



Lab 1 Huzzah Device Setup

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This lab will setup the Huzzah device using the Arduino IDE and read from the DHT sensor.

If you have already completed the “Blink” preconfigured document, skip to step 11.

If you have any issues or concerns, please email: virtualbootcamphelp@microsoft.com.

Execution Time: 30 minutes.

Required Hardware:

- Windows 10 PC
- IoT Hardware kit: <https://www.adafruit.com/product/3605> or similar hardware.
- Access to a WiFi network (without a captive portal aka web page login)

Required Operating System:

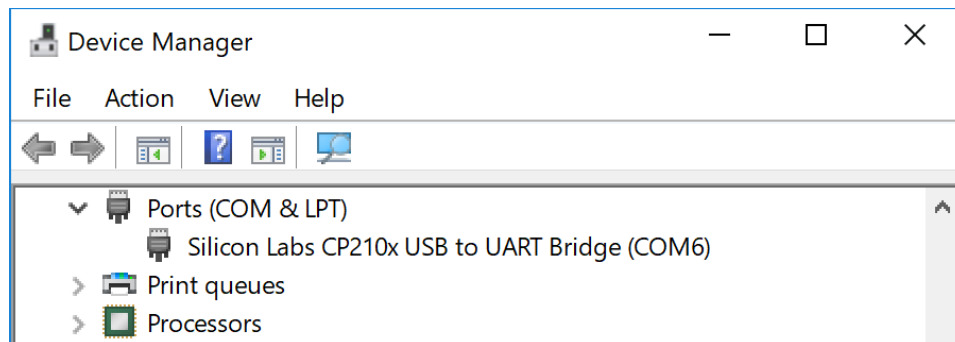
- Windows 10

Required Software:

Software	Size	Installation URL
Arduino IDE (not the Web Edition)	90 MB	https://www.arduino.cc/download_handler.php?f=/arduino-1.8.5-windows.exe

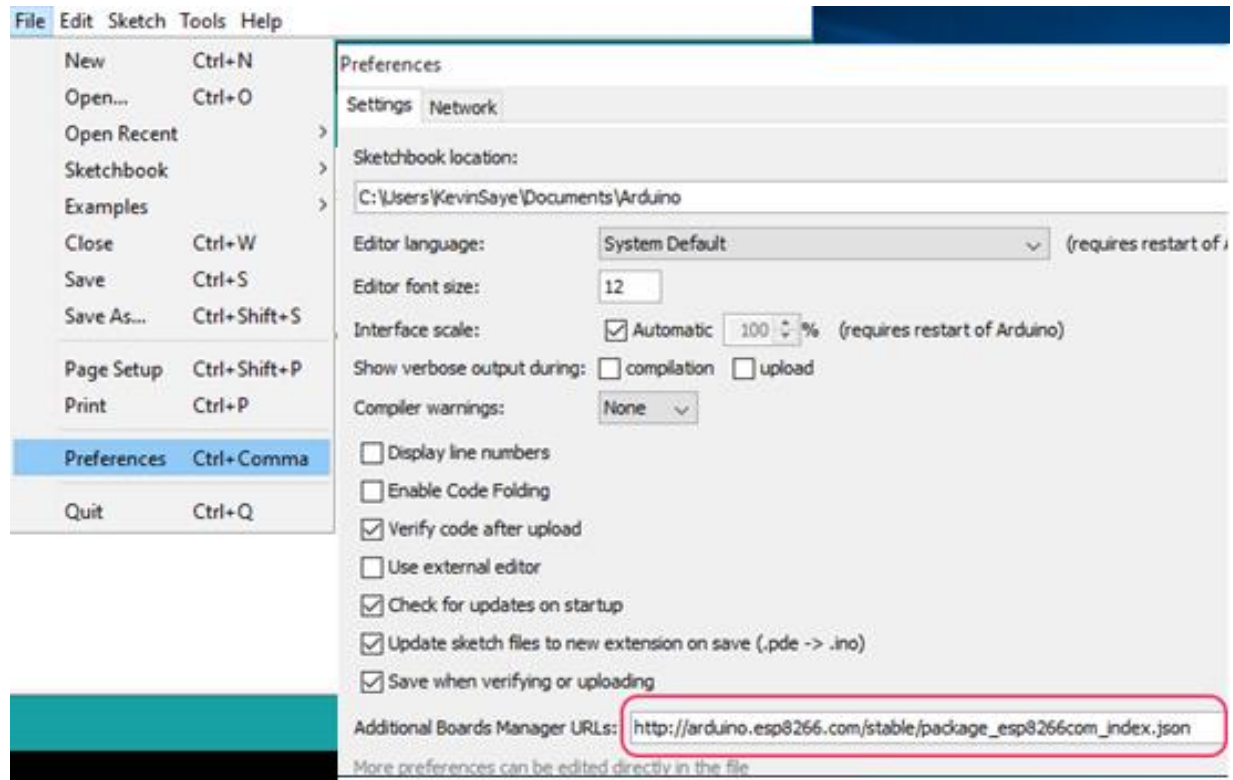
Step 1. Install Arduino from the URL above. Install the IDE – Windows Installer, not the Web Edition.

