

Node-RED: The Basics

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V1 JAN 2020 : V2 FEB 2021

Download Node-RED & Install

→ INSTALL Node.js

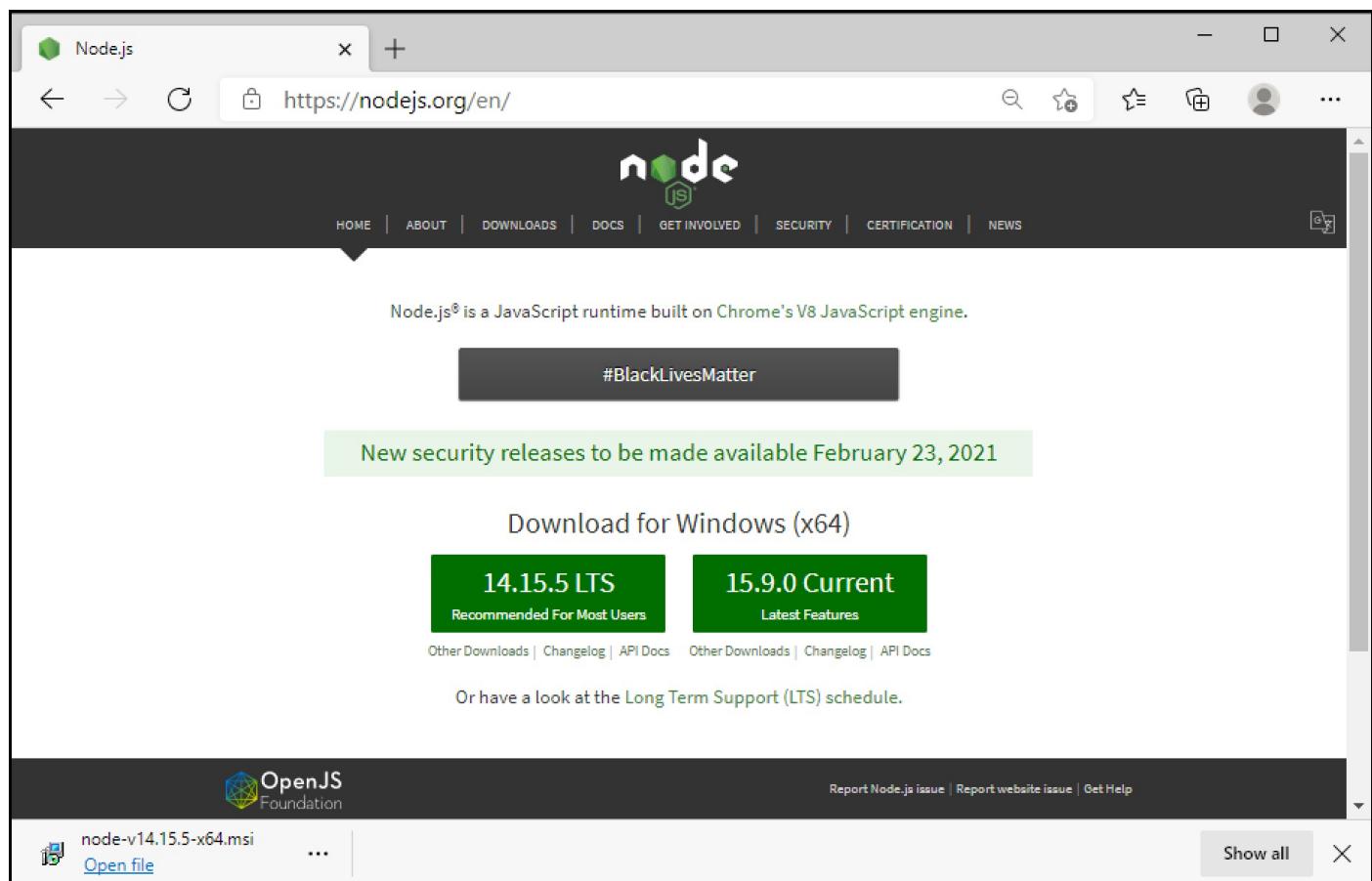
>> Download the latest Long Term Support (LTS) version of Node.js from the official [Node.js](#) home page. It will offer you the best version for your system.

>> Run the downloaded MSI file.

>> Installing Node.js requires local administrator rights; if you are not a local administrator, you will be prompted for an administrator password on install.

>> Accept the defaults when installing.

>> After installation completes, close any open command prompts and re-open to ensure new environment variables are picked up.

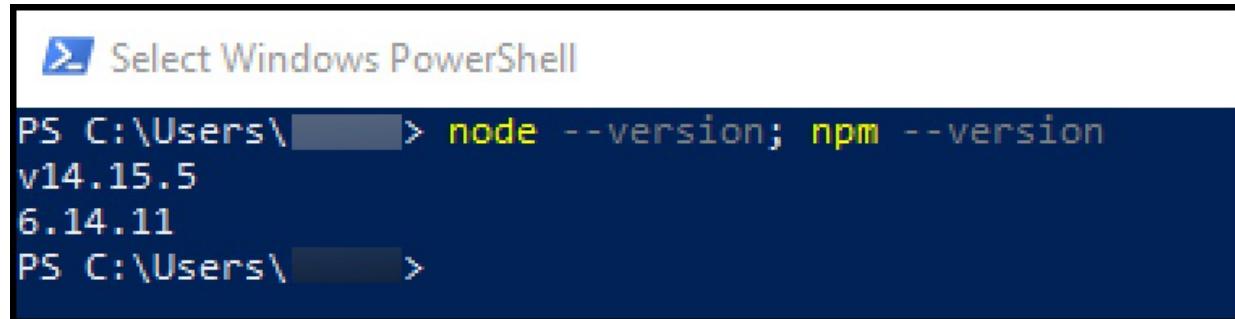


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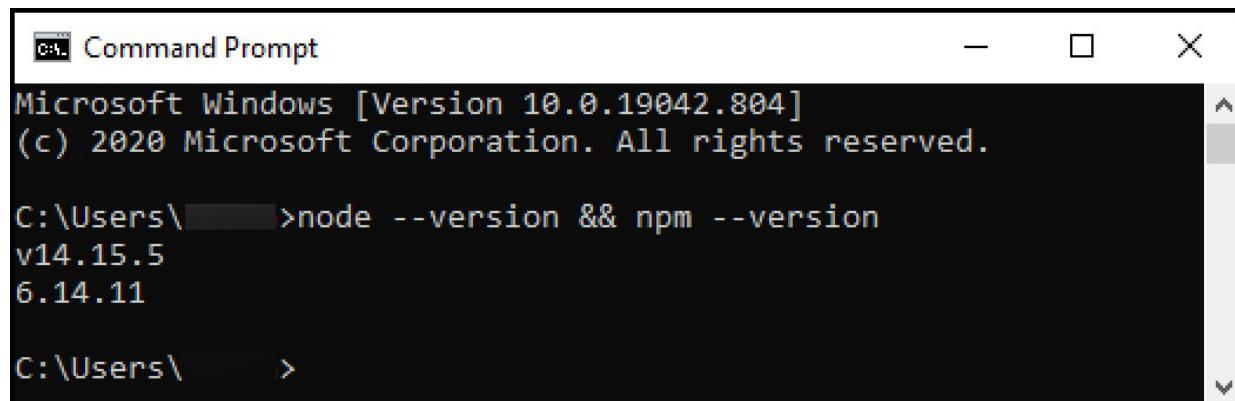
>> Once installed, open a command prompt and run the following command to ensure Node.js and npm are installed correctly.

