ESP8266　EdgerOS　SDDC 开发环境搭建

ESP8266 是乐鑫科技研发的一款面向物联网应用的高性价比、高度集成的 Wi-Fi MCU，乐鑫科技对外提供了 ESP8266 的二次开发 SDK，通过在 ESP8266 SDK 中集成 EdgerOS 的 SDDC 协议源代码，实现 ESP8266 与搭载 EdgerOS 的智能边缘计算机 Spirit 通信。文本介绍如何搭建 ESP8266 EdgerOS SDDC 开发环境。

一、安装安信可 IDE

1.1 下载 IDE 安装包

https://docs.ai-thinker.com/

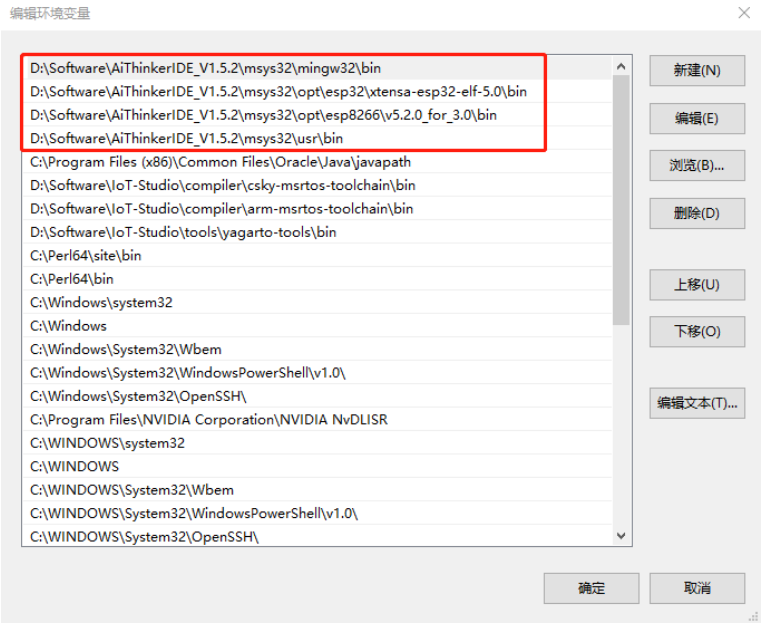
下载 AiThinkerIDE_V1.5.2.exe 即可。

1.2 安装 IDE

双击 AiThinkerIDE_V1.5.2.exe，完成安装：

1.3 调整 IDE PATH

将 AiThinkerIDE 相关的 4 个环境变量上移到最前面：



二、下载 ESP8266 SDK

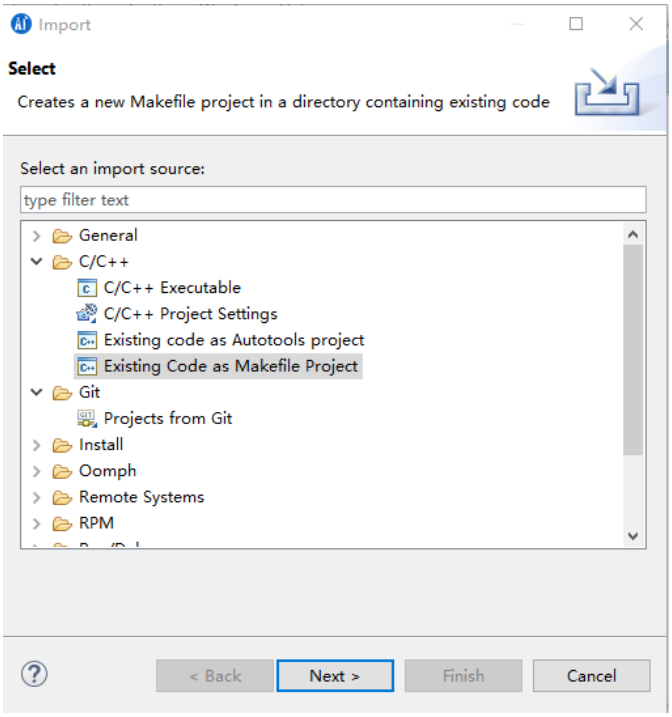
在一个路径不带空格的目录下，执行以下命令下载：
git clone -recursive https://github.com/ms-rtos/AiThinkerProjectForESP.git

如果 github 下载速度慢，可以试试 gitee：
git clone -recursive https://gitee.com/ms-rtos/AiThinkerProjectForESP.git