Step 2. After installing Arduino, plug in the Huzzah or similar ESP8266 device via the USB Micro cable. Windows should detect it as a new COM Port, as shown below:

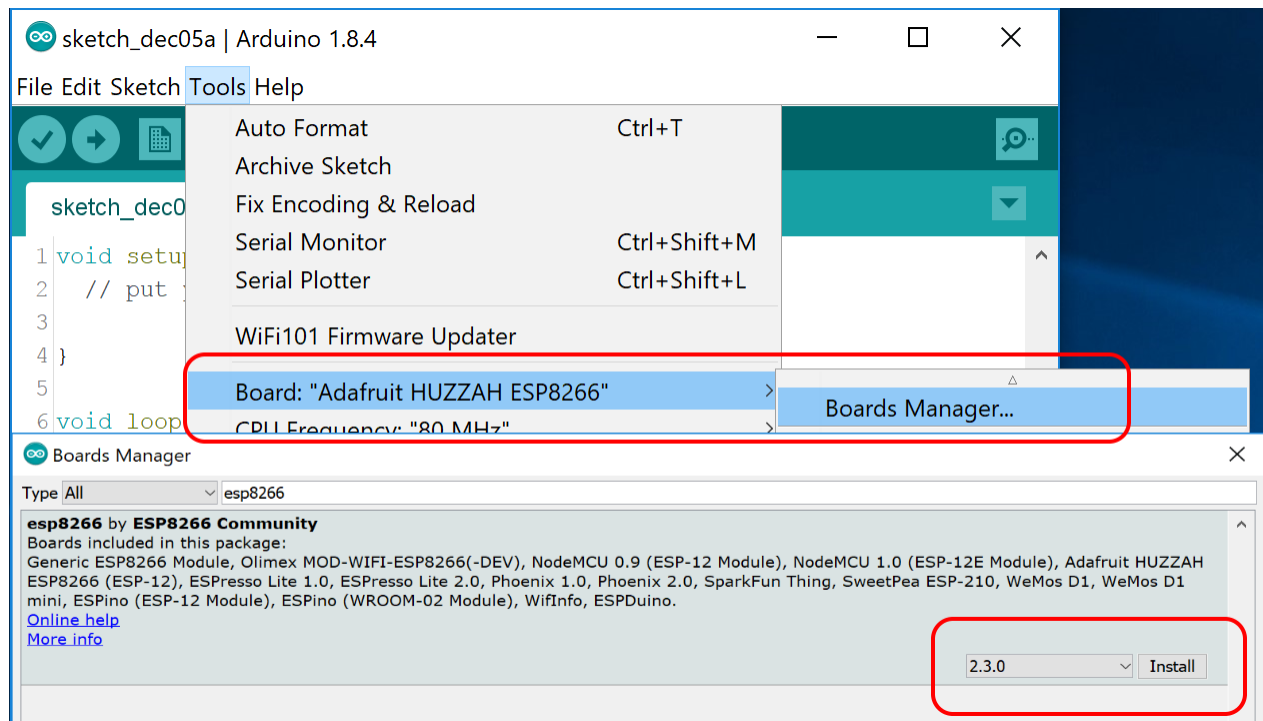


Step 3. Start Arduino and select File → Preferences. Type:

