

# A New Way to Debug iOS Bluetooth Applications

📅 October 15, 2019 | 👤 [Kai Ren](#) | 💎 [Bluetooth Basic Rate/Enhanced Data Rate](#), [Bluetooth Low Energy](#)

If you are doing *Bluetooth*<sup>®</sup> application development on an iOS platform, or performing embedded firmware development for an iOS app, this article will tell you how to establish a debug system using your iOS device and a Mac computer, capture Bluetooth packets over the air between an iOS device and a peer device, and provide the logs over the HCI (Host Controller Interface) on this iOS device.

## What You Will Need

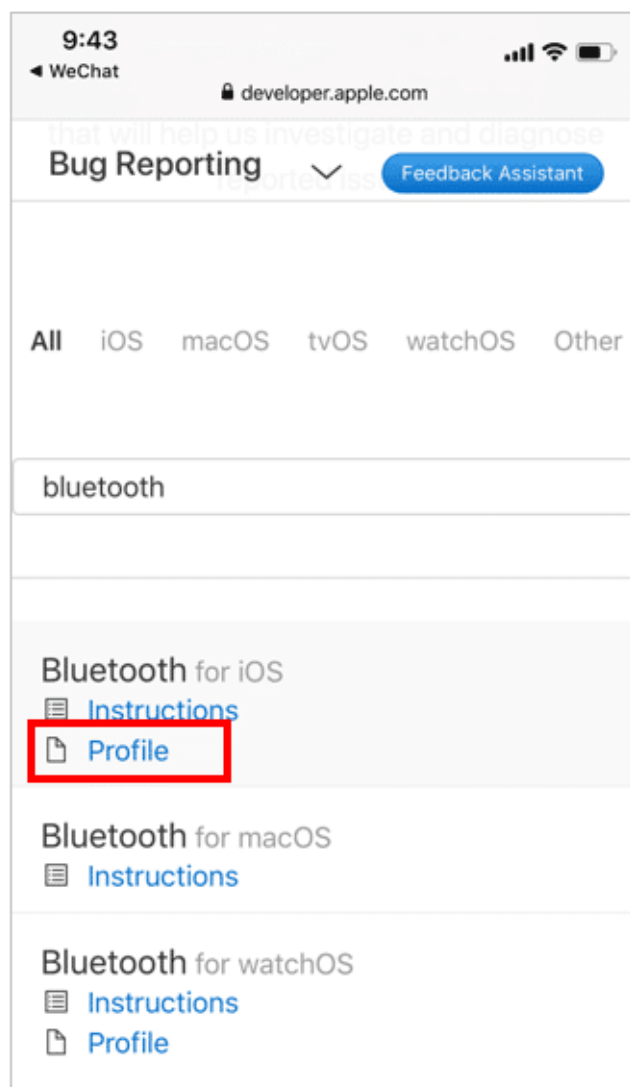
- iOS 13 device and cable
- Mac computer/laptop
- Apple Developer Program account

