密级：公开资料

TTC SDK
开发环境安装说明

文档版本：V1.5

深圳市昇润科技有限公司

2017 年 03 月 29 日

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版本	修订日期	修订人	审稿人	修订内容
1.0	2016-06-08	廖健焜	张眼	1.TTC CC2640 开发环境安装说明发布
1.1	2016-07-09	郭高亮	张眼	1.TTC CC2640 开发环境安装说明完善
1.2	2017-01-17	郭高亮/ 邱博通	张眼	1.使用 SDK 安装包，简化开发环境搭建步骤
1.3	2017-02-13	郭高亮/ 邱博通	张眼	1.增加常见问题说明 2.增加 IAR 注册方法说明
1.4	2017-03-24	郭高亮/ 邱博通	张眼	1.增加开发环境卸载说明 2.增加 SDK 版本与 IAR 版本说明
1.5	2017-03-29	郭高亮	张眼	1.完善 IAR 安装、启动权限说明

目　　录

1.Windows 环境下搭建 TTC SDK(CC2640)开发环境.....1
1.1.CC2640 SDK 安装包.....1
1.2.安装 IAR Embedded Workbench.....6
1.2.1.注意事项.....6
1.2.2.安装步骤.....6
2.程序烧写.....23
2.1.IAR 环境下烧写.....23
2.2.Flash Programmer 2 工具烧写.....30
3.常见问题(Q&A).....31
3.1.无法自动修改环境变量.....31
3.2.IAR 成功注册与否.....32
3.3.开发环境卸载.....34
3.4.SDK 版本与 IAR 版本说明.....34
4.联系我们.....35

1.Windows 环境下搭建 TTC SDK(CC2640)开发环境

开发环境搭建分为两部分：CC2640 SDK 安装包及 IAR Embedded Workbench. 按照以下步骤分别安装，即可开始基于 TTC SDK(CC2640)的 BLE 项目开发。

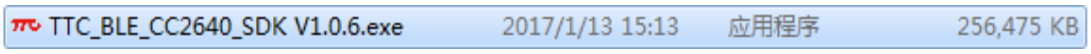
注：WindowsXP/7/10 均已通过验证。

1.1.CC2640 SDK 安装包

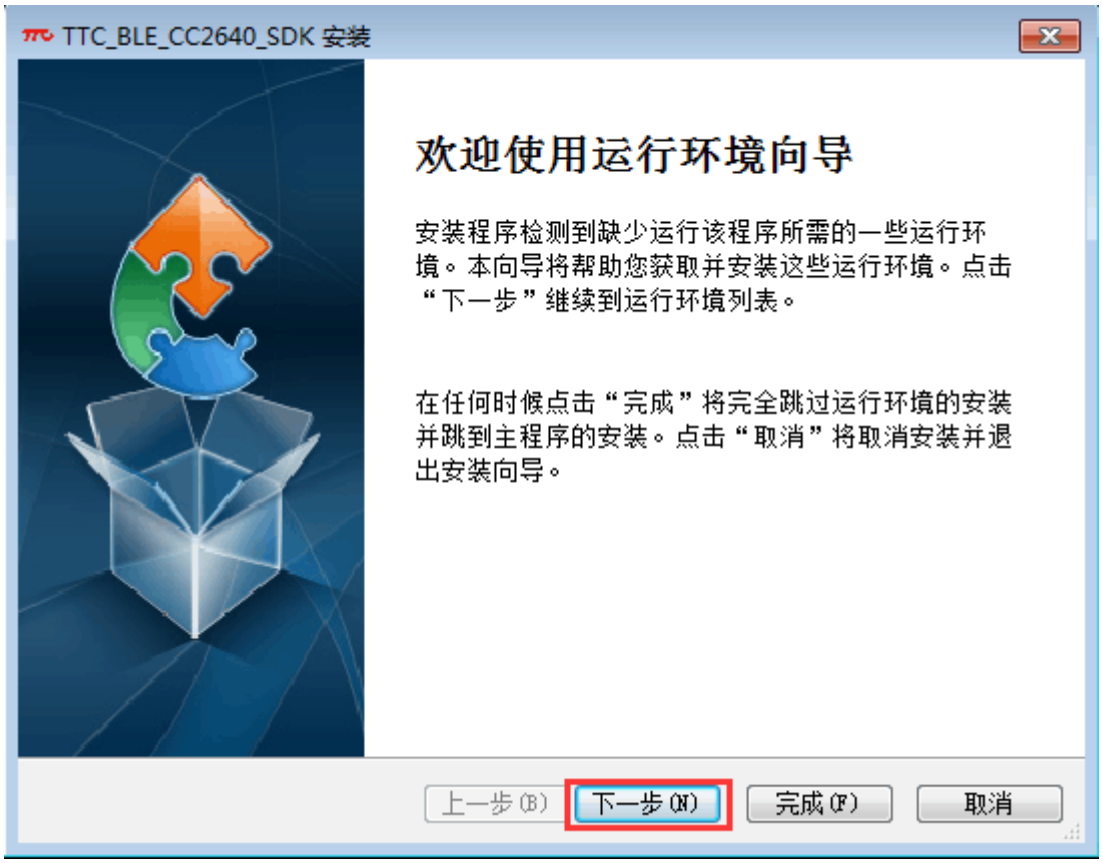
CC2640 SDK 安装包，将 BLE 协议栈、SDK 说明文档、开发所需相关工具及驱动等集成在一起，并完成环境变量等相关配置，便于快速搭建 TTC SDK 的开发环境。其中涉及的小工具，如：FlashProgrammer/Boundary/Python/ OAD bin 文件转换工具等。

例如 TTC_BLE_CC2640_SDK V1.0.6.exe 在 Windows7 32bit 系统的安装过程及相关注意事项如下：

右键以管理员身份运行、或双击 TTC_BLE_CC2640_SDK V1.0.6.exe，开始安装：

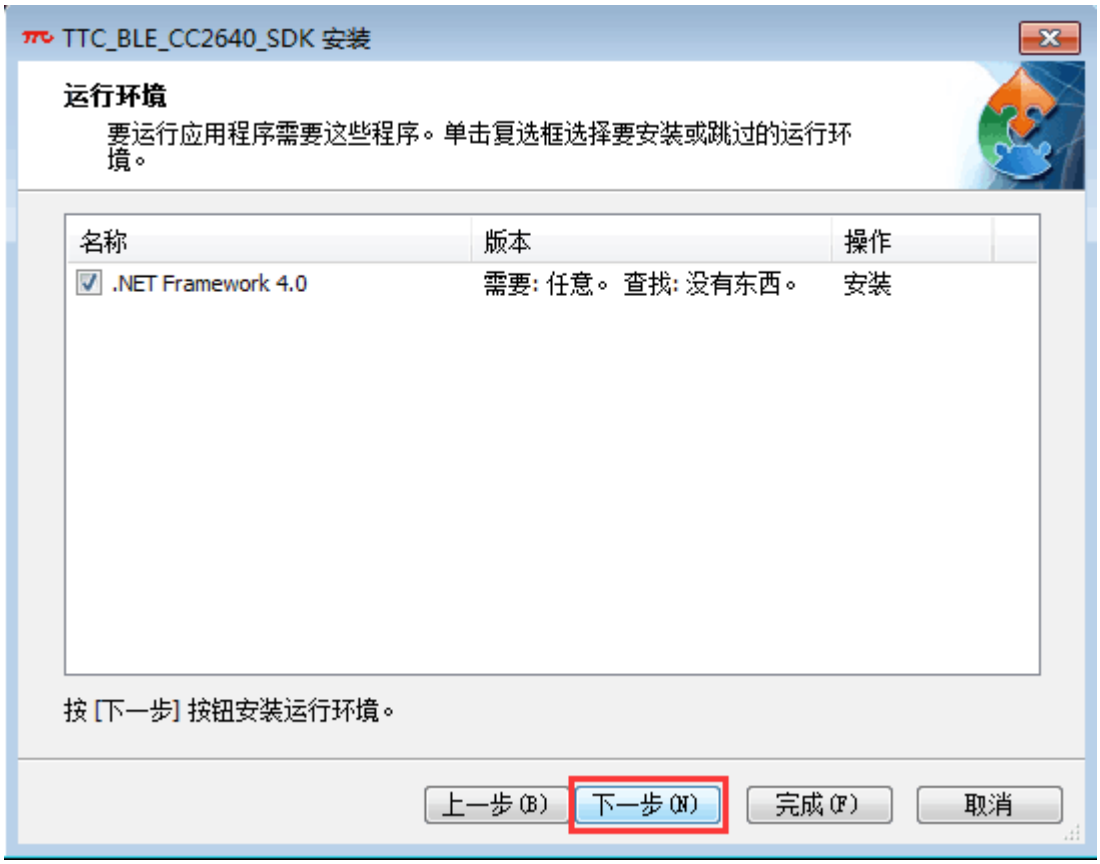


点击下一步



WindowsXP 及 Windows7 会提示安装“.NET Framework 4.0”，按以下步骤安装即可。如下图，点击“下一步”

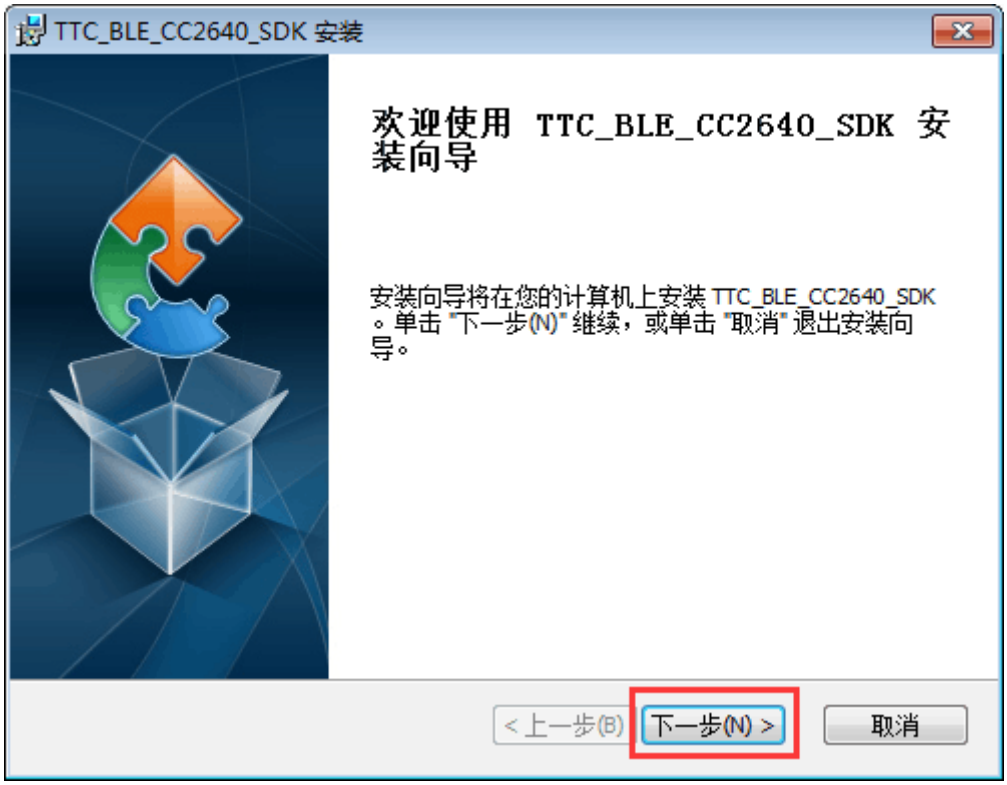
Windows10 系统已经预装，不会出现“.NET Framework 4.0”的安装提示。