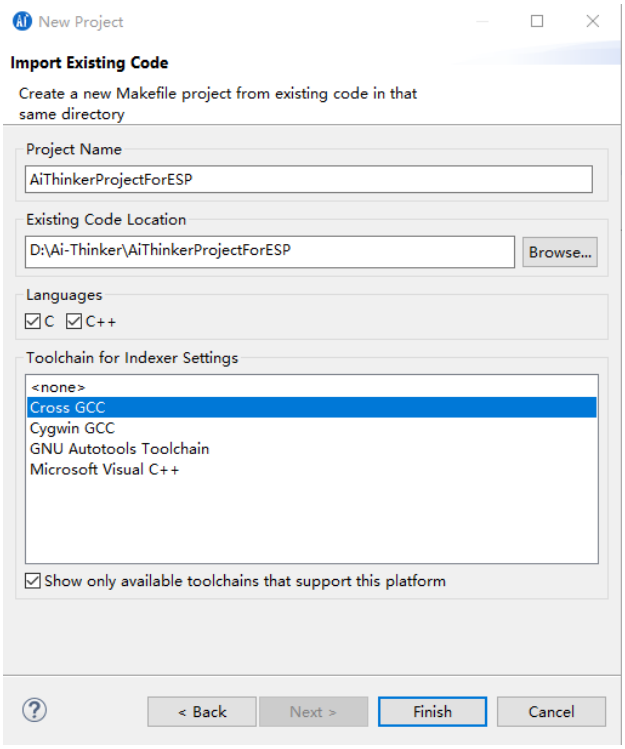
该 ESP8266 SDK 为翼辉信息工程师在安信可科技开源项目 AiThinkerProjectForESP 的基础上，二次开发而来，特此鸣谢安信可科技。

三、导入 ESP8266 SDK

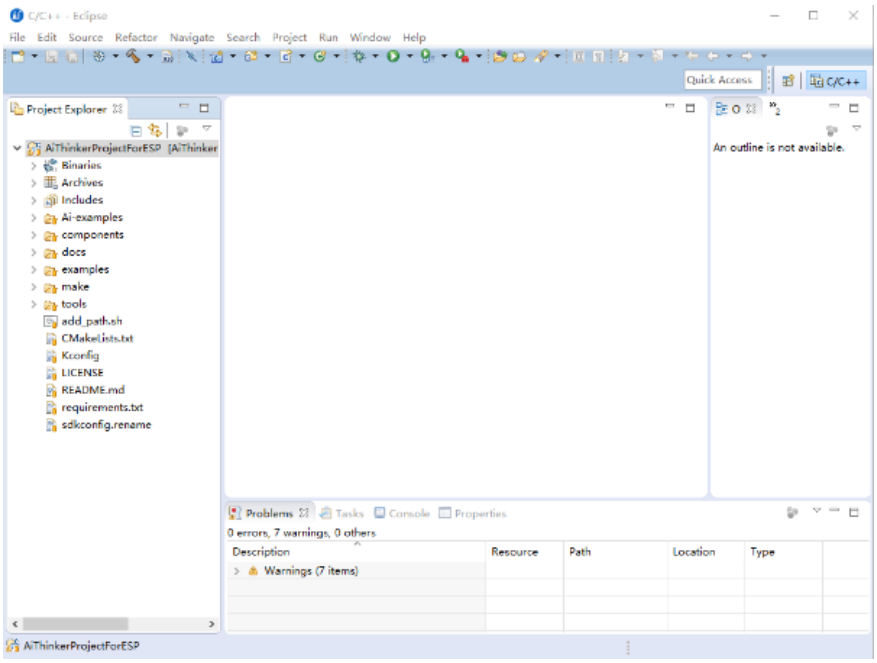
双击桌面的 AiThinkerIDE_V1.5.2 图标，打开 AiThinkerIDE，点击"File"->“Import"菜单，将弹出"Import"向导：



选择"C/C++"下的"Existing code as Makefile Project"类型，然后点击"Next"按钮:



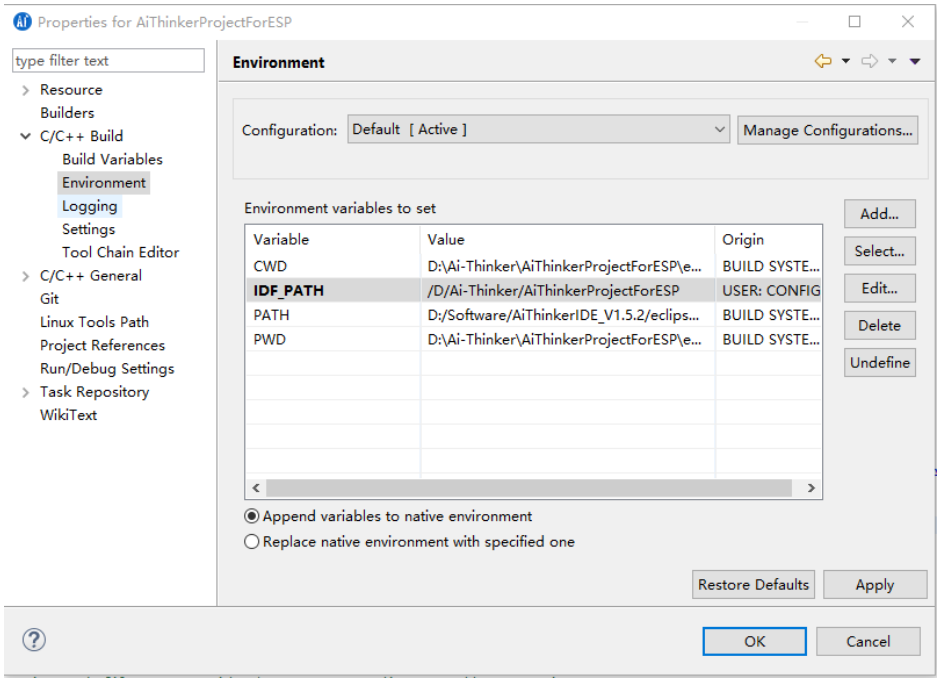
点击"Browse"按钮选择刚刚下载的 ESP8266 SDK 的路径，"Toolchain for indexer Settings"选择"Cross GCC"，最后点击"Finish"按钮完成导入:

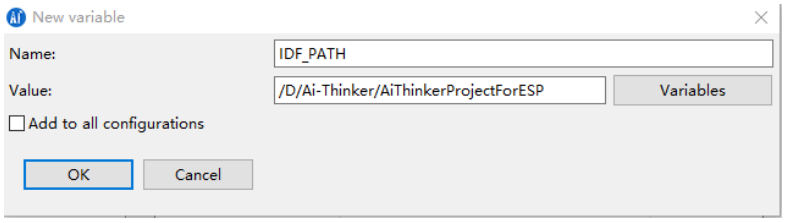


四、配置项目

4.1 配置 IDF_PATH 变量

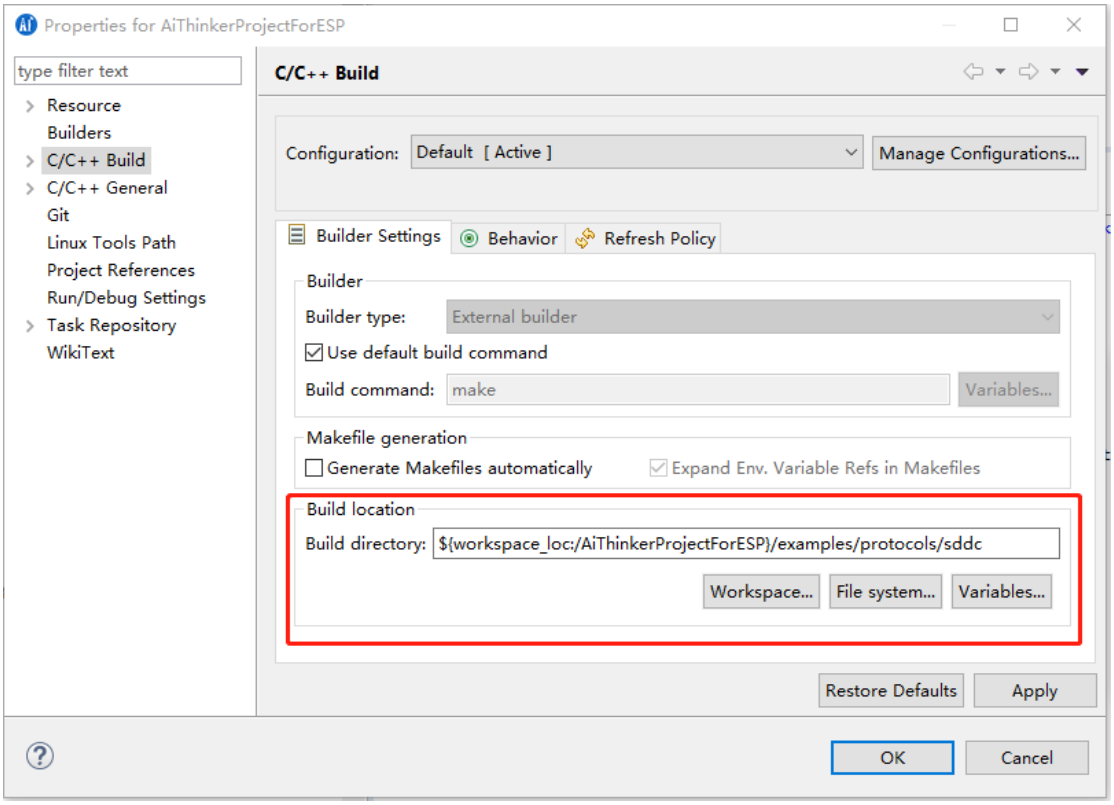
鼠标选中项目名称点击右键，在右键菜单中选择"Properties"，选择"C/C++ Build"->"Environment"，点击"Add"按钮添加一个"IDF_PATH"变量，值为 ESP8266 SDK 的路径，注意需要将路径修改为 unix 风格，最后点击"OK"按钮：





