

# Configuring the AI Model

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## 0. Content Guide (Must Read Before Use)

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### 0.1 Mainland Chinese Users

#### 0.1.1 Required Configuration Items

- **2.1 Registering an Alibaba Bailian Platform Account:** You must first register an account on the Bailian Platform and apply for the API before using the AI model service.
- **5.1 Configuring the Knowledge Base:** Configure the knowledge base for the decision layer to provide guidance for the AI model in open domains.
- **5.2 Configuring Training Examples:** Configure training examples for the decision layer to provide guidance for the AI model in open domains.
- **6 Configuring the Decision Layer and Execution Layer Models:** How to integrate the AI model into a local application.

#### 0.1.2 Optional Configuration Items

- **2.2 Registering a Baidu Smart Cloud Large Model Platform Account:** If you need to use the Baidu platform's speech synthesis service, please refer to this section.
- **3. Switching the Speech Recognition Function and ASR Model:** If you have exhausted your speech recognition quota or want to proactively change the speech recognition model, please refer to this section.
- **4. Switching the Text-to-Speech (TTS) Model:** If you've used up your TTS quota or want to proactively change the TTS model, see this section.
- **5.3 Expanding the Knowledge Base and Training Examples:** If you need to expand intent recognition content or customize extended knowledge information, see this section.

### 0.2 International users

#### 0.2.1 Required Configuration Items

- **2.3 Registering an OpenRouter Platform Account:** Registering an account is required to use OpenRouter's AI model services.
- **2.4 Registering an Alibaba Bailian Large Model International Platform Account:** Registering an account is required to use Alibaba Bailian Large Model's AI model services.
- **7.1 Accessing the Dify Configuration Page:** How to log in to the local Dify management page.
- **7.2 Entering the API Key:** Replace the API key with your own account's API key.
- **7.7 Using International Version Parameters:** To use the international version, comment out the domestic version parameters and then compile the feature package to take effect.

#### 0.2.2 Optional Configuration Items

- **7.3 Configuring the Decision-Layer Model:** If you need to test the effectiveness of different models, please refer to this section.
- **7.4 Configuring the Execution-Layer Model:** If you need to test the effectiveness of different models, please refer to this section.
- **7.5 Extending the Knowledge Base:** If you need to expand intent recognition content or customize extended knowledge information, please refer to this section.

# 1. Course Content

1. Learn to register a platform account for large AI models and configure a replacement API key.
2. Learn to configure the online large model RAG knowledge base and training examples.
3. Learn to customize the knowledge base and training examples.
4. Learn to switch and configure the speech recognition model, speech synthesis model, decision-making model, and execution model.
5. Learn to view the free credit for online models.

**Note:** All source code and configuration files mentioned in the tutorial are under the `largemode1` function. If using a Jetson Nano or Raspberry Pi , you must first enter Docker to view the files. This course uses the Jetson Origin NX as an example.

Feature package path:

Jetson Orin Nano, Jetson Orin NX :

```
/home/jetson/M3Pro_ws/src/largemode1
```

Jetson Nano, Raspberry Pi :

You need to enter Docker first.

```
root/M3Pro_ws/src/largemode1
```

# 2. Account Configuration

## 2.1 Register an Ali Bailian Platform account

The text generation model, multimodal model, and speech model used by the robot are defaulted to the **Ali Bailian Platform** (sometimes also called the Tongyi Qianwen Platform) when they leave the factory. This step is a necessary step for configuring the large model and cannot be omitted. Open the [Alibaba Cloud Official Website](#) link. If you do not have an Alibaba Cloud Platform account, click Register in the upper left corner to register an account



New registered users need to undergo real-name authentication before they can receive free credits. Click the account avatar in the upper right corner and click Deauthenticate to complete real-name authentication

The screenshot shows the Aliyun Control Panel dashboard. At the top, there are icons for QPS, Star, Backup, Control Panel, and Authentication to Enjoy Benefits. The account information is displayed: aliyun6148563104 (Account ID: 1905313109473111). Buttons for 'Authentication' and 'Primary Account' are present. Below this, sections include 'Permissions and Security' (with links to Security Management, Access Control, and AccessKey), 'Costs and Expenses' (with a balance of ¥0.00 and a link to Cost Management), and 'My Benefits' (with links to Coupons and Trial Products). A sidebar on the left lists various tools like Invoices, Contracts, Coupons, Orders, Configuration Lists, and Trials.

② 账号 > 退出登录

aliyun6148563104 □  
账号 ID: 1905313109473111 □

去认证 → 主账号

权限与安全  
安全管控 | 访问控制 | AccessKey

费用与成本 >  
可用额度  
¥ 0.00 充值汇款

本月账单 持续出账中  
查看 成本管理

待支付 待续费 待办工单 未读消息  
0 0 0 11

常用工具  
发票 | 合同 | 卡券 | 订单 | 配置清单 | 试用

我的权益 >  
可用券 试用中产品  
0 0

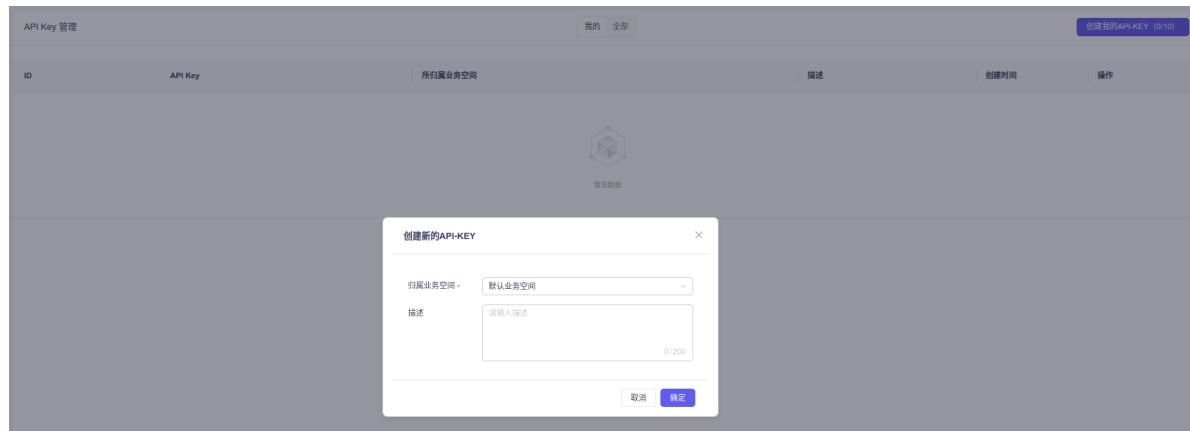
Then return to the official website page and click "Free Trial". After the jump, find the New User Gift Pack to receive free credits



Check "I have read and agreed", then confirm the activation and receive the free credits

### 2.1.1 Create an API-KEY

Click the [Create API-KEY](#) link, then click Create My API-KEY, select the default business space, and click OK to complete the creation.



### 2.1.2 Replace Your Own API-KEY

Click View API-KEY, then click Copy



Open the large\_model\_interface.yaml configuration file, file path:

jetson orin nano, jetson orin NX:

```
/home/jetson/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

jetson nano, Raspberry Pi:

You need to enter docker first

```
root/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

Find the Tongyi Qianwen platform API configuration option and replace the tongyi\_api\_key parameter with your own API-KEY

```
#大模型接口配置文件Large model interface configuration file

#通义千问平台API-----
#决策层大模型
tongyi_api_key : "sk-ff1629b470a0419fa32xxxxxxxxxxxxx"
tongyi_app_id : '966bdcc5658847069f6xxxxxxxxxxxx'
tongyi_base_url : "https://dashscope.aliyuncs.com/compatible-mode/v1"
#执行层大模型
multimodel : "qwen-vl-max"

#决策层模型选用文本生成模型，配置
#填写自己的api_key
#填写自己的app_id
#通义接口地址，无需修改
#模型选择多模态模型，模型列表参考
```

## 2.2 Register a Baidu Smart Cloud Large Model Platform account

Baidu Smart Cloud only uses the speech synthesis function. The factory default is to use the speech synthesis service of Alibaba Cloud Bailian Large Model Platform. **This step is selected as needed.** If you need to switch to Smart Cloud speech synthesis, refer to this step. Otherwise, you can skip registering a Baidu Smart Cloud Large Model Platform account.

Click the link [Baidu Smart Cloud Platform Official Website](#), and click the avatar in the upper right corner to register an account and perform real-name authentication. The method is similar to (1) registering an account on the Bailian Large Model Platform, so I will not repeat it here.



### 2.2.1 Create an application and API key

Click the [Baidu Smart Cloud Application List](#) link and click Create Application in the application list.

The screenshot shows the Baidu Smart Cloud Application List interface. On the left sidebar, under '应用列表', there is a '创建应用' button highlighted with a red arrow. The main area displays a table of existing applications:

序号	应用名称	AppID	API Key	Secret Key	创建时间
1	API KEY:lieXEROQ3bl...	1119145201	bce-v... ⓘ	-	2025-06-06 09:15:12
2	语音合成	1119118376	IQ3yb... 展开 复制	KBT3l... 展开 复制	2025-06-04 09:29:07

You can name the application anything you want. Here, we use "Speech Synthesis" as an example. Keep the other settings as default. Click Create Now. After the application is created, click Return to the application list. Do not close the application list page yet. You will need to copy and use the API Key and Secret here in the next step. Key

< 返回 创建新应用

应用名称: 语音合成

接口选择: 勾选以下接口, 使此应用可以请求已勾选的接口服务; 为保障您的资源安全, 请取消勾选不再产生调用的接口; 请注意, 您无法请求未选中状态的接口服务。

您已开通付费的接口为: 短语音识别-中文普通话、短文本在线合成-基础音库、短文本在线合成-精品音库

语音技术  全选

短语音识别  短语音识别极速版  实时语音识别  音频文件转写

短文本在线合成  呼叫中心语音  任务创建  长文本在线合成

大模型声音复刻

文字识别

人脸识别

自然语言处理

内容审核

UNIT

图像识别

图像搜索

人体分析

图像增强与特效

智能创作平台

机器翻译

[立即创建](#) 取消

Open the [Speech Synthesis Online Debug](#) link, enter the online debugging page of the speech synthesis function, and click "Authorization"

主页 全部产品 我的收藏 智能调试

语音技术 产品详情

短文本在线合成 [调试](#)

已授权, 可前往[立即前往](#)

只看必填

Header Content-Type: application/x-www-form-urlencoded

Accept: \*/\*

Body \* tex: 你好

\* cuid: MsrxzAHsZXMY55CYsGrKb1oy

\* ctp: 1

\* lan: zh

度小宇 度小美 度逍遥 (基础) 度丫丫 度逍遥 (精品) 度小鹿 度博文

度小童 度小萌 度米朵 度小娇 度逍遥 (臻品) 度博文 (臻品) 度小贤 (臻品)

度小鹿 (臻品) 度灵儿 (臻品) 度小乔 (臻品) 度小雯 (臻品) 度米朵 (臻品)

语速 音调 音量

音频格式(ave): mp3 pcm-16k pcm-8k wav

合成

Select the application you just created in the application list, enter the API Key in the previous step in client\_id, and enter the Secret in the previous step in client\_secret. Key, then click OK.



## 2.2.2 Testing the API Key

Enter test text in the text box and click Synthesize. If the audio output is normal, authentication is successful, and the account and API Key creation are complete. If you plan to use the Baidu Smart Cloud Platform's speech synthesis service later, follow 3. Configuring the Text-to-Speech (TTS) Large Model to modify the speech synthesis provider.

The screenshot shows the TTS interface with the following details:

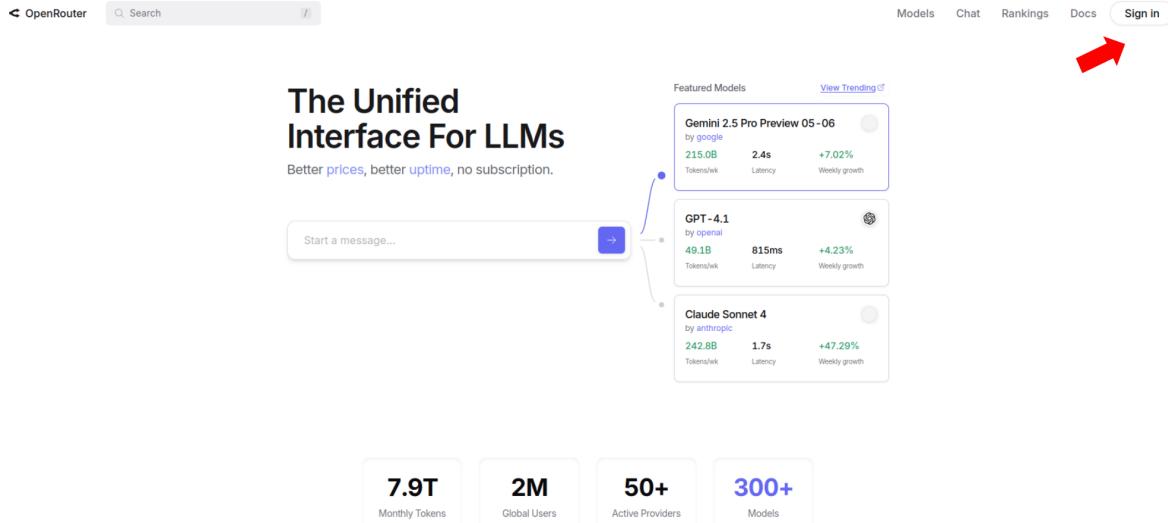
- Text input: 你好，世界
- Voice selection: 度小字 (selected), 度小美, 度逍遥 (基础), 度丫丫, 度逍遥 (精品), 度小鹿, 度博文
- Advanced settings: 语速 (Rate), 音调 (Pitch), 音量 (Volume)
- Format selection: 音频格式 (Aue): mp3 (selected), pcm-16k, pcm-8k, wav
- Buttons: 合成 (Synthesize), a play button, and a progress bar showing 0:00 / 0:02

## 2.3 Register an OpenRouter platform account

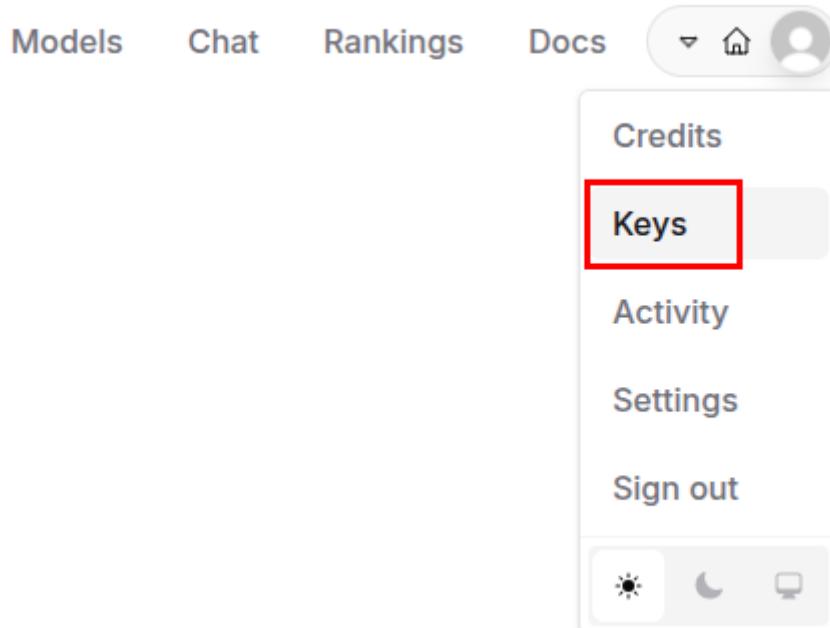
This step can be omitted and selected as needed. Domestic users use the model service of the Bailian large model platform by default. If you need to use the single model inference method, you can refer to this tutorial to register an OpenRouter account.