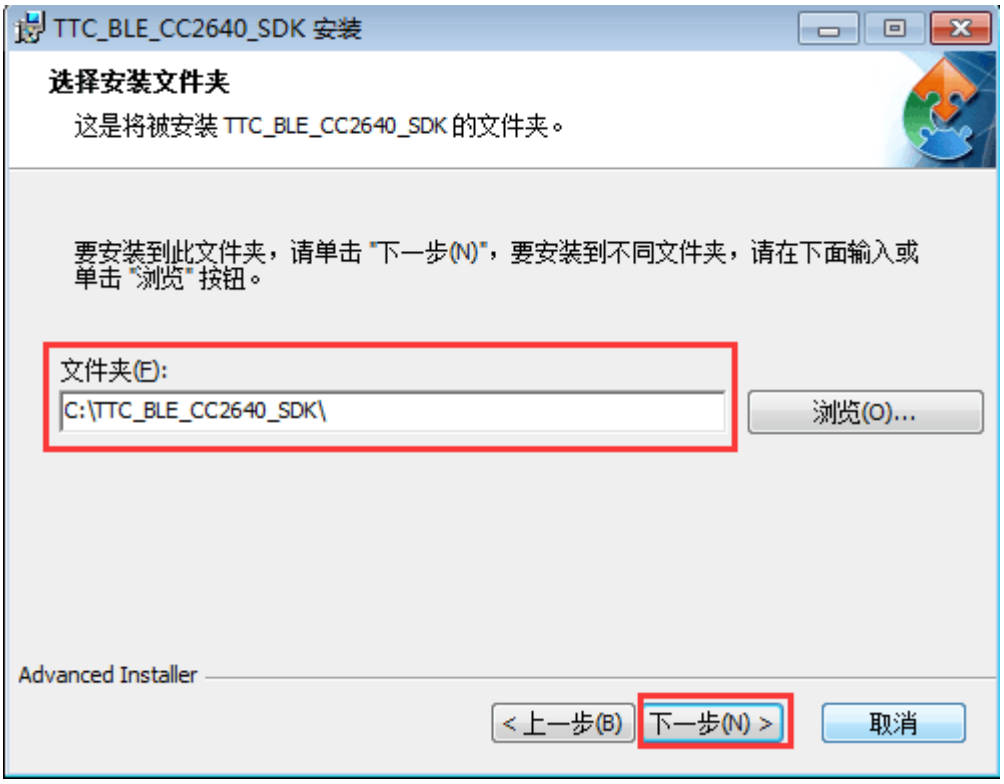
如下图，接受许可条款，点击“安装”：

“.NET Framework 4.0”安装需要较长时间，如下图，点击“完成”：

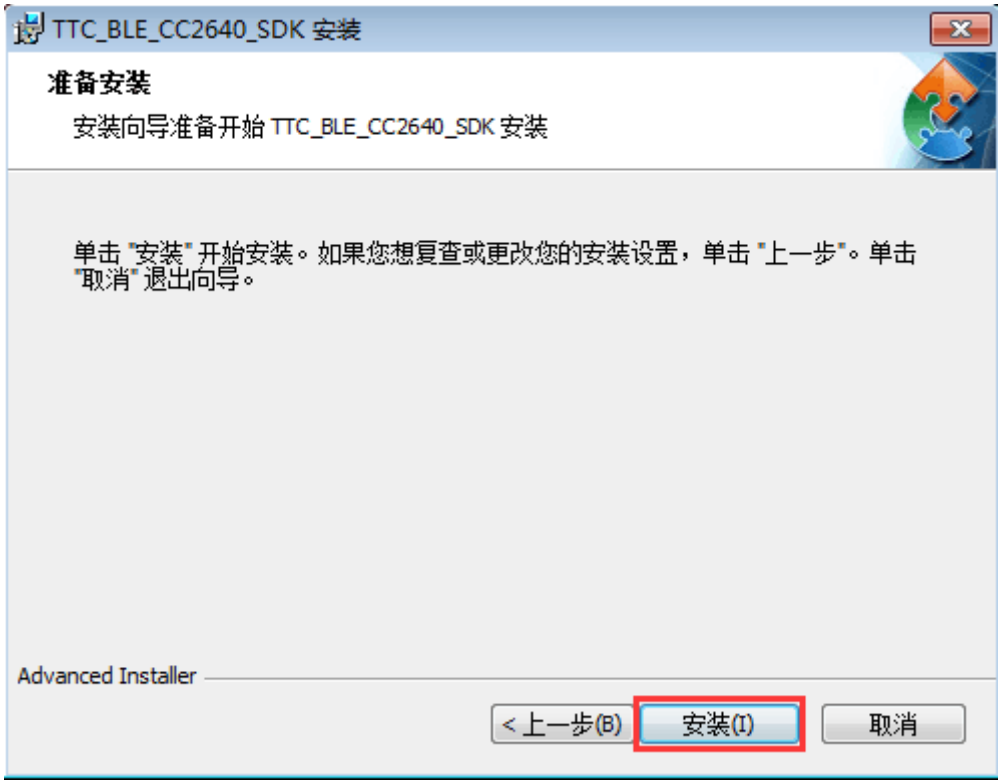
如下图，点击“下一步”：



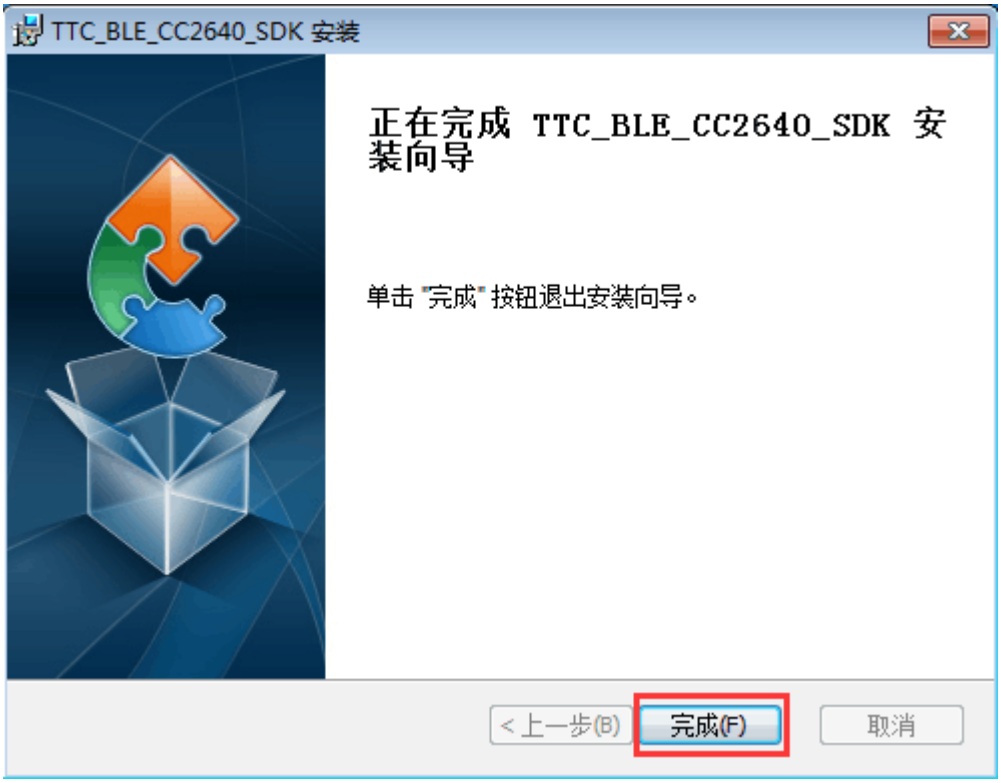
建议使用默认路径如下。若需修改路径，路径请勿包含中文及空格。



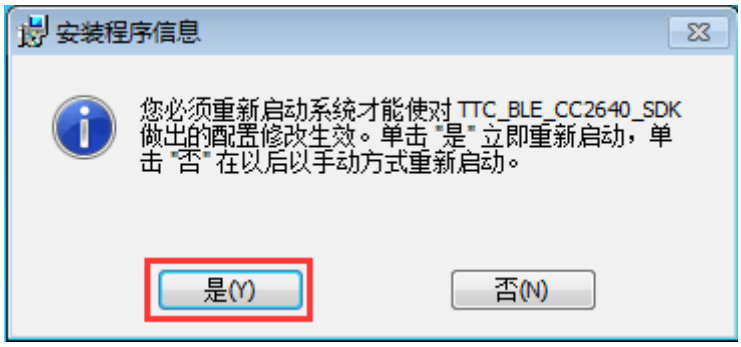
如下图，点击“安装”：



安装完毕，点击“完成”，如下图：



如下图提示，点击“是”，则立即重启电脑。



电脑重启后，TTC SDK(CC2640)安装包完成安装。

安装完成之后，Windows 开始菜单中会有相应的快捷方式。

1.2. 安装 IAR Embedded Workbench

1.2.1. 注意事项

（1）安装路径

特别注意：

任何版本 Windows，需要修改 IAR 安装路径！路径不可包含空格、中文！统一修改安装路径，以减少不必要的麻烦。

（2）权限问题

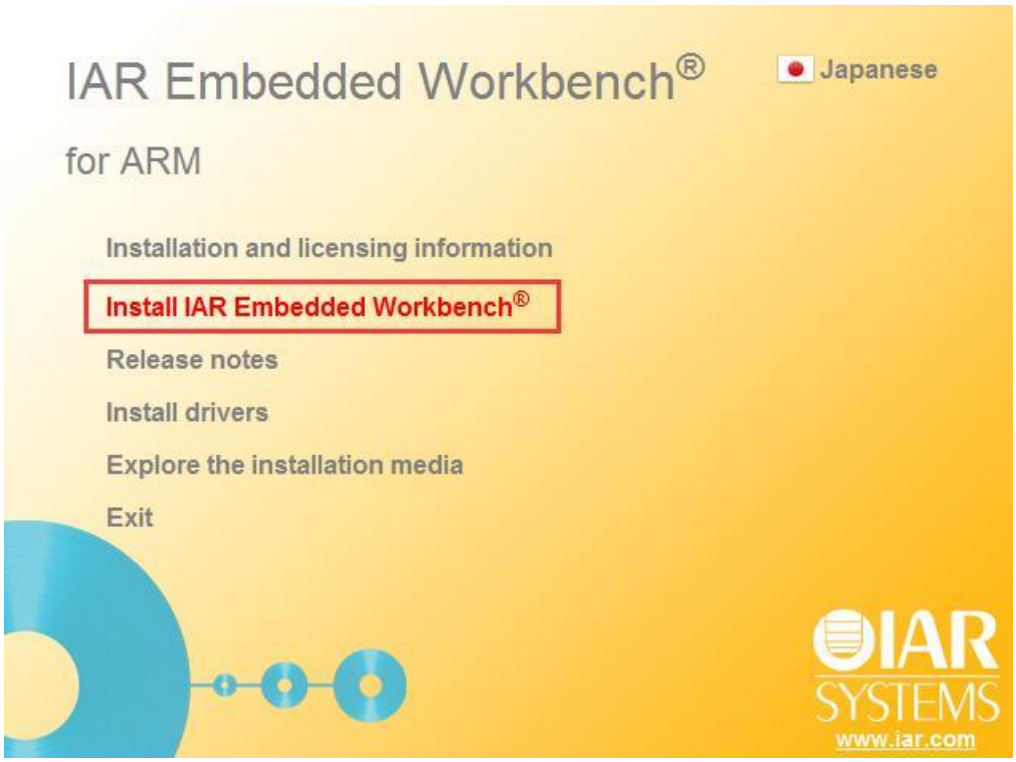
IAR 安装完毕后，启动 IAR 仍需要管理员权限！

1.2.2. 安装步骤

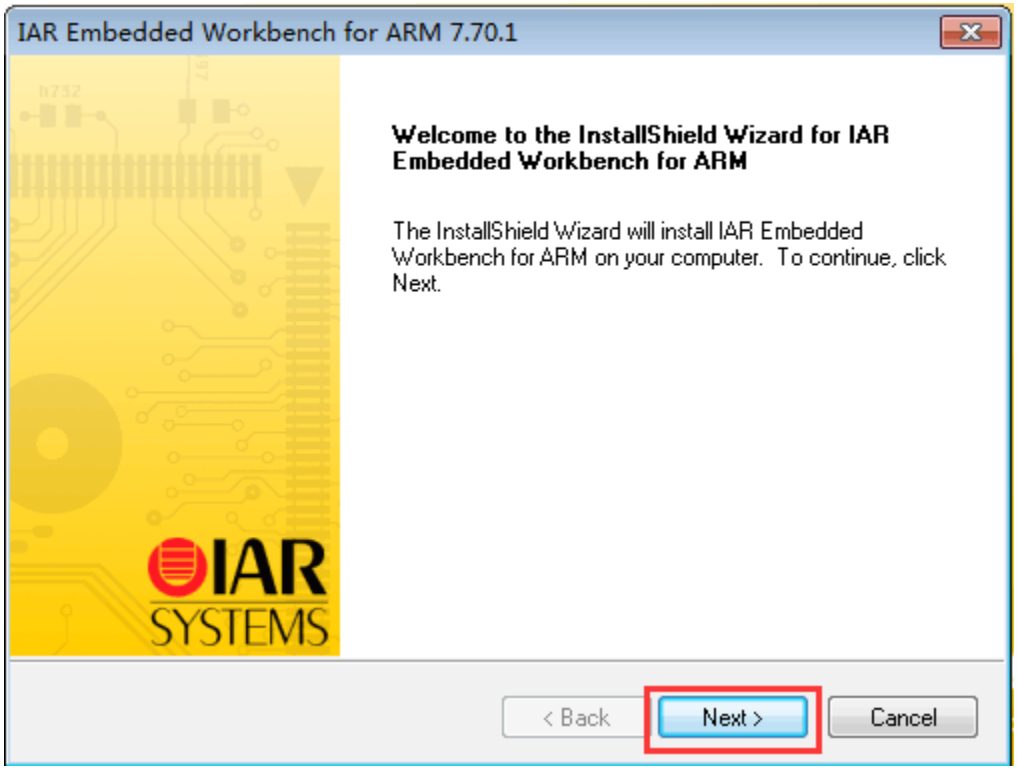
以安装 IAR 7.7 为例，说明安装步骤。若需使用其他版本 IAR，如 IAR 7.8，安装及注册方法与 7.7 版本一致。

右键以管理员身份运行 EWARM-CD-7701-11486.exe，开始安装 IAR Embedded Workbench，IAR 版本为 7.7。

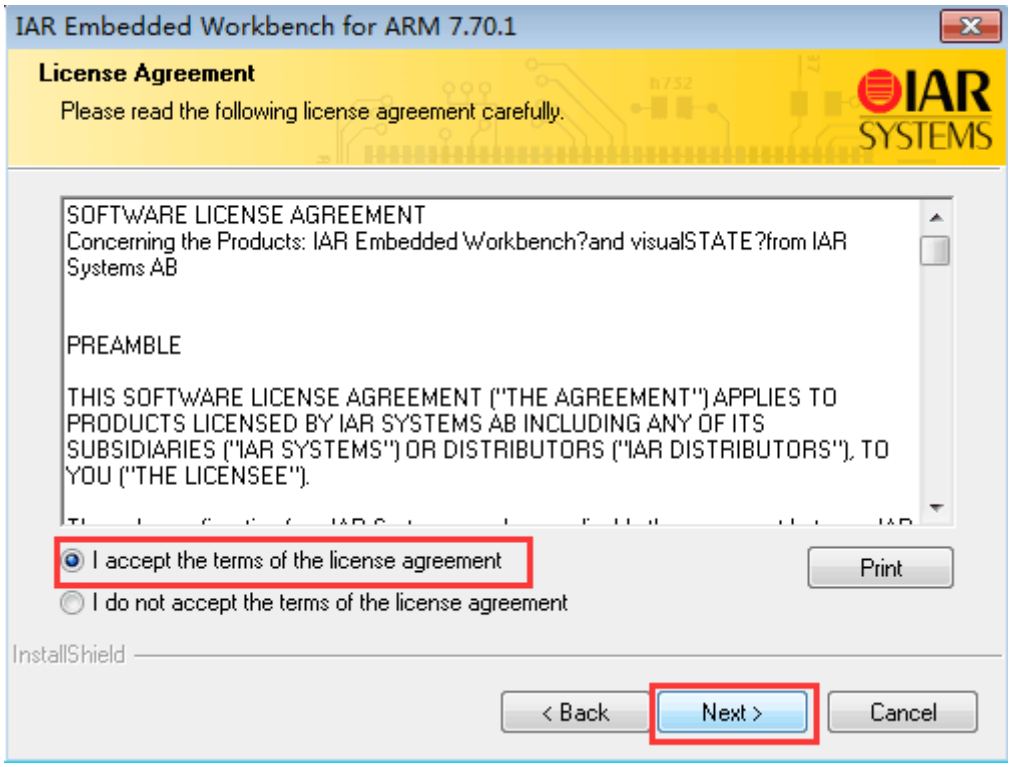
如下图，点击“Install IAR Embedded Workbench”



如下图，点击“Next”



