Node red is a low-code or no-code programming instrument. It's a tool that doesn't require complete navigation, so no third-party software needs to be enabled.

It's really pretty, NO?

So buckle up, ladies and gentlemen, we're going to have a great adventure together!

1. WHAT IS NODE RED?

Node-RED was created by IBM in 2013 to facilitate the creation of connected objects.

It is a graphical language (underlying javascript) that allows to create links between incoming and outgoing data flows.

It is free and requires: NodeJS (javascript on the server side).

2. RED NODE INSTALLATION

a. Installing under windows

+ You have to install : Node JS then Node-Red
+ Install an LTS version of NodeJS.
+ Install Node-red using the command line under windows in a console in administrator mode

sudo npm install -g --unsafe-perm node-red

b. Launching under Windows

+ Launch the windows console in administrator mode
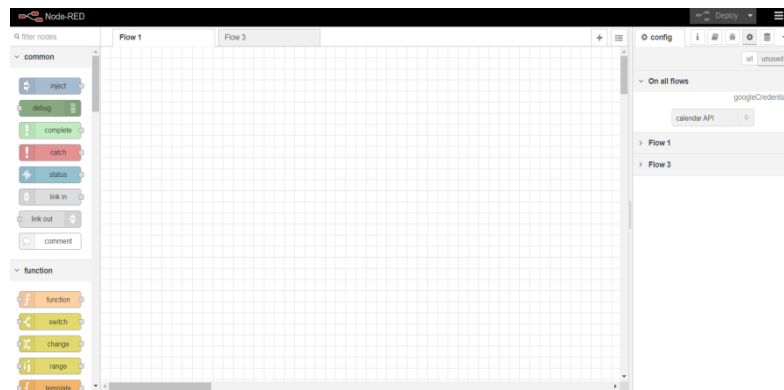+ Run the node-red command
+ Allow access

Go with a browser to the ip **http://127.0.0.1:1880/**: node-red's interface works....

c. Some Vocabulary of NODE-RED

A node: on the left side, This is the active element. It receives/[modifies]/sends messages.

A flow: the flow is a sheet on which you are going to create nodes that will be connected by links.

A palette: it is a set of nodes.

A link: This is what makes 2 nodes communicate. A link must ALWAYS be drawn between the input of one node and the output of another node.

The message: this is the information that passes from node to node via the links. This message is a json object.

inject: One of the fundamental nodes, allows to send a message on a click in the Node-Red interface or at regular intervals.

debug : The node that is used all the time, allows you to view the message in the Node-Red console. When you want to experiment/debug

switch : one input and a lot of outputs which allows to direct the message to one branch or another according to the content of the message
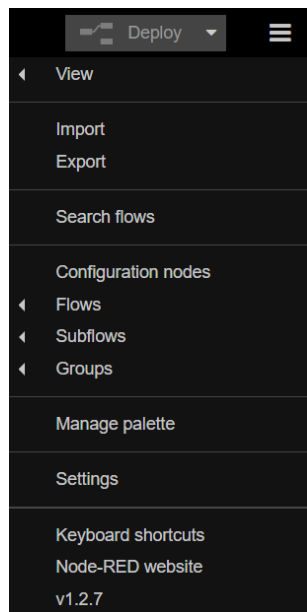
change : allows to manipulate the message

function : allows to manipulate the message with javascript

MQTT in/out: These nodes allow you to connect to an MQTT broker and subscribe to a topic to send or receive messages.

It is important to install the 'Dashboard' module before starting, which is not installed by default in Node-Red.
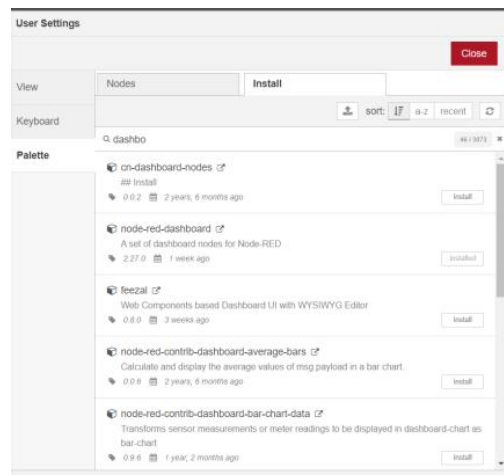
d. Installation of the Dashboard module