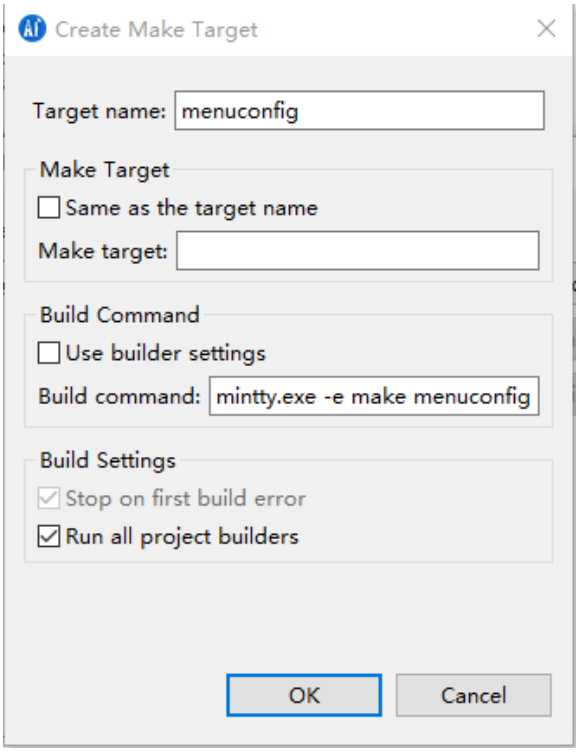
4.2 配置构建路径

鼠标选中项目名称点击右键，在右键菜单中选择"Properties"，选择"C/C++ Build"，修改"Build directory"为需要编译的例程路径，
如"${workspace_loc:/AiThinkerProjectForESP}/examples/protocols/sddc"，最后点击"OK"按钮：



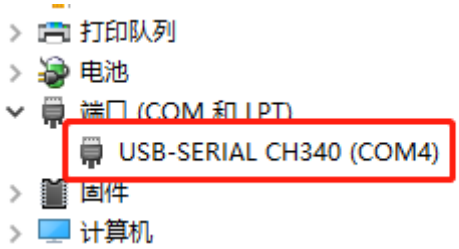
4.3 配置 menuconfig 目标

鼠标选中项目名称点击右键，在右键菜单中选择"Make Targets"-> "Create",在弹出的对话框中取消勾选"Same as the target name" 与" User builder settings "这 2 个选项，将"Target name" 修改为 "menuconfig"，并且在 "Build command" 中输入 "mintty.exe -e make menuconfig"，最后点击"OK"按钮：

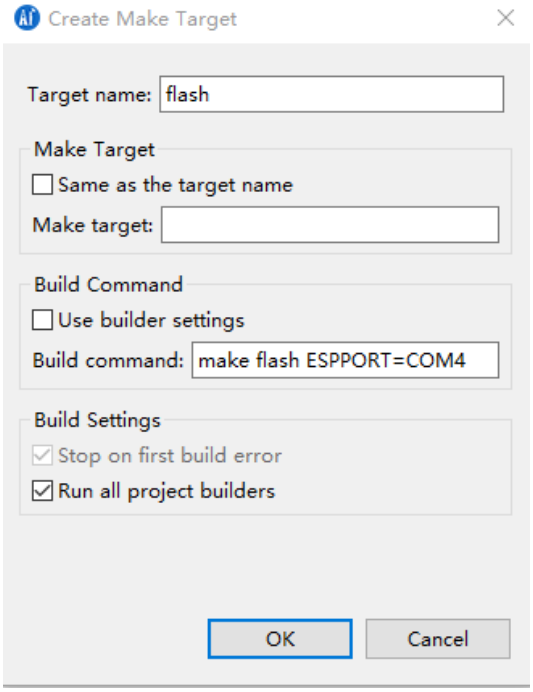


4.4 配置 FLASH 编程目标

将 NodeMCU 开发板接入电脑，打开设备管理，查看操作系统为 NodeMCU 分配的 COM 号。



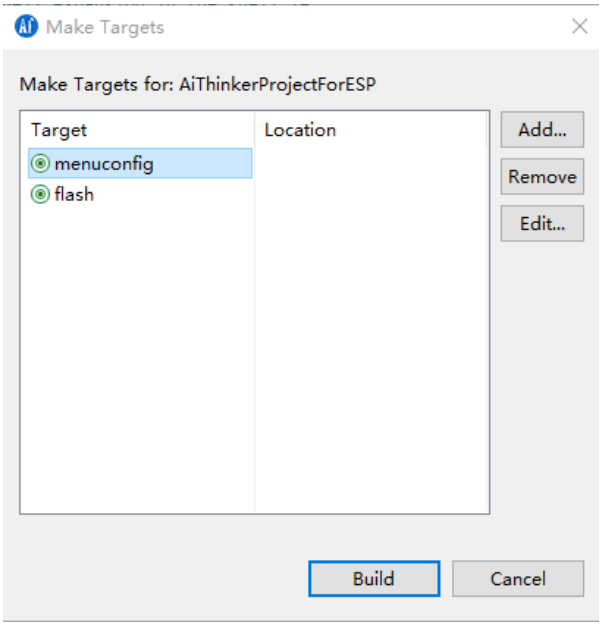
鼠标选中项目名称点击右键，在右键菜单中选择”Make Targets”-> “Create”,在弹出的对话框中取消勾选”Same as the target name” 与” User builder settings “这 2 个选项，将”Target name”修改为”flash”，并且在”Build command” 中输入”make flash ESPPORT=COM4”，最后点击”OK”按钮，注意 COM 号为 NodeMCU 插入电脑后分配出来的 COM 号：

