User Guide

Veda IF91x Firmware Download and Test Tool Setup

Version 1.0

Revision History

Revision	Date	Notes	Author	Approver
R0.1	02 Feb 2026	Draft release	Brandon.Wang	Andrew.Chen
R1.0	25 Feb 2026	First public release.	Brandon.Wang	Andrew.Chen

Table of Contents

1 Introduction and Scope

This user guide describes and instructs user how to do flash program firmware into Veda IF91x module using the Development Kit board. Veda IF912/IF913 high-performance connected MCU modules, based on the Infineon CYW55912 and CYW55913 chipsets. They are low-power dual and tri-band Wi-Fi 6/6E solutions. Ezurio is announcing our initial development with this chipset to expose a future piece of our roadmap to developers.

The Veda IF912 and Veda IF913 share a common hardware platform with the exception of the respective chipsets, allowing full leveraging of development, qualification, and software.

Note: ***What is a Connected MCU?***

Ezurio's Veda series of Wi-Fi radio modules represent our line of Connected MCU offerings. They contain several subcomponents: the radio itself, a microcontroller for on-module application processing, onboard memory, and a collection of I/O peripherals. They're designed to operate in two ways:

Hosted mode - A complete wireless subsystem as an assistant to a main board's processor
Hostless mode - A module and its MCU are the primary processor for your design, running applications, stacks, and security on the module without the need for a connected processor.

Our connected MCUs are capable of running an RTOS (FreeRTOS, Zephyr, ThreadX, etc) and are optimized for power consumption and design flexibility.

1.1 Features and Benefits

- **Size**: Small footprint (7 x 14 mm) - as little as 25% the footprint of competing solutions
- **Flexibility**: Memory options for Wi-Fi 6 vs 6E, optionally run on integrated SRAM and flash on chip
- **Low Cost**: Highly integrated SIP design reduces footprint and cost, with product sector leading pricing
- **Shielding**: Integrated RF shield, no external shield required (simplifies integration size and cost)
- **Memory**: Integrated PSRAM and Flash
- **Software**: Full support for latest MODUS Toolbox development environment

Connectivity: Only vendor with Dual-band Wi-Fi 6 (Veda SL912) AND Tri-band Wi-Fi 6E (Veda SL913)

1.2 System requirements

- Windows 11 64-bit
- Ubuntu Linux 22.04 LTS or upper version
- macOS Big Sur and Monterey
- Processor: 1 GHz or faster
- RAM: 4 GB or more
- Hard disk space: 350 MB
- Display: 1280x1024 or more

1.3 Software package contents

- **airocbluetoothtool-1.4.2.3884-win-x64.exe** – airocbluetoothtoolgui executable the Windows GUI application file.
- **airocbluetoothtool-1.4.2.3884-linux-x64.deb** - airocbluetoothtoolgui executable the Linux GUI application file.
- **CYW55900A0_001.001.071.0199.0000_251218_TEST_ONLY.hcd** – Latest Bluetooth firmware config
- **wl_rc1.exe** – wl command executable file
- **MbtP.exe** – Infineon Bluetooth MbtP executable file
- **ifx_flasher_cli.exe** – Ezurio designed firmware programming tool for generic Infineon chipset usage.

1.4 Software suggests downloading by OS

- **Drivers used to communicate with Bluetooth® devices:**
  - **WICED UART driver** – the FTDI VCP driver (Windows only).
  - **BTWUSB driver** – the USB driver (Windows only).

2 DVK test setup

2.1 Hardware Equipment List

The whole test setup consists of serval pieces of hardware and software needed to be prepared. In addition, the following Device/Cables/Component also required.

Table 1: Hardware Equipment list

Item	Equipment Description	Vender	Model	Quantity
1	Desktop PC with Win11 64 bits or Linux Ubuntu 24.04 LTS	Any	Any	1
2	Veda IF912/IF913 Dev Kit Board	Ezurio	Veda IF912/IF913 Dev Kit	1
3	USB-A to USB-C cable	Any	Any	1
4	LitePoint IQ201X/IQxel-160/IQFlex/IQxel-M2W/M8W/M16W Or any other preferred brand of radio performance measurement device	LitePoint	IQ201X/IQxel-160/IQFlex/IQxel-M2W/M8W/M16W	1
5	Woken 18GHz Stainless SMA(M)-SMA(M) for 100cm SS402 Cable Assembly	Woken	SS402	1
6	Woken 6GHz 6dB 2W SMA Fixed Attenuator/Stainless Steel	Woken	WK0602-06	1

2.1.1 Connection Diagram

Figure 1 shows the basic hardware configuration also cable connection for firmware download, UART communication, RF transmission/receive testing.

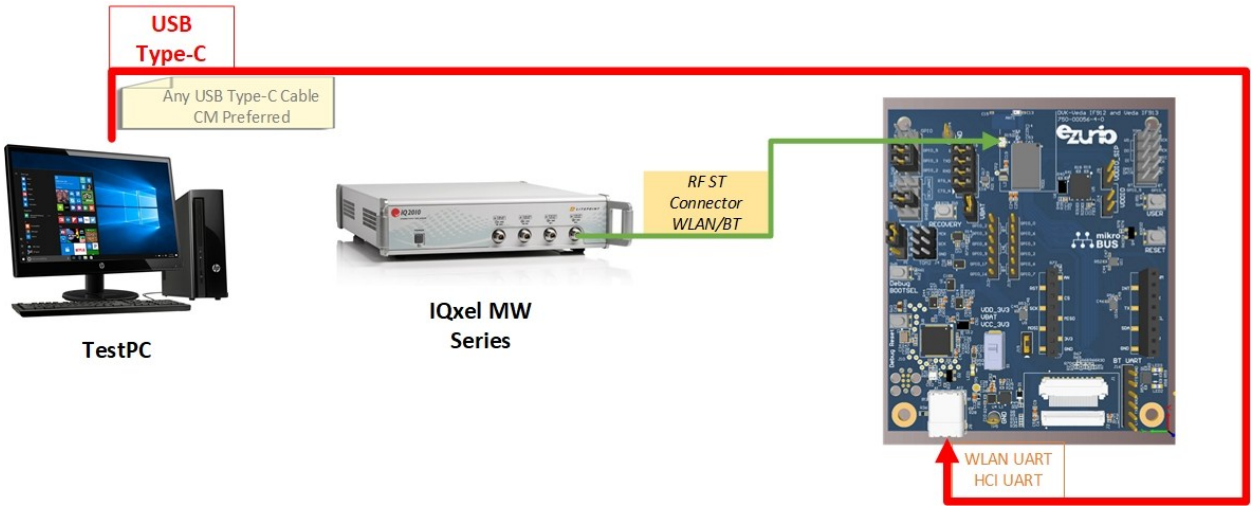


Figure 1: Veda IF91x Test Tool Connection Diagram

Note: Please make sure each cable connected to the corresponding device and port, also check each label stick as properly.