## Installing Profiles on Target iOS Device

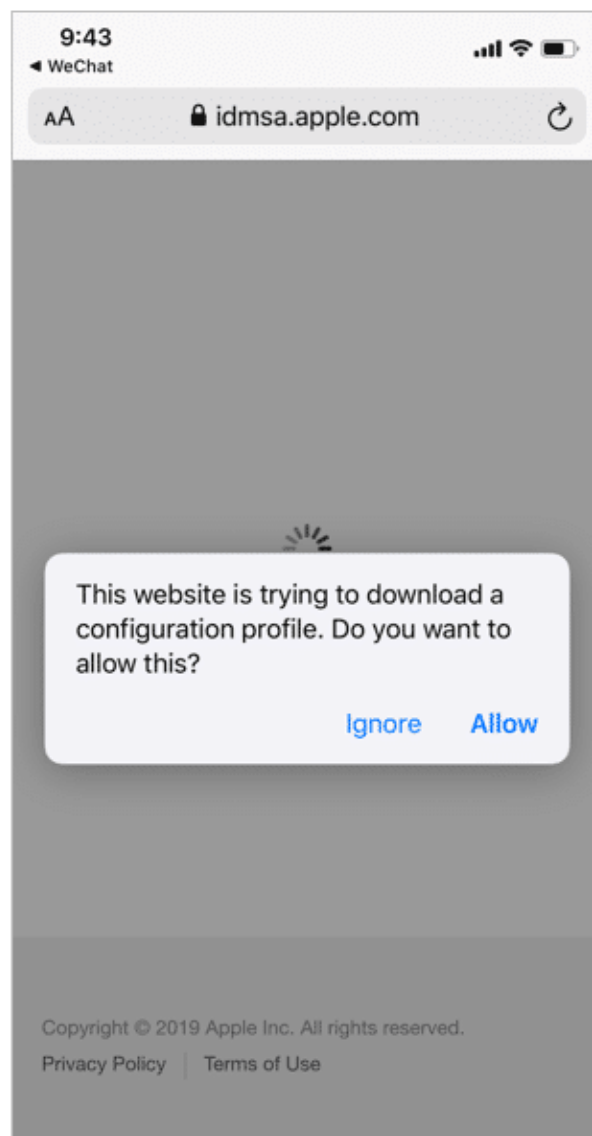
Copy the below link and paste it in the browser of the target iOS device.

<https://developer.apple.com/bug-reporting/profiles-and-logs/?name=bluetooth>

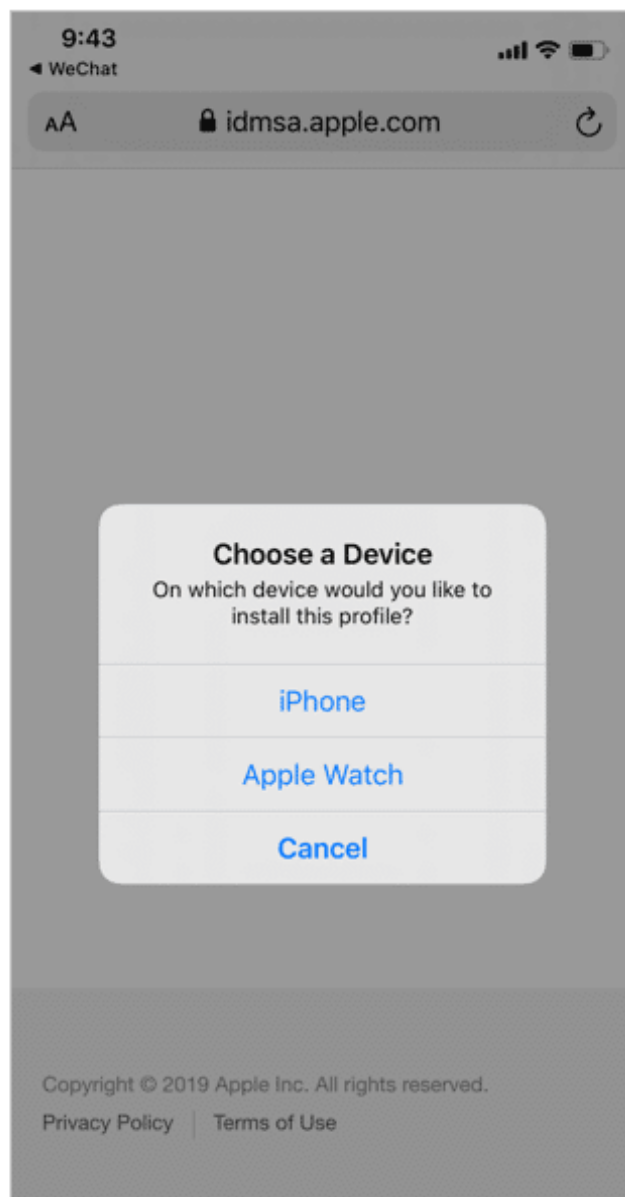
The webpage below will be displayed. Now, click *Profile* (red rectangle) under *Bluetooth for iOS*.