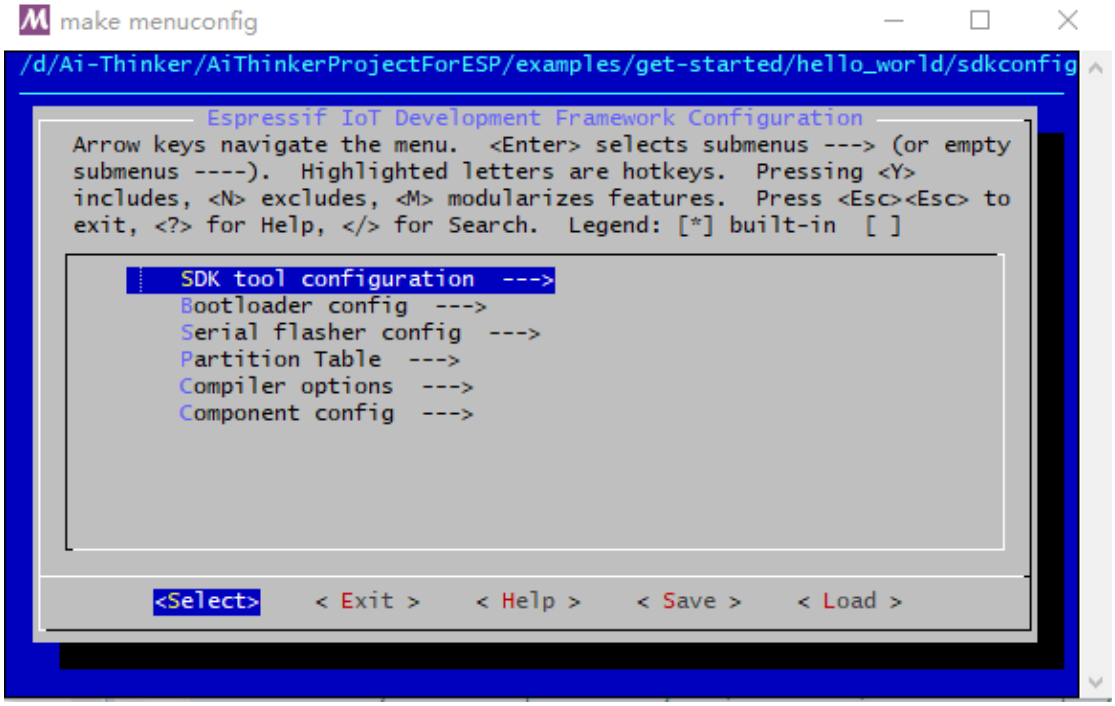


五、编译 SDK 和例程

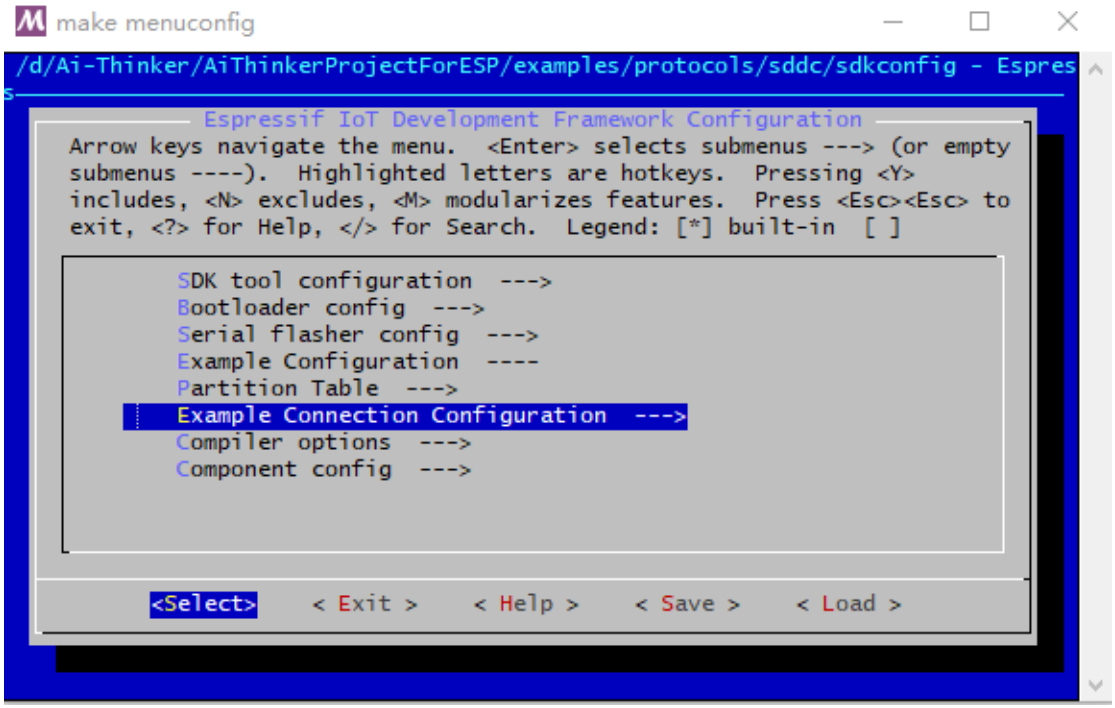
5.1 配置 SDK 和例程

鼠标选中项目名称点击右键，在右键菜单中选择”Make Targets”-> “Build”,在弹出的对话框中选中”menuconfig”项，然后点击”Build”按钮：

