

29_T3-CB02

COM Challenge 1: Protocol Overview.

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Date: 08 sept 2023
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Introduction

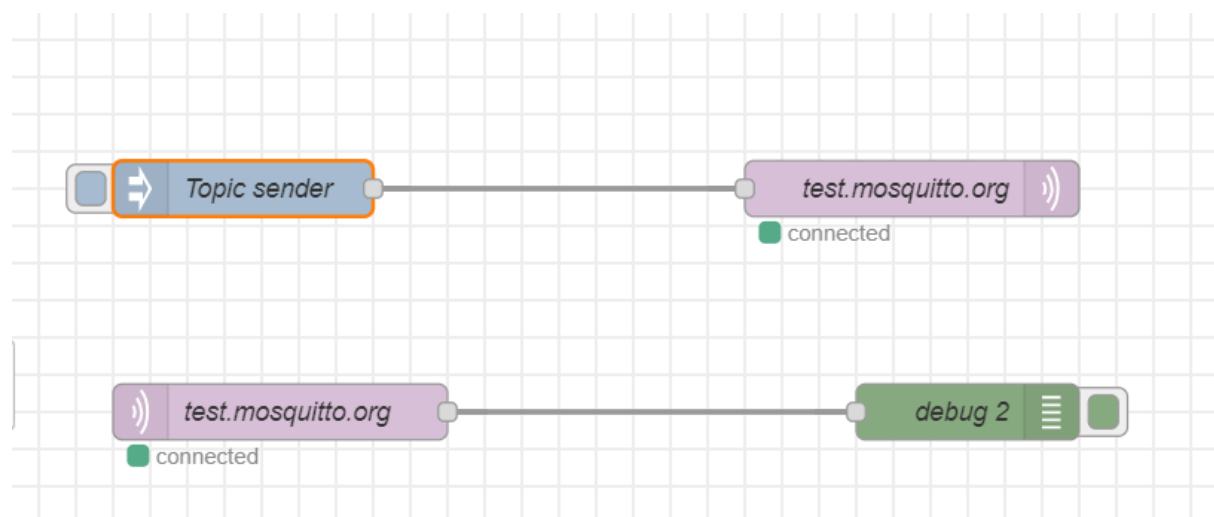
I started off by going through the provided material. I got a good understanding of node-red from the introduction slide. I then got a good understanding of how mqtt works by doing some research. Lastly I familiarize myself with the different communication models and I have decided on the request/response and publish/subscribe models.

Another note I would like to mention is that I did not create any code at the current time of writing of this report. I made everything work using: node-red, the postman application and the MyMQTT phone application.

