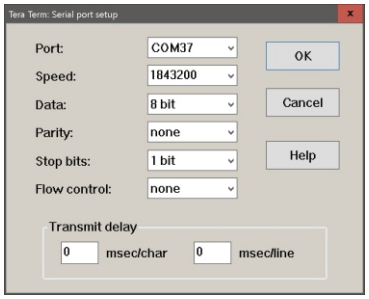
WAcouSense Quick Start

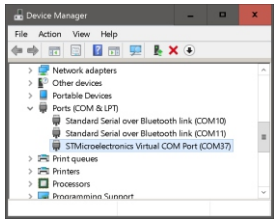
1. Power up and UART

connect **USB-C** with PC

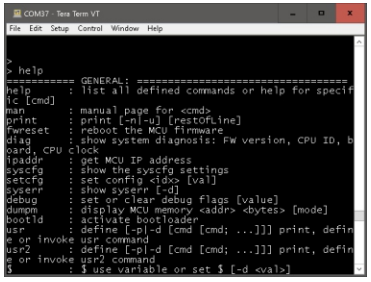
start Teraterm:
- select the VCP UART COM port of MCU
- set any baudrate, 8bit, no parity, no flow control



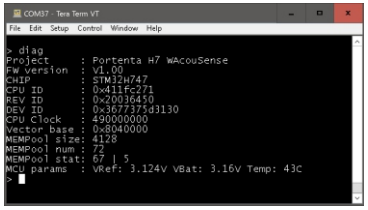
find COM port via “Device Manager”



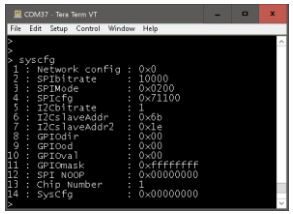
see command prompt
enter **help** for list of commands



check FW version via **diag**



check system config via **syscfg**



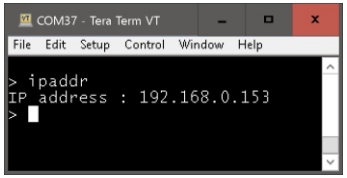
get help for a specific command:
help <cmd>

2. Network setup

connect board via ETH cable (RJ45)

option A: connect PC and MCU on network with router
(not direct cable, two cables to router)
network (router) has to run DHCP service
(dynamic IP address)

check if MCU got IP address via **ipaddr**:

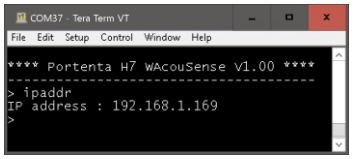


PC via DHCP (”dynamic”) and
separate ETH cable
remember MCU IP address

blue LED

option B: connect MCU with PC using direct cable (not on network)
PC must be configured for STATIC IP address

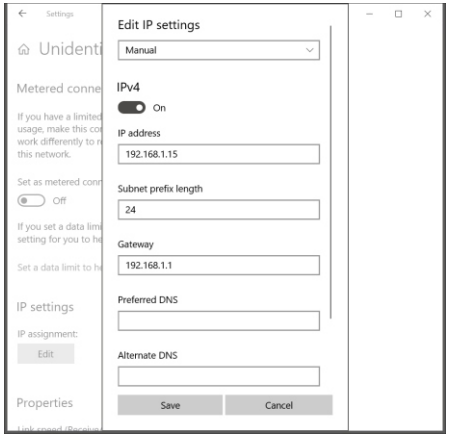
check if MCU got IP address via **ipaddr**:



DHCP times out and MCU
falls back to STATIC IP address:
192.168.1.169
remember MCU IP address

red LED

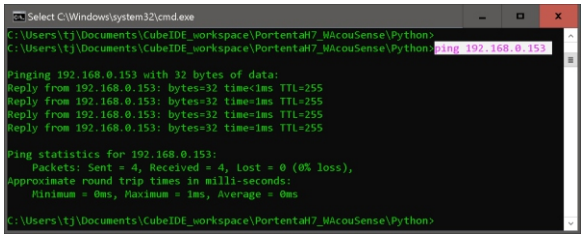
configure PCs ETH adapter for STATIC
(manual):
on same network, with 24bit network mask