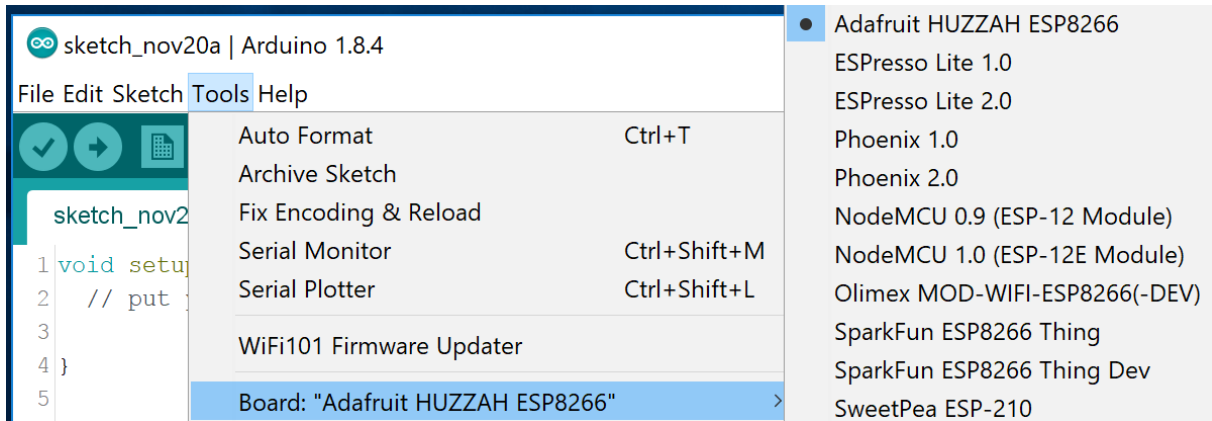
http://arduino.esp8266.com/stable/package_esp8266com_index.json in the Additional Boards Manager dialog, as shown below.



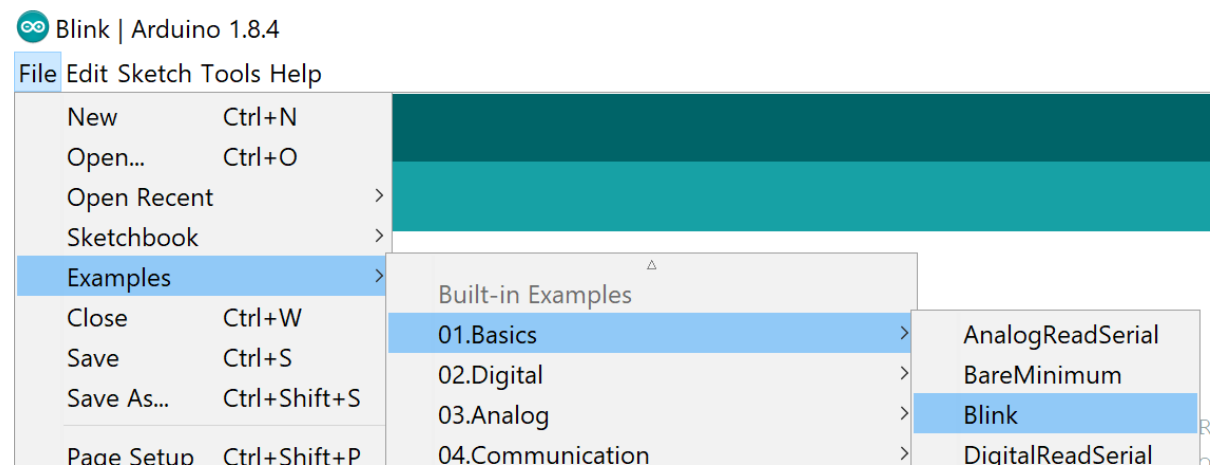
Step 4. Select Tools → Boards → Boards Manager and search for **esp8266**. Install the latest version (about 150 MB download) as shown below. If you do not find the ESP8266 board, verify the URL in step 3.