Question 1

MQTT

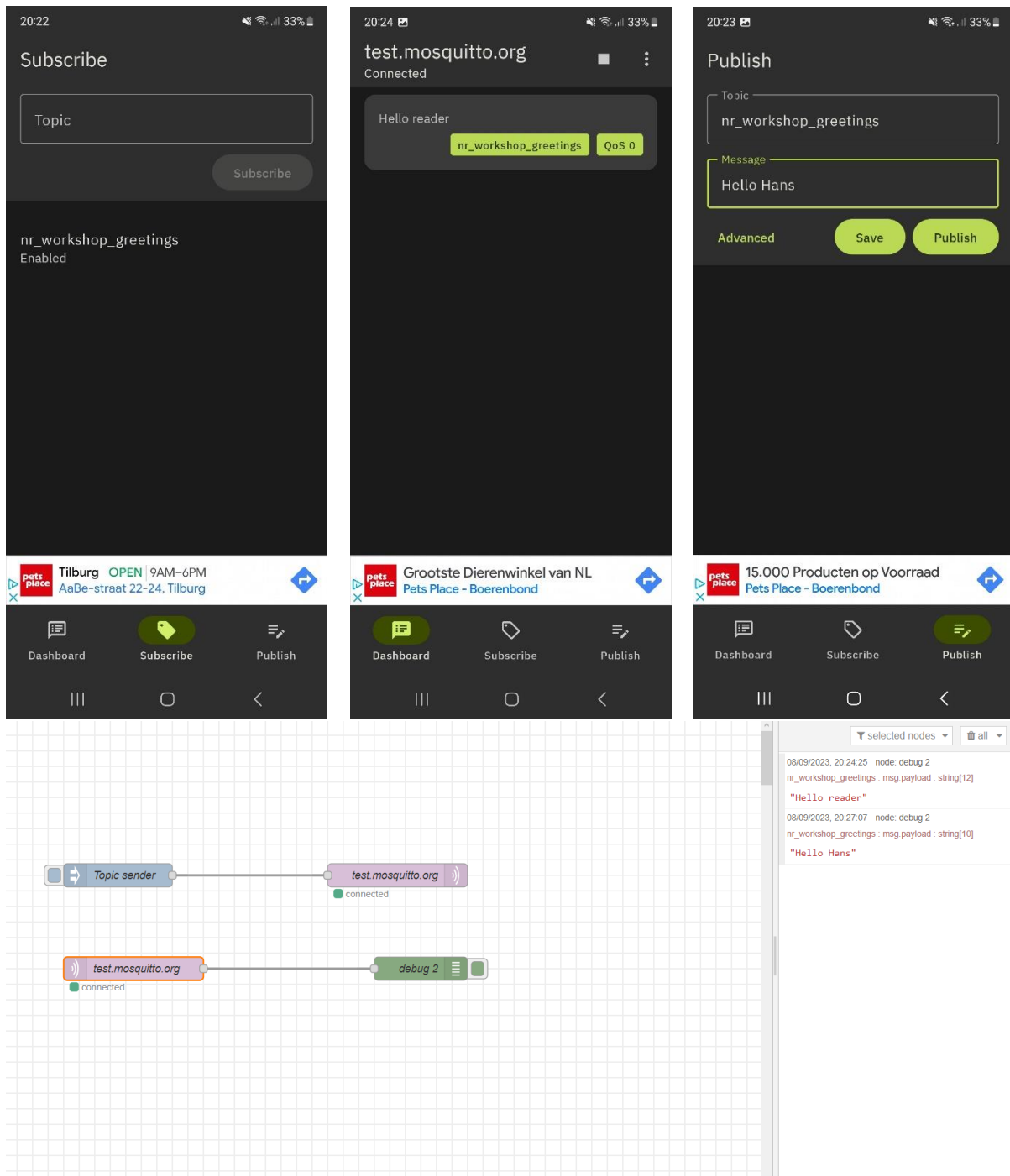
I made a simple mqtt flow by connecting an inject node to an MQTT-out node. This is so that I can publish messages and my subscribers can read them. I also have an mqtt-in node connected to a debug node to read if a subscriber publishes a message.



For reference, the topic I will be using is: `nr_workshop_greetings`. So within the inject, I assign this as the topic and I can write anything for the message. For now I will go with "Hello reader".

Within the mqtt-out node, I start setting up the server. For the sake of testing, I am using "test.mosquitto.org" with the port 1883 for my project. This is an MQTT 5 protocol. The same is done for the MQTT-in node. The only difference is I have to add the topic which is as before, "`nr_workshop_greetings`".

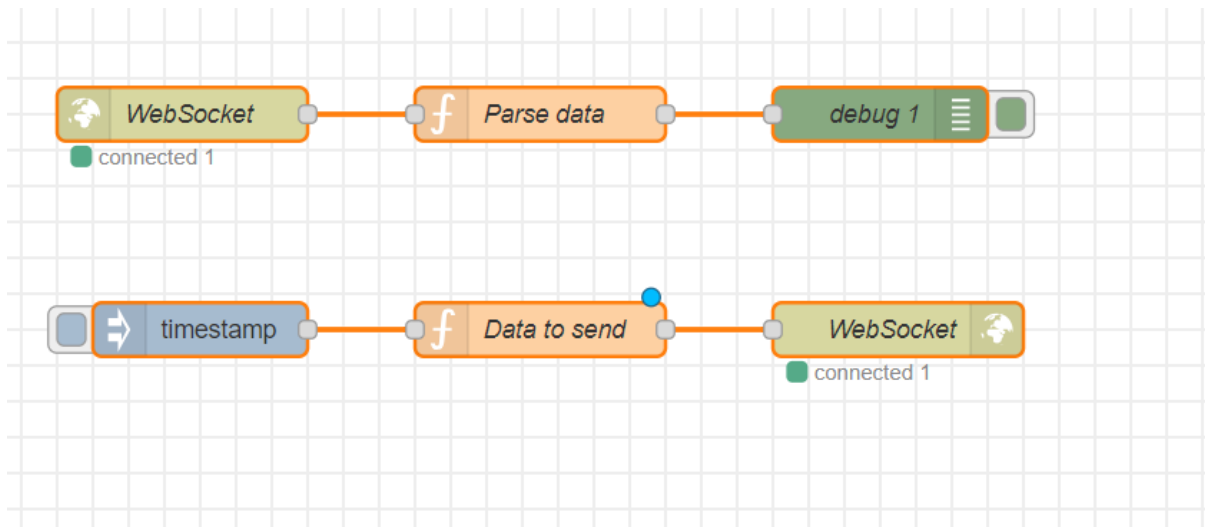
I use the mobile application "MyMQTT" to act as the subscriber in this case. I first subscribe to the topic mentioned above. Now that it is added, any message that gets published (injected) I will receive on my phone. I can also choose to publish a message of my own using the app. I use the publish section to type a message. In this case I will say the following message. As you can see, it will also appear in my debug window on node red. See the next images for visuals.



