



Guide - Using the Xkit Shield as a breakout board for the Wisol Module

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www.thinxtra.com

XKIT SHIELD BREAKOUT GUIDE

This document provides info on how to use the Xkit Shield (without Arduino Uno board) plugged in your computer USB port as an Evaluation Board for the Wisol module WSSFM10R4.

Prerequisite

Have the [CH340 USB to Serial driver](#) installed



For Windows

<https://github.com/Thinextra/Xkit-Sample/blob/master/Document/Program/CH341SER.zip>

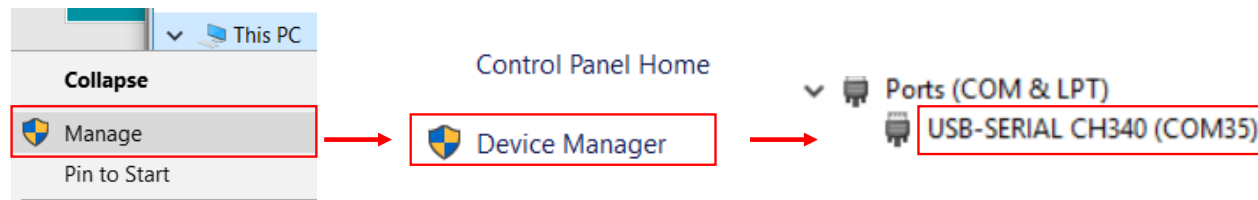


For Mac

https://github.com/Thinextra/Xkit-Sample/blob/master/Document/Program/CH341SER_MAC.zip

XKIT BREAKDOWN GUIDE – WINDOWS

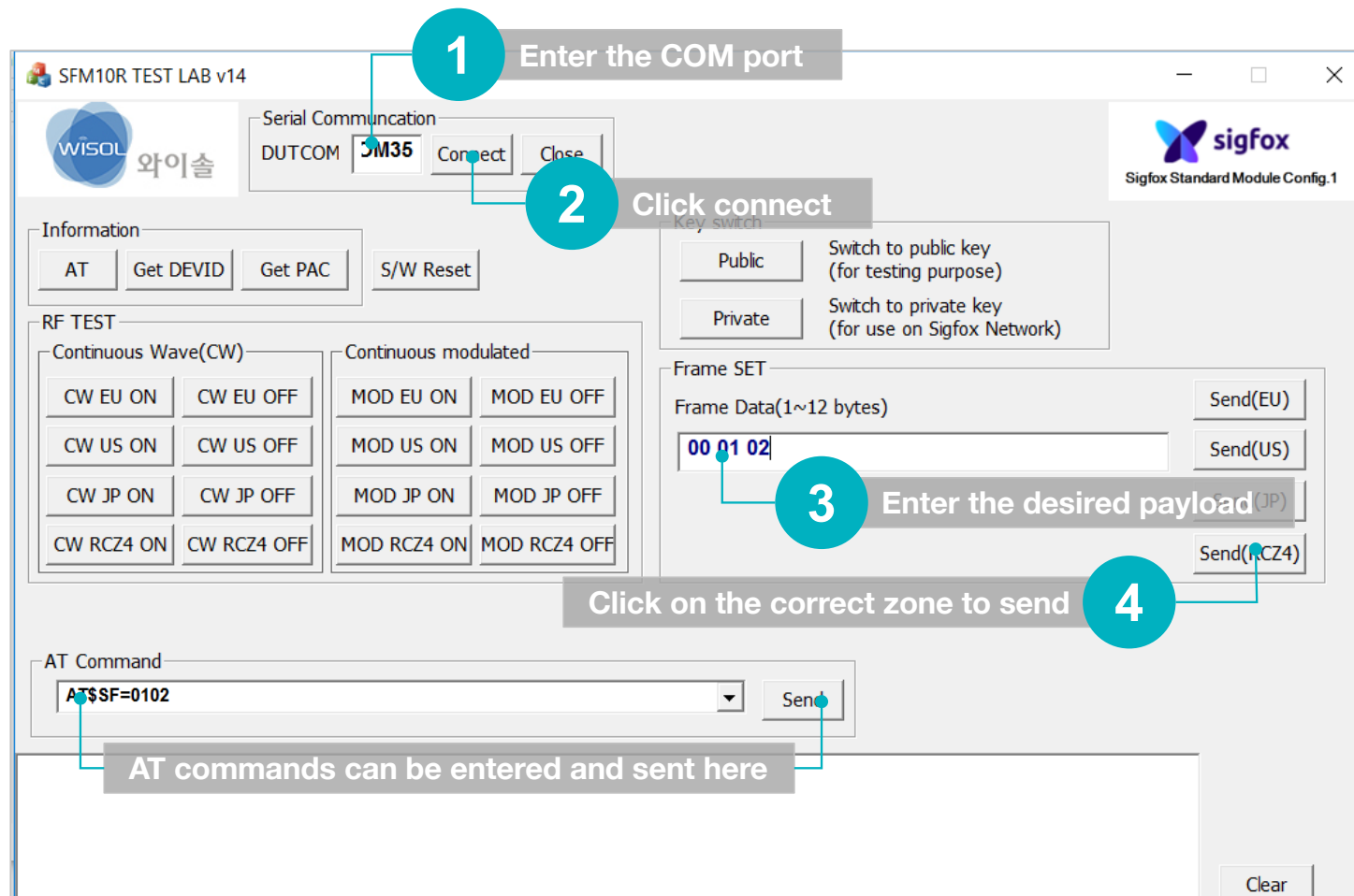
STEP 1 Identify your COM Port (for Windows)