2.2 Software Requirements

2.2.1 Infineon Development Resource Requirements

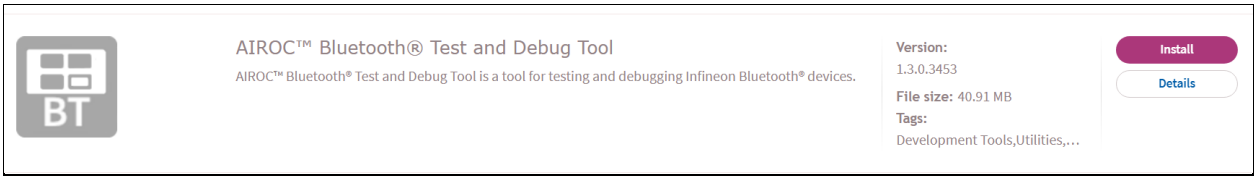
Pre-install the following prerequisite software into your test station (Windows/Linux PC) to ensure that you are able to execute the Infineon firmware and script without any unexpected errors.

Note[1] Please note that the platform dependencies should be chosen correctly, Linux select ****.deb*** to download, MacOS select ****.pkg*** to download, Windows select ****.exe*** to download.

2.2.1.1 AIROC™ Bluetooth® Test and Debug Tool

The AIROC™ Bluetooth® Test and Debug Tool is a tool for testing and debugging Infineon Bluetooth® devices.

For more detailed information about how to install the tool on different operating systems, please refer to Infineon's document, "CyBluetool_user_guide_1.2.pdf".



Reference Download Link:

https://softwaretools.infineon.com/tools/com.ifx.tb.tool.airocbluetoothtool

2.2.1.2 ModusToolbox™ Tools Package

ModusToolbox™ is a set of multi-platform development tools and a comprehensive suite of GitHub®-hosted firmware libraries. Together, they enable an immersive development experience for customers creating converged MCU and Wireless systems.

Reference Download Link:

https://softwaretools.infineon.com/tools/com.ifx.tb.tool.modustoolbox

2.2.1.3 Eclipse IDE for ModusToolbox™

Custom Eclipse IDE for ModusToolbox™ development.

Reference Download Link:

https://softwaretools.infineon.com/tools/com.ifx.tb.tool.mtbeclipse

2.2.1.4 Visual Studio Code

Visual Studio Code is proprietary software released under the "Microsoft Software License" but based on the MIT licensed program named "Visual Studio Code – Open Source" (also known as "Code – OSS"), also created by Microsoft and available through GitHub.

Reference Download Link:

https://code.visualstudio.com/download

2.2.1.5 PuTTY

PuTTY is an SSH and telnet client, developed originally by Simon Tatham for the Windows platform. PuTTY is open source software that is available with source code and is developed and supported by a group of volunteers.

Reference Download Link:

https://www.putty.org/

2.2.2 Ezurio Software Resource Requirement

Pre-install the following prerequisite software into Test station Windows/Linux PC to ensure that able to execute Ezurio firmware and script without any unexpected errors.

Note: The platform dependencies should be chosen correctly, Linux select ***.deb*** to download, MacOS select ***.pkg*** to download, Windows select ***.exe*** to download.

2.2.2.1 RP2040 DVK Probe Firmware

The RP2040 DVK Probe firmware has many fixes for reliable USB-to-UART communication, it will generate two UART COM port for module and RP2040 communication. One of them is WL UART used to do Infineon wl too sequence for Tx/Rx radio testing, another one was HCI UART for firmware programming and BLE Tx/Rx radio testing.

Please be sure to check the contents of the file after decompression as follows:

- picoprobe.bin
- picoprobe.dis
- picoprobe.elf
- picoprobe.elf.map
- picoprobe.hex
- picoprobe.uf2

Reference Download Link:

DVK Probe v2.0.0 (480-00332-R2.0.0)

Or Please contact Ezurio Engineer Windows for the latest version and information.

2.2.2.2 Ezurio Infineon Flasher CLI tool

The Ezurio Infineon Flasher CLI tool is ifx_flasher_cli.exe, a CLI tool that Ezurio designed for customer use to program Veda IF91x WLAN/Bluetooth firmware. It allows users to quickly flash firmware using extremely simple single-line commands in Windows Command Line or PowerShell windows to execute.

The flashing utilities support flashing firmware with the .hex or .hcd file format. The flashing utilities should be used to flash EZ-Serial firmware or HCI firmware.

Reference Download Link:

Please contact Ezurio Engineer Windows for the latest version and information.

2.2.2.3 Ezurio Automative WLAN Tx Transmission Script

The Ezurio automation WLAN Tx transmit power script includes various protocols of 802.11a/b/g/n/ac/ax. This allows users to execute a single-line PowerShell command instead of almost 20-30 wl commands line to do the radio performance testing.

Reference Download Link:

Please contact Ezurio Engineer Windows for the latest version and information.

2.2.2.4 Ezurio Automative BLE Tx Transmission Script

The Ezurio automation BLE Tx transmit power script allows users to execute one single-line PowerShell command instead of complex Infineon MbtP tool command lines to do the BLE radio performance testing.

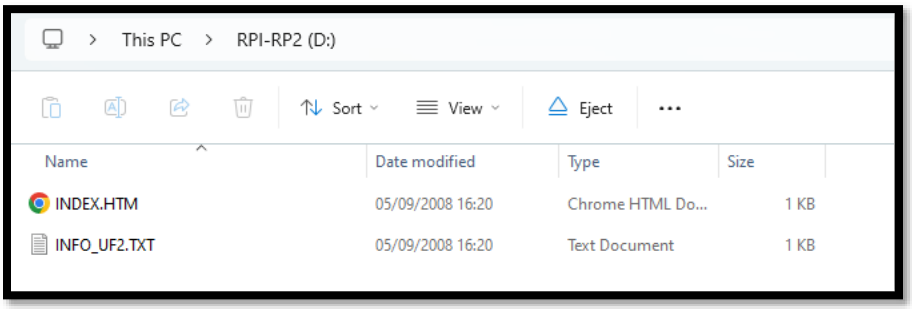
Reference Download Link:

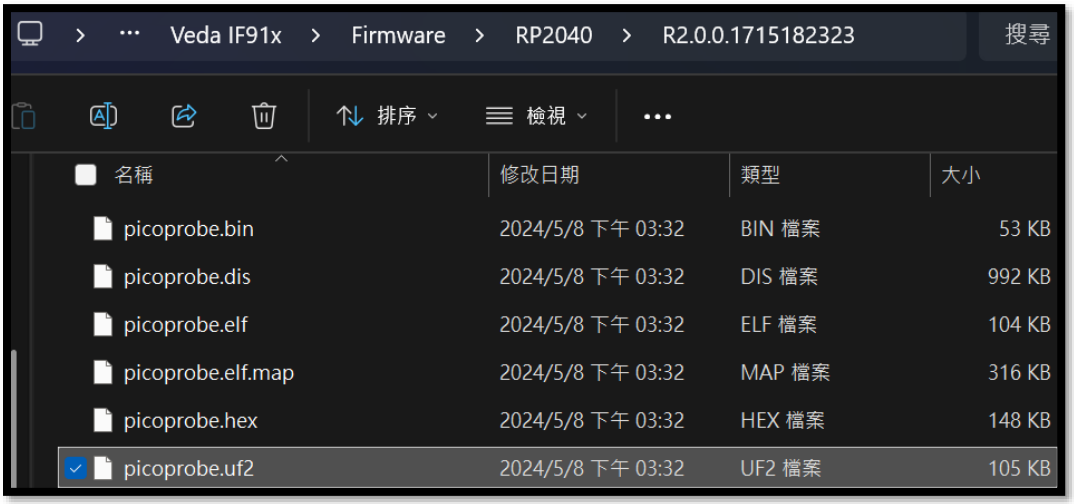
Please contact Ezurio Engineer Windows for the latest version and information.

3 Firmware Update

3.1 RP2040 DVK Probe Firmware Program

Programming the firmware is done over USB via BOOTSEL mode. To enter BOOTSEL mode on the RP2040, and load code over USB-C, you need to hold the BOOTSEL button [SW5] down and then reset the board. You can do this by unplugging and plugging the USB connector. Once in BOOTSEL mode, the user should see a virtual USB storage device show up on their computer named RPI-RP2. Drag-and-drop the firmware ***picoprobe.uf2*** file onto the storage device and the firmware will be loaded and the RP2040 will reset.

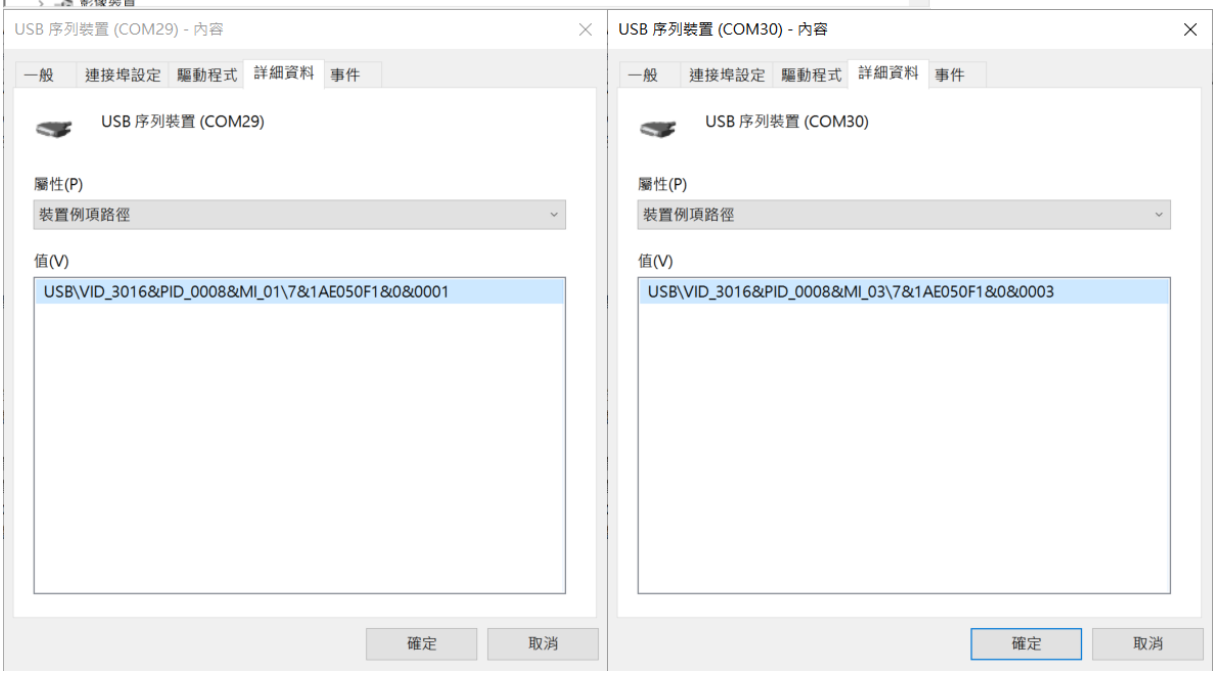




Please ensure the new DVK Probe firmware has been downloaded and there are many fixes for reliable USB-to-UART communication. The firmware resource can be found on our website: https://www.ezurio.com/documentation/dvk-probe-firmware-v3-0-0 .

Once DVK Probe Firmware is programmed completely, Windows will detect two USB Serial devices which were HCI UART and WL UART. For example, in such cases the COM29 with USB\VID_3016&PID_0008&MI_01\7&1AE050F1&0&0001 was **HCI UART**, another one COM30 with USB\VID_3016&PID_0008&MI_03\7&1AE050F1&0&0003 was **WLAN UART**.

HCI UART – For WLAN and Bluetooth firmware usage.
WLAN UART – For Infineon WL tool command usage.



3.2 Wi-Fi Firmware Download

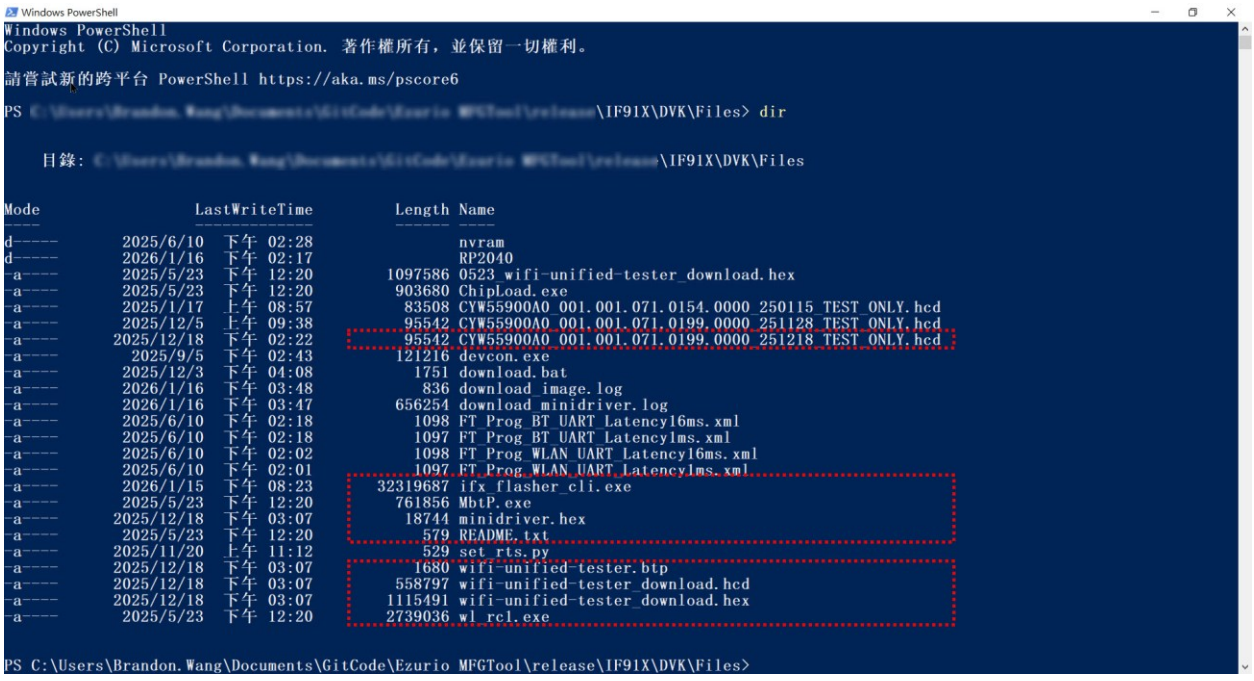
This section describes how to download the Wi-Fi firmware onto Veda IF91x module. This is for a hardware setup with RP2040 with a USB Type-C cable. Before starting the firmware download, please confirm the following items and prepare them in advance.

