Customized protocol entry creation

1. Voice chip firmware creation

1.1 Notes

 The module has already been burned with the voice recognition function firmware when it leaves the factory. The factory firmware is also provided in the data attachment. If you need to remake the firmware, you can follow the steps below to make the firmware.

1.2 Firmware creation

- First, you need to open the link "ChipInelli Voice AI Platform" and enter the official firmware production website

- Translate this page into English

- Click **"Platform Features"** in the menu bar, and then click **"In-depth development of product firmware and SDK"** under the Product Development column
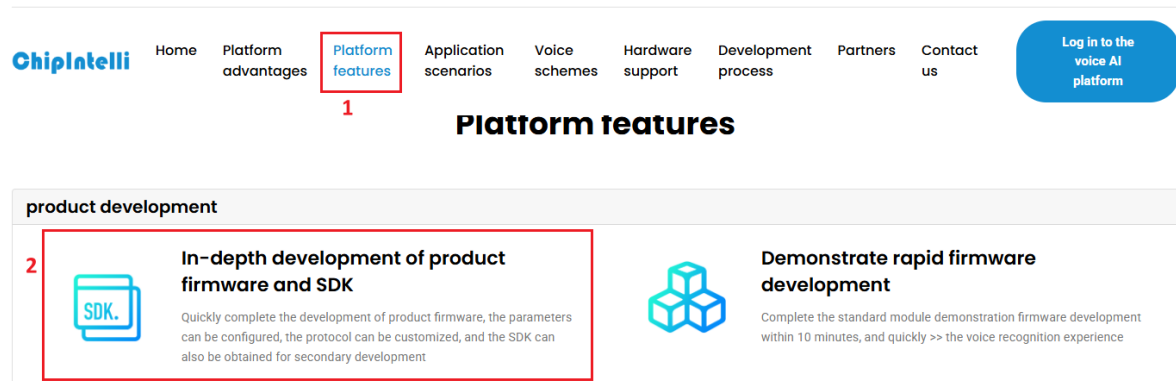
- At this time, you will be prompted to log in. Here you need to use your own information to register a platform account. The tutorial here has already been registered in advance. After logging in, click **"In-depth development of product firmware and SDK"** again

Voice development capabilities

Development documentation

	Guidance on the product development process Newcomer Recommendation
	Detailed operation description, step-by-step in-depth, quickly grasp the product development >>

	Document Center
	Complete development documents and materials to facilitate quick search of >>

	Video tutorials Newcomer Recommendation
	Complete video tutorials to get started quickly >>

product development

	In-depth development of product firmware and SDK
	Quickly complete the development of product firmware, the parameters can be configured, the protocol can be customized, and the SDK can also be obtained for secondary development >>

	Demonstrate rapid firmware development
	Complete the standard module demonstration firmware development within 10 minutes, and quickly >> the voice recognition experience

Component development

- After the page jumps, click New Project on the left and create a new product as shown below. The product name and description can be customized. The rest of the information needs to be selected according to the content in the red box. The product model needs to be selected as **"General->Intelligent central control"**. After completion, click Create
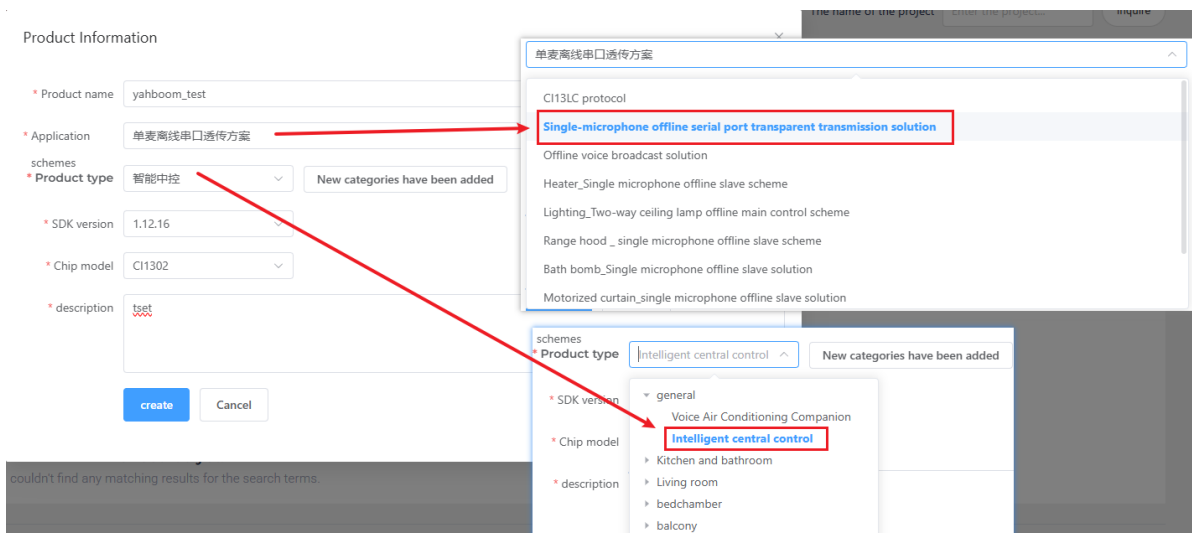
ChipIntelli