### 2.3.1 Register an account

Open the [openrouter](#) link and click the avatar in the upper right corner to register an account. Use your email address to register an account. The process is similar to the above and will not be repeated here.



Click Keys in the upper right corner to create an API key.



Click Create API Key, then enter a name (using "yahboom" as an example). Click Create to complete the OpenRouter platform account registration and API key application.

## API Keys

Create API Key

Manage your API keys to access all models from OpenRouter ⓘ

Create a Key

Name ⓘ

Credit limit (optional) ⓘ

Leave blank for unlimited

Advanced Settings >

Create

<-or-v1-5c6 ... b01	⋮
<-or-v1-c41 ... 346	⋮
<-or-v1-618 ... 99c	⋮
<-or-v1-da7 ... 7ce	⋮
<-or-v1-b5d ... d47	⋮
<-or-v1-723 ... 0ad	⋮

## 2.4 Register for an account on the Alibaba Bailian Large Model International Platform

Open the [Alibaba Cloud Model Studio](#) link, click Log in, and register your account.

The screenshot shows the Alibaba Cloud Model Studio interface. On the left, there's a sidebar with various options like Get started, Overview, Make your first API call to Qwen, Models (which is selected), Rate limits, Announcements, Core concepts, Text generation, Multi-round conversation, Stream, Deep thinking, Function calling, Structured output, Batch inference, Context cache, Prefix continuation, Multimodal models, Visual understanding, Visual reasoning, and Text extraction. The main content area has tabs for Playground, Dashboard, Docs, and API References. At the top right, there's a message about free tokens and a Log In button. Below the tabs, there's a 'Models' section with a 'Featured Models' heading. It shows three cards: 'Qwen-Plus-2025-04-28' (Qwen3, the latest generation LLM), 'Wan2.1-T2I-Plus', and 'Qwen-VL-Max-2025-04-08'. Underneath, there's a 'Flagship' section with a description: 'Versatile, high-intelligence flagship models with advanced multilingual capabilities.' It lists several models with their descriptions:

- Qwen-Max**: Qwen-Max supports a parameter scale of hundreds of billions and multiple ...
- Qwen-Max-Latest**: The Qwen series of models, being the most effective, is a dynamically upda...
- Qwen-Plus-2025-04-28**: The Qwen3 Plus model supports seamless switching between reasoning/...
- Qwen-Plus-2025-01-25**: The Qwen series of models, which are well-balanced in capabilities, offer ...
- Qwen3-32B**: Qwen3 hybrid reasoning model enables seamless switching between think...
- Qwen2.5-32B-Instruct**: Qwen2.5-32B-Instruct is an open source instruction-tuned model that has 3...
- Qwen-Max-Plus**: Qwen-Plus is an enhanced version of the Qwen ultra-large language model...
- Qwen-Plus-Latest**: The Qwen series model optimized for balanced performance, offering infer...
- Qwen-Max-2025-01-25**: The most effective model in the Qwen series, with improved code capabilit...
- Qwen3-23B-A2B**: Qwen3 hybrid reasoning model enables seamless switching between think...
- Qwen2.5-72B-Instruct**: Qwen2.5-72B-Instruct is an open source instruction-tuned model that has 7...

## Sign in to Alibaba Cloud

### Account

 Enter your email

### Password

 Enter your password[Sign In](#)[Sign In as RAM User](#)

Or

[!\[\]\(f2b341b2842f84b06275b7e52ec9f0ae\_img.jpg\) Sign in with Google](#)[!\[\]\(ac13c516668a3b529e385da83084b241\_img.jpg\) Sign in with Github](#)

New to Alibaba Cloud? [Sign Up Now](#)

[Forgot Password](#) or [Other Sign In Difficulties?](#)

Select Individual Register using your account.

## Sign up to Alibaba Cloud

Please select your account type \*

### Business Account

For purchasing services required by businesses. Enjoy premium support services and exclusive offers.

### Individual Account

For purchasing services required by individuals or for personal use.

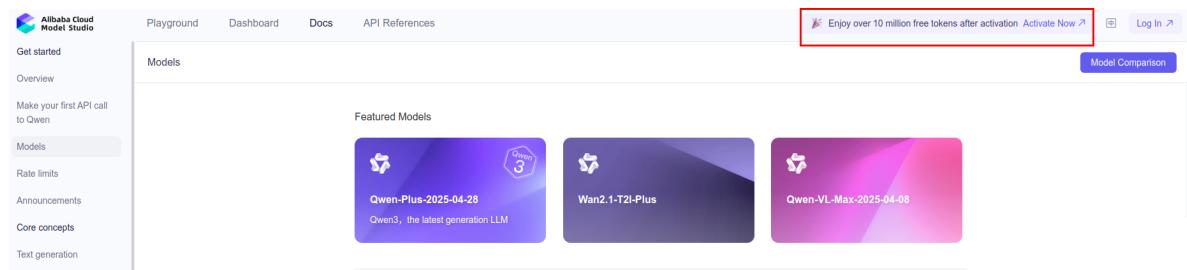
[Next](#)

Or

[!\[\]\(735ceeed4e566aa93749bb6365185b00\_img.jpg\) Sign up with Google](#)[!\[\]\(67b99c4d964e257c5482ff1b2462b204\_img.jpg\) Sign up with Github](#)

Already a member? [Sign In](#)

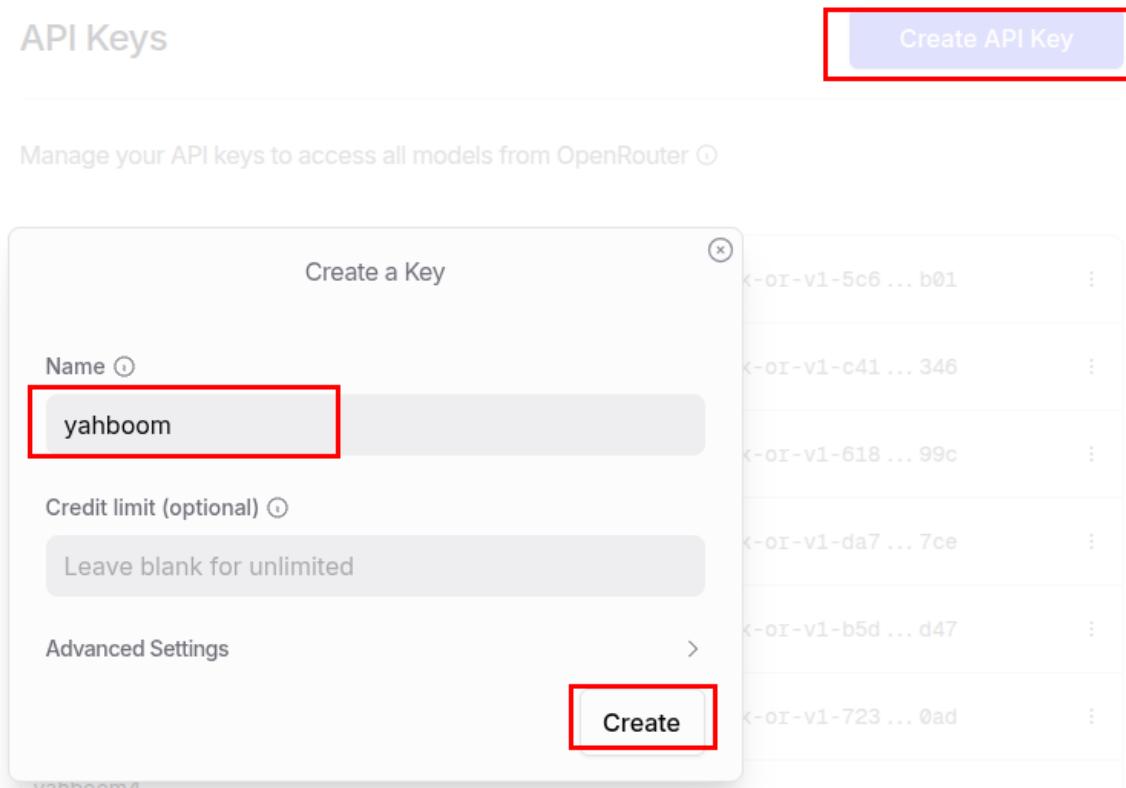
Return to the Bailian Model homepage and click "Get Free Credit" to complete your registration on the Bailian Model International site.



The screenshot shows the Bailian Model International website. The top navigation bar includes links for Playground, Dashboard, Docs, API References, and a red-highlighted 'Activate Now' button. The left sidebar has sections for Get started, Overview, Make your first API call to Qwen, Models (which is selected), Rate limits, Announcements, Core concepts, and Text generation. The main content area displays 'Featured Models' with cards for Qwen-Plus-2025-04-28, Wan2.1-T2i-Plus, and Qwen-VL-Max-2025-04-08. A 'Model Comparison' button is located at the top right of the main content area.

### 2.3.2 Create an API Key

After completing the first step of registration and logging in, click "Keys" in the list below your avatar in the upper right corner of the official website. On the API Keys page, click "Create API Key." Enter a name ("yahboom" is used as an example) and click "Create."



## 3. Switching the Speech Recognition Function and ASR Model

The robot is pre-configured with the relevant parameters. To use the speech recognition function, users only need to update their API\_KEY in **2.1.2**; no additional configuration is required. If the free model quota has been used up or you want to change the speech recognition model, refer to this step.

### 3.1 Viewing the Speech Recognition Model List

Speech recognition converts user voice input into text in a specified language. The speech recognition service uses the Paraformer and Gummy series models from the Alibaba Bailian Platform (Tongyi Qianwen Platform). Open the [Speech Recognition Model Plaza](#) link to access the Tongyi Qianwen speech recognition model list.

Click the horizontal bar on the right to switch to list view. Click the '+' icon below each model on the left to view the remaining **free quota** for each model.

模型筛选		清空	从全部模型中搜索											
供应商	<input type="checkbox"/> 全部 <input checked="" type="checkbox"/> 通义 DeepSeek 百川智能 零一万物 元语智能 智语AI BELLE BILLA Black Forest Labs Databricks IDEAI研究院 Meta MinMax Stability AI 其他		<input type="text"/>											
模型类型	<input type="checkbox"/> 全部 <input checked="" type="checkbox"/> 文本生成 <input type="checkbox"/> 全模态 <input type="checkbox"/> 推荐模型 <input type="checkbox"/> 语义理解 <input type="checkbox"/> 视频生成 <input type="checkbox"/> 图片处理 <input type="checkbox"/> 图片生成 <input type="checkbox"/> 向量模型 <input type="checkbox"/> 语音合成 <input checked="" type="checkbox"/> 语音识别 <input type="checkbox"/> 排序模型													
上下文长度	<input type="checkbox"/> 全部 <input checked="" type="checkbox"/> 16K以下 <input type="checkbox"/> 16K-64K <input type="checkbox"/> 64K以上													
共12个模型														
	模型名称	上下文长度	描述	更新时间	操作									
4	通义千问ASR	8K	基于Qwen-Audio的端到端语音识别大模型，支持3分钟以内的音频识别，目前主...	2025-03-12	查看详情 API参考 立即体验									
4	Paraformer实时语音识别-v2	-	推荐使用 Paraformer最新实时语音识别模型，支持多个语种自由切换的视频直播...	2024-12-31	查看详情 API参考 立即体验									
4	Paraformer语音识别-8k-v1	-	Paraformer语音识别提供的文件转录API，能够对常见的音频或视频文件进行语...	2024-04-09	查看详情 API参考 立即体验									
4	一句话识别及翻译V1.0	-	多语言语音转写及翻译的多模态大模型。本模型支持0秒以内的实时语音识别。...	2025-03-04	查看详情 API参考 立即体验									
4	Paraformer语音识别-v2	-	推荐使用 Paraformer最新语音识别模型，支持多个语种的语音识别。可以通过an...	2024-09-06	查看详情 API参考 立即体验									
4	Paraformer实时语音识别-v2	-	推荐使用 Paraformer最新实时语音识别模型，支持多个语种自由切换的视频直播...	2024-09-06	查看详情 API参考 立即体验									
4	Paraformer中文实时语音识别-v1	-	Paraformer中文实时语音识别模型，支持8kHz电话客服等场景下的实时语音识别。	2024-06-06	查看详情 API参考 立即体验									
4	Paraformer实时语音识别-v1	-	paraformer中文实时语音识别模型，支持16kHz及以上采样率的音频或视频语音识...	2024-06-06	查看详情 API参考 立即体验									
4	Paraformer语音识别-v1	-	paraformer中英文语音识别模型，支持16kHz及以上采样率的音频或视频语音识...	2024-04-09	查看详情 API参考 立即体验									
4	Paraformer语音识别-m8-v1	-	Paraformer多语言语音识别模型，支持16kHz及以上采样率的音频或视频语音识...	2024-04-09	查看详情 API参考 立即体验									
4	实时语音识别及翻译V1.0	-	多语言语音转写及翻译的多模态大模型。本模型提供长时间、高准确率、实时转...	2025-03-04	查看详情 API参考 立即体验									
4	Paraformer语音识别-8k-v2	-	paraformer最新中文语音识别模型，模型结构升级，具有更好的识别效果.支持8k...	2024-12-19	查看详情 API参考 立即体验									

## 3.2 View Speech Model Details

The default setting is the **paraformer-realtime-v2** online speech recognition model for speech recognition. The supported audio sampling rates vary depending on the model. If you need to modify the speech recognition model later, refer to the relationship between the model and the corresponding sampling rate:

### 3.2.1 Paraformer Series Models

paraformer-realtime-v2 supports any sampling rate.

paraformer-realtime-v1 supports a 16kHz sampling rate.

paraformer-realtime-8k-v2 and paraformer-realtime-8k-v1 support an 8kHz sampling rate.

