

## 简介

我们知道，长时间睡眠或冷重启后蓝牙会失效。蓝牙无法在黑苹果里获得固件，因为 macOS 里没有英特尔蓝牙驱动。因此，Windows 热启动来让蓝牙工作。有三种方式能让你的蓝牙体验更好：

感谢 zxystd 提供 IntelBluetoothFirmware，解决了自带 Intel 蓝牙无法使用的问题。但目前上述驱动可能会导致睡眠问题，并

- 插入一个USB蓝牙 / 禁用自带蓝牙
  - 焊接D+和D-线，飞到WLAN\_LTE卡槽
  - 焊接D+和D-线，飞到指纹端口
  - 使用虚拟机来上传蓝牙固件
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### 插入一个USB蓝牙 / 禁用自带蓝牙

- 购买并插入一个受支持的USB蓝牙，受支持的型号可见 BrcmPatchRAM README
- 如果是 Clover 用户：
  - 替换 /CLOVER/ACPI/patched/SSDT-USB.aml 成 SSDT-USB-USBBT.aml
  - 删除 /CLOVER/kexts/Other/ 里的 IntelBluetoothFirmware.kext 和 IntelBluetoothInjector.kext
    - \* 这几步是用来禁用自带蓝牙
  - 下载并添加 BrcmPatchRAM3.kext, BrcmBluetoothInjector.kext 和 BrcmFirmwareData.kext 到 /CLOVER/kexts/Other/
  - 重建缓存并重启
- 如果是 OC 用户：
  - 添加 SSDT-USB-USBBT.aml 进 /OC/ACPI/
  - 下载并添加 BrcmBluetoothInjector.kext, BrcmFirmwareData.kext 和 BrcmPatchRAM3.kext 进 /OC/Kexts/ （不需要做这步如果你只想关闭内置 Intel 蓝牙）
  - 打开 /OC/config.plist，找到以下代码：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Native Bluetooth)</string>
<key>Enabled</key>
<true/>
<key>Path</key>
<string>SSDT-USB.aml</string>
</dict>
```

替换为：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Native Bluetooth)</string>
<key>Enabled</key>
<false/>
<key>Path</key>
<string>SSDT-USB.aml</string>
</dict>
```

然后找到以下代码：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Disable native Bluetooth)</string>
```

```
<key>Enabled</key>
<false/>
<key>Path</key>
<string>SSDT-USB-USB BT.acl</string>
</dict>
```

替换为:

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Disable native Bluetooth)</string>
<key>Enabled</key>
<true/>
<key>Path</key>
<string>SSDT-USB-USB BT.acl</string>
</dict>
```

不要忘记禁用 Intel 蓝牙驱动, 找到以下代码:

```
<dict>
<key>BundlePath</key>
<string>IntelBluetoothFirmware.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>
<string>Contents/MacOS/IntelBluetoothFirmware</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>IntelBluetoothInjector.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>
<string></string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
```

修改为:

```
<dict>
<key>BundlePath</key>
<string>IntelBluetoothFirmware.kext</string>
```

```

<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<false/>
<key>ExecutablePath</key>
<string>Contents/MacOS/IntelBluetoothFirmware</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>IntelBluetoothInjector.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<false/>
<key>ExecutablePath</key>
<string></string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>

```

最后，添加以下代码到 Kernel – Add: （不需要做这步如果你只想关闭内置 Intel 蓝牙）

```

<dict>
<key>BundlePath</key>
<string>BrcmBluetoothInjector.kext</string>
<key>Comment</key>
<string></string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>
<string></string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>BrcmFirmwareData.kext</string>
<key>Comment</key>
<string></string>
<key>Enabled</key>
<true/>

```

```

<key>ExecutablePath</key>
<string>Contents/MacOS/BrcmFirmwareData</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>BrcmPatchRAM3.kext</string>
<key>Comment</key>
<string></string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>
<string>Contents/MacOS/BrcmPatchRAM3</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>

```

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#### 焊接D+和D-线，飞到 WLAN\_LTE 卡槽

- 购买并插入一个受支持的内置无线网卡(例如：BCM943602CS)到 M.2 插槽
- 小心地把D+和D-线飞到 WLAN\_LTE 卡槽，见#7
- 进入 Windows，运行 **设备管理器** 来验证焊接是否成功
- 如果是 Clover 用户：
  - 如果成功，替换 /CLOVER/ACPI/patched/SSDT-USB.aml 成 SSDT-USB-WLAN\_LTEBT.aml
  - 删除 /CLOVER/kexts/Other/ 里的 IntelBluetoothFirmware.kext 和 IntelBluetoothInjector.kext
- 如果是 OC 用户：
  - 添加 SSDT-USB-WLAN\_LTEBT.aml 进 /OC/ACPI/
  - 打开 /OC/config.plist，并找到以下代码：

```

<dict>
<key>Comment</key>
<string>USB power injection and customization(Native Bluetooth)</string>
<key>Enabled</key>
<true/>
<key>Path</key>
<string>SSDT-USB.aml</string>
</dict>