1. HCI UART COM (COM port with MI_01 prefix string of Device Instance Path) port appears in Windows Device Manager List. Insert the USB Type-C cable to the **J8** port on Veda IF91x Dev Kit.
2. Plug the USB-A to USB-C cable with 5V.

> **** IMPORTANT ****
> How to enter **HCI Download Mode** operation when ifx_flasher_cli.exe prompt message let you enter to continue firmware programming. Once ifx_flasher_cli.exe prompt message "*Ensure the board is in HCI download mode and press enter to continue...*" then user should be operated below button action sequence then press ENTER key to continue.
> 1. Press-hold **Recovery** button
> 2. Press **Reset** button for 1 second
> 3. Release **Reset** button
> 4. Release **Recovery** button

3.2.1 Windows Environment Procedure

1. Download and copy the resource files "[Veda IF91x] Firmware-Resource-2025Dec01.7z" to the specified folder. In addition, please be sure to check the contents of the file after decompression as follows:
   - MbtP.exe
   - ifx_flasher_cli.exe
   - minidriver.hex
   - wifi-unified-tester.btp
   - wifi-unified-tester_download.hcd
   - wifi-unified-tester_download.hex
   - CYW55900A0_001.001.071.0199.0000_251218_TEST_ONLY.hcd
   - wl_rc1.exe
   - README.txt

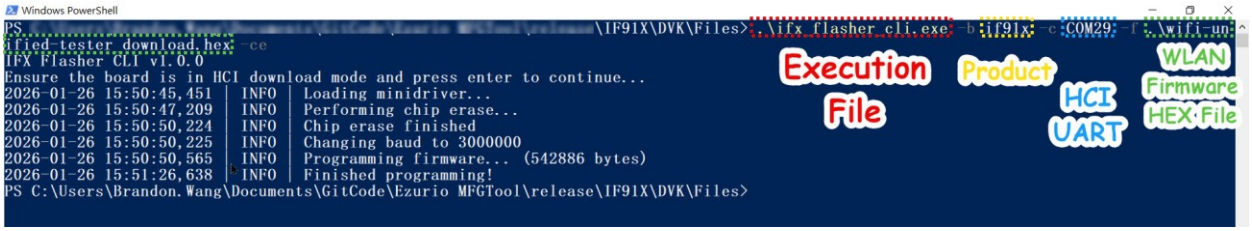


2. Open the Windows command prompt or PowerShell then navigate to the folder where **ifx_flasher_cli.exe** is located.
3. Check the Virtual COM port number of RP2040 (**HCI UART with MI_01 in Device instance path**).
4. Execute the following command to launch the firmware download script.

```
# .\ifx_flasher_cli.exe -b if91x -c [HCI UART COM] -f [WLAN Firmware File .hex Location] -ce
```

For example, if **HCI UART** COM port number on Windows Device Manager is 29, then your command should be composed as below:

 # .\ifx_flasher_cli.exe -b if91x -c COM29 -f .\wifi-unified-tester_download.hex -ce

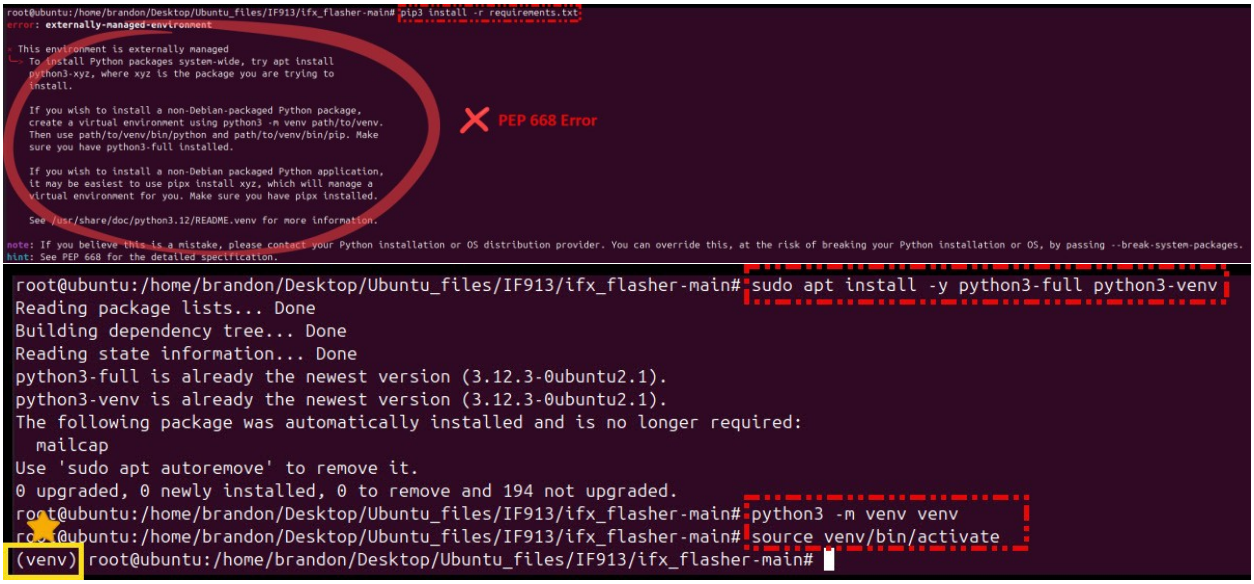


Then tool will output log as below string sequence.