For more detailed information, see [Paraformer Series Speech Model Information](#)

### 3.2.2 Gummy Series Models

gummy-realtime-v1 supports sampling rates of 16kHz and above.

gummy-chat-v1 supports sampling rates of 16kHz.

For more detailed information, see [Gummy Series Voice Model Information](#)

## 3.3 Free Quota

All Paraformer series models share a free quota of 10 hours/month (cumulative usage).

Gummy series models are valid for 180 days from the date of registration and activation of the unified platform service, with a cumulative usage of 10 hours.

After the free quota for a model is exhausted, you can choose to change the model or change your account.

## 3.4 Switching Speech Recognition Models

If the default speech recognition model quota is exhausted, refer to this step to switch the speech recognition model.

### 3.4.1 Online Speech Recognition

Open the large\_model\_interface.yaml configuration file:

Jetson Orin Nano, Jetson Orin NX:

```
/home/jetson/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

Jetson Nano, Raspberry Pi:

You need to first enter Docker.

```
root/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

Find the oline\_asr configuration option and modify oline\_asr\_sample\_rate and oline\_asr\_model to change the model sampling rate and speech recognition model. The available model names are provided in the comments.

```
#-----  
#oline_asr配置  
oline_asr_sample_rate: 16000 ..... #asr音频采样率  
oline_asr_model :-'paraformer-realtime-v2' ..... #'paraformer-realtime-v2', 'paraformer-realtime-v1', 'paraformer-realtime-8'  
|
```

#### Parameter Description:

- oline\_asr\_sample\_rate: Speech recognition model sampling rate. Set according to the specific model used.
- oline\_asr\_model: Speech recognition model

### 3.4.2 Local Speech Recognition

#### 3.4.2.1 Switching to the Local Speech Recognition Model

\*\* Jetson Orin Nano, Jetson Orin The NX has a built-in local speech recognition model, SenseVoiceSmall, which can be used permanently without a limit. You can switch to using this local speech recognition model in the yahboom\_m3.yaml configuration file. The path to the yahboom\_m3.yaml configuration file is:

```
/home/jetson/M3Pro_ws/src/largemode1/config/yahboom_m3.yaml
```

Change the `use_oline_asr` parameter of the `asr` node to `False`.

```

src > largemodel > config > yahboom_m3.yaml
1  asr:
2    ros_parameters:
3      VAD_MODE: 2
4      sample_rate: 16000
5      frame_duration_ms: 30
6      use_online_asr: False
7      mic_serial_port: "/dev/ttyUSB1"
8      mic_index: 0
9      language: 'zh'
10
11 action_service:
12   ros_parameters:
13     Speed_topic: "/cmd_vel"
14     text_chat_mode: False
15     use_double_llm: True
16
17 model_service:
18   ros_parameters:
19     image_topic: "/camera/color/image_raw" #相机图像话题
20     useolinett: True
21     language: 'zh'
22     use_double_llm: True

```

Then, in the vehicle terminal, switch to the `M3Pro_ws/` workspace and recompile the `largemode1` package to take effect.

```
colcon build --packages-select largemode1
```

```

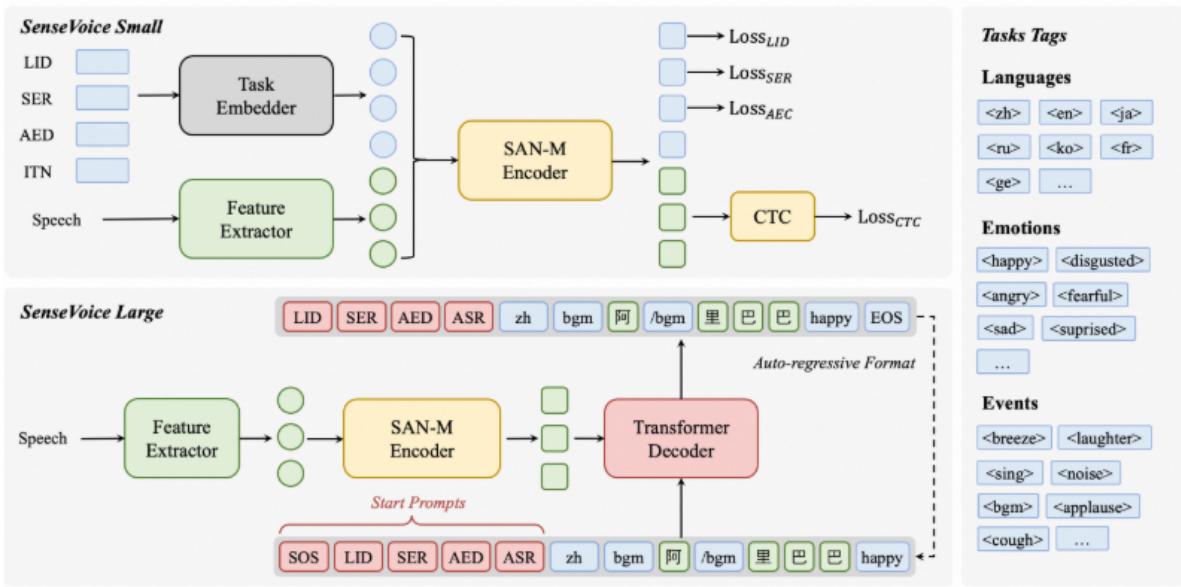
[ System Information ]
ROS: humble
DOMAIN_ID: 17
IP_Address_1: 192.168.2.100
IP_Address_2: 192.168.2.244
jetson@yahboom:~$ cd /home/jetson/M3Pro_ws/
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemode1
bash: colcon: command not found
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemode1
WARNING: Package name "M3Pro" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_KCF" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_navigation" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
Starting >>> largemode1
Finished <<< largemode1 [3.20s]

Summary: 1 package finished [4.17s]
jetson@yahboom:~/M3Pro_ws$ █

```

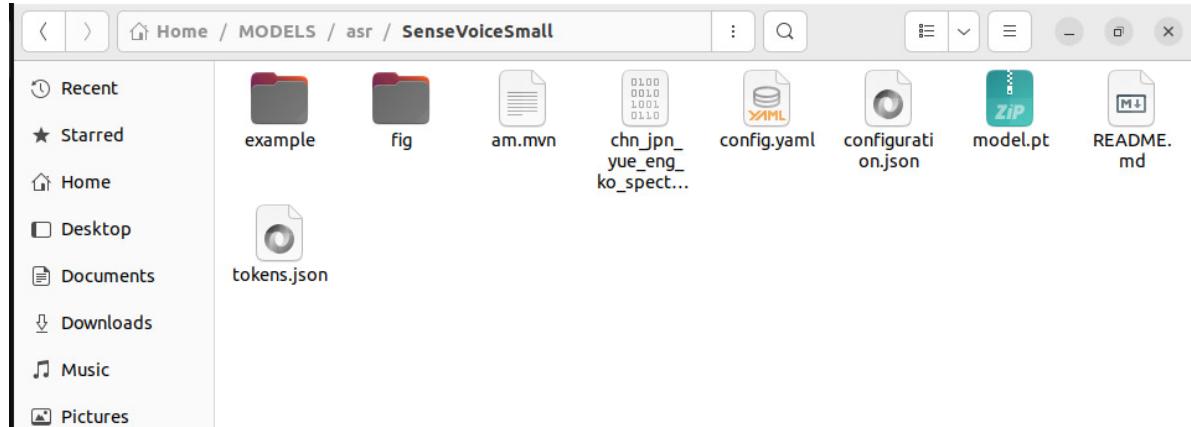
### 3.4.2.2 Introduction to SenseVoiceSmall

SenseVoiceSmall is an open-source model released by Tongyi Labs. It is a multilingual audio understanding model with capabilities including speech recognition, language identification, and acoustic event detection.



SenseVoiceSmall model file location:

```
/home/jetson/MODELS/asr/SenseVoicesmall
```



Model file address: <https://www.modelscope.cn/models/iic/SenseVoiceSmall>

GitHub repository: <https://github.com/FunAudioLLM/SenseVoice>

## 4. Switch the text-to-speech (TTS) model

The factory default is the longwan\_v2 timbre of the cosyvoice-v2 model from the Tongyi Qianwen platform. If the free quota is used up or the user needs to change the model or timbre, refer to this tutorial. If you need to use the speech synthesis service of the Baidu Intelligent Cloud Platform, please first complete the Baidu Intelligent Cloud Platform account registration and API-KEY application in [2.2 Registering a Baidu Intelligent Cloud Large Model Platform Account].

### 4.1 Tongyi Qianwen Platform Speech Synthesis

#### 4.1.1 Modifying Speech Synthesis Configuration

Open the large\_model\_interface.yaml configuration file and locate the **online\_tts** configuration option. File path:

For Jetson Orin Nano and Jetson Orin NX:

```
/home/jetson/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

For Jetson Nano and Raspberry Pi:

You must first enter Docker.

```
root/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

For the `tts_supplier` parameter, select "aliyun" to indicate the Tongyi Qianwen platform is used as the supplier. `oline_tts_model` represents the model name, and `voice_tone` represents the model's timbre:

```
#oline tts配置
tts_supplier : "baidu" #tts语音合成模型供应商: aliyun/baidu 目前提供两个平台的接口, 详见large_model_interface.py接口程序
#通义千问平台语音合成配置
oline_tts_model : "cosyvoice-v2" #语音模型
voice_tone : "longwan_v2" #百度智能云平台语音合成模型
baidu API_KEY : 'LQ3yb9UsPMCvpqZKpgkEa2q' #百度平台语音合成API KEY
baidu SECRET_KEY : 'KBT3iWvMu10XUVUL0CeNrDhc1290Uo9' #百度平台语音合成SECRET KEY
PER : 4 #发音人选择, 基础音库: 0为度小美, 1为度小宇, 3为度逍遥, 4为度丫丫, 精品音库: 5为度小娇, 103为度米朵;
SPD : 5 #语速, 取值0-15, 默认为5中语速
PIT : 5 #音调, 取值0-15, 默认为5中语调
VOL : 5 #音量, 取值0-9, 默认为5中音量
CUID : 'IN7dAbz1th0JKVhLdypkpB6sDVG86xeG' #设备标识, 获取地址: https://console.bce.baidu.com/support/?u=aiconsole&timestamp=17490028
```

Parameter Description:

- `tts_supplier` : Speech synthesis model supplier: Baidu Smart Cloud and Alibaba Cloud Tongyi Qianwen are available.
- `oline_tts_model` : Voice model name. See the Model List and Tone List for details.
- `voice_tone` : Voice model name. See the Model List and Tone List for details.

#### 4.1.2 Model list and voice list

Supported access models are `cosyvoice-v1` and `cosyvoice-v2`. Open the [Model Voice List](#) link. The `model` parameter is the model name, and the `voice` parameter is the optional voice. You can audition the voice on the right.

音色	音频试听 (右键保存音频)	model 参数	voice 参数	适用场景	语言	默认采样率 (Hz)	默认音频格式
龙婉	▶ 0:00 / 0:13	cosyvoice-v1	longwan	语音助手、导航播报、聊天数字人	中文普通话	22050	mp3
龙橙	▶ 0:00 / 0:03	cosyvoice-v1	longcheng	语音助手、导航播报、聊天数字人	中文普通话	22050	mp3
龙华	▶ 0:00 / 0:14	cosyvoice-v1	longhua	语音助手、导航播报、聊天数字人	中文普通话	22050	mp3
龙小淳	▶ 0:00 / 0:07	cosyvoice-v1	longxiaochun	语音助手、导航播报、聊天数字人	中文普通话+英文	22050	mp3
龙小夏	▶ 0:00 / 0:08	cosyvoice-v1	longxiaoxia	语音助手、聊天数字人	中文普通话	22050	mp3
龙小诚	▶ 0:00 / 0:05	cosyvoice-v1	longxiaocheng	语音助手、导航播报、聊天数字人	中文普通话+英文	22050	mp3
龙小白	▶ 0:00 / 0:08	cosyvoice-v1	longxiaobai	聊天数字人、有声书、语音助手	中文普通话	22050	mp3
龙老铁	▶ 0:00 / 0:08	cosyvoice-v1	longlaotie	新闻播报、有声书、语音助手、直播带货、导航播报	中文东北口音	22050	mp3
龙书	▶ 0:00 / 0:07	cosyvoice-v1	longshu	有声书、语音助手、导航播报、新闻播报、智能客服	中文普通话	22050	mp3

The `cosyvoice-v2` series models only need to slightly modify the parameters according to the official website requirements.

## 升级 CosyVoice2.0 说明

部分音色支持升级使用 CosyVoice2.0 模型，升级方法：

1. model 字段替换为“cosyvoice-v2”
2. voice 字段使用 CosyVoice2.0 音色

升级后调用方法和计费不变，默认 QPS 为 3。支持升级的音色包括：

升级前 voice 参数	升级后 voice 参数
longcheng	longcheng_v2
longhua	longhua_v2
longshu	longshu_v2
loongbella	loongbella_v2
longwan	longwan_v2
longxiaochun	longxiaochun_v2
longxiaoxia	longxiaoxia_v2

更多的音色会陆续上线，敬请期待。

### 4.1.3 Free quota

2000 characters/month per account

Starting from the first use, the monthly free quota will be automatically refreshed the next month after it is used up. If the free quota is used up, you can choose one of the following three methods to continue using it: 1. Change the model, 2. Change the Baidu platform speech synthesis service, 3. Change account and update API-KEY

To view the remaining quota of a model, select speech synthesis in the model square, click on the right to switch to list display, and click the "+" under the model to view the remaining free quota of each model

The screenshot shows the 'Model Market' interface. On the left sidebar, '模型广场' (Model Market) is selected. In the main area, there is a search bar and several filter options: '模型筛选' (Model Filter), '供应商' (Supplier) with '全量' (All) selected, '语音合成' (Speech Synthesis) also selected, '模型类型' (Model Type) with '全部' (All) selected, and '上下文长度' (Context Length) with '16K以下' (Below 16K) selected. Below these filters, a table lists 47 models. Each row contains information such as '模型名称' (Model Name), '上下文长度' (Context Length), '描述' (Description), '更新时间' (Last Update), and '操作' (Actions). A specific row for '声音复刻CosyVoice大模型' is highlighted with a red box around its '操作' column. This column includes links for '查看详情' (View Details), 'API参考' (API Reference), and '立即体验' (Try Now). To the right of the table, there is a progress bar labeled '免费额度' (Free Quota) with a value of '100%' and a note '2,000/2,000 到期时间: 2025-07-01'. The entire interface has a light gray background with blue and red highlights for selected items.