如下图，选择“I accept…”，再点击“Next”：

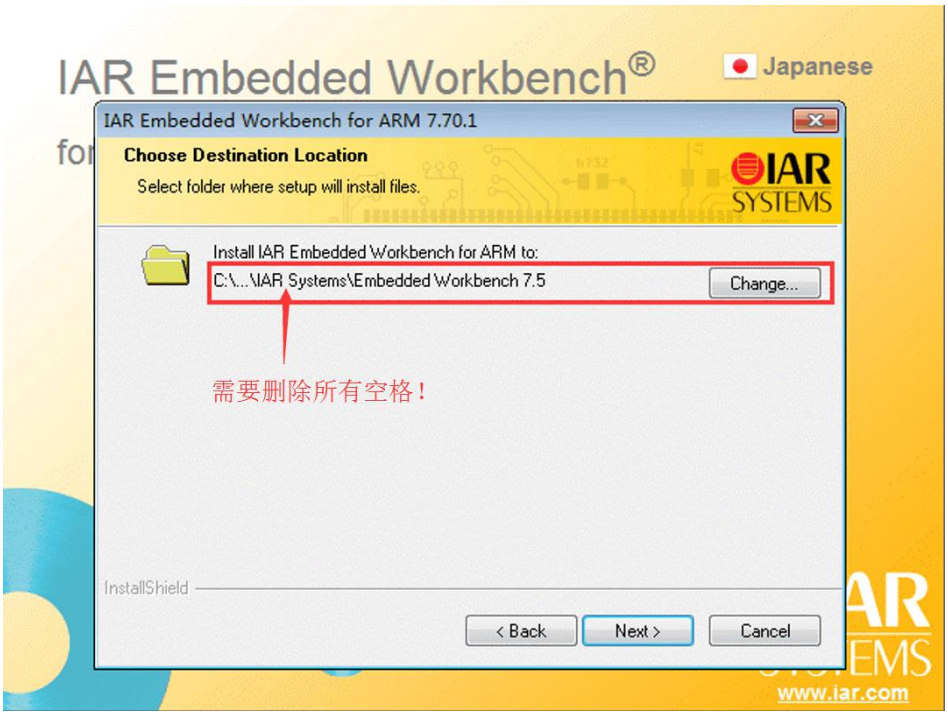


IAR 安装路径不可包含空格（不同系统有所差异）！所以不论 Windows 系统是什么版本，安装 IAR 时必须修改路径，删除默认路径中的所有空格。

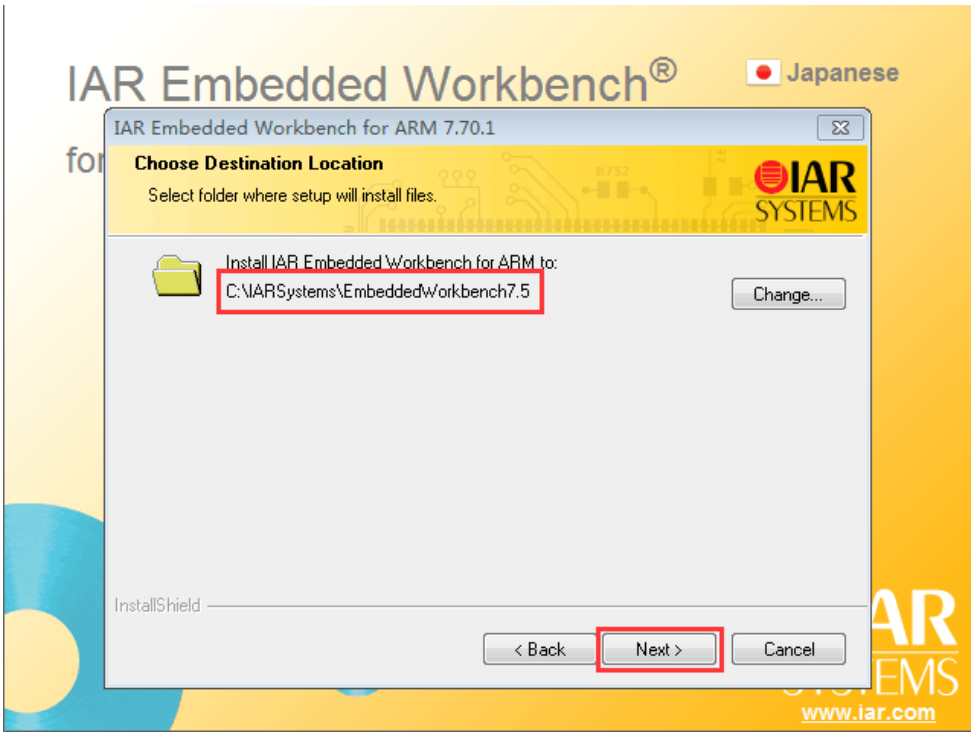
建议统一修改安装路径，不使用默认路径。可以使用如下路径：

C:\IARSystems\EmbeddedWorkbench7.5

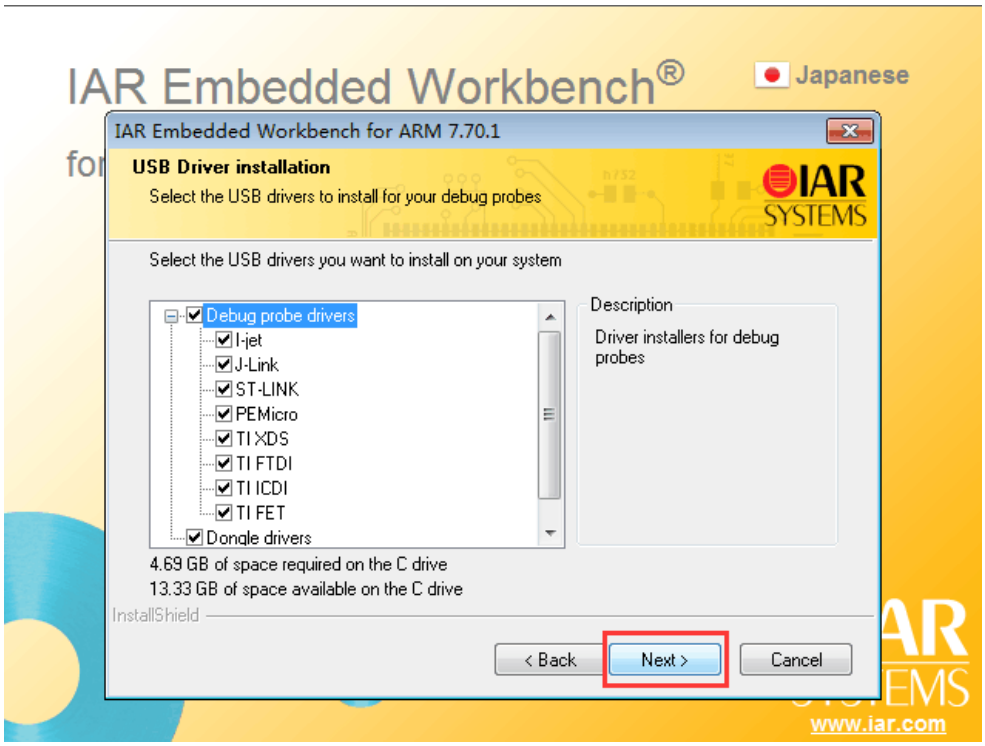
默认安装路径如下图，点击“Change”：



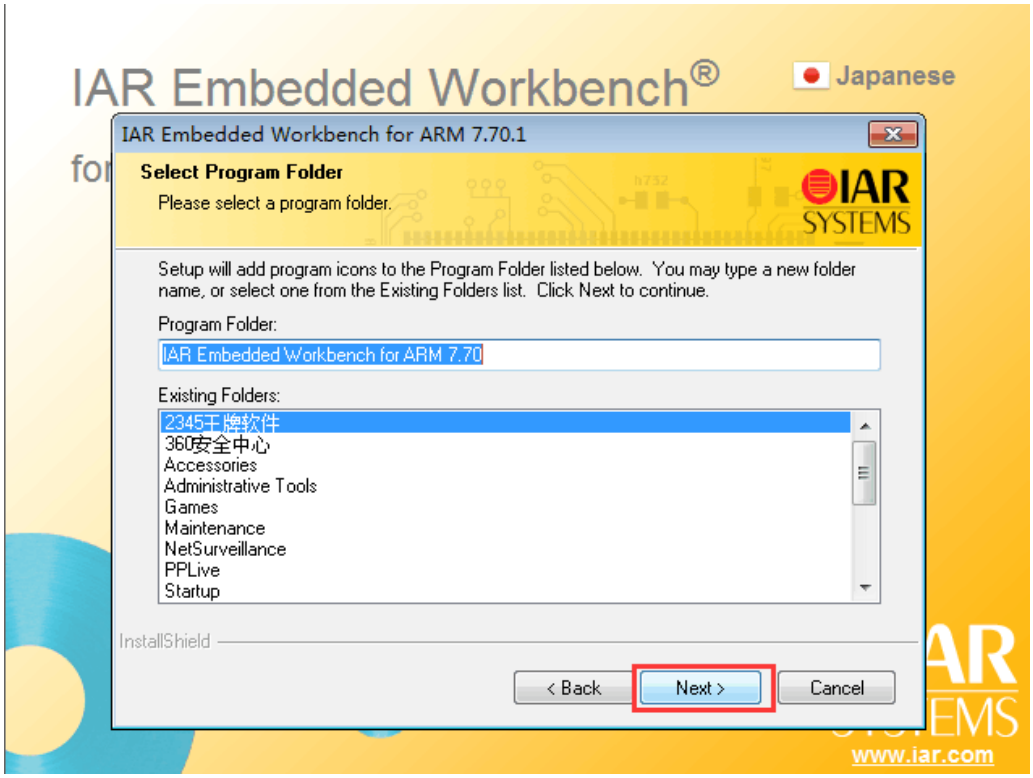
修改路径如 C:\IARSystems\EmbeddedWorkbench7.5，点击“Next”：



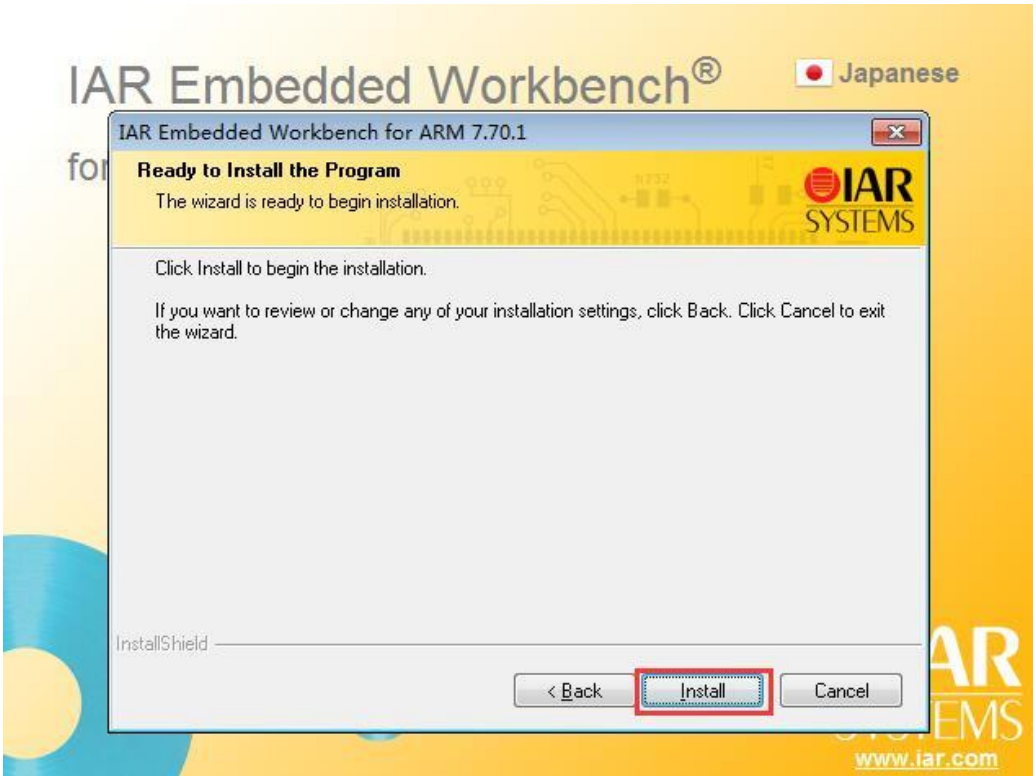
“Debug probe drivers”仅需勾选“TI XDS”，也可默认全部勾选(安装驱动多会增加安装时间)，如下图，点击“Next”：


IAR Embedded Workbench®
Japanese
IAR Embedded Workbench for ARM 7.70.1
USB Driver installation
Select the USB drivers to install for your debug probes
IAR SYSTEMS
Select the USB drivers you want to install on your system
Debug probe drivers
I-jet
J-Link
ST-LINK
PEMicro
TI XDS
TI FTDI
TI ICDI
TI FET
Dongle drivers
Description
Driver installers for debug probes
4.69 GB of space required on the C drive
13.33 GB of space available on the C drive
InstallShield
< Back
Next >
Cancel
www.iar.com

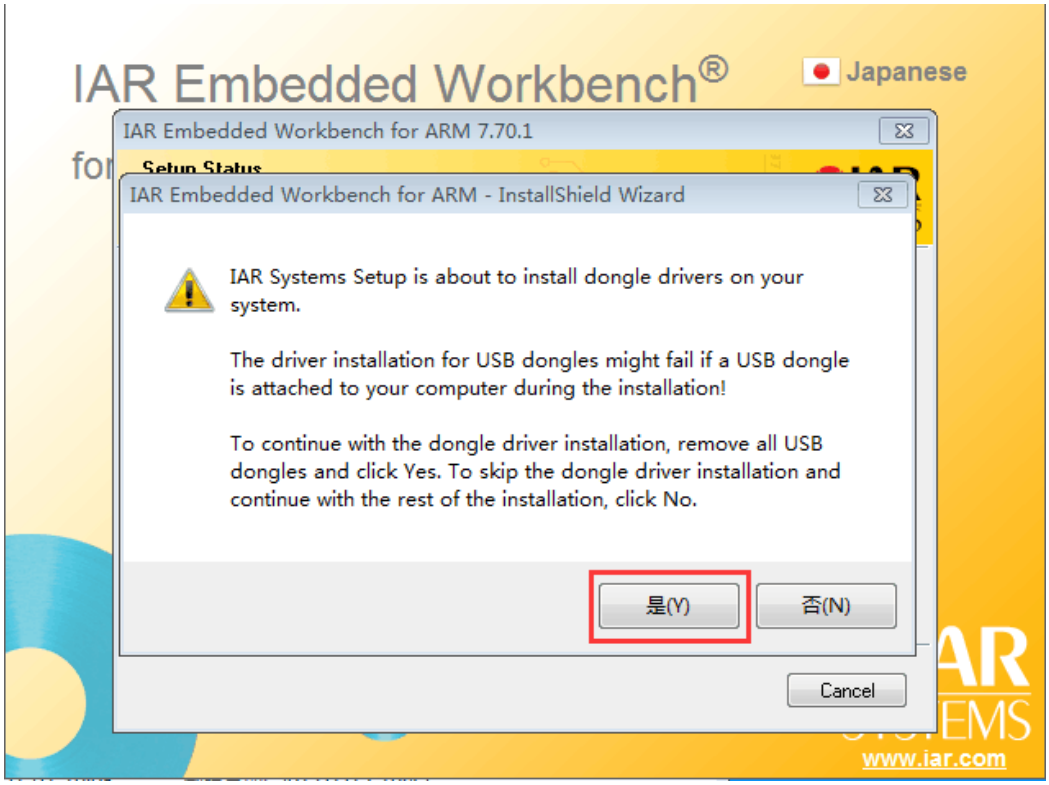
如下图，点击“Next”：


IAR Embedded Workbench®
Japanese
IAR Embedded Workbench for ARM 7.70.1
Select Program Folder
Please select a program folder.
IAR SYSTEMS
Setup will add program icons to the Program Folder listed below. You may type a new folder name, or select one from the Existing Folders list. Click Next to continue.
Program Folder:
IAR Embedded Workbench for ARM 7.70
Existing Folders:
2345王牌软件
360安全中心
Accessories
Administrative Tools
Games
Maintenance
NetSurveillance
PPLive
Startup
InstallShield
< Back
Next >
Cancel
www.iar.com

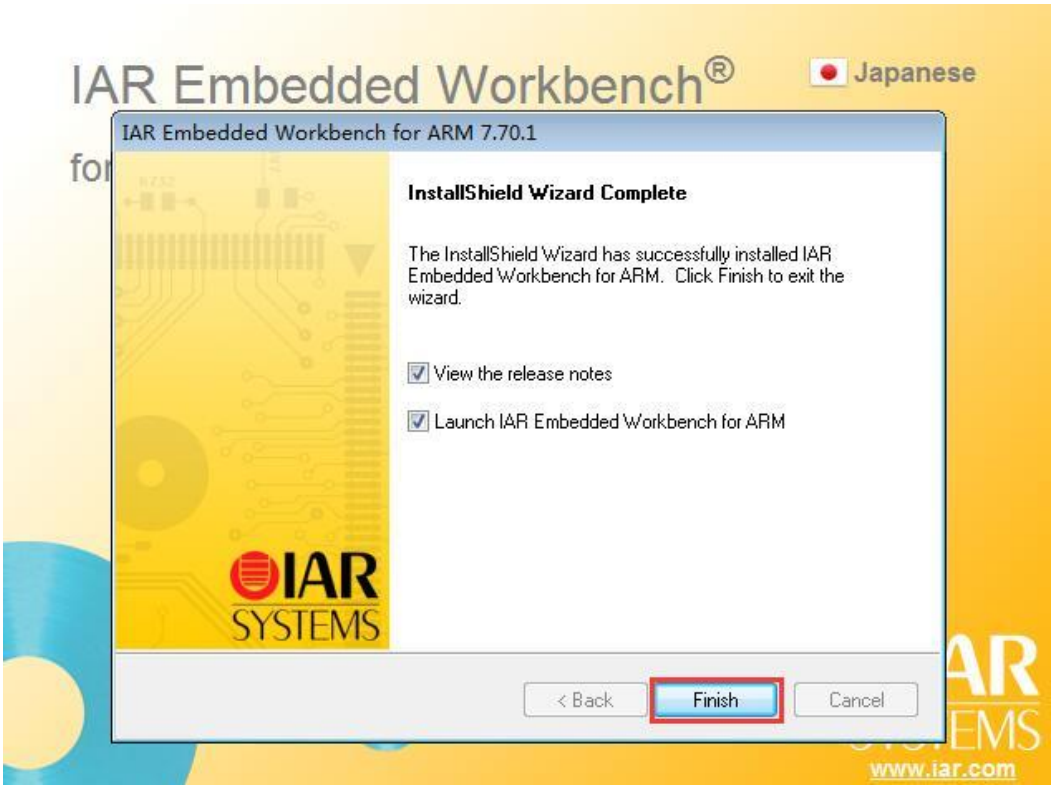
如下图，点击“Install”：



如下图，点击“是”：

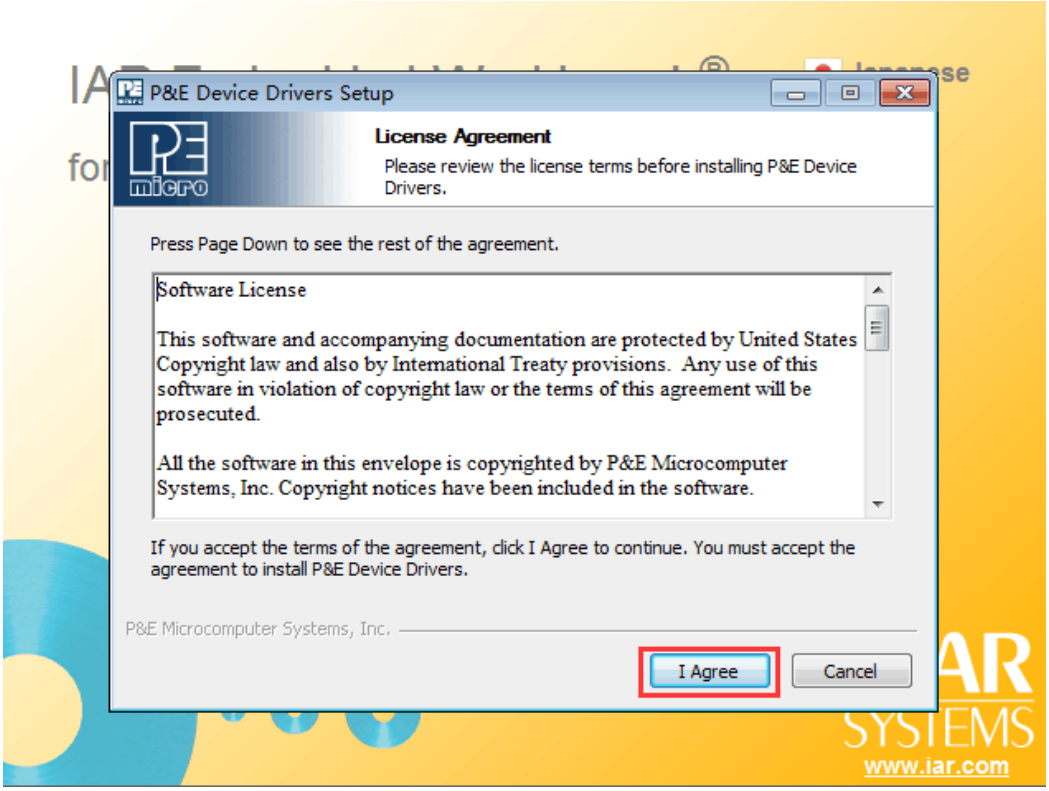


IAR 安装完毕，点击“Finish”

