Configure of Espress for Q-Control: (Dec,2016)

requirements: NodeMCU/ESP12-E with 4MB flash size.

You'll need a flasher for the NodeMCU if you don't have it yet. Here's a link

https://github.com/nodemcu/nodemcu-flasher

It has compiled win32/win64 binaries within

Before you begin, download the Q-Control ZIP file and extract all contents to a temp folder. You should read this entire document over before starting....

For now I'll just release compiled BIN files until there's a real release...and I get a chance to organize the source files to put on github

STEP #1 Get the Q-Control Module(ESP) to connect to your internet router.

You do not connect the ESP to the Q-Control yet....

grab the BIN file from zip file....the BIN file is designed for nodemcu or ESP12-E chips with 4MB flash sizes....make sure you know the size of flash on your NODEMCU/esp chip. They range, but it's important you flash the correct bin file to the correct size nodemcu.

use the nodemcu flasher to burn the bin file(QControlESP.bin) to the device....and reboot esp device.

..once it restarts the ESP will start in AccessPoint mode(AP)...use tablet/phone/notebook to connect to the AP(WIFI) that will start up (you should see SSID like myespC1545...

Once you are connected to the ESP you can bring up your browser and go to http://setup.com (or "anything".com since all websites should land you on the wifi config screen). If you have any problems connecting via http://setup.com you can try accessing directly using http://192.168.4.1

If you connect a wifi config page should be displayed. Fill in the DEVICE NAME (no spaces, call it something simple and short or leave the default myesp). Set your SSID(wifi) and your wifi password. You can leave all other items as default. Press Save settings....you should power down/on the ESP module for a clean boot.

You will know you are successful if after a few seconds after boot up the local AP of the ESP is no longer there. The local AP is only on when there's an error connecting to your internet.

STEP #1 Connecting to ESP via wifi (on your desktop computer).

Physically connect the ESP to your avr...(see section on connecting).

Once Step 1 is complete...we no longer will connect the Espress Module via its local AP. We will now only access it via your local lan(wifi).

You should now use a desktop computer and setup the ESP and thingspeak/cloud/Q-Control stuffs.

To make life easier I've implemented mDNS protocol for ESP...that way you can to your browser and just type http://myESP.local to access the webpages.

Accessing the ESP through lan can be tricky though because or different ways different browsers/OS connect to mDNS (that is the protocol the ESP uses to broadcast its name).

Let's say you called your devicename myESP from step one: You will be able to access your ESP by typing http://myESP.local from your browser. It will work for some browers in windows and will always work on iOS/macs.
If your system doesn't connect via the .local address you will have to access it via it's local lan ip like: http://192.168.1.xx .
I have tried on a few systems and here's what I found out so far for easy mDns browsing.

Windows 10 with chrome browser works (ie doesn't work)
Windows 7 doesn't work...
Ipads/Iphones/Macs work
Android doesn't work....

It's been said that if you have windows box with itunes installed it will work as well (mDNS was invented by apple)...again, if your desktop doesn't work with the .local address just access it directly via the IP.

Once you connect via desktop the first page on the ESP is a file browser startup mode (this is the page that you get when it's waiting for config files).

STEP #3 Uploading config files/apps to the ESP module.

Once you connect via desktop and see the filebrowser you are now ready to copy the needed files over to the ESP.

We now just need to copy all the files from within the html folder of zip to the root folder of the ESP module.
Press the Choose Files button from the top of the page and go to the html folder from ZIP file. Go into the html folder and hilite/select all the files and press OK/open. It will upload all the html files into the root of the ESP. Ensure that all files are copied (html file transfer isn't always 100%)...

Flash your AVR: You will now need to flash the AVR(atmega), if everything is connected you will see in the filebrowse a 'flash avr' button next to the file qcontrol.avr. Press that button and 'cross-fingers'....wait 30-45 seconds and a message should come up and tell you it was successful.

now we RESET the ESP and avr.

If everything worked you should now access the http://myesp.local web address and be displayed a proper index page to start configuring the entire system.....

STEP #4 Setup ThingSpeak.