STEP 2 Download the [Wisol Testing program](#) (SFM10R_AT_TEST.exe) or [ExtraPutty](#)

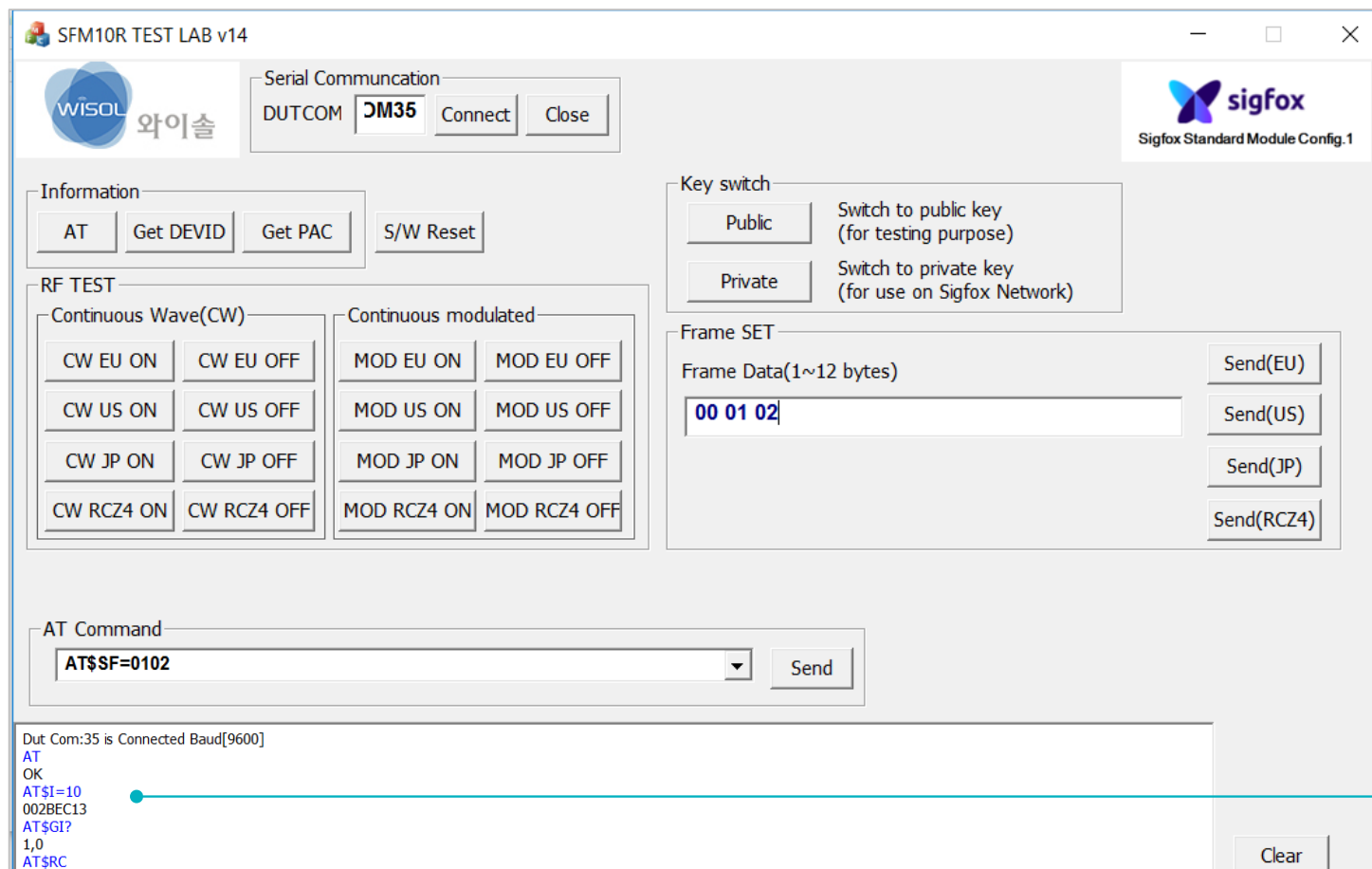
XKIT BREAKDOWN GUIDE – WINDOWS

If using **Wisol testing program** (Windows)



