

Node-RED: PAC Email Alerts (digital)

The most basic condition for alerts is when some variable takes on a value outside of a predefined threshold—whether that value is too high, too low, or changing too quickly. These are easy conditions to test for in Node-RED, so it is fairly straight forward to set up an alert system based on analog or digital signals from a SNAP PAC system like the Learning Center used in this example (part number [SNAP-PACLC](#)).

In this post, I'll explain how to set up a digital input channel alert.

Before you begin:

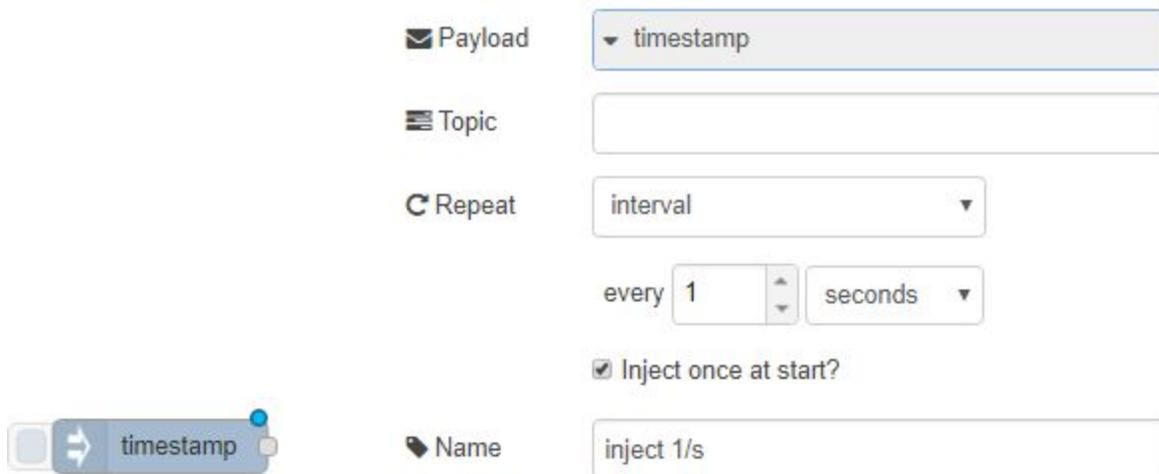
⚠ On your *groov* Box, upgrade Node-RED —ideally, to the latest version, v0.17.4+— to get `node-red-node-email 0.1.23+`.

You'll also need the [SNAP PAC nodes](#).

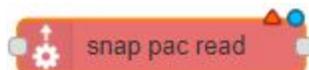
Digital input, binary alert

The most basic email alert can be sent when an alarm is switched on, based on the change of a digital value from a SNAP PAC I/O module on the Learning Center.

1. Start by regularly checking the state of the switch with a once-per-second **inject** node.



2. Next grab a **SNAP PAC Read** node. ([Install the package](#) if you don't see them.)



3. Double click the new node to edit it. Then, select the pencil icon to add your PAC device:



4. Enter the PAC address and [configure SSL certificates](#) if using HTTPS; otherwise, just enter an [authentication key](#) for the controller, and continue.

PAC Address

API Key ID Value

5. I am going to send an email when the photo sensor switch is activated, so Photo_Sensor is the tag I will watch. (This tag is in the PAC Control [Learning Center convenience store strategy](#).)