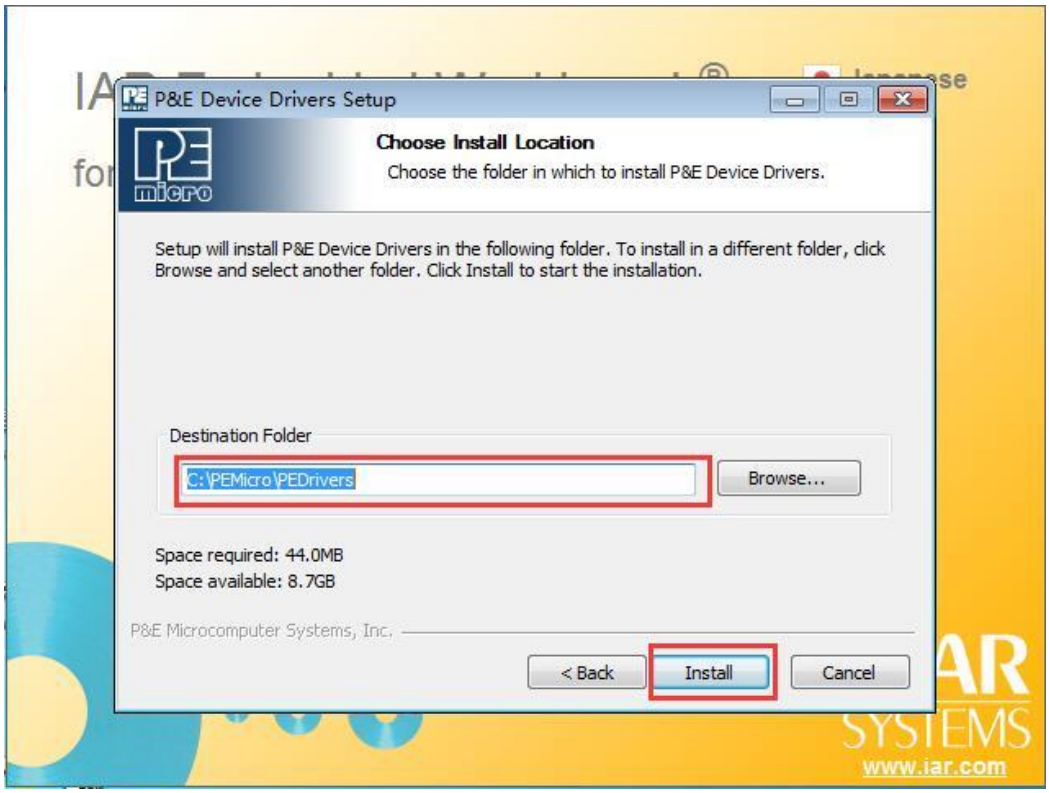


同意安装相关驱动，信任并安装：

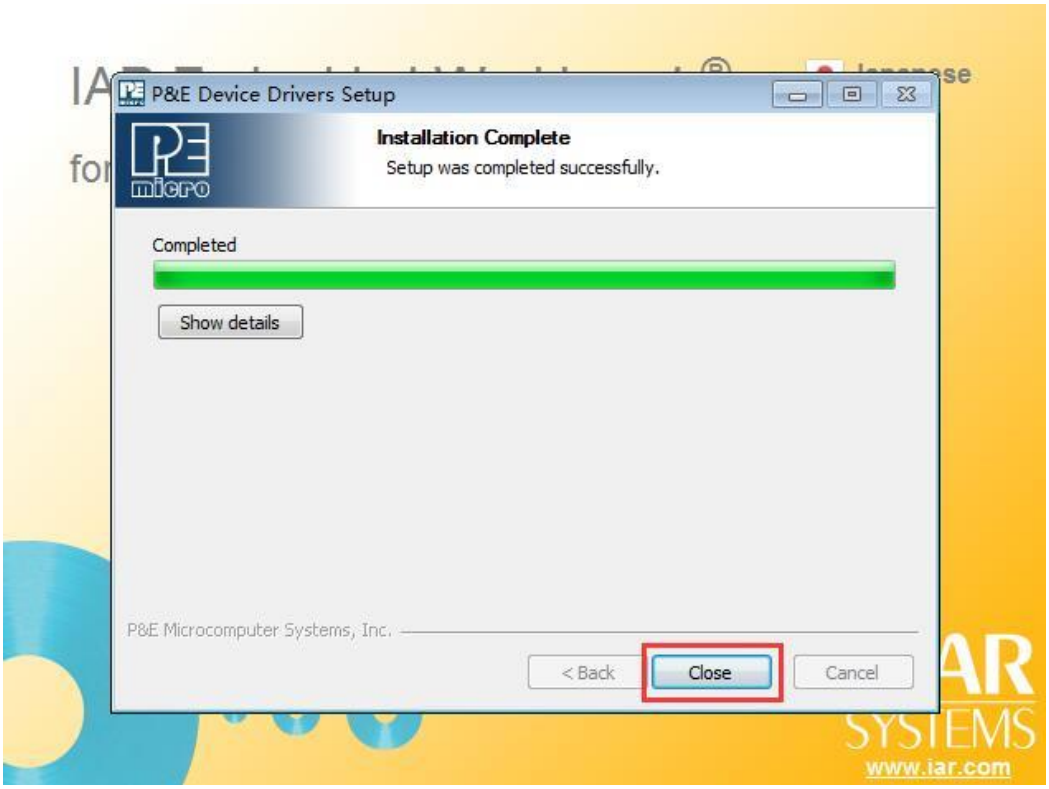
点击“I Agree”：



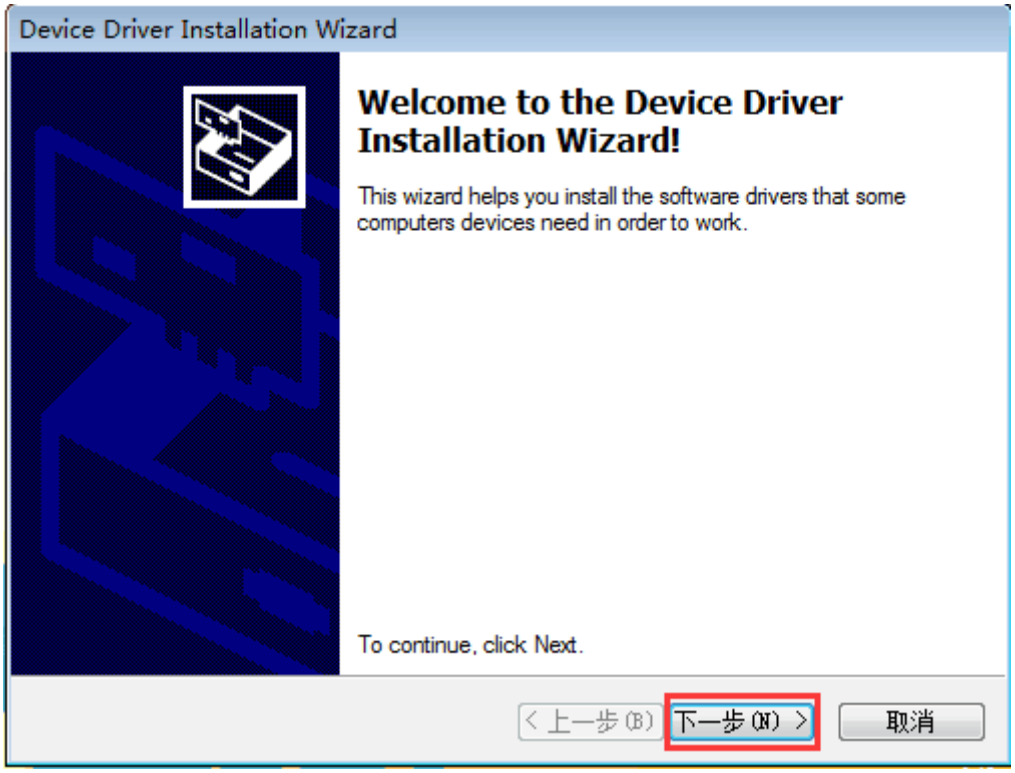
使用默认路径，点击“Install”：



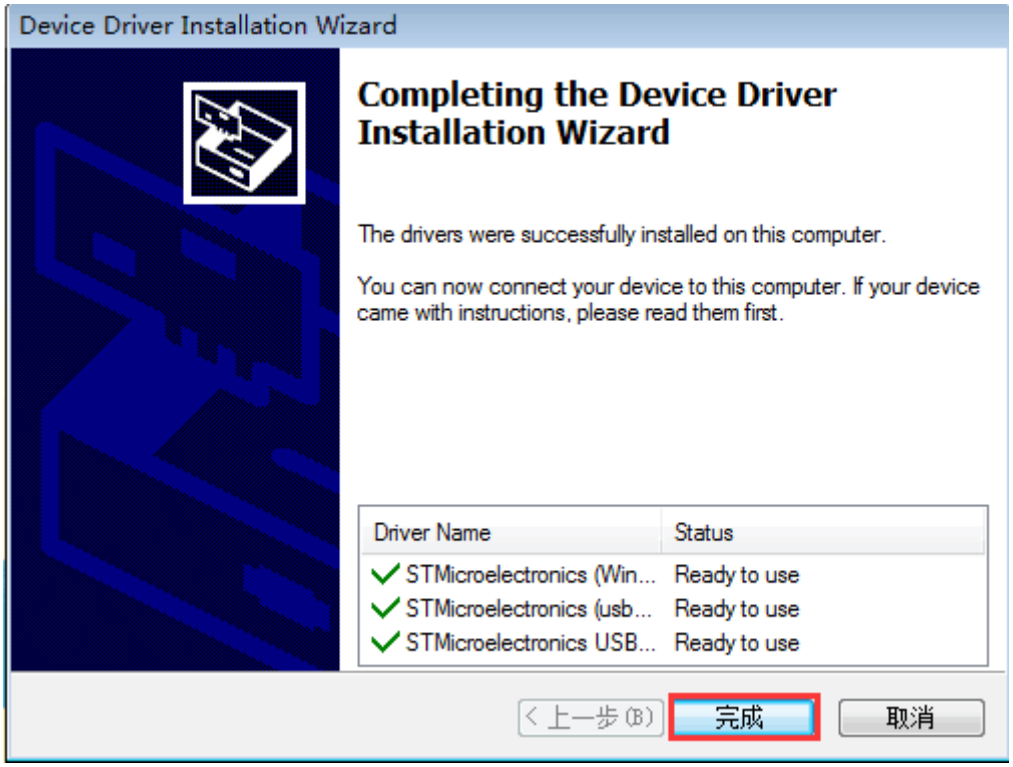
点击“Close”：



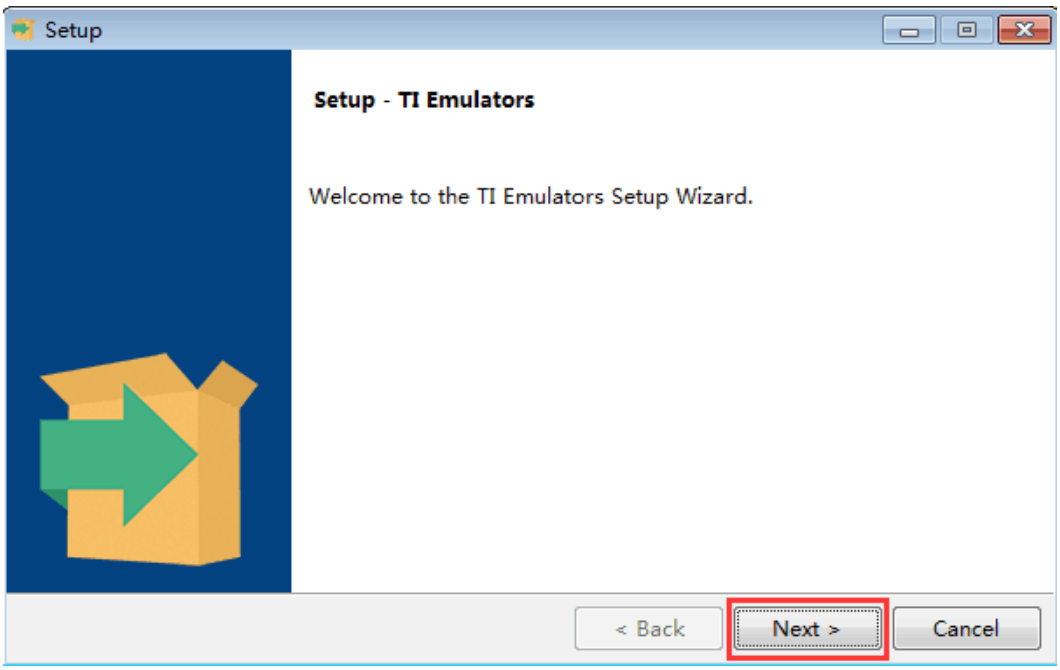
继续同意安装相关驱动，点击“下一步”：



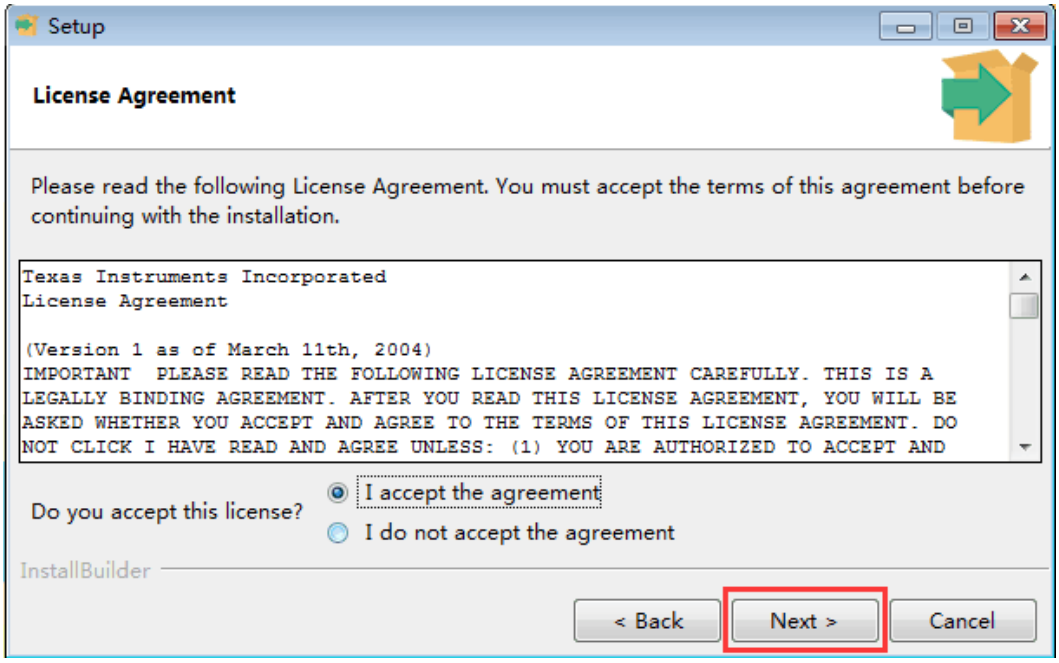
点击“完成”：


Device Driver Installation Wizard
Completing the Device Driver Installation Wizard
The drivers were successfully installed on this computer.
You can now connect your device to this computer. If your device came with instructions, please read them first.
Driver Name
Status
STMicroelectronics (Win...
Ready to use
STMicroelectronics (usb...
Ready to use
STMicroelectronics USB...
Ready to use
< 上一步(B)
完成
取消

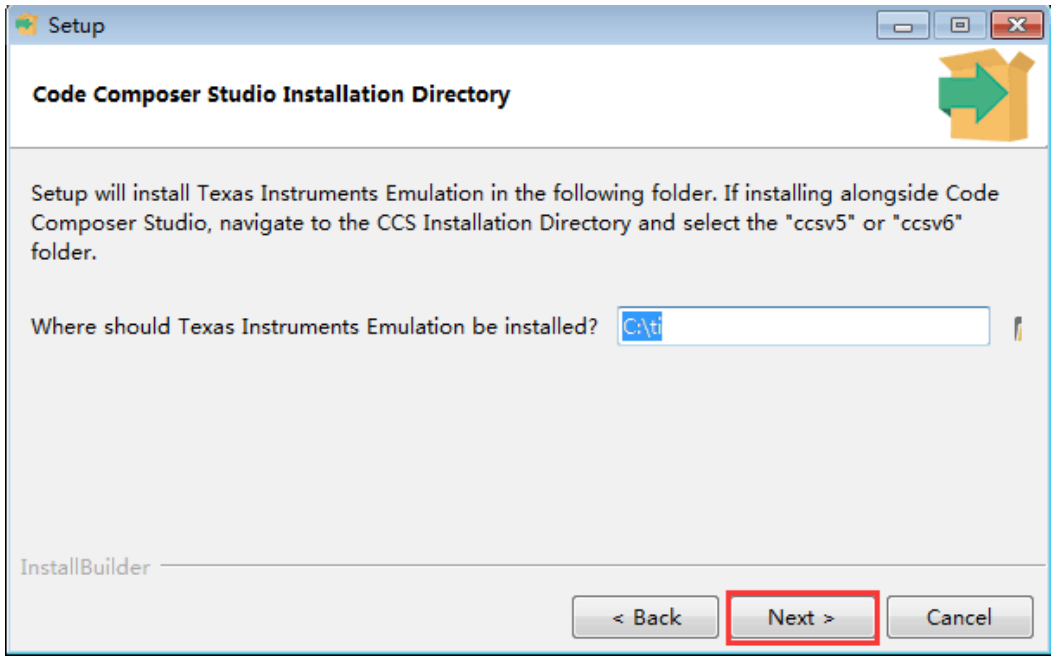
点击“Next”：


Setup
Setup - TI Emulators
Welcome to the TI Emulators Setup Wizard.
< Back
Next >
Cancel