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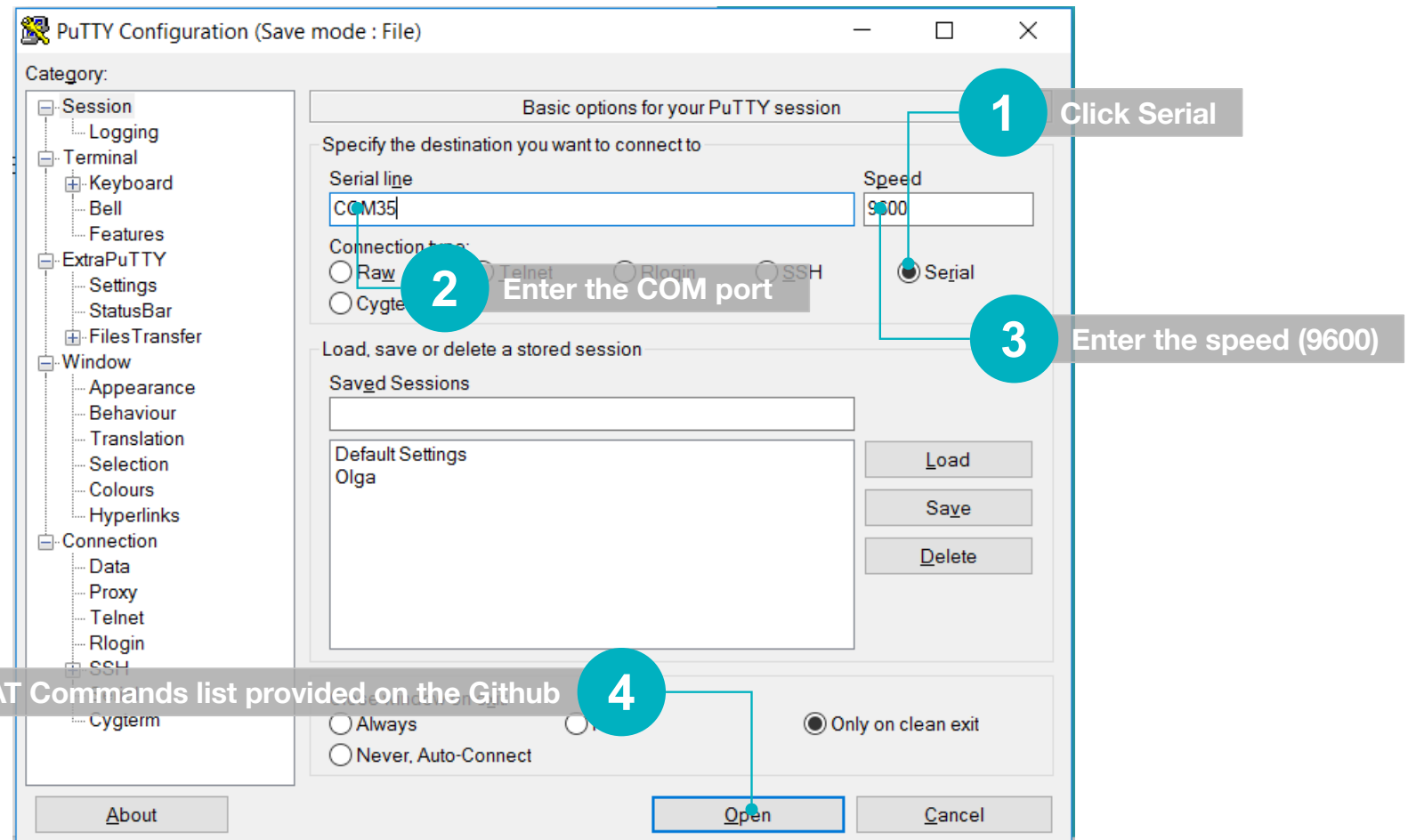
If using **Wisol testing program** (Windows)



Dut Com:35 is Connected Baud[9600]
AT
OK
AT\$I=10
002BEC13
AT\$GI?
1,0
AT\$RC
OK
AT\$SF=000102

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If using **ExtraPutty** (Windows)



Click Open. Then use the AT Commands list provided on the Github

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1 Click on "Session"

2 Click on "Change Setting"

3 Choose "Terminal"

4 Choose "Force on" for "Local echo" and "Local line ending"

5 Click "Apply"

6 Now you can type in AT commands and press enter

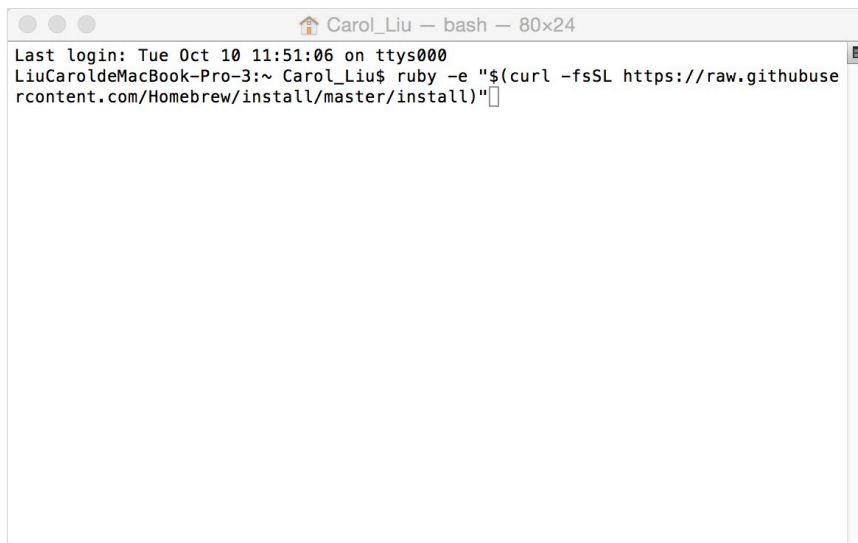
The image shows a PuTTY window titled "COM35 - PuTTY" with a menu bar: Session, Special Command, Window, Logging. The "Session" menu is open, showing options: Event Log, New Session..., Duplicate Session, Saved Sessions, Change Settings..., and Exit. The "Change Settings..." option is highlighted. An arrow points from this menu to the "PuTTY Reconfiguration (Save mode : File)" dialog box. In the dialog box, the "Category" list on the left has "Terminal" selected. The "Terminal" category is expanded, showing sub-categories: Keyboard, Bell, Features, ExtraPuTTY, FilesTransfer, Window, Appearance, Behaviour, Translation, Selection, Colours, Hyperlinks, Connection, and Serial. The "Terminal" sub-category is selected. The "Options controlling the terminal emulation" section is visible, with "Set various terminal options" and "Line discipline options". Under "Set various terminal options", "Auto wrap mode initially on" is checked. Under "Line discipline options", "Local echo" and "Local line editing" are both set to "Force on". The "Remote-controlled printing" section is also visible. The "Apply" button is highlighted. An arrow points from the "Apply" button to a terminal window titled "COM35 - PuTTY". The terminal window shows the output of AT commands: "AT", "OK", "AT\$1=10", "002BBC13", "AT\$SF=000102", "OK". The terminal window also has a menu bar: Session, Special Command, Window, Logging, Files Transfer, Hangup ?.