FUNCTIONAL DEVELOPMENT | DEVELOPMENT MATERIALS | VIDEO TUTORIALS | SUBMIT A TICKET | HELP DOCUMENTATION | SAMPLE PROCUREMENT

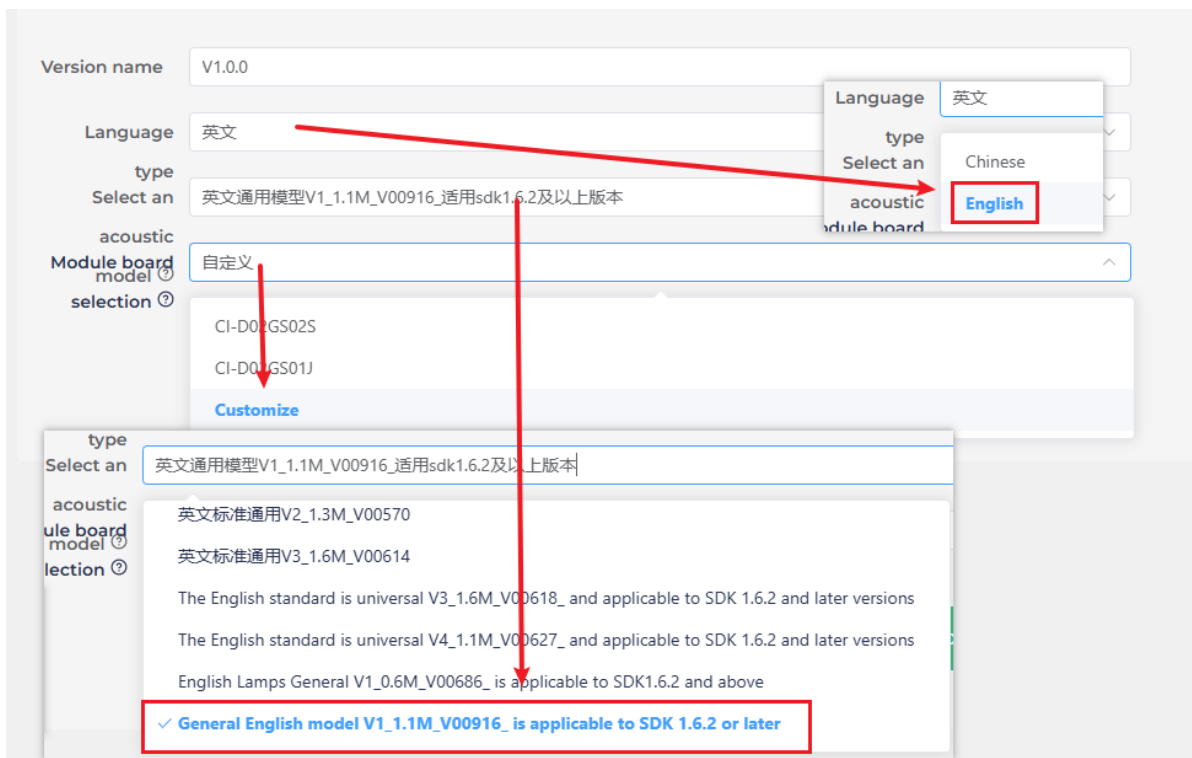## In-depth development of product firmware and SDK