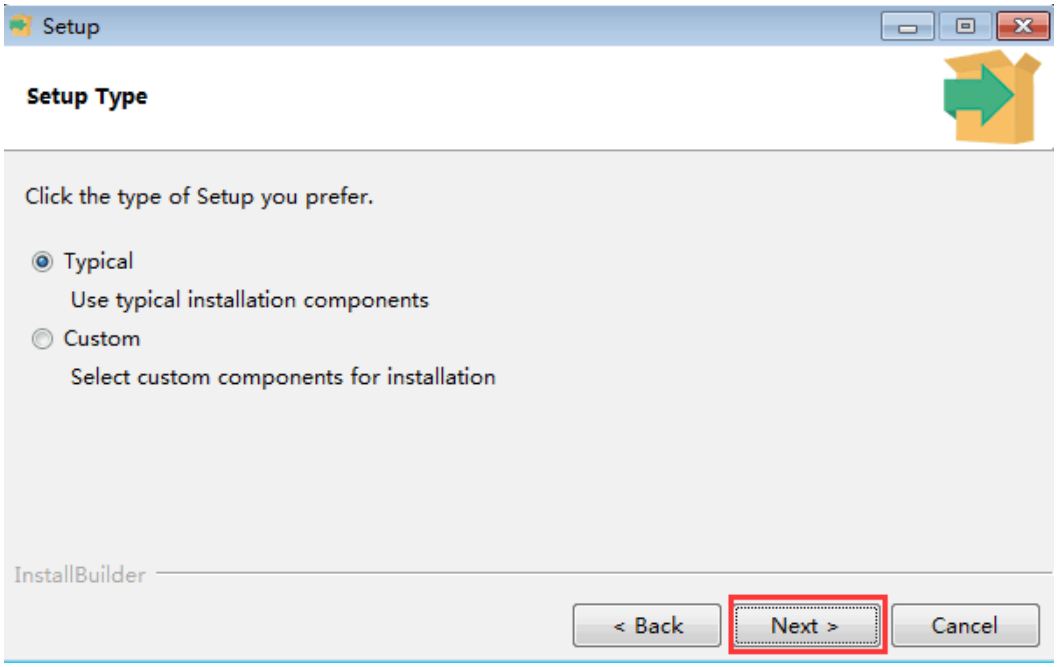
选择“I Accept…”，点击“Next”：



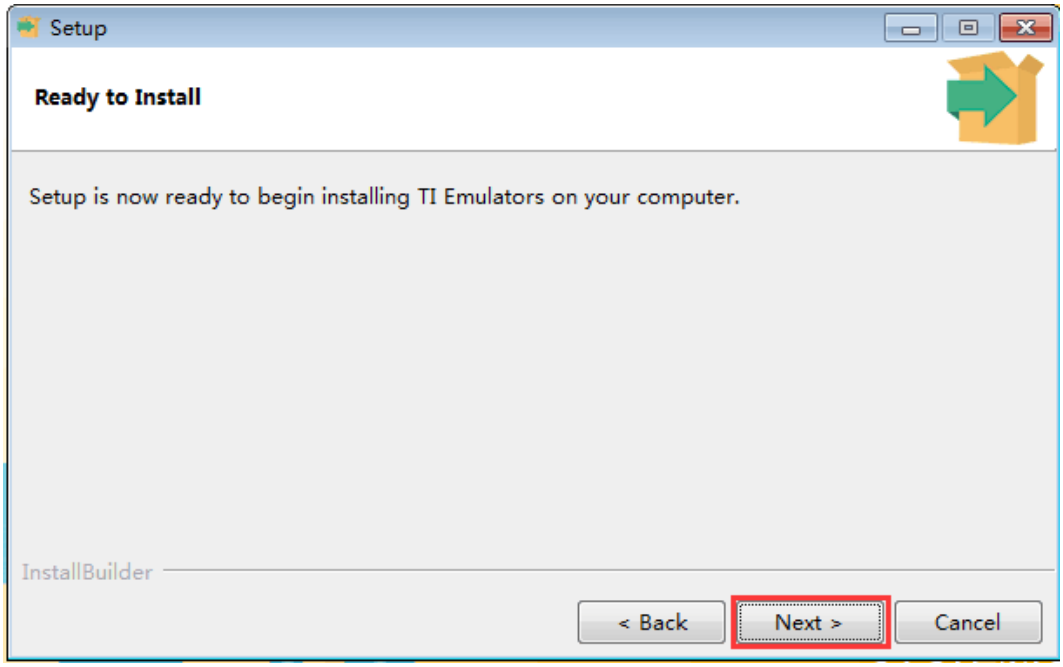
使用默认路径，点击“Next”：



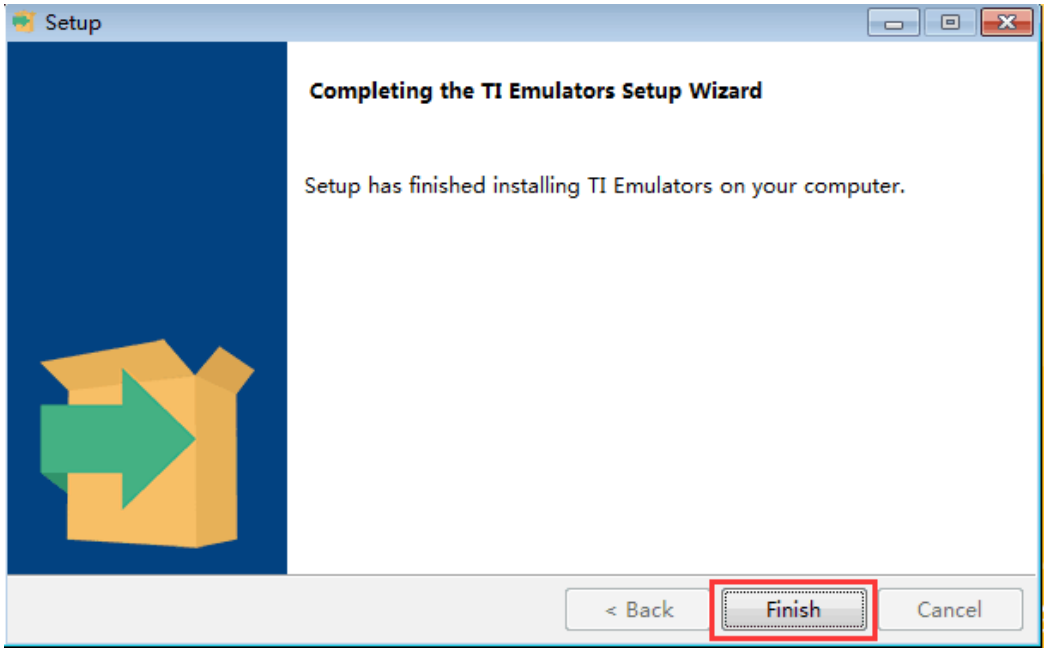
点击“Typical”：



点击“Next”：



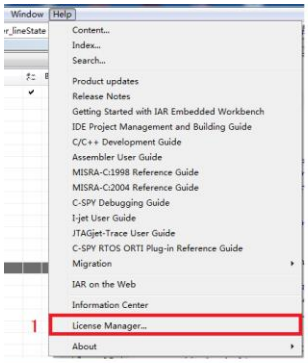
点击“Finish”，完成安装

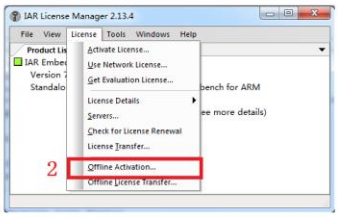


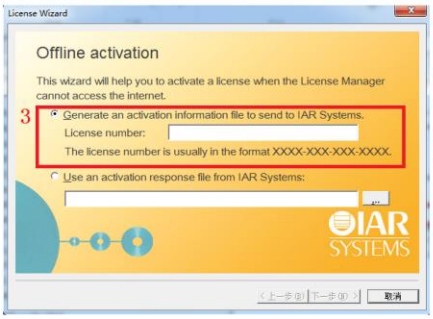
IAR 安装完成后，需要注册才能使用。正版软件授权，请与 IAR 官方联系。

声明：以下注册工具及注册方法均来源于网络，仅供个人学习使用，不可用于任何商业用途。

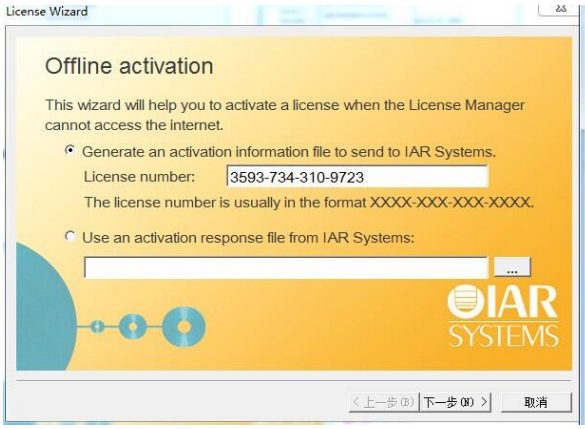
使用注册机给 IAR 编译器注册，注册步骤如下：

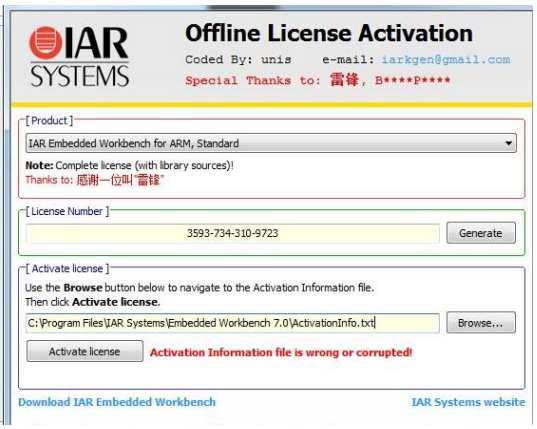


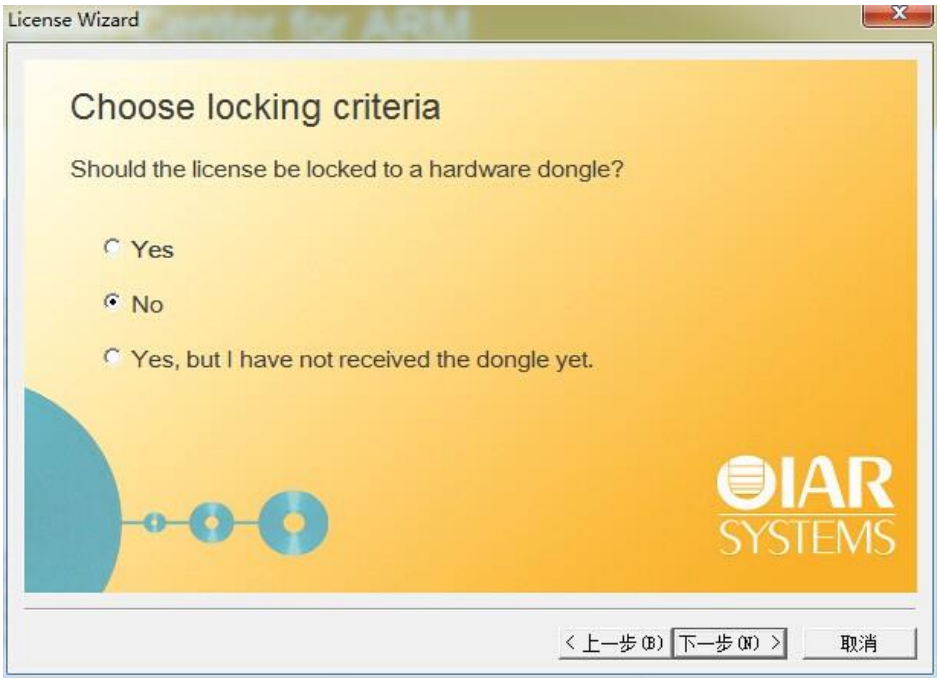




4 输入注册机生产的序列号，结合注册机，一步一步往后面做。
离线激活，是会生产一个 ActivationInfo.txt文件，打开注册机则选这个文件，会生产一个对应的激活文件。

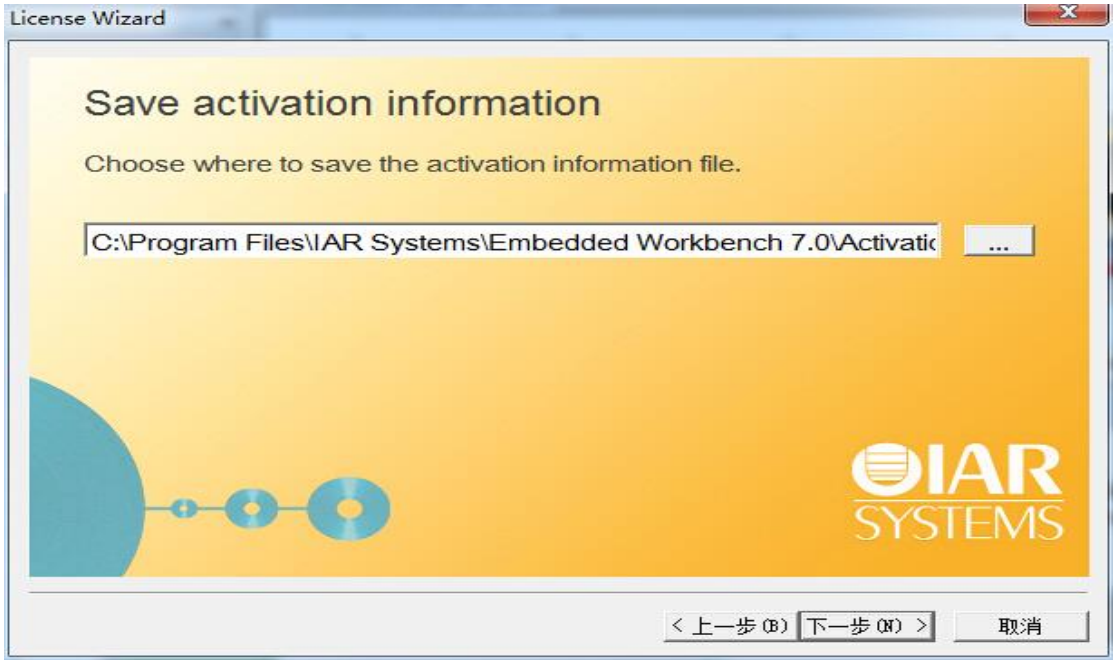




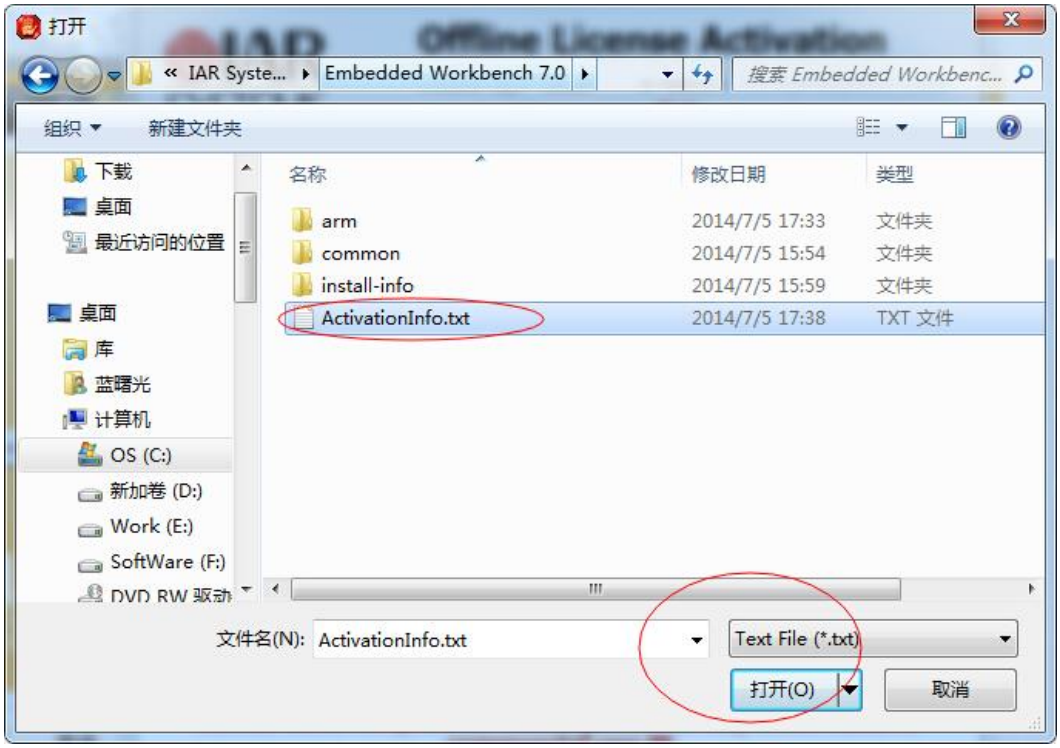

License Wizard
Choose locking criteria
Should the license be locked to a hardware dongle?
Yes
No
Yes, but I have not received the dongle yet.
IAR SYSTEMS
< 上一步(B)
下一步(N) >
取消

License Wizard
Confirm dongle
No dongles were found. Make sure that the correct dongle is connected and click Refresh dongle list.
Refresh dongle list
Troubleshoot
I want to lock the license to this computer while I wait for my dongle.
IAR SYSTEMS
< 上一步(B)
下一步(N) >
取消

License Wizard
Save activation information
Choose where to save the activation information file.
另存为
Embedded Workben...
搜索 Embedded Workbenc...
组织
新建文件夹
桌面
最近访问的位置
库
蓝曙光
计算机
OS (C:)
新加卷 (D:)
名称
修改日期
类型
arm
2014/7/5 17:33
文件夹
common
2014/7/5 15:54
文件夹
install-info
2014/7/5 15:59
文件夹
文件名(N): ActivationInfo.txt
保存类型(T): Text Files (*.txt)
隐藏文件夹
保存(S)
取消
IAR SYSTEMS
< 上一步(B)
下一步(N) >
取消

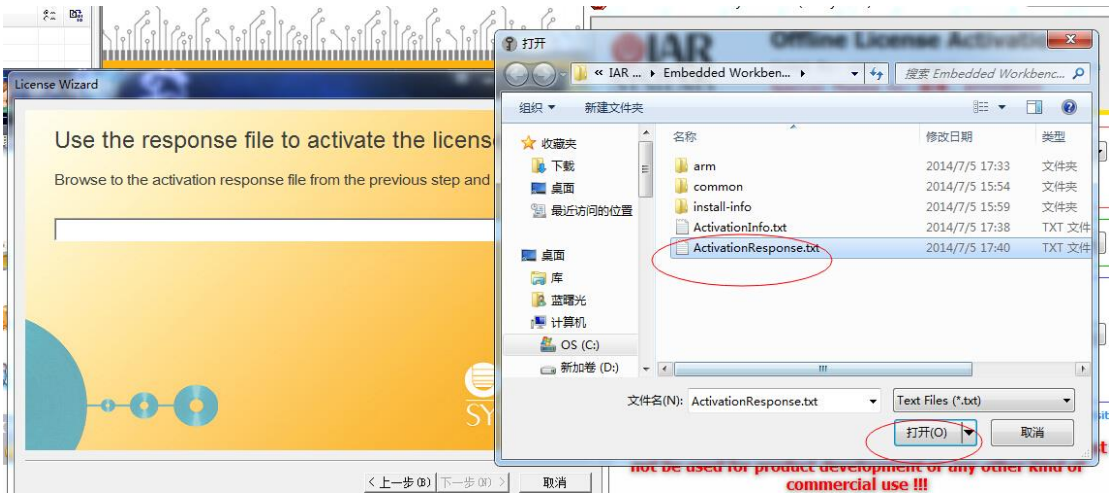

License Wizard
Save activation information
Choose where to save the activation information file.
C:\Program Files\IAR Systems\Embedded Workbench 7.0\Activatic
...
IAR SYSTEMS
< 上一步(B)
下一步(N) >
取消

IAR Information Center for ARM
IAR Offline Activator by unis v1.3 (1 May 2014)
Use the response file to activate the license
Browse to the activation response file from the previous step and click Next.
IAR SYSTEMS
Offline License Activation
Coded By: unis e-mail: iarkgen@gmail.com
Special Thanks to: 雷锋, B****P****
[Product]
IAR Embedded Workbench for ARM, Standard
Note: Complete license (with library sources)!
Thanks to: 感谢一位叫"雷锋"
[License Number]
0130-982-090-6995
Generate
[Activate license]
Use the Browse button below to navigate to the Activation Information file.
Then click Activate license.
Browse...
Activate license
No file chosen
Download IAR Embedded Workbench
IAR Systems website
This release is intended for educational purpose only, and must not be used for product development or any other kind of commercial use !!!
< 上一步(B)
下一步(N) >
取消


打开
« IAR Syste... ▸ Embedded Workbench 7.0 ▸
搜索 Embedded Workbenc...
组织
新建文件夹
下载
桌面
最近访问的位置
桌面
库
蓝曙光
计算机
OS (C:)
新加卷 (D:)
Work (E:)
SoftWare (F:)
名称
修改日期
类型
arm 2014/7/5 17:33 文件夹
common 2014/7/5 15:54 文件夹
install-info 2014/7/5 15:59 文件夹
ActivationInfo.txt 2014/7/5 17:38 TXT 文件
文件名(N): ActivationInfo.txt
Text File (*.txt)
打开(O)
取消

IAR Offline Activator by unis v1.3 (1 May 2014)
IAR SYSTEMS
Offline License Activation
Coded By: unis e-mail: iarkgen@gmail.com
Special Thanks to: 雷锋, B****P****
[Product]
IAR Embedded Workbench for ARM, Standard
Note: Complete license (with library sources)!
Thanks to: 感谢一位叫"雷锋"
[License Number]
0130-982-090-6995
Generate
[Activate license]
Use the Browse button below to navigate to the Activation Information file.
Then click Activate license.
C:\Program Files\IAR Systems\Embedded Workbench 7.0\ActivationInfo.txt
Browse...
Activate license
Download IAR Embedded Workbench
IAR Systems website
This release is intended for educational purpose only, and must not be used for product development or any other kind of commercial use !!!

