**A Node-Red node to pass point data into Geo SCADA**

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**SAMPLE CODE FOR EDUCATION ONLY. THIS CODE MAY NOT BE CYBER-SECURE.**

**YOU ARE RESPONSIBLE FOR IMPLEMENTING CYBER-SECURITY FEATURES.**

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**It is recommended that you use HTTPS for accessing web servers. Please review the login process in the nodes and ensure that the sample is modified as required for cybersecurity in your environment, for example to protect against Cross Site Forgery and other common vulnerabilities.**

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**This is offered as source code. It is not supported or warranted in any way by Schneider Electric.**

# Install Node-Red

This guide is for Windows, on other platforms, please find instructions on the Node and Node-Red web sites.

**Install Node**

1. Go to <https://nodejs.org/en/#home-downloadhead> and select the LTS version (currently 12.18.4 LTS) to download.
2. Install this – you will then be directed to install the Additional Tools – this may work, but if not and you see "The request was aborted: Could not create SSL/TLS secure channel", then you need to follow these steps for the additional tools:
   1. Download and install the latest Powershell from: <https://github.com/PowerShell/PowerShell>
   2. Edit the file: "C:\Program Files\nodejs\install\_tools.bat" and replace "%SystemRoot%\System32\WindowsPowerShell\v1.0\powershell.exe" with "C:\Program Files\PowerShell\7\pwsh.exe" in two places on the last line.
   3. Run this batch file and check for success.
   4. (Link to this additional fix: <https://github.com/nodejs/node/issues/33140> )

(These commands may not work through a web proxy or PAC file such as in a company network.)

**Install Node-Red**

Start "Node.js command prompt" from the Start menu (as Admin). Then enter:

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

This will install node-red, taking a few minutes.

Our node needs a package called xml2js, so also run:

npm install -g --unsafe-perm xml2js

(These commands may not work through a web proxy or PAC file such as in a company network.)

**Add the Geo SCADA node**

Place the files from the Box folder here into a working folder. I used:

C:\Users\<your user id>\AppData\Roaming\npm\node\_modules\node-red

The files are in a subfolder named "node-dev-geoscada":

Then from the Node.js command prompt execute:

npm install C:\Users\Administrator\AppData\Roaming\npm\node\_modules\node-red\node-dev-geoscada

This creates a symbolic link to your node module project directory so that Node-RED will discover the node when it starts. Any changes to the node’s files can be picked up by simply restarting Node-RED.

**Start Node-Red**

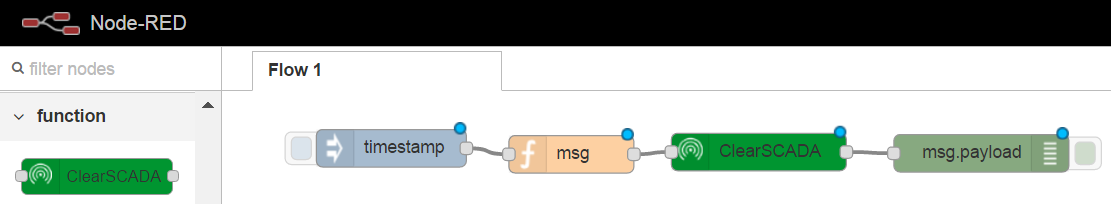
From the Node.js command prompt execute:

*> node-red*

Check you have access to the UI at http://localhost:1880

Press-Ctrl-C to stop Node-red.

**Try it out:**



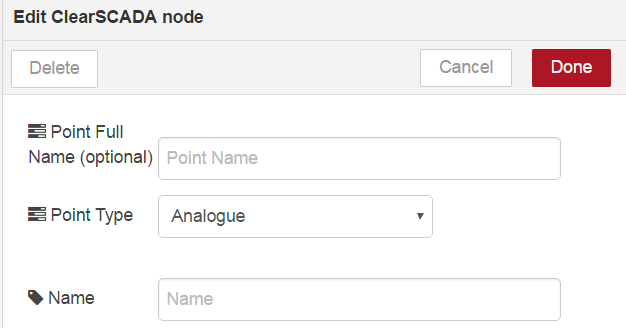
**In Function ‘msg’**

msg.topic = "my point full name"

msg.time = msg.payload // Set time from the payload of the manual injection

msg.payload = 2.71 // Set point value

**In Geo SCADA node**



Click on the server to define a (common) server node name and port. Enter username and password in the connection page. The HTTPS option will only work with a fully signed certificate.

Select Point type to match all points being processed by this node.

The Point Full Name param is optional. If left blank this will be fed in as the Topic name.

Points are Internal (‘Hand dressed’).

**How it works**

The Geo SCADA node uses a SOAP HTTP request on the ClearSCADA server to call the Hand Control function of an internal point.

**Other functions**

Use the GeoSCADA Get Object node to get summary data about an object. For example, when using a point name, the data includes Current Value, Time, Quality etc.

Use the GeoSCADA Read Query node to execute any SQL query and return the results to node-red.

