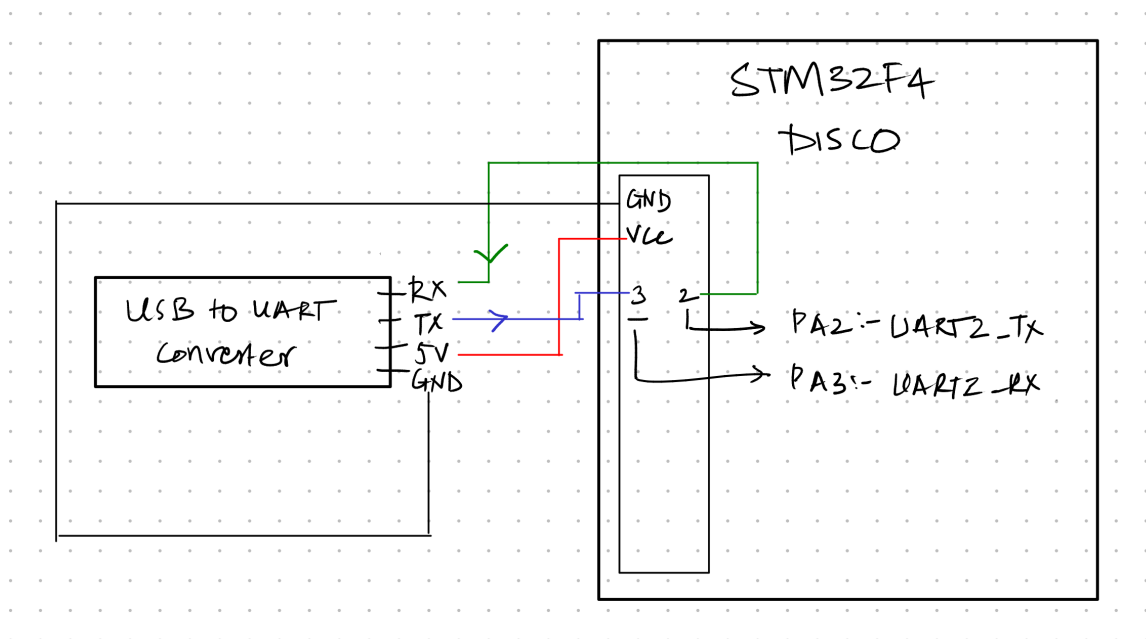


# UART Communication

- Note - While writing this documentation I am working with STM32F407G Discovery board.
- Specifications
  - Program - Hello World
  - Location - ~/zephyrproject/zephyr/samples/hello\_world
  - Board - STM32F407G Discovery
  - Board Documentation -
  - Zephyr Version - 2.4.99
  - Build Tool - West
  - Serial Terminal - Minicom
- The major issue with the specific board that is being used is there is UART to STLink connection provided by the manufacturer for Virtual Comm (Serial Comm). So its necessary to use the USB to TTL converter.
- USB to TTL converter and Board connection diagram.



- Command to build and flash the application for this specific board.

```
#From the root of the zephyr repository
west build -b stm32f4_disco samples/hello_world
west flash
```

- Steps to start serial console (minicom) to the connected board
  - First search the port of laptop to which the board is connected using this command

```
ls /dev/tty*

# Output
luffy@roger:~/zephyrproject/zephyr$ ls /dev/tty*
/dev/tty    /dev/tty2    /dev/tty31   /dev/tty43   /dev/tty55   /dev/ttyprintk /dev/ttyS2    /dev/ttyS31
/dev/tty0    /dev/tty20   /dev/tty32   /dev/tty44   /dev/tty56   /dev/ttyS0     /dev/ttyS20   /dev/ttyS4
/dev/tty1    /dev/tty21   /dev/tty33   /dev/tty45   /dev/tty57   /dev/ttyS1     /dev/ttyS21   /dev/ttyS5
/dev/tty10   /dev/tty22   /dev/tty34   /dev/tty46   /dev/tty58   /dev/ttyS10    /dev/ttyS22   /dev/ttyS6
/dev/tty11   /dev/tty23   /dev/tty35   /dev/tty47   /dev/tty59   /dev/ttyS11    /dev/ttyS23   /dev/ttyS7
/dev/tty12   /dev/tty24   /dev/tty36   /dev/tty48   /dev/tty6    /dev/ttyS12    /dev/ttyS24   /dev/ttyS8
/dev/tty13   /dev/tty25   /dev/tty37   /dev/tty49   /dev/tty60   /dev/ttyS13    /dev/ttyS25   /dev/ttyS9
/dev/tty14   /dev/tty26   /dev/tty38   /dev/tty5    /dev/tty61   /dev/ttyS14    /dev/ttyS26   /dev/ttyUSB0
/dev/tty15   /dev/tty27   /dev/tty39   /dev/tty50   /dev/tty62   /dev/ttyS15    /dev/ttyS27
/dev/tty16   /dev/tty28   /dev/tty4    /dev/tty51   /dev/tty63   /dev/ttyS16    /dev/ttyS28
/dev/tty17   /dev/tty29   /dev/tty40   /dev/tty52   /dev/tty7    /dev/ttyS17    /dev/ttyS29
/dev/tty18   /dev/tty3    /dev/tty41   /dev/tty53   /dev/tty8    /dev/ttyS18    /dev/ttyS30
/dev/tty19   /dev/tty30   /dev/tty42   /dev/tty54   /dev/tty9    /dev/ttyS19    /dev/ttyS30
```

- From the above output we can see board is connected to /dev/ttyUSB0. We start the serial console by providing the port as real time parameter to minicom.
- Command to start minicom

```
minicom -D /dev/ttyUSB0
```

- The flag "-D" is used to provide the device port. Zephyr uses the default Bps of 115200 and Parity bit 8N1. So its not needed to configure.
- If the you need to configure minicom then refer to this article - [https://wiki.emacinc.com/wiki/Getting\\_Started\\_With\\_Minicom](https://wiki.emacinc.com/wiki/Getting_Started_With_Minicom)
- Once the minicom is started there will be no output as the program is already executed, press reset button to restart the program. After resetting the board you will see the output in minicom.
- Output in Minicom

```
Welcome to minicom 2.7.1

OPTIONS: I18n
Compiled on Dec 23 2019, 02:06:26.
Port /dev/ttyUSB0, 12:11:28

Press CTRL-A Z for help on special keys

*** Booting Zephyr OS build zephyr-v2.4.0-2710-g5358a11687a3 ***
Hello World! stm32f4_disco
```