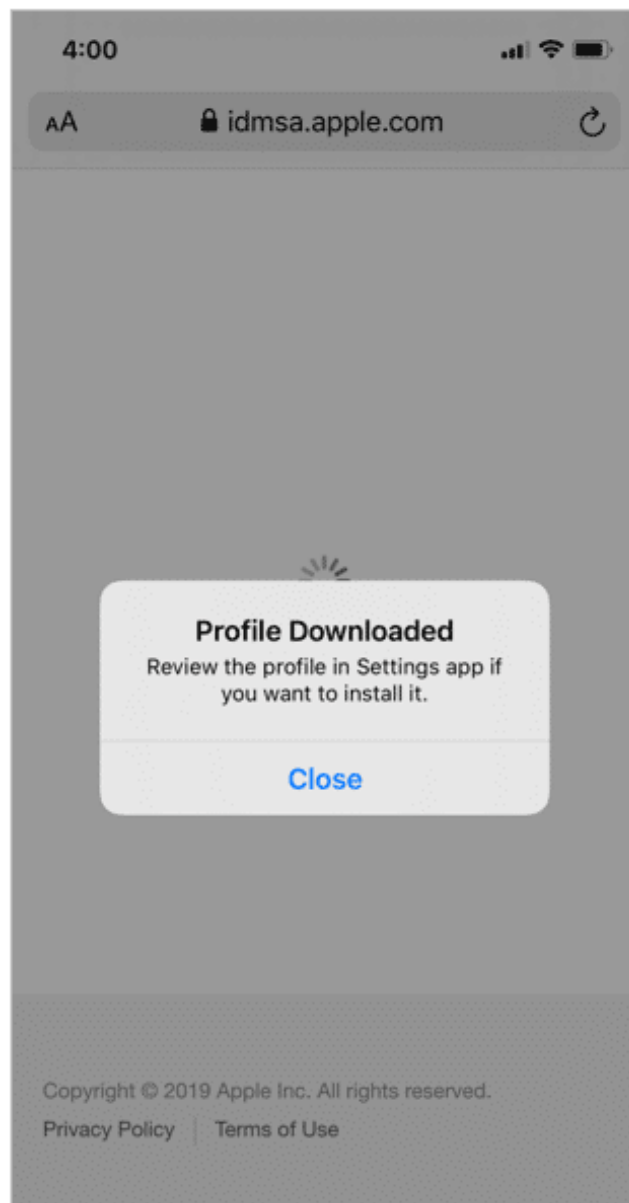
The browser will ask you to *Sign in to Apple Developer*. After logging in successfully, the webpage below will appear. Now, click the *Allow* button.



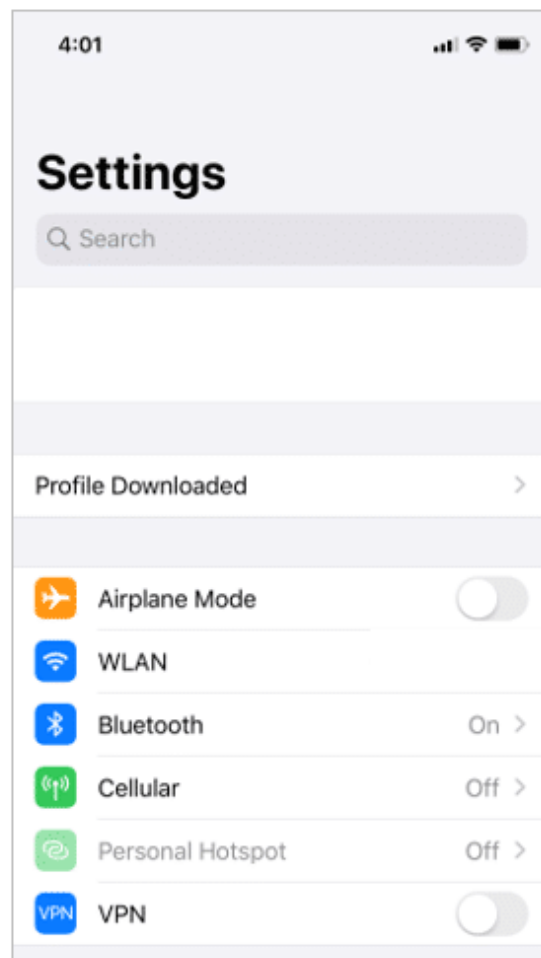
As shown below, select *iPhone* to install this profile.