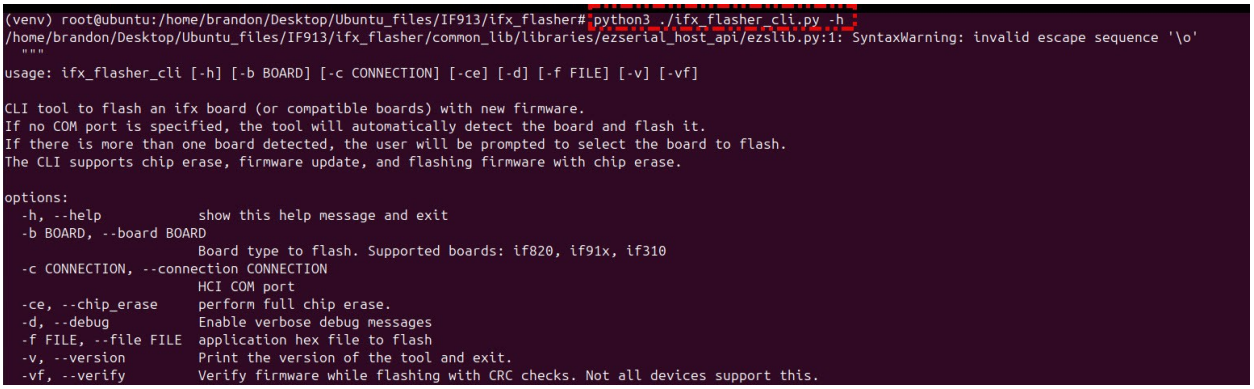
IFX Flasher CLI v1.0.0
Ensure the board is in HCI download mode and press enter to continue...
2026-01-26 15:50:45,451 I INFO I Loading minidriver...
2026-01-26 15:50:47,209 I INFO I Performing chip erase...
2026-01-26 15:50:50,224 I INFO I Chip erase finished
2026-01-26 15:50:50,225 I INFO I Changing baud to 3000000
2026-01-26 15:50:50,565 I INFO I Programming firmware... (542886 bytes)
2026-01-26 15:51:26,638 I INFO I Finished programming!

3.2.2 Linux Environment Procedure

1. Follow the instructions of ifx_flasher (rfpros/ifx_flasher: Host tool for flashing Infineon firmware over HCI UART) to prepare prerequisites for setup.
2. Ubuntu 24.04LTS user should be aware once you install dependencies use the system Python will meet PEP 668 Error. In this case, it is recommended that you create a virtual machine to install dependencies via pip.



3. Download and copy the resource files "[Veda IF91x] Firmware-Resource-2025Dec01.7z" which same as the section 3.2.1 above to the specified folder you expect to place.
4. Open the Linux Terminal then navigate to the folder where **ifx_flasher_cli.exe** is located.
5. Check the Virtual COM port number of RP2040 generated (**HCI UART with /dev/ttyACM01 in Linux Device Tree**).
6. Launch the tool Ezurio provided which named "ifx_flasher_cli" to program Infineon firmware file into module. Firstly, user can list tool help and documentation to learn how to issue command format and parameter.

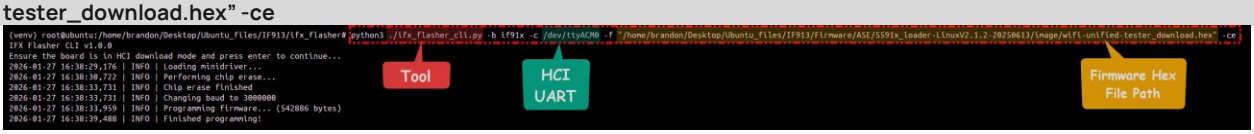


7. Afterwards, execute the following command to launch firmware download script.

 # python3 ./ifx_flasher_cli.py -b if91x -c [HCI UART COM] -f [WLAN Firmware File .hex Location] -ce

For example, if **HCI UART** COM port number on Windows Device Manager is 29, then your command should be composed as below:

 # python3 ./ifx_flasher_cli.py -b if91x -c /dev/ttyACM0 -f "[Here please type the firmware file path you place]/wifi-unified-tester_download.hex" -ce



Then the tool will output the log as in the below string sequence.

IFX Flasher CLI v1.0.0
Ensure the board is in HCI download mode and press enter to continue...
2026-01-27 16:38:29,176 I INFO I Loading minidriver...
2026-01-27 16:38:30,722 I INFO I Performing chip erase...
2026-01-27 16:38:33,731 I INFO I Chip erase finished
2026-01-27 16:38:33,731 I INFO I Changing baud to 3000000
2026-01-27 16:38:33,959 I INFO I Programming firmware... (542886 bytes)
2026-01-27 16:38:39,488 I INFO I Finished programming!

3.2.3 WL command for WLAN RF test

This section describes the WL command sequences using the Infineon WLAN Client Utility for running the transmit and receive RF performance tests on the following devices. The WLAN Client Utility is an Infineon proprietary tool for configuring the devices operating mode and taking RF measurements.

Before starting the WL command testing for RF performance, please also check the below hardware configuration setup properly.

1. Ensure the **WL UART(MI_03)** connection between Veda IF91x Dev Kit and target environment/platform Windows or Linux operating system.
2. Plug USB to USB-C cable with 5V.
3. Pull the RTS control line to LOW status. (set_rts.py content should be created as below)

```
PS C:\Users\Brandon.Wang\Documents\GitCode\Ezurio MFGTool\release\IF91X\DVK\Files> python .\set_rts.py COM30
COM30: RTS pull low.
```

Python script of set_rts.py used to pull RTS line to LOW status in Windows OS.

```
import serial
import time
import sys

if len(sys.argv) != 2:
print("Usage: python set_rts.py <COM port>")
print("Example: python set_rts.py COM20")
sys.exit(1)

com_port = sys.argv[1]

try:
ser = serial.Serial(
port=com_port,
baudrate=115200,
timeout=1,
rtscts=False
)

ser.setRTS(False)
print(f"{com_port}: RTS pull low.")

ser.close()

except serial.SerialException as e:
print(f"Failed to open {com port}:{e}")
sys.exit(2)
```

4. Press **Reset** button.
5. Navigate to the firmware folder you extracted where wl_rc1.exe/wl file is located.
6. Open Windows Command Prompt/Windows PowerShell/Linux Terminal tool.
7. *Windows Operating System*

   Execute the following command to call the function help menu

   #.\ wl_rc1.exe --serial [WL COM port number] ver

   For example, if **WL UART** COM port number on Windows Device Manager is 3, then your command should be composed as below:

   # .\wl_rc1.exe --serial 30 ver

```
PS [redacted]\IF91X\DVK\Files> .\wl_rc1.exe --serial 30 ver
18.15 RC1.0
wl0: Mar  6 2025 05:05:12 version 28.10.400.1 (9de5969 WLTEST) FWID 01-913760f7
```

8. *Linux Operating System*

   Once the tool prompt the message of programming finished, user can execute the set_rts.py script to pull RTS control line to LOW status to validate Infineon wl tool command correctness. Please ensure RP2040 WL UART (/dev/ttyACM1) was shown in system device tree list.

```
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/Firmware/ASE/5591x_loader-LinuxV2.1.2-20250613/tools# python set_rts.py /dev/ttyACM1
/dev/ttyACM1: RTS pull low.
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/Firmware/ASE/5591x_loader-LinuxV2.1.2-20250613/tools# ./wl --nodetect --serial /dev/ttyACM1 ver
18.15 RC1.94
wl0: Mar  6 2025 05:05:12 version 28.10.400.1 (9de5969 WLTEST) FWID 01-913760f7
```

9. More details on the test command sequence for Transmit/Receive may be found in Infineon's official document "AN238953 AIROC™ chips: RF performance measurement tests".

