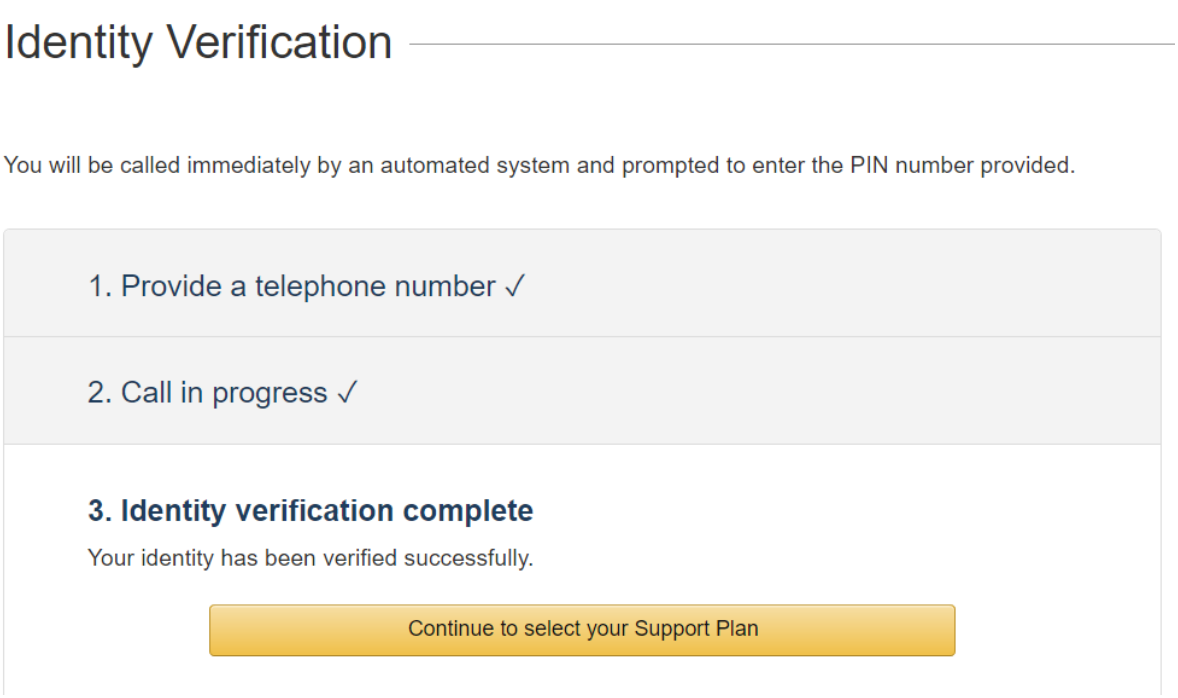
This guide is meant for everyone to understand. It won't go too much into the inner workings or code since that can be confusing - but it will be *extremely* detailed in the steps….it won't assume *ANY ASPECT* is understood prior to this. I can elaborate on anything via Reddit or Github.

Step-by-Step Guide for Alexa & Roku Integration

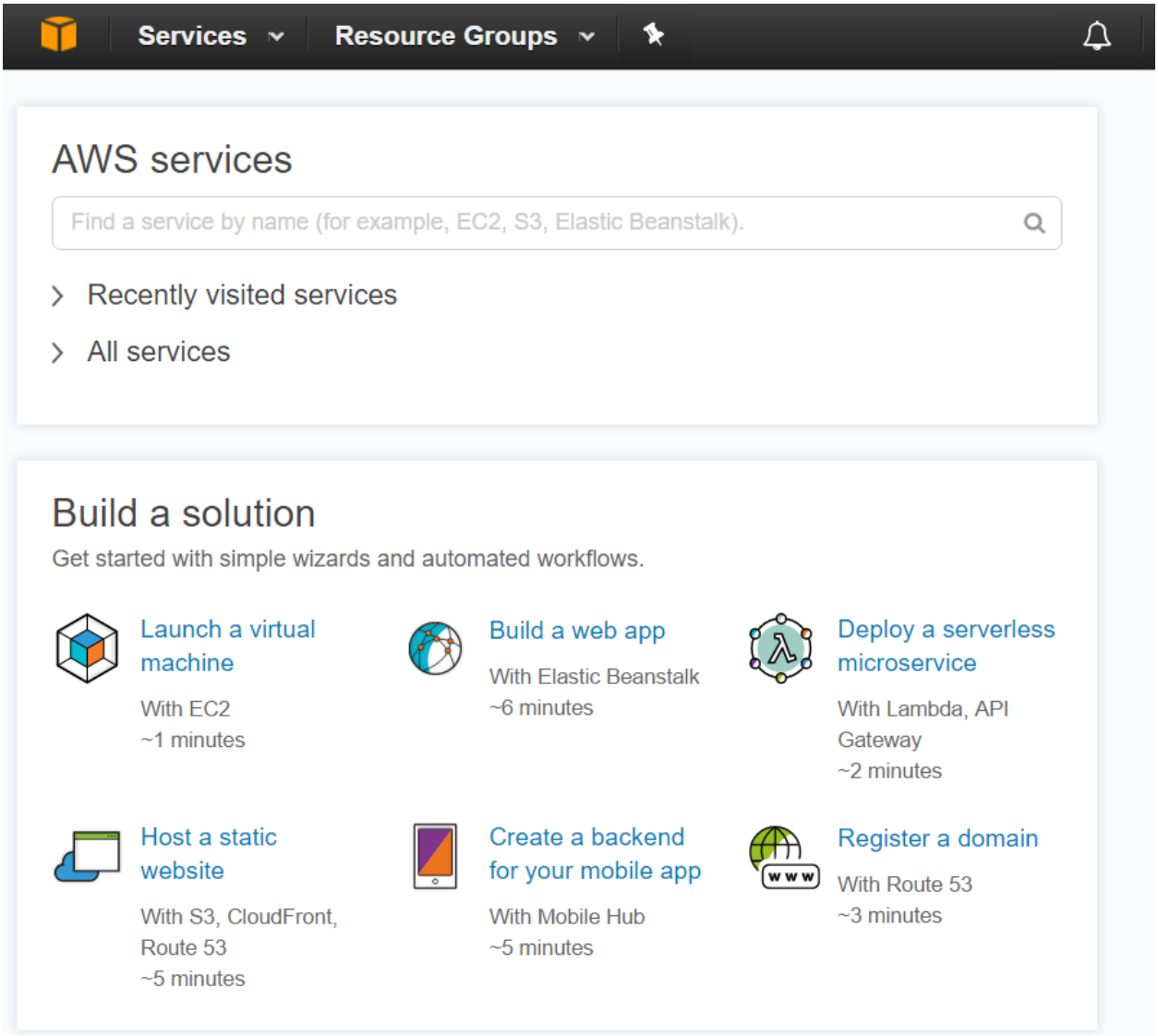
1. Go here and open an Amazon AWS Lambda account (free for our use): https://aws.amazon.com/lambda/

2. Hit get started and login to your amazon account, if not already.
3. Fill out information (select personal account)
    a. Hit Create account and continue
    b. Enter payment information – this will be free – you are NOT using their paid tiers. Then hit continue
    c. It will verify you by calling your phone number, enter the pin number you see on the next screen (once you hit call).
    d. After being verified, hit 'Continue to select your Support Plan'



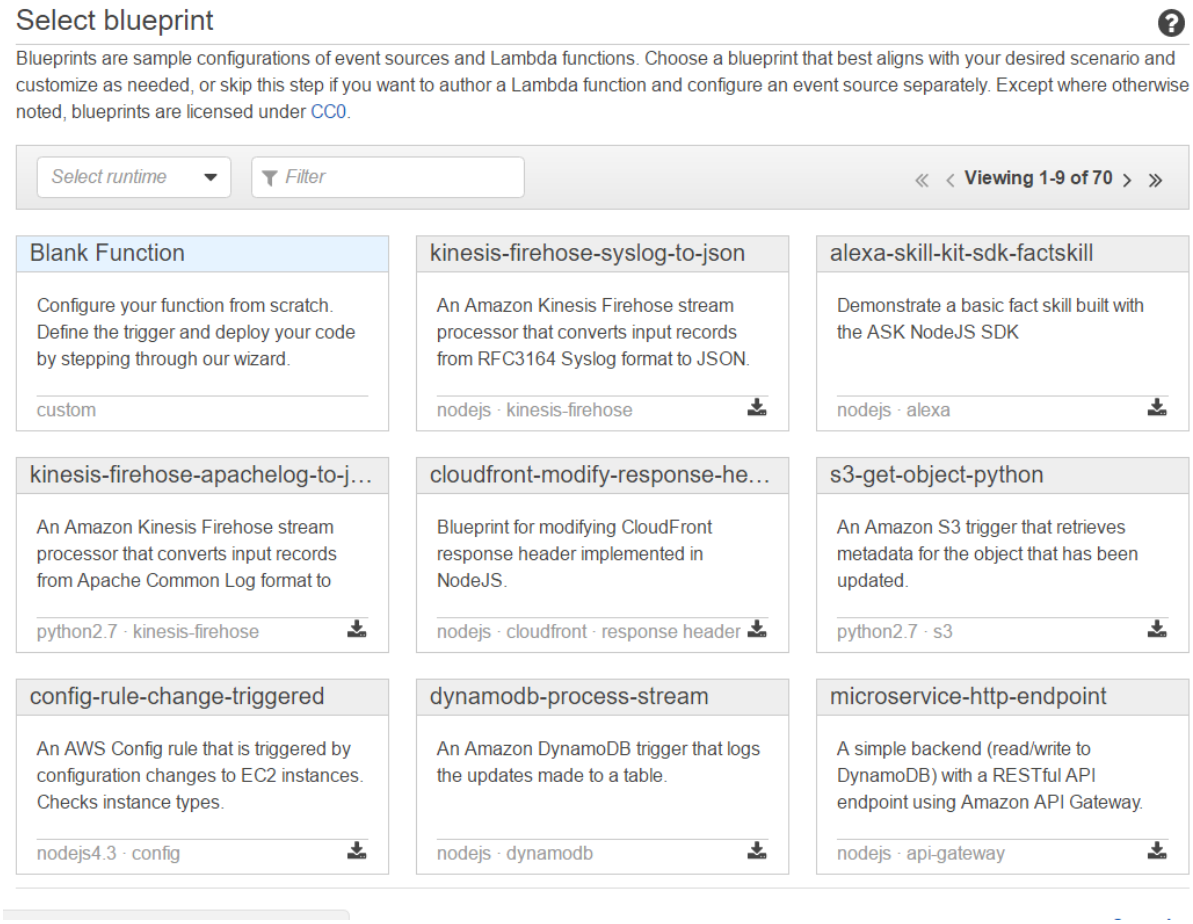
e. Choose ‘basic’ (default choice) and hit continue.
f. You have now created an Amazon Web Services account. We will come back to this later.

4. Once an account is created, hit ‘sign in to the console’
5. You will be greeted with this screen:

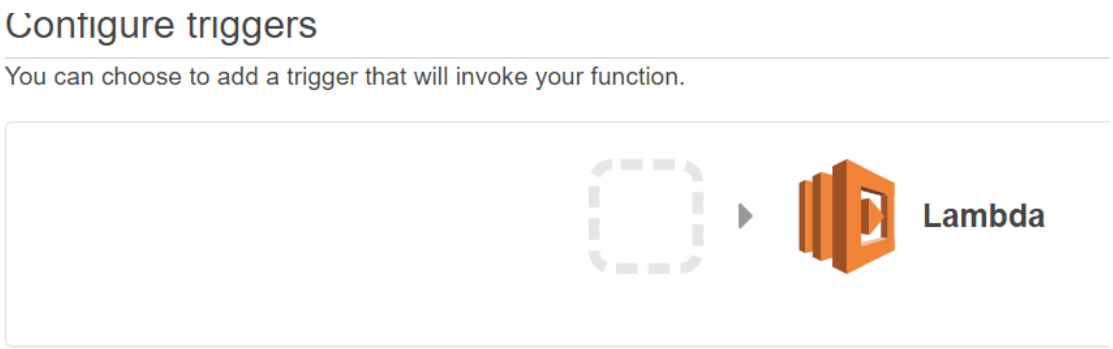


6. In the search bar, type Lambda and select the first choice.
7. Once you are there, hit ‘get started now’

8. Once at the Lambda page, choose ‘Blank Function’:

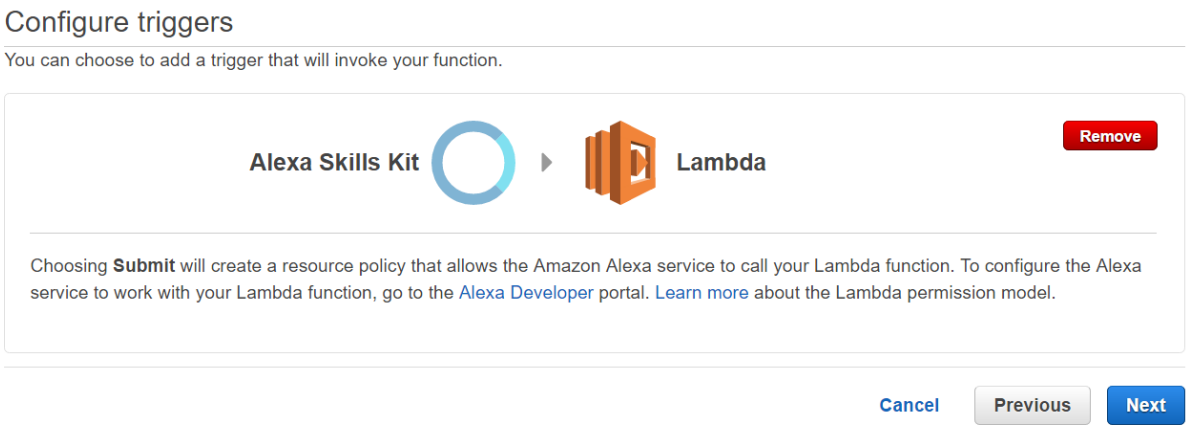


9. It will take you a page called ‘Configure Triggers’
    a. Click inside the white open dotted box:

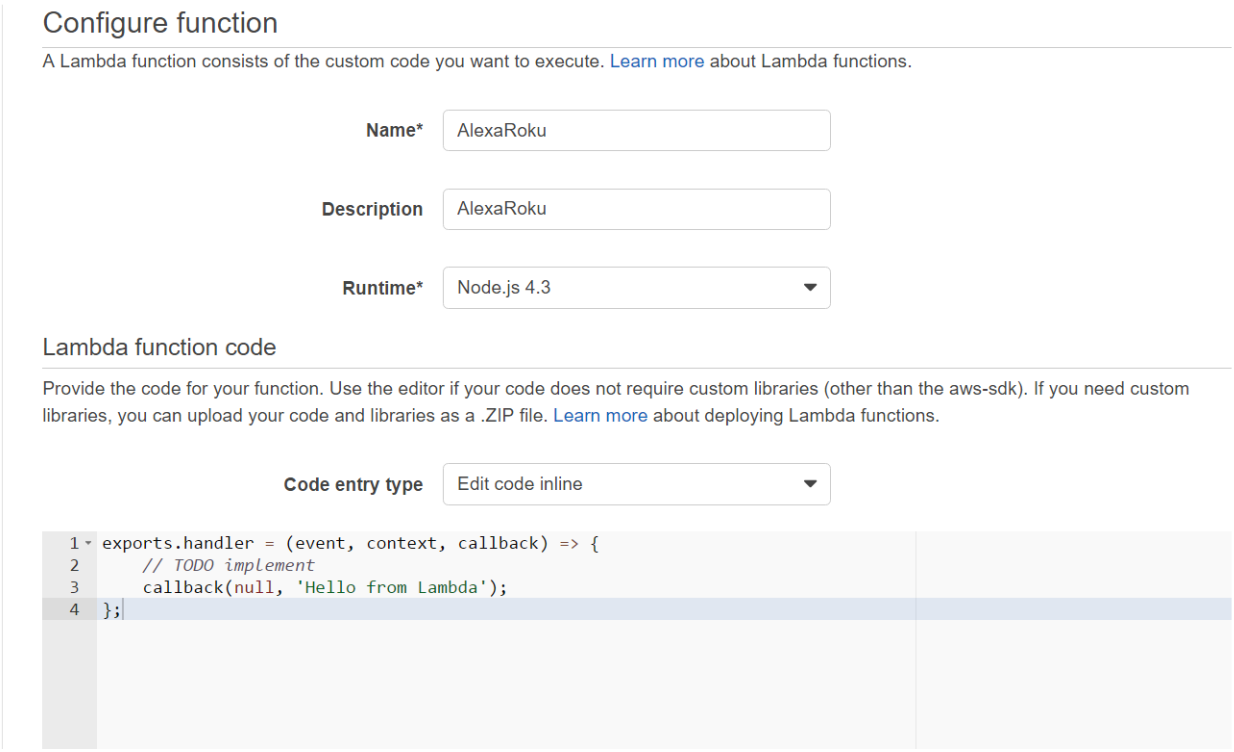


b. This will drop down a filter box, type in ‘alexa’ and choose ‘Alexa Skills Kit’.