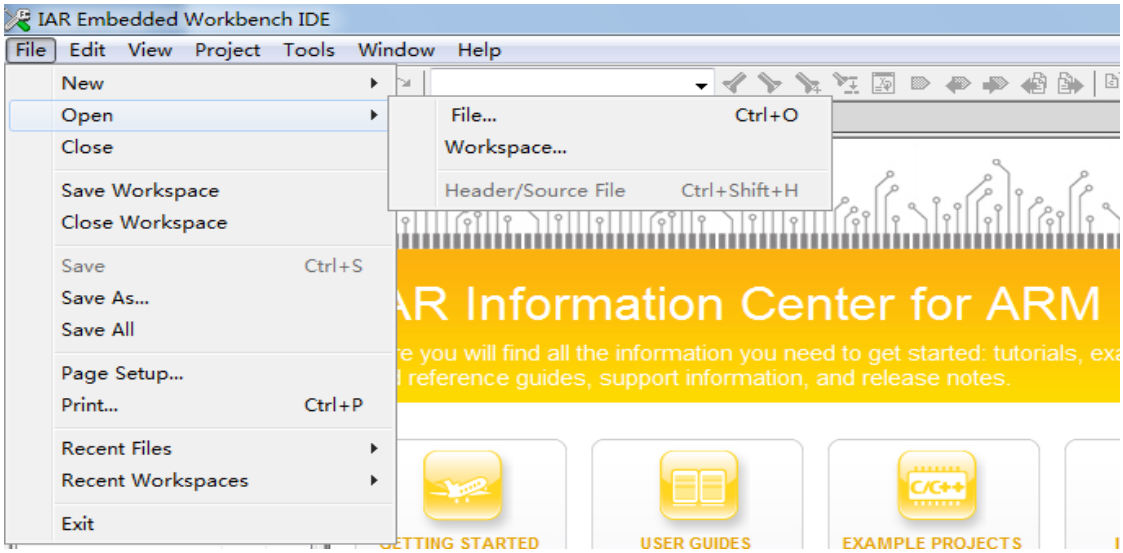
另存为
IAR Embedded Workbench 7.0
arm
common
install-info
ActivationInfo.txt
文件名(N): ActivationResponse.txt
保存类型(T): Text File (*.txt)
保存(S)
取消
IAR Offline Activator by unis v1.3 (1 May 2014)
Offline License Activation
Coded By: unis e-mail: iarkgen@gmail.com
Special Thanks to: 雷锋, B****P****
[Product]
IAR Embedded Workbench for ARM, Standard
Note: Complete license (with library sources)!
Thanks to: 感谢一位叫"雷锋"
[License Number]
0130-982-090-6995
Generate
[Activate license]
Use the Browse button below to navigate to the Activation Information file.
Then click Activate license.
C:\Program Files\IAR Systems\Embedded Workbench 7.0\ActivationInfo.txt
Browse...
Activate license
Download IAR Embedded Workbench
IAR Systems website
This release is intended for educational purpose only, and must not be used for product development or any other kind of commercial use !!!


License Wizard
Use the response file to activate the licens
Browse to the activation response file from the previous step and
打开
Embedded Workben...
arm
common
install-info
ActivationInfo.txt
ActivationResponse.txt
文件名(N): ActivationResponse.txt
Text Files (*.txt)
打开(O)
取消
commercial use !!!

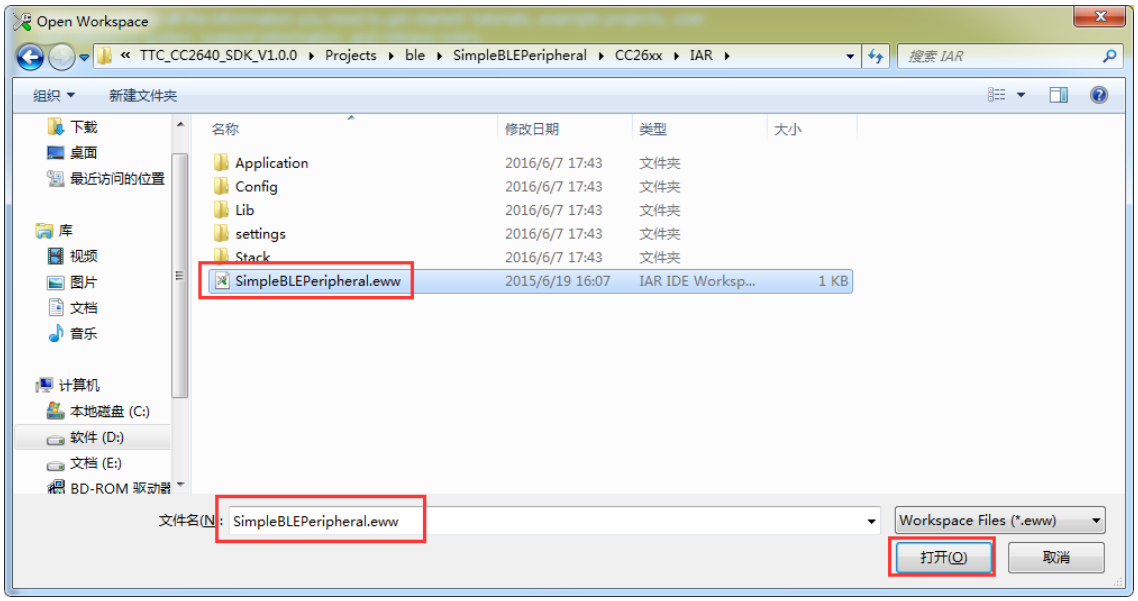
2. 程序烧写

2.1. IAR 环境下烧写

①打开 IAR->File->Open->Workspace

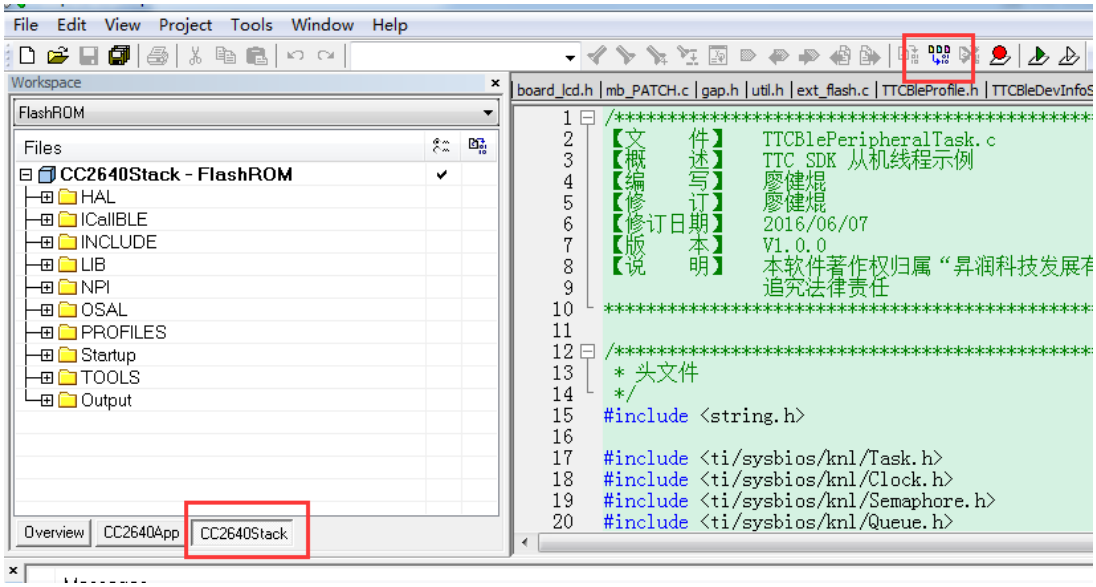


②选择工程文件

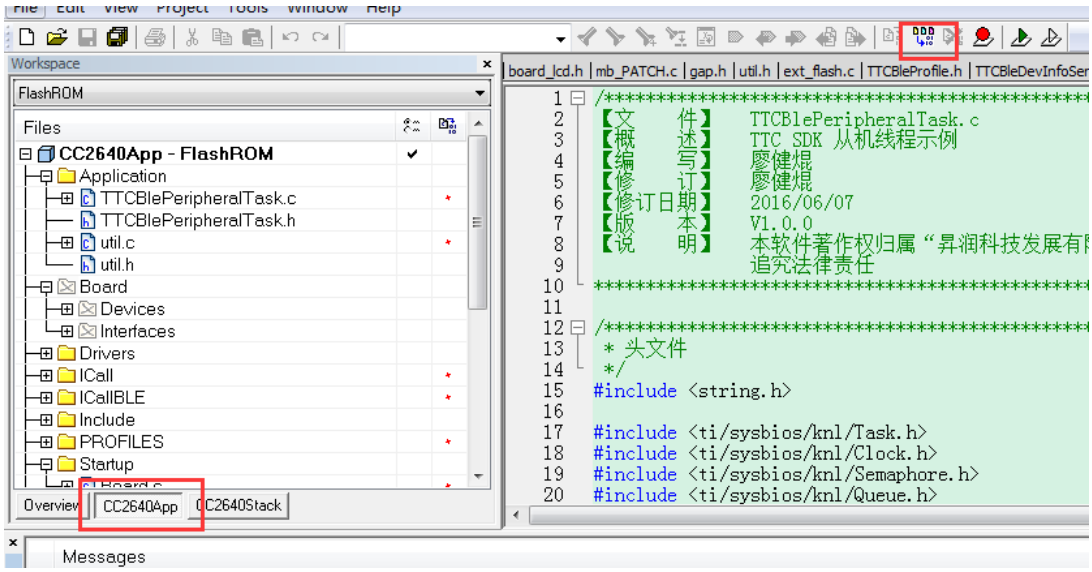


③编译文件

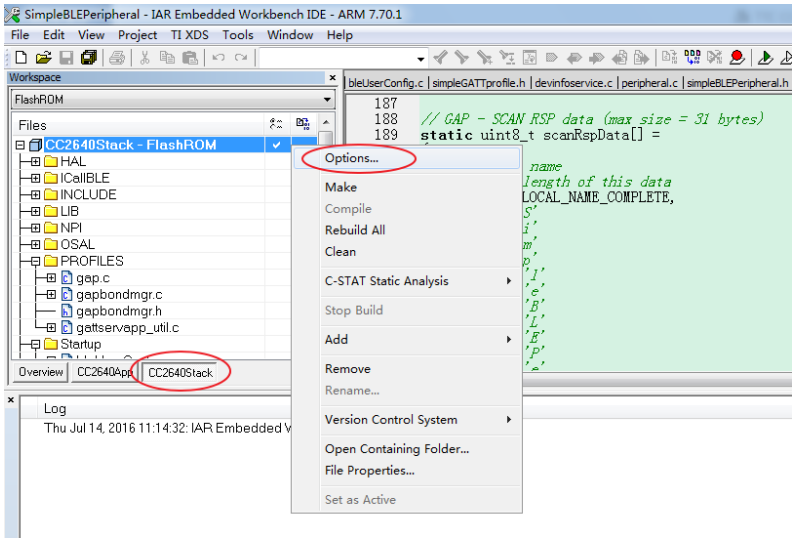
编译 CC2640Stack



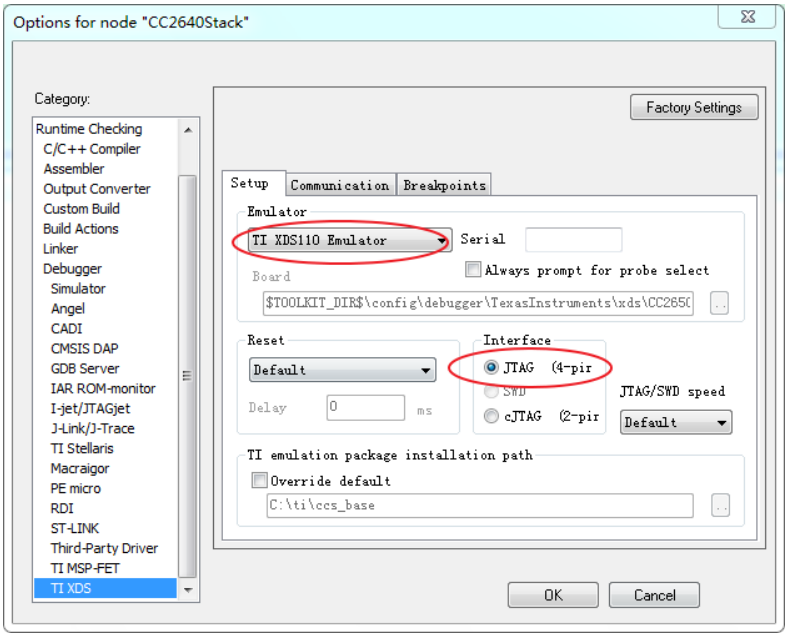
编译 CC2640App



④修改仿真器配置



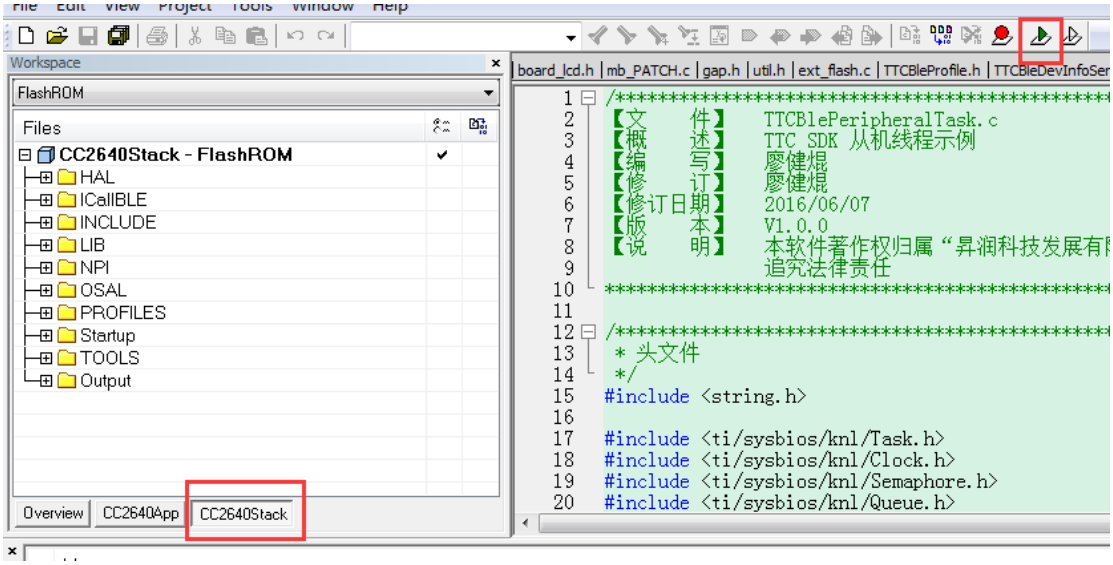
关于“Interface”选择的说明，“JTAG(4-pin)” 模式仿真时，速度较快但需要额外占用 2 个 IO 口(TDO、TDI)。若硬件设计已经使用了 TDO、TDI,则可以选择“cJTAG(2-pin)”模式仿真。