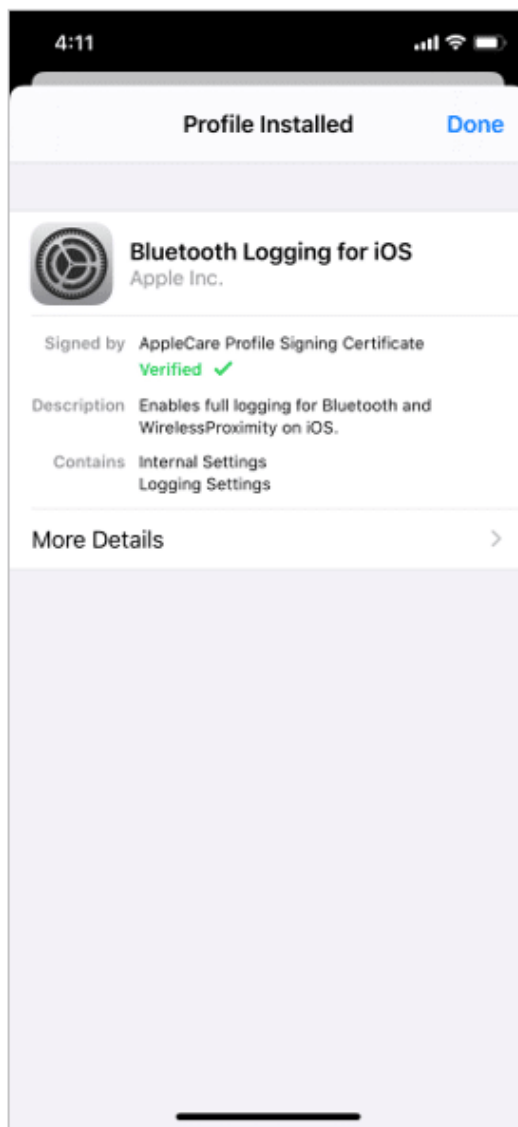
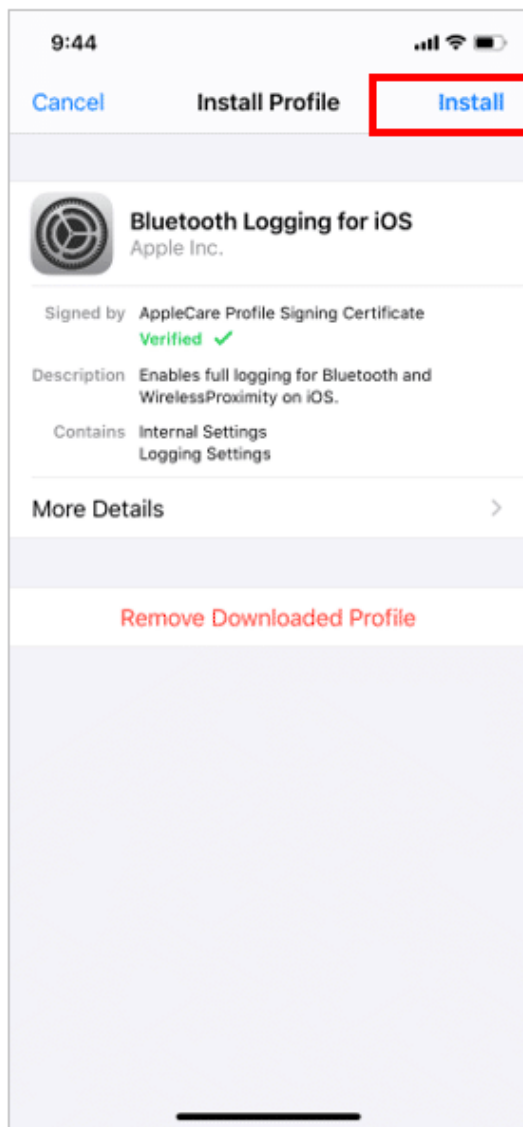
The browser will download the profile file. When the screen below appears, the profile has been downloaded. According to the hint, *Review the profile in Settings app if you want to install it*, open *Settings* app on your iOS device.



In the *Settings* app, click the *Profile Downloaded* tab as shown below.