## 4.2 Speech Synthesis on Baidu Intelligent Cloud Platform

If you need to modify the speech synthesis service using Baidu Intelligent Cloud Platform, refer to this tutorial. First, follow 1. Account Configuration to complete account registration and API-KEY application

### 4.2.1 Configure Baidu Intelligent Cloud Speech Synthesis Parameters

Open the large\_model\_interface.yaml configuration file and find the **online\_tts** configuration option. File path:

jetson orin nano, jetson orin NX:

```
/home/jetson/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

jetson nano, Raspberry Pi:

You need to enter docker first

```
root/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

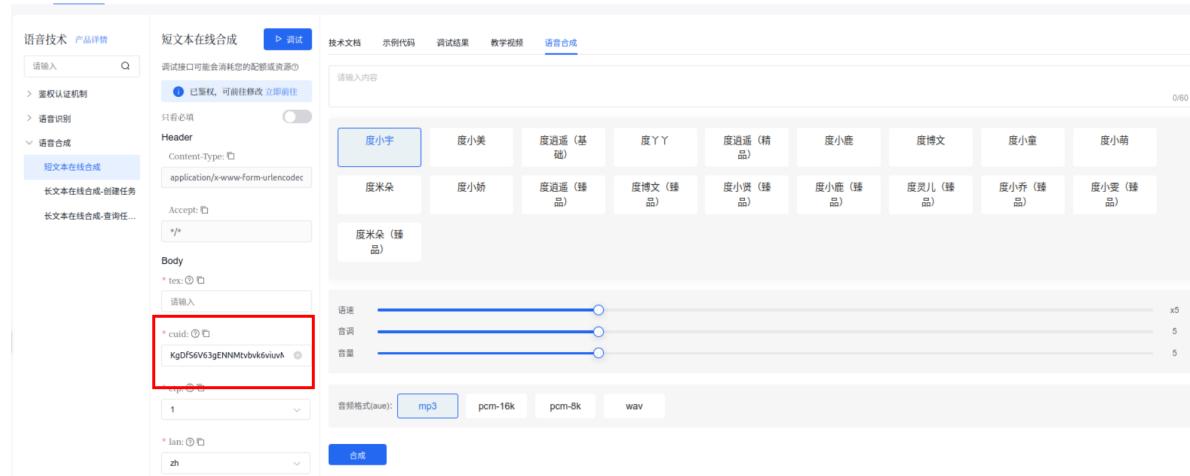
Select "baidu" for the tts\_supplier parameter. Fill in the baidu\_API\_KEY and baidu\_SECRET\_KEY parameters with the API\_KEY and SECRET\_KEY requested in step "2.2 Registering a Baidu Smart Cloud Large Model Platform Account."

```
#online_tts配置
tts_supplier : "baidu"

#通义千问平台语音模型配置,模型列表、音色列表参考: https://help.aliyun.com/zh/model-studio/cosyvoice-java-api#722dd7ca66a6x
online_tts_model : "cosyvoice-v2"
voice_tone : "longwan_v2"

#百度智能云平台语音模型
baidu_API_KEY : 'lQ3ybxB9UsPMCvpqZKpgkEaxx'
baidu_SECRET_KEY : 'KBT3iWvMu1QXUVUL0CeNrkDhc1290Uxx'
PER : 4
SPD : 5
PIT : 5
VOL : 5
CUID : 'IN7dAbz1thDJKvhLdydkpB6sDVG86xeG'
```

Open step "2.2 Registering a Baidu Smart Cloud Large Model Platform Account." On the [Speech Synthesis Online Debugging](#) page in the steps, copy the device's CUID and replace it with the one configured above. This completes the configuration.



## 4.2.2 Other Baidu Smart Cloud Speech Synthesis Parameters

- baidu\_API\_KEY : Baidu Platform Speech Synthesis API\_KEY
- baidu\_SECRET\_KEY : Baidu Platform Speech Synthesis SECRET\_KEY
- PER : 4 Speaker selection. Basic voice library: 0 for Du Xiaomei, 1 for Du Xiaoyu, 3 for Du Xiaoyao, 4 for Du Yaya. Premium voice library: 5 for Du Xiaoqiao, 103 for Du Mido, 106 for Du Bowen, 110 for Du Xiaotong, 111 for Du Xiaomeng. Default is Du Xiaomei.
- SPD : 5 Speech speed, ranges from 0 to 15, defaults to medium speed 5.
- PIT : 5 Pitch, ranges from 0 to 15, defaults to medium pitch 5.
- VOL : 5 Volume, ranges from 0 to 9, defaults to medium volume 5.
- CUID : Device ID [Get Link](#)

### 3.2.2 Free Credit

Open Check the free quota balance for Baidu Intelligent Cloud Speech Synthesis Service (<https://console.bce.baidu.com/ai-engine/speech/overview/index>). Each account has a cumulative free quota of 50,000.

[image-20250623105642802](#)

## 4.3 Local Speech Synthesis Model

### 4.3.1 Switching to a Local Model

Jetson Orin Nano, Jetson Orin The NX has a built-in local speech synthesis model, Piper, which can be used permanently without a limit. You can switch to using the local speech recognition model in the yahboom\_m3.yaml configuration file. Path to the yahboom\_m3.yaml configuration file:

```
/home/jetson/M3Pro_ws/src/largemode1/config/yahboom.yaml
```

Change the useolinett parameter of the model\_service node to False.

```
> largemode1 > config > yahboom_m3.yaml
1  asr:                                #语音节点参数
2    ros_parameters:
3      VAD_MODE: 2                      #vad灵敏度
4      sample_rate: 16000                #asr录音音频采样率
5      frame_duration_ms: 30            #vad帧大小单位ms
6      use_oline_asr: False             #是否使用在线asr识别
7      mic_serial_port: "/dev/ttyUSB1" #麦克风串口别名
8      mic_index: 0                   #麦克风索引
9      language: 'zh'                 #asr语言
10
11 action_service:                      #动作服务器节点参数
12   ros_parameters:
13     Speed_topic: "/cmd_vel"          #速度话题
14     text_chat_mode: False           #文字交互模式
15     use_double_llm: True            #是否使用双模型模式（国内默认为双模型模式）
16
17 model_service:                       #模型服务器节点参数
18   ros_parameters:
19     image_topic: "/camera/color/image_raw" #相机图像话题
20     useolinett: False               #是否使用在线语音合成
21     language: 'zh'                 #语音合成语言
22     use_double_llm: True            #是否使用双模型模式（国内默认为双模型模式）
23
```

Then, in the vehicle terminal, switch to the `M3Pro_ws/` workspace and recompile the largemode1 feature package to take effect.

For Jetson Orin Nano and Jetson Orin NX:

```
cd /home/jetson/M3Pro_ws/
```

Jetson Nano, Raspberry Pi , first enter Docker:

```
cd root/M3Pro_ws/
```

```
colcon build --packages-select largemode1
```

```
ROS: humble
DOMAIN_ID: 17
IP_Address_1: 192.168.2.100
IP_Address_2: 192.168.2.244
jetson@yahboom:~$ cd /home/jetson/M3Pro_ws/
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
bash: colcocon: command not found
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
WARNING: Package name "M3Pro" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_KCF" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_navigation" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
Starting >>> largemodel
Finished <<< largemodel [3.20s]

Summary: 1 package finished [4.17s]
jetson@yahboom:~/M3Pro_ws$
```

### 4.3.2 Introduction to Piper

A fast, localized neural text-to-speech system.

GitHub repository: [https://gitcode.com/gh\\_mirrors/pi/piper](https://gitcode.com/gh_mirrors/pi/piper)

The default setting is the Longwan\_v2 timbre of the cosyvoice-v2 model on the Tongyi Qianwen platform. If this free quota has been used up or you need to change the model or timbre, refer to this tutorial. If you wish to use the Baidu Smart Cloud platform's speech synthesis service, please first apply for an API key at [[https://www.google.com/p/speechsynthesis/timbre/src/largemode/config/large\\_model\\_interface.yaml](https://www.google.com/p/speechsynthesis/timbre/src/largemode/config/large_model_interface.yaml)].

## 4.1 Tongyi Qianwen Platform Speech Synthesis

### 4.1.1 Modifying Speech Synthesis Configuration

Open the large\_model\_interface.yaml configuration file and locate the **online\_tts** configuration option. File path:

For Jetson Nano and Jetson NX:

```
/home/jetson/M3Pro_ws/src/largemode/config/large_model_interface.yaml
```

For Jetson Nano and Raspberry Pi:

You must first enter Docker.

```
root/M3Pro_ws/src/largemode/config/large_model_interface.yaml
```

For the **tts\_supplier** parameter, select "aliyun" to indicate the Tongyi Qianwen platform is used as the supplier. **online\_tts\_model** represents the model name, and **voice\_tone** represents the model's timbre:

```

#online tts配置
tts_supplier :"baidu".....#tts语音合成模型供应商: aliyun/baidu 目前提供两个平台的接口, 详见large_model_interface.py接口程序

#通义千问平台语音合成配置
online_tts_model : "cosyvoice-v2".....#语音模型
voice_tone :"longwan_v2".....#音色

#百度智能云平台语音合成模型
baidu API KEY : 'lQ3yb9UsPMCvpqZpgkEa2q'.....#百度平台语音合成API KEY
baidu SECRET KEY : 'KB731wMUi0XUVUL0cEnRkDhc1290u09'.....#百度平台语音合成SECRET KEY
PER : 4 .....# 发音人选择, 基础音库: 0为度小美, 1为度小宝, 2为度逍遥, 4为度丫丫, 精品音库: 5为度小娇, 103为度米朵, 104为度米粒
SPD : 5 .....# 语速, 取值0-15, 默认认为5中语速
PIT : 5 .....# 音调, 取值0-15, 默认认为5中语调
VOL : 5 .....# 音量, 取值0-9, 默认认为5中音量
CUID : 'IN7dAbz1thDJKVhLdykpB6sDVG86xeG'.....# 设备标识, 获取地址: https://console.bce.baidu.com/support/?u=aiconsole&timestamp=17490028

```

#### Parameter Description:

- tts\_supplier : Speech synthesis model supplier: Baidu Smart Cloud and Alibaba Cloud Tongyi Qianwen are available.
- online\_tts\_model : Voice model name. See the Model List and Tone List for details.
- voice\_tone : Voice model name. See the Model List and Tone List for details.

### 4.1.2 Model list and voice list

Supported access models are cosyvoice-v1 and cosyvoice-v2. Open the [Model Voice List](#) link. The model parameter is the model name, and the voice parameter is the optional voice. You can audition the voice on the right.

音色	音频试听 (右键保存音频)	model 参数	voice 参数	适用场景	语言	默认采样率 (Hz)	默认音频格式
龙婉	▶ 0:00 / 0:13 ⏸	cosyvoice-v1	longwan	语音助手、导航播报、聊天数字人	中文普通话	22050	mp3
龙橙	▶ 0:00 / 0:03 ⏸	cosyvoice-v1	longcheng	语音助手、导航播报、聊天数字人	中文普通话	22050	mp3
龙华	▶ 0:00 / 0:14 ⏸	cosyvoice-v1	longhua	语音助手、导航播报、聊天数字人	中文普通话	22050	mp3
龙小淳	▶ 0:00 / 0:07 ⏸	cosyvoice-v1	longxiaochun	语音助手、导航播报、聊天数字人	中文普通话+英文	22050	mp3
龙小夏	▶ 0:00 / 0:08 ⏸	cosyvoice-v1	longxiaoxia	语音助手、聊天数字人	中文普通话	22050	mp3
龙小诚	▶ 0:00 / 0:05 ⏸	cosyvoice-v1	longxiaocheng	语音助手、导航播报、聊天数字人	中文普通话+英文	22050	mp3
龙小白	▶ 0:00 / 0:08 ⏸	cosyvoice-v1	longxiaobai	聊天数字人、有声书、语音助手	中文普通话	22050	mp3
龙老铁	▶ 0:00 / 0:08 ⏸	cosyvoice-v1	longlaotie	新闻播报、有声书、语音助手、直播带货、导航播报	中文东北口音	22050	mp3
龙书	▶ 0:00 / 0:07 ⏸	cosyvoice-v1	longshu	有声书、语音助手、导航播报、新闻播报、智能客服	中文普通话	22050	mp3

The cosyvoice-v2 series models only need to slightly modify the parameters according to the official website requirements.

## 升级 CosyVoice2.0 说明

部分音色支持升级使用 CosyVoice2.0 模型，升级方法：

1. model 字段替换为“cosyvoice-v2”
2. voice 字段使用 CosyVoice2.0 音色

升级后调用方法和计费不变，默认 QPS 为 3。支持升级的音色包括：

升级前 voice 参数	升级后 voice 参数
longcheng	longcheng_v2
longhua	longhua_v2
longshu	longshu_v2
loongbella	loongbella_v2
longwan	longwan_v2
longxiaochun	longxiaochun_v2
longxiaoxia	longxiaoxia_v2

更多的音色会陆续上线，敬请期待。

### 4.1.3 Free quota

2000 characters/month per account

Starting from the first use, the monthly free quota will be automatically refreshed the next month after it is used up. If the free quota is used up, you can choose one of the following three methods to continue using it: 1. Change the model, 2. Change the Baidu platform speech synthesis service, 3. Change account and update API-KEY

To view the remaining quota of a model, select speech synthesis in the model square, click on the right to switch to list display, and click the "+" under the model to view the remaining free quota of each model

The screenshot shows the Baidu Model Market interface. On the left, there's a sidebar with various model categories like Text Model, Language Model, Vision Model, etc. The main area is titled 'Model Market' and has a search bar at the top. Below the search bar, there are filters for 'Category' (全量, 遍义, DeepSeek, 川智, 等一万物, 元通智能, 智源AI, BELLE, BILLA, Black Forest Labs, Databricks, IDEA实验室, Meta, Minimax, Stability AI, 其他), 'Model Type' (全部, 文本生成, 全模态, 推理模型, 语义理解, 视频生成, 图片处理, 图片理解, 图片生成, 向量模型, 语音合成, 语音识别, 序列模型), and 'Text Length' (全量, 16K以下, 16K-64K, 64K以上). A red box highlights the 'Model Market' tab. Below these filters, there's a table titled '47个模型' (47 models) with columns: 模型名称 (Model Name), 上下文长度 (Text Length), 描述 (Description), 更新时间 (Last Update), and 操作 (Operations). The table lists several models, including '声音复刻CosyVoice大模型' and '声音生成cosyvoice-v2大模型'. For each model, there's a row with detailed information and a red box highlighting the 'Free Quota' section. This section shows a progress bar indicating the usage of the free quota (e.g., 100% used) and the expiration date (e.g., 2025-07-01). There are also 'View Details', 'API Reference', and 'Try It' buttons.