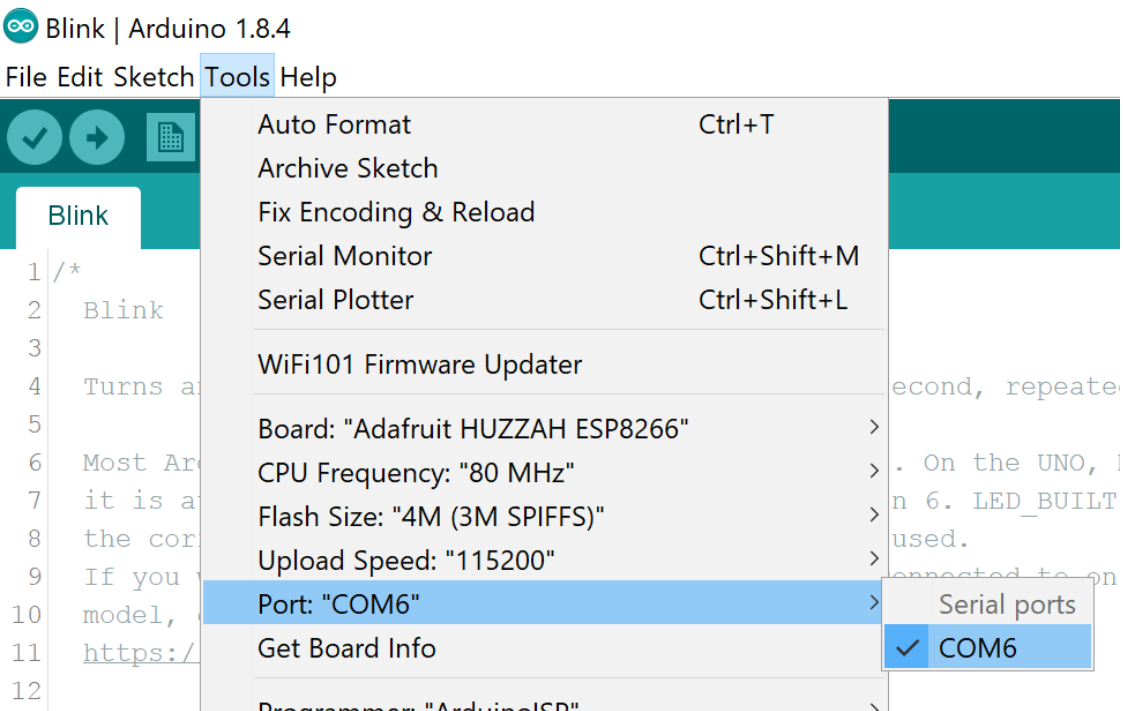
Step 5. Select Tools → Board and select the Adafruit HUZZAH or your specific board as shown below.



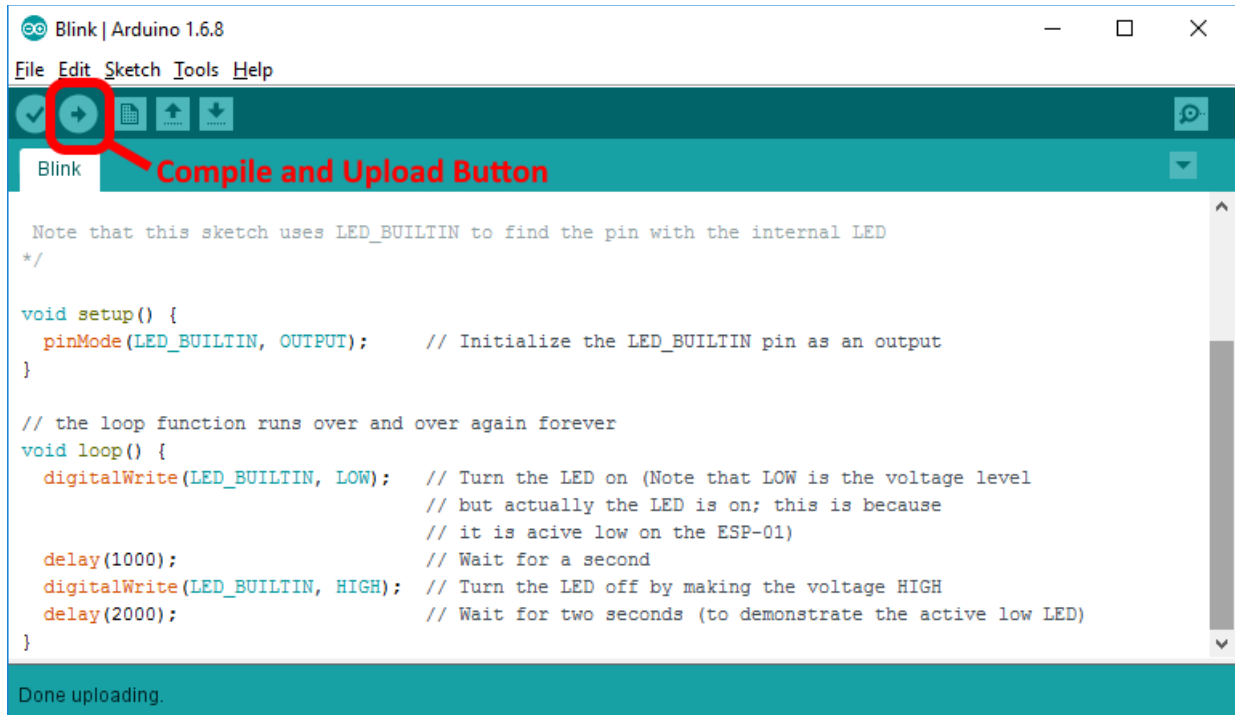
Step 6. Select File → Examples → 01.Basic → Blink to create the "Blink" example, as shown below.