Now, click the *Install* (red rectangle) buttons to install the profile (see image on the right). The profile has now been successfully installed.

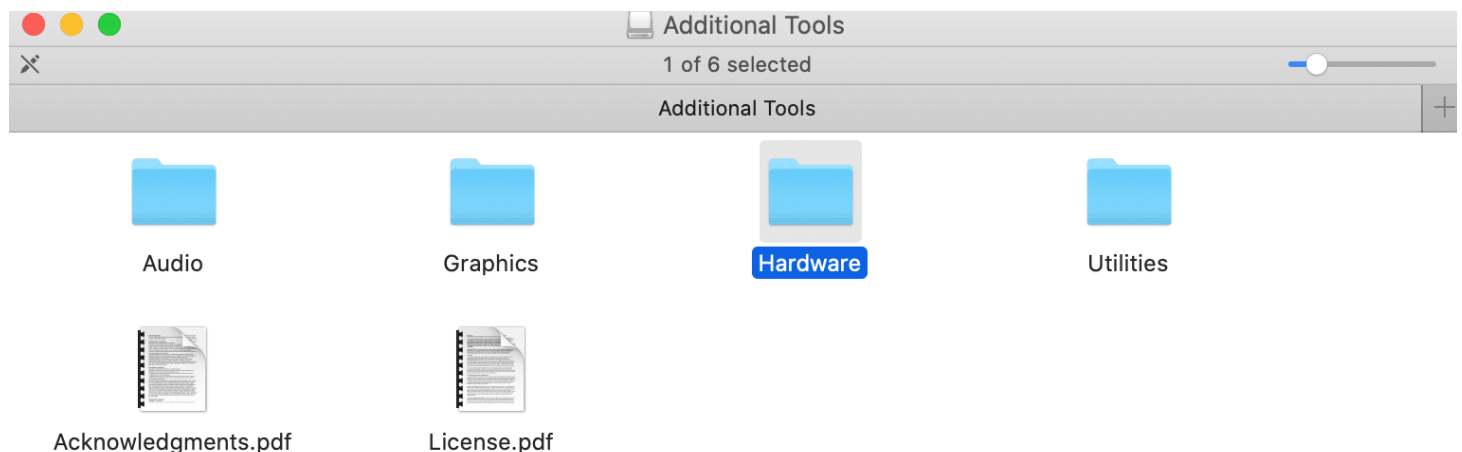


## Installing Xcode 11

Please visit *App Store* or this [link](#) to install Xcode 11 on your Mac.

