

UART

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The Adafruit IO Python library will export the UART device tree overlays as a convenience. There are five serial ports brought to the expansion headers (UART3 only has a single direction, TX), and one (UART0) with dedicated headers that aren't available to use in your Python programs.

Setup

To setup and export the UART, you can do the following:

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```
import Adafruit_BBIO.UART as UART
```

```
UART.setup("UART1")
```

That's it!

Also, there is a `cleanup()` method ready to go, but it's not currently working due to a bug in the kernel that causes kernel panics when unloading device tree overlays. We'll update this when it's working. A workaround is to either leave the UART enabled, or restart your BeagleBone Black.

Pin Table for UART

UART	RX	TX	CTS	RTS	Device
UART1	P9_26	P9_24	P9_20	P9_19	/dev/ttyO1
UART2	P9_22	P9_21			/dev/ttyO2
UART3		P9_42	P8_36	P8_34	/dev/ttyO3
UART4	P9_11	P9_13	P8_35	P8_33	/dev/ttyO4
UART5	P8_38	P8_37	P8_31	P8_32	/dev/ttyO5

Using UART with Python

You can use the `pyserial` module in Python, but you'll first need to install it using `pip`. If you don't have `pip` installed, you can follow the instructions on the installation pages for this tutorial.

SSH into the BeagleBone Black, and execute the following command:

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```
pip install pyserial
```

Below is a very simple python program that is a good starting point. Save it to a file, and execute it with `'python file_name.py'`

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```
import Adafruit_BBIO.UART as UART
import serial

UART.setup("UART1")

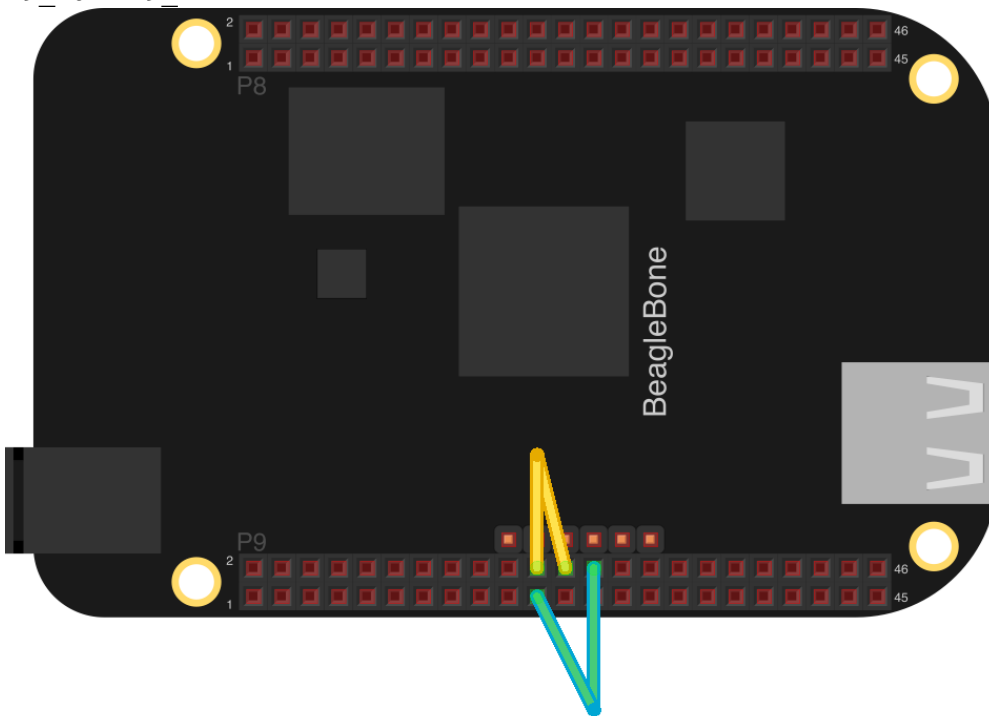
ser = serial.Serial(port = "/dev/tty01", baudrate=9600)
ser.close()
ser.open()
if ser.isOpen():
    print "Serial is open!"
    ser.write("Hello World!")
ser.close()

# Eventually, you'll want to clean up, but leave this commented for now,
# as it doesn't work yet
#UART.cleanup()
```

Testing and Using the UART

You can easily test that everything is working, without having to code anything, or installing any other dependencies to get started.

Next, you'll want to connect two wires to the UART pins. We're just going to cross the RX/TX of the UART1 and UART2. The first wire should connect from P9_24 to P9_22. The second wire should connect from P9_26 to P9_21.



Next, export the UART1 and UART2 in the python interpreter with the Adafruit IO library:

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```
root@beaglebone:~# python
Python 2.7.3 (default, May 29 2013, 21:25:00)
[GCC 4.7.3 20130205 (prerelease)] on linux2
Type "help", "copyright", "credits" or "license" for more information.
>>> import Adafruit_BBIO.UART as UART
>>> UART.setup("UART1")
>>> UART.setup("UART2")
>>> exit()
```