

In this lesson you will learn how to create an Adafruit IO account and how to set up Adafruit IO to receive data from your Raspberry Pi.

### Create your Adafruit IO account

1. Go to this web site: <https://io.adafruit.com/>
2. Click the **Get Started for Free** button at top right of web page
3. Fill in the form with your name, email address, a user name you would like to use and a password. Make sure you don't forget your user name and password (I suggest you write them down in your notebook)
4. After you have finished creating your account, I believe you will be signed in to your account. If you should be signed off, then go to the address in step one and click on the **Sign In** link at top right of page. It is easy to get redirected out of the IO part of Adafruit's web site. If that happens, just use the address in step one to get back to IO.

### Setting up Adafruit IO to receive data

Before you can send data to Adafruit IO, you need to do two things: **1) create a feed 2) create a dashboard**. A feed is a channel used to send data to and from Adafruit IO. In the process of creating the feed, you will give it a name. The feed name is used in a Python program to specify which feed should be used for data transmission.

#### Create a Feed

1. Make sure you are at the IO web site: <https://io.adafruit.com/> and that you are signed in
2. Click on the **Feeds** link on left side of page
3. Open the drop-down list of the **Actions** button and select **Create a New Feed**
4. In the box that opens, enter a name for your feed (you can use any name you want, but it should be something descriptive of what the feed does – you could name it **Sensor** for this exercise). You can also fill in a description of the purpose of the feed.
5. When you are done with entering name and description, click the **Create** button.
6. Now notice that the feed you just created is listed on the page.

Now that you have a feed, it is time to make a dashboard. The dashboard is where your data can be displayed.

#### Create a Dashboard

1. Click on the **Dashboards** link on the left side of the page
2. Open the drop-down list of the **Actions** button and select **Create a New Dashboard**
3. In the box that opens, enter a name for your Dashboard and a description.
4. After you are finished with the box, click the **Create** button

You should now see the name of your dashboard listed on the page. Click on it to open up the dashboard. The dashboard will be blank. Later in this lesson, you will write a small Python program that sends data through the feed you created. You could open up your feed to see the data that has been uploaded, but you can also display that data on your dashboard. Let us prepare your dashboard to display the data.

### Adding an element to your Dashboard

1. Open up your dashboard by clicking on it in the Dashboards list
2. In the upper-right, part of the page there is a set of buttons. Click on the blue button with the + symbol (the Create a new Block button).
3. The **Create a new block** box opens. Select the **Line Chart** by clicking on it.
4. A box opens where you will specify the feed for the data to be displayed (actually you can specify up to 5 feeds, but right now you only have one). Click in the box next to your feed name to select it. Then click on the **Next step** button.
5. In the **Block settings** box enter a **Block Title**. Open up the **Show History** drop-down and select one hour (only one hour of data will be displayed, which is more than enough for this exercise). You do not need to fill in any of the other slots in the box, just click the **Create Block** button.

All right, you now have a feed and a dashboard to display the data sent through the feed. Now it is time to prepare your Raspberry Pi to send the data. First you will need to download the Adafruit IO Python library so that you can write code that will connect your RPi to Adafruit IO.

### Download Adafruit IO Python library

1. Open up the terminal on your RPi
2. enter this command: `sudo pip install adafruit-io`

One last detail before we get down to writing the Python program. When you created your Adafruit IO account, the system created a special key to be used with your account. It is a long series of digits and letters.

### Copy your Adafruit IO Key

1. At the IO home page, click on the **View AIO Key** link on the left side of the page
2. A box will open listing your key. You should copy this and paste it into a text file for later use. You will have to enter this key into your Python program soon.

Okay, now you are ready to write the Python program to upload data to your dashboard. You will need to use Python version 2 for this program. Once you finish with the program, run it with your dashboard open on a computer to watch what happens. I hope that you will see a graph start to form on the dashboard.

(see next page for program)

```
from Adafruit_IO import Client          #import the method Client from Adafruit IO library
aio = Client('put your Adafruit key here') #this is where the program connects to Adafruit IO
import time #we use the sleep method in the time library, so need this
distance = 1 #we are using this variable to generate data to send to Adafruit
print 'starting loop' # in Python version 2 you don't need to use parentheses around text to print
while distance < 10: # loop will run 9 times
    aio.send('put feed name here', distance) # the value of distance will be sent through feed
    print 'data value sent = ', distance # print to screen value sent
    distance = distance + 1 # add one to the value of distance
    time.sleep(10) # pause for 10 seconds

print 'finished running loop'
print 'program closing'
```