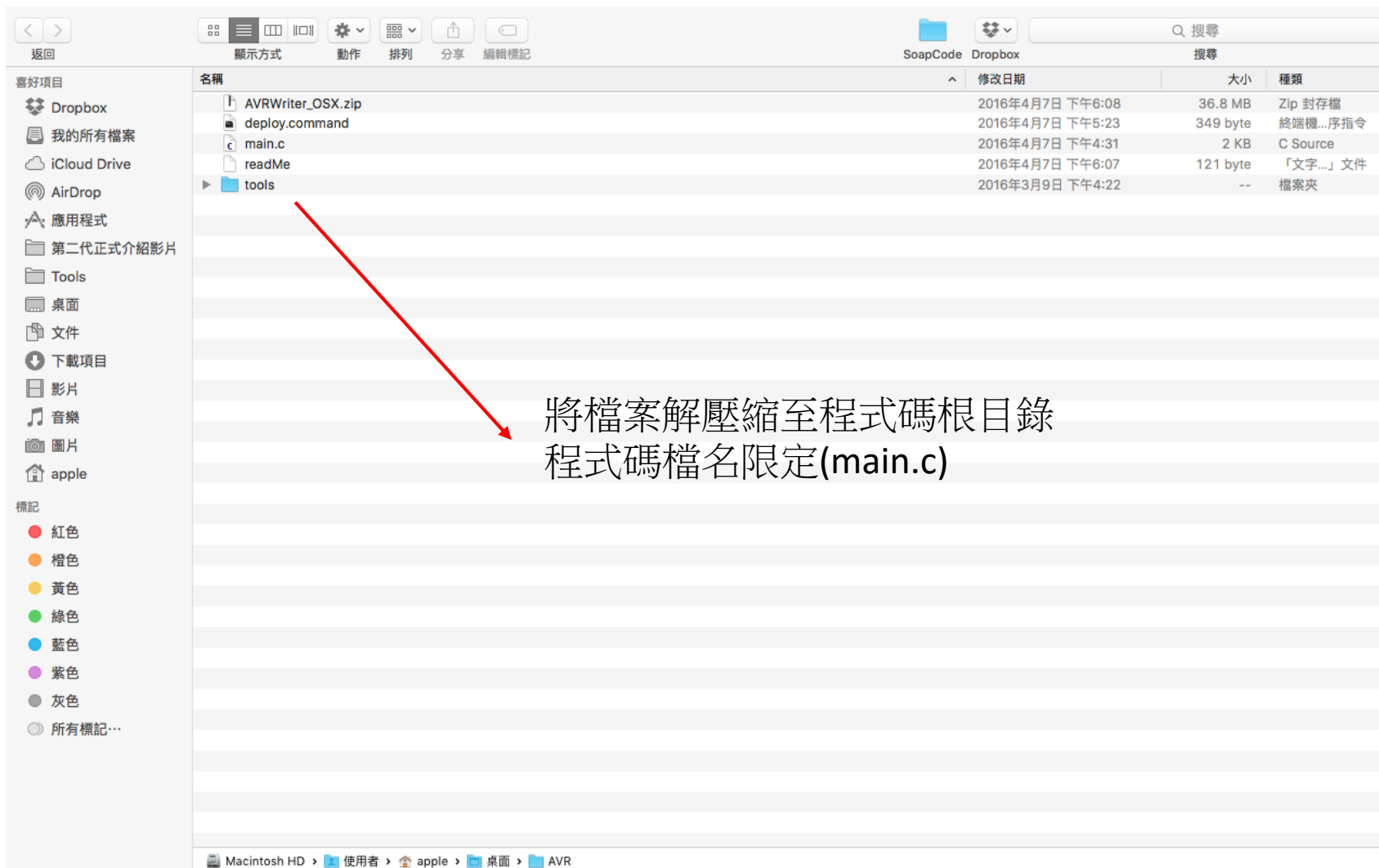


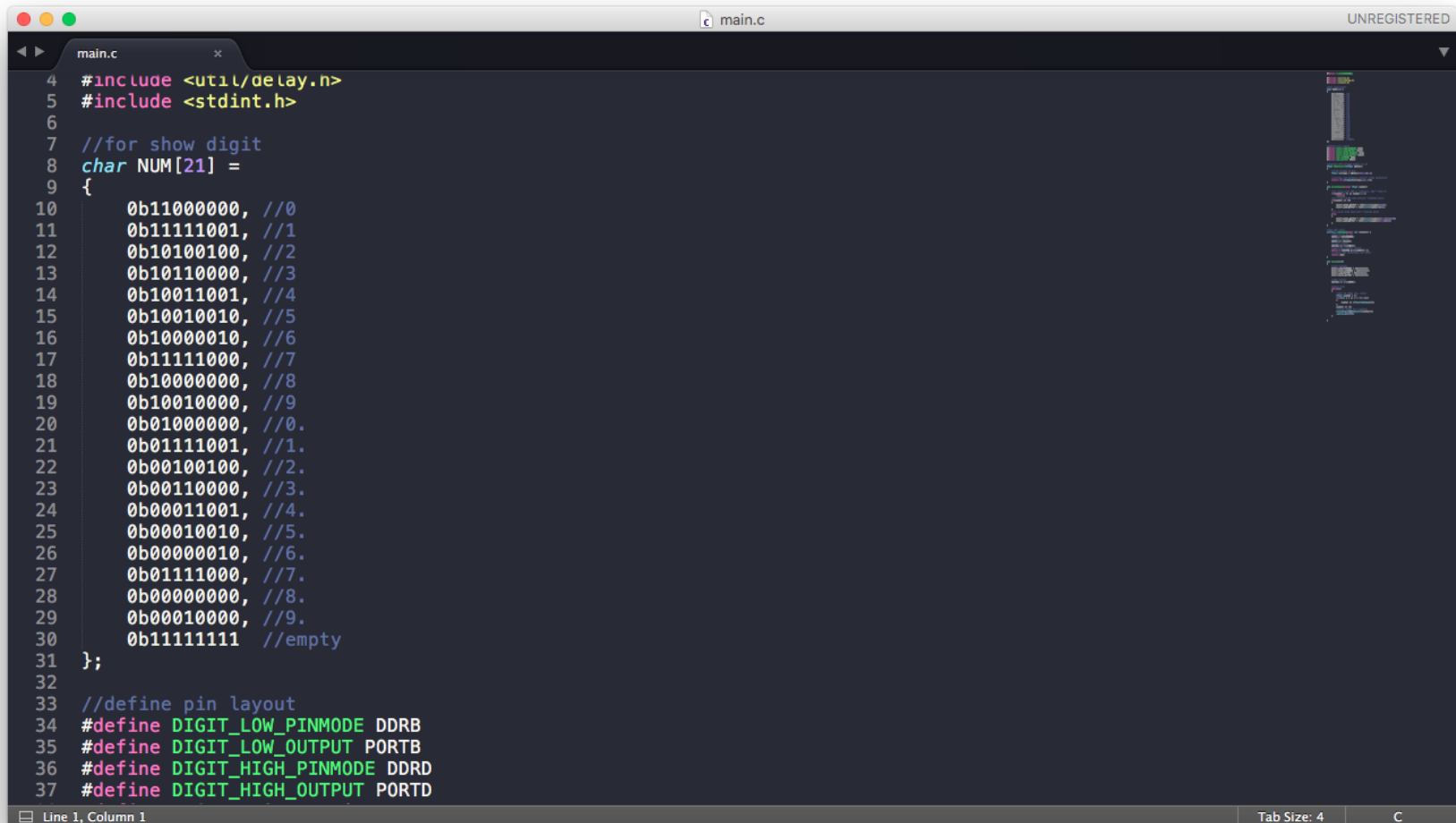
AVR-Writer Tutorial

2016/04/11 CW Tsai

For OSX



For OSX

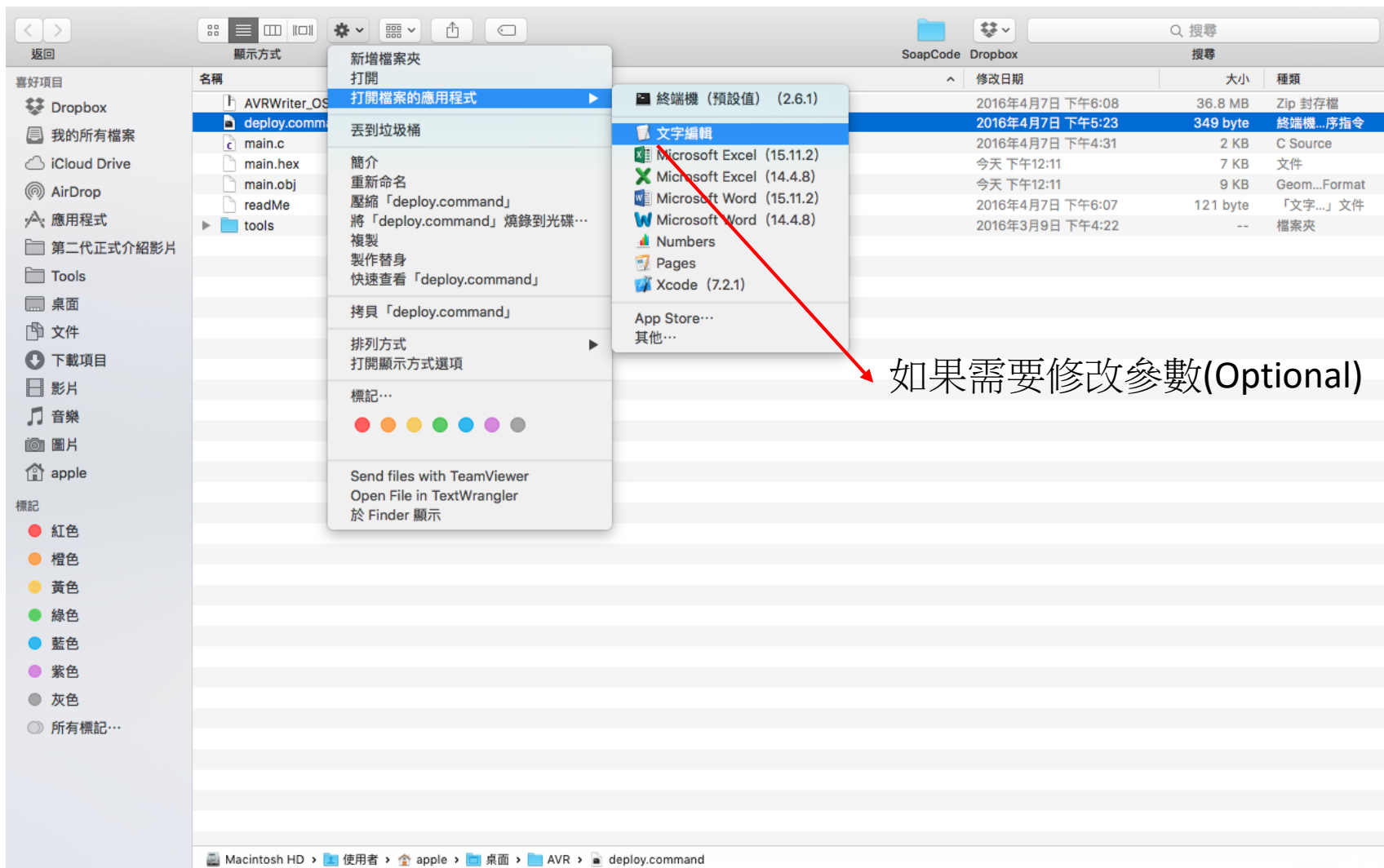


The image shows a screenshot of a code editor window on a Mac. The window has a title bar with standard Mac window controls (red, yellow, green buttons) and a title "main.c". The editor area is dark-themed and contains C code. The code defines a character array 'NUM' with 10 elements, each representing a digit from 0 to 9 using 8-bit binary values. It also defines pin layouts for a display. The status bar at the bottom shows "Line 1, Column 1", "Tab Size: 4", and "C".

```
main.c
4  #include <util/delay.h>
5  #include <stdint.h>
6
7  //for show digit
8  char NUM[21] =
9  {
10     0b11000000, //0
11     0b11111001, //1
12     0b10100100, //2
13     0b10110000, //3
14     0b10011001, //4
15     0b10010010, //5
16     0b10000010, //6
17     0b11111000, //7
18     0b10000000, //8
19     0b10010000, //9
20     0b01000000, //0.
21     0b01111001, //1.
22     0b00100100, //2.
23     0b00110000, //3.
24     0b00011001, //4.
25     0b00010010, //5.
26     0b00000010, //6.
27     0b01111000, //7.
28     0b00000000, //8.
29     0b00010000, //9.
30     0b11111111 //empty
31 };
32
33 //define pin layout
34 #define DIGIT_LOW_PINMODE DDRB
35 #define DIGIT_LOW_OUTPUT PORTB
36 #define DIGIT_HIGH_PINMODE DDRD
37 #define DIGIT_HIGH_OUTPUT PORTD
```