→ Using Powershell & macOS terminal:
node --version; npm --version

→ Using cmd & macOS terminal:
node --version && npm --version



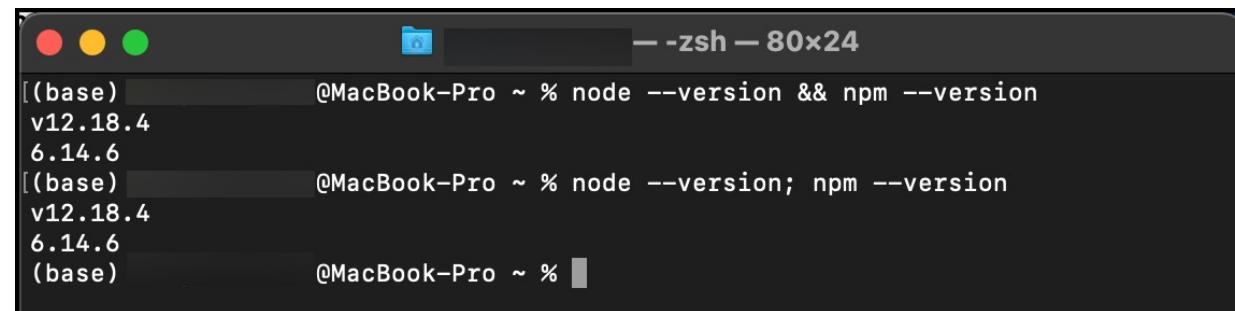
```
PS C:\Users\... > node --version; npm --version
v14.15.5
6.14.11
PS C:\Users\... >
```



```
C:\> Command Prompt
Microsoft Windows [Version 10.0.19042.804]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\... >node --version && npm --version
v14.15.5
6.14.11

C:\Users\... >
```



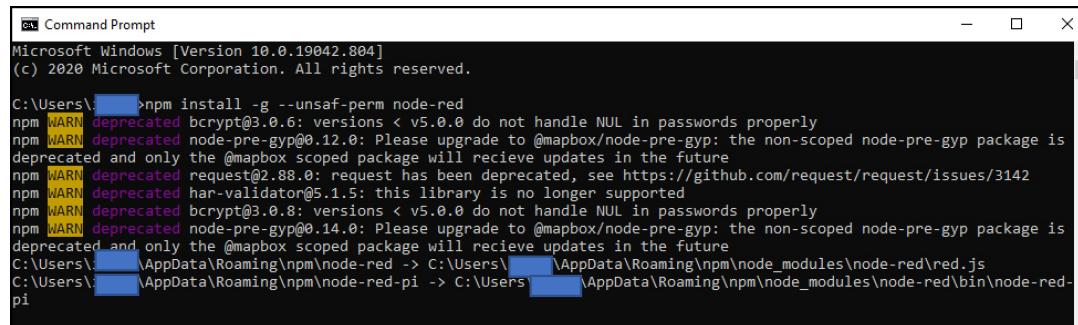
```
[(base)] @MacBook-Pro ~ % node --version && npm --version
v12.18.4
6.14.6
[(base)] @MacBook-Pro ~ % node --version; npm --version
v12.18.4
6.14.6
(base) @MacBook-Pro ~ %
```

Download Node-RED & Install

INSTALL Node-RED

>> Installing Node-RED as a global module adds the command node-red to your system path. Execute the following at the command prompt or terminal :

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



```
C:\Users\[REDACTED] >npm install -g --unsafe-perm node-red
npm WARN deprecated bcrypt@3.0.6: versions < v5.0.0 do not handle NUL in passwords properly
npm WARN deprecated node-pre-gyp@0.12.0: Please upgrade to @mapbox/node-pre-gyp: the non-scoped node-pre-gyp package is
deprecated and only the @mapbox scoped package will receive updates in the future
npm WARN deprecated request@2.88.0: request has been deprecated, see https://github.com/request/request/issues/3142
npm WARN deprecated har-validator@5.1.5: this library is no longer supported
npm WARN deprecated bcrypt@3.0.8: versions < v5.0.0 do not handle NUL in passwords properly
npm WARN deprecated node-pre-gyp@0.14.0: Please upgrade to @mapbox/node-pre-gyp: the non-scoped node-pre-gyp package is
deprecated and only the @mapbox scoped package will receive updates in the future
C:\Users\[REDACTED]\AppData\Roaming\npm\node-red -> C:\Users\[REDACTED]\AppData\Roaming\npm\node_modules\node-red\red.js
C:\Users\[REDACTED]\AppData\Roaming\npm\node-red-pi -> C:\Users\[REDACTED]\AppData\Roaming\npm\node_modules\node-red\bin\node-red-pi
```

RUNNING AS A SERVICE

>> Once installed, you are ready to run Node-RED by executing the following syntax at command prompt or terminal:

→ Windows OS:

node-red

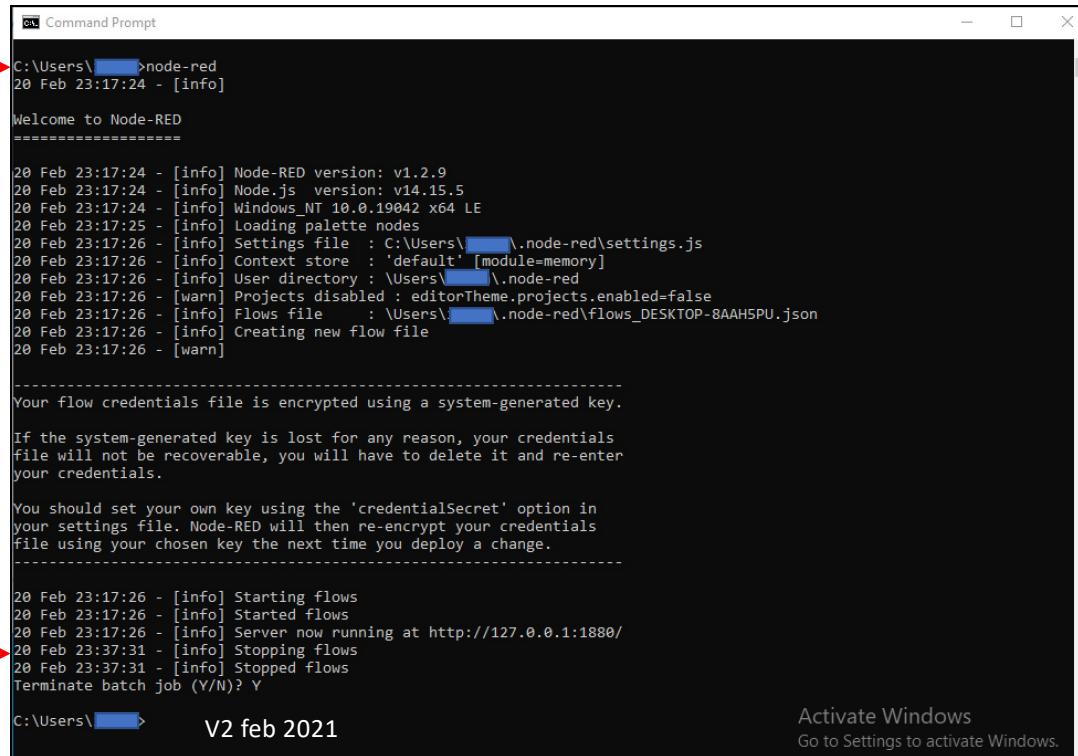
→ Other OSes:

node-red start

>> To stop the service:

press CTRL C

**(do this will stop the
nodeRED service)**



```
C:\Users\[REDACTED] >node-red
20 Feb 23:17:24 - [info]
Welcome to Node-RED
=====
20 Feb 23:17:24 - [info] Node-RED version: v1.2.9
20 Feb 23:17:24 - [info] Node.js version: v14.15.5
20 Feb 23:17:24 - [info] Windows_NT 10.0.19042 x64 LE
20 Feb 23:17:25 - [info] Loading palette nodes
20 Feb 23:17:26 - [info] Settings file : C:\Users\[REDACTED]\.node-red\settings.js
20 Feb 23:17:26 - [info] Context store : 'default' [module=memory]
20 Feb 23:17:26 - [info] User directory : \Users\[REDACTED]\.node-red
20 Feb 23:17:26 - [warn] Projects disabled : editorTheme.projects.enabled=false
20 Feb 23:17:26 - [info] Flows file : \Users\[REDACTED]\.node-red\flows_DESKTOP-8AAHSPU.json
20 Feb 23:17:26 - [info] Creating new flow file
20 Feb 23:17:26 - [warn]

-----
Your flow credentials file is encrypted using a system-generated key.

If the system-generated key is lost for any reason, your credentials
file will not be recoverable, you will have to delete it and re-enter
your credentials.

You should set your own key using the 'credentialSecret' option in
your settings file. Node-RED will then re-encrypt your credentials
file using your chosen key the next time you deploy a change.
-----

20 Feb 23:17:26 - [info] Starting flows
20 Feb 23:17:26 - [info] Started flows
20 Feb 23:17:26 - [info] Server now running at http://127.0.0.1:1880/
20 Feb 23:37:31 - [info] Stopping flows
20 Feb 23:37:31 - [info] Stopped flows
Terminate batch job (Y/N)? Y

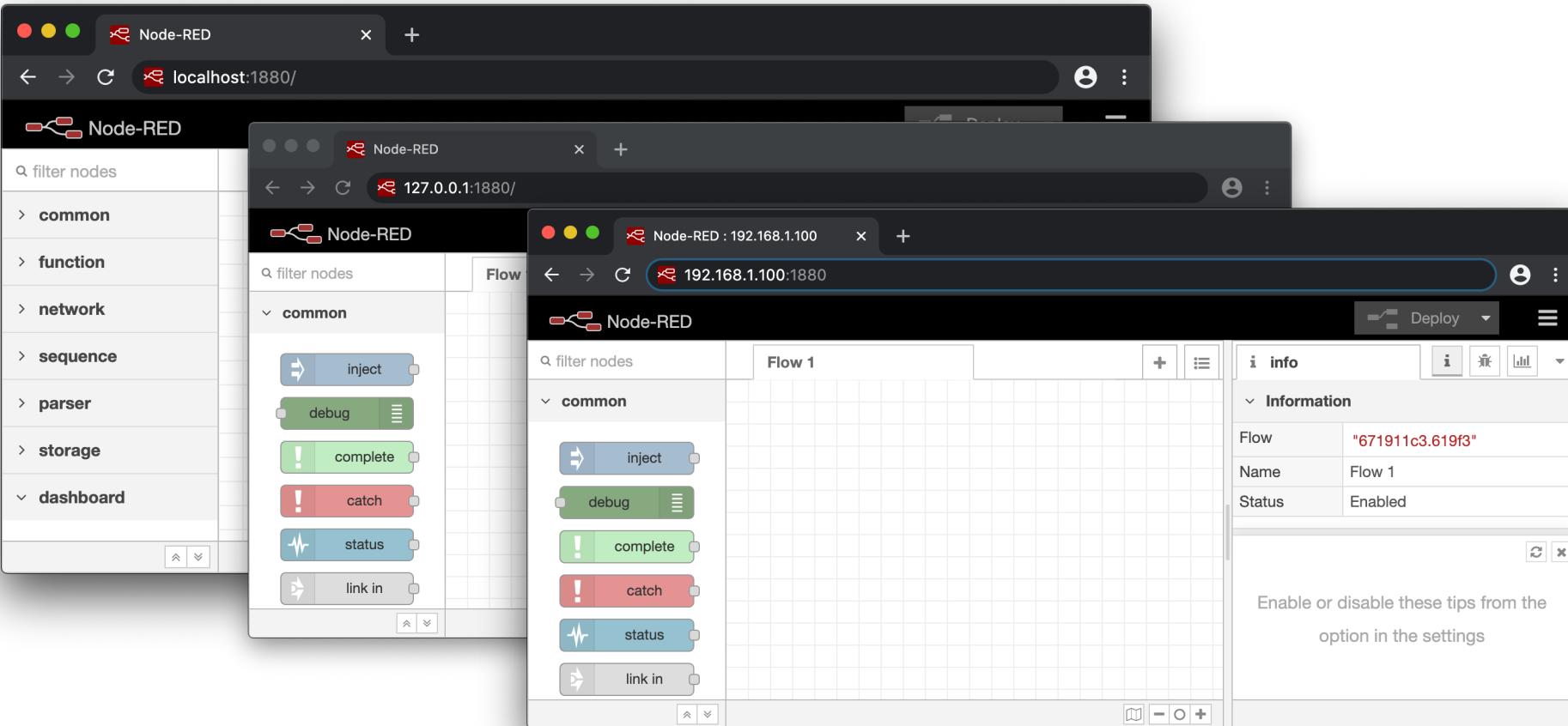
C:\Users\[REDACTED] > V2 feb 2021
```

Activate Windows
Go to Settings to activate Windows.