Product type Please select a type... ▾

+ Create a new project

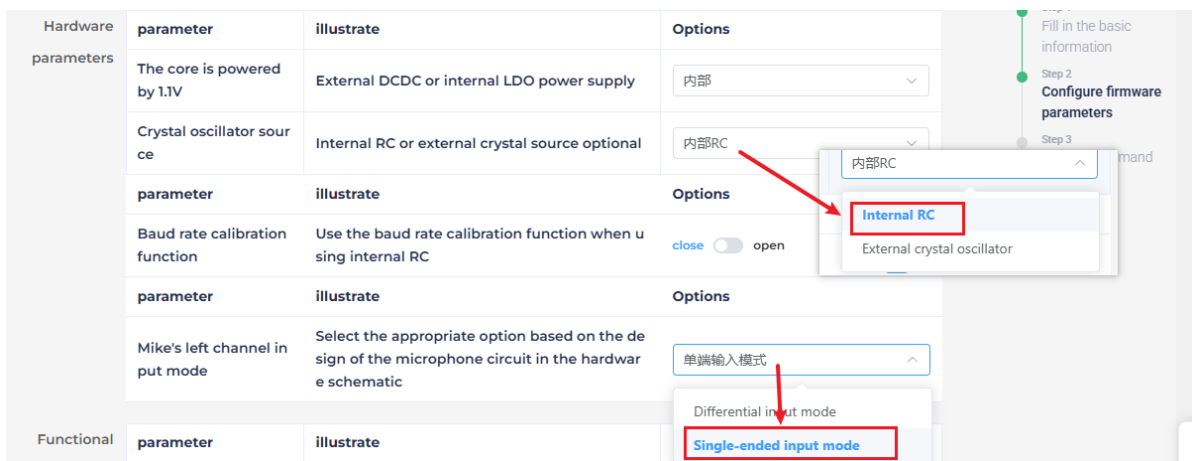| The name of the project	Product type	Application schemes	SDK information	Chip model	Product Description:

No records yet.

couldn't find any matching results for the search terms.

Product Information

* Product name: yahboom_test
* Application schemes: 单麦离线串口透传方案
* Product type: 智能中控 | New categories have been added
* SDK version: 1.12.16
* Chip model: CI1302
* description: tset

create   Cancel

单麦离线串口透传方案

CI13LC protocol
Single-microphone offline serial port transparent transmission solution
Offline voice broadcast solution
Heater_Single microphone offline slave scheme
Lighting_Two-way ceiling lamp offline main control scheme
Range hood _ single microphone offline slave scheme
Bath bomb_Single microphone offline slave solution
Motorized curtain_single microphone offline slave solution

schemes
* Product type: Intelligent central control | New categories have been added
* SDK version
* Chip model
* description

▽ general
　　Voice Air Conditioning Companion
　▷ **Intelligent central control**
▷ Kitchen and bathroom
▷ Living room
▷ bedchamber
▷ balcony

couldn't find any matching results for the search terms.

- Next, you need to fill in the basic information of the project. We need to recognize English, so select "English" as the language type. If you need to recognize Chinese, you can also make corresponding changes. For other information, select as shown below. Click Continue when you are done.

Version name: V1.0.0
Language type: 英文
Select an acoustic Module board model selection: 英文通用模型V1_1.1M_V00916_适用sdk1.6.2及以上版本

自定义
CI-D0?GS02S
CI-D0?GS01J
Customize

Language type: 英文
Select an acoustic Module board: Chinese / **English**

type Select an acoustic ule board model selection: 英文通用模型V1_1.1M_V00916_适用sdk1.6.2及以上版本

英文标准通用V2_1.3M_V00570
英文标准通用V3_1.6M_V00614
The English standard is universal V3_1.6M_V00618_ and applicable to SDK 1.6.2 and later versions
The English standard is universal V4_1.1M_V00627_ and applicable to SDK 1.6.2 and later versions
English Lamps General V1_0.6M_V00686_ is applicable to SDK1.6.2 and above
✓ **General English model V1_1.1M_V00916_ is applicable to SDK 1.6.2 or later**

- In the hardware parameters, you need to select the crystal source as "**internal RC**".