Step 7. Select Tools → Port and select the new port as shown below.

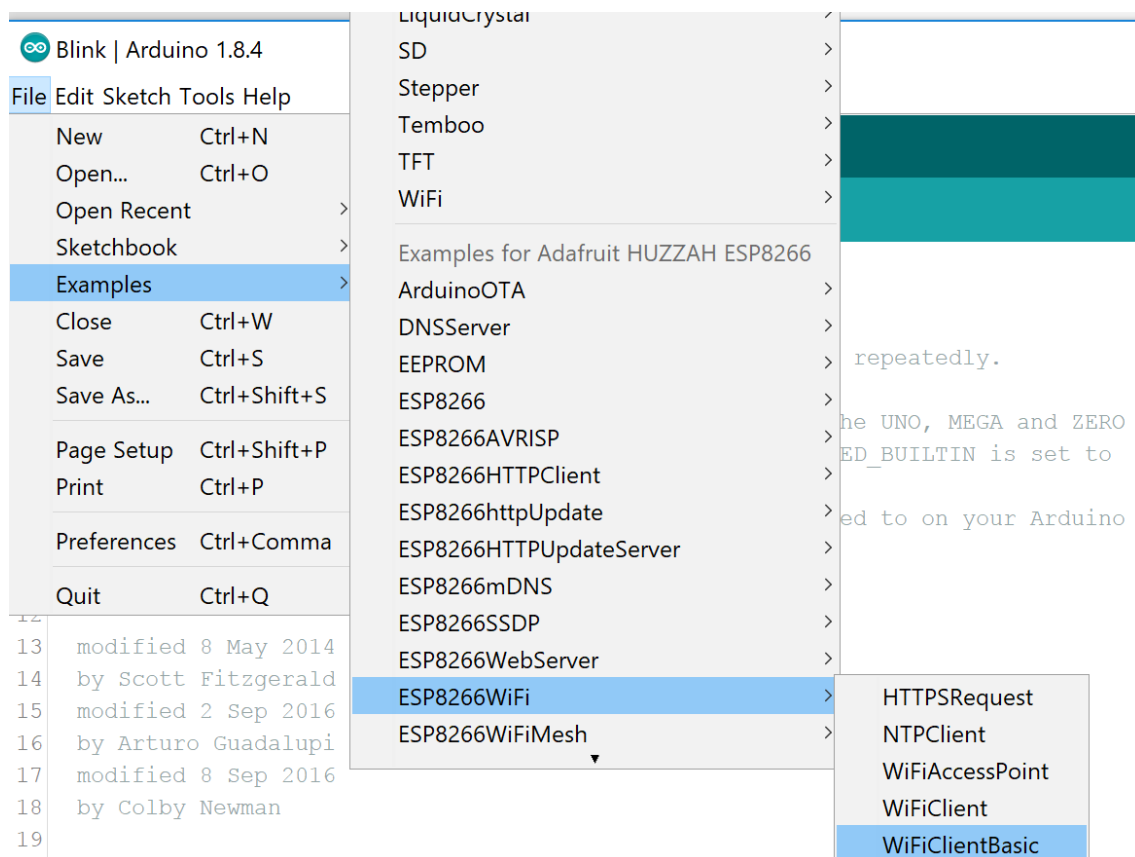


Step 8. Click the “Compile and Upload” button as shown below, and your device should have a slow red blink.

