:



Explanation of boxes:

- Graph cleaner is a block to inject into the graphic the character “[]” to clean it and have a new graph centered only in the current elaboration (useful if execution is launched more than one time).
- iot-feeds.csv is the .csv file selection block while the import operation itself is performed by the block called iot-feeds (the next in line to the file opener block).
- msg.code.check is a block to select only messages with msg.payload.code between 000 and 0001 (to be modified), for a total of 100 entries.
- 1msgpersec is a rate limiter block placed to fill the node-red ui graph in a way to make it understandable, making the x-axis (time) longer.
- Field5 extractor is a block that selects as useful data for each of the hundred entries only the field 5, and passes those data to the next block, that is the chart line creator one (called RSSI in this flow).
- 2msgpermin is also a rate limiter block, but this time to limit the entries to the Thingspeak platform to 2 messages per minute (to avoid any type of msg loss during the upload of data to the platform).
- Mqtt.msg.cook is the block in which the messages to be sent with mqtt protocol to Thingspeak are prepared. Is a function block containing the following Javascript function:

```
var CHANNEL_ID= "1711416";
var field1 = msg.payload.field1;
var field2 = msg.payload.field2;
var field5 = msg.payload.field5;
msg.topic= 'channels/'+CHANNEL_ID+'/publish';
msg.payload='field1='+field1+'&field2='+field2+'&field5='
            +field5+'&status=MQTTPUBLISH';
return msg;
```

- The last block to be analyzed is Thingspeak MQTT connection, that is the block containing the settings to perform the mqtt communication, by opening a connection to the server `mqtt3.thingspeak.com:1883`. The login is performed using `clientId`, `user` and `password`.
- Bonus point: on Thingspeak side a new mqtt device must be created to allow the last block analyzed to send data, and is important to generate `user`, `password` and `clientId` used to set the connection in node-red.
- Two injection timestamps are created to allow the final user to relaunch the generation of the RSSI graph on node-red, to avoid the extra dilatation of the x-axis that makes the graph unreadable.