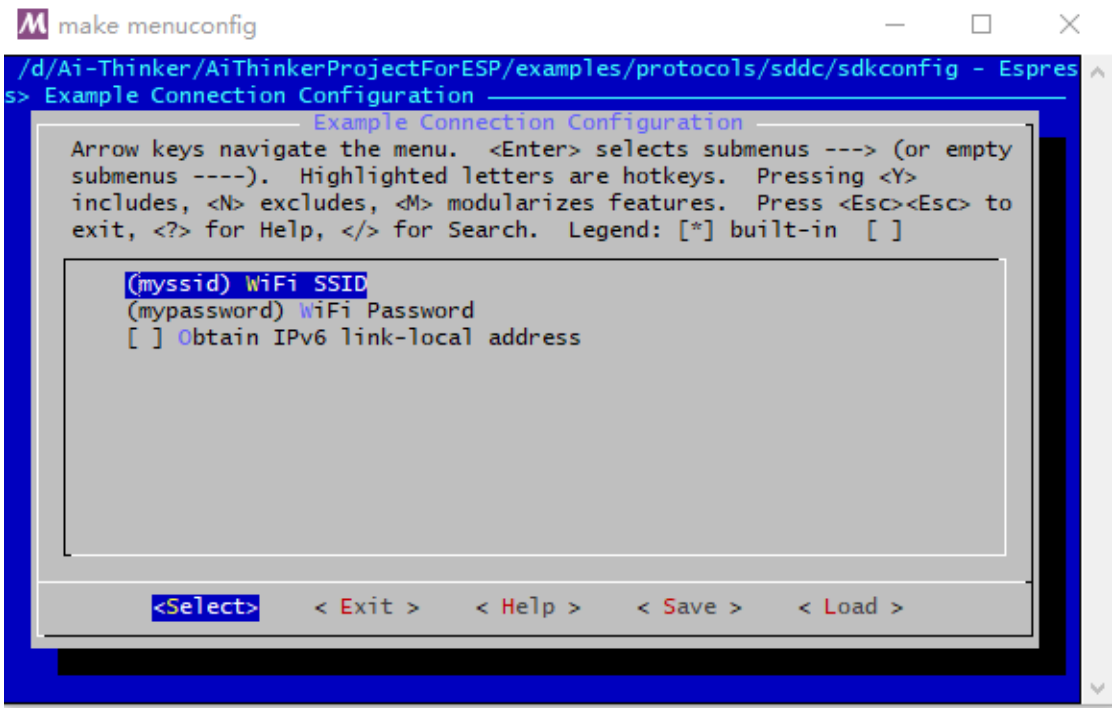




需要修改连接 WiFi AP 的配置：



将 WiFi SSID 和 Password 修改为智能边缘计算机 Spirit1 的 WiFi SSID 和 Password：



使用键盘操作，最后选中 Exit 回车后退出定制，等待配置完成。