different IP address as MCU but
on same network

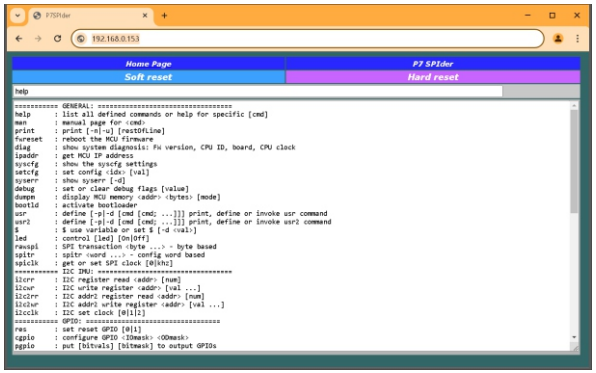
3. Check network connection

option A: use **ping** on PC (works only if DYNAMIC and DHCP):



MCU IP address

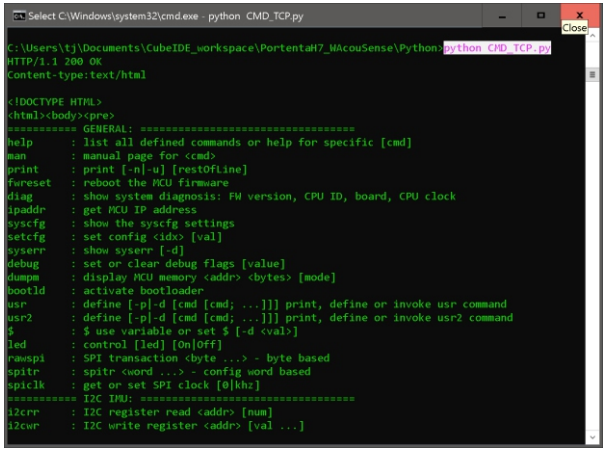
option B: access MCU with Web Browser:



MCU IP address

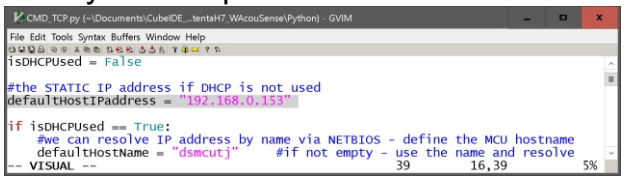
see web page and
enter any command,
e.g. **help**

option C: start Python script **CMD_TCP.py**:



see help text,
see prompt,
enter any command,
e.g. **help**

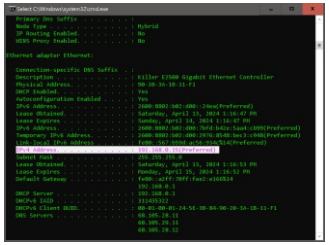
ATT: make sure Python script will use **MCU IP address**:
edit Python script and see line:



4. Stream PDM MIC audio:

Requirement: have **VBAN** (like VB Audio, Voicemeeter) installed

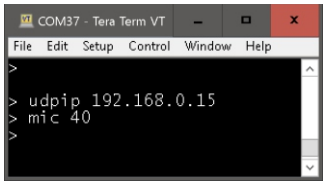
get the IP address of PC: Windows OS: **ipconfig /all**



Remember PC IP address

enable MCU streaming:

udpip <PC_IPaddress>
mic <db>

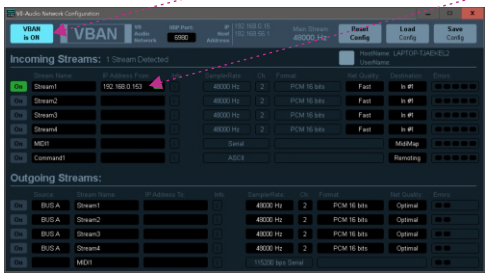


configure and enable **VBAN** audio (in **Voicemeeter**):

click on it to see
stream setup

enable VBAN reception

MCU IP address



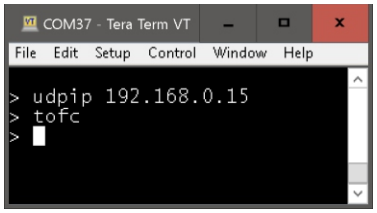
play with device settings and
audio routing until you get MIC
audio on PC output device