10. You can also use the following Ezurio supported automation PowerShell script to validate WLAN radio performance.

PowerShell Command Format:

 # powershell.exe -ExecutionPolicy Bypass -File .\[Script Name] [Country Domain] [Channel Number] [DataRate (MCS Index)] [Target Power] [Bandwidth]

名稱	修改日期	類型	大小
_ExecuteWLAN_6G_UNII78_11ax_AppForLog.ps1	2025/11/10 下午 05:28	ps1 / Windows PowerShell 指令碼	17 KB
_ExecuteWLAN_6G_UNII56_11ax_AppForLog.ps1	2025/11/10 下午 05:25	ps1 / Windows PowerShell 指令碼	17 KB
_ExecuteWLAN_5G_11ax_AppForLog.ps1	2025/11/10 下午 03:26	ps1 / Windows PowerShell 指令碼	15 KB
_ExecuteWLAN_5G_11a_AppForLog.ps1	2025/11/10 下午 03:24	ps1 / Windows PowerShell 指令碼	15 KB
_ExecuteWLAN_5G_11an_AppForLog.ps1	2025/11/10 下午 03:24	ps1 / Windows PowerShell 指令碼	15 KB
_ExecuteWLAN_5G_11ac_AppForLog.ps1	2025/11/10 下午 03:23	ps1 / Windows PowerShell 指令碼	15 KB
_ExecuteWLAN_24G_11ax_AppForLog.ps1	2025/11/10 下午 03:22	ps1 / Windows PowerShell 指令碼	15 KB
_ExecuteWLAN_24G_11gn_AppForLog.ps1	2025/11/10 下午 03:14	ps1 / Windows PowerShell 指令碼	15 KB
_ExecuteWLAN_24G_11b_AppForLog.ps1	2025/11/10 下午 01:47	ps1 / Windows PowerShell 指令碼	16 KB
_ExecuteWLAN_24G_11g_AppForLog.ps1	2025/11/10 下午 01:47	ps1 / Windows PowerShell 指令碼	16 KB
_ExecuteBLE_Tx_Test_AppForLog.ps1	2025/11/6 下午 03:48	ps1 / Windows PowerShell 指令碼	16 KB
_ExecuteBLE_TransmitStop_AppForLog.ps1	2025/11/6 下午 03:48	ps1 / Windows PowerShell 指令碼	14 KB
_ExecuteBT_Read_BDADDR_AppForLog.ps1	2025/11/6 下午 03:48	ps1 / Windows PowerShell 指令碼	14 KB
_ExecuteBT_FirmwareDownload_AppForLog.ps1	2025/11/6 下午 03:47	ps1 / Windows PowerShell 指令碼	10 KB
_ExecuteWLAN_TransmitStop_AppForLog.ps1	2025/11/6 下午 01:39	ps1 / Windows PowerShell 指令碼	11 KB
_ExecuteWLAN_FirmwareDownload_AppForLog.ps1	2025/11/6 下午 01:37	ps1 / Windows PowerShell 指令碼	11 KB

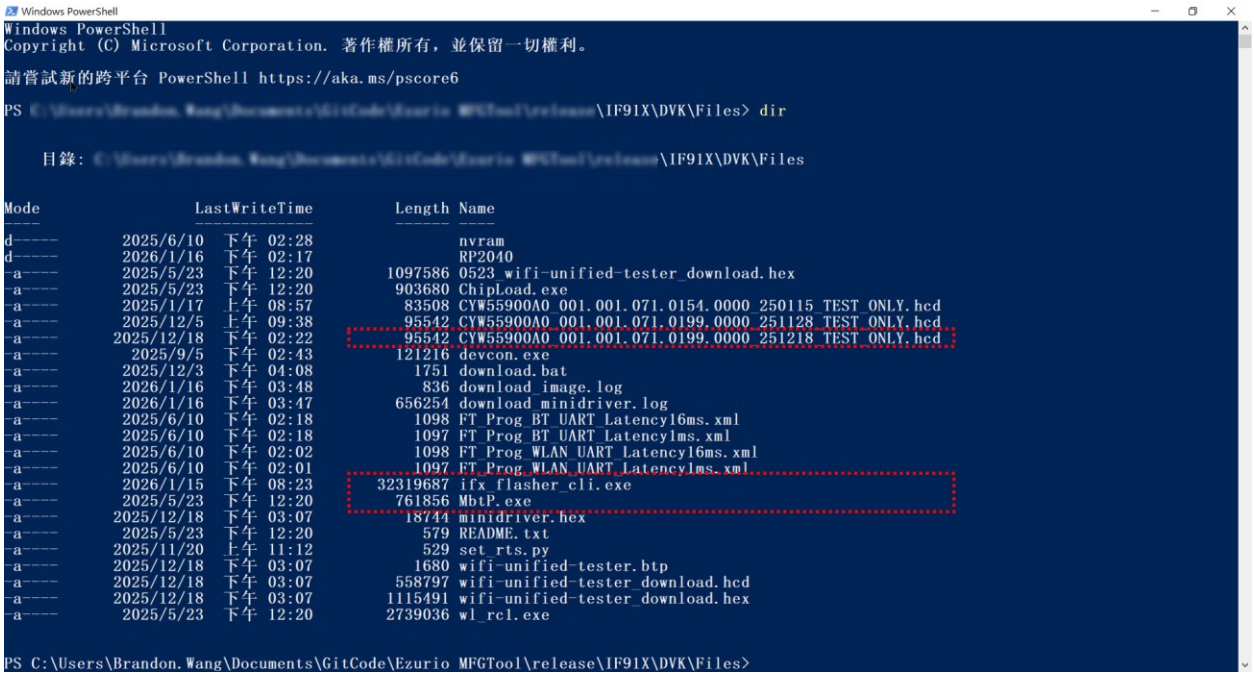
For example, if you would like to test 802.11b [RF] Country=US, PHY=11b, CH=1, Rate=1Mbps, Target Power=18 dBm, BW=20MHz, then issue the below command within Windows PowerShell executer.