Hardware parameters

parameter	illustrate	Options
The core is powered by 1.1V	External DCDC or internal LDO power supply	内部
Crystal oscillator source	Internal RC or external crystal source optional	内部RC

内部RC
Internal RC
External crystal oscillator

parameter	illustrate	Options
Baud rate calibration function	Use the baud rate calibration function when using internal RC	close / open

parameter	illustrate	Options
Mike's left channel input mode	Select the appropriate option based on the design of the microphone circuit in the hardware schematic	单端输入模式

Differential input mode
Single-ended input mode

Functional parameters

parameter	illustrate

Step 1
Fill in the basic information

Step 2
Configure firmware parameters

Step 3
...mand

- In the print serial port configuration, configure the UART0 level as open drain function, supporting external pull-up 5V.

Print the serial port configuration	parameter	illustrate	Options
	Print serial port	The serial port (baud rate 921600) cannot be the same as the communication serial port	UART0 ⌄
	parameter	**illustrate**	**Options**
	UART0 level	It is equipped with an open-drain pin function and supports external pull-up of 5V	close ⬤ open
	RX	RX	PB6 ⌄
	TX	TX	PB5 ⌄

- Modify the communication serial port configuration, set the baud rate to 115200, and configure the UART1 level to open drain function, support external pull-up 5V, and click "**Continue**" to enter the next step after the configuration is completed.

Serial port configuration	parameter	illustrate	Options
	Serial communication	When enabled, the voice module can communicate with the host CPU through the serial port, but cannot communicate with the host CPU after it is turned off	close ⬤ open
	Communication serial port	The name of the serial port of the communication	UART1 ⌄
	Communication serial baud rate	The baud rate of the UART used for communication	115200 ⌄
	Serial protocol version	Custom serial port protocol, any protocol can be customized, and the length of each protocol is less than 20 bytes. When the voice chip receives the protocol packet, it determines that the packet has been received by receiving the timeout period (0.34ms), so the master controller needs to ensure that the time interval between the packets is more than 0.34ms when sending the protocol packets to ensure that the communication is normal.	自定义协议 ⌄
	parameter	**illustrate**	**Options**
	UART1 level	It is equipped with an open-drain pin function and supports external pull-up of 5V	close ⬤ open
	RX	RX	PA3 ⌄
	TX	TX	PA2 ⌄

- Next, enter the edit command word function. First, you need to select the sound to be played.

Tone selection ⓘ	English - Adult female voice	English - Adult male voice	English - Girl's voice
	Ana-英语女声 Ver.3	Olivia-英语女声 Ver.3	Sophia-英语女声 Ver.3
	Mia-英语女声 Ver.3	Harper-英语女声 Ver.3	Linda-英语女声 Ver.3
	Dora-英语女声 Ver.2	Rebecca-英语女声 Ver.2	Dora-英语女声 Ver.1

- Then we upload the command word attachment, find the "**Command Word Broadcast Word Protocol List V3_EN**" table in the same path as this document, and drag it directly into the web page to upload.
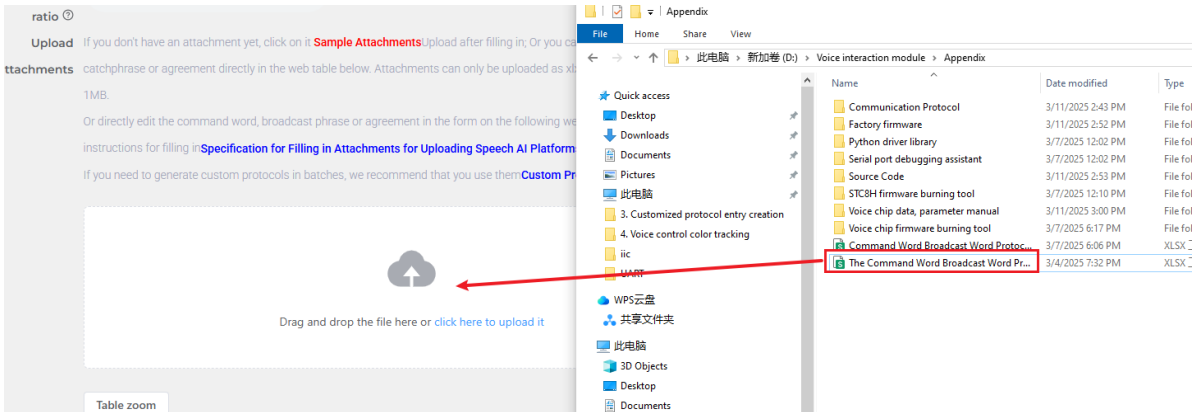
- After uploading the file, you can see our command word data in the table below.