XKIT BREAKDOWN GUIDE – MAC

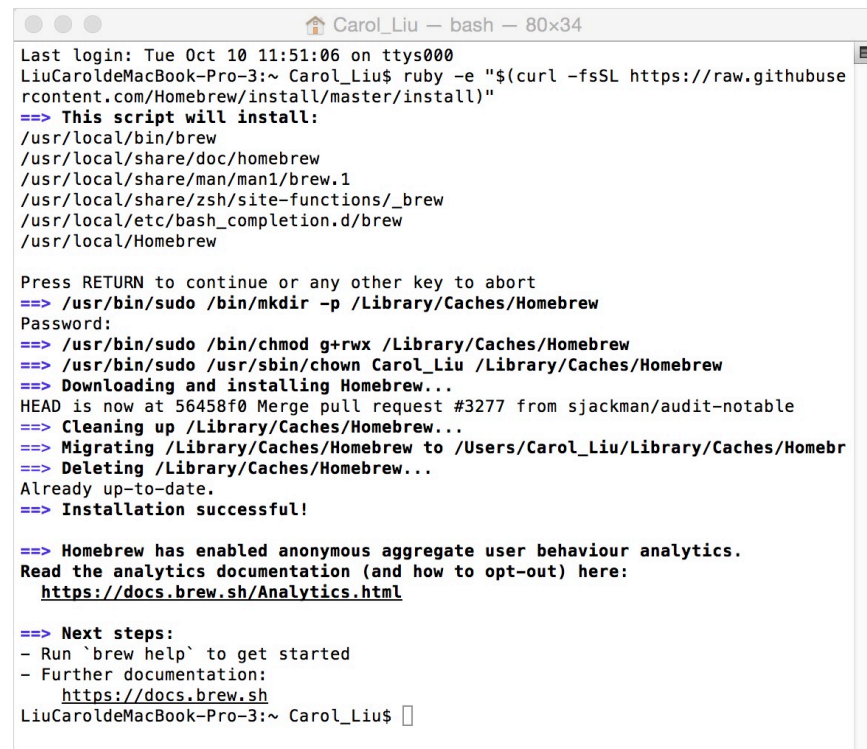
STEP 1 Use the **Finder** to go to Applications > Utilities > Terminal.

STEP 2 Install **Homebrew** by typing the following line into the Terminal, then press **Enter**

```
ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```



```
Carol_Liu — bash — 80x24
Last login: Tue Oct 10 11:51:06 on ttys000
LiuCaroldeMacBook-Pro-3:~ Carol_Liu$ ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```



```
Carol_Liu — bash — 80x34
Last login: Tue Oct 10 11:51:06 on ttys000
LiuCaroldeMacBook-Pro-3:~ Carol_Liu$ ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
==> This script will install:
/usr/local/bin/brew
/usr/local/share/doc/homebrew
/usr/local/share/man/man1/brew.1
/usr/local/share/zsh/site-functions/_brew
/usr/local/etc/bash_completion.d/brew
/usr/local/Homebrew

Press RETURN to continue or any other key to abort
==> /usr/bin/sudo /bin/mkdir -p /Library/Caches/Homebrew
Password:
==> /usr/bin/sudo /bin/chmod g+rw /Library/Caches/Homebrew
==> /usr/bin/sudo /usr/sbin/chown Carol_Liu /Library/Caches/Homebrew
==> Downloading and installing Homebrew...
HEAD is now at 56458f0 Merge pull request #3277 from sjackman/audit-notable
==> Cleaning up /Library/Caches/Homebrew...
==> Migrating /Library/Caches/Homebrew to /Users/Carol_Liu/Library/Caches/Homebrew
==> Deleting /Library/Caches/Homebrew...
Already up-to-date.
==> Installation successful!

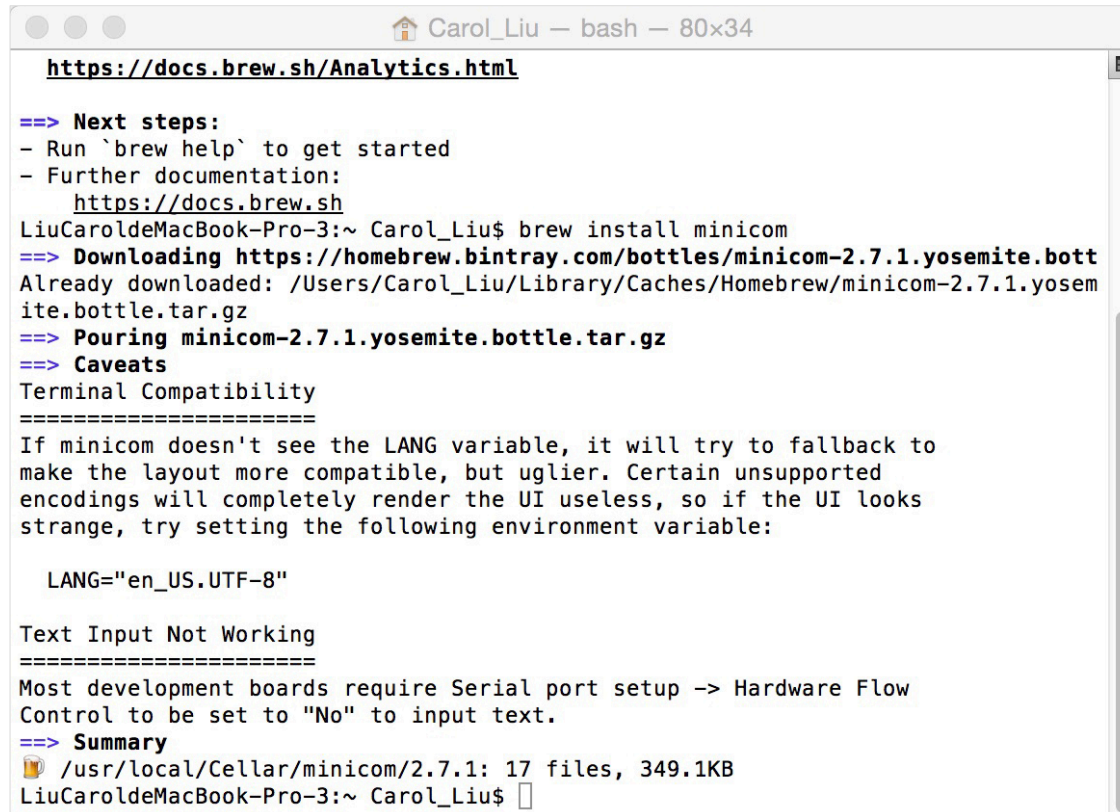
==> Homebrew has enabled anonymous aggregate user behaviour analytics.
Read the analytics documentation (and how to opt-out) here:
https://docs.brew.sh/Analytics.html

==> Next steps:
- Run `brew help` to get started
- Further documentation:
https://docs.brew.sh
LiuCaroldeMacBook-Pro-3:~ Carol_Liu$
```