Line 1, Column 1 Tab Size: 4 C

For OSX



For OSX

```
Last login: Mon Apr 11 12:10:49 on ttys000
/Users/apple/Desktop/AVR/deploy.command ; exit;
Appleteki-MacBook-Pro-2:~ apple$ /Users/apple/Desktop/AVR/deploy.command ; exit;
In file included from main.c:4:0:
/Users/apple/Desktop/AVR/tools/avr/avr/include/util/delay.h:90:3: warning: #warning "F_CPU not defined for <util/delay.h>" [-Wcpp]
# warning "F_CPU not defined for <util/delay.h>"
^
main.c: In function 'printDigit':
main.c:55:3: warning: 'return' with no value, in function returning non-void [enabled by default]
    return;
    ^

avrdude: AVR device initialized and ready to accept instructions

Reading | ##### | 100% 0.09s

avrdude: Device signature = 0x1e950f
avrdude: NOTE: "flash" memory has been specified, an erase cycle will be performed
        To disable this feature, specify the -D option.
avrdude: erasing chip
avrdude: reading input file "main.hex"
avrdude: input file main.hex auto detected as Intel Hex
avrdude: writing flash (2560 bytes):

Writing | ##### | 100% 3.11s

avrdude: 2560 bytes of flash written
avrdude: verifying flash memory against main.hex:
avrdude: load data flash data from input file main.hex:
avrdude: input file main.hex auto detected as Intel Hex
avrdude: input file main.hex contains 2560 bytes
avrdude: reading on-chip flash data:

Reading | ##### | 100% 1.92s

avrdude: verifying ...
avrdude: 2560 bytes of flash verified

avrdude: safemode: Fuses OK (H:07, E:D9, L:E2)

avrdude done. Thank you.

logout
Saving session...
...copying shared history...
...saving history...truncating history files...
...completed.

[程序完成]■
```

For Linux

A terminal window titled 'jefftsai@ubuntu: ~/Desktop/arduino-1.6.8/AVR' with standard window controls. The terminal shows the user running 'whereis' commands to find 'avr-gcc', 'avr-objcopy', and 'avrdude'. The output shows their locations in the system's bin directory and man pages. The user's cursor is at the end of the last command line.