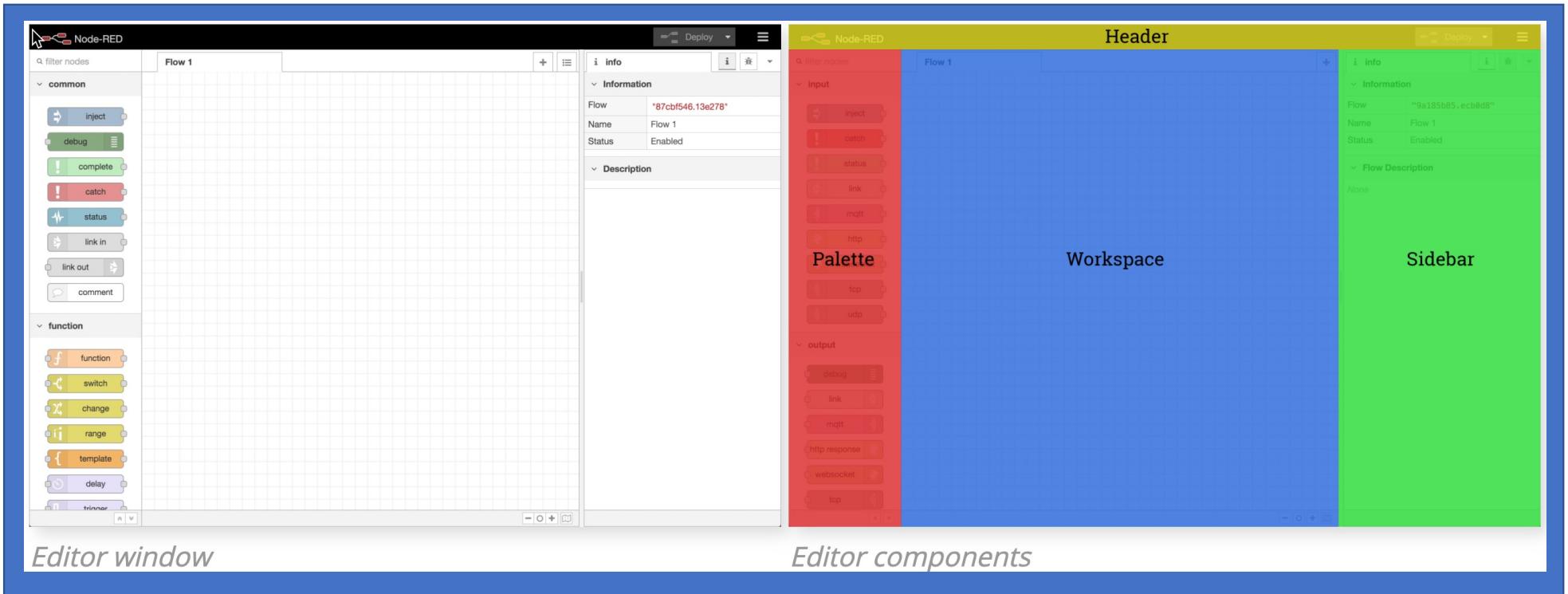
Download Node-RED & Install

OPENING THE EDITOR

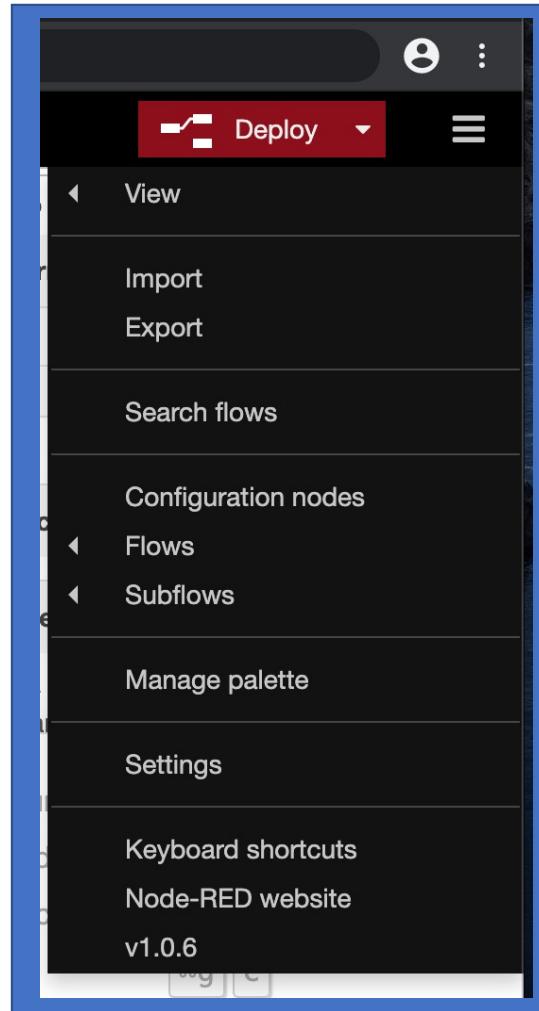
>> You can then access the Node-RED editor by pointing your browser at <http://localhost:1880>.



The editor components.



Node-RED: The Menu



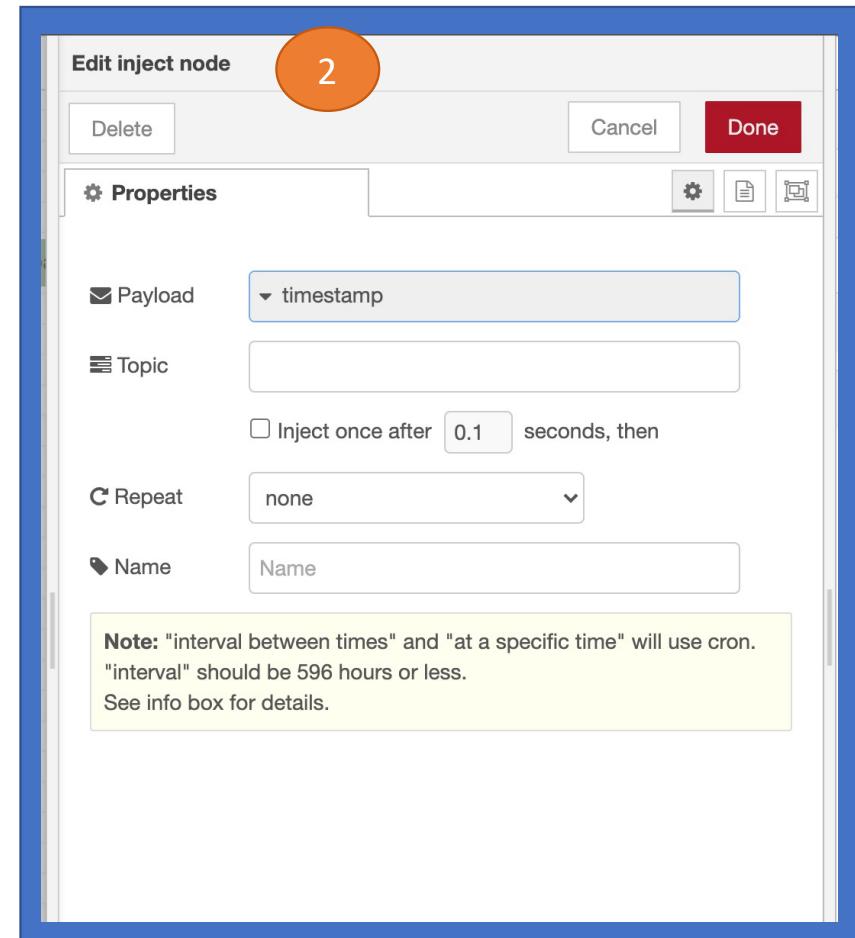
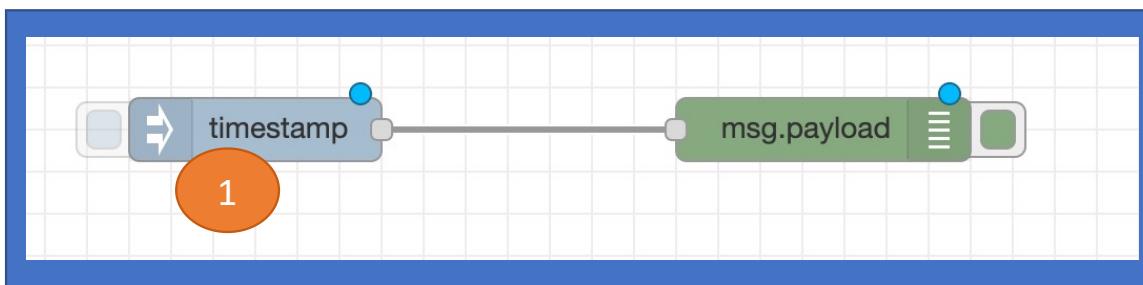
V2 feb 2021

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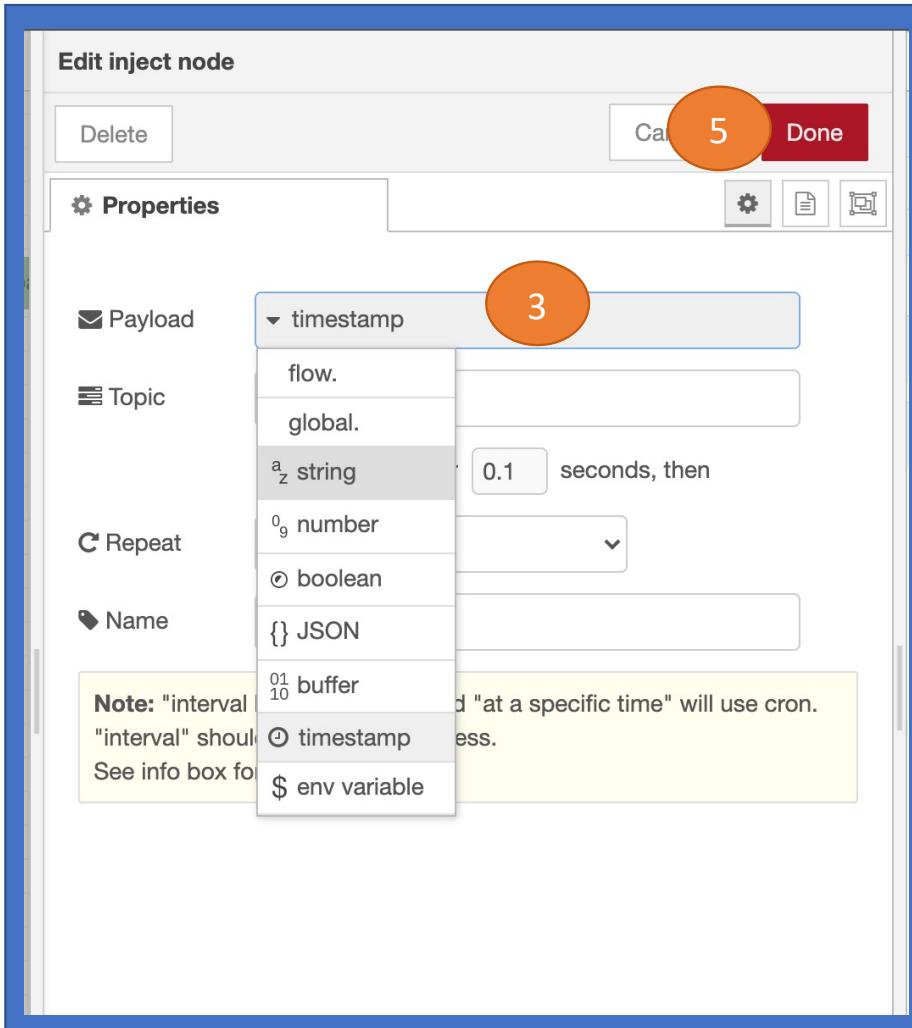
EXERCISE 1: Sending Information over NodeRED

i. Display your name when the inject node is click.