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STEP 3 Install **minicom** by typing the following line into the Terminal.

```
brew install minicom
```



```
Carol_Liu — bash — 80x34
https://docs.brew.sh/Analytics.html

==> Next steps:
- Run `brew help` to get started
- Further documentation:
  https://docs.brew.sh
LiuCaraldeMacBook-Pro-3:~ Carol_Liu$ brew install minicom
==> Downloading https://homebrew.bintray.com/bottles/minicom-2.7.1.yosemite.bott
Already downloaded: /Users/Carol_Liu/Library/Caches/Homebrew/minicom-2.7.1.yosem
ite.bottle.tar.gz
==> Pouring minicom-2.7.1.yosemite.bottle.tar.gz
==> Caveats
Terminal Compatibility
=====
If minicom doesn't see the LANG variable, it will try to fallback to
make the layout more compatible, but uglier. Certain unsupported
encodings will completely render the UI useless, so if the UI looks
strange, try setting the following environment variable:

  LANG="en_US.UTF-8"

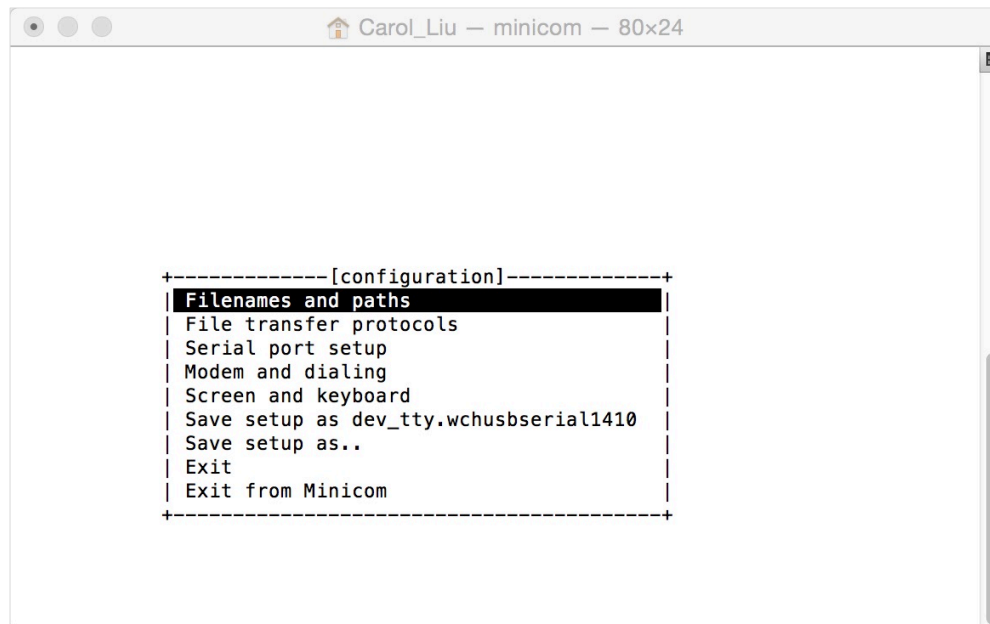
Text Input Not Working
=====
Most development boards require Serial port setup -> Hardware Flow
Control to be set to "No" to input text.
==> Summary
📦 /usr/local/Cellar/minicom/2.7.1: 17 files, 349.1KB
LiuCaraldeMacBook-Pro-3:~ Carol_Liu$
```

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STEP 4 Remove the Xkit from your Mac then connect it to the USB port again.