## 4.2 Speech Synthesis on Baidu Intelligent Cloud Platform

If you need to modify the speech synthesis service using Baidu Intelligent Cloud Platform, refer to this tutorial. First, follow 1. Account Configuration to complete account registration and API-KEY application

### 4.2.1 Configure Baidu Intelligent Cloud Speech Synthesis Parameters

Open the large\_model\_interface.yaml configuration file and find the **online\_tts** configuration option. File path:

jetson orin nano, jetson orin NX :

```
/home/jetson/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

jetson nano, Raspberry Pi :

You need to enter docker first

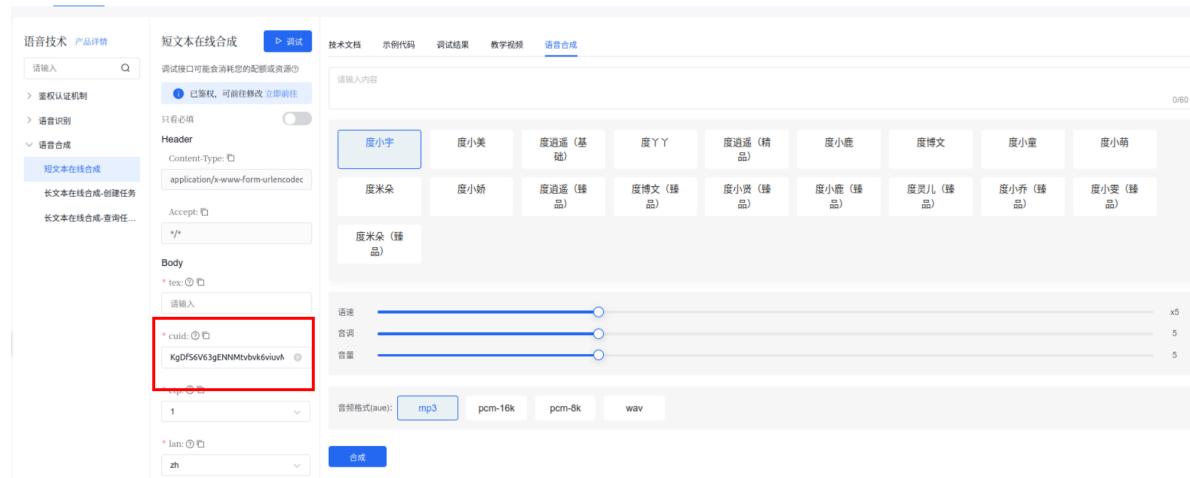
```
root/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

Select "baidu" for the tts\_supplier parameter. Fill in the baidu\_API\_KEY and baidu\_SECRET\_KEY parameters with the API\_KEY and SECRET\_KEY requested in step 2.2 "Registering a Baidu Smart Cloud Large Model Platform Account."

```
#online_tts配置
tts_supplier : "baidu"

#通义千问平台语音模型配置,模型列表、音色列表参考: https://help.aliyun.com/zh/model-studio/cosyvoice-java-api#722dd7ca66a6x
online_tts_model : "cosyvoice-v2"
voice_tone : "longwan_v2"
#百度智能云平台语音模型
baidu_API_KEY : 'lQ3ybxB9UsPMCvpqZKpgkEaxx'
baidu_SECRET_KEY : 'KBT3iWvMu1QXUVUL0CeNrkDhc1290Uxx'
PER : 4
SPD : 5
PIT : 5
VOL : 5
CUID : 'IN7dAbz1thDJKvhLdydkpB6sDVG86xeG'
```

Open step 2.2 "Registering a Baidu Smart Cloud Large Model Platform Account." On the [Speech Synthesis Online Debugging](#) page in the steps, copy the device's CUID and replace it with the one configured above. This completes the configuration.



## 4.2.2 Other Baidu Smart Cloud Speech Synthesis Parameters

- baidu\_API\_KEY : Baidu Platform Speech Synthesis API\_KEY
- baidu\_SECRET\_KEY : Baidu Platform Speech Synthesis SECRET\_KEY
- PER : 4 Speaker selection. Basic voice library: 0 for Du Xiaomei, 1 for Du Xiaoyu, 3 for Du Xiaoyao, 4 for Du Yaya. Premium voice library: 5 for Du Xiaoqiao, 103 for Du Mido, 106 for Du Bowen, 110 for Du Xiaotong, 111 for Du Xiaomeng. Default is Du Xiaomei.
- SPD : 5 Speech speed, ranges from 0 to 15, defaults to medium speed 5.
- PIT : 5 Pitch, ranges from 0 to 15, defaults to medium pitch 5.
- VOL : 5 Volume, ranges from 0 to 9, defaults to medium volume 5.
- CUID : Device ID [Get Link](#)

### 3.2.2 Free Credit

Open the [Baidu Intelligent Cloud Speech Synthesis Service](#) link to view the free quota balance. Each account has 50,000 free quotas.

服务列表					
近三个月调用	语音识别	语音合成	呼叫中心语音	大模型语音	
选择接口状态				输入名称	
服务类别	服务名称	状态	可用资源 (余量/总量)	QPS/并发限制	操作
短文本在线合成	基础音库	● 付费使用中	免费资源: 5.00万/5万次	100	购买资源包 资源管理 应用授权
	精品音库	● 付费使用中	免费资源: 5万/5万次	100	购买资源包 资源管理 应用授权
长文本在线合成	臻品音库	● 待开通付费	免费资源: 1万/1万次	3	开通付费 资源管理 应用授权
	基础音库	● 待开通付费	免费资源: 5万/5万字符	--	开通付费 资源管理 应用授权
	精品音库	● 待开通付费	免费资源: 5万/5万字符	--	开通付费 资源管理 应用授权
	臻品音库	● 待开通付费	免费资源: 5万/5万字符	--	开通付费 资源管理 应用授权

## 4.3 Local Speech Synthesis Model

### 4.3.1 Switching to a Local Model

Jetson Orin Nano, Jetson Orin The NX has a built-in local speech synthesis model, Piper, which can be used permanently without a limit. You can switch to using the local speech recognition model in the yahboom\_m3.yaml configuration file. Path to the yahboom\_m3.yaml configuration file:

```
/home/jetson/M3Pro_ws/src/largemodel/config/yahboom.yaml
```

Change the useolinets parameter of the model\_service node to False.

```
> largemodel > config > yahboom_m3.yaml
1  asr:                                     #语音节点参数
2    ros_parameters:
3      VAD_MODE: 2                           #vad灵敏度
4      sample_rate: 16000                     #asr录音音频采样率
5      frame_duration_ms: 30                 #vad帧大小单位ms
6      use_oline_asr: False                  #是否使用在线asr识别
7      mic_serial_port: "/dev/ttyUSB1"       #麦克风串口别名
8      mic_index: 0                          #麦克风索引
9      language: 'zh'                       #asr语言
10
11 action_service:                         #动作服务器节点参数
12   ros_parameters:
13     Speed_topic: "/cmd_vel"              #速度话题
14     text_chat_mode: False                #文字交互模式
15     use_double_llm: True                 #是否使用双模型模式（国内默认为双模型模式）
16
17 model_service:                          #模型服务器节点参数
18   ros_parameters:
19     image_topic: "/camera/color/image_raw" #相机图像话题
20     useolinets: False                   #是否使用在线语音合成
21     language: 'zh'                     #语音合成语言
22     use_double_llm: True                #是否使用双模型模式（国内默认为双模型模式）
23
```

Then, in the vehicle terminal, switch to the `M3Pro_ws/` workspace and recompile the largemodel feature package to take effect.

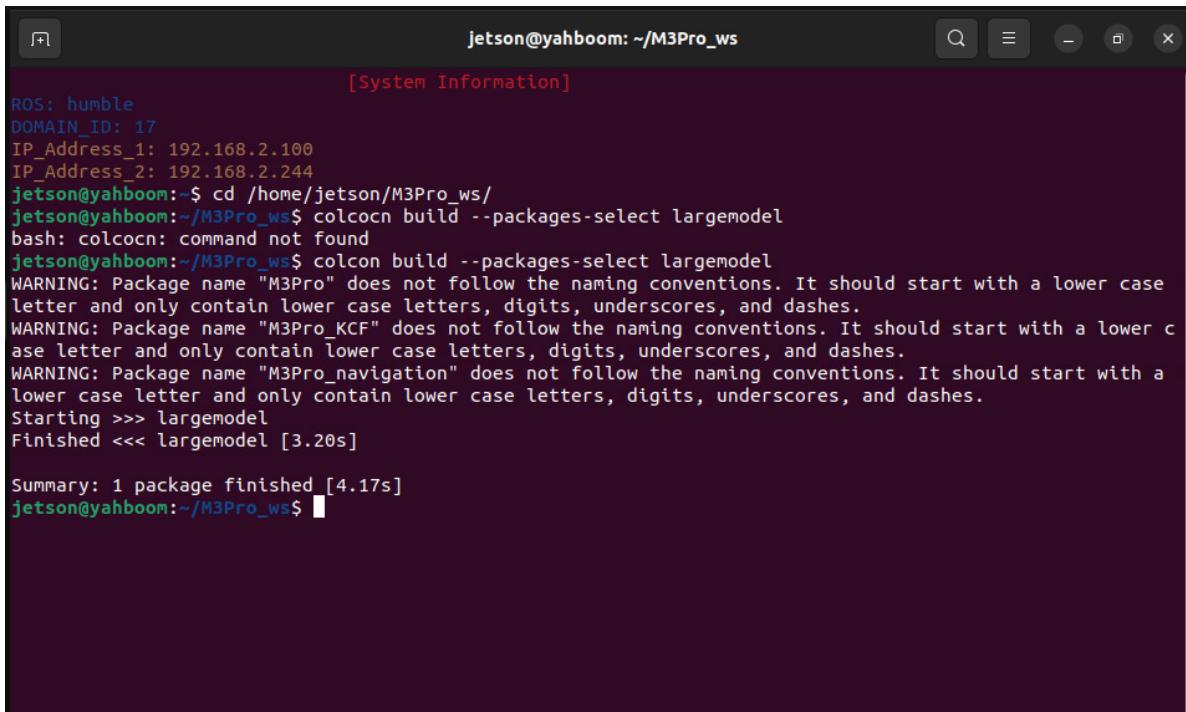
For Jetson Orin Nano and Jetson Orin NX:

```
cd /home/jetson/M3Pro_ws/
```

Jetson Nano, Raspberry Pi , first enter Docker:

```
cd root/M3Pro_ws/
```

```
colcon build --packages-select largemodel
```



The terminal window shows the following output:

```
jetson@yahboom: ~/M3Pro_ws
[ROS: humble]
[DOMAIN_ID: 17]
[IP_Address_1: 192.168.2.100]
[IP_Address_2: 192.168.2.244]
jetson@yahboom:~$ cd /home/jetson/M3Pro_ws/
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
bash: colcocl: command not found
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
WARNING: Package name "M3Pro" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_KCF" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_navigation" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
Starting >>> largemodel
Finished <<< largemodel [3.20s]

Summary: 1 package finished [4.17s]
jetson@yahboom:~/M3Pro_ws$
```

### 4.3.2 Introduction to Piper

A fast, localized neural text-to-speech system.

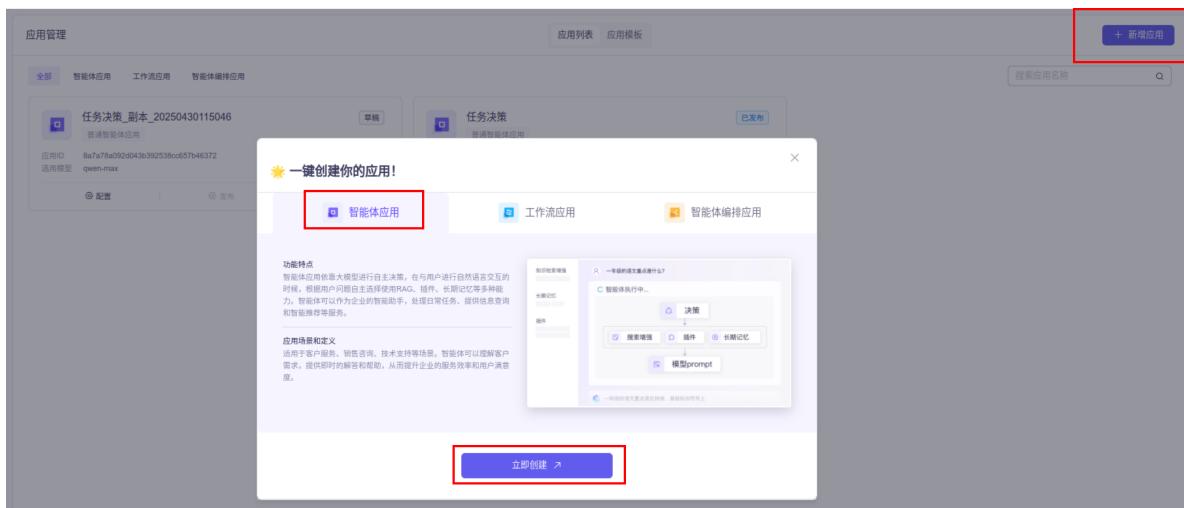
GitHub repository: [https://gitcode.com/gh\\_mirrors/pi/piper](https://gitcode.com/gh_mirrors/pi/piper)