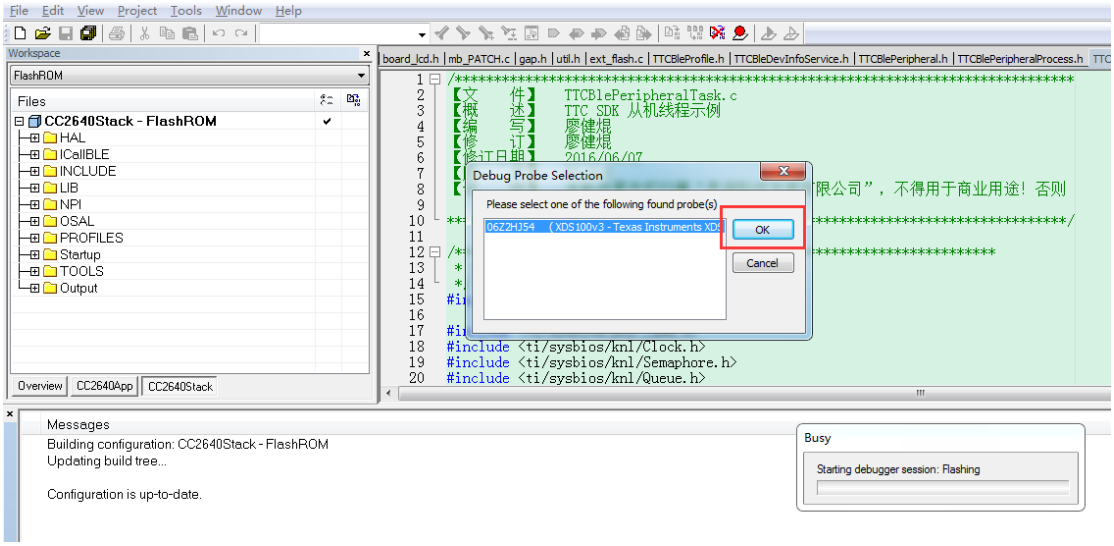


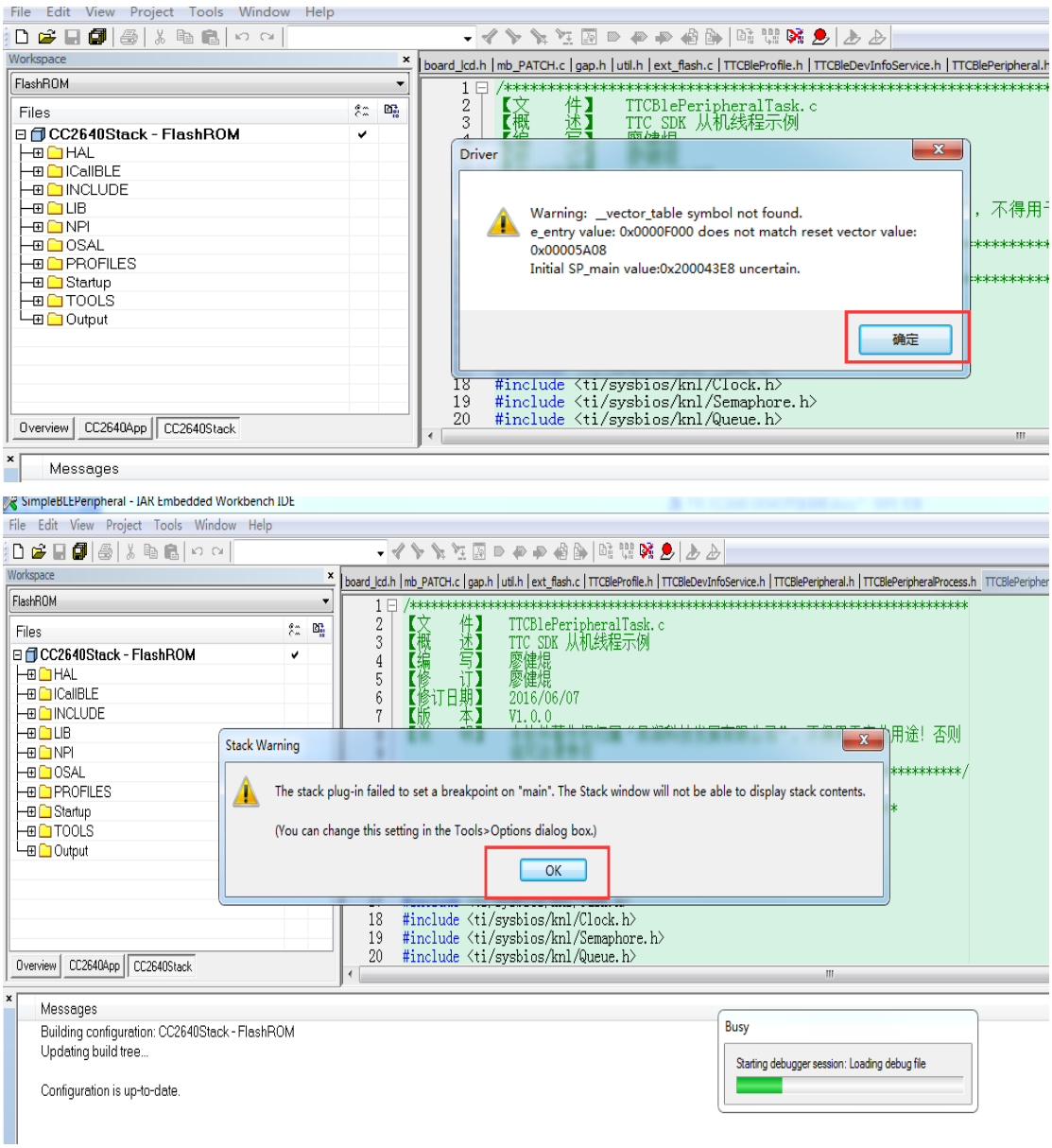
以上步骤在 CC2640App 部分也再修改一次即可。

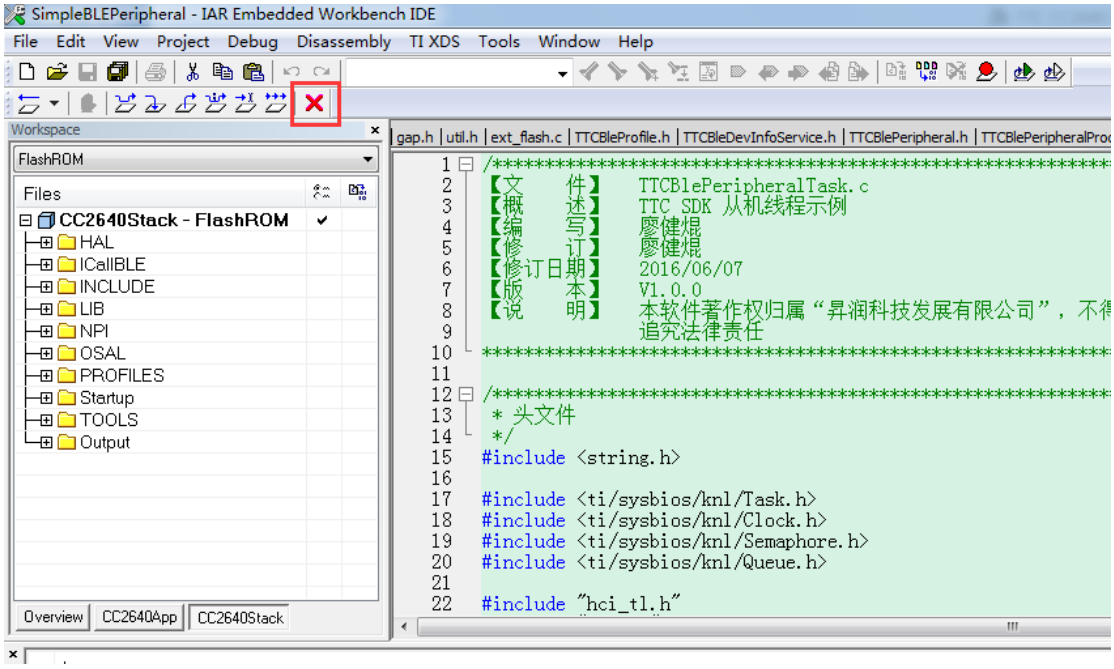
⑤烧写程序

先烧写 CC2640Stack 部分

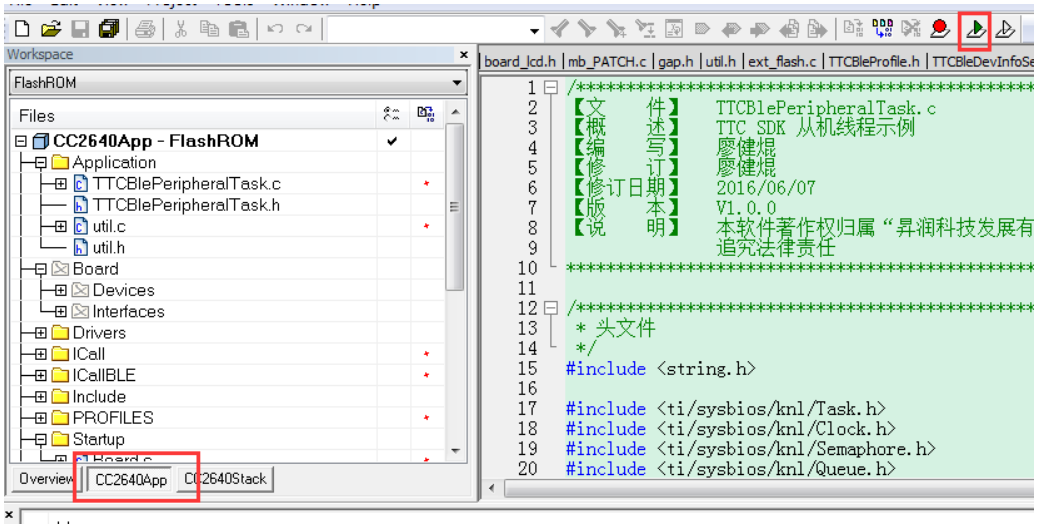


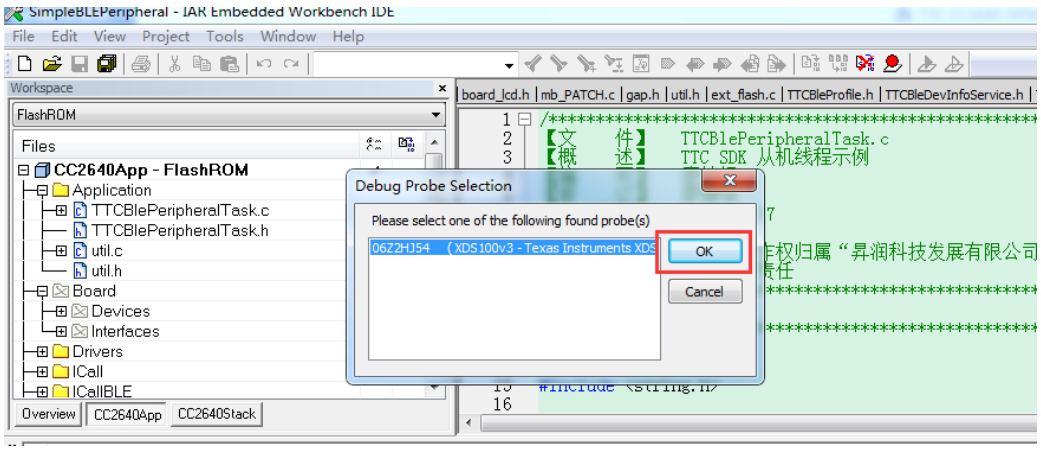


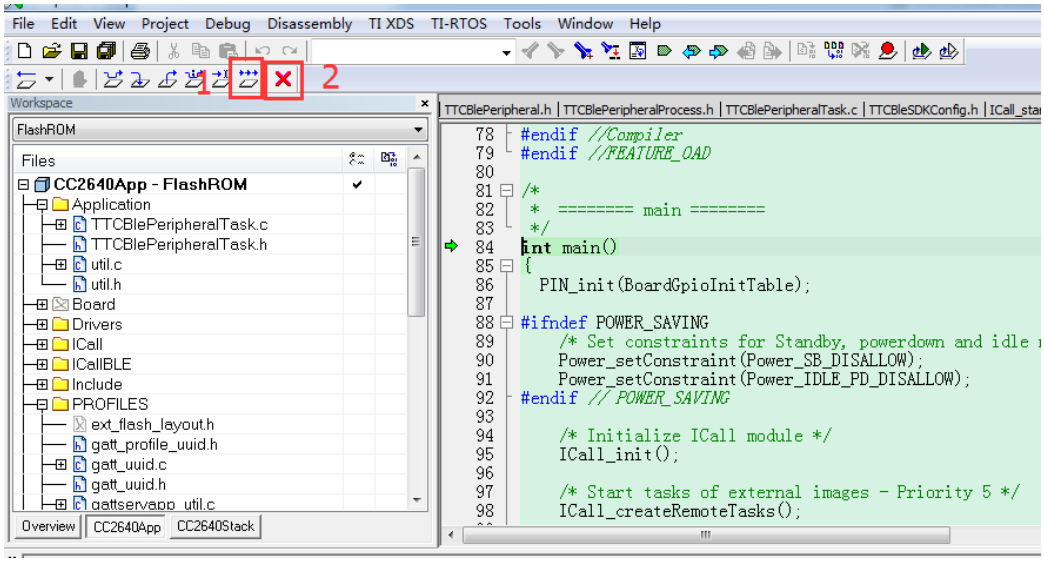

File Edit View Project Tools Window Help
Workspace
FlashROM
Files
CC2640Stack - FlashROM
HAL
ICallBLE
INCLUDE
LIB
NPI
OSAL
PROFILES
Startup
TOOLS
Output
Overview
CC2640App
CC2640Stack
Driver
Warning: __vector_table symbol not found.
e_entry value: 0x0000F000 does not match reset vector value: 0x00005A08
Initial SP_main value:0x200043E8 uncertain.
确定
board_lcd.h | mb_PATCH.c | gap.h | util.h | ext_flash.c | TTCBleProfile.h | TTCBleDevInfoService.h | TTCBlePeripheral.h
1 /*
2 【文 件】 TTCBlePeripheralTask.c
3 【概 述】 TTC SDK 从机线程示例
18 #include <ti/sysbios/knl/Clock.h>
19 #include <ti/sysbios/knl/Semaphore.h>
20 #include <ti/sysbios/knl/Queue.h>
Messages
SimpleBLEPeripheral - IAR Embedded Workbench IDE
File Edit View Project Tools Window Help
Workspace
FlashROM
Files
CC2640Stack - FlashROM
HAL
ICallBLE
INCLUDE
LIB
NPI
OSAL
PROFILES
Startup
TOOLS
Output
Overview
CC2640App
CC2640Stack
board_lcd.h | mb_PATCH.c | gap.h | util.h | ext_flash.c | TTCBleProfile.h | TTCBleDevInfoService.h | TTCBlePeripheral.h | TTCBlePeripheralProcess.h
1 /*
2 【文 件】 TTCBlePeripheralTask.c
3 【概 述】 TTC SDK 从机线程示例
4 【编 写】 廖健焜
5 【修 订】 廖健焜
6 【修订日期】 2016/06/07
7 【版 本】 V1.0.0
Stack Warning
The stack plug-in failed to set a breakpoint on "main". The Stack window will not be able to display stack contents.
(You can change this setting in the Tools>Options dialog box.)
OK
18 #include <ti/sysbios/knl/Clock.h>
19 #include <ti/sysbios/knl/Semaphore.h>
20 #include <ti/sysbios/knl/Queue.h>
Messages
Building configuration: CC2640Stack - FlashROM
Updating build tree...
Configuration is up-to-date.
Busy
Starting debugger session: Loading debug file


SimpleBLEPeripheral - IAR Embedded Workbench IDE
File Edit View Project Debug Disassembly TI XDS Tools Window Help
Workspace
FlashROM
Files
CC2640Stack - FlashROM
HAL
ICallBLE
INCLUDE
LIB
NPI
OSAL
PROFILES
Startup
TOOLS
Output
Overview
CC2640App
CC2640Stack
gap.h | util.h | ext_flash.c | TTCBleProfile.h | TTCBleDevInfoService.h | TTCBlePeripheral.h | TTCBlePeripheralProc
/*
【文 件】 TTCBlePeripheralTask.c
【概 述】 TTC SDK 从机线程示例
【编 写】 廖健焜
【修 订】 廖健焜
【修订日期】 2016/06/07
【版 本】 V1.0.0
【说 明】 本软件著作权归属“昇润科技发展有限公司”，不得
追究法律责任
*/
/*
* 头文件
*/
#include <string.h>
#include <ti/sysbios/knl/Task.h>
#include <ti/sysbios/knl/Clock.h>
#include <ti/sysbios/knl/Semaphore.h>
#include <ti/sysbios/knl/Queue.h>
#include "hci_tl.h"