STEP 5 Create a serial port by typing the following line, then it will show the screen like this:

```
minicom -s
```



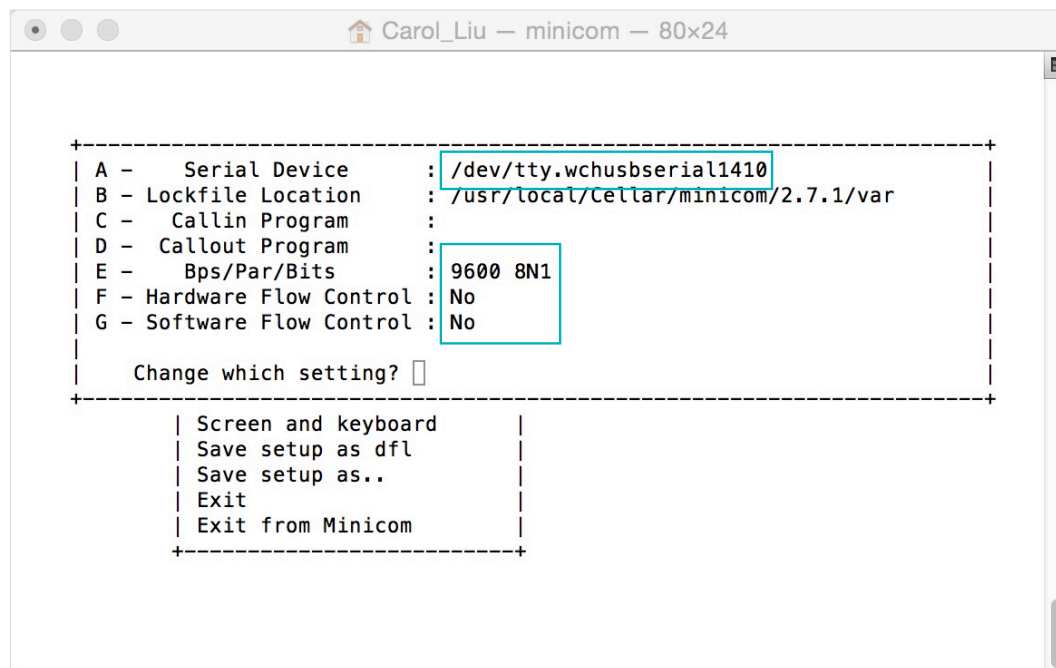
```
+-----[configuration]-----+
| File transfer protocols      |
| Serial port setup           |
| Modem and dialing           |
| Screen and keyboard         |
| Save setup as dev_tty.wchusbserial1410 |
| Save setup as..             |
| Exit                        |
| Exit from Minicom           |
+-----+
| File transfer protocols      |
| Serial port setup           |
| Modem and dialing           |
| Screen and keyboard         |
| Save setup as dev_tty.wchusbserial1410 |
| Save setup as..             |
| Exit                        |
| Exit from Minicom           |
+-----+
```

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STEP 6 Go to **Serial port setup** and press **Enter** >

Change the configuration to be the same as the screenshot (press the key A, B, C ... to navigate through the options) >

Press **Enter** to exit.



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STEP 7 Go to **Screen and keyboard** and press **Enter** >

Press **P, Q, T** >

Press **Enter** to exit.

```

+-----[Screen and keyboard]-----+
| A - Command key is      : ^A
| B - Backspace key sends : BS
| C - Status line is     : enabled
| D - Alarm sound        : Yes
| E - Foreground Color (menu): WHITE
| F - Background Color (menu): BLACK
| G - Foreground Color (term): WHITE
+--| H - Background Color (term): BLACK
| I - Foreground Color (stat): WHITE
| J - Background Color (stat): BLACK
| K - History Buffer Size   : 2000
| L - Macros file          : .macros
| █ M - Edit Macros
| N - Macros enabled       : Yes
| O - Character conversion :
| P - Add linefeed        : Yes
| Q - Local echo          : Yes
+--| R - Line Wrap           : No
| S - Hex Display         : No
| T - Add carriage return : Yes
| Change which setting? (Esc to exit) █
+-----+

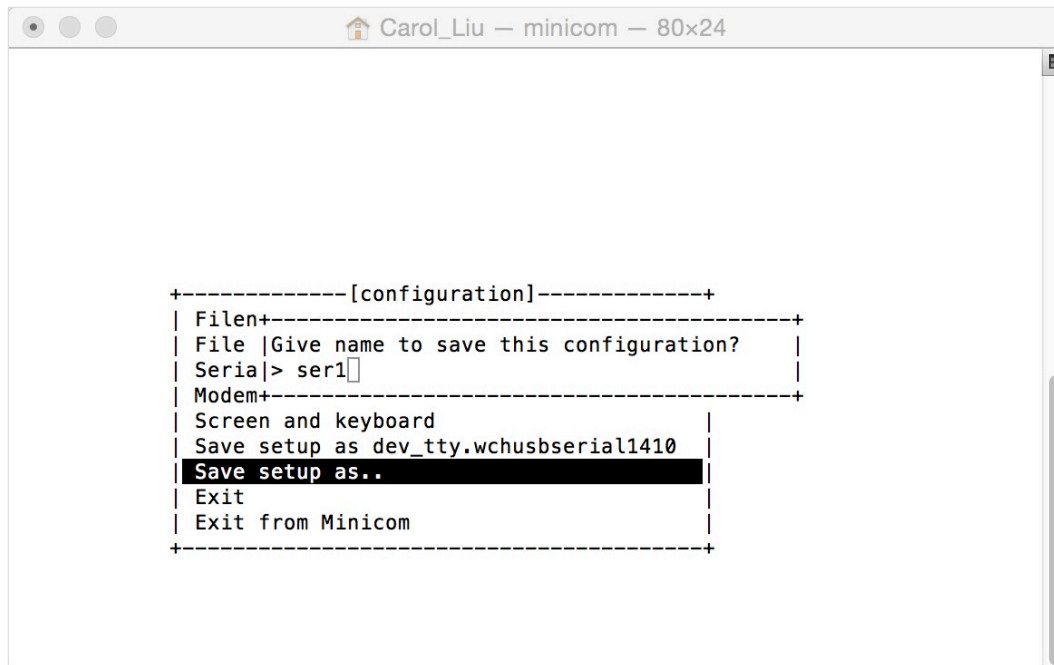
```