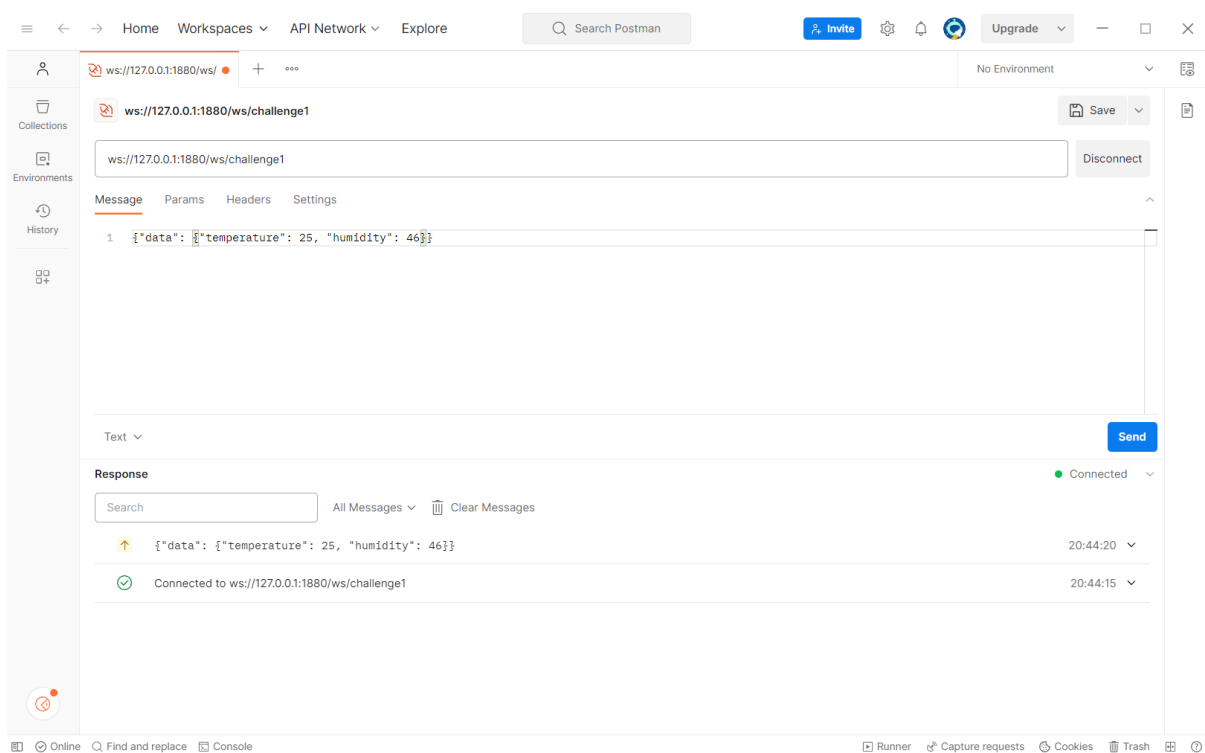
Websocket

For this section I made use of the postman application to both view and send messages. I also did some minor research to get some simple Javascript programming. Like the previous model, I did so by both connecting a websocket-out node to an inject node to send some messages. I connected to websocket-in node to a debug node to read messages. In this case node-red will act as my server. Since it is my server I need to configure a path so that postman can connect to it as well. In the websocket nodes I added the following in the path section: `/ws/challenge1`. I also added to function

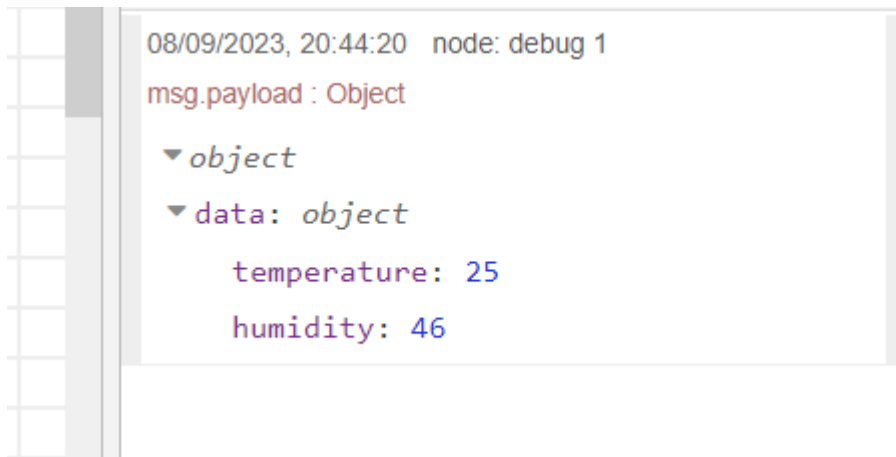
nodes for easier understanding. One to parse the received data (from JSON format) and the other is to send data to postman (In JSON format).