## 6. Configuring the Decision-Layer and Execution-Layer Large Models

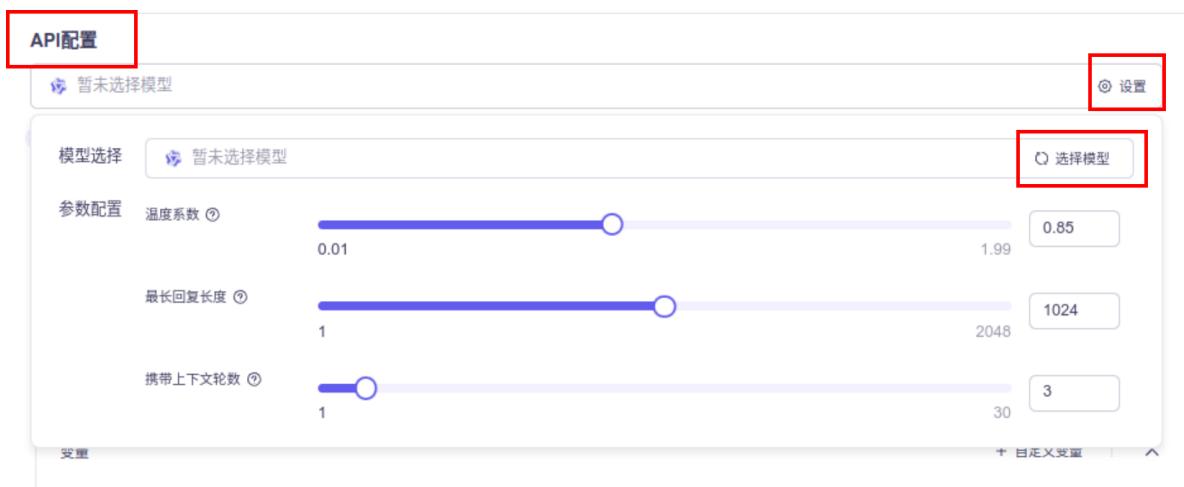
### 6.1 Configuring the Decision-Layer Model

This section requires you to complete "2.1 Registering an Alibaba Bailian Platform Account." For more information on the concepts and basics of the decision-layer model, see **[2. AI Large Model Basics - 3. Embodied Intelligent Robot System Architecture]**

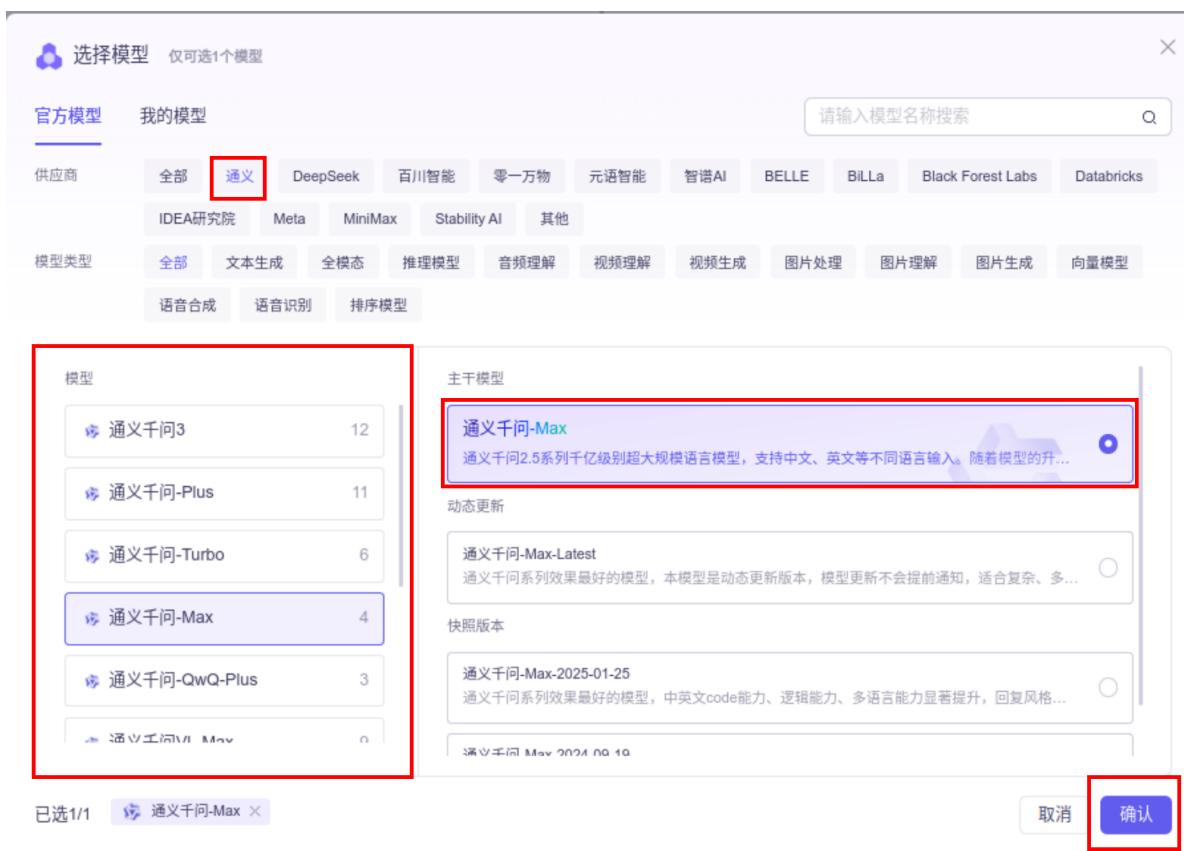
Open the [Bailian Big Model Application Management Page](#), click Add Application, select Agent Application, and click Create Now.



Under "API Configuration," click "API Configuration," then click "Select Model."



Here, the default decision-making model is used, using the Tongyi Qianwen-MAX model from Tongyi.



## Parameter Configuration Instructions:

- Temperature Coefficient: A higher temperature coefficient indicates greater diversity in the model's thinking. A lower temperature coefficient indicates more conservative and stable responses. Generally, no changes are required; the default setting is sufficient.
- Maximum Response Length: The maximum length of a large model's response text. No changes are required; the default setting is sufficient.
- Carry context rounds: The model's response will reference the previous round count. Since each call to the decision-layer model is a new task cycle, there's no need to change it; leave it at the default of 1.

Open the **Decision-Layer Prompt.md** file in this course's folder and copy the prompt into the Instructions - Prompt field.

Then enable the **Knowledge Base** switch, click +, and add the action function library configured previously.

Then enable the **Sample Library** switch, click +, and add the decision-layer training examples configured previously.

In the input box below, you can test the model output. If not, simply click Publish.

The screenshot shows the configuration interface for an AI application. The 'Instructions' tab is active, displaying a text area for the prompt. Below it, the 'Knowledge Base' and 'Sample Library' sections are expanded, each with a red box highlighting the enable switch and the '+' button for adding items. To the right, a test input box contains the text '请你去阳台帮我把红色方块拿回来' (Please go to the balcony and help me get the red cube). The top right corner has a 'Publish' button with a red box around it.

Return to the Application Management page to see the newly created application. Click More in the lower corner to modify the application name for easier management.

The screenshot shows the Application Management page with the '任务决策' application selected. The application ID '966bdcc5658847069f66229d9e...' is highlighted with a red box. A modal window is open in the bottom right corner, titled '高级配置' (Advanced Configuration), with a red box around the '修改应用名' (Change Application Name) button. Other options in the modal include '复制应用' (Copy Application) and '删除应用' (Delete Application).

Copy the application ID and open the `large_model_interface.yaml` configuration file. File path:

Jetson Orin Nano, Jetson Orin NX :

```
/home/jetson/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

Jetson Nano, Raspberry Pi :

You need to first enter Docker.

```
root/M3Pro_ws/src/largemode1/config/large_model_interface.yaml
```

Find the Tongyi Qianwen platform API configuration options and replace the **tongyi\_app\_id** parameter under the decision-level large model with your own application ID.

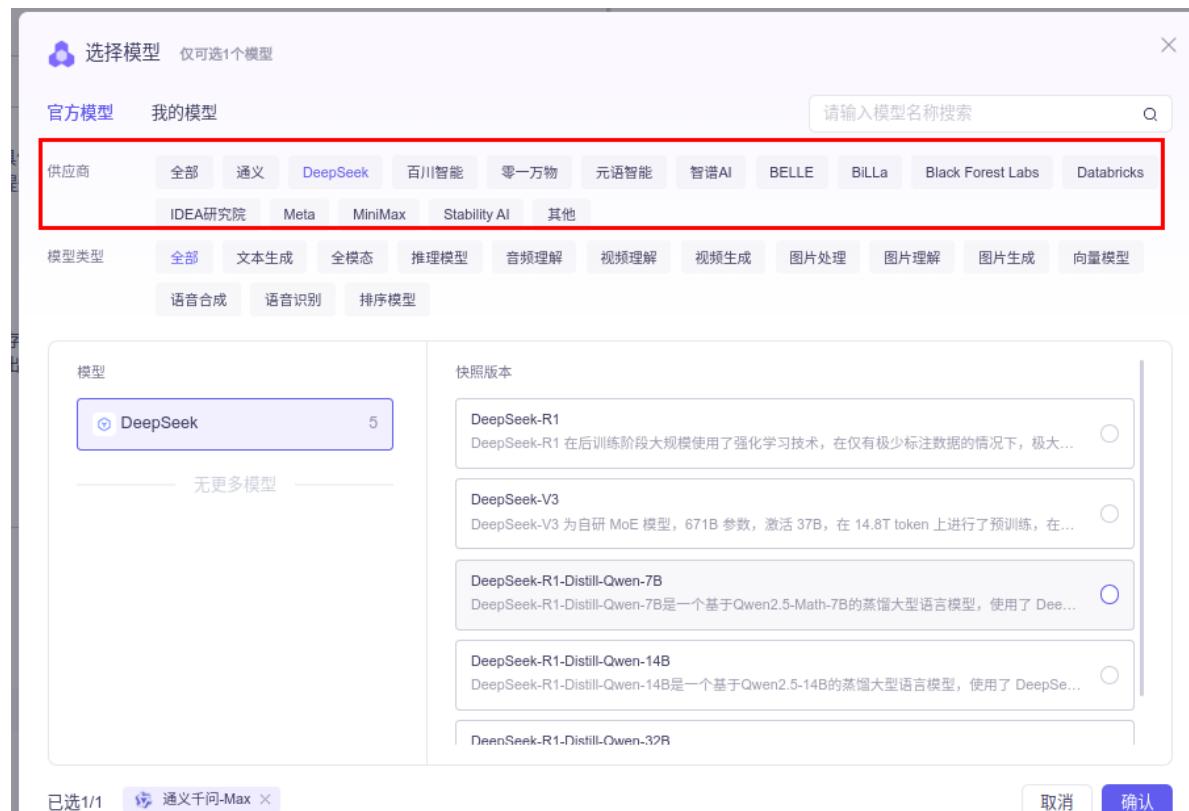
```
#大模型接口配置文件Large model interface configuration file

#通义千问平台API-----
#决策层大模型
tongyi_api_key : "sk-ff1629b470a0419fa32xxxxxxxxxxxxx"
tongyi_app_id : '966bdcc5658847069f6xxxxxxxxxxxx'
tongyi_base_url : "https://dashscope.aliyuncs.com/compatible-mode/v1"
#执行层大模型
multimodel : "qwen-vl-max"                                     #模型选择多模态模型，模型列表参考

#决策层模型选用文本生成模型，配置
#填写自己的api_key
#填写自己的app_id
#通义接口地址，无需修改
```

## 6.2 Using a Decision-Level Model from Another Vendor

In the previous step, the **Tongyi Qianwen-MAX** model was used by default. You can also select models from other vendors. The available models from different vendors will vary depending on the official operation of Bailian Model.



## 6.3 Execution Layer Large Model Configuration

Note: The execution layer model must use a visual multimodal model. Different models vary in their ability to follow commands. Try to choose a new model for testing. If some models' responses do not meet the requirements, subsequent parsing errors will occur, and the robot will not be able to execute actions correctly.

For more information on the concepts and basic knowledge of the execution layer model, see \*\* [2. AI Large Model Basics - 3. Embodied Intelligent Robot System Architecture]

Open the large\_model\_interface.yaml configuration file and find the execution layer large model configuration options:

```
#执行层大模型
multimodel : "qwen-vl-max-2025-04-08"
#测试较稳定模型: "qwen-vl-max"、"qwen-vl-max-2025-04-08"、"qwen-vl-max-2025-04-02"
```

In the **multimodel** parameter, you can modify the execution layer large model. Simply enter the model's **code name**. Note that you must use a multimodal vision model.

For a list of available models, refer to the Bailian Platform (Tongyi Qianwen Platform) - Model Plaza - Image Understanding Model: [Visual Model List](#)

(6.29597918.J\_SEsSjsNv72yRuRFS2VknO.2.55997b08jKDchF&tab=model#/model-market?capabilities=%5B%22IU%22%5D&z\_type\_=%7B%22capabilities%22%3A%22array%22%7D)

On this page, you can view the model's **code name** and **resource quota** (for decision-making models, you can view the remaining quota under the Text Generation tab).

模型名称	上下文长度	描述	更新时间	操作			
通义千问VL-Max	32K-128K	通义千问VL-Max (qwen-vl-max)，即通义千问超大规模视觉语言模型...	2025-05-26	<a href="#">查看详情</a>			
模型名称	Code	模型类型	上下文长度	价格	模型协议	免费额度	用
通义千问VL-Max	qwen-vl-max	[图片理解, 视频理解]	32K	模型调用-输入: <b>0.003 / 千Token</b> 模型调用-输出: <b>0.009 / 千Token</b>	-	无免费额度	<a href="#">QF</a> <a href="#">TP</a> <a href="#">查看详情</a> <a href="#">API参考</a> <a href="#">立即体验</a>
通义千问VL-Max-2025-04-08	qwen-vl-max-2025-04-08	[图片理解, 视频理解]	128K	模型调用-输入: <b>0.003 / 千Token</b> 模型调用-输出: <b>0.009 / 千Token</b>	-	无免费额度	<a href="#">QF</a> <a href="#">TP</a> <a href="#">查看详情</a> <a href="#">API参考</a> <a href="#">立即体验</a>
通义千问VL-Max-2025-01-25	qwen-vl-max-2025-01-25	[图片理解, 视频理解]	128K	模型调用-输入: <b>0.003 / 千Token</b> 模型调用-输出: <b>0.009 / 千Token</b>	-	96.65% 966,454/1,000,000 到期时间: 2025-10-08	<a href="#">QF</a> <a href="#">TP</a> <a href="#">查看详情</a> <a href="#">API参考</a> <a href="#">立即体验</a>
通义千问VL-Max-2025-04-02	qwen-vl-max-2025-04-02	[图片理解, 视频理解]	128K	模型调用-输入: <b>0.003 / 千Token</b> 模型调用-输出: <b>0.009 / 千Token</b>	-	无免费额度	<a href="#">QF</a> <a href="#">TP</a> <a href="#">查看详情</a> <a href="#">API参考</a> <a href="#">立即体验</a>
通义千问VL-Max-Latest	qwen-vl-max-latest	[图片理解, 视频理解]	128K	模型调用-输入: <b>0.003 / 千Token</b> 模型调用-输出: <b>0.009 / 千Token</b>	-	无免费额度	<a href="#">QF</a> <a href="#">TP</a> <a href="#">查看详情</a> <a href="#">API参考</a> <a href="#">立即体验</a>
通义千问VL-Max-2024-10-30	qwen-vl-max-1030	[图片理解, 视频理解]	32K	模型调用: <b>0.02 / 千Token</b>	-	1,000,000/1,000,000 到期时间: 2025-10-08	<a href="#">QF</a> <a href="#">TP</a> <a href="#">查看详情</a> <a href="#">API参考</a> <a href="#">立即体验</a>

## 6.4 Saving the Configuration to Take Effect

Each time you modify the large model's configuration parameters, you must recompile the package for the configuration to take effect. To do this:

On the vehicle terminal, switch to the `M3Pro_ws/` workspace and recompile the `largetmodel` package to take effect.