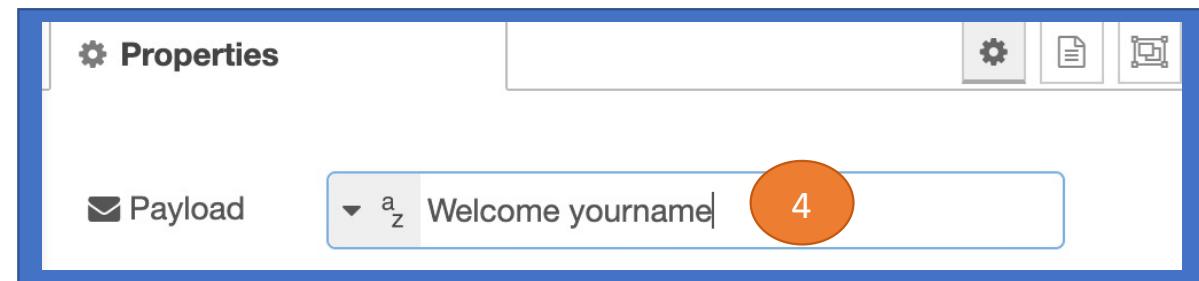
1. Place *Inject node* and *Debug node* into workspace.
2. Double click the *Inject node* to change the properties.



EXERCISE 1: Sending Information over NodeRED

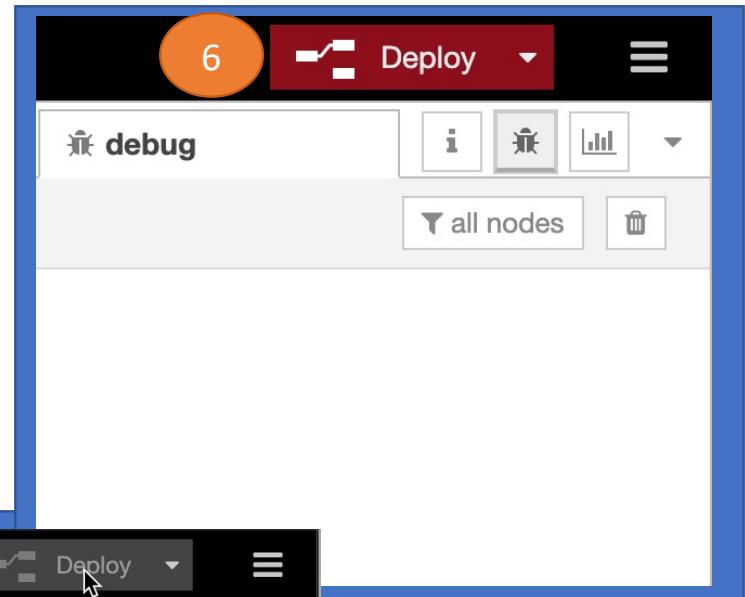


3. Click at the **Payload** dropdown box and choose *string*.
4. Type **Welcome 'yourname'**.
5. Click **Done**.

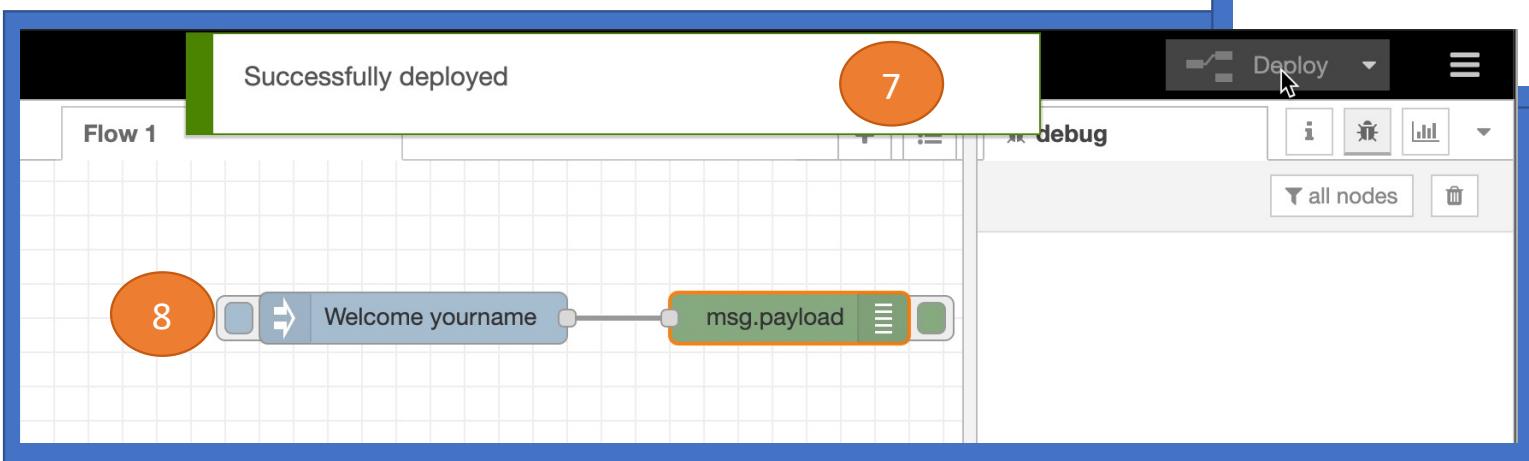


EXERCISE 1: Sending Information over NodeRED

6. Click *Deploy* to update, save and enable execute. It becomes red when you make any changes.



7. Success message box appears right after click *Deploy*.



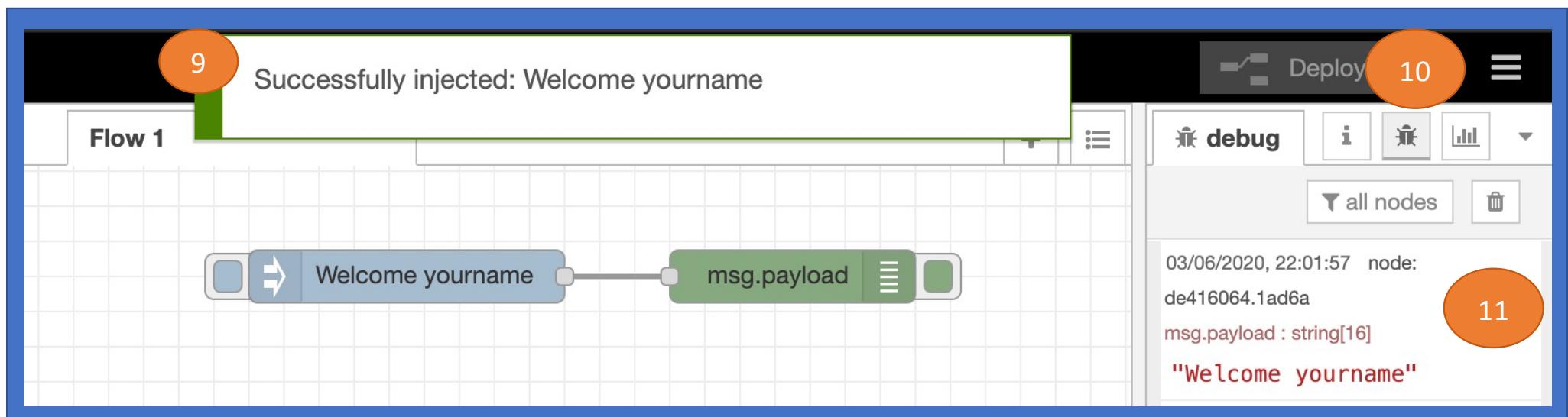
8. Click to small blue square to trigger the output.