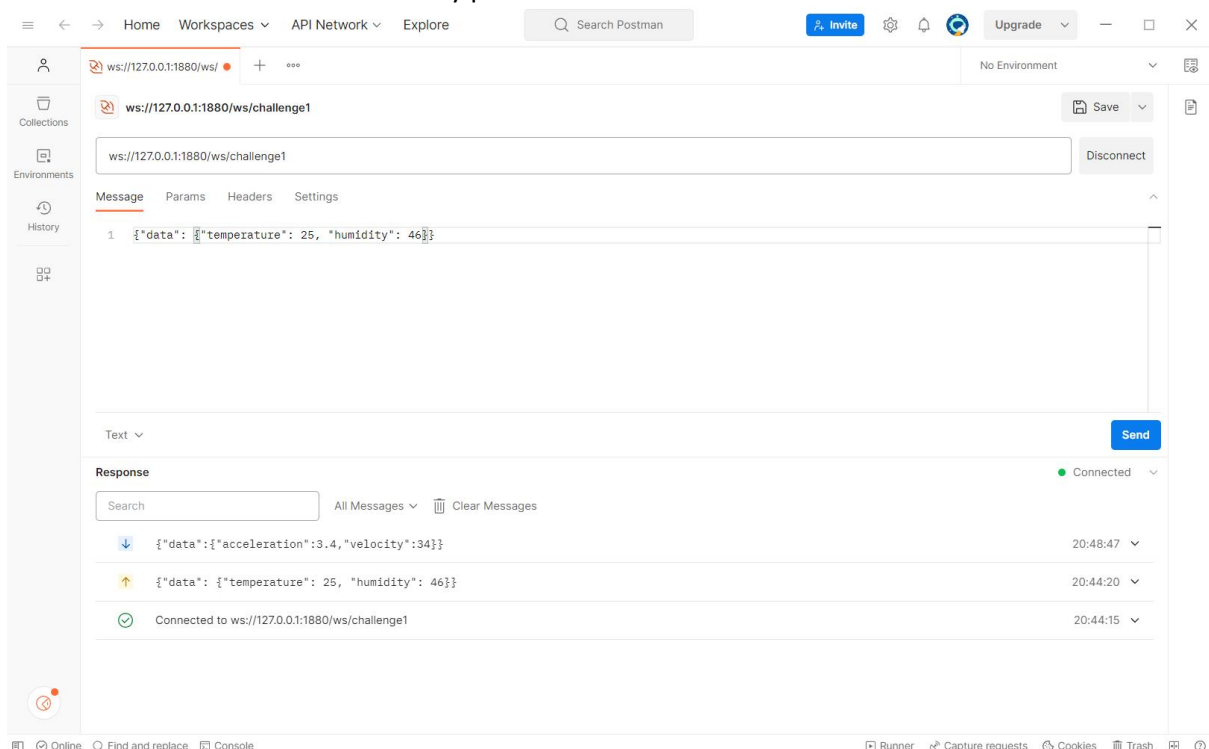
I start by sending a message from my postman to my websocket server.



In my node-red terminal I receive the following:



Of course I can send some messages as well from node-red to postman as well. I send them in the same format. In is then received in my postman terminal.



This concludes what I have done for my first challenge.

Question 2

In terms of advantages and disadvantages here is what I have found while working with these protocols and research done. What I have found is that for IoT applications like a microcontroller board that controls an LED MQTT would be advisable to use. This is because with MQTT you can have the devices perform their tasks despite the internet being poor quality. Unlike web sockets which will take longer. Web sockets should be used when you are operating with a project that requires good internet communication. Take a chat application for example. Here it would be advisable to use web sockets.

Question 3

What I have noticed is that when I use the web sockets, the flow starts and then continuously stays “alive” until I update something in my flow. If not this then the flow is almost constantly “alive”. The only way I have found to stop the flows is to close the node-red app using ctrl-c.

The same thing happens when I do it for the MQTT protocol. So for now I would say I don’t have a preference on which one to use. It would depend on my use case application.