再烧写 CC2640App 部分



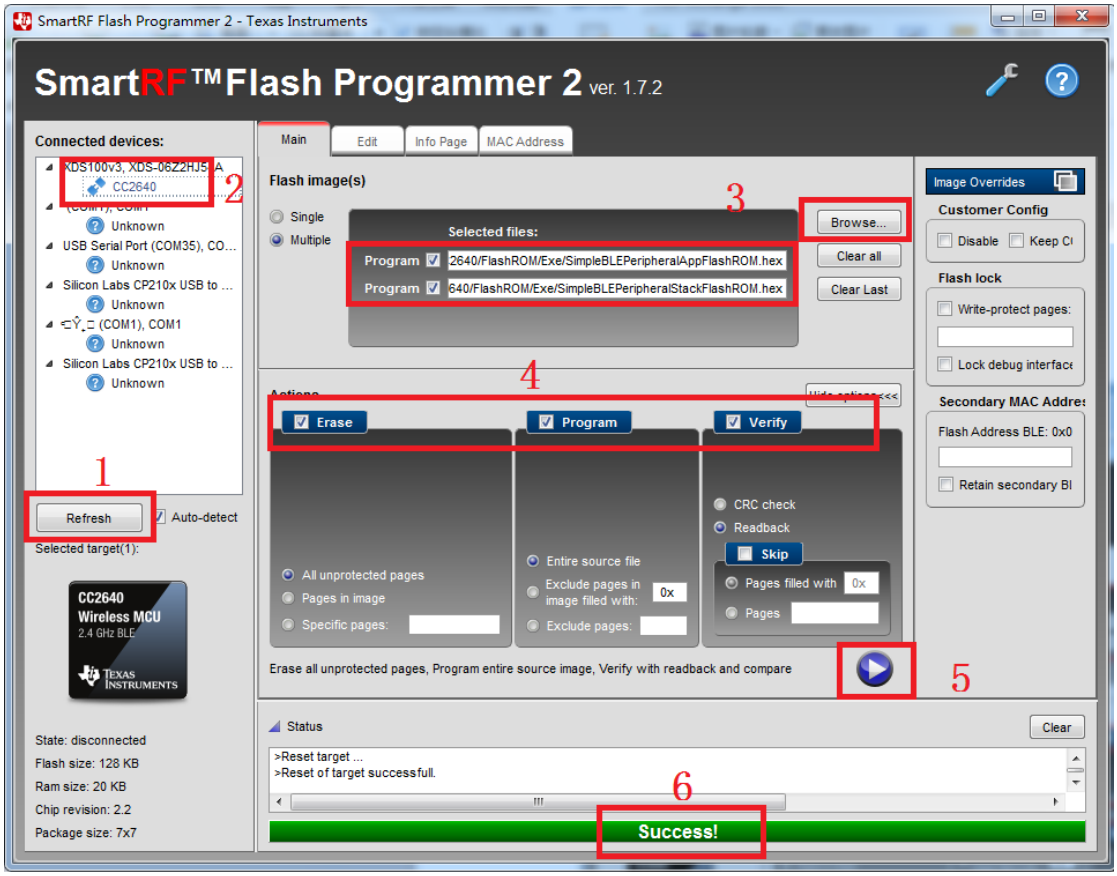




如上图 点击 1 可调试程序。

点击 2 退出调试，CC2640 会重新运行程序。

2.2. Flash Programmer 2 工具烧写



①刷新设备
②点击选择 CC2640
③选择要烧写的程序（注意协议栈和应用程序的 HEX 文件都要选择）
④勾选擦除、烧写、验证
⑤开始烧写
⑥烧写成功

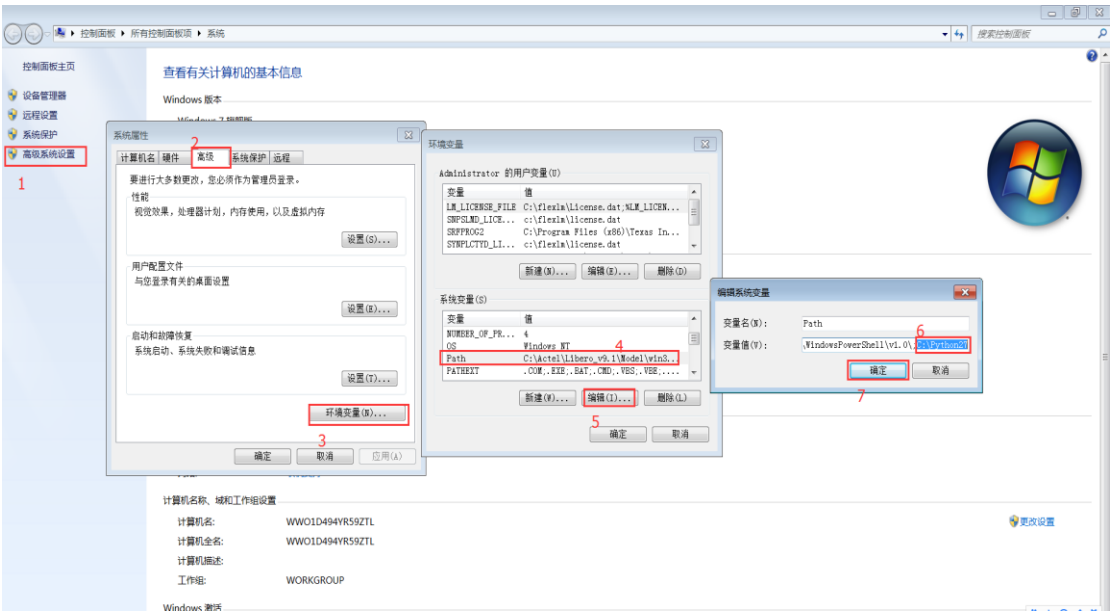
3. 常见问题(Q&A)

3.1. 无法自动修改环境变量

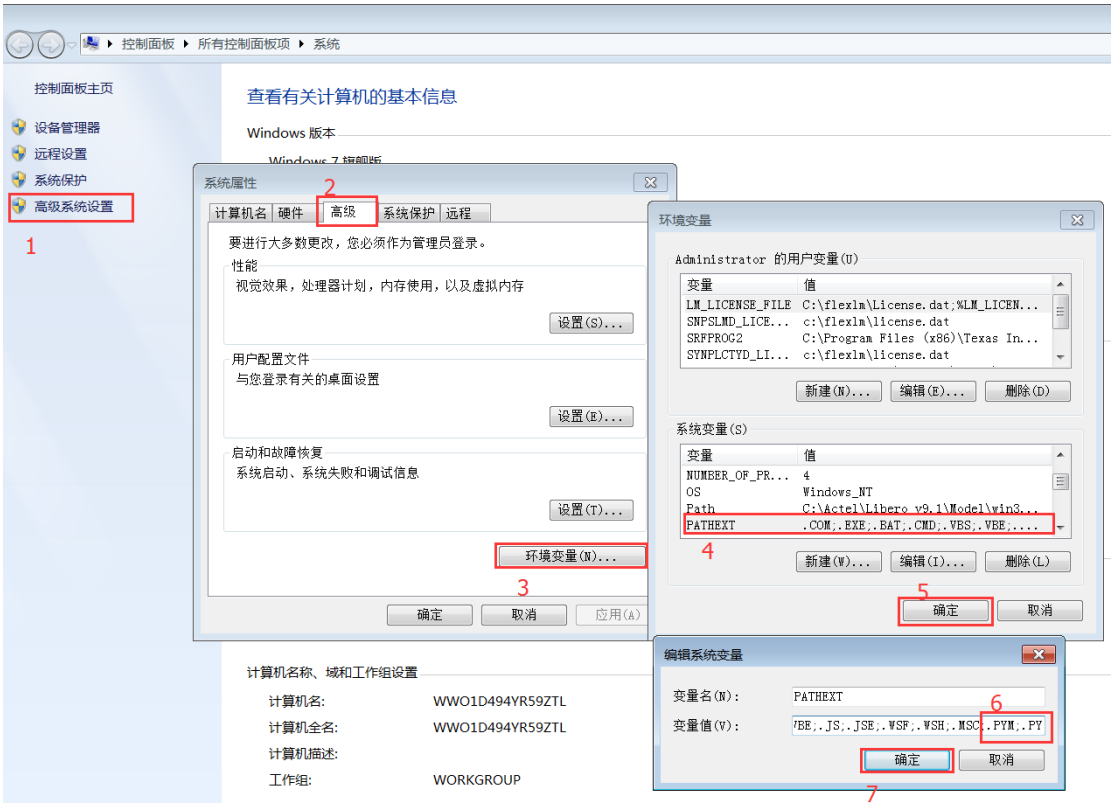
【问】安装 TTC_BLE_CC2640_SDK 时，提示无法更新环境变量。该如何操作？

【答】按照以下步骤手动设置环境变量。

在系统变量中添加 Python27,具体的操作流程如下：右键电脑→属性→高级系统设置→高级→环境变量→Path→编辑，在这行语句的最后添加 C:\Python27，注意与前面语句之前用分号隔开。



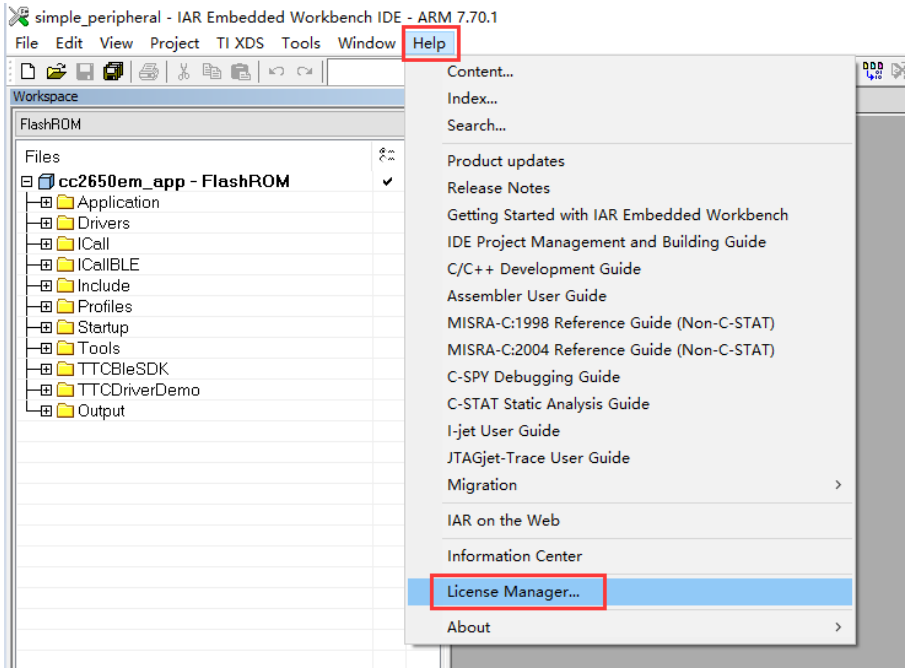
然后在下面一行添加新的环境变量，步骤如下图所示，在语句最后添加：.PYM;.PY 这两个变量，注意前面语句用分号隔开，字母前面有一个小点。



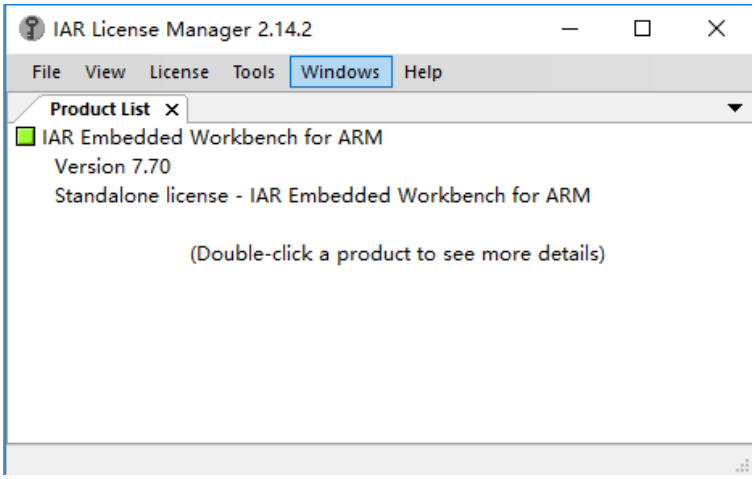
3.2. IAR 成功注册与否

【问】如何确认是否注册成功？

【答】IAR 中，如下图，点击 Help -> Liscense Manger：

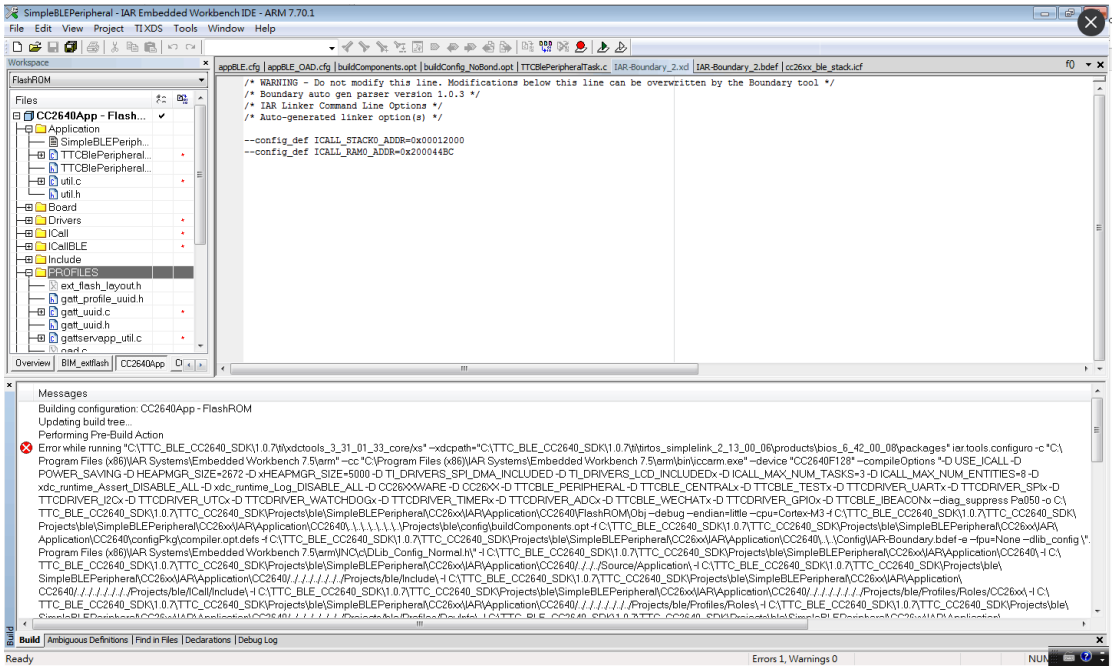


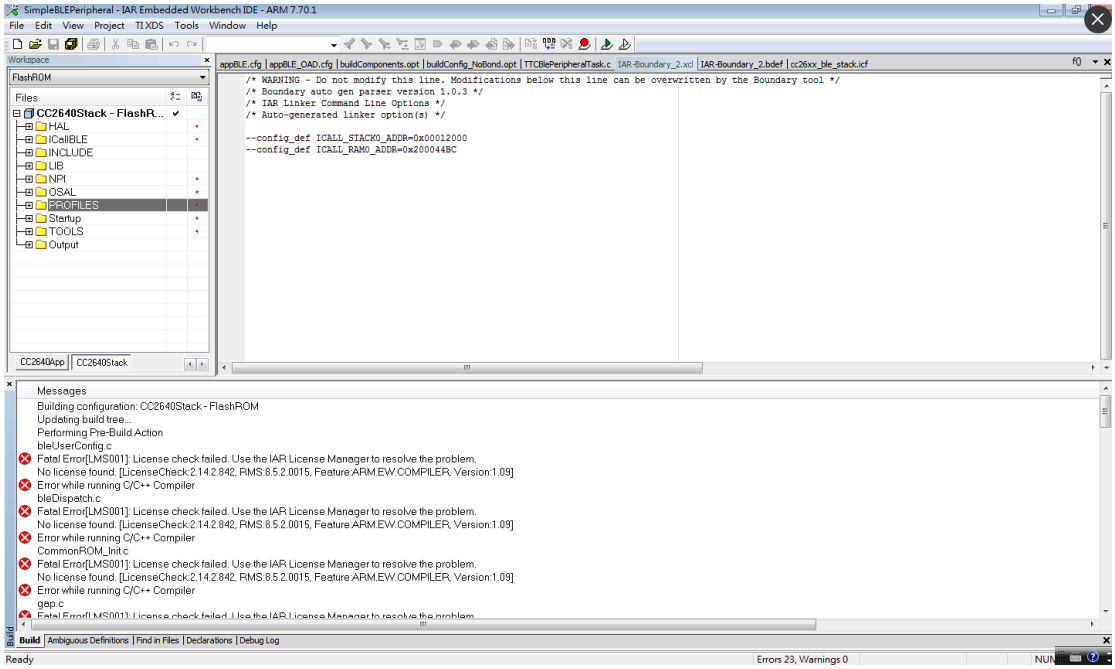
出现如下提示则成功注册。



【问】若未成功注册，会导致什么结果？

【答】IAR 功能受限。应用程序 CC2640App 工程、协议栈 CC2640Stack 工程编译时分别报错如下：





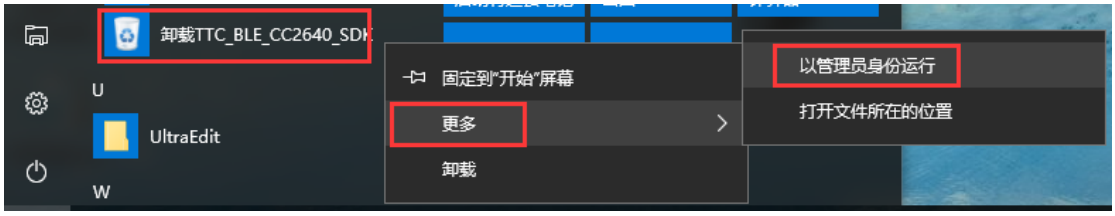
3.3. 开发环境卸载

【问】开发环境卸载需要注意什么？遇到问题怎么办？

【答】(1)卸载开发环境会删除安装目录下的所有文件，所以卸载前务必备份程序至其他路径，以防资料丢失！

(2)若在“控制面板”中卸载开发环境失败，可尝试使用管理员权限卸载。

操作如下，在 windows 开始菜单 → TTC_BLE_CC2640_SDK → 右键“卸载 TTC_BLE_CC2640_SDK”→ 更多 → 以管理员身份运行。如下图：



3.4. SDK 版本与 IAR 版本说明

【问】SDK 版本与 IAR 版本如何对应？

【答】sdk 版本不同，对应的 IAR、蓝牙协议栈及对应的芯片型号也有所不同，具体对应如下：

SDK 版本	IAR 版本	TI BLE-Stack 版本	芯片型号
TTC_BLE_CC2640_SDK V1.x.x	EWARM-CD-7701	2.1	CC2640
TTC_BLE_CC2640_SDK V2.x.x	EWARM-CD-7804	2.2	CC2640
TTC_BLE_CC2640_SDK V3.x.x	EWARM-CD-7804	3.0	CC2640R2F

4. 联系我们

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ShenZhen ShengRun Technology Co.,Ltd.
Tel: 0755-86233846 Fax: 0755-82970906

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阿里巴巴网址：http://shop1439435278127.1688.com

E-mail: marketing@tuner168.com

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