

# Simple Water Sensor Using Node-RED

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Raspberry Pi Night  
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# Create New Gmail Account

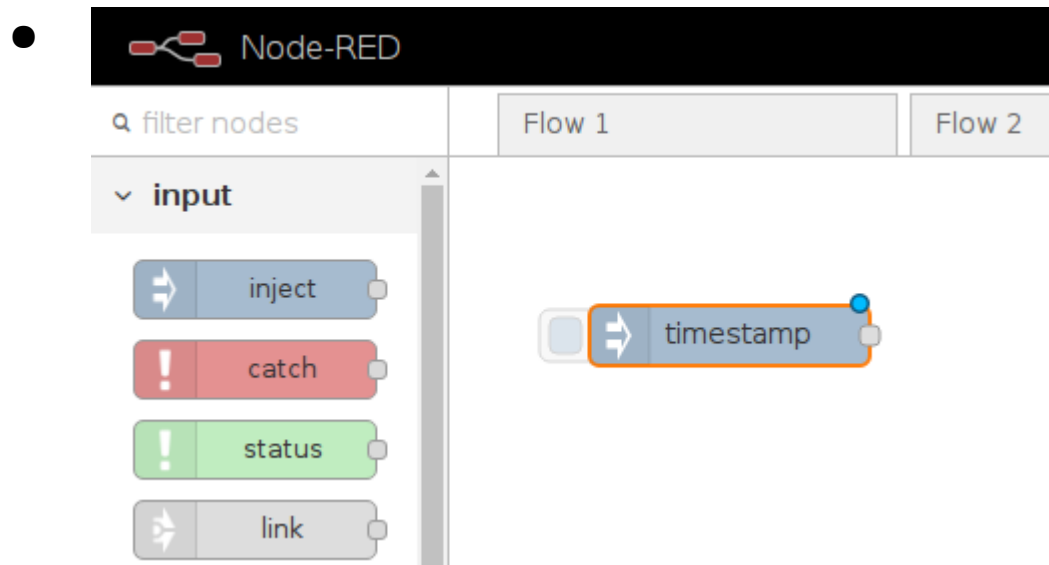
- Create new gmail account specifically for sending messages from the Pi
- Set a password different from your primary email account
- Turn on Less Secure Apps feature. Make sure you are using your new gmail account
- <https://www.google.com/settings/u/1/security/lesssecureapps?pagelid=none>
- This protects your primary email from being hacked

# Start Node-RED

- Click on Raspberry → Programming → Node-RED
- A terminal window will open
- Open Firefox or Chromium browser
- <http://localhost:1880>
- Create a new tab by clicking on the +

# Test Gmail Send

- Drag Inject node to canvas




# Configure Inject Node


Edit inject node

Cancel


Done

 Payload

▼ a z


 Topic

water is everywhere!!

 Repeat

none ▼

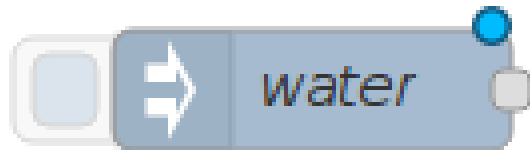
☐ Inject once at start?