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STEP 8 Go to **Save setup as...** and press **Enter** >

Type in a name (e.g., ser1) >

Press **Enter**.

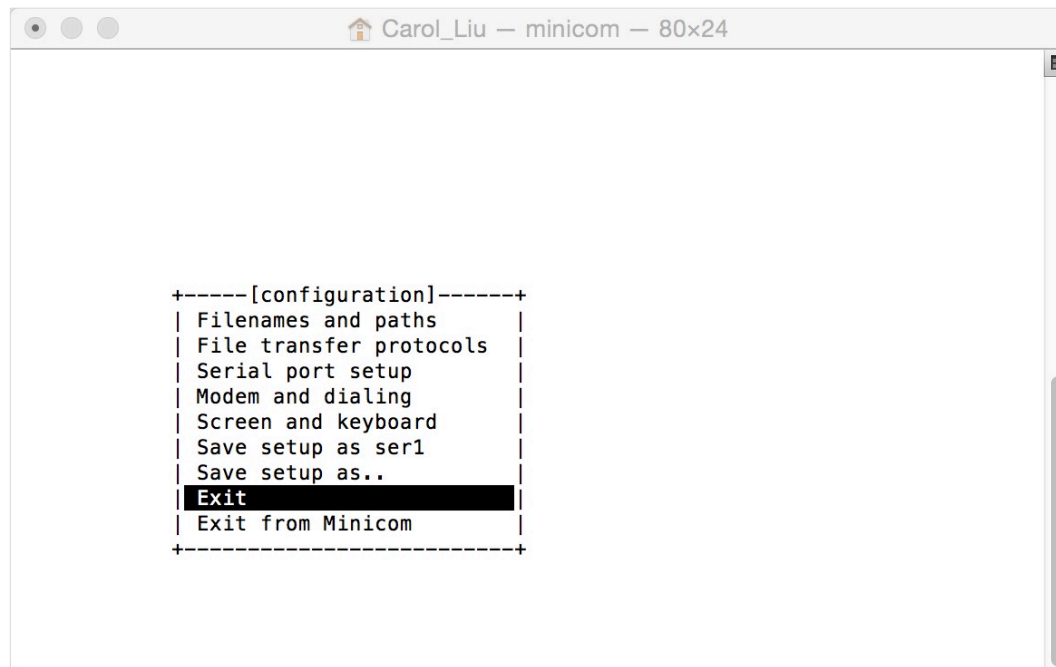


```
Carol_Liu - minicom - 80x24

+-----[configuration]-----+
| File+-----+                |
| File |Give name to save this configuration?|
| Serial> ser1|                 |
| Modem+-----+                |
| Screen and keyboard            |
| Save setup as dev_tty.wchusbserial1410 |
| Save setup as..                |
| Exit                          |
| Exit from Minicom             |
+-----+
```

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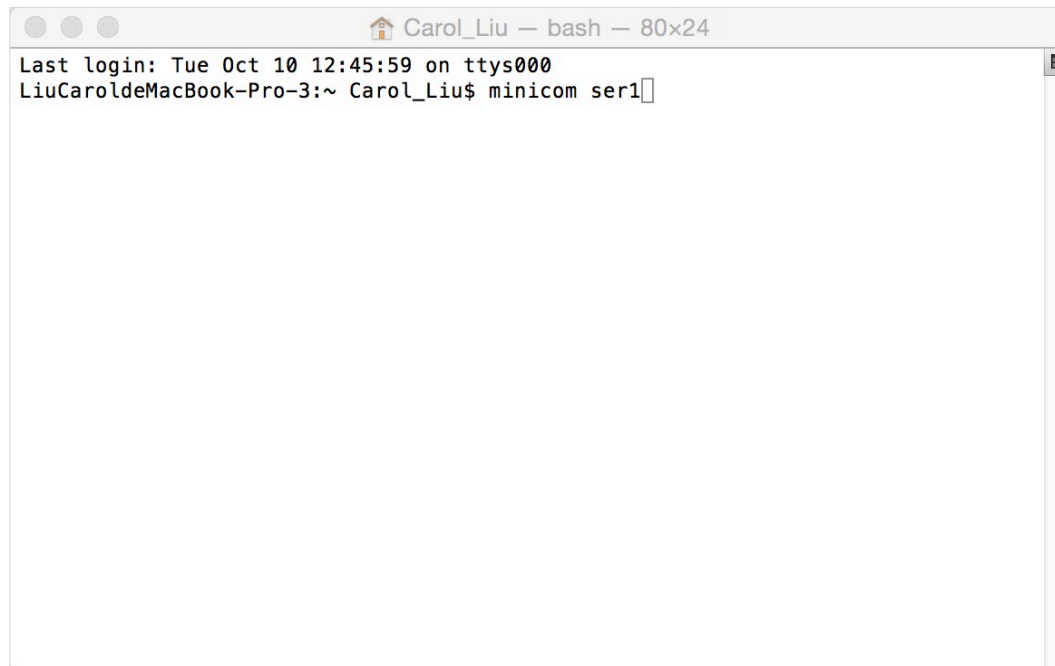
STEP 9 Go to **Exit** and press **Enter**.



