

# Flashing eYFi-Mega ATmega 2560 Bootloader using Arduino IDE

**Note:** Follow the procedure given below on Windows operating system ONLY.

## 1. Download Arduino IDE

Make sure you have Arduino IDE installed on your Windows system. If not, you can download it from <https://www.arduino.cc/en/Main/Software>.

## 2. Connections of Arduino Mega and eYFi-Mega board

Grab an Arduino Mega board. Make the connections as shown in below Fig.

1.

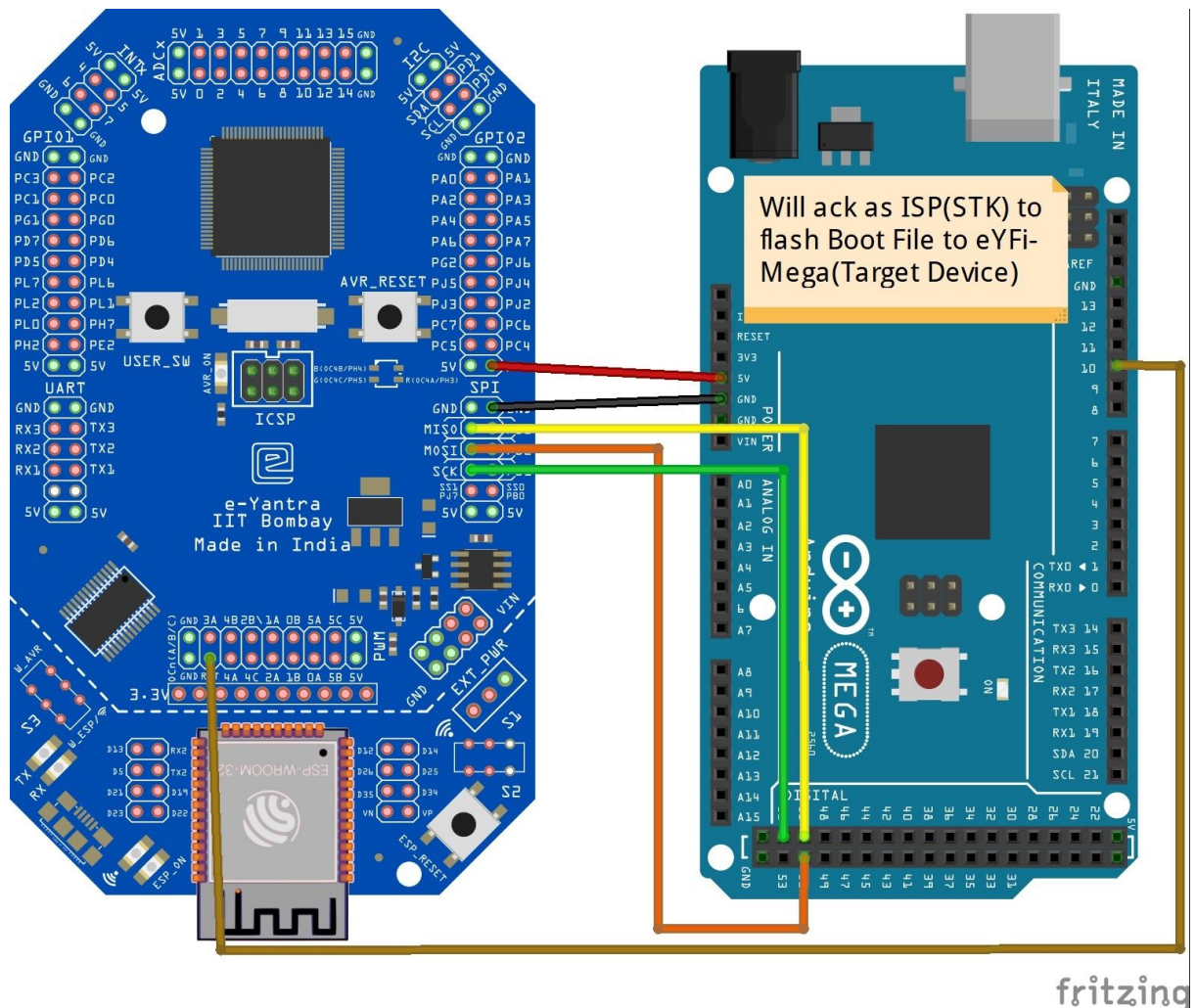
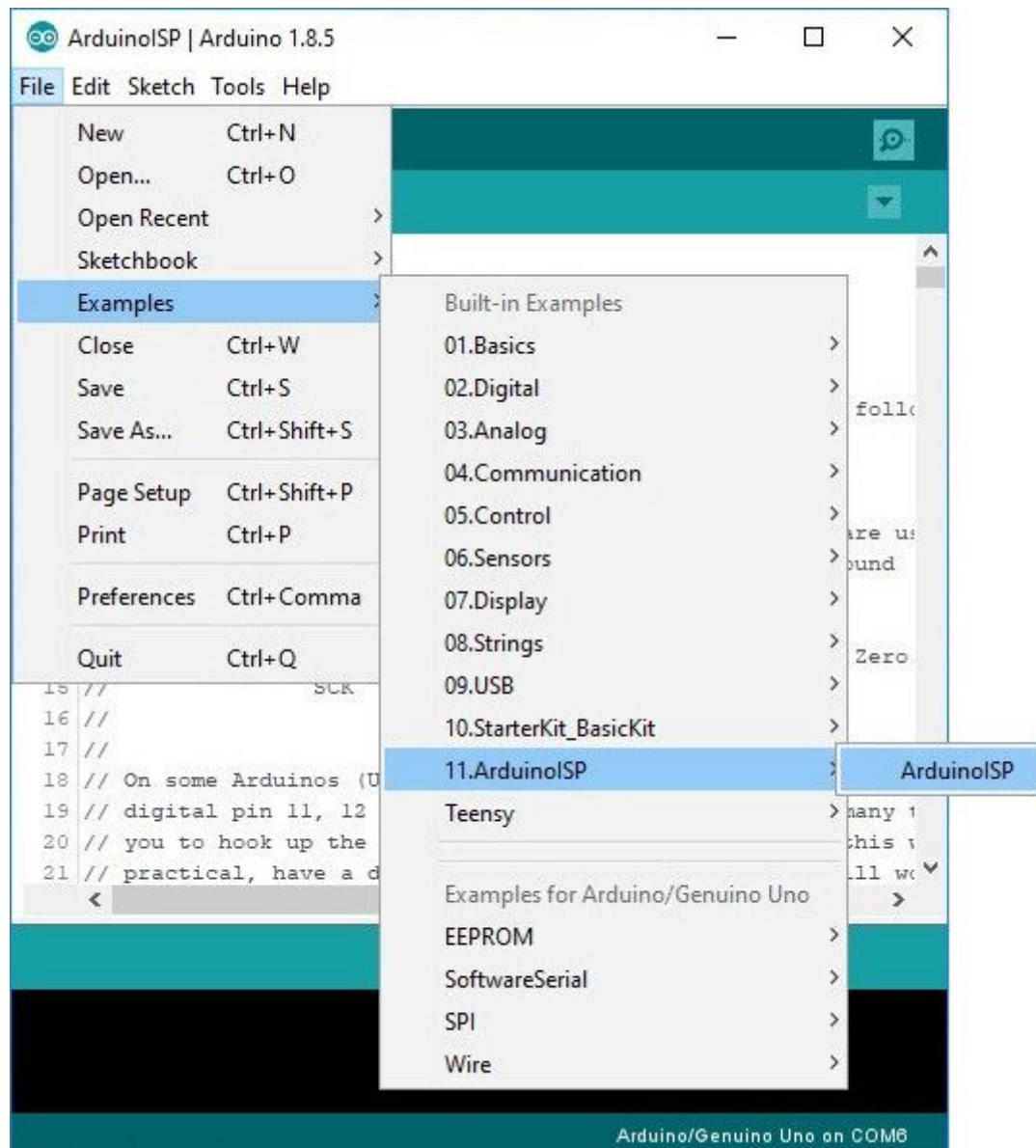