 Name

water

**Note:** "interval between times" and "at a specific time" will use cron.  
See info box for details.

# Drag email node to Canvas





# Configure email Node


Edit e-mail node


Cancel


Done


 To

 Server

 Port

 Userid

 Password

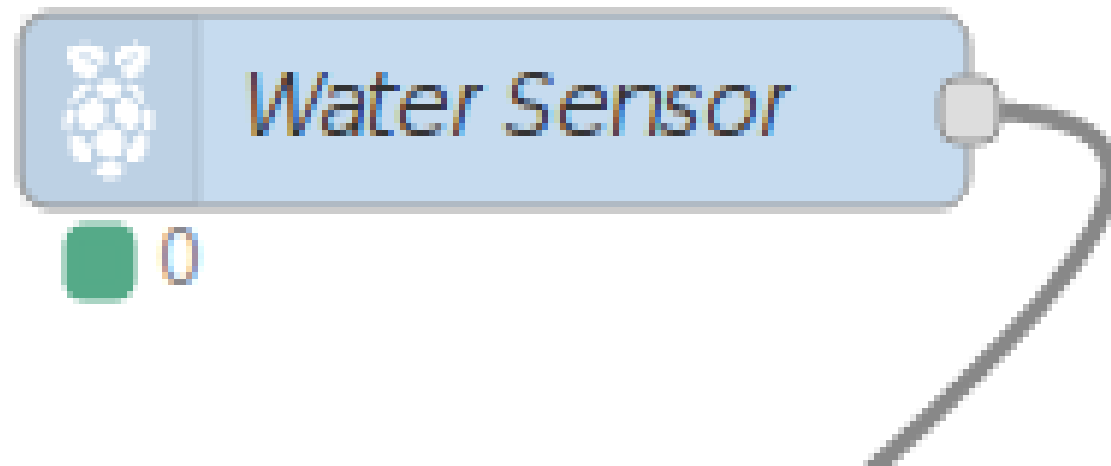
 Name

# Finish Gmail Test

- Join the Inject node to the Email node
- Deploy
- Click on Inject node
- Check email



# Add Raspberry Pi GPIO Node



# Configure rpi-gpio Node

Edit rpi-gpio in node

Cancel

Done

● GPIO

Pin 7 - GPIO4 ▾

Pi 3 Model B

⬆ Resistor?

none ▾

Debounce

25

mS

☒ Read initial state of pin on deploy/restart?

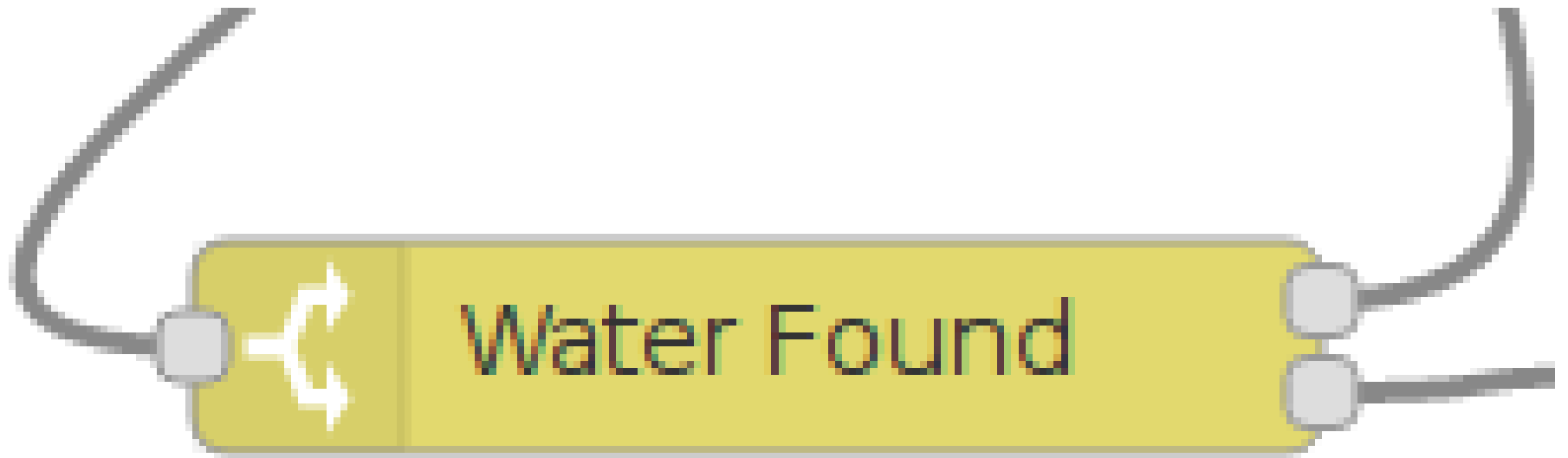
📌 Name

Water Sensor

Pins in Use: 7

Tip: Only Digital Input is supported - input must be 0 or 1.

# Add switch Node




# Configure switch Node

Edit switch node

Cancel

Done

 Name

Water Found

Property

▼

msg.payload

≡

==

▼

▼

a<sub>z</sub>

0

→ 1

✕

≡

==

▼

▼

a<sub>z</sub>

1

→ 2

✕

✚ add

stopping after first match

# Add 2 function Nodes



# Configure first function node

Edit template node

Cancel

Done

Name

Alert email

Set property

msg.payload

Template

Syntax Highlight: mustache

1

Water has been detected: {{payload}} !