## Installing the *packetLogger*

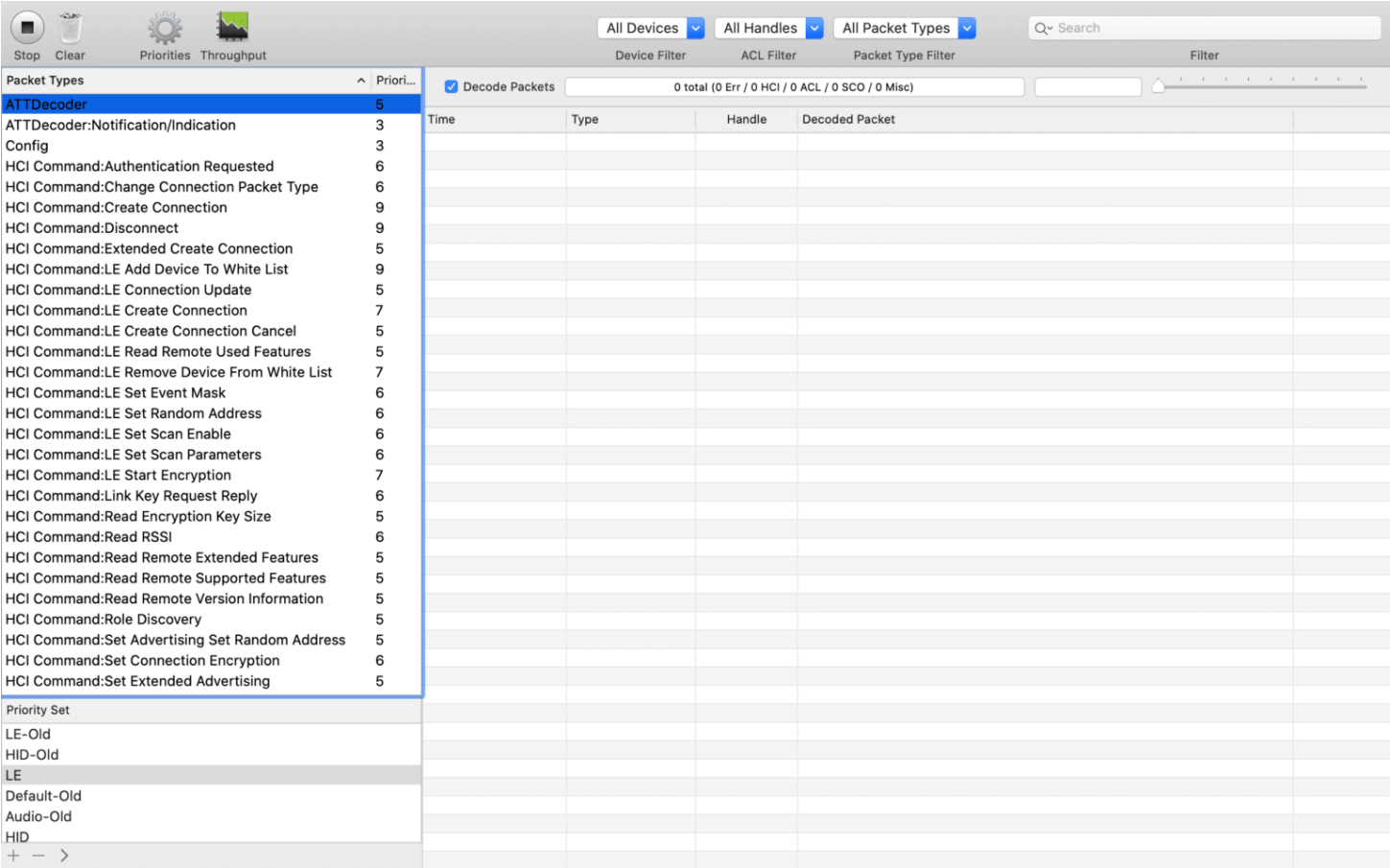
Download the *Additional Tools for Xcode 11* via this [link](#). When downloaded successfully, open the *Additional\_Tools\_for\_Xcode\_11.dmg* and access the *Hardware* folder. The *packetLogger* is inside of the folder, as shown below