Fig. 1: Arduino as ISP Connections with eYFi-Mega board

## 3. Upload Arduino as ISP

Open the Arduino IDE. In the menu, select **File > Examples > 11.ArduinoISP > ArduinoISP** to open up the Arduino as ISP sketch.



Select the COM port for your Arduino as ISP. The COM port may be different depending on how it is enumerated on your computer.

**Note:** Remember the COM port as it will be required in further sections.

Upload the code to your Arduino Mega to turn it into a **AVRISP**.

#### 4. Burning a Bootloader to Your Target (eYFi-Mega)

Download the zip file “**Arduino\_as\_ISP\_eYFi-Mega**” from the **Downloads** section of the link: <http://products.e-yantra.org/>.

Right-click on the file: **fuseset.bat** and click on Edit, this will open the file in Notepad to edit it.

First find the COM Port where the Arduino Mega board is connected to your system.

Edit the the command provided in the file and replace the default COM Port which is “COM58” and replace it with your COM Port. Save the files. **Do Not change any other part of the command provided.**

**Repeat this step with the file: hexflash.bat, save the file after editing.**

Open the Command Prompt, navigate to the **Arduino\_as\_ISP\_eYFi-Mega** folder and run these two commands in the following order:

- a. **fuseset.bat**
- b. **hexflash.bat**

Expected Output after executing:

#### a. fuseset.bat

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.17763.914]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\ERTS\Desktop\Arduino as ISP eYFi-Mega>fuseset.bat

C:\Users\ERTS\Desktop\Arduino as ISP eYFi-Mega>avrdude -Cavrdude.conf -v -patmega2560 -cstk500v1 -PCOM58 -b19200 -e -Ulock:w:0x3F:m -Uefuse:w:0xFF:m -Uhfuse:w:0xD8:m -Ulfuse:w:0xFF:m

avrdude: Version 6.3-20190619
Copyright (c) 2000-2005 Brian Dean, http://www.bdmicro.com/
Copyright (c) 2007-2014 Joerg Wunsch

System wide configuration file is "avrdude.conf"

Using Port : COM58
Using Programmer : stk500v1
Overriding Baud Rate : 19200
AVR Part : ATmega2560
Chip Erase delay : 9000 us
PAGEL : P07
BS2 : PA0
RESET disposition : dedicated
RETRY pulse : SCK
serial program mode : yes
parallel program mode : yes
Timeout : 200
StabDelay : 100
CmdexeDelay : 25
SyncLoops : 32
ByteDelay : 0
PollIndex : 3
PollValue : 0x53
Memory Detail :

      Block Poll
Memory Type Mode Delay Size Indx Paged Size Size #Pages MinW MaxW ReadBack
-----
eeprom      65   10    8    0 no    4096    0    0 9000 9000 0x00 0x00
flash       65   10  256    0 yes 262144 256 1024 4500 4500 0x00 0x00
lfuse        0    0    0    0 no     1    0    0 9000 9000 0x00 0x00
hfuse        0    0    0    0 no     1    0    0 9000 9000 0x00 0x00
efuse        0    0    0    0 no     1    0    0 9000 9000 0x00 0x00
lock         0    0    0    0 no     1    0    0 9000 9000 0x00 0x00
calibration  0    0    0    0 no     1    0    0  0 0x00 0x00
signature    0    0    0    0 no     3    0    0  0 0x00 0x00

Programmer Type : STK500
Description : Atmel STK500 Version 1.x firmware
Hardware Version: 2
Firmware Version: 1.18
Topcard : Unknown
Vtarget : 0.0 V
Varef : 0.0 V
```

Activate Windows  
Go to Settings to activate W

```
C:\Windows\System32\cmd.exe
Writing | ##### | 100% 0.01s
avrdude: 1 bytes of efuse written
avrdude: verifying efuse memory against 0xFF:
avrdude: load data efuse data from input file 0xFF:
avrdude: input file 0xFF contains 1 bytes
avrdude: reading on-chip efuse data:

Reading | ##### | 100% 0.01s
avrdude: verifying ...
avrdude: 1 bytes of efuse verified
avrdude: reading input file "0xD8"
avrdude: writing hfuse (1 bytes):

Writing | ##### | 100% 0.01s
avrdude: 1 bytes of hfuse written
avrdude: verifying hfuse memory against 0xD8:
avrdude: load data hfuse data from input file 0xD8:
avrdude: input file 0xD8 contains 1 bytes
avrdude: reading on-chip hfuse data:

Reading | ##### | 100% 0.01s
avrdude: verifying ...
avrdude: 1 bytes of hfuse verified
avrdude: reading input file "0xFF"
avrdude: writing lfuse (1 bytes):

Writing | ##### | 100% 0.01s
avrdude: 1 bytes of lfuse written
avrdude: verifying lfuse memory against 0xFF:
avrdude: load data lfuse data from input file 0xFF:
avrdude: input file 0xFF contains 1 bytes
avrdude: reading on-chip lfuse data:

Reading | ##### | 100% 0.01s
avrdude: verifying ...
avrdude: 1 bytes of lfuse verified

avrdude: safemode: lfuse reads as FF
avrdude: safemode: hfuse reads as D8
avrdude: safemode: efuse reads as FF
avrdude: safemode: Fuses OK (E:FF, H:D8, L:FF)

avrdude done. Thank you.
```

### b. hexflash.bat

```
C:\Windows\System32\cmd.exe
avrdude done. Thank you.