	* Sema ntic tags	* Com mand wor ds	* Type of feature	* Broad cast state ments	* Broad cast mode	* Send t he agreem ent	* Recei ving Agree ments	Confide nce thresh old
	1	WELCOME	Welcome	welcome	by	AA 55 01 0 0 FB	AA 55 01 0 0 FB	35
	2	BYE	Break word s	bye	host	AA 55 02 0 0 FB	AA 55 02 0 0 FB	42
	3	HI-YAHBO OM	Wake word s	I am here	host	AA 55 03 0 0 FB	AA 55 03 0 0 FB	35
	4	VOLUME-U P	Increase th e volume	Volume Up	host	AA 55 04 0 0 FB	AA 55 04 0 0 FB	35
	5	VOLUME-D OWN	Reduce the volume	Volume do wn	host	AA 55 05 0 0 FB	AA 55 05 0 0 FB	35
	6	MAX-VOLU ME	Maximum v olume	Maximum v olume	host	AA 55 06 0 0 FB	AA 55 06 0 0 FB	35
	7	MID-VOLU	Medium vo	Medium vo	host	AA 55 07 0	AA 55 07 0	35

- Turn on the self-learning function and select designated learning. At this time, the system will automatically generate 4 self-learning instructions, and we will not modify them here.

- After submitting, wait for a few minutes to complete the firmware production. After completion, click Download Firmware to obtain the produced firmware.

Version name	Version number	Chip model	Language models	Creation time	Current process	Feedback description	operate
V1.0.0	sfw202503111626036409865	CI1302	V00627	March 11, 2025 4:26:03 PM	Done	OK	Delete inherit View Download the file

- For the steps of burning firmware, please refer to 《**2. Firmware burning**》

2. Modify functional terms

- Open the **Command Word Broadcast Word Protocol List V3_EN** file in the attachment

- Find the functional terms in the table, that is, the first 10 items in the table. It should be noted that the first 10 functional terms here are fixed terms and cannot be added, but can only be modified.

- Here we take the modification of the wake-up word announcement as an example, and change the original announcement of "**Hi Yahboom**" after recognizing "**I am here**" to

"**Yahboom is here**".

语义标签 Semantic Tags	命令词 Command word	功能类型 Function Type	播报语句 Broadcast sentence	播报模式 Broadcast mode	发送协议 Sending Agreement	接收协议 Receiving Agreement
1	WELCOME	欢迎语	welcome	被	AA 55 01 00 FB	AA 55 01 00 FB
2	BYE	休息语	bye	主 active	AA 55 02 00 FB	AA 55 02 00 FB
3	HI-YAHBOOM	Wake-up word 唤醒词	Yahboom is here	主 active	AA 55 03 00 FB	AA 55 03 00 FB
4	VOLUME-UP	增大音量	Volume Up	主	AA 55 04 00 FB	AA 55 04 00 FB
5	VOLUME- DOWN	减小音量	Volume down		AA 55 05 00 FB	AA 55 05 00 FB

- After the repair is completed, save it, and then follow the steps in "**1.2 Firmware creation**" to import the table into the website. If you have already made the firmware once, you can click the "**inherit**" button in the previous project to save the parameter configuration steps

Version name	Version number	Chip model	Language models	Creation time	Current process	Feedback description			operate		
V1.0.0	sfw202503111814006409791	CI1302	V00627	March 11, 2025 18:14:00	Done	OK			Delete	inherit	View	Download the file

- After remaking the firmware, you also need to burn the firmware into the voice interaction module, so that you can modify the functional terms.

3. Add command terms

- Open the **Command Word Broadcast Word Protocol List V3_EN** file in the attachment

- At the bottom of the table, add a new command term. Here, we take the command word "**Don't come over**" as an example.