EXERCISE 1: Sending Information over NodeRED

9. A successful injected message will pop-up immediate you click inject node.

10. Click the bug icon to view the output via debug activity.

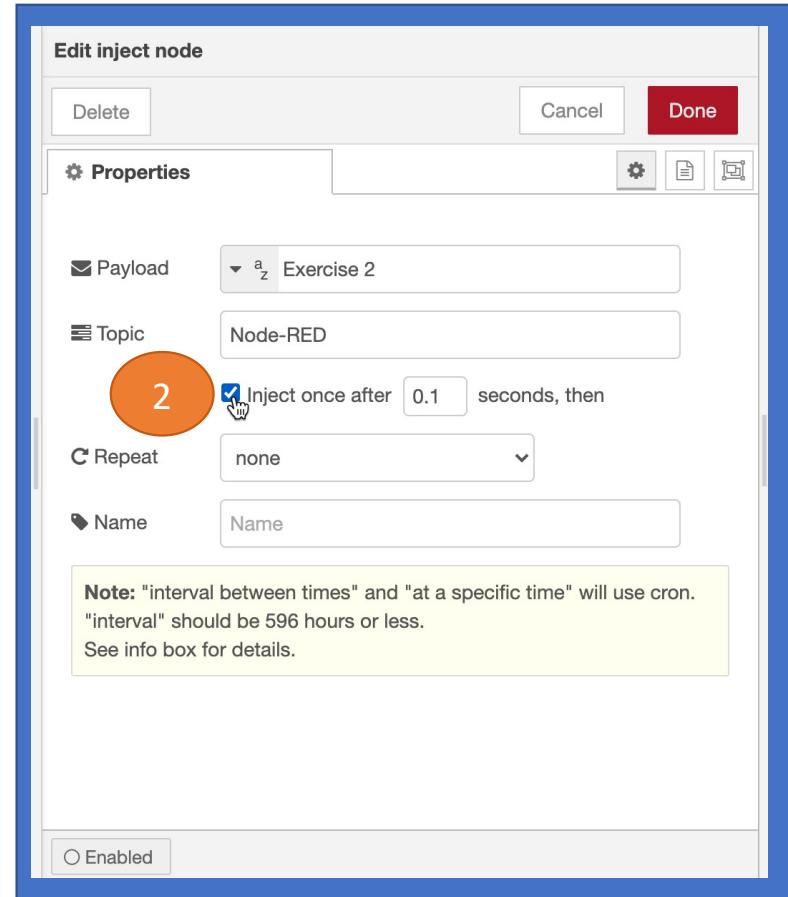
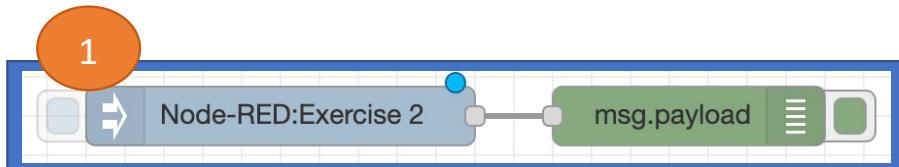
11. The output.



EXERCISE 2: Update Information over NodeRED after certain seconds

ii. Change inject mode

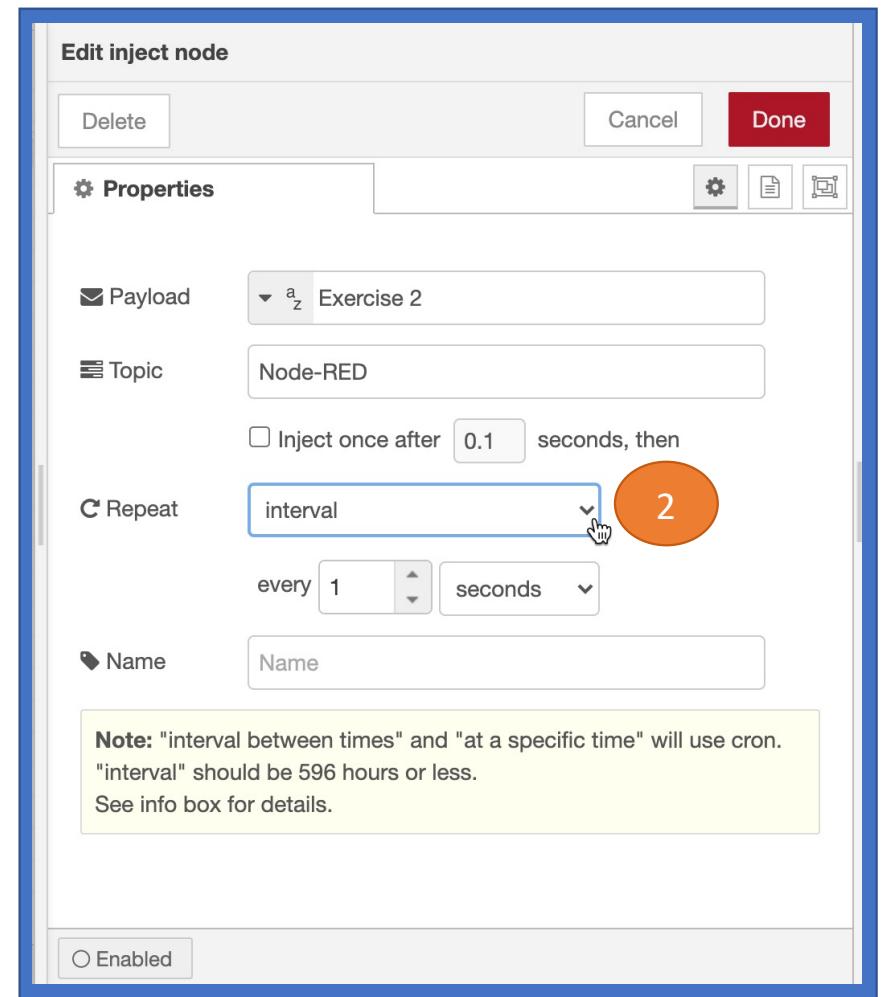
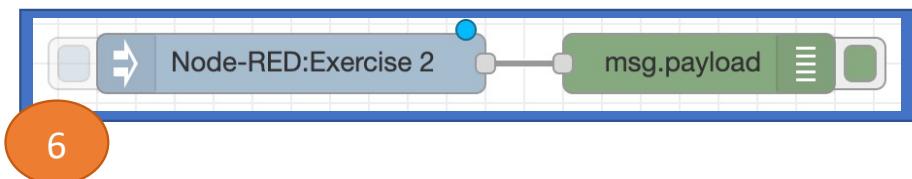
1. Set *Inject node* and *Debug node* as follows.
2. Click *Inject* once after 0.1 seconds, then...
3. Click *Done*.
4. Click *Deploy*.
5. Click *Debug* window.
6. Observe the output.