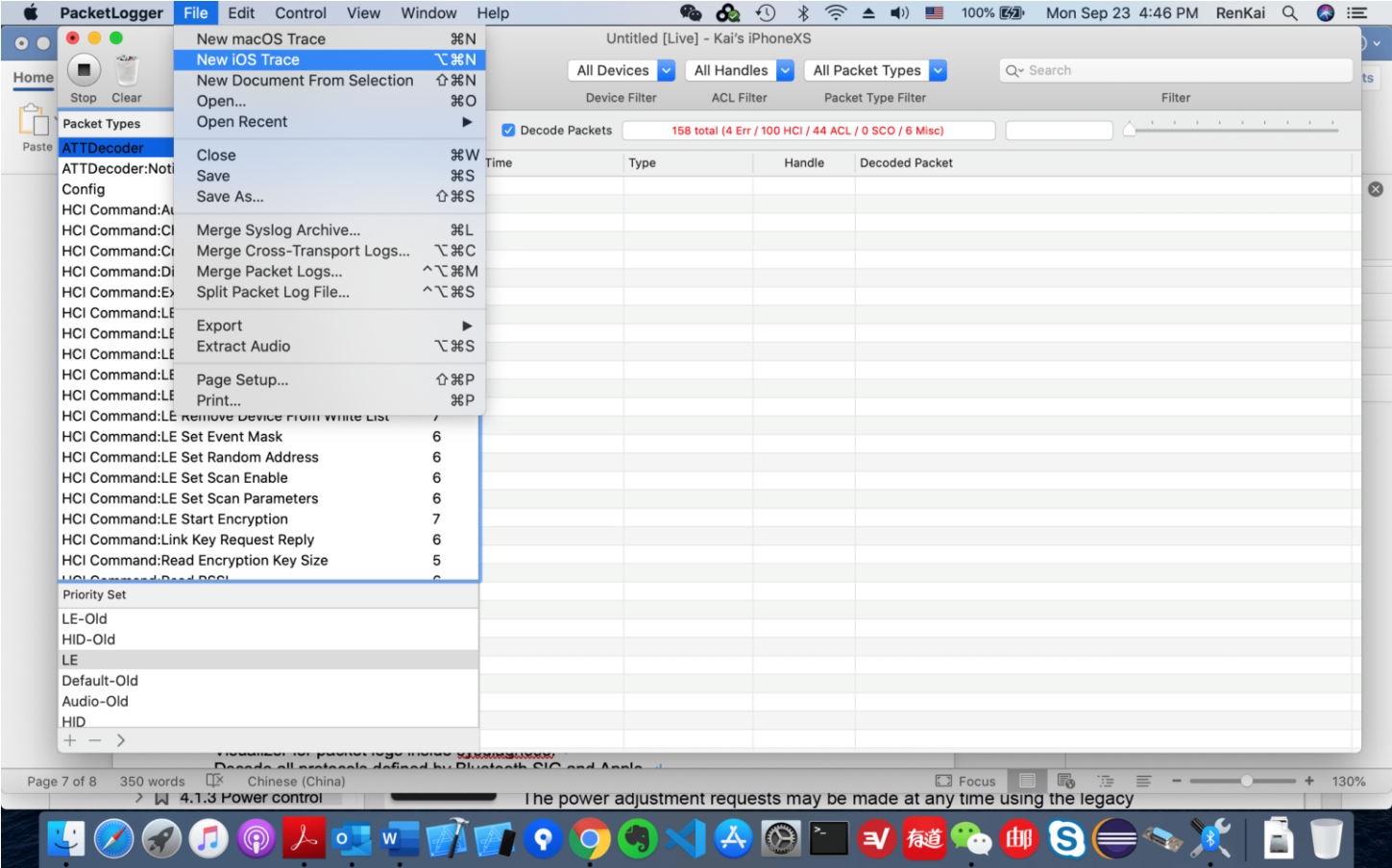
You can drag the *packetLogger* and drop it into your *Application* folder for installation.

Starting Bluetooth Packets Analysis

Open the *packetLogger*. The main user interface should appear as shown below.



Connect the profile-installed iOS device to your Mac by cable and click on *File* à *New iOS Trace*, as shown below.





*packetLogger* will start to trace all the Bluetooth activity on this profile-installed iOS device. At the left-top corner of this iOS device screen, a pulse icon will be displayed (see image below). This means the trace is ongoing.



According to this [session](#) of WWDC 2019, the *packetLogger* can:

- Work as a Bluetooth packet analysis application
- Decode all protocols defined by the Bluetooth Special Interest Group (SIG) and Apple
- Perform rich filtering options
- Search by text regex
- Comment and flag packets
- Export raw data for analysis

By the way, after real device testing, *packetLogger* supports Bluetooth BR/EDR and Bluetooth Low Energy.

## Summary

Using this method, whether you are an iOS developer or an embedded firmware engineer, can help you debug and trace your application. If you want to debug or trace [Bluetooth®\\_mesh](#) packets over the air, you still need to have a professional Bluetooth packet analyzer.

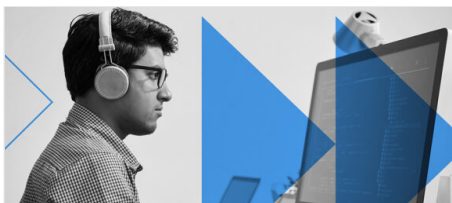
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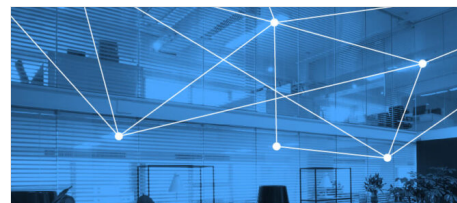


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