```
colcon build --packages-select largemode1
```

```
[System Information]
ROS: humble
DOMAIN_ID: 17
IP_Address_1: 192.168.2.100
IP_Address_2: 192.168.2.244
jetson@yahboom:~$ cd /home/jetson/M3Pro_ws/
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
bash: colcoen: command not found
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
WARNING: Package name "M3Pro" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_KCF" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_navigation" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
Starting >>> largemodel
Finished <<< largemodel [3.20s]

Summary: 1 package finished [4.17s]
jetson@yahboom:~/M3Pro_ws$
```

## 7. International Version Configuration

### 7.1 Enter the dify configuration page

Since dify is not enabled by default in the factory image, we first need to enable it to configure the international version.

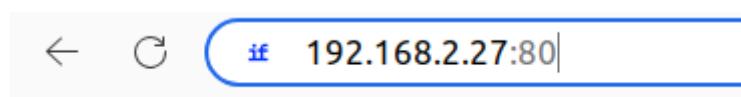
```
sh bringup_dify.sh
```

dify will automatically load at this point, allowing you to perform the following configurations.

- Open a terminal on the car computer and check the current car computer IP: **IP\_Address\_1**

```
[System Information]
ROS: humble
DOMAIN_ID: 17
IP_Address_1: 192.168.2.27
IP_Address_2: 172.19.0.1
jetson@yahboom:~$
```

- Open **Chromium Web directly on the car computer** [Open a browser](#) or on any computer on the same network segment as the car computer and enter the IP address + :80 in the address bar. For example:



The page after entering dify is as follows:

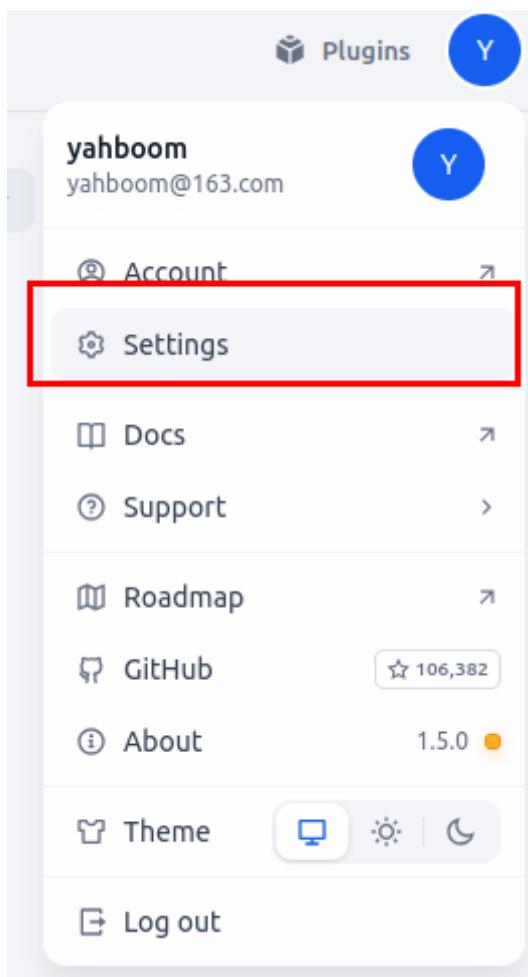
The screenshot shows the Dify workspace interface. At the top, there's a navigation bar with 'Explore', 'Studio', 'Knowledge', 'Tools', and a 'Plugins' section with a blue 'Y' icon. Below the navigation is a search bar with filters: 'All', 'Workflow', 'Chatflow', 'Chatbot', 'Agent', and 'Completion'. A 'Created by me' filter is also present. The main area displays several AI models: 'Execution layer AI' (by yahboom, edited at 07/07/2023 10:27, generates action lists), 'Decision-making level AI' (by yahboom, edited at 07/07/2023 10:28, analyzes user instructions), and options to 'Create from Blank', 'Create from Template', or 'Import DSL file'. A search bar at the bottom right allows for 'All Tags' and 'Search'.

If you are accessing the website from an unfamiliar device, you will need to log in with your account:

- Username: [yahboom@163.com](mailto:yahboom@163.com)
- Password: yahboom123

## 7.2 Enter the API key.

Click your profile picture in the upper right corner, then click Settings.



Click Model Provider, then click Setup for the corresponding model provider.

The screenshot shows the 'Model Provider' section of the 'Settings' interface. On the left, there's a sidebar with 'WORKSPACE' and 'GENERAL' sections. Under 'WORKSPACE', 'Model Provider' is selected and highlighted with a red box. Other options include 'Members', 'Data Source', 'API Extension', and 'Language'. In the main area, there are two model cards: 'OpenRouter' (LLM) and 'TONGYI'. Each card has an 'API-KEY' field with a green checkmark and a 'Setup' button, which is also highlighted with a red box. There are 'Show Models >' links below each card and a 'System Model Settings' link at the top right.

Enter the API key you applied for in [2.3 Registering an OpenRouter Platform Account], then click Save.

This is a modal dialog titled 'Setup OpenRouter'. It contains an 'API Key \*' input field with a placeholder '.....' and a note below it: 'Get your API key from openrouter.ai'. At the bottom are three buttons: 'Remove', 'Cancel', and a large blue 'Save' button, which is highlighted with a red box. A note at the bottom states: 'Your API KEY will be encrypted and stored using PKCS1\_OAEP technology.'

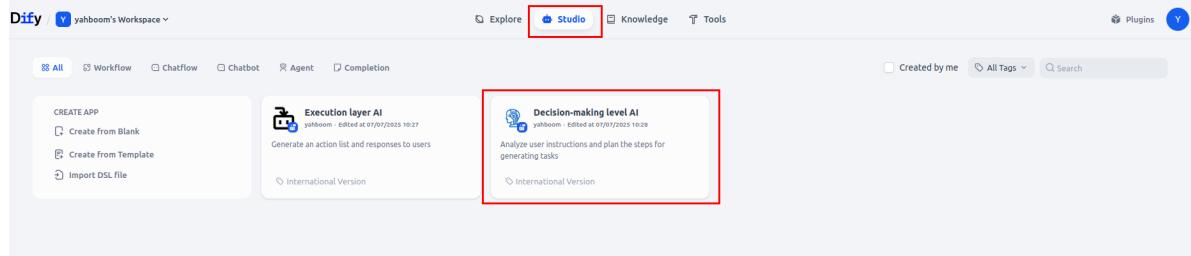
Click Setup for Tongyi, then enter the API key you applied for in [2.4 Registering an Alibaba Bailian Model International Platform Account], then select Use International Endpoint, then click Save.

This is a modal dialog titled 'Setup TONGYI'. It contains an 'API Key \*' input field with a placeholder '.....'. Below it is a 'Use International Endpoint \*' section with two radio buttons: 'True' (selected) and 'False'. At the bottom are three buttons: 'Remove', 'Cancel', and a large blue 'Save' button, which is highlighted with a red box. A note at the bottom states: 'Your API KEY will be encrypted and stored using PKCS1\_OAEP technology.'

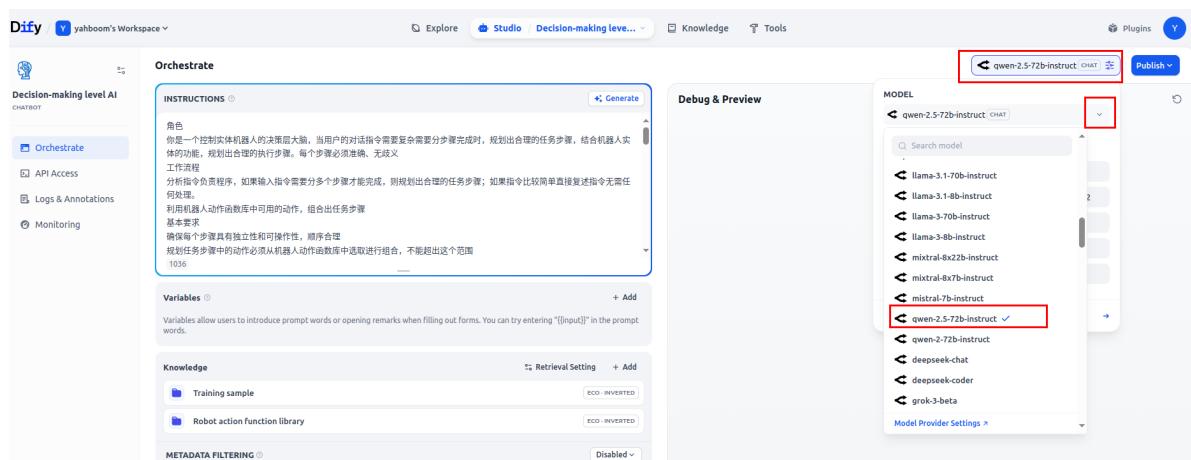
## 7.3 Configuring the Decision-Making Level Model

### 7.3.1 Switching the Decision-Making Level Model

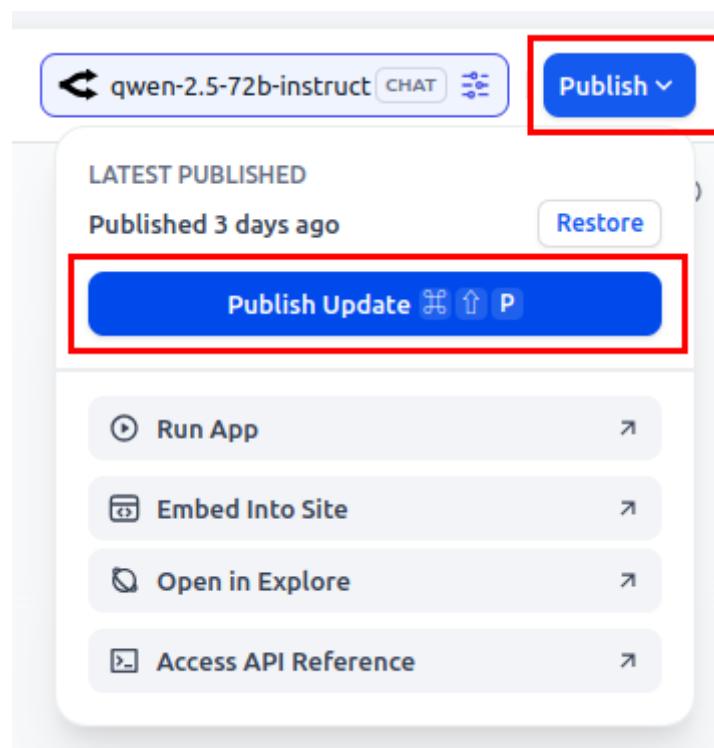
Return to the Studio interface and click Decision-Making Level AI Applications



Click the Chat option in the upper-right corner and click the drop-down button to pop up a list of available models. This example uses the free model qwen2.5-72b-instruct, but other models are also available.



After selecting your model, click Publish, then Publish Update to complete the model switch configuration.



### 7.3.2 Configuring the Decision-Layer Knowledge Base

If you need to customize your intent mappings or add other open-domain knowledge or customized training samples, you can enrich the capabilities of the large model by adding a decision-layer knowledge base.

Find the Knowledge tab and click +Add.

**INSTRUCTIONS**

角色  
你是一个控制实体机器人的决策层大脑，当用户的对话指令需要复杂需要分步骤完成时，规划出合理的任务步骤，结合机器人实体的功能，规划出合理的执行步骤。每个步骤必须准确、无歧义

工作流程  
分析指令负责程序，如果输入指令需要分多个步骤才能完成，则规划出合理的任务步骤；如果指令比较简单直接复述指令无需任何处理。

利用机器人动作函数库中可用的动作，组合出任务步骤

基本要求  
确保每个步骤具有独立性和可操作性，顺序合理

规划任务步骤中的动作必须从机器人动作函数库中选取进行组合，不能超出这个范围

1036

**Variables**

Knowledge

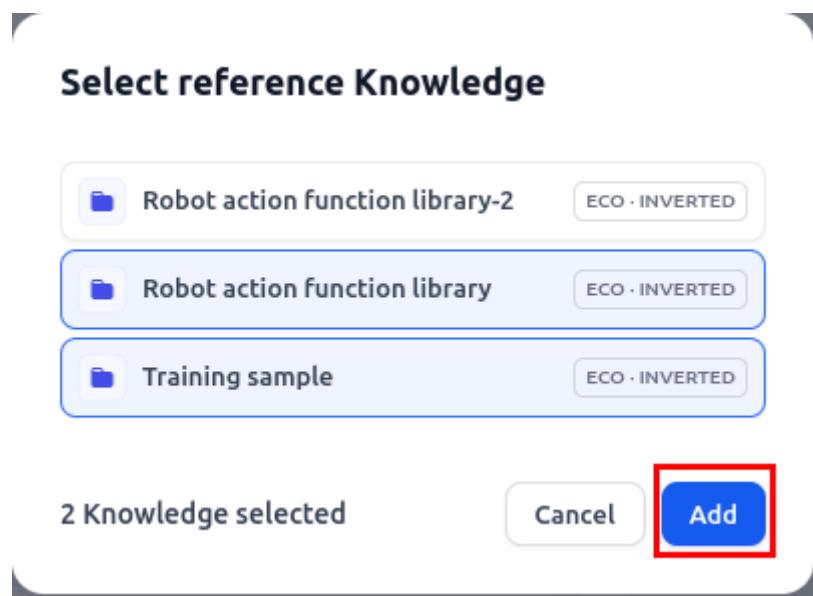
Training sample ECO - INVERTED

Robot action function library ECO - INVERTED

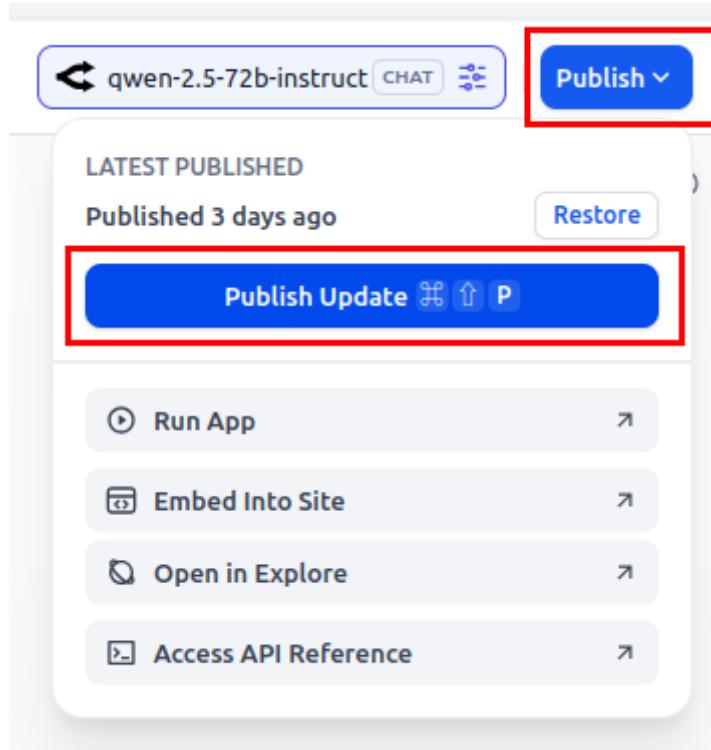
METADATA FILTERING

Disabled

Select your created knowledge base and click Add.



Then click Publish to complete the knowledge base configuration.



## 7.4 Configuring the Execution-Layer Model

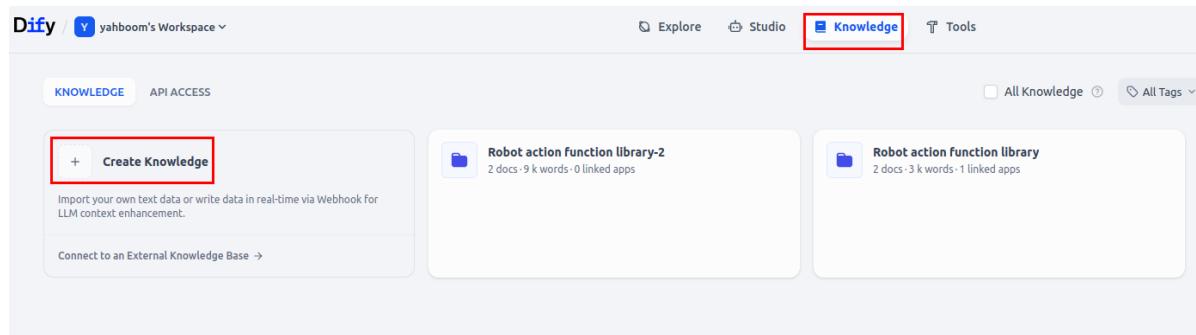
On the Studio page, click Execution layer. AI

Select a model from the list in the Model Options bar on the right. Here, we use qwen-vl-latest as an example.

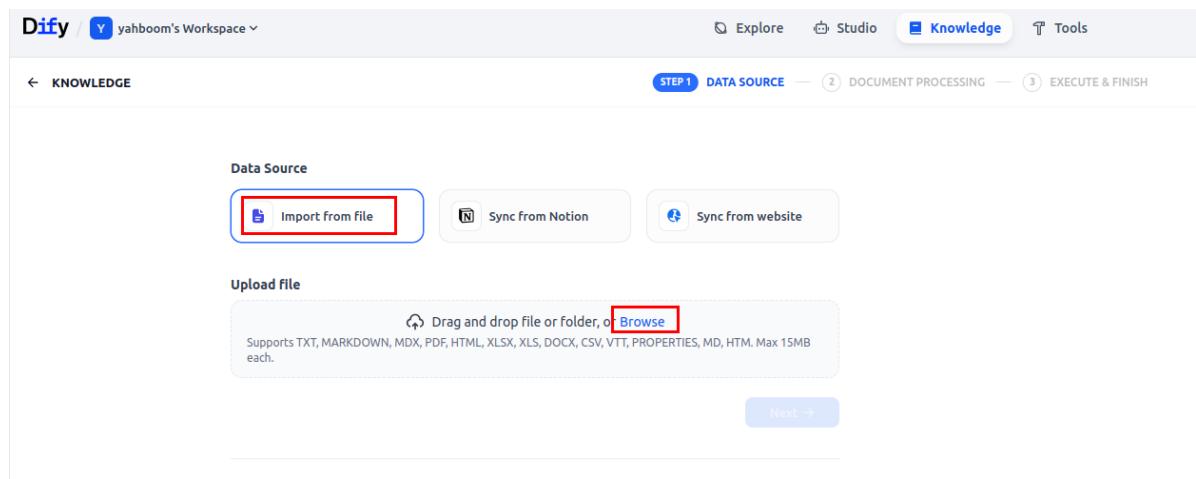
- Note: The execution layer model must use a visual multimodal model. Different models vary in their ability to follow commands. Try to choose a new model for testing. If the model is weak, the output may not conform to the expected format, and the robot will fail to parse the model output.

## 7.5 Expanding the Knowledge Base

Click Knowledge on the main screen, then click Create knowledge to create a new knowledge base.



Select Import from file, then click Browse to browse for a local file and upload it. After uploading, click Next.



You can choose between High Quality and Economic Embedding. The differences between the two are as follows:

- High Quality:
  - Advantages: Higher knowledge base recall accuracy
  - Disadvantages: Requires the use of an additional embedding model. Alibaba Bailian International Station provides a certain amount of free usage, after which you must pay to continue using it.
- Economic:
  - Advantages: Free, built-in embedding management in Dify
  - Disadvantages: Average knowledge base recall.

[← KNOWLEDGE](#)

1 DATA SOURCE — STEP 2 DOCU

### Chunk Settings

#### General

General text chunking mode, the chunks retrieved and recalled are the same.

#### Delimiter

\n\n

#### Maximum chunk length

1024

characters

#### Chunk overlap

50

characters

#### Text Pre-processing Rules

- Replace consecutive spaces, newlines and tabs
- Delete all URLs and email addresses

 Chunk using Q&A format in English[Preview Chunk](#)[Reset](#)

#### Parent-child

When using the parent-child mode, the child-chunk is used for retrieval and the parent-chunk is used for recall as context.

### Index Method

#### High Quality RECOMMEND

Calling the embedding model to process documents for more precise retrieval helps LLM generate high-quality answers.

#### Economical

Using 10 keywords per chunk for retrieval, no tokens are consumed at the expense of reduced retrieval accuracy.

⚠ Once finishing embedding in High Quality mode, reverting to Economical mode is not available.

### Embedding Model

 text-embedding-v1

▼

### Retrieval Setting

Learn more about retrieval method, you can change this at any time in the Knowledge settings.

#### Vector Search

Generate query embeddings and search for the text chunk most similar to its vector representation.

#### Rerank Model

 gte-rerank

▼

Click Save & Process at the bottom of the page to save.

### Retrieval Setting

Learn more about retrieval method, you can change this at any time in the Knowledge settings.

#### Vector Search

Generate query embeddings and search for the text chunk most similar to its vector representation.

#### Rerank Model

 gte-rerank

▼

#### Top K

3



#### Score Threshold

0.5



#### Full-Text Search

Index all terms in the document, allowing users to search any term and retrieve relevant text chunk containing those terms.

#### Hybrid Search RECOMMEND

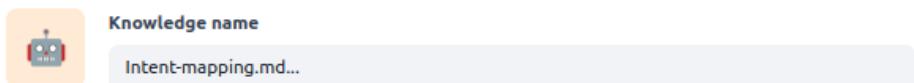
Execute full-text search and vector searches simultaneously, re-rank to select the best match for the user's query. Users can choose to set weights or configure to a Rerank model.

[← Previous step](#)[Save & Process](#)

After the vector embedding is complete, the following display appears:

## Knowledge created

We automatically named the Knowledge, you can modify it at any time.



### Embedding completed

Intent-mapping.md



Chunking Setting	Custom
Maximum Chunk Length	1024
Text Preprocessing Rules	Replace consecutive spaces, newlines and tabs
Index Method	High Quality
Retrieval Setting	Vector Search

Access the API

Go to document →

This completes the creation of a custom knowledge base.

For information on how to use this knowledge base, refer to [\[7.3.2 Configuring the Decision-Layer Knowledge Base\]](#).

## 7.6 How to View Free Models on the OpenRouter Platform

On the OpenRouter official website, click Model and select "free" in the Prompt pricing filter to display free models.

The screenshot shows the OpenRouter platform's model search interface. On the left, there are three filter panels: 'Input Modalities' (Text, Image, File), 'Context length' (4K, 64K, 1M), and 'Prompt pricing' (FREE, \$0.5, \$10+). On the right, the main area is titled 'Models' and shows a list of 60 models. The first two models listed are:

- Venice: Uncensored (free)** - 12.5M tokens. Description: Venice Uncensored Dolphin Mistral 24B Venice Edition is a fine-tuned variant of Mistral-Small-24B-Instruct-2501, developed by Eric Hartford in collaboration with Venice.ai. This model is ...
- Google: Gemma 3n 2B (free)** - 3.18M tokens. Description: Gemma 3n E2B IT is a multimodal, instruction-tuned model developed by Google DeepMind, designed to operate efficiently at an effective parameter size of 2B while leveraging a 6B ...

## 7.7 Using international version parameters

International version users need to comment out the domestic version parameters in **yahboom.yaml**.

Jetson Orin Nano, Jetson Orin NX :