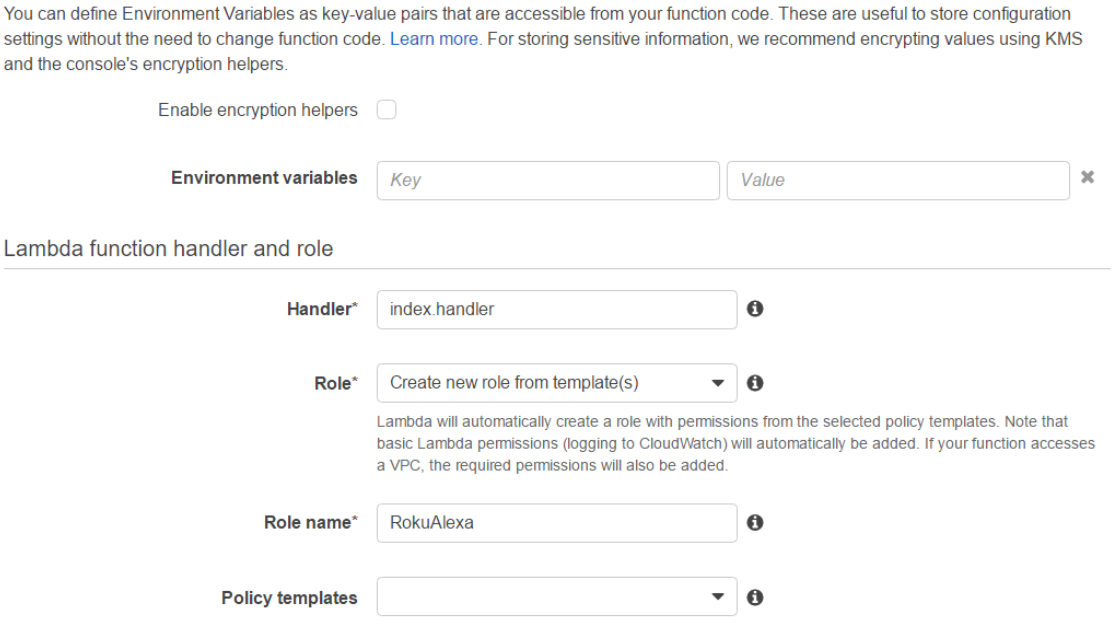
10. Once you have selected the Alexa Skills Kit, hit next



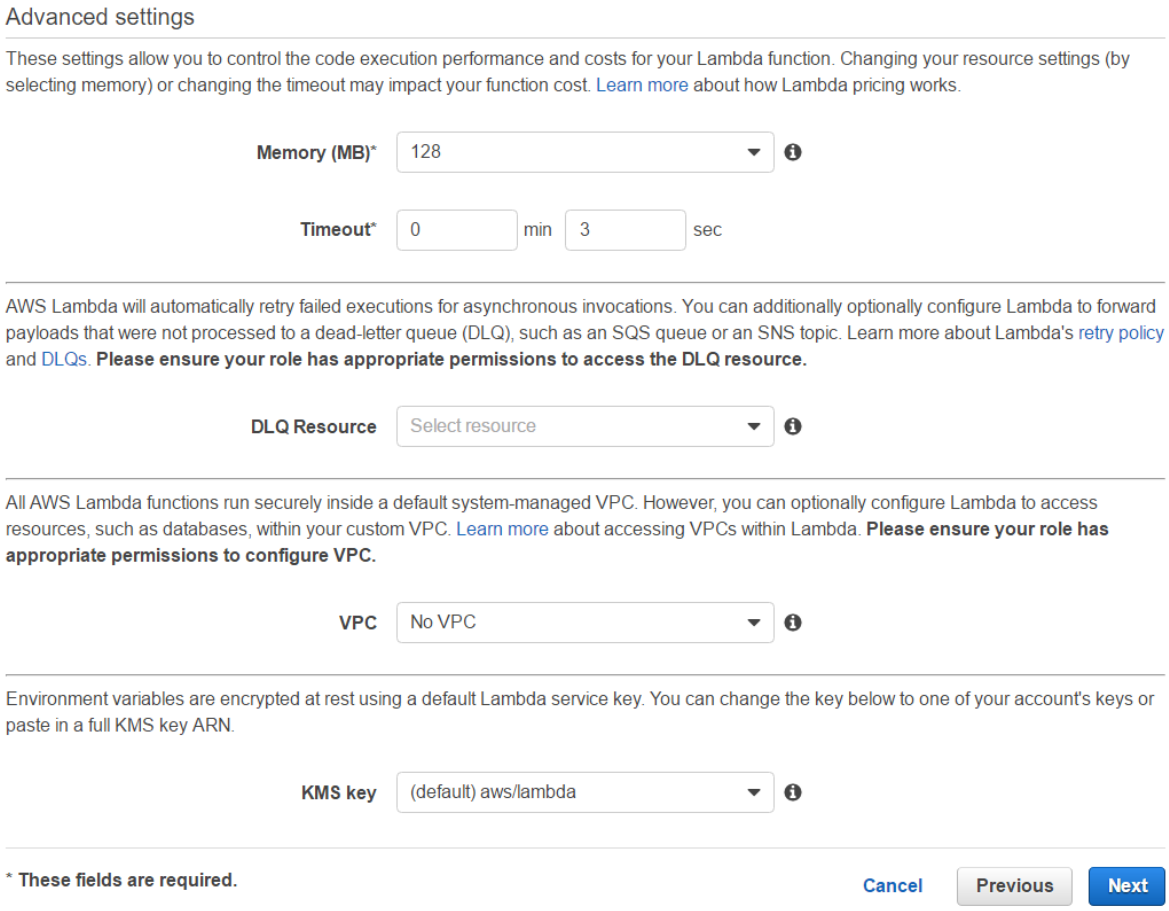
11. This will take you to the ‘Configure function page’
    a. For now, we will only do a few things
    b. Under the first option, “Name” – easiest to do is just type AlexaRoku (you can name it whatever you want)
    c. In the description, I also put AlexaRoku
    d. Ignore next few options and the code section (we will edit later)



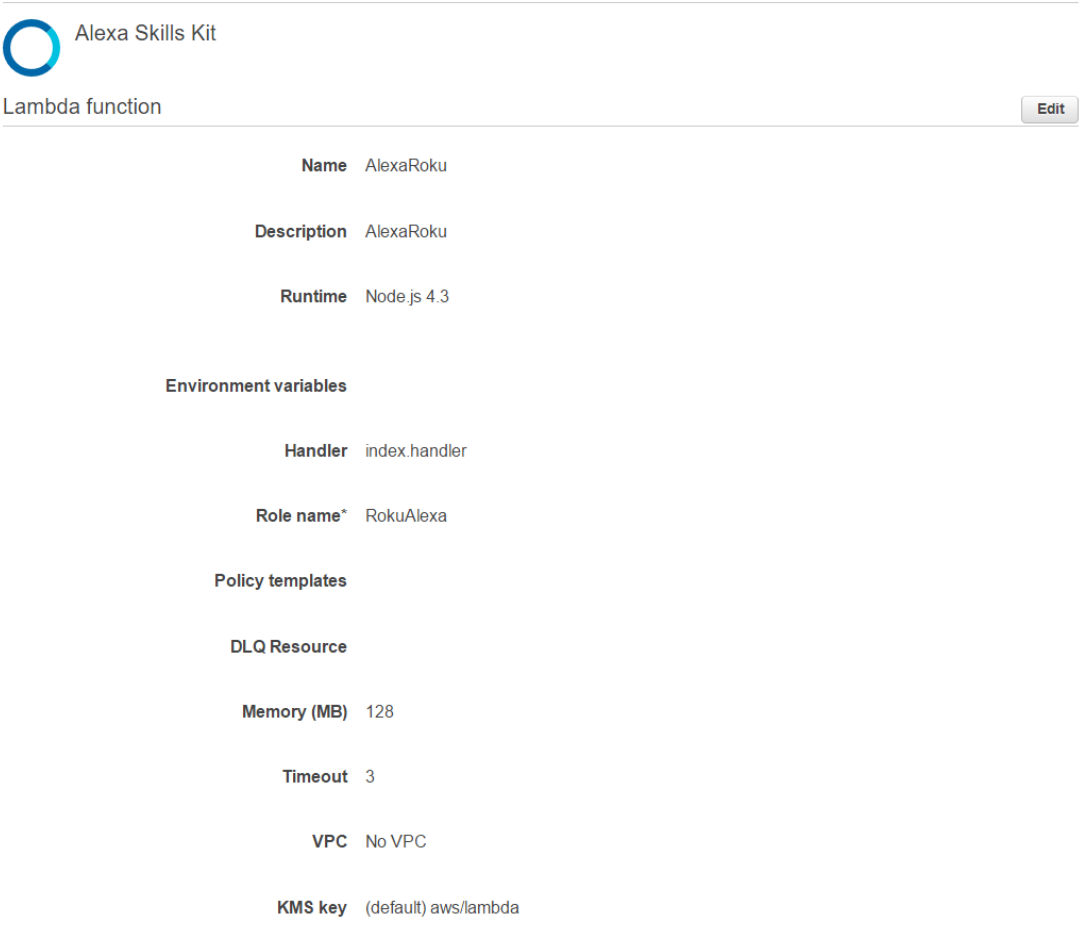
e. Under Role Name – also type AlexaRoku (doesn't matter again, just something to remind you what this is for).
   i. *I realized I put RokuAlexa (vs AlexaRoku) in my screenshot and now past that point to re-take a screenshot. But shows why it really doesn't matter for our purposes.*



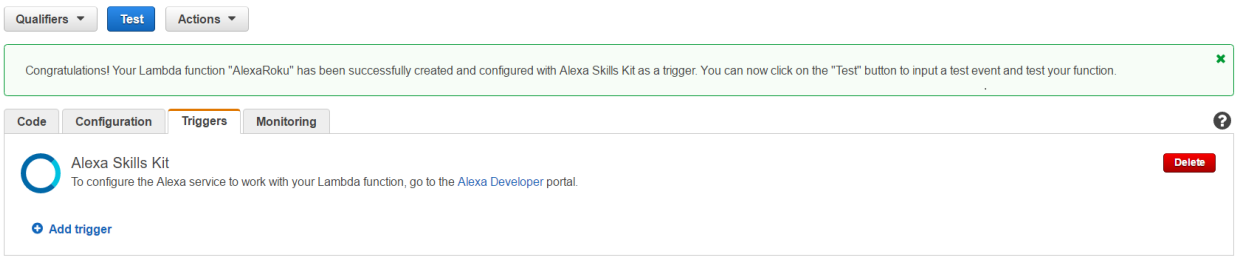
f. Leave everything else *as is*….hit next



12. The next page will show you an overview of your settings. They should look something like this:



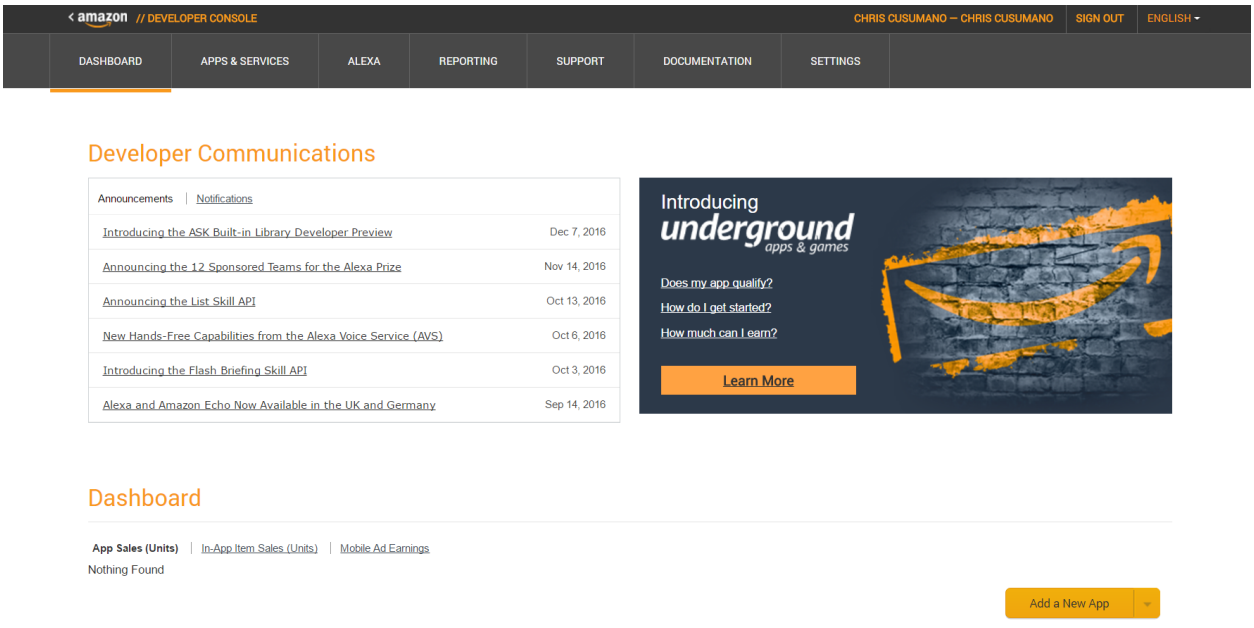
13. Hit Create Function
14. It should now say it's been successfully created – we will come back to this after we do a few other things!



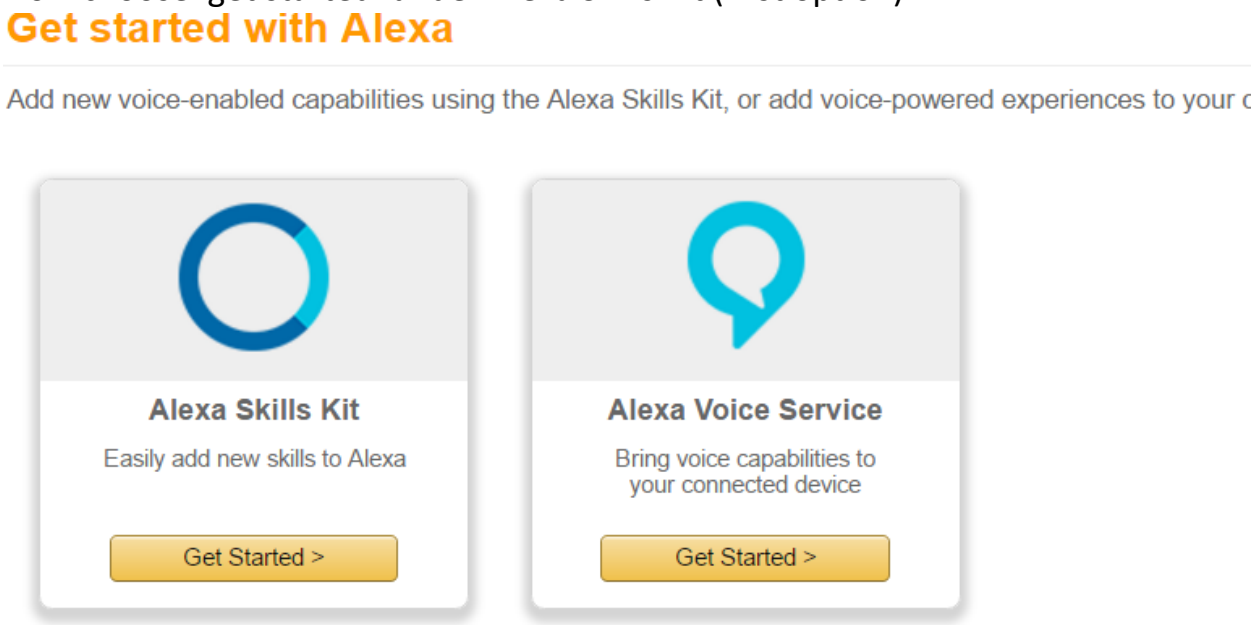
15. Now it's time to set up an Amazon Developer Alexa skill account
16. Head to http://developer.amazon.com
    a. In the top right, hit 'sign in'
    b. Sign in….this will automatically take you to the registration page.

i. Usually all of your relevant personal info from your amazon account is filled in except for ‘developer name or company name’ – just enter your name.
    1. If anything else is missing and is required, feel free to fill in.
ii. Hit save and continue
iii. You will come to their agreement page, hit Accept and Continue at bottom right
iv. The next page will take you to two questions for money-related skills/apps.
    1. It’s asking you if you plan on making money / charging for skills or apps.
    2. Hit no for both and then hit save and continue
        a. You can change this later if you decide to make skills in the future and want to charge people (this specific Roku skill cannot be made public due to how it works).