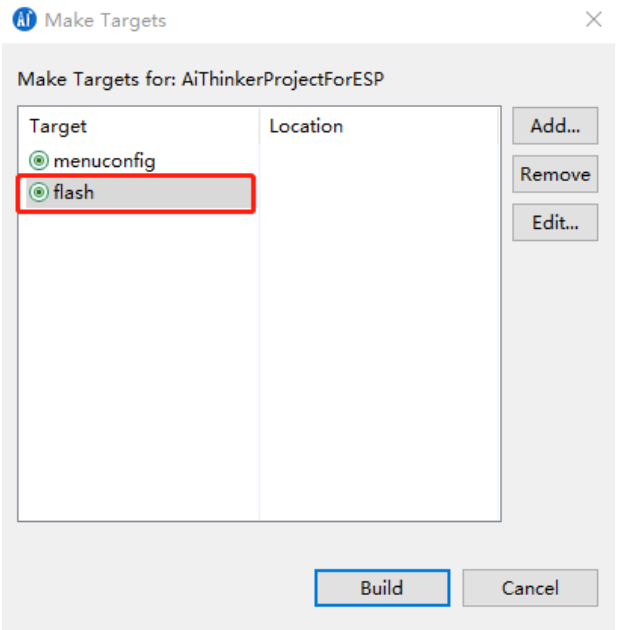
5.2 编译 SDK 和例程

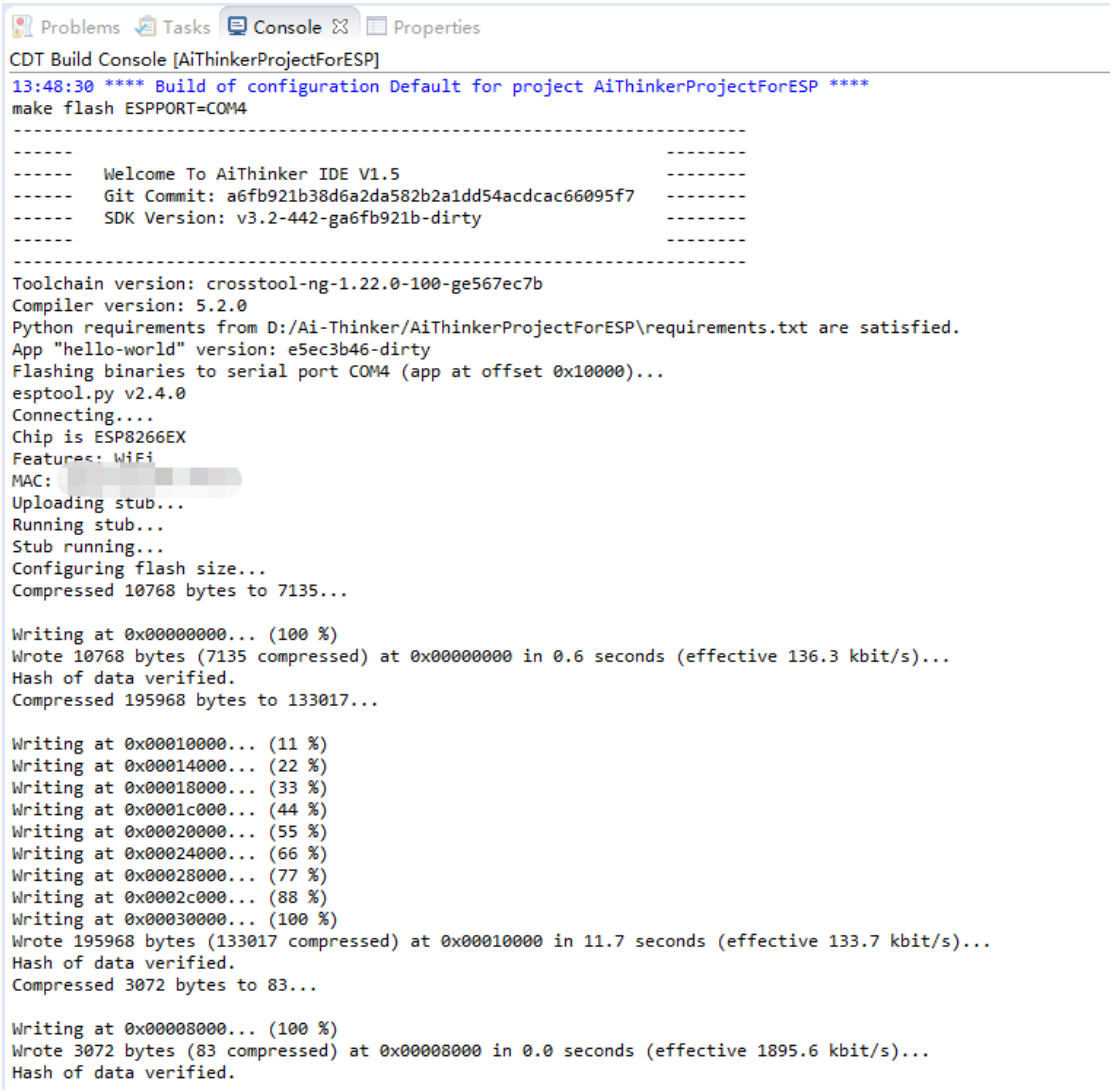
鼠标选中项目名称点击右键，在右键菜单中选择”Build project”，等待编译完成。