 # powershell.exe -ExecutionPolicy Bypass -File ._ExecuteWLAN_24G_11b_AppForLog.ps1 US 1 1 18 20

3.3 Bluetooth Firmware Download

3.3.1 Windows Environment Procedure

1. Download and copy the resource files "[Veda IF91x] Firmware-Resource-2025Dec01.7z" to the specified folder. In addition, please be sure to check the contents of the file after decompression as follows:
   - MbtP.exe
   - ifx_flasher_cli.exe
   - CYW55900A0_001.001.071.0199.0000_251128_TEST_ONLY.hcd

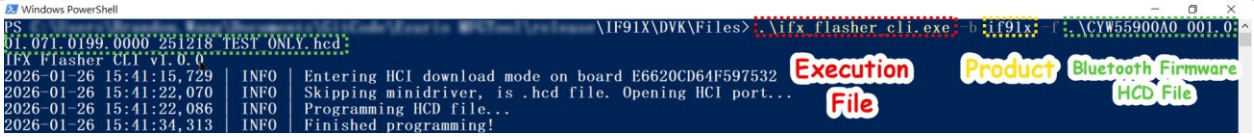


2. Open the Windows command prompt or PowerShell then navigate to the folder where **ifx_flasher_cli.exe** is located.
3. Check the Virtual COM port number of RP2040 (**HCI UART with MI_01 in Device instance path**).
4. Execute the following command to launch the firmware download script.

```
# .\ifx_flasher_cli.exe -b if91x -f [Bluetooth Firmware File .hcd]
```

For example, if **HCI UART** COM port number on Windows Device Manager is 29, then your command should be composed as below:

```
# .\ifx_flasher_cli.exe -b if91x -f .\CYW55900A0_001.001.071.0199.0000_251218_TEST_ONLY.hcd
```



Then the tool will output the log as in the below string sequence.

IFX Flasher CLI v1.0.0
2026-01-26 15:41:15,729 I INFO I Entering HCI download mode on board E6620CD64F597532
2026-01-26 15:41:22,070 I INFO I Skipping minidriver, is .hcd file. Opening HCI port...
2026-01-26 15:41:22,086 I INFO I Programming HCD file...
2026-01-26 15:41:34,313 I INFO I Finished programming!

3.3.2 Linux Environment Procedure

1. Prerequisites and environments installation please follow the section 3.2.2 to prepare.
2. Download and copy the resource files "[Veda IF91x] Firmware-Resource-2025Dec01.7z" which same as the section 3.3.1 above to the specified folder you expect to place.
3. Open the Linux Terminal then navigate to the folder where **ifx_flasher_cli.exe** is located.
4. Check the Virtual COM port number of RP2040 generated (**HCI UART with /dev/ttyACM01 in Linux Device Tree**).
5. Launch the tool Ezurio provided which named "ifx_flasher_cli" to program Infineon firmware file into module. Firstly, user can list tool help and documentation to learn how to issue command format and parameter.

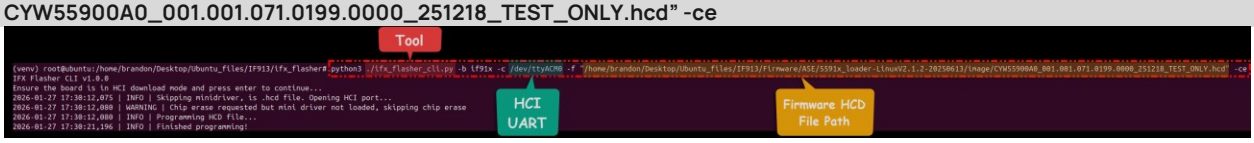
```
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/ifx_flasher#python3 ./ifx_flasher_cli.py -h
/home/brandon/Desktop/Ubuntu_files/IF913/ifx_flasher/common_lib/libraries/ezserial_host_api/ezslib.py:1: SyntaxWarning: invalid escape sequence '\o'
  """
usage: ifx_flasher_cli [-h] [-b BOARD] [-c CONNECTION] [-ce] [-d] [-f FILE] [-v] [-vf]

CLI tool to flash an ifx board (or compatible boards) with new firmware.
If no COM port is specified, the tool will automatically detect the board and flash it.
If there is more than one board detected, the user will be prompted to select the board to flash.
The CLI supports chip erase, firmware update, and flashing firmware with chip erase.

options:
  -h, --help            show this help message and exit
  -b BOARD, --board BOARD
                        Board type to flash. Supported boards: if820, if91x, if310
  -c CONNECTION, --connection CONNECTION
                        HCI COM port
  -ce, --chip_erase     perform full chip erase.
  -d, --debug           Enable verbose debug messages
  -f FILE, --file FILE  application hex file to flash
  -v, --version         Print the version of the tool and exit.
  -vf, --verify         Verify firmware while flashing with CRC checks. Not all devices support this.
```

6. Afterwards, execute the following command to launch firmware download script.

 # python3 ./ifx_flasher_cli.py -b if91x -c [HCI UART COM] -f [Bluetooth Firmware File .hcd Location] -ce

For example, if **HCI UART** COM port number on Windows Device Manager is 29, then your command should be composed as below:

 # python3 ./ifx_flasher_cli.py -b if91x -c /dev/ttyACM0 -f "[Here please type the firmware file path you place]/ CYW55900A0_001.001.071.0199.0000_251218_TEST_ONLY.hcd" -ce



Then the tool will output the log as in the below string sequence.

IFX Flasher CLI v1.0.0
Ensure the board is in HCI download mode and press enter to continue...
2026-01-27 17:30:12,075 I INFO I Skipping minidriver, is .hcd file. Opening HCI port...
2026-01-27 17:30:12,080 I WARNING I Chip erase requested but mini driver not loaded, skipping chip erase
2026-01-27 17:30:12,080 I INFO I Programming HCD file...
2026-01-27 17:30:21,196 I INFO I Finished programming!

3.3.3 MbtP command for Bluetooth Low Energy Continuous RF test

This section describes the MbtP command sequences using the Infineon Bluetooth Client Utility for running the transmit and receiving RF performance tests on the following devices. The BLE Client Utility is an Infineon proprietary tool for configuring the devices operating mode and taking RF measurements.

Before starting the MbtP command testing for RF performance, please also check the below hardware configuration setup properly.