5. Get TOF sensor data via network:

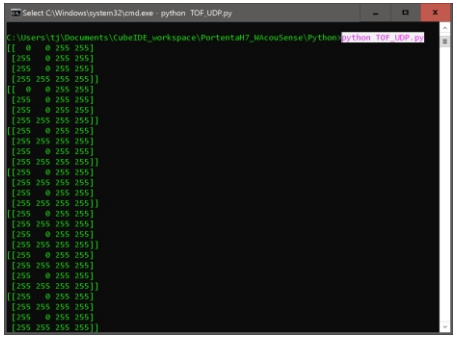
enable MCU streaming:

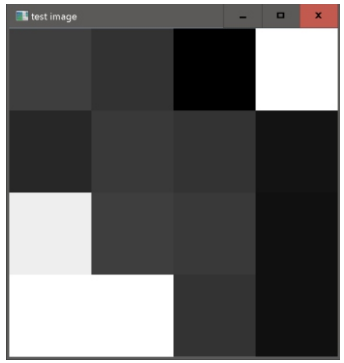
udpip <PC_IPaddress>

tofc



start Python script **TOF_UDP.py** (nothing to modify/set):

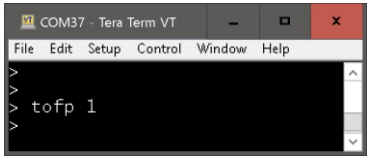




default: 4x4

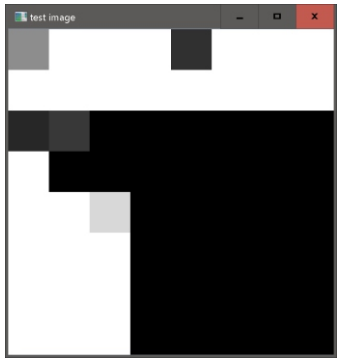
change to 8x8 on UART via:

tofp 1



toggle back to 4x4 on UART via:

tofp 1



8x8

6. Get PDM MIC audio via Python:

tbd

(listen on UDP port 6980 (instread of using VBAN tool, get and decode VBAN audio streaming, “sounddevice” in Python with audio packets via network UDP)

7. Update (flash) new MCU FW:

Easiest way: with **Arduino Bootloader** (located in MCU):

find tool **dft-util.exe** in project folder **FWFlash**

press reset button quickly **twice**:

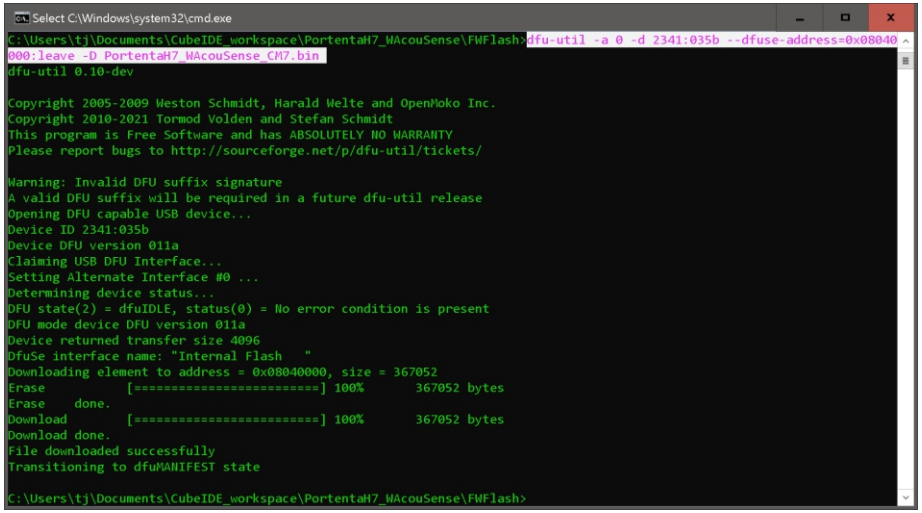
you should see a **fading blinking green LED**

if not: disconnect and connect USB-C very briefly

enter on CMD line:

```
dfu-util -a 0 -d 2341:035b --dfuse-address=0x08040000:leave -D PortentaH7_WAcouSense_CM7.bin
```

or see in file flash_command.txt



Other options:

a) compile project in **STM32CubeIDE**, with STLINK V3 debugger connected and flash FW in IDE (e.g. via debug icon)

b) generate BIN file and flash with **STM32CubeProgrammer** (start address is **0x08040000** !)