C:\Users\ERTS\Desktop\Arduino as ISP eYfi-Mega>hexflash.bat

C:\Users\ERTS\Desktop\Arduino as ISP eYfi-Mega>avrdude -v -patmega2560 -cstk500v1 -PCOM58 -b19200 -Uflash:w:eyfi-mega_atmega2560_bootloader.hex:i -Ulock:w:0x0F:m

avrdude: Version 6.3-20190619
Copyright (c) 2000-2005 Brian Dean, http://www.bdmicro.com/
Copyright (c) 2007-2014 Joerg Wunsch

System wide configuration file is "avrdude.conf"

Using Port                : COM58
Using Programmer          : stk500v1
Overriding Baud Rate     : 19200
AVR Part                  : ATmega2560
Chip Erase delay          : 9000 us
PAGEL                     : PD7
BS2                       : PA0
RESET disposition         : dedicated
RETARD pulse              : SCK
serial program mode       : yes
parallel program mode     : yes
Timeout                  : 200
StabDelay                 : 100
CmdexeDelay               : 25
SyncLoops                 : 32
ByteDelay                 : 0
PollIndex                 : 3
PollValue                 : 0x53
Memory Detail              :

                Block Poll
Memory Type Mode Delay Size  Indx  Paged  Size   Size #Pages MinW  MaxW     Polled
-----
eeprom    65    10    8    0 no    4096    8    0 9000  9000 0x00 0x00
flash    65    10   256    0 yes  262144  256 1024 4500  4500 0x00 0x00
lfuse     0     0     0    0 no     1     0    0 9000  9000 0x00 0x00
hfuse     0     0     0    0 no     1     0    0 9000  9000 0x00 0x00
efuse     0     0     0    0 no     1     0    0 9000  9000 0x00 0x00
lock      0     0     0    0 no     1     0    0 9000  9000 0x00 0x00
calibration 0     0     0    0 no     1     0    0 0 0 0x00 0x00
signature 0     0     0    0 no     3     0    0 0 0 0x00 0x00

Programmer Type : STK500
Description : Atmel STK500 Version 1.x firmware
Hardware Version: 2
Firmware Version: 1.18
Topcard : Unknown
Vtarget : 0.0 V
Varef : 0.0 V
```



```

C:\Windows\System32\cmd.exe

Varef      : 0.0 V
Oscillator  : Off
SCK period  : 0.1 us

avrdude: AVR device initialized and ready to accept instructions

Reading | ##### | 100% 0.04s

avrdude: Device signature = 0x1e9801 (probably m2560)
avrdude: safemode: lfuse reads as FF
avrdude: safemode: hfuse reads as D8
avrdude: safemode: efuse reads as FF
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 "eyfi-mega_atmega2560_bootloader.hex"
avrdude: writing flash (261988 bytes):

Writing | ##### | 100% 0.01s

avrdude: 261988 bytes of flash written
avrdude: verifying flash memory against eyfi-mega_atmega2560_bootloader.hex:
avrdude: load data flash data from input file eyfi-mega_atmega2560_bootloader.hex:
avrdude: input file eyfi-mega_atmega2560_bootloader.hex contains 261988 bytes
avrdude: reading on-chip flash data:

Reading | ##### | 100% 0.01s

avrdude: verifying ...
avrdude: 261988 bytes of flash verified
avrdude: reading input file "0x0F"
avrdude: writing lock (1 bytes):

Writing | ##### | 100% 0.03s

avrdude: 1 bytes of lock written
avrdude: verifying lock memory against 0x0F:
avrdude: load data lock data from input file 0x0F:
avrdude: input file 0x0F contains 1 bytes
avrdude: reading on-chip lock data:

Reading | ##### | 100% 0.01s

avrdude: verifying ...
avrdude: 1 bytes of lock verified

avrdude: safemode: lfuse reads as FF
avrdude: safemode: hfuse reads as D8
avrdude: safemode: efuse reads as FF
avrdude: safemode: Fuses OK (E:FF, H:D8, L:FF)

avrdude done. Thank you.

```

Once you get this similar output on your Command Prompt, this means that the **eYFi-Mega ATmega2560 Bootloader** has been flashed successfully on your board.