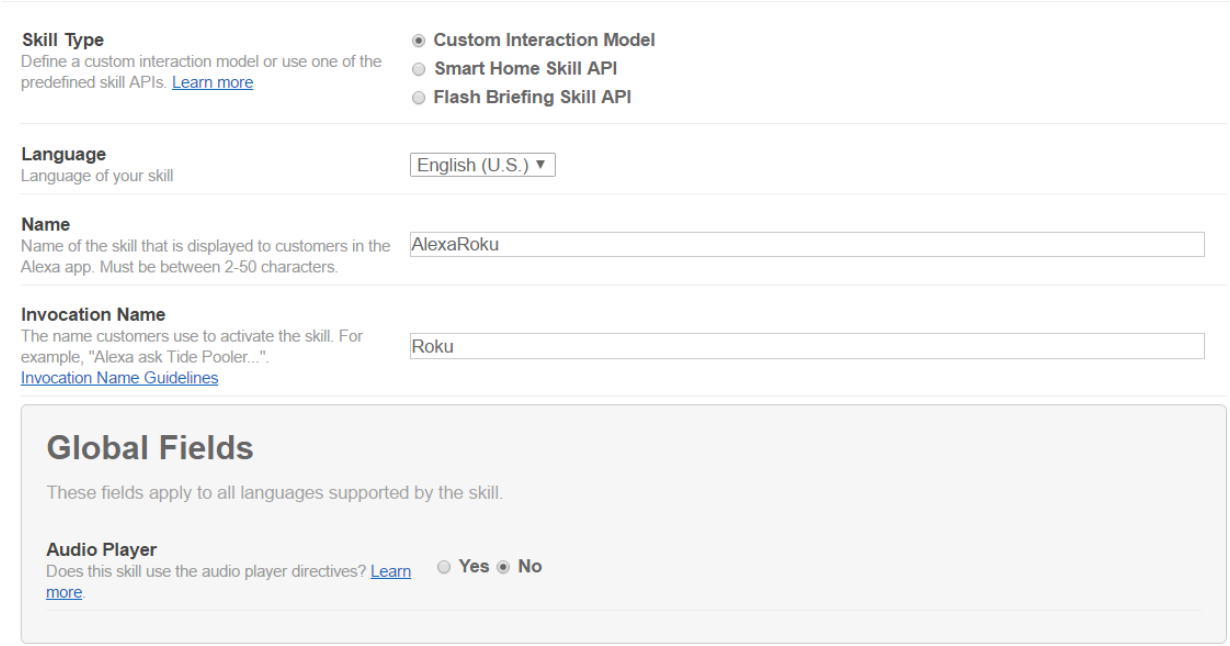
17. You will now come to their home page for the developer account. Choose ‘Alexa’ at the top:



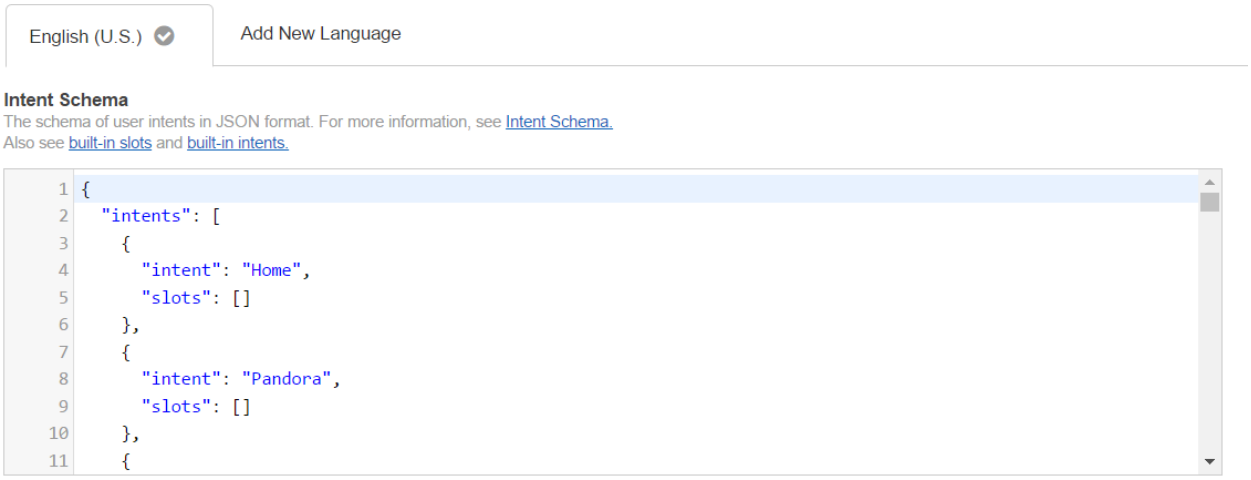
18. Now choose ‘get started’ under Alexa Skills Kit (first option)



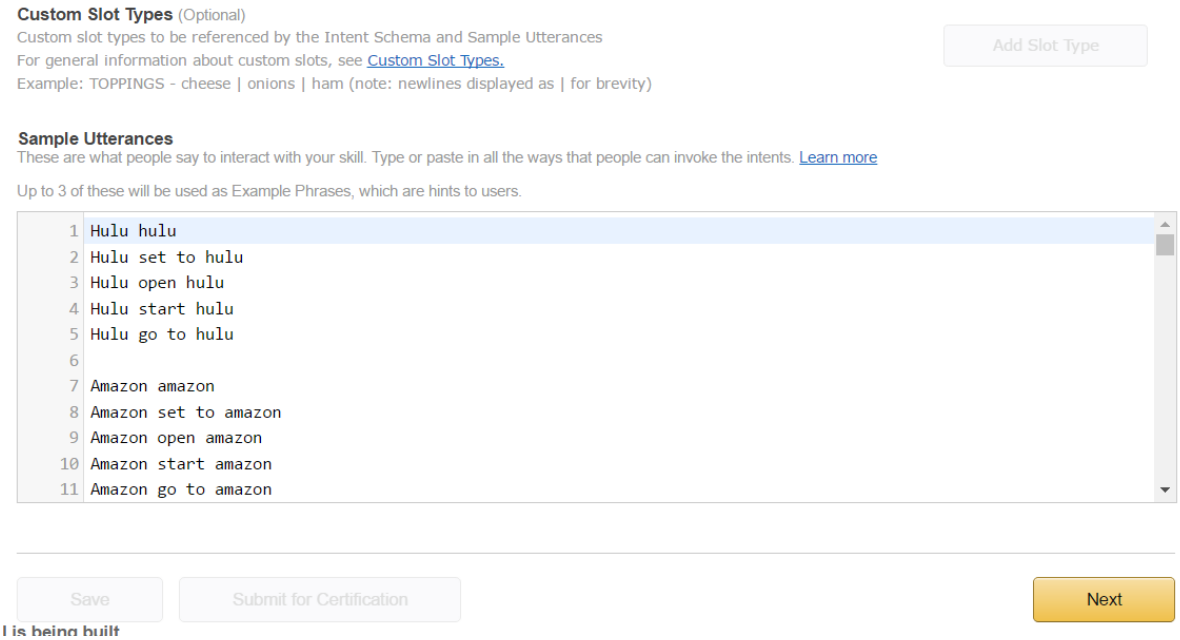
19. Choose ‘add new skill’ at top right
20. You will come to a page of settings
    a. Leave the first two the same (skill type and language)
    b. Under name, I just called it AlexaRoku (same as the lambda for consistency – but you can call this whatever your heart desires).
    c. Invocation name: Roku
        i. This can be changed to your liking – THIS IS THE WORD USED TO START THE SKILL (Alexa, Tell **Roku** to blah blah blah) – you can call it whatever you desire.
    d. Leave everything else the same, choose next



21. You are brought to a page asking for ‘intent schema’ and ‘sample utterances’
    i. In the simplest explanation, these are first asking for what the function is called (intent schema)….and then what voice command do you want to use to do that function (sample utterances).
b. **Go to the files you downloaded**, within the ‘Alexa Skill Voice Commands & Intents folder’: open ‘IntentSchema.txt’
    i. This can be opened in Notebook, Wordpad, Word, etc – they all h
c. Right click and select all, then copy
d. Paste in the box of ‘Intent Schema’

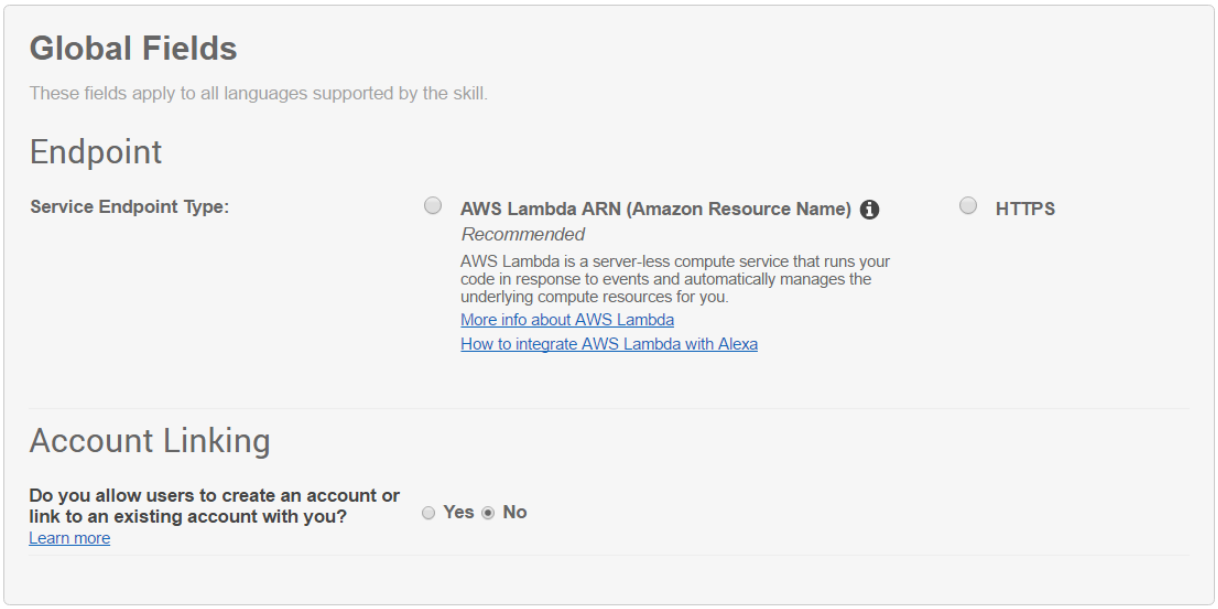


e. Similarly, open the file called ‘SampleUtterances.txt’
f. Select all, copy
g. Paste in the ‘Sample Utterances’ box



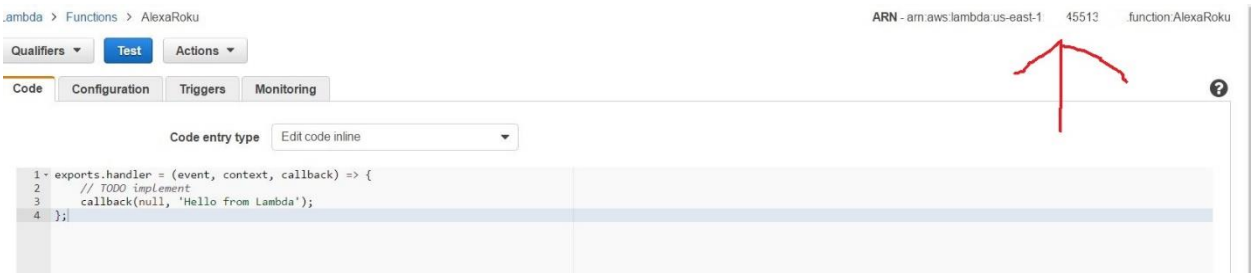
h. Click Next

22. You will then be brought to this page:



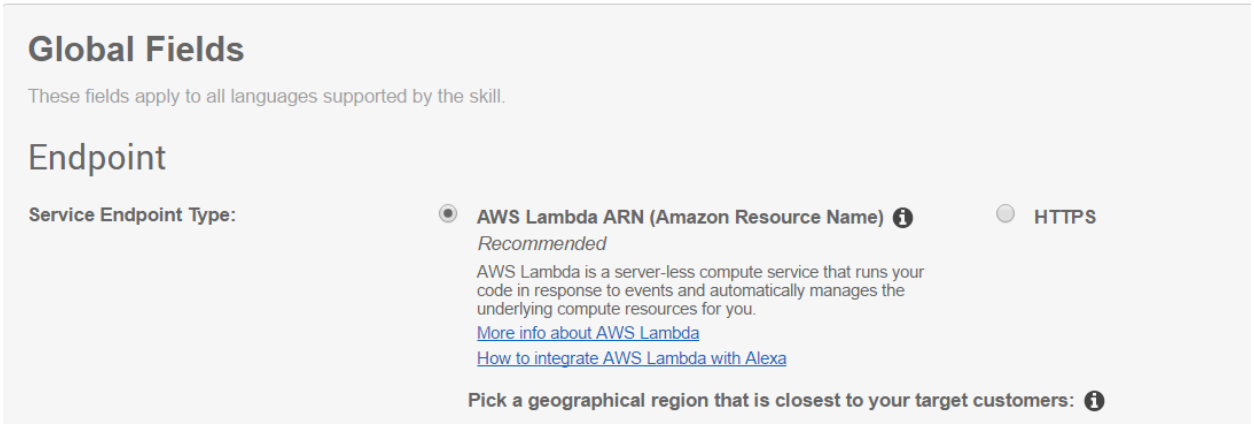
23. At this point, you want to open another browser tab or a separate browser (**LEAVE THIS PAGE OPEN).**
24. In the other tab, navigate to: http://aws.amazon.com (we are going back to the lambda function for something we need)
    a. In the top right, hit Sign in to the console
    b. Once arrived to the home page, search for Lambda (may already be showing in 'recently visited services') and click it.
        i. Same as what we did before
    c. You will now be brought to a page that should be showing your previously created function 'AlexaRoku' (or whatever you called it)

    d. Double click the function (anywhere on the line).
    e. This will bring you to the code page.
        i. In the top right of the page, you will see a bolded **ARN:** with a bunch of numbers and letters following (part of mine is blocked out due to security reasons):