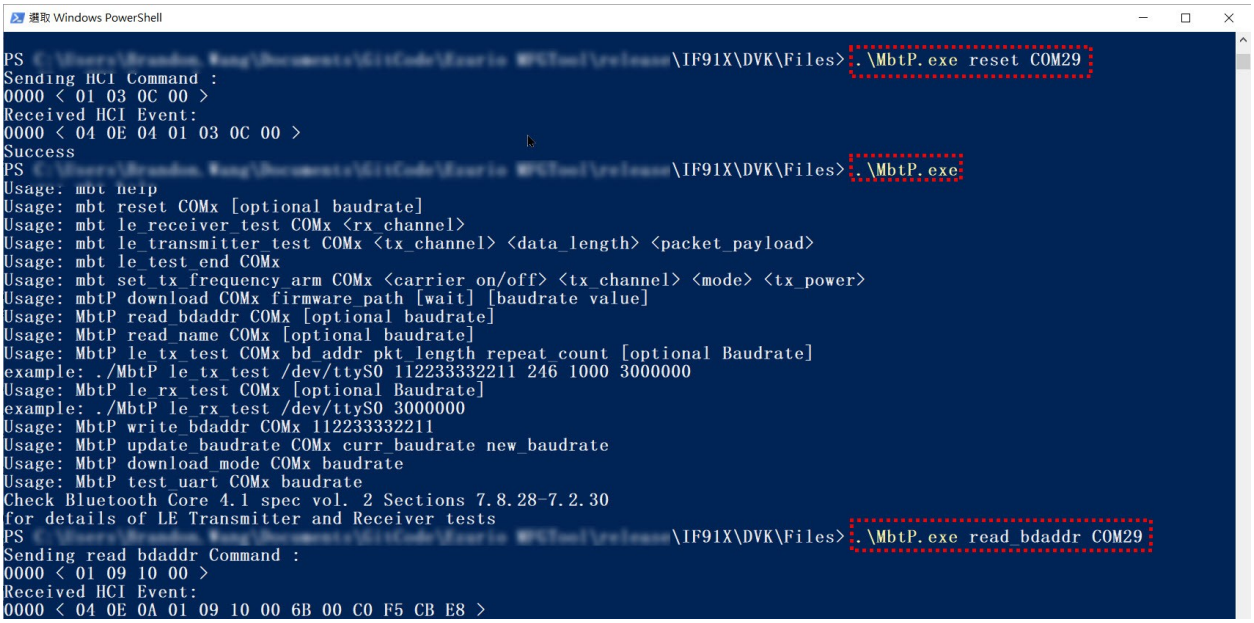
1. Ensure the **HCI UART** connect between Veda IF91x Dev Kit and target environment/platform Windows or Linux operating system.
2. Plug USB to USB-C cable with 5V.
3. Followed to program Bluetooth firmware for BLE Radio Performance testing.
4. Navigate to the firmware folder you decompress where MbtP.exe file is located.
5. Open Windows Command Prompt/Linux Terminal tool.
6. *Windows Operating System*
   Execute the following command to call the function help menu

#.\MbtP.exe

For example, if **HCI UART** COM port number on Windows Device Manager is 29, then your command should be composed as below:

#.\MbtP.exe

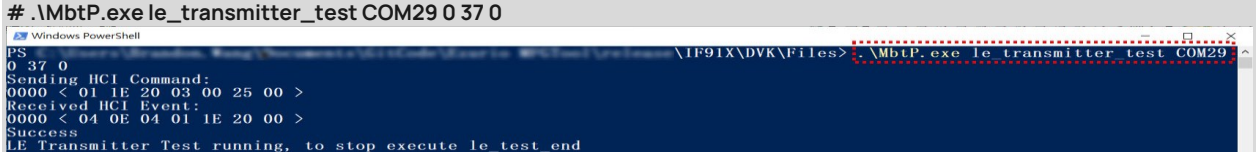
Try to execute some function of MbtP such as reset, read bd address.



If user can read back HCI hex code of reset function as above response ‹04 0E 04 01 03 0C 00› also able to read back the module BD ADDR as above ‹04 04 0A 01 09 10 00 **6B 00 C0 F5 CB E8** › which means EB:CB:F5:C0:00:6B, then shows the module firmware programmed successfully and module function workable.

Therefore, user can try to execute the MbtP command of Bluetooth Low Energy Tx transmit power

 # .\MbtP.exe le_transmitter_test COM29 0 37 0



7. *Linux Operating System*

Execute the following command to call the function help menu

#./MbtP --help

Try to execute some function of MbtP such as reset, read bd address

```
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/Firmware/ASE/5591x_loader-LinuxV2.1.2-20250613/tools#./MbtP --help
Usage: mbt help
Usage: mbt reset COMx [optional baudrate]
Usage: mbt le_receiver_test COMx <rx_channel>
Usage: mbt le_transmitter_test COMx <tx_channel> <data_length> <packet_payload>
Usage: mbt le_test_end COMx
Usage: mbt set_tx_frequency_arm COMx <carrier on/off> <tx_channel> <mode> <tx_power>
Usage: mbtP download COMx firmware_path [wait] [baudrate value]
Usage: MbtP read_bdaddr COMx [optional baudrate]
Usage: MbtP read_name COMx [optional baudrate]
Usage: MbtP le_tx_test COMx bd_addr pkt_length repeat_count [optional Baudrate]
example: ./MbtP le_tx_test /dev/ttyS0 112233332211 246 1000 3000000
Usage: MbtP le_rx_test COMx [optional Baudrate]
example: ./MbtP le_rx_test /dev/ttyS0 3000000
Usage: MbtP write_bdaddr COMx 112233332211
Usage: MbtP update_baudrate COMx curr_baudrate new_baudrate
Usage: MbtP download_mode COMx baudrate
Usage: MbtP test_uart COMx baudrate
Check Bluetooth Core 4.1 spec vol. 2 Sections 7.8.28-7.2.30
```

If user can read back HCI hex code of reset function as above response ‹ 04 0E 04 01 03 0C 00 › also able to read back the module BD ADDR as above ‹ 04 04 0A 01 09 10 00 **6B 00 C0 F5 CB E8** › which means EB:CB:F5:C0:00:6B, then shows the module firmware programmed successfully and module function workable.

```
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/Firmware/ASE/5591x_loader-LinuxV2.1.2-20250613/tools#./MbtP reset /dev/ttyACM0
Sending HCI Command :
0000 < 01 03 0C 00 >
Received HCI Event:
0000 < 04 0E 04 01 03 0C 00 >
Success
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/Firmware/ASE/5591x_loader-LinuxV2.1.2-20250613/tools#./MbtP read_bdaddr /dev/ttyACM0
Sending read bdaddr Command :
0000 < 01 09 10 00 >
Received HCI Event:
0000 < 04 0E 0A 01 09 10 00 6B 00 C0 F5 CB E8 >
(venv) root@ubuntu:/home/brandon/Desktop/Ubuntu_files/IF913/Firmware/ASE/5591x_loader-LinuxV2.1.2-20250613/tools#./MbtP read_name /dev/ttyACM0
Sending read name Command :
Received HCI Event:
0000 < 04 0E 04 01 14 0C 01 >
```

4 Additional Information

Please contact your local sales representative or our support team for further assistance:

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