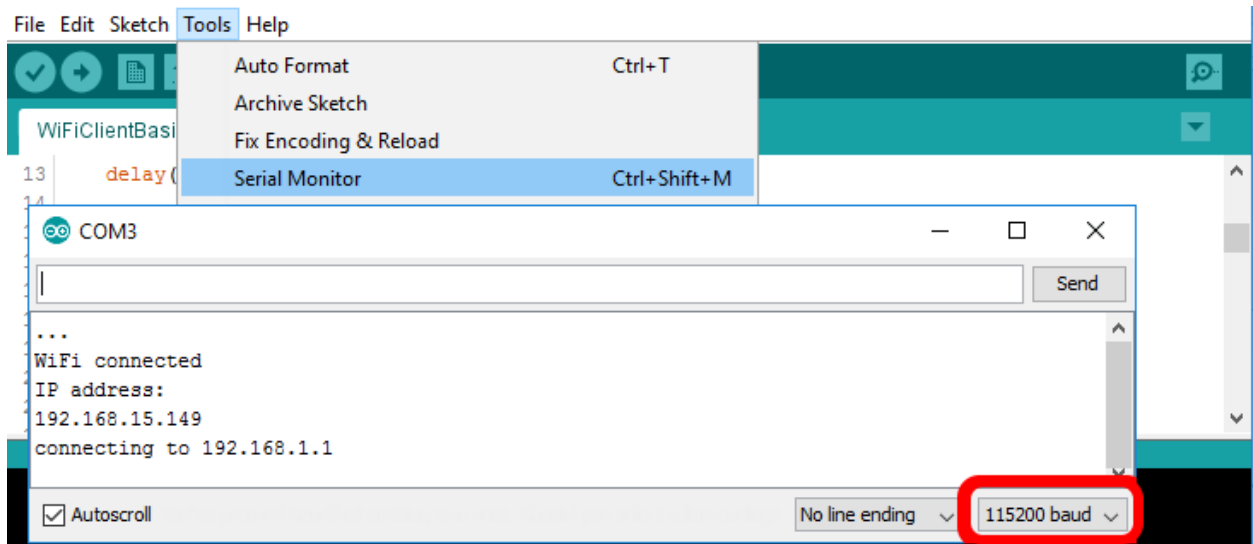


Step 9. Next, create a new example, using the “WiFiClientBasic” under ESP8266 WiFi. Change the SSID and Password on line 16 and then click the “Compile and Upload” button as before.

Note: The example sketch tries to connect to 192.168.1.1, which may not be accessible on your network. You can change the IP on line 38 to ‘www.msn.com’ if desired.