```

替换为：

```

<dict>
<key>Comment</key>
<string>USB power injection and customization(Native Bluetooth)</string>
<key>Enabled</key>
<false/>
<key>Path</key>
<string>SSDT-USB.aml</string>
</dict>

```

然后找到以下代码：

```

<dict>
<key>Comment</key>
<string>USB power injection and customization(WLAN_LTE Bluetooth)</string>
<key>Enabled</key>
<false/>
<key>Path</key>
<string>SSDT-USB-WLAN_LTEBT.aml</string>
</dict>

```

替换为：

```

<dict>
<key>Comment</key>
<string>USB power injection and customization(WLAN_LTE Bluetooth)</string>
<key>Enabled</key>
<true/>
<key>Path</key>
<string>SSDT-USB-WLAN_LTEBT.aml</string>
</dict>

```

不要忘记禁用 Intel 蓝牙驱动，找到以下代码：

```

<dict>
<key>BundlePath</key>
<string>IntelBluetoothFirmware.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>
<string>Contents/MacOS/IntelBluetoothFirmware</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>IntelBluetoothInjector.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>

```

```
<string></string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
```

修改为：

```
<dict>
<key>BundlePath</key>
<string>IntelBluetoothFirmware.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<false/>
<key>ExecutablePath</key>
<string>Contents/MacOS/IntelBluetoothFirmware</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>IntelBluetoothInjector.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<false/>
<key>ExecutablePath</key>
<string></string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
```

---

#### 焊接D+和D-线，飞到指纹端口

- 购买并插入一个受支持的内置无线网卡(例如：BCM943602CS)到 M.2 插槽
- 小心地把D+和D-线飞到指纹端口，见#246
- 进入 Windows，运行 **设备管理器** 来验证焊接是否成功
- 如果是 Clover 用户：
  - 如果成功，替换 /CLOVER/ACPI/patched/SSDT-USB.aml 成 SSDT-USB-FingerBT.aml

- 删除 /CLOVER/kexts/Other/ 里的 IntelBluetoothFirmware.kext 和 IntelBluetoothInjector.kext

- 如果是 OC 用户：

- 添加 SSDT-USB-FingerBT.aml 进 /OC/ACPI/
- 打开 /OC/config.plist，找到以下代码：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Native Bluetooth)</string>
<key>Enabled</key>
<true/>
<key>Path</key>
<string>SSDT-USB.aml</string>
</dict>
```

替换为：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Native Bluetooth)</string>
<key>Enabled</key>
<false/>
<key>Path</key>
<string>SSDT-USB.aml</string>
</dict>
```

然后找到以下代码（如果没有找到，请自行添加）：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Fingerprint Bluetooth)</string>
<key>Enabled</key>
<false/>
<key>Path</key>
<string>SSDT-USB-FingerBT.aml</string>
</dict>
```

替换为：

```
<dict>
<key>Comment</key>
<string>USB power injection and customization(Fingerprint Bluetooth)</string>
<key>Enabled</key>
<true/>
<key>Path</key>
<string>SSDT-USB-FingerBT.aml</string>
</dict>
```

不要忘记禁用 Intel 蓝牙驱动，找到以下代码：

```
<dict>
<key>BundlePath</key>
<string>IntelBluetoothFirmware.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<true/>
```

```

<key>ExecutablePath</key>
<string>Contents/MacOS/IntelBluetoothFirmware</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>IntelBluetoothInjector.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<true/>
<key>ExecutablePath</key>
<string></string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>

```

修改为：

```

<dict>
<key>BundlePath</key>
<string>IntelBluetoothFirmware.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<false/>
<key>ExecutablePath</key>
<string>Contents/MacOS/IntelBluetoothFirmware</string>
<key>MaxKernel</key>
<string></string>
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
<dict>
<key>BundlePath</key>
<string>IntelBluetoothInjector.kext</string>
<key>Comment</key>
<string>Bluetooth</string>
<key>Enabled</key>
<false/>
<key>ExecutablePath</key>
<string></string>
<key>MaxKernel</key>
<string></string>

```



```
<key>MinKernel</key>
<string></string>
<key>PlistPath</key>
<string>Contents/Info.plist</string>
</dict>
```

---

## 使用虚拟机来上传蓝牙固件

- [阅读#262](#)