Controller

Data Type

Tag Name

Value

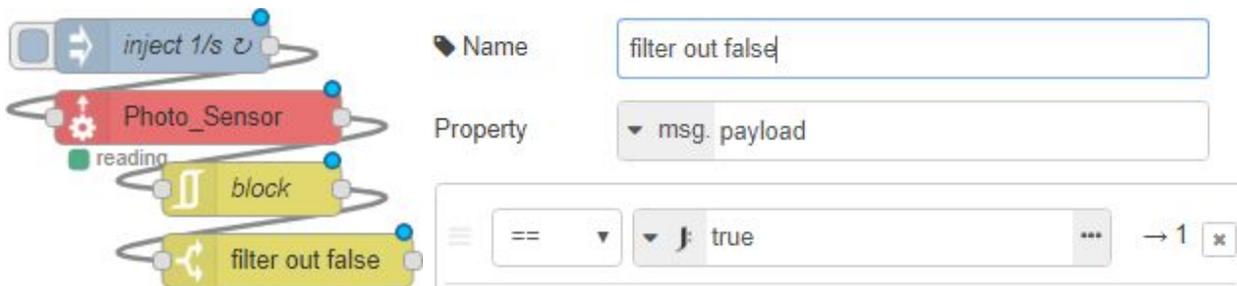
Topic

Node Name

6. I do not, however, want to report every single second that I check the value—only when the value has changed (that is, when the input is toggled). To do this, place an **rbe** “rate by exception” node that is set to “block unless value changes (ignore initial value)” so that it gets through only when toggled and not when the flow is deployed.



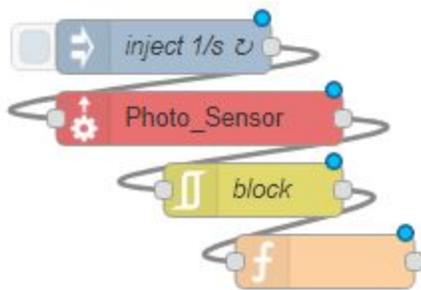
- a. As a small bonus I *could* add another node to filter out the light sensor off signal and alert me only when it is activated. For this, I would use a switch node to check the digital state. After coming out of the **rbe** node, go straight into a switch:



Here I show how to let the message through only when payload holds the expression value “true”. This is an example of simple binary digital filtering.

*NOTE: Instead I am letting both on **and** off signals through.*

7. Now I will use a **function** node to build the actual email, set the subject and body of the message, and (optionally) select the recipient(s).



To build an email, return a message with the email body in the *payload* and the subject in a property called *topic*. Optionally, you may set recipients with *to*, *cc*, and *bcc*; otherwise, the To recipients must be set manually in the email node.

Name: build email

Function

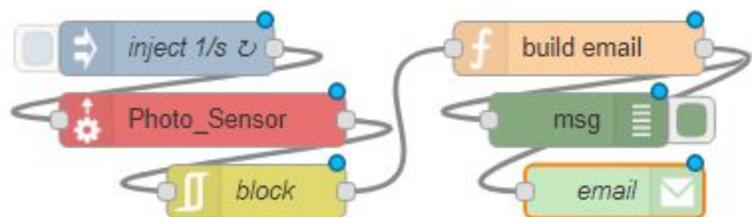
```

1 - return {
2   payload : "It is "+(msg.payload?"light":"dark")+ " outside as of "+Date().toString()+".",
3   topic : "Light Status",
4   to : "mreynolds@address.com",
5   cc : "zwashburne@address.com",
6   bcc : "jcobb@address.com"
7 };

```

NOTE: You may set multiple recipients for any given field, separated by commas. For example: to : mreynolds@address.com, iserra@address.com, stam@address.com” is valid for 3 addresses.

8. Finally, add an email node, and optionally a debug node to double check that the msg object was created successfully.



9. Modify the debug node to show “complete msg object”; otherwise, only payload and *not* topic, to, cc, and bcc fields will appear.

☰ Output

🔗 to

10. It is recommended that you **create a separate email account for Node-RED to use, mostly for security**, since the node requires [less secure apps to be enabled](#) on the account that sends the messages—*recipients do not need to worry about this*.

Allow less secure apps: ON

Once an account is ready and less secure apps is enabled, enter the address and password into the email node and make sure “Use secure connection” is ticked.

NOTE: If you did not set recipients in the function node, you will need to fill out the “To” field here. To use cc and bcc, you must leave the To field blank and use the function block.

✉ To

🌐 Server

🔗 Port Use secure connection.

👤 Userid

🔒 Password

📁 Name

11. Deploy the flow. Now Node-RED checks the photo sensor status every second, and only when it changes will it build an email and send it to the specified address(es)!