```
/home/jetson/M3Pro_ws/src/largemode1/config/yahboom.yaml
```

Jetson Nano, Raspberry Pi :

You need to first enter Docker

```
root/M3Pro_ws/src/largemode1/config/yahboom.yaml
```

The annotated content for the domestic version is shown below:

```
src > largemode1 > config > Yahboom.yaml
1  #按地区实际情况选择国内/国际版本，国内版本注释掉国际版参数，国际版注释掉国内参数
2  #Select the domestic or international version based on the actual situation of the region.
3  #Comment out the parameters of the international version for the domestic version, and comment out the domestic parameters for the international version
4
5  #-----国内版本参数 Domestic version parameters-----
6  # asr:                                     #语音节点参数 # Voice node parameters
7  #   ros_parameters:                         #vad灵敏度 # VAD sensitivity
8  #     VAD_MODE: 2                           #asr录音音频采样率 # ASR recording audio sample rate
9  #   sample_rate: 16000                      #vad帧大小单位ms # VAD frame size in milliseconds
10 #    frame_duration_ms: 30                  #是否使用在线asr识别 # Whether to use online ASR recognition
11 #    use_online_asr: False                 #麦克风串口别名 # Microphone serial port alias
12 #    mic_serial_port: "/dev/mic"          #麦克风索引 # Microphone index
13 #    mic_index: 0                          #系统声音语言 # System sound language
14 #
15 #    language: 'zh'                      #动作服务器节点参数 # Action server node parameters
16
17 #   action_service:                        #动作话题 # Speed topic
18 #     ros_parameters:                     #文字交互模式 # Text chat mode
19 #       Speed_topic: "/cmd_vel"           #是否使用在线语音合成 # Whether to use online text-to-speech synthesis
20 #       text_chat_mode: False            #本地语音合成语言 # local text-to-speech synthesis language
21 #
22 #     language: 'zh'                  #模型服务器节点参数 # Model server node parameters
23
24 #   model_service:                       #模型话题 # Camera image topic
25 #     ros_parameters:                  #大模型接口语言 # Large model API language
26 #       image_topic: "/camera/color/image_raw"
27 #       language: 'zh'                  #international: 国际版 China; 国内版 # international: International version, China: Domestic version
28 #       regional_setting : "China"
29
30 #-----国际版本参数 International version parameters-----
31 # asr:                                     #语音节点参数 # Voice node parameters
32 #   ros_parameters:                         #vad灵敏度 # VAD sensitivity
33 #     VAD_MODE: 2                           #asr录音音频采样率 # ASR recording audio sample rate
34 #   sample_rate: 16000                      #vad帧大小单位ms # VAD frame size in milliseconds
35 #    frame_duration_ms: 30                  #是否使用在线asr识别 # Whether to use online ASR recognition
36 #    use_online_asr: False                 #麦克风串口别名 # Microphone serial port alias
37 #    mic_serial_port: "/dev/mic"          #麦克风索引 # Microphone index
38 #    mic_index: 0                          #系统声音语言 # System sound language
39 #
40 #   language: 'en'                      #动作服务器节点参数 # Action server node parameters
41
42 #   action_service:                        #动作话题 # Speed topic
43 #     ros_parameters:                     #文字交互模式 # Text chat mode
44 #       Speed_topic: "/cmd_vel"           #是否使用在线语音合成 # Whether to use online text-to-speech synthesis
45 #       text_chat_mode: False            #本地语音合成语言 # local text-to-speech synthesis language
46 #
47 #     language: 'en'                  #模型服务器节点参数 # Model server node parameters
48
49 # model_service:                         #模型话题 # Camera image topic
50 #   ros_parameters:                      #大模型接口语言 # Large model API language
51 #     image_topic: "/camera/color/image_raw"
52 #     language: 'en'                      #international: 国际版 China; 国内版 # international: International version, China: Domestic version
52 #     regional_setting : "international"
```

Then compile the function package and save the configuration:

Each time you modify the large model's configuration parameters, you need to recompile the function package for the configuration to take effect. The method is as follows:

Switch to the `M3Pro_ws/` workspace on the vehicle terminal: Recompile the largemode1 function package to take effect.

```
colcon build --packages-select largemode1
```

```
jetson@yahboom: ~/M3Pro_ws
[System Information]

ROS: humble
DOMAIN_ID: 17
IP_Address_1: 192.168.2.100
IP_Address_2: 192.168.2.244
jetson@yahboom:~$ cd /home/jetson/M3Pro_ws/
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
bash: colcocon: command not found
jetson@yahboom:~/M3Pro_ws$ colcon build --packages-select largemodel
WARNING: Package name "M3Pro" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_KCF" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
WARNING: Package name "M3Pro_navigation" does not follow the naming conventions. It should start with a lower case letter and only contain lower case letters, digits, underscores, and dashes.
Starting >>> largemodel
Finished <<< largemodel [3.20s]

Summary: 1 package finished [4.17s]
jetson@yahboom:~/M3Pro_ws$
```