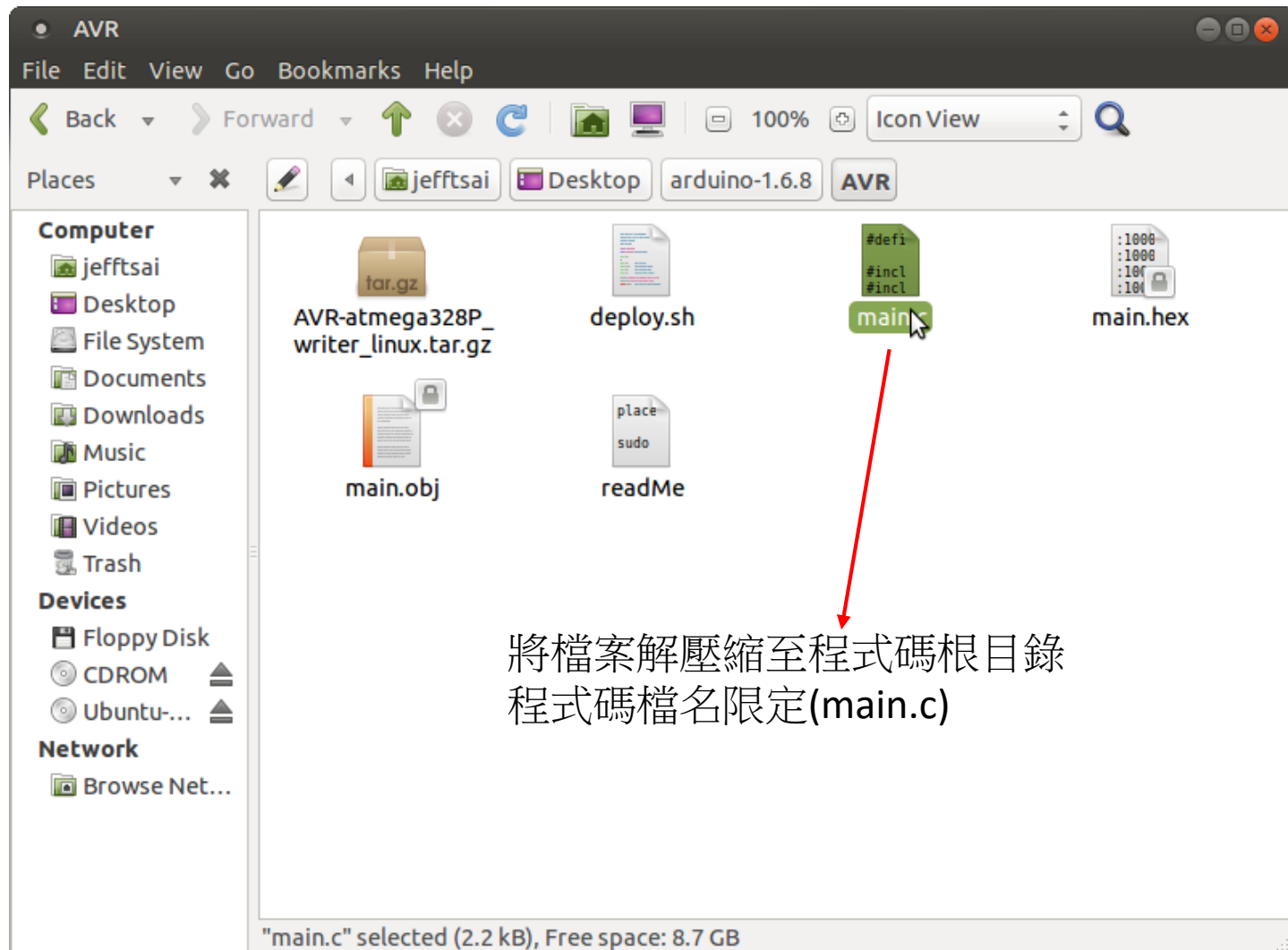
```
jefftsai@ubuntu: ~/Desktop/arduino-1.6.8/AVR$ whereis avr-gcc
avr-gcc: /usr/bin/avr-gcc
jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$ whereis avr-objcopy
avr-objcopy: /usr/bin/avr-objcopy /usr/share/man/man1/avr-objcopy.1.gz
jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$ whereis avrdude
avrdude: /usr/bin/avrdude /etc/avrdude.conf /usr/share/man/man1/avrdude.1.gz
jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$
```

Install Arduino first!

sudo apt-get update

sudo apt-get install arduino

For Linux



For Linux

```
jefftsai@ubuntu: ~/Desktop/arduino-1.6.8/AVR
File Edit View Search Terminal Help

jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$ whereis avr-gcc
avr-gcc: /usr/bin/avr-gcc
jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$ whereis avr-objcopy
avr-objcopy: /usr/bin/avr-objcopy /usr/share/man/man1/avr-objcopy.1.gz
jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$ whereis avrdude
avrdude: /usr/bin/avrdude /etc/avrdude.conf /usr/share/man/man1/avrdude.1.gz
jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$ sudo sh deploy.sh
[sudo] password for jefftsai:
In file included from main.c:4:0:
/usr/lib/avr/include/util/delay.h:90:3: warning: #warning "F_CPU not defined for
<util/delay.h>" [-Wcpp]
# warning "F_CPU not defined for <util/delay.h>"
^
main.c: In function 'printDigit':
main.c:68:1: warning: control reaches end of non-void function [-Wreturn-type]
}
^

avrdude: AVR device initialized and ready to accept instructions

Reading | ##### | 100% 0.05s

avrdude: Device signature = 0x1e950f
avrdude: NOTE: "flash" memory has been specified, an erase cycle will be perform
ed
      To disable this feature, specify the -D option.
avrdude: erasing chip
avrdude: reading input file "main.hex"
avrdude: input file main.hex auto detected as Intel Hex
avrdude: writing flash (2570 bytes):

Writing | ##### | 100% 3.36s

avrdude: 2570 bytes of flash written
avrdude: verifying flash memory against main.hex:
avrdude: load data flash data from input file main.hex:
avrdude: input file main.hex auto detected as Intel Hex
avrdude: input file main.hex contains 2570 bytes
avrdude: reading on-chip flash data:

Reading | ##### | 100% 2.01s

avrdude: verifying ...
avrdude: 2570 bytes of flash verified

avrdude: safemode: Fuses OK (E:07, H:D9, L:E2)

avrdude done. Thank you.

jefftsai@ubuntu:~/Desktop/arduino-1.6.8/AVR$
```

sudo sh deploy.sh