EXERCISE 3: Update Information over NodeRED with Every 1 second

iii. Change inject mode

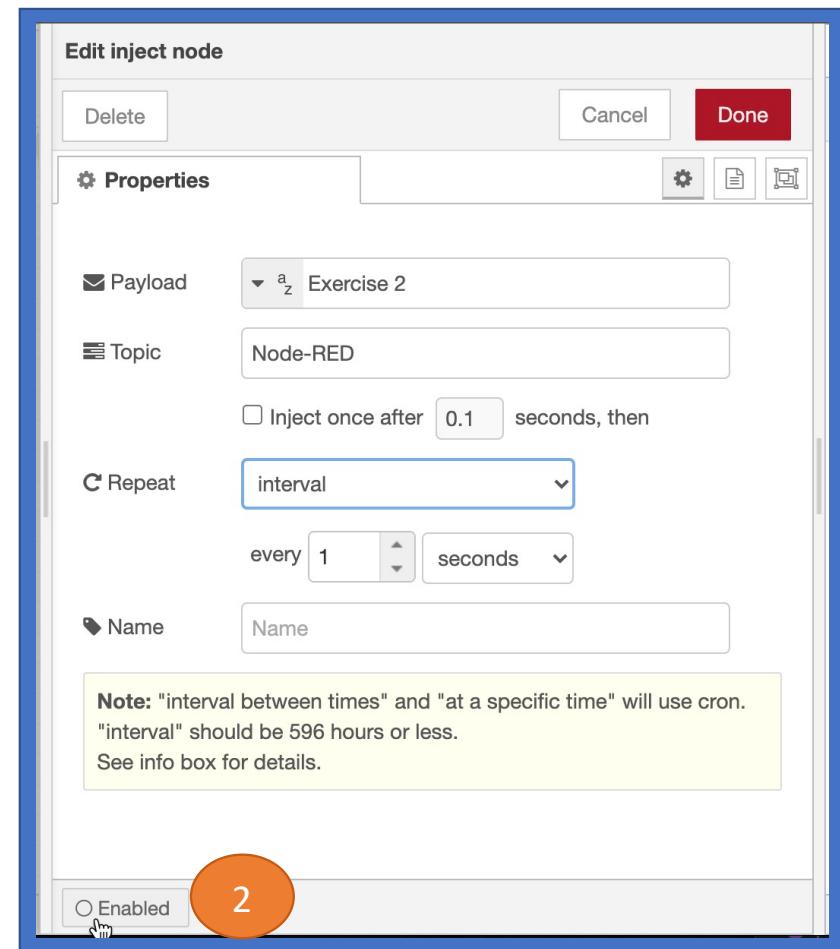
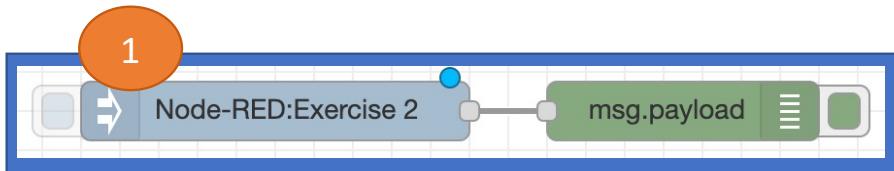
1. Set *Inject node* and *Debug node* as follows.
2. Set *Repeat > interval > every 1 > seconds*.
3. Click *Done*.
4. Click *Deploy*.
5. Click *Debug* window.
6. Go to workspace & click Inject button.
7. Observe the output.



EXERCISE 4: Update Information over NodeRED with Every 1 second

iv. Enabled vs Disabled mode

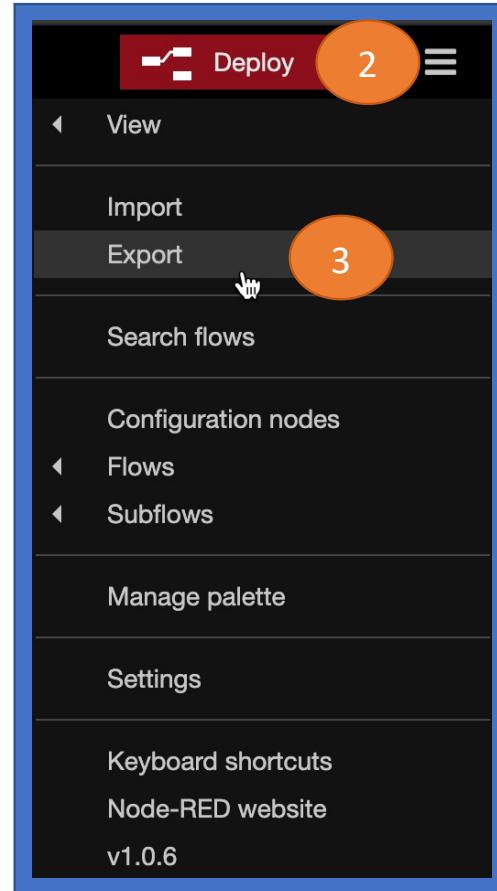
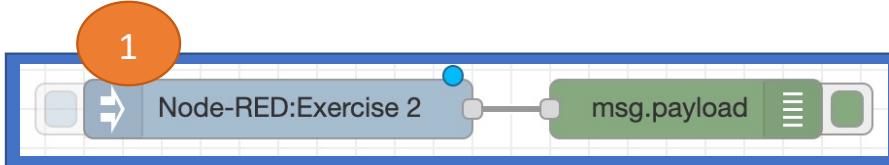
1. Set *Inject node* and *Debug node* as follows.
2. Click *Enabled* radio button.
3. Report the results.



EXERCISE 5: Exporting Your Works

v. Exporting your works

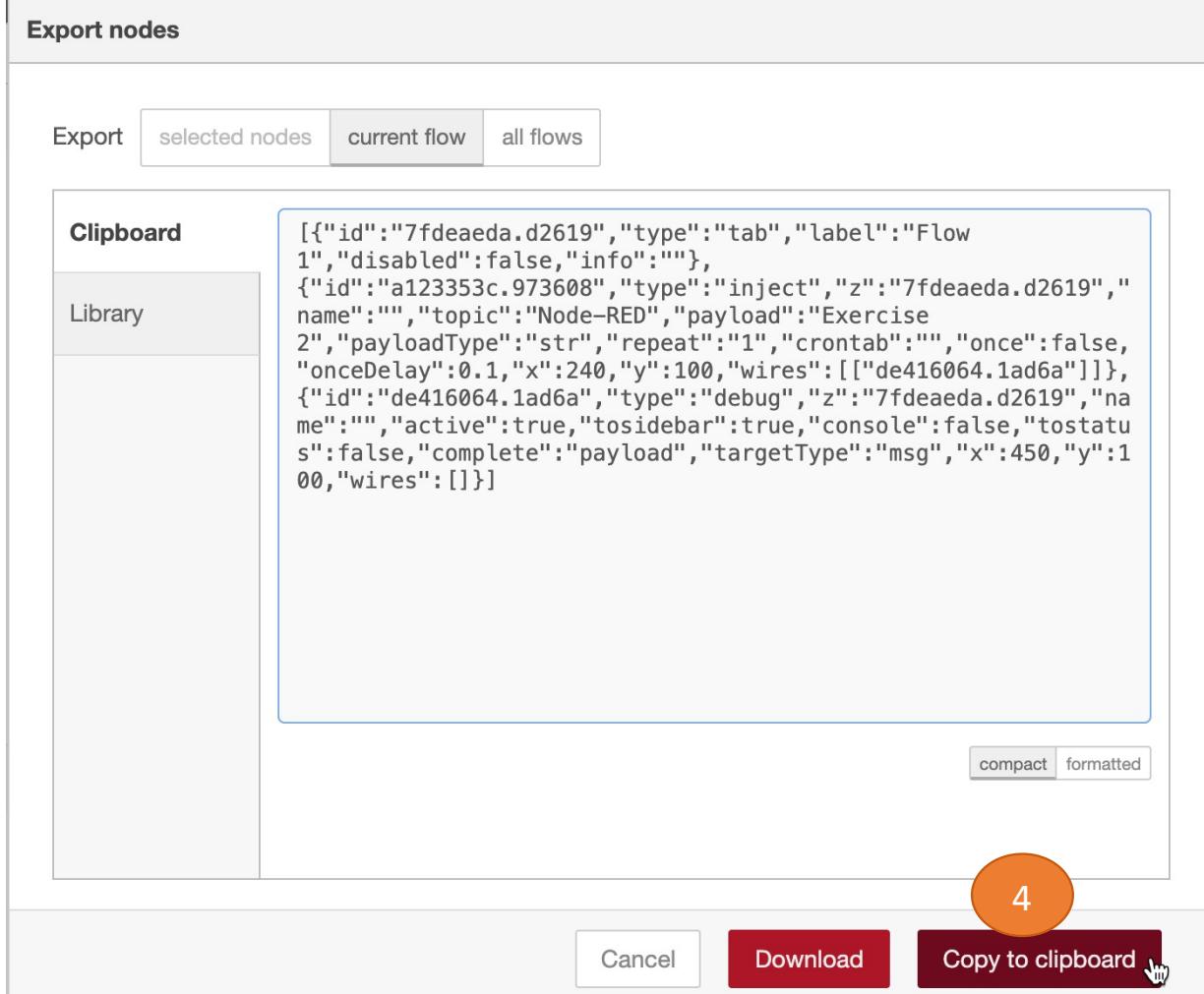
1. Set *Inject* node and *Debug* node as follows.
2. Click *Menu*.
3. Click *Export*.