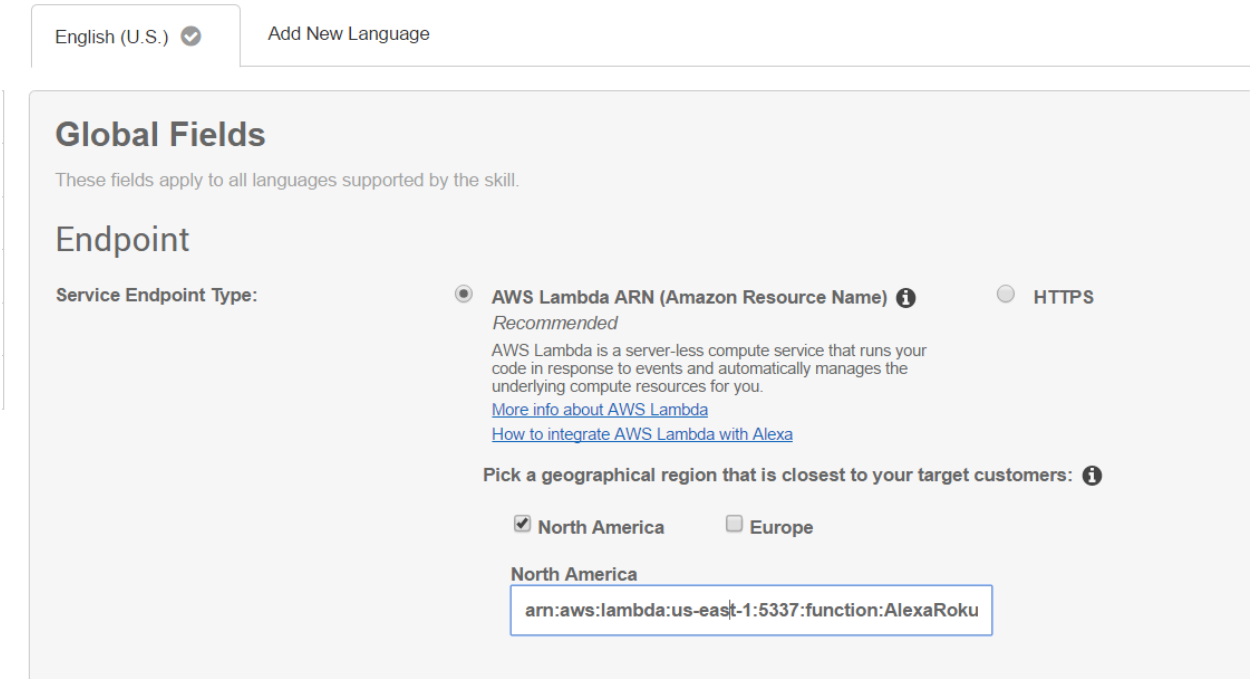


ii. Highlight and copy the full ARN address, starting with the *lowercase* 'arn' – for example: arn.aws.lambda.us-eas…….function:AlexaRoku and ending with the name of your function (in my example: 'AlexaRoku')

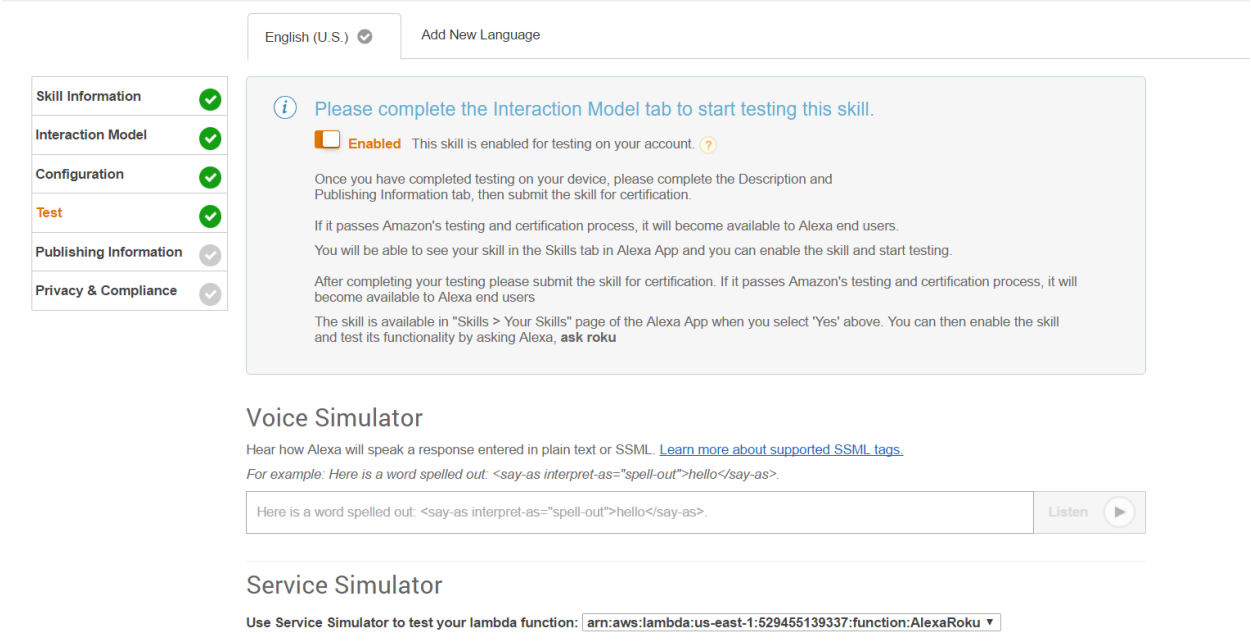
25. Head back to the original tab for the Amazon Developer Skill page (what we left doing a bit ago):



26. Now Choose AWS Lambda ARN (if not already selected)
27. Choose North America
28. In the box for North America that now appears, enter that arn address you just copied



29. Hit Next
    a. If correctly copied, it will bring you to the next page
    b. If you get an error at the bottom of the page, in red – you copied the arn address incorrectly – make sure to start with the lowercase arn and *no spaces* before the first character or after the final
30. At this point, you should come to the testing page and the first four options on the left should be check-marked in green:



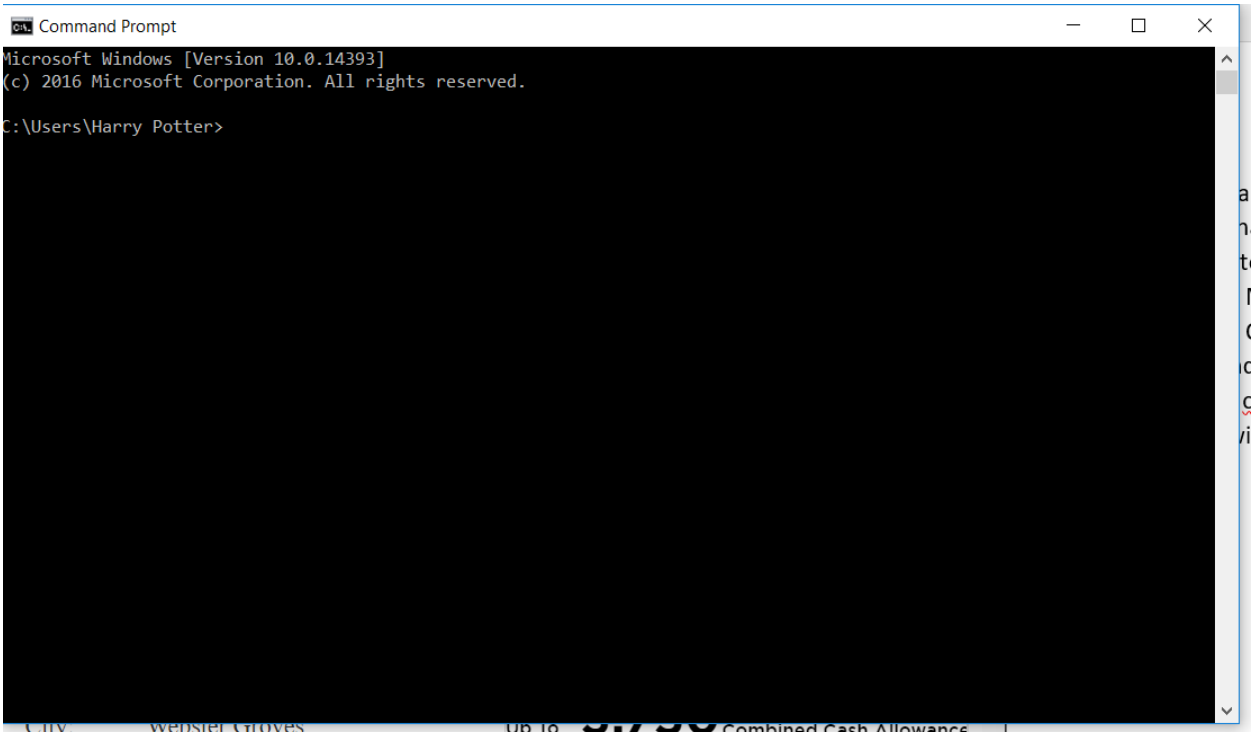
31. At the top left of the page, you will see 'back to All Skills'
    a. Click this.
    b. If it asks you to save, hit save – although it shouldn't, as it should have autosaved.
32. ***At this point, the skill on the Developer side of things is complete. You can never technically 'publish' the skill to the public, as it won't be approved – so you will remain in 'test' mode for your account, which is exactly what you want.***
33. We will come back to this page soon, though – to get your App ID number.

We will now install the Node server program and use the file to get a quick piece of information that will allow us to do the next step.

<u>At this point, we will want to set up port forwarding for your router to allow for Alexa to talk to your computer through the node server (which we will install later).</u>

This is not the absolute *safest* way of doing things, as it allows for access externally (if someone knew both your public IP and port number). There are thousands of port numbers, however – you are choosing whichever you want and that adds *some* level of security – but still not full-proof. Just want that pointed out.

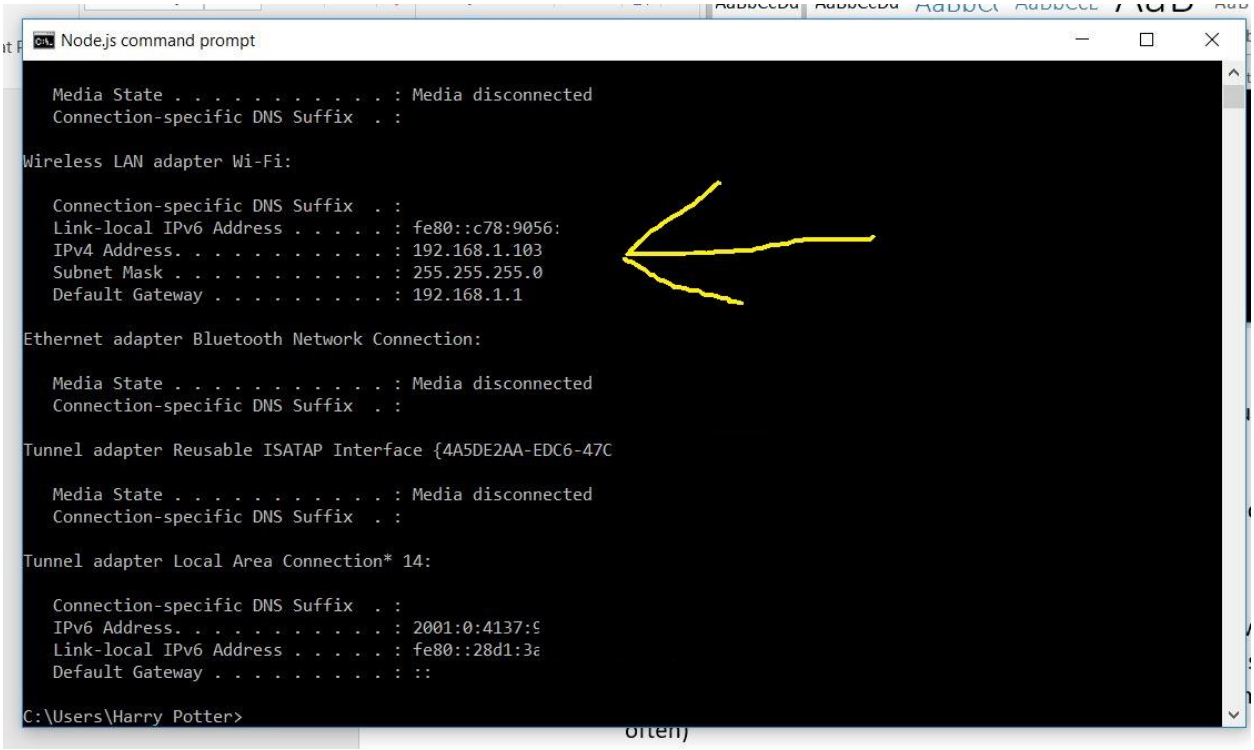
34. This part is a tad harder to explain for everyone universally, since their router may have different steps – but I will try.
    a. Head to http://www.whatismyip.com
        i. Make sure you don't have a VPN running during this time.
        ii. Copy or write down this address
    b. In Windows, head to the start menu on bottom left
    c. In the search part (at the bottom) - Type: cmd and choose the first option (will be 'Command Prompt')
    d. This will open up:



As you can see, I am fan of Harry Potter since I have named my computer that.

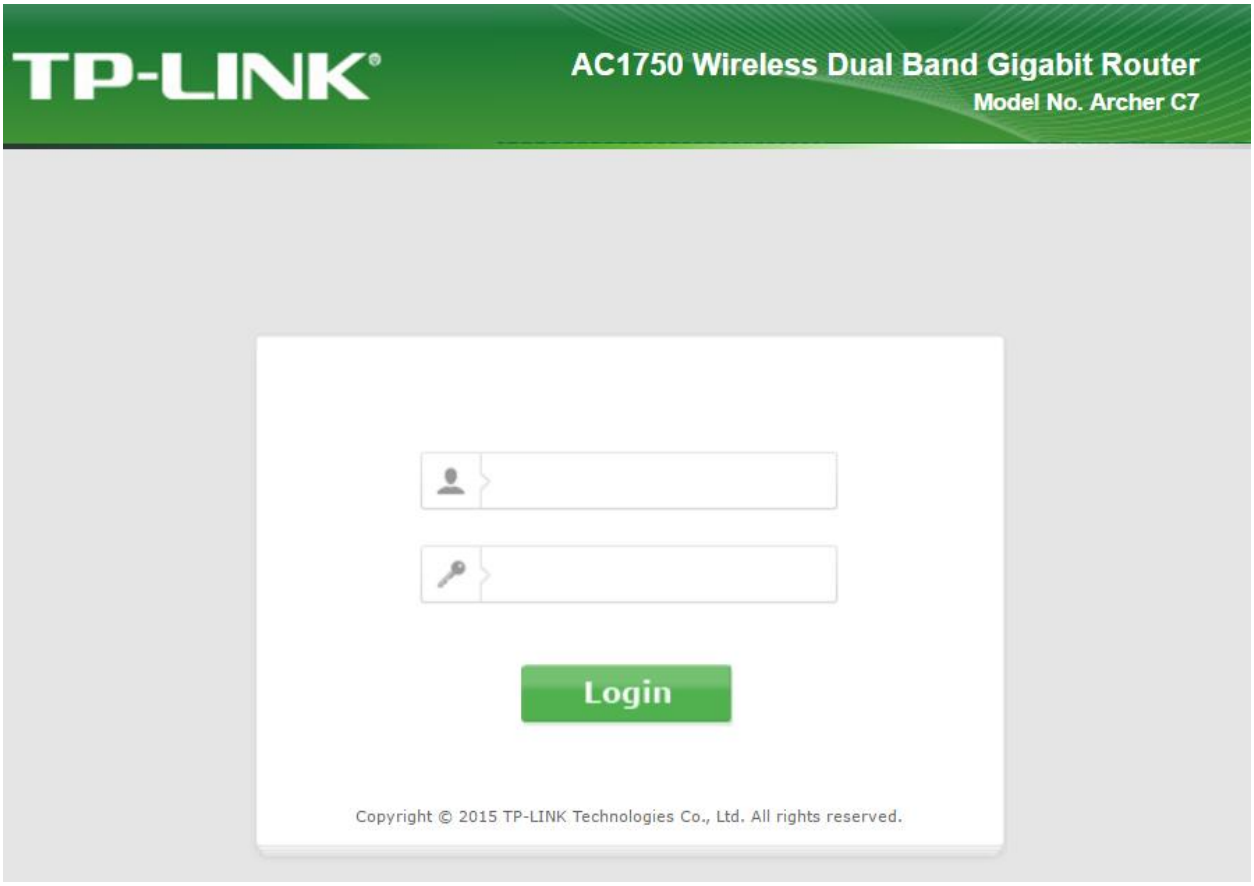
If you're not a fan of Harry Potter, you're not my friend and you should not be able to do this skill ☺.