XKIT BREAKDOWN GUIDE – MAC

STEP 10 Type the following line into the Terminal.

```
minicom ser1
```



```
Carol_Liu — bash — 80x24
Last login: Tue Oct 10 12:45:59 on ttys000
LiuCaroldeMacBook-Pro-3:~ Carol_Liu$ minicom ser1
```

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STEP 11 Now you can use **AT command** to communicate with the Xkit.



```
Carol_Liu — minicom — 80x24

Welcome to minicom 2.7.1

OPTIONS:
Compiled on May 17 2017, 15:28:31.
Port /dev/tty.wchusbserial1410, 12:40:06

Press Meta-Z for help on special keys

AT
OK

AT$I=10
003E7F69

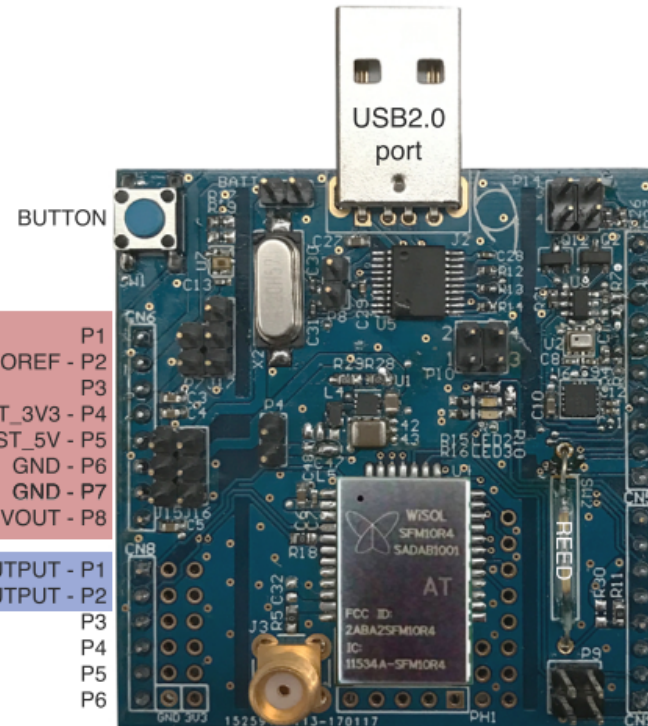
AT$SF=00
OK

□
```


Thinxtra Xkit pin-out configuration

Pins linked to

- Power
- Sensors
- Module

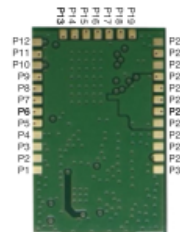


The list of AT commands can be found at https://github.com/Thinxtra/Xkit-Sample/blob/master/Document/Wisol_Comands_and_Schematics/WISOLUserManual_EVBSFM10R_Rev.7_170109_58b4a9a454c77_e.pdf.

Reference voltage for I2C communication	HOST-IOREF - P2
Input voltage to Xkit. Use with STM Nucleo jumper config	HOST_3V3 - P4
Input voltage to Xkit. Use with Arduino jumper config	HOST_5V - P5
	GND - P6
	GND - P7
Output voltage from battery. Use with battery jumper config	VOUT - P8
LIGHT_SENSOR_OUTPUT - P1	
BUTTON_OUTPUT - P2	
P3	
P4	
P5	
P6	

P10 - I2C_SCL	I2C bus to communicate with temperature/pressure sensor
P9 - I2C_SDA	I2C bus to communicate with accelerometer
P8	
P7 - GND	
P6 - GPIO6	Connected to the GPIO6 of Wisol module
P5- DO NOT USE	
P4 - GPIO9	Connected to the GPIO9 of Wisol module
P3 - GPIO7	Connected to the GPIO7 of Wisol module
P2 - GPIO4	Connected to the GPIO4 of Wisol module
P1 - SF_RESET	Connected to the RST_N pin of Wisol module
P8 - LED_BLUE	Connected to TXLED of Wisol module
P7 - LED_RED	Connected to RXLED of Wisol module
P6 - MMA8451_INT2	Interrupt pin of accelerometer
P5	
P4 - REED_OUTPUT	Connected to the REED switch
P3 - MMA8451_INT1	Interrupt pin of accelerometer
P2 - SERIAL1_TX	Connected to UARTTX of Wisol module (add P9 Jumper)
P1 - SERIAL1_RX	Connected to UARTRX of Wisol module (add P9 Jumper)

Wisol module pin-out configuration



1	GND	9	GPIO5	17	TXLED/DBG_CLK	25	GPIO2
2	GND	10	GPIO4	18	NC4/DBG_EN	26	GPIO3
3	GND	11	CPU_LED	19	RST_N	27	GND
4	GND	12	RADIO_LED	20	GND	28	GND
5	NC3/ SYSCCLK	13	GPIO9	21	VDD_IO	29	GND
6	GPIO8	14	UARTTX	22	GND	30	RF_IO
7	GPIO7	15	UARTRX	23	GPIO0	31	GND
8	GPIO6	16	RXLED/DBG_DATA	24	GPIO1		

Pin-map of RCZ1, RCZ2, RCZ3 and RCZ4 module is compatible (Pin to Pin)