六、烧写镜像和验证

6.1 烧写镜像

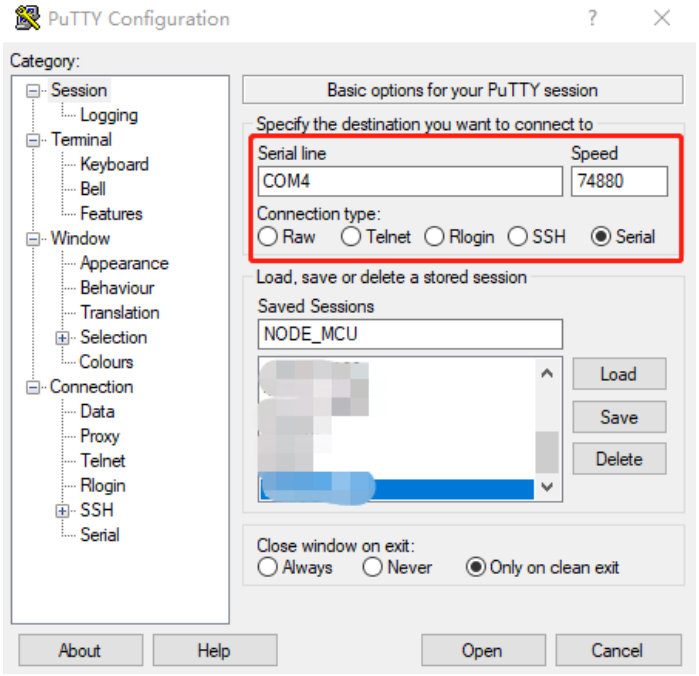
鼠标选中项目名称点击右键，在右键菜单中选择”Make Targets”-> “Build”,在弹出的对话框中选中”flash”项，然后点击”Build”按钮：





6.2 验证功能

使用 PuTTY 作为串口调试工具，新建一个 Serial 类型的 Session，按如下图所示配置串口，注意 Speed 为 74880，点击“Save”按钮保存 Session 方便以后直接打开，最后点击”Open”按钮：



按下 NodeMCU 的 RESET 按钮，将看到 SDDC 程序运行起来，并成功连接 EdgerOS：

COM4 - PuTTY

```
load 0x3ffe8408, len 24, room 8
tail 0
chksum 0x7c
load 0x3ffe8420, len 3528, room 8
tail 0
chksum 0x0b
I (45) boot: ESP-IDF e5ec3b46-dirty 2nd stage bootloader
I (46) boot: compile time 14:38:19
I (46) qio_mode: Enabling default flash chip QIO
I (53) boot: SPI Speed      : 40MHz
I (60) boot: SPI Mode       : QIO
I (66) boot: SPI Flash Size : 2MB
I (72) boot: Partition Table:
I (77) boot: ## Label            Usage          Type ST Offset   Length
I (89) boot:  0 nvs              WiFi data        01 02 00009000 00006000
I (100) boot:  1 phy_init         RF data          01 01 0000f000 00001000
I (112) boot:  2 factory          factory app      00 00 00010000 000f0000
I (123) boot: End of partition table
I (130) esp_image: segment 0: paddr=0x00010010 vaddr=0x40210010 size=0x4b778 (309112) map
I (247) esp_image: segment 1: paddr=0x0005b790 vaddr=0x4025b788 size=0x0d88c ( 55436) map
I (266) esp_image: segment 2: paddr=0x00069024 vaddr=0x3ffe8000 size=0x00698 (  1688) load
I (267) esp_image: segment 3: paddr=0x000696c4 vaddr=0x40100000 size=0x00a50 (  2640) load
I (278) esp_image: segment 4: paddr=0x0006a11c vaddr=0x40100a50 size=0x0584c ( 22604) load
I (298) boot: Loaded app from partition at offset 0x10000
I (321) system_api: Base MAC address is not set, read default base MAC address from EFUSE
I (326) system_api: Base MAC address is not set, read default base MAC address from EFUSE
phy_version: 1159.0, 85b471e, Apr 21 2020, 17:03:08, RTOS new
I (386) phy_init: phy ver: 1159_0
I (389) reset_reason: RTC reset 2 wakeup 0 store 0, reason is 2
I (409) example_connect: Connecting to EOS-00000F...
I (2080) wifi: state: 0 -> 2 (b0)
I (2169) wifi: state: 2 -> 3 (0)
I (2175) wifi: state: 3 -> 5 (10)
I (2178) wifi: pm start, type: 1
I (3070) tcpip_adapter: sta ip: 192.168.128.102, mask: 255.255.255.0, gw: 192.168.128.1
I (3076) example_connect: Connected to EOS-00000F
I (3080) example_connect: IPv4 address: 192.168.128.102
REPORT DATA: {
        "report":       {
                "name": "IoT Pi",
                "type": "device",
                "excl": false,
                "desc": "IoT Pi",
                "model":        "1",
                "vendor":       "ACOINFO"
        }
}
INVITE DATA: {
        "report":       {
                "name": "IoT Pi",
                "type": "device",
                "excl": false,
                "desc": "IoT Pi",
                "model":        "1",
                "vendor":       "ACOINFO"
        }
}
IP addr: 192.168.128.102
SDDC running...
Receive ping from: 192.168.128.1.
Receive discover from: 192.168.128.1.
Receive discover from: 192.168.128.1.
```