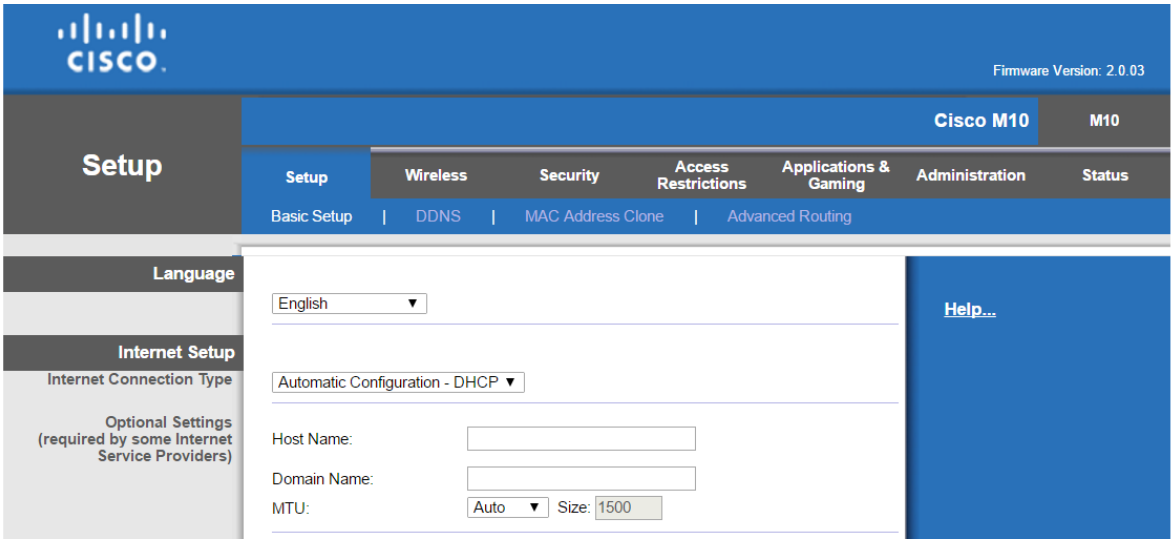
e. Type: ipconfig and hit enter
f. A list of items will appear….find the one with 'default gateway' and numbers next to it. It will likely be something along the lines of 192.168.0.1 or 192.168.1.1 (possibly others, but those are most often)



g. Write that number down.
h. Also write down the number next to IPv4 address (2 above Default Gateway). This will be very similar to the default gateway number above, but with a small difference in the final number.
i. Open a browser and type that first (default gateway) number in the web address bar and hit enter.
    i. For my example: it is 192.168.1.1
j. This will take you to the admin page of your router or internet gateway. My example below from TP-Link (yours will be different, based on brand/model).
    i. It is often password protected and hopefully you know this. If you've never accessed this, chances are it's the default for your router brand and model (google 'default admin login and password for xxxx xxxx router' and it usually comes up).

TP-Link takes you to a landing page where you enter a login. Cisco however, gives a pop-up asking for the login and password. You will get one of the two.

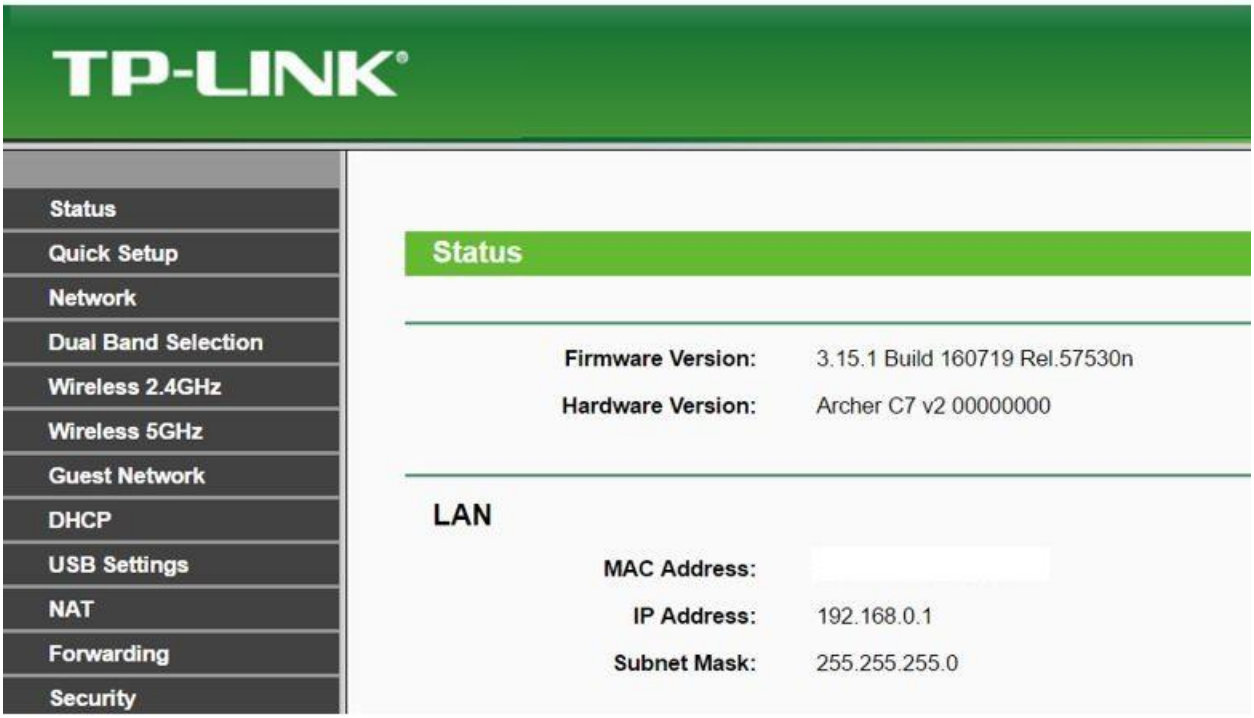




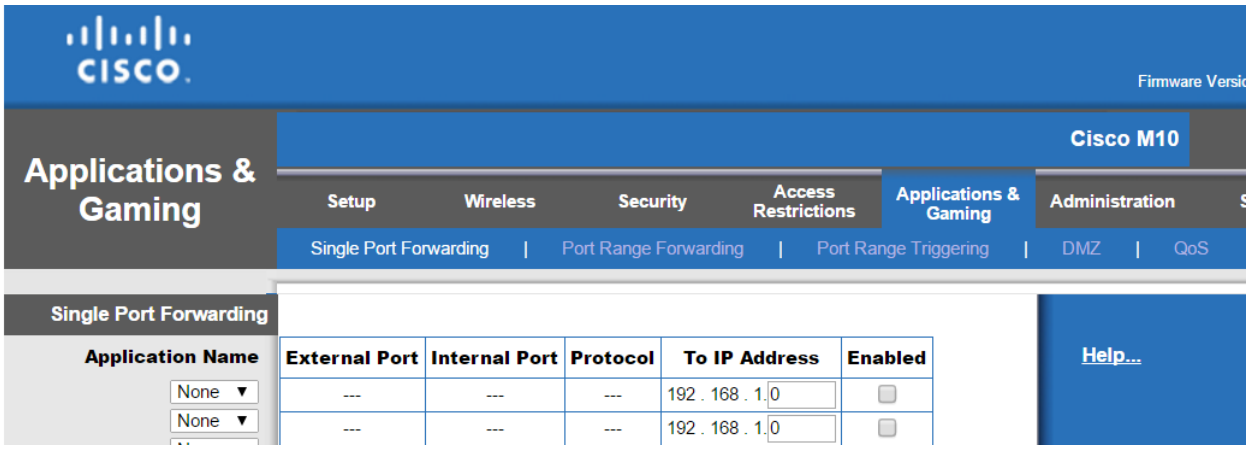
k. Once you log in,

You will come to a home page based on your router.

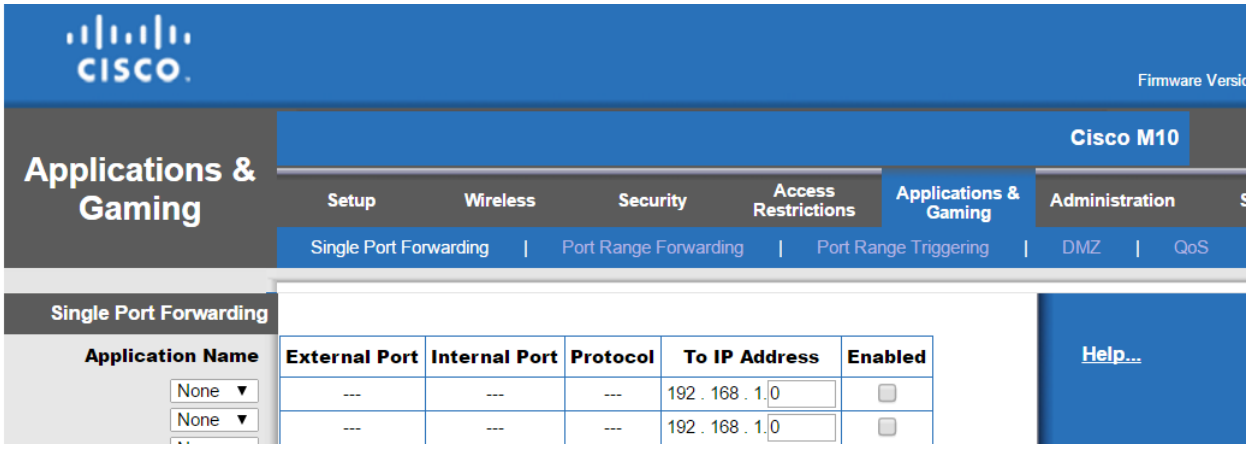
l. From there, you are looking for a ‘forwarding’ option.
m. Within Tp-Link, this is an option on the left



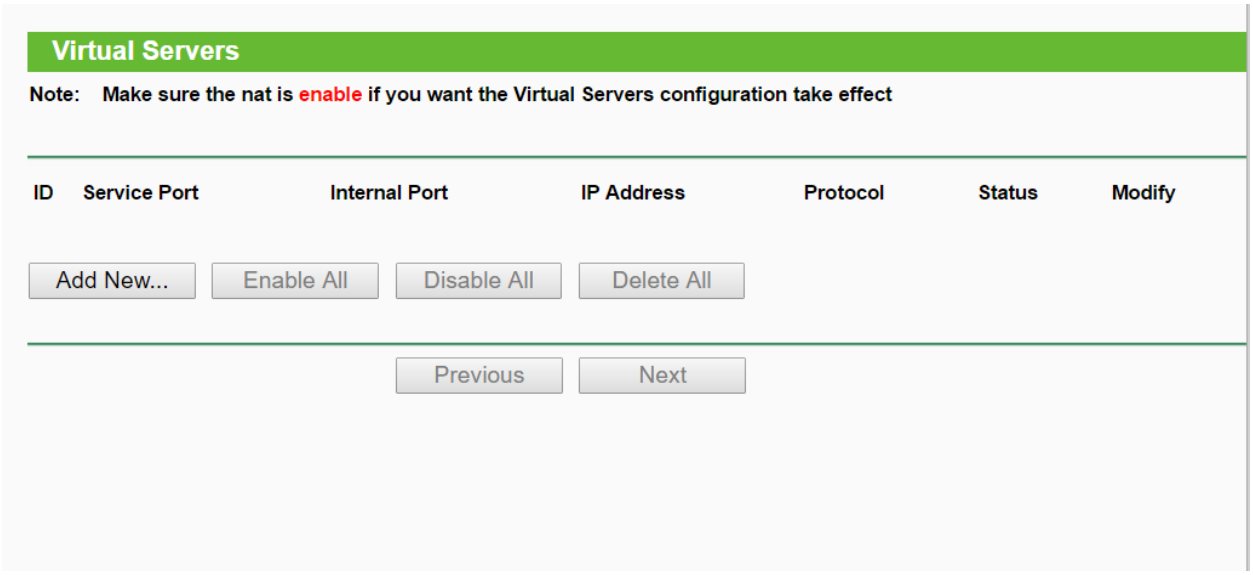
i. In Cisco however, it is within ‘Applications & Gaming’.



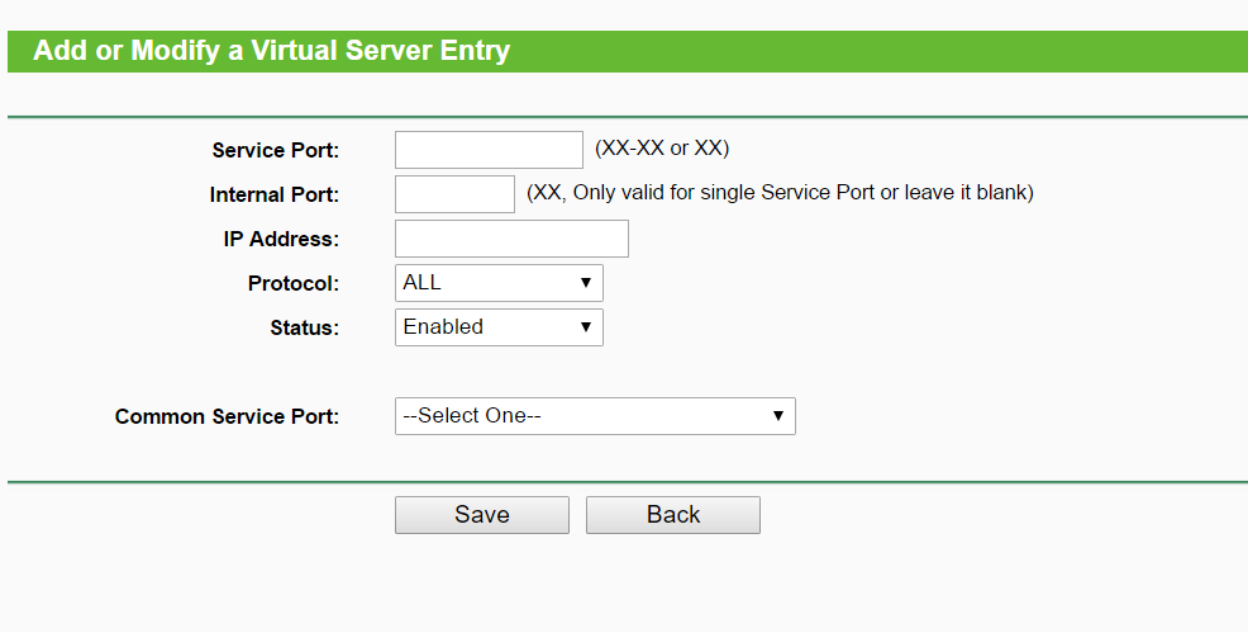
n. If you aren’t familiar, I’d either google or keep clicking through the options until you come across the section.
o. Once you find, it will look similar to this:



Or this:



p. You now are going to set up port forwarding for Alexa to be able to access your Node server (steps later on) and then the node server be able to send commands to the Roku
    i. You should have an option for External (or Service) port, Internal Port, Protocol and 'IP address' – see above for Cisco version, TP-link version below:



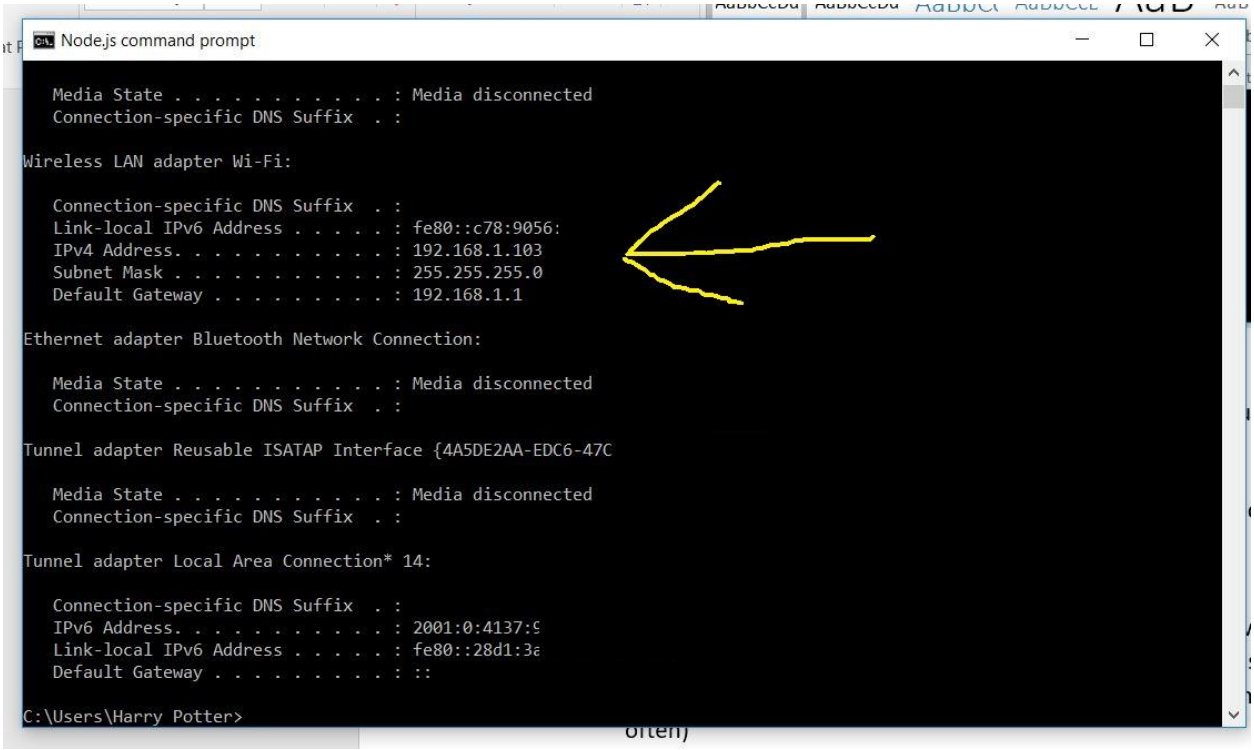
ii. In External/Service port, this is the port ***you*** choose