Click on the menu icon in the upper left corner and select "Palette Manage".
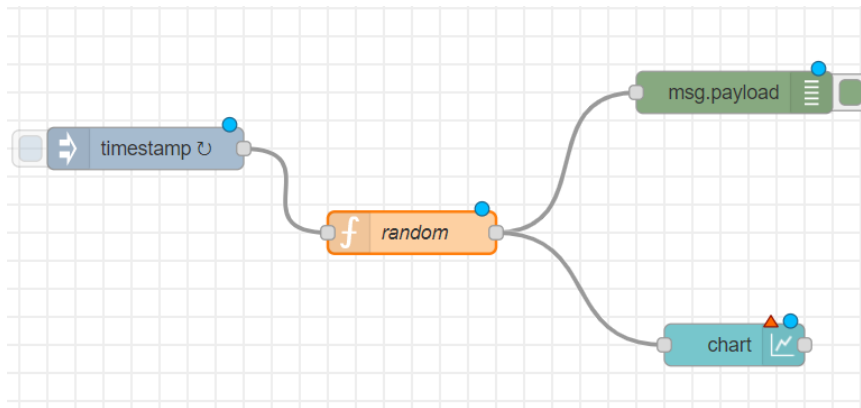

Then click on the "Install" tab, type "node-red-dashboard" in the search field, then click on "Install" to start the installation.

Once the installation is finished, in the "Nodes" section, you have a lot of new tools that have been installed in the Dashboard section (switch, button...), they are mainly used to create our interface.
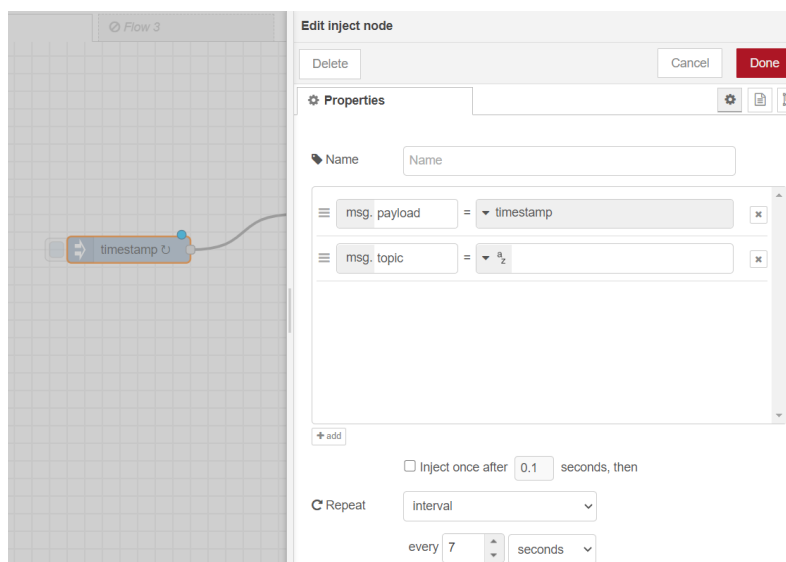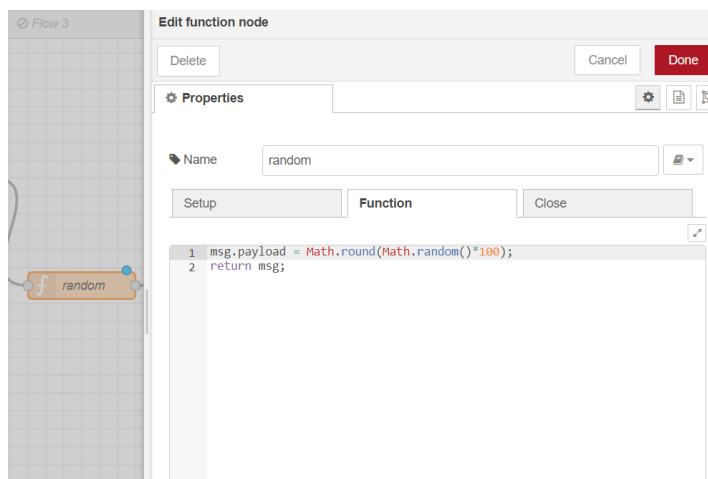