2

</> Format

Mustache template

# Configure second function Node

Edit template node

CancelDone

Name

not yet

Set property

msg.payload

Template

Syntax Highlight: mustache

1 No water yet: {{payload}}

</> Format

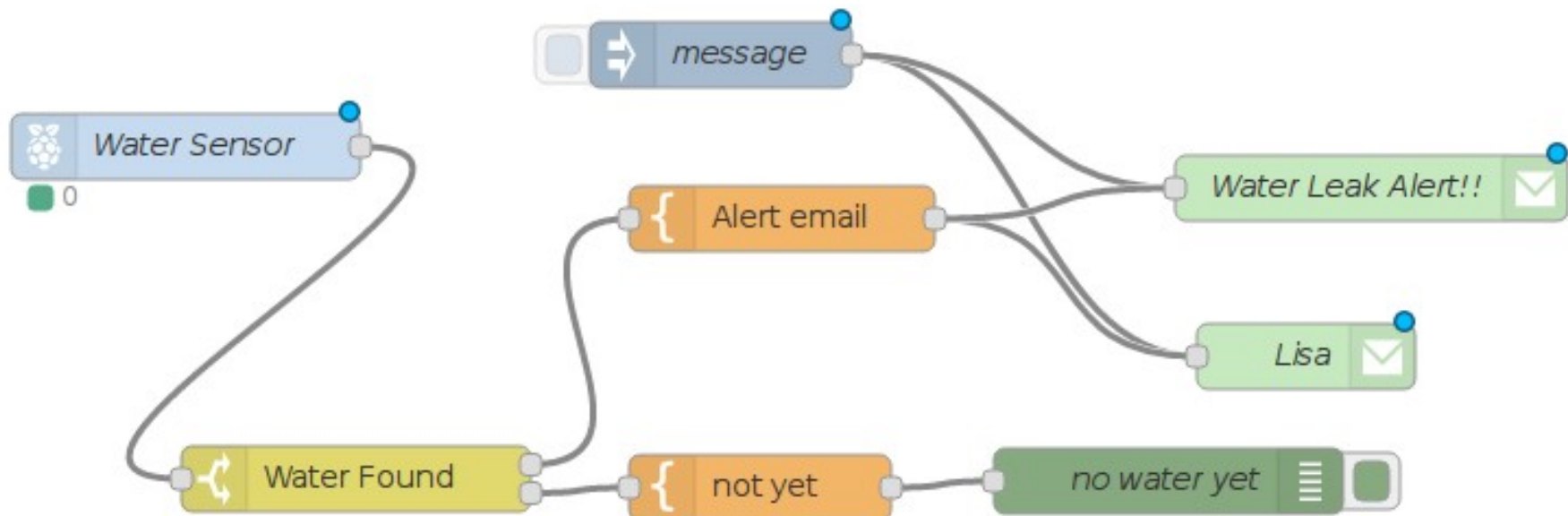
Mustache template

# Add Second email Node

- This will be for the text message
- Configure like the email node except change the To field
- See this link for the correct format for your phone carrier
- <http://www.digitaltrends.com/mobile/how-to-send-e-mail-to-sms-text/>



# Add Debug Node and Wire Flow



# Connect Sensor

- Connect ribbon cable to sensor
  - Black = ground
  - Red = 5v
  - Yellow = Analog
- Connect gpio pins to ribbon cable
  - Black = gnd
  - Red = 5v
  - Yellow = Pin 7 (GPIO 4)

# Time to Test

- Deploy the flow
- Make sure no blue dots or red triangles are present on any nodes
- You should see No Water Yet messages in the debug panel on the right
- Add water to the sensor and you should get email and text message that water was detected

# References

- <https://support.google.com/accounts/answer/185833?hl=en>
- <https://www.google.com/settings/u/1/security/lesssecureapps?pagelid=none>
- <http://www.digitaltrends.com/mobile/how-to-send-e-mail-to-sms-text/>

# Generate App Password for Gmail

- Visit your [App passwords](#) page. You may be asked to sign in to your Google Account.
- At the bottom, click Select app and choose **mail**.
- Click Select device and choose **other**. You will be prompted for a name.
- Select **Generate**.
- Save the App password (the 16 character code in the yellow bar) on your device. We will use it in Node-RED.
- Select Done.

Once you are finished, you won't see that App password code again. However, you will see a list of apps and devices you've created App passwords for.

Note: You may not be able to create an App password for less secure apps. [Learn more about allowing less secure apps.](#)