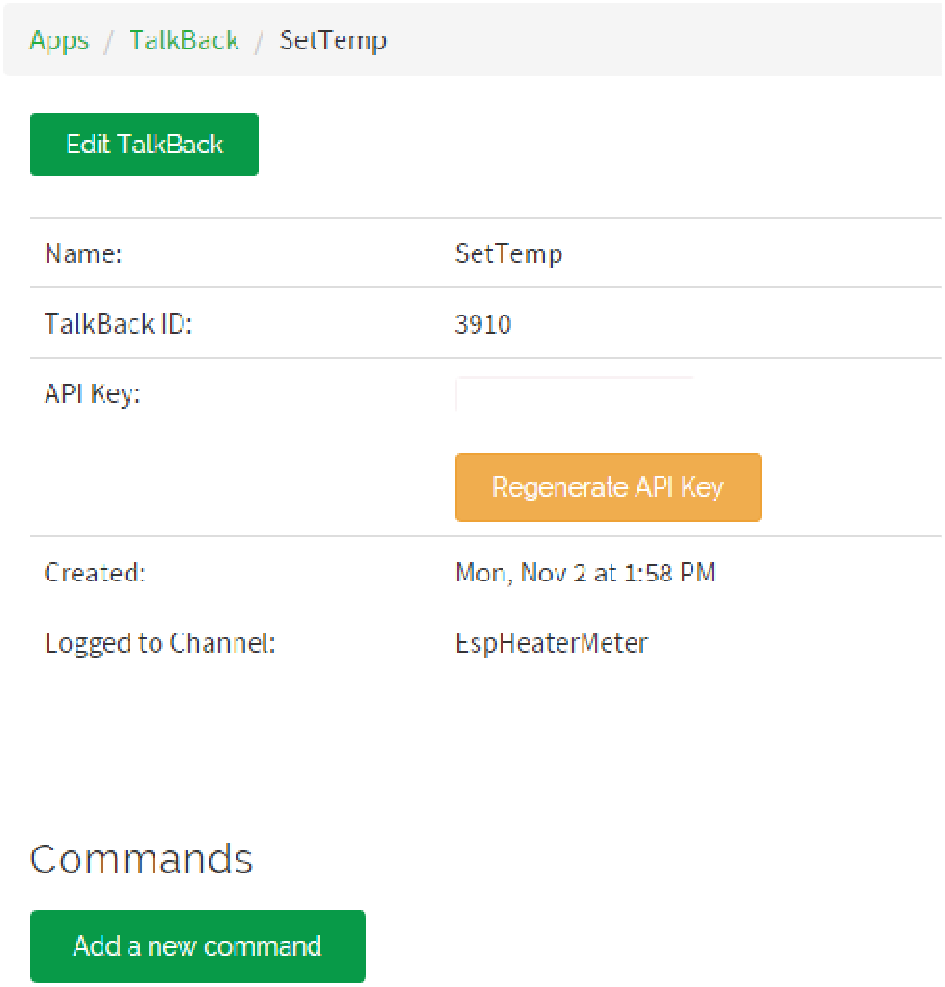
You'll need to setup a thingspeak account now. First thing log into thingspeak and setup a new account and grab your API KEY. Inside thingspeak under MyAccount/Profile there you will find your API key. copy that key to your clipboard....

in QControl. you want to go to config/cloud and put that API key into your Profile API Key and press the auto-create channel button....that will auto add your thingspeak channel...it will tell you success/fail....Rememeber to press SAVE SETTINGS button on bottom of config form afterwards....EASY!

you can login/refresh to thingspeak to check that the channel was created.

You will then need to setup a talkback App on thingspeak to support setting temperatures and settings alarms....

inside thingspeak there's an APPs page that you want to add a talkback(name doesn't matter) and grab the ID and the key for it as well....put that in the esp cloud config...



note: thingspeak is a cloud based system so that user doesn't need to configure stuffs locally. however, thingspeak is opensource and you can actually install it locally so that you aren't 'stuck' with a certain provider. Oh and the 15/second update gone if you use your own server locally...there's a

website that shows how to turn a raspberrypi into a thingspeak server...so that's cool too to try. (in esp webconfig you can change the server ip)

General Setup.

Go through the config area and setup the remainder of your settings...

If you're using Max6675 TC then on probes you select : Connections (max6675) and set the hardware pin to the proper PIN on the avr (other settings don't matter with the max6675.

If you're using ADC (analog) the PIN is the AnalogPin on the avr (not digital pin #). Then configure the details below like probetype/resistor values etc.

Dashboard for ESPress Module.

The dashboard you can see what's going and and set your alarms/temperature from anywhere (even outside your home!).

currently it's just a javascript file that you can store on your local desktop or somewhere on the web. (no php,or server side scripting needed)

you can link to my website directly

http://nailbuster.com/thingspeak

Once you load it up you will need to go to config tab and setup your thingspeak settings for it to work.

it's an early proof of concept.....

Make your own Dashboard tech info:

you can examine the source of the sample dashboard file from above to get an idea on reading the values.

to set temp we need a javascript button that sends temperature like this: (http post not get!)

remember the APIkey is the talkback KEY NOT the standard writekey for channel.

$.post(https://api.thingspeak.com/talkbacks/3910/commands?apikey=EBJXXXXXZH&command_string=$SETPOINT,'+document.getElementById("command").value);

to set alarms:

$.post('https://api.thingspeak.com/talkbacks/3910/commands?apikey=EBJXXXXXFZH&command_string=$ALARM,'+document.getElementById("command").value);

input boxes to get 8 values (4 probes with low/high points).