3. Create a first simple Dashboard

Let's see togother how **chart node** work. We will start with a simple flow that sends a random number to a simple graph between 0 and 99. For this, you will need an inject node, a function node to generate the random number and one of the node-red-dashboard nodes, in this case the map node, to fire repeatedly every few seconds.
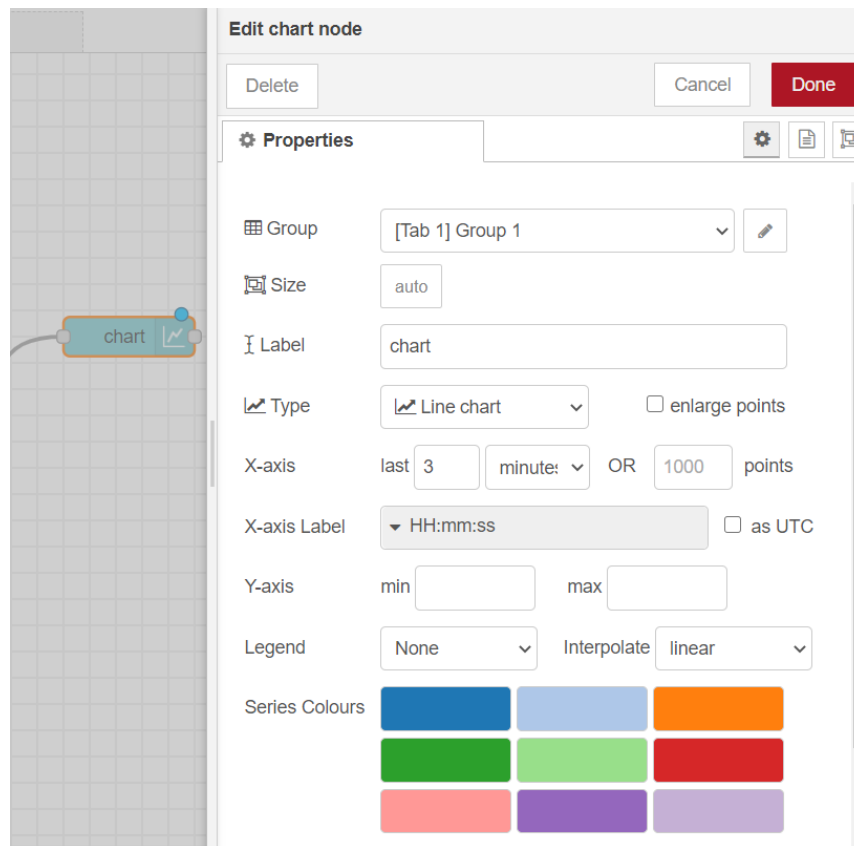
At a first-time, let's set the inject node to send a timestamp every 7 seconds by setting the *payload* to timestamp and the *repeat* field to an interval of 7 seconds.

Now we need to configure the function node (Random) to generate a random number – we'll use a simple JS math function to do this:
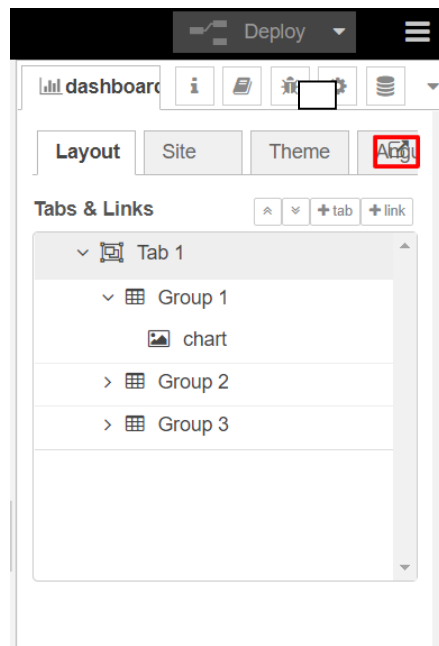
So now let's discover together the chart node . When you double click it, you'll see the configuration options:
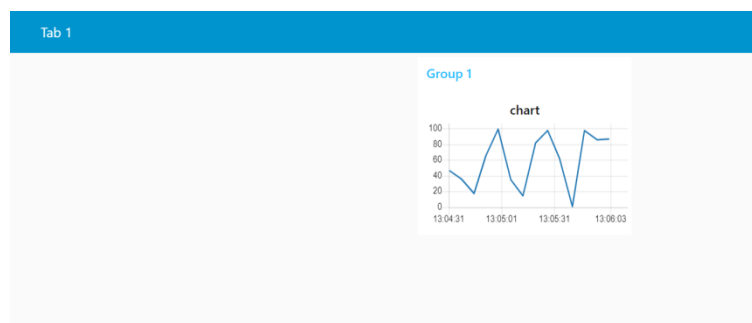

And now we are ready to Click on "Deploy".

To see (finally) the page you have to go to the Dashboard page with your browser, on the far right in the "Dashboard" tab, there is a small "link" icon, by clicking on it you will open a window with your Dashboard.

And Here is your interface!

Bravo, this tutorial is finally finished.