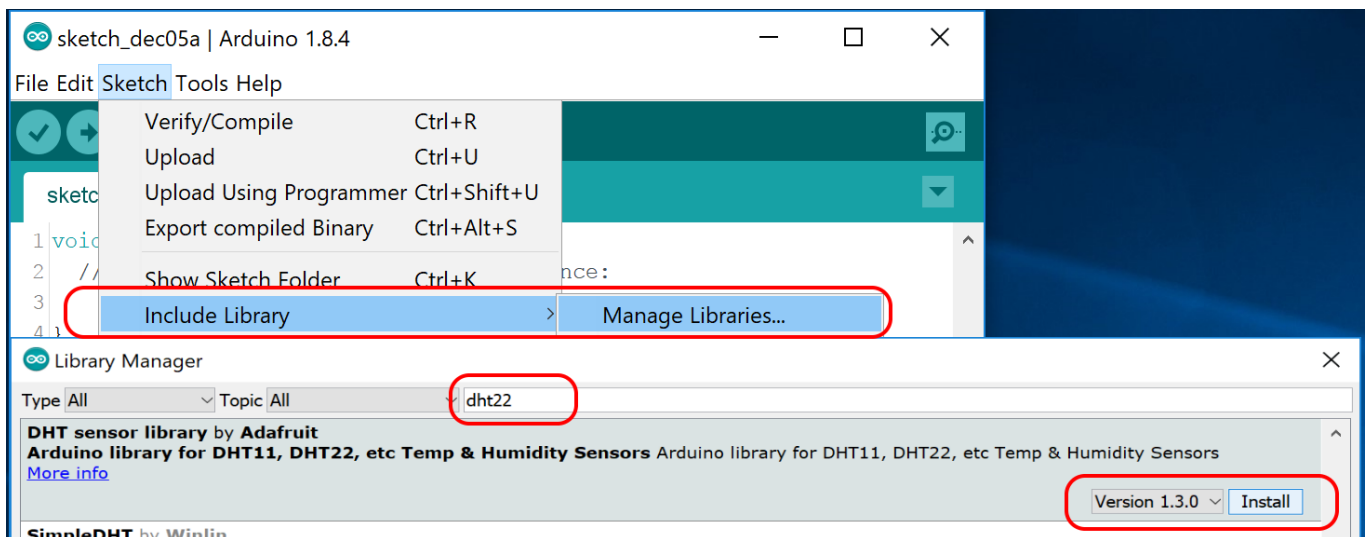


Step 10. When the upload is complete, select Tools → Serial Monitor to view the output by the sketch. You may have to change the baud rate to 115200, as shown below. If successful, the device will have an IP address, as shown below. This verifies the device has an IP Address provided by the WiFi Access Point.

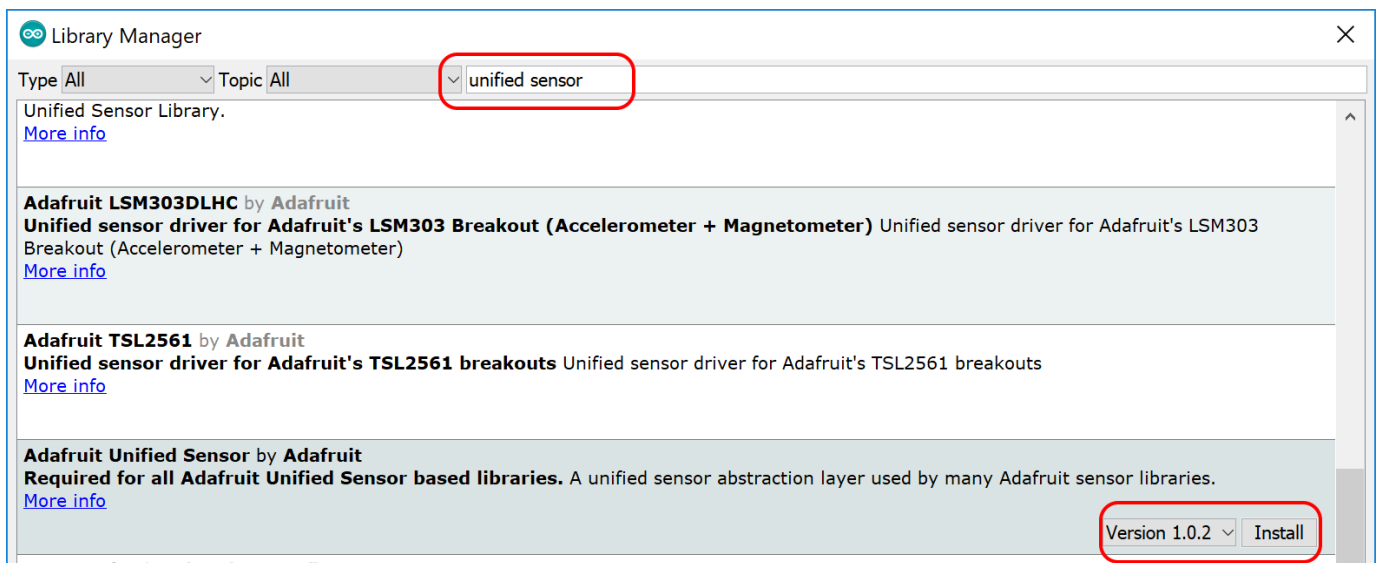


Close the serial monitor when verified.