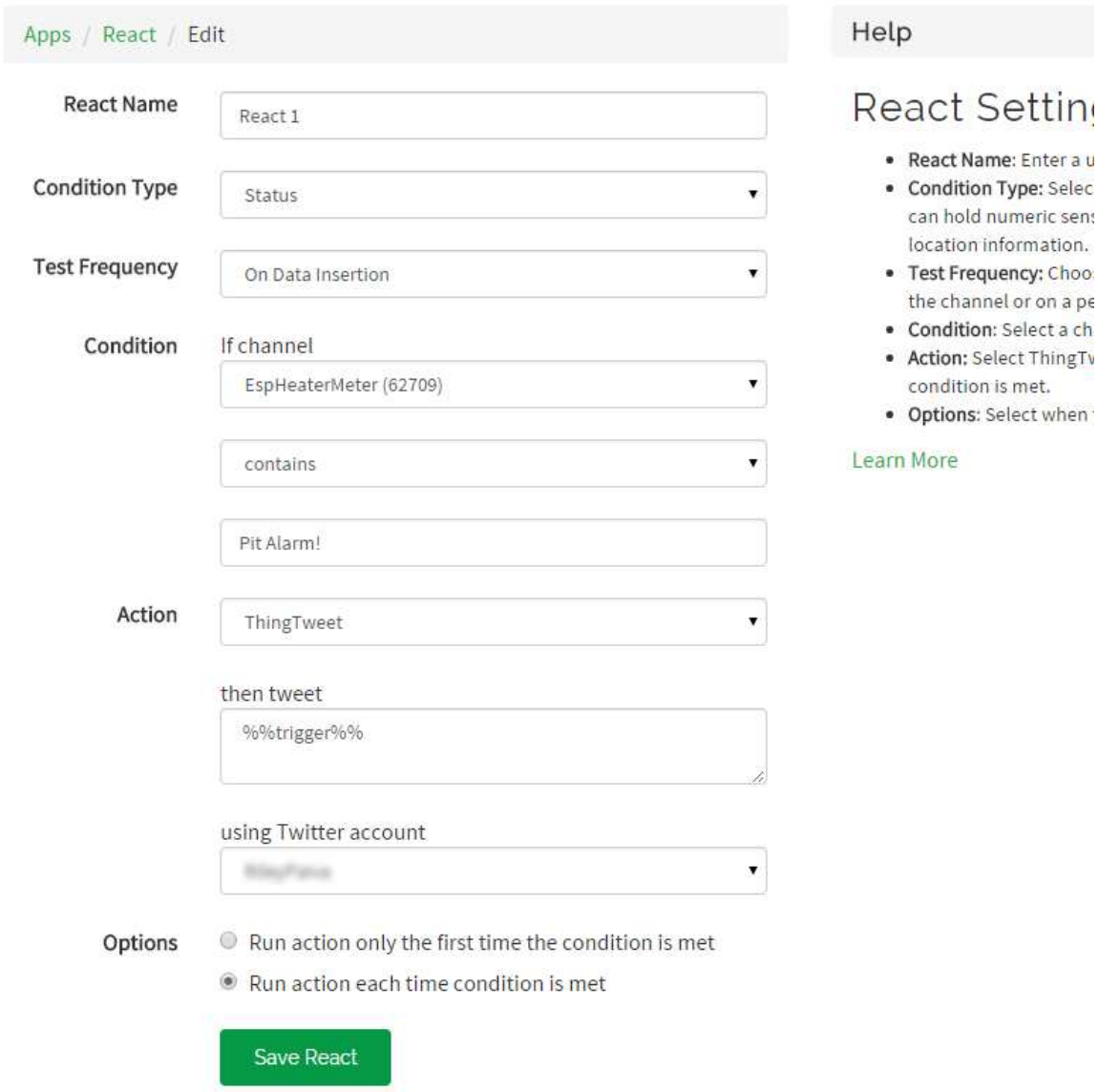
command_string looks like $ALARM,200,300,200,300,200,300,200,300

(negative values will disable alarm permanent)

ThingSpeak React

With thingspeak react you can do things when alarms from QControl are triggered. See thingspeak website for all the features on React.

For example, you can tweet something, or you can you send a HTTP request to a service for all sorts of things. Here's a sample of thingspeak react config.



For twitter...this is how I get notifications: Setup a new twitter account for your BBQ, link that new account to thingtweet inside thingspeak. Setup like picture above. On your regular twitter account, go

and find your BBQ twitter account and follow it. You will also click the 'star' on the account so that any new tweets from BBQ you will be notified on phone/tablet/etc...ensure twitter notifications is enabled on your mobile device.

***** Notes:

When using the filebrowser utility from the esp webmenu all your cloud services are disabled. This is by design and is needed for stable file transfers. Once you are finished inside the file browser there is a button on bottom of screen to 'reboot esp'...use that so that all cloud services we be re-enabled.

For AVR flashing via WiFi(esp) the atmega chip needs to have optiboot bootloader installed. This is beyond the scope of this document on how to get a bootloader onto your atmega chip.

NO WARRANTY