1. Here is a full list of TCP port numbers – there are thousands. I am not 100% positive, but pretty sure you can choose any one of them as your port number, so long as TCP is listed next to it - (this helps make it a bit more secure, since there are so many for someone to try to 'guess' or somehow get ahold of). https://en.wikipedia.org/wiki/List_of_TCP_and_UDP_port_numbers

iii. In internal port, if needed to be filled in, type the same port as external

iv. Finally, in IP – *you are typing the IP of the computer you will be running the node server on (we will do this part later).*

1. *This is the IP4V IP from above*

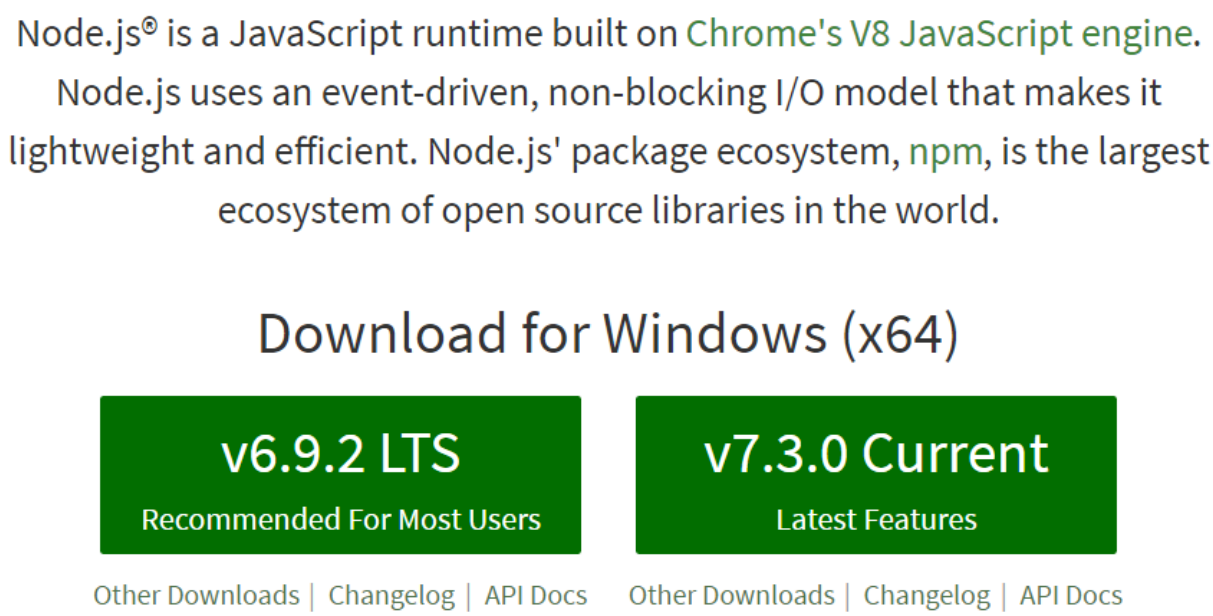


often)

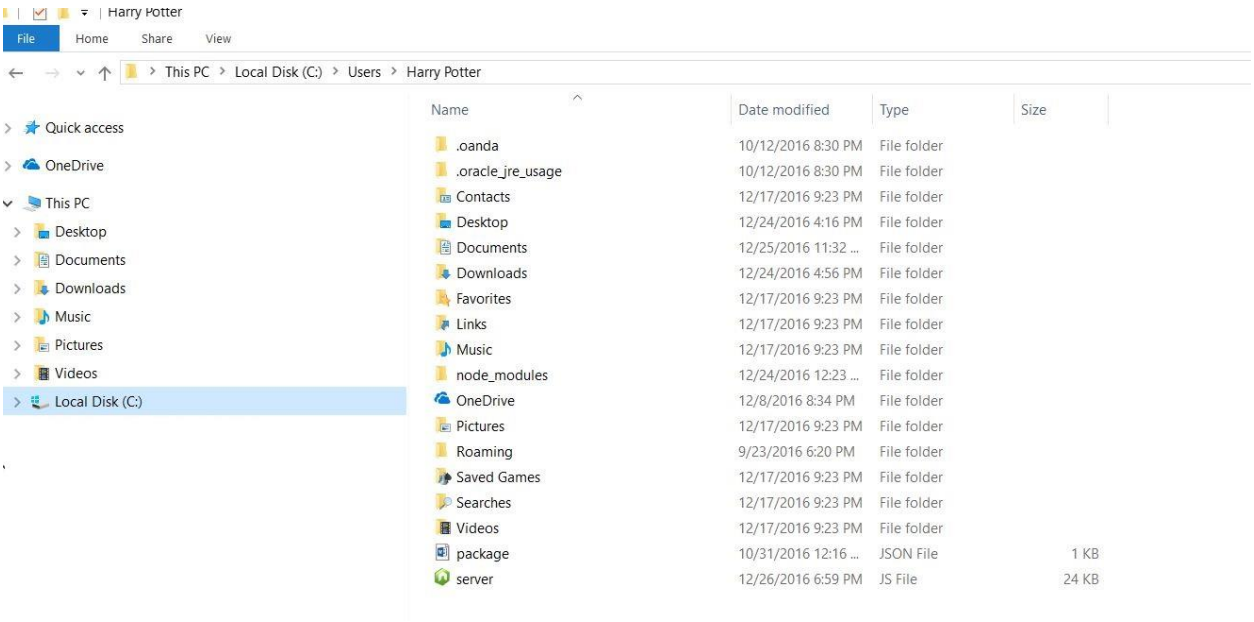
v. If you have the option to change ‘protocol’, set it to TCP – but leaving it as Both is also no issue (I have it set as both).

vi. Finally, hit ‘enable’ or save. This will now allow Alexa to talk to your computer.

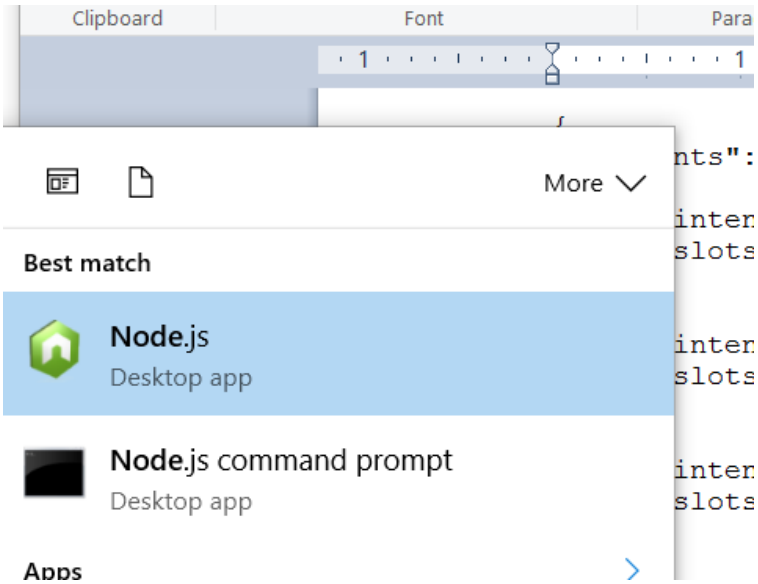
35. Now we can install the node server.
36. Head to http://www.nodejs.org
37. Download the current version with latest features (although ‘recommended’ version also works fine).



38. Open and install like any other program.
    a. Hit next all the way through (this is a clean install – nothing special is asked to be installed or something stupid – only installs the program).
    b. Now, we need to head to the files you downloaded from github, in the folder 'Node Server file for Computer'
        i. The two files, 'package' and 'server' need to be placed in your 'users' folder
        ii. For windows, this means: My Computer or This PC (depending on the Windows)
            1. Then Local Disk C:
            2. Then Users
            3. The choose the user folder you are currently on (most people are just one – it is the same as your computer name)
            4. Within that, folder, paste those two files.

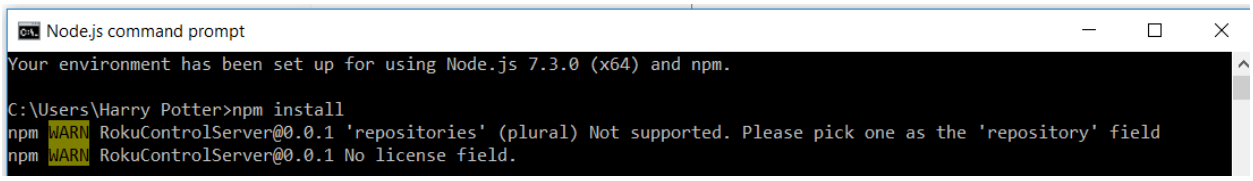


c. Once completed, go to Start Menu again, similar to how we have done for command prompt (search part at bottom)
    i. Search for node
        1. You will see multiple options
        2. Click on: Node.js command prompt

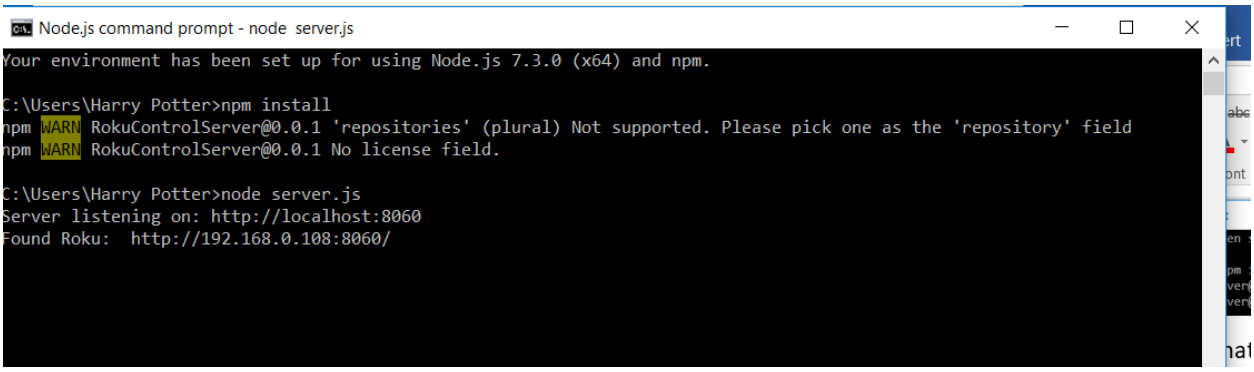


d. Once you open Node.js command prompt, it will look very similar to the command prompt you have been using.
e. Type : npm install
f. Hit enter

g. You should see this, so long as those files were copied to your user folder:



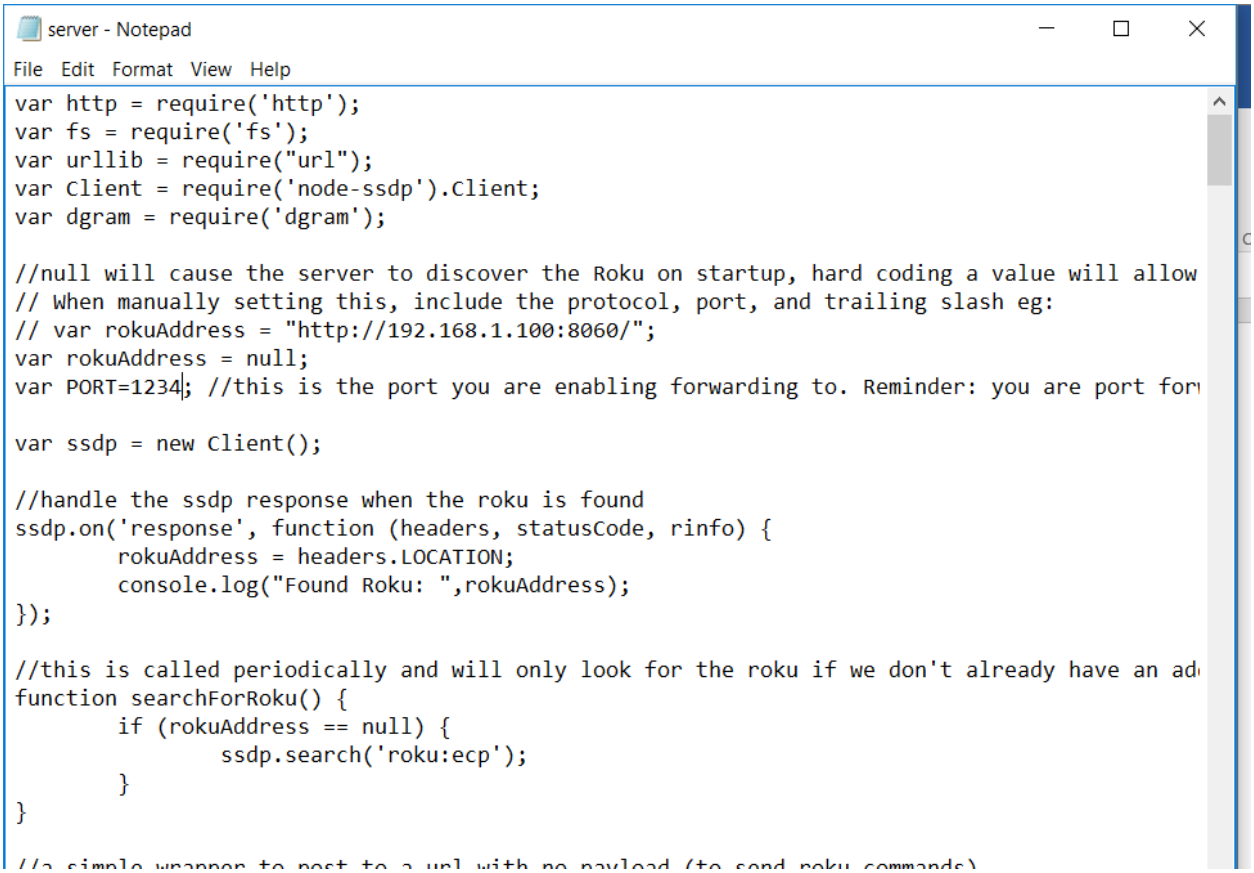
39. Leaving that command prompt open…for the sake of this being easy to narrow down….**<u>if you have more than one Roku….unplug all that you are not setting this up for!</u>**
    a. If you are wanting set up more than one, still do this – we will get to that later.
40. now type: node server.js
    a. You will now see something like this:



    b. This will show you the only roku you have plugged in and connected.
        i. If others are plugged in, it isn't *as* simple to know which IP belongs to which Roku
        ii. Plus, it saves steps in this guide to find out in another way☺
    c. Write down this IP address!