116	113	DO-NOT-COME-OVER	command word 命令词	ok	active 主	AA 55 00 8B FB	AA 55 00 8B FB

- Here you need to select the function type as "**Command word（命令词）**", and the broadcast mode needs to be set to "**active（主）**", so that it can actively broadcast "**ok**" after recognizing "**Do not come over**"

113	DO-NOT-COME-OVER	Command word 命令词	ok	active 主

- Let's take a look at the sending protocol. The first and second bits in the data are the data frame header and do not need to be modified. When we select the function type as command word, then according to the sending protocol, the third bit of data must be "**00**", which is to distinguish whether the command is "**Command word（命令词）**" or "**Broadcast words（播报语）**".

6	113	DO-NOT-COME-OVER	Command word 命令词	ok	active 主	AA 55 00 8B FB	AA 55 00 8B FB
7							

- The 4th bit is the data ID of the command word, which is a hexadecimal data. Because the ID of the previous command word is "8A", we need to set this bit to "8B". In special cases, the data ID can be the same, for example, when the results returned by two command words need to be consistent.

12	11	ROBOT-STOP	Command word 命令词	ok I am stop	active 主	AA 55 00 01 FB	AA 55 00 01 FB
13	12	STOP		命令词	ok I am stop	主	AA 55 00 02 FB	AA 55 00 02 FB

- The 5th bit in the protocol is fixed to "FB" and does not need to be modified. In the table, the sending protocol and the receiving protocol need to be consistent.

| 113 | DO-NOT-COME-OVER | Command word 命令词 | ok | active 主 | AA 55 00 8B FB | AA 55 00 8B FB |

- After repairing, save it and then follow the steps in "**1.2 Firmware creation**" to import the table into the website. If you have already made the firmware once, you can click the "**inherit**" button in the previous project to save the parameter configuration steps

Version name	Version number	Chip model	Language models	Creation time	Current process	Feedback description	operate
V1.0.0	sfw202503111814006409710	CI1302	V00627	March 11, 2025 18:14:00	Done	OK	Delete inherit View Download the file

- After remaking the firmware, you also need to burn the firmware into the voice interaction module, so that you can realize the function of adding new command entries.

4. Add new broadcast words

- Open the **Command Word Broadcast Word Protocol List V3_EN** file in the attachment

- At the bottom of the table, add a new command entry. Here, we take the example of adding a new broadcast word "**It's night**".

| 114 | IT-IS-NIGHT | Broadcast word 播报语 | It's night | passive 被 | AA 55 FF 8C FB | AA 55 FF 8C FB |

- Here, you need to select the function type as "**Broadcast words（播报语）**", and the broadcast mode needs to be set to "**passive（被）**".

| 114 | IT-IS-NIGHT | Broadcast words 播报语 | It's night | passive 被 | AA 55 FF 8C FB | AA 55 FF 8C FB |

- Let's take a look at the sending protocol. The first and second bits in the data are the data frame header and do not need to be modified. When we select the function type as broadcast words, then according to the sending protocol, the third bit of data must be "**FF**", which is to distinguish the command as "**Broadcast words（播报语）**".

| 114 | IT-IS-NIGHT | 播报语 | It's night | 被 | AA 55 FF 8C FB | AA 55 FF 8C FB |

- The fourth bit of data is the data ID of the command word, which is a hexadecimal data. Because the ID of the previous broadcast word is "**8A**", we need to set this bit to "**8C**".
- The fifth bit in the protocol is fixed to "**FB**", which also does not need to be modified. In the table, the sending protocol and the receiving protocol need to be consistent.

| 114 | IT-IS-NIGHT | 播报语 | It's night | 被 | AA 55 FF 8C FB | AA 55 FF 8C FB |

- After the repair is completed, save it, and then follow the steps in "**1.2 Firmware creation**" to import the table into the website. If the firmware has been produced once, you can click the "**inherit**" button in the previous project, which can save the parameter configuration step

Version name	Version number	Chip model	Language models	Creation time	Current process	Feedback description		operate		
V1.0.0	sfw202503111814006409791O	CI1302	V00627	March 11, 2025 18:14:00	Done	OK		Delete	inherit	View	Download the file

- After reproducing the firmware, you also need to burn the firmware into the voice interaction module, so that the function of adding new command entries can be realized.

- After reproducing the firmware, you also need to burn the firmware into the voice interaction module, so that the function of adding new command entries can be realized.