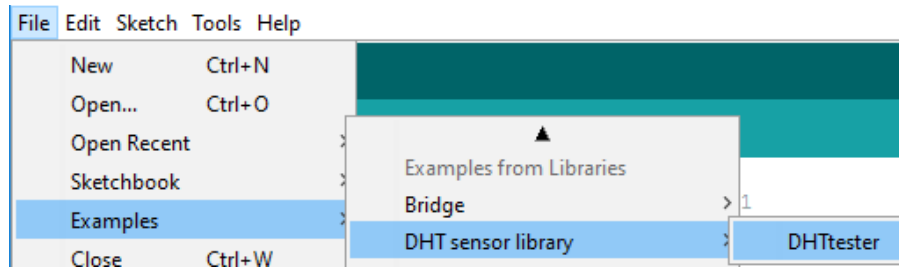
Step 11. Next we will use a digital thermometer sensor. For this, click Sketch → Include Library → Manage Libraries. Search for **dht22** and install the latest library provided by **Adafruit**, as shown below:



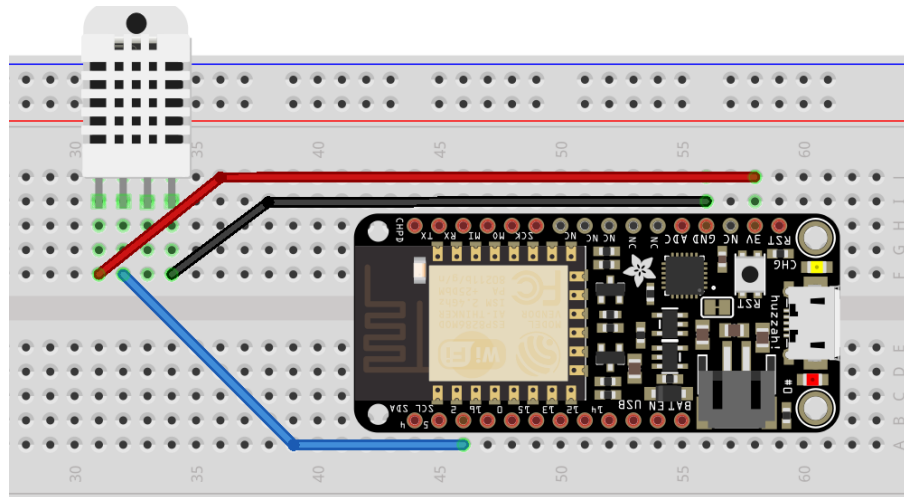
Then, install the **Unified Sensor**, needed by the library above.



Step 12. Click File → Examples → DHT sensor library → **DHTtester**.



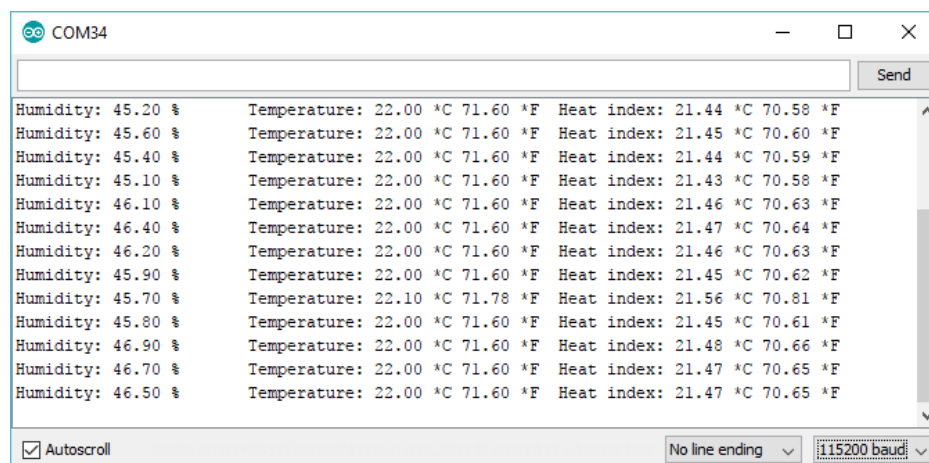
Step 13. Place the Huzzah on the breadboard and wire as shown below: To understand the PINS on the device, you can review: <https://www.bing.com/images/search?q=adafruit+huzzah+pinout>



Step 14. Change the **baud rate** on line 27 as shown.

```
25  
26 void setup() {  
27   Serial.begin(115200);  
28   Serial.println("DHTxx test!");  
29 }
```

Step 15. Click the “Compile and Upload” button. Once uploaded view the output via serial monitor. If successful, you should see data as shown below:



This completes this lab. It time permits, read the setup() and loop() sections of the DHTtester sketch.