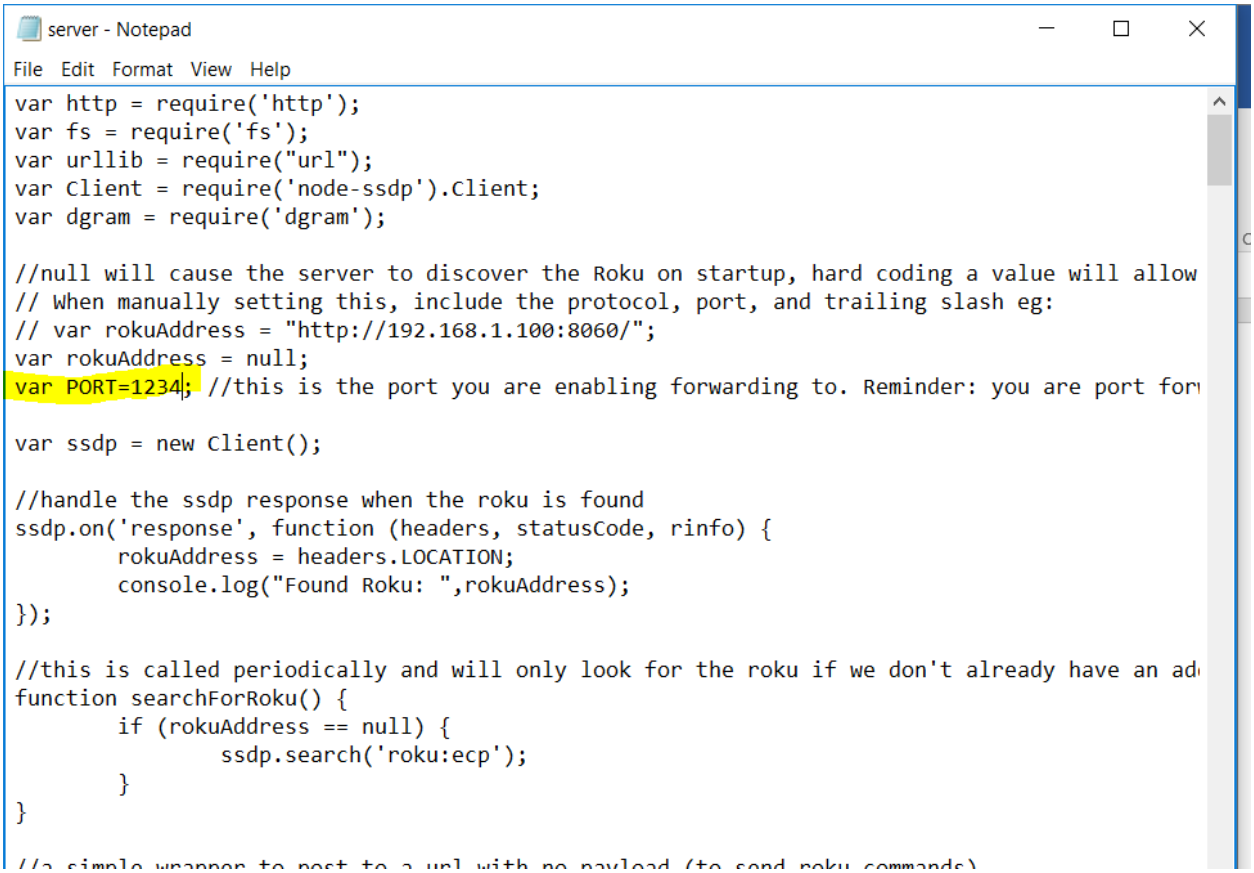
41. <u>Now…..let's head back to where you saved those two server files.</u>

42. Right click on the 'server.js' file and hit 'open with' and choose 'Notepad'
    a. You can choose something different than Notepad, if you know what we are doing, but everyone should have Notepad as a default.
    b. You will get something similar to this:

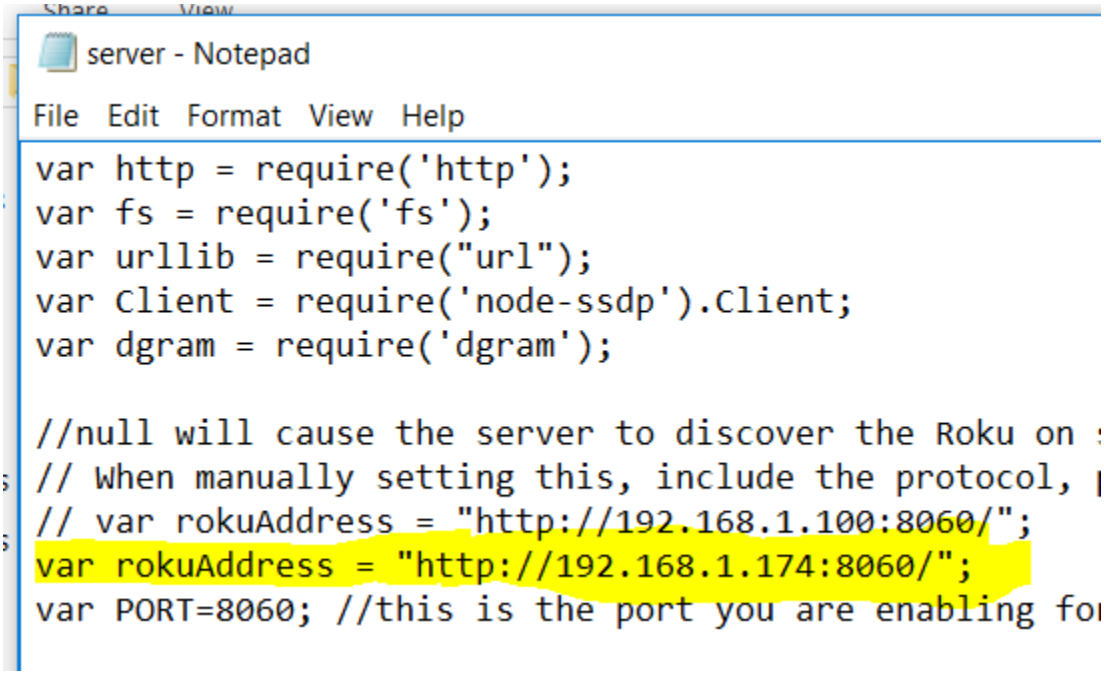


43. Remember that port you chose a few steps back?

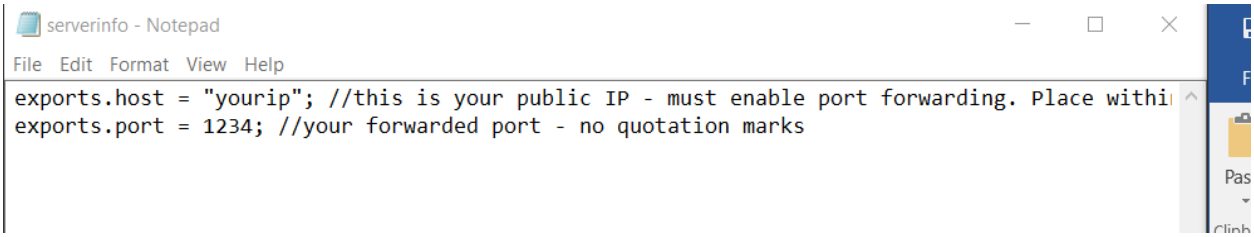
Change the number 1234 (highlighted yellow below) to your number:



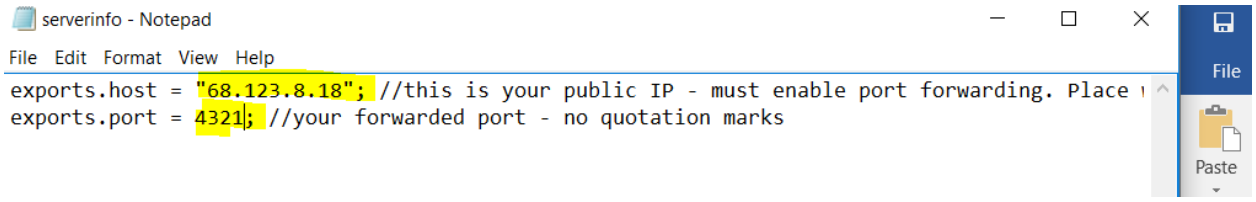
44. IF YOU ONLY HAVE ONE ROKU in your house, you can hit file, save and close out
    a. If you have multiple Rokus….we need to do one extra step.
    b. Remember that IP address you ***just*** wrote down? Under: “Found Roku: http://192.xxx.x.xxx?
    c. Next to var rokuAddress = null; change it to (WITH quotation makes) your IP address: (example): “http://192.168.0.108:8060/”
        i. Make sure to include the http:// AND the last / in the end – and all in quotation marks, as shown below:



45. If you only had one Roku, you can leave this as null and it will auto-find the Roku. The problem arises when you have multiple – you will want the specific IP address so it knows which one to send a command to.
46. Nowwwwwwww, let's go to the files you downloaded, the folder: "AWS Files – Lambda"
    a. Right click on the file 'serverinfo'
    b. Open with Notepad again
    c. You will see this:



    d. Replace "yourip" with the IP address you wrote down in the **very beginning** – from whatismyip.com
        i. This is your public IP. Leave OUT the http:// - ONLY the number
    e. For the second line, replace the numbers 1234 with the port YOU CHOSE!
    f. Something like below:



47. Go to file, hit save.

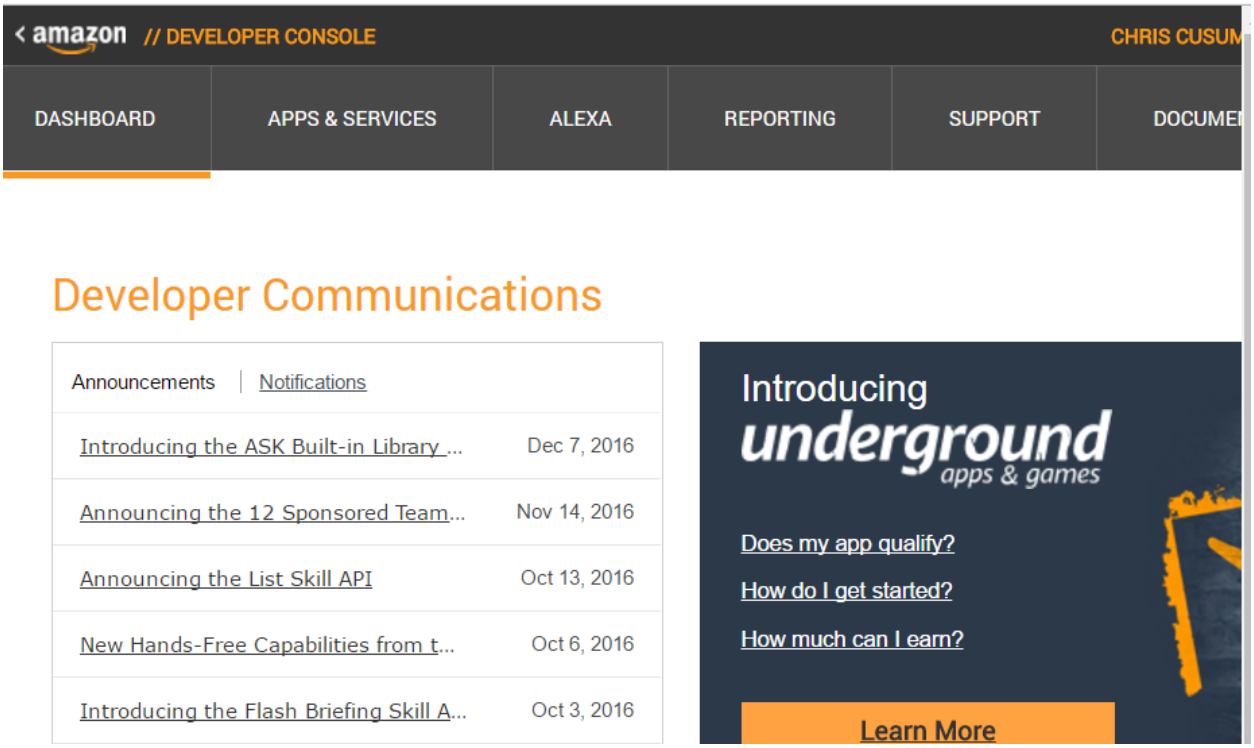
48. WE ARE ALMOST DONE!

49.In the same folder, “AWS Files – Lambda”

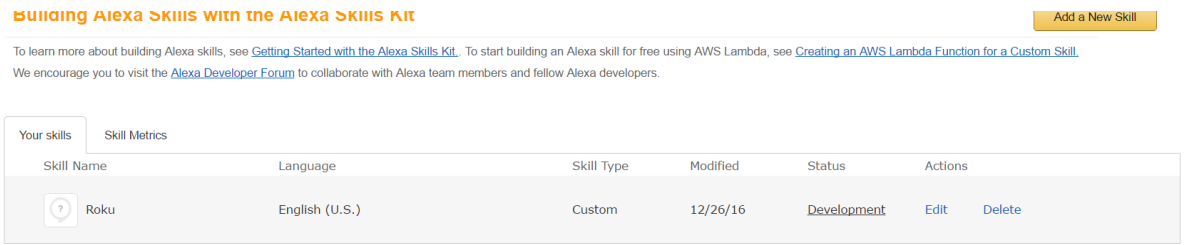
a. Right click ‘index’
b. ‘Open with’ notepad
c. You’ll see something like this:

50. This is where we head to the internet: http://developer.amazon.com

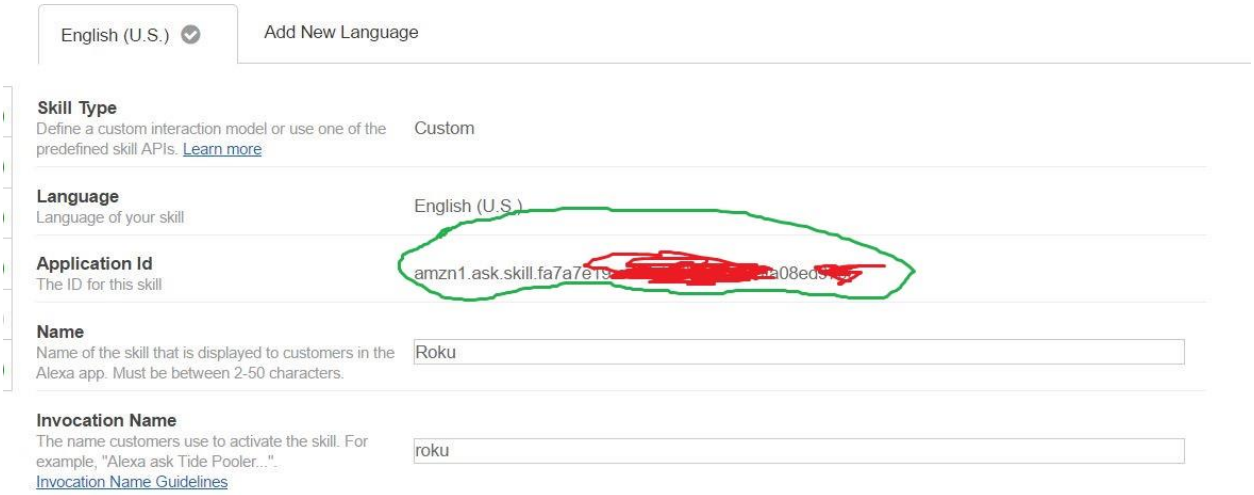
51. Top right, hit sign in and sign in
52. Similar to before, you should see Alexa at the top: click that.