v. Exporting your works

4. Click *Copy to clipboard*.

Click *Download* if you wish to download the nodes and it will be saved into your laptop/hard disk with the name of *flows.json*.



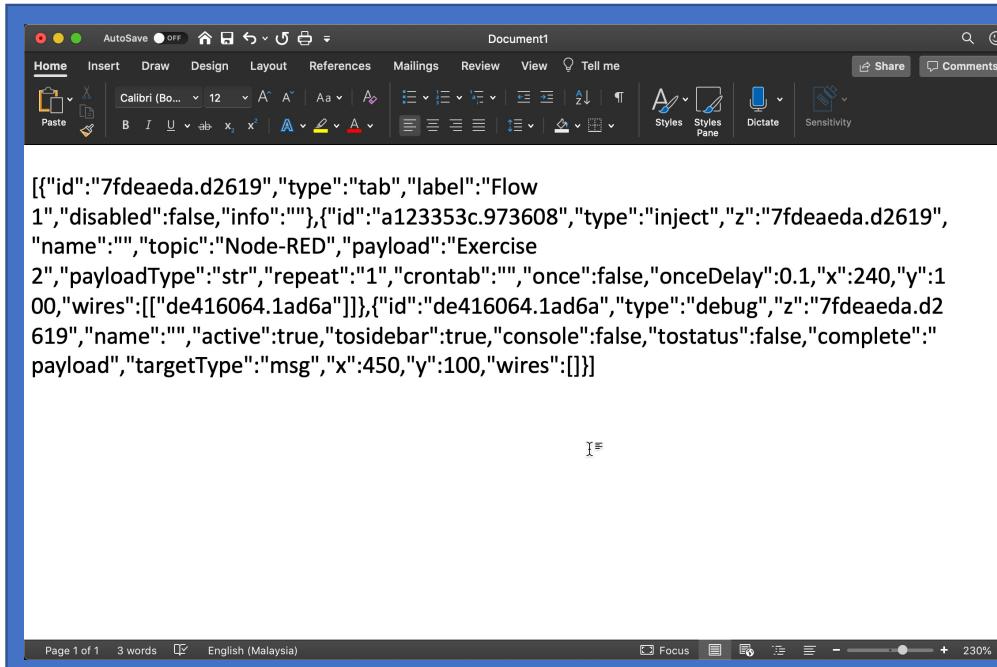
The screenshot shows the 'Export nodes' dialog box. At the top, there are three tabs: 'Export', 'selected nodes' (which is selected), 'current flow', and 'all flows'. Below the tabs, there are two sections: 'Clipboard' and 'Library'. The 'Clipboard' section contains a large JSON code block. At the bottom right of the dialog, there are buttons for 'compact' and 'formatted', and a footer with 'Cancel', 'Download', and 'Copy to clipboard' buttons. A red circle with the number '4' is overlaid on the 'Copy to clipboard' button.

```
[{"id":"7fdeaeda.d2619","type":"tab","label":"Flow 1","disabled":false,"info":""}, {"id":"a123353c.973608","type":"inject","z":"7fdeaeda.d2619","name":"","topic":"Node-RED","payload":"Exercise 2","payloadType":"str","repeat":"1","crontab":"","once":false,"onceDelay":0.1,"x":240,"y":100,"wires":[["de416064.1ad6a"]]}, {"id":"de416064.1ad6a","type":"debug","z":"7fdeaeda.d2619","name":"","active":true,"tosidebar":true,"console":false,"tostatus":false,"complete":"payload","targetType":"msg","x":450,"y":100,"wires":[]}]
```

EXERCISE 5: Exporting Your Works

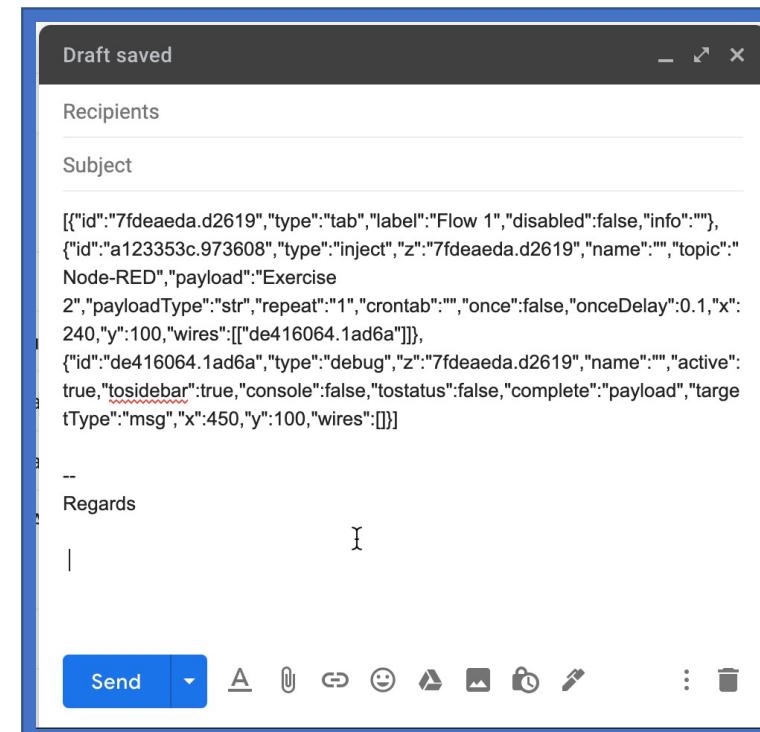
v. Exporting your works

6. Open any text editor, email and paste work.



A screenshot of a Microsoft Word document titled "Document1". The JSON code is pasted into the main content area. The Word ribbon is visible at the top, showing tabs like Home, Insert, Draw, Design, etc. The status bar at the bottom shows "Page 1 of 1", "3 words", and "English (Malaysia)".

```
[{"id": "7fdeaeda.d2619", "type": "tab", "label": "Flow 1", "disabled": false, "info": ""}, {"id": "a123353c.973608", "type": "inject", "z": "7fdeaeda.d2619", "name": "", "topic": "Node-RED", "payload": "Exercise 2", "payloadType": "str", "repeat": "1", "crontab": "", "once": false, "onceDelay": 0.1, "x": 240, "y": 100, "wires": [{"id": "de416064.1ad6a"}]}, {"id": "de416064.1ad6a", "type": "debug", "z": "7fdeaeda.d2619", "name": "", "active": true, "tosidebar": true, "console": false, "tostatus": false, "complete": "payload", "targetType": "msg", "x": 450, "y": 100, "wires": []}]
```



QUESTIONS

END