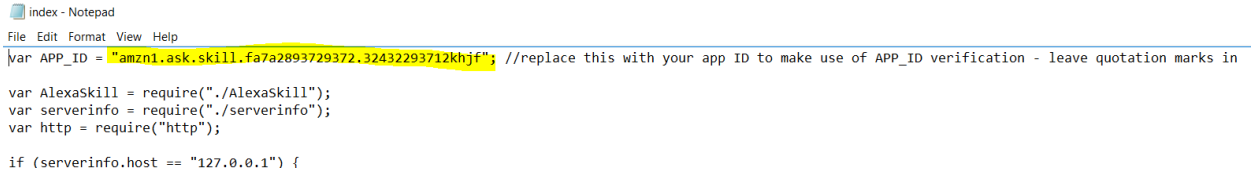
53. Click Get Started under Alexa Skills Kit
54. You should now see the skill you created in the beginning of this guide. Click that:



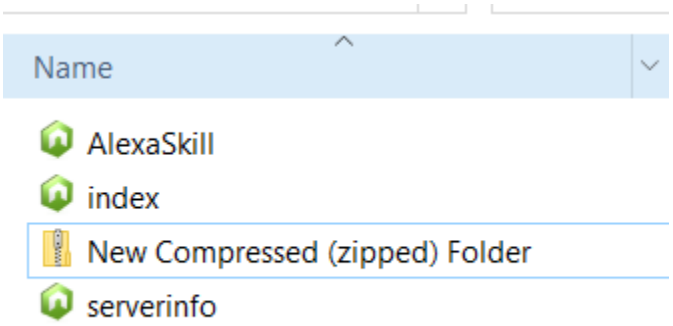
55. On the next page, you will see your 'Application Id'
    a. We need this for that index file you have open on your computer right now.
    b. Highlight it and copy (as circled in green below – some blocked out for privacy):



56. Head back to that index file in Notepad
57. In the very first line, next to var APP_ID = “, you need to paste your Application ID
    a. Make sure to leave quotation marks – but also, no spaces before or after the beginning ‘a’ and the last number.
    b. Example below:

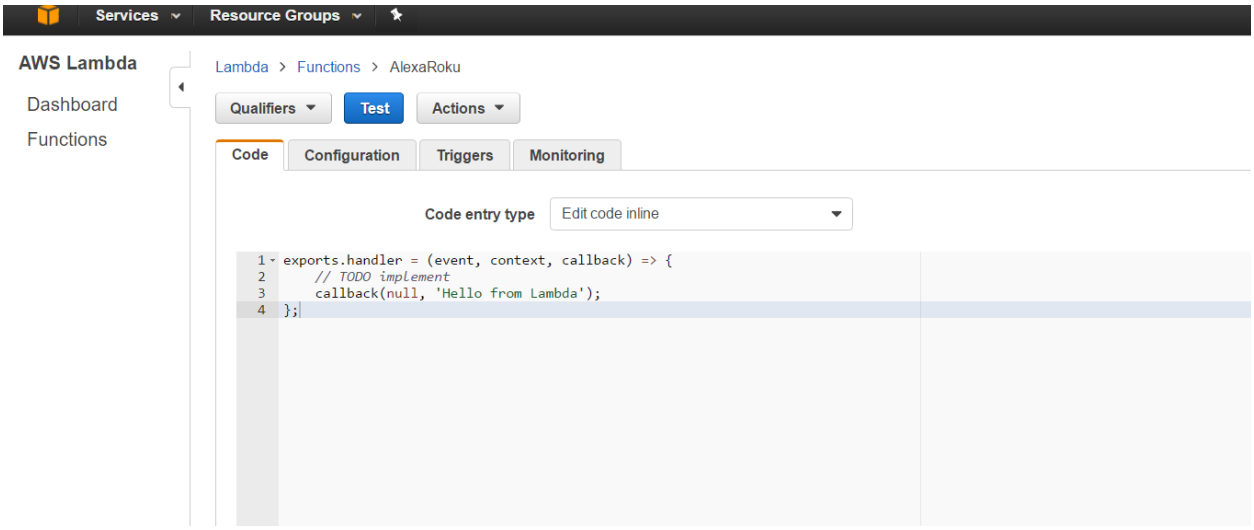


58. We are so closed to being down!
59. We now have all the files correctly edited so they are personalized to you.
60. In that same ‘AWS Files – Lambda’ folder
    a. Right click anywhere in that folder except for the files
    b. Hit ‘New’
    c. Selected ‘Compressed zip folder’
    d. A new folder-like (zip file) will appear

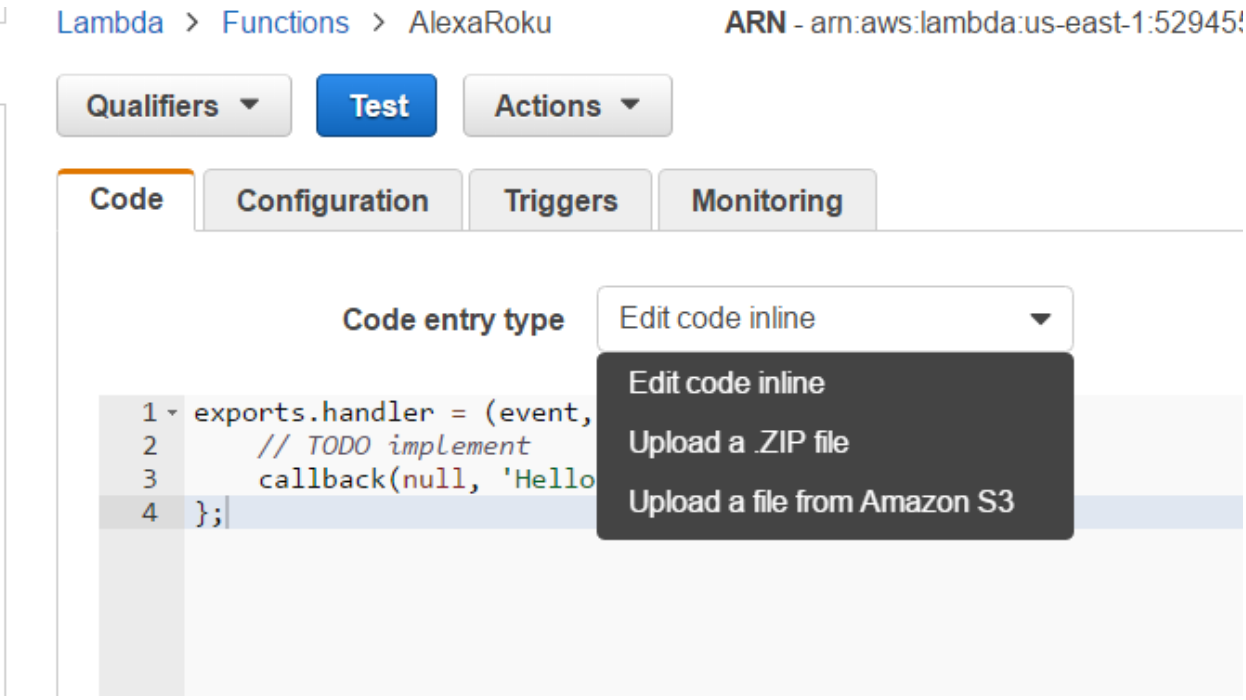


e. Move all 3 of the files into that new zip file (Serverinfo, Index, AlexaSkill)
    i. This will only copy them into it – not actually move them
f. Now click that file (New compressed (zipped) folder) to verify they are showing inside

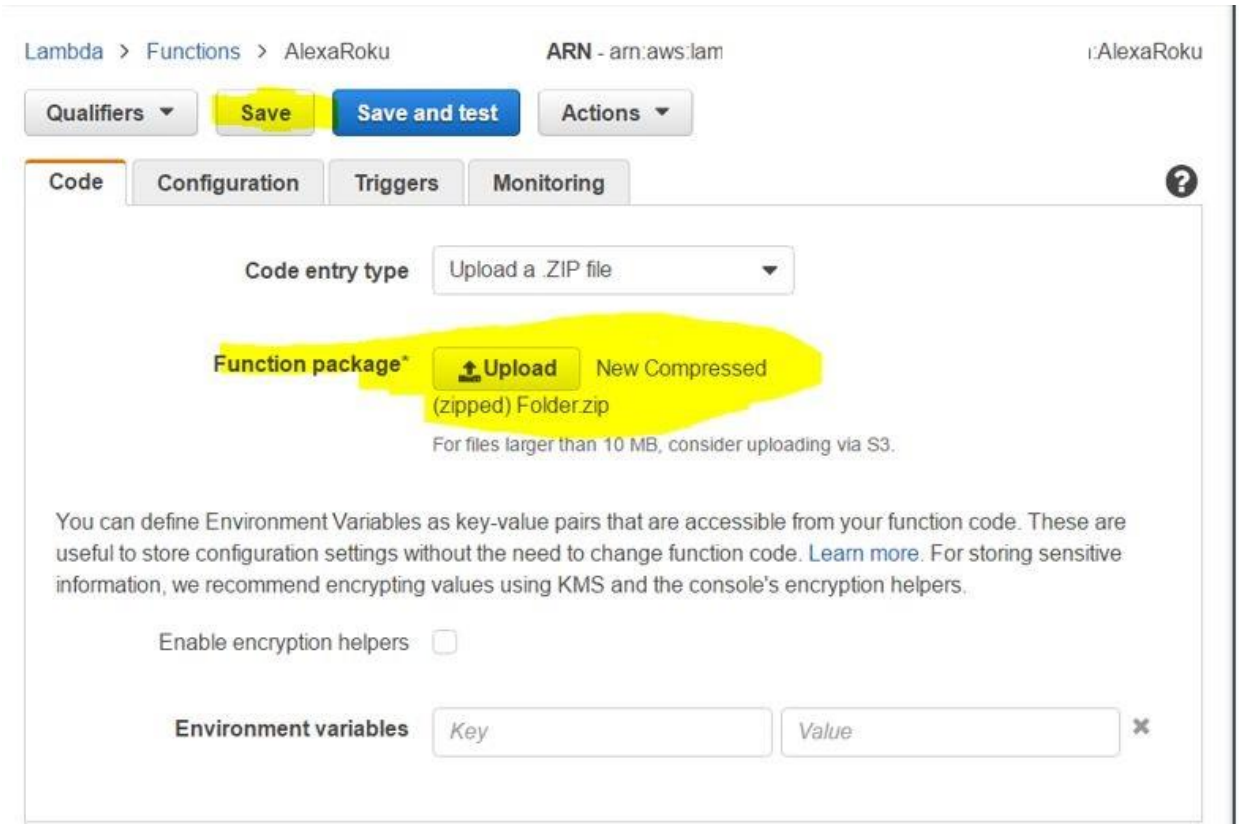
61. If all 3 are in that zip file, we are now ready to upload online and hit the final 'run'!
62. Head to https://aws.amazon.com (same place as our Lambda server)
    a. Top right, 'sign into console'
    b. Search for Lambda and select
    c. You should see the skill we created, select it (all like before)
    d. You will now be taken to their code page:



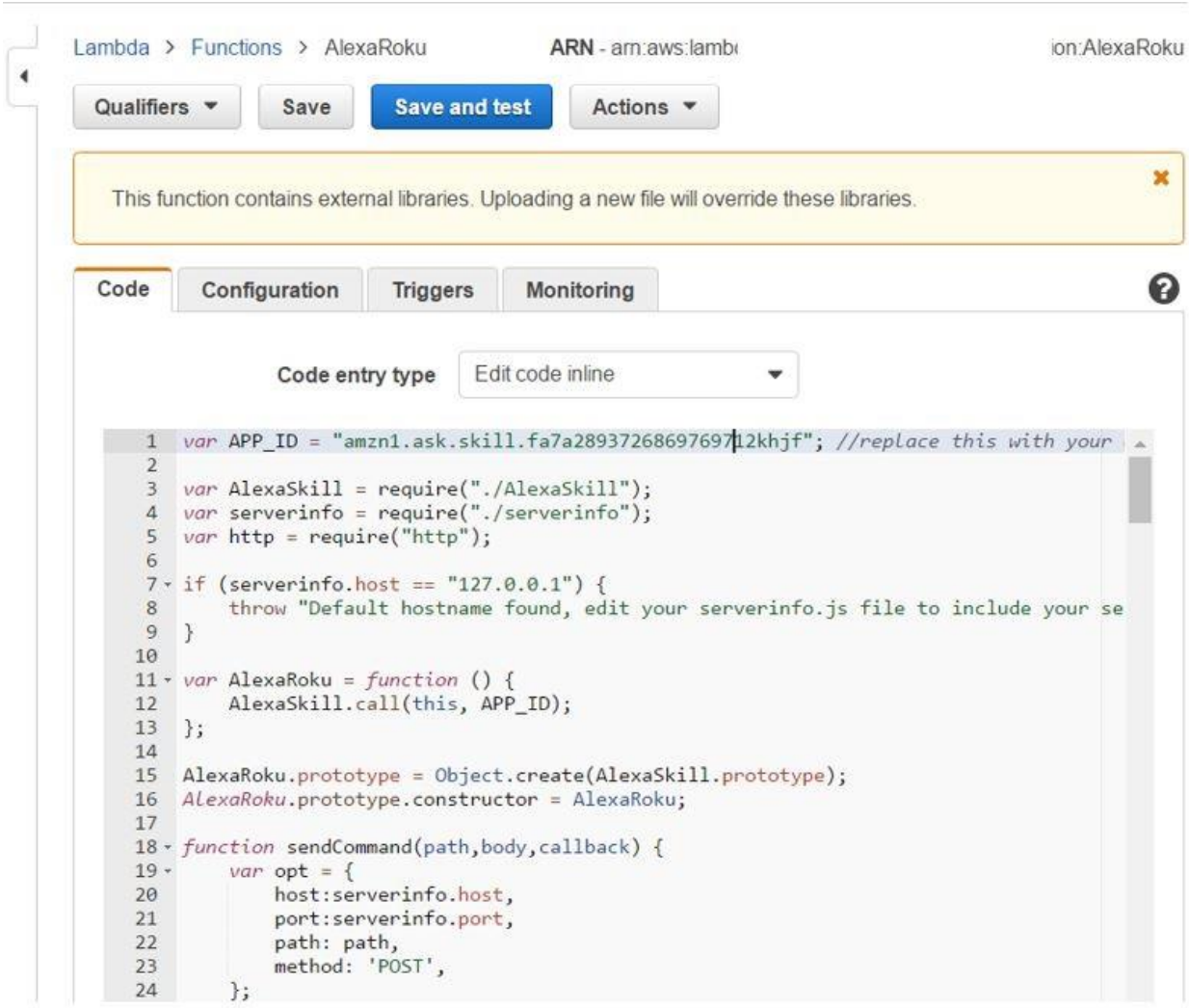
63. Under Code Entry type (drop down list right above the code box) – select it and choose 'upload a .ZIP file)



64. Hit the upload button and go to the zip file we just created (in the AWS – Lambda Server folder)!
65. Now hit Save at the top (Don't hit Save and test)

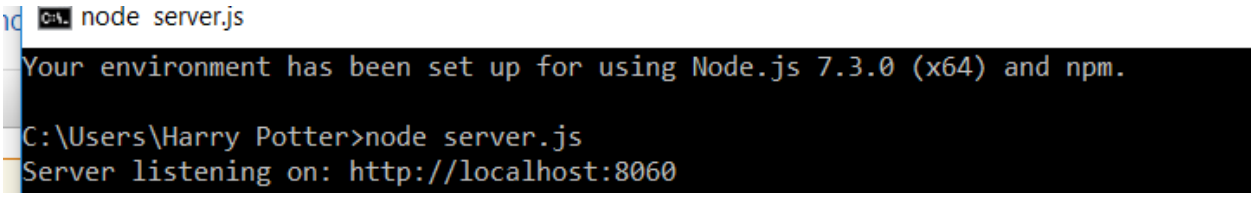


66.Your code should now appear like this:

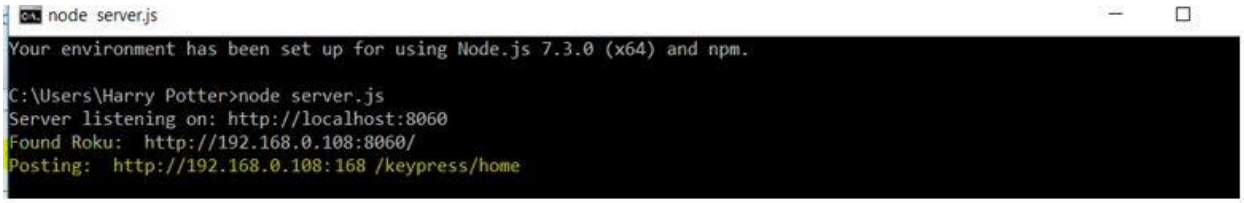


67. Finally, we are ready for the last step!
68. To be safe and ensure no other command prompt is running at this point, close all your programs.
69. Once this is done, head to the start menu, bottom right, and search ‘node’
70. Choose Node.js Command Prompt
71. Now type: node server.js

72. If all is well, you will still get this:



73. Now go test it…. 'Alexa, tell roku to go home'
74. **If Alexa says 'going home' and the Roku takes you home….Congrats, it is done ☺**
75. In addition, that command prompt file should show you the step it did:



Now enjoy….

A few caveats I have discovered….

1. If you make a command and the Roku is turned off or disconnected, the node server gives an error and disconnects. You MUST open back up and type: node server.js (and hit enter) to get it going again. Will check a way to make that auto-reconnect….but for now.
2. If you want more than one Roku….you will need to do this method for each Roku, using a different 'Invocation name' (step 20 for reference) to call it.
    a. I have not tested this, but don't see why it shouldn't work.
3. If you leave the 'server' file IP address line as 'null' (in your windows 'users' folder – steps 44-45) and you have more than one Roku connected, it likely will try to control them all or error out (have not tested).
4. If you get an error or something isn't working in these steps
    a. It is likely one of the reasons:
        i. The ARN ID wasn't correctly copied over to the Alexa Skill Developer website
        ii. The App ID wasn't correctly copied into the server file
        iii. Your IP address isn't correctly forwarded

iv. The IP address or port number used in the Server or serverinfo file is not correctly inputted.

Remember, you MUST always say 'Alexa, Tell Roku……' for it to begin the skill.

If you want to know the commands to invoke a specific function, reopen that 'Sample Utterances' file we opened earlier. The function names are mostly self-explanatory – so just see what the examples are right next to them to know how to get a specific function: