

本地 python 技能调试环境搭建说明-Fiberhome版本

python安装：

windows

- 1.1 下载官网python3.6.8 解压免安装版本。

下载地址：<https://www.python.org/ftp/python/3.6.8/python-3.6.8-embed-amd64.zip>

- 1.2 解压后，添加路径 环境变量=》系统变量PATH 最前面

例如：D:\installsoftware\developer\Python\python-3.6.8\

- 1.3 安装pip工具
 - 删除python安装目录中的python36._pth
 - 通过<https://bootstrap.pypa.io/get-pip.py>下载pip脚本(项目根目录中已经存在了)
 - get-pip.py所在目录执行命令“python get-pip.py”
 - 添加路径 环境变量=》系统变量PATH: “D:\installsoftware\developer\Python\python-3.6.8\Scripts\”

验证是否按照python成功

执行如下两条命令：

```
$ python -V
Python 3.6.10

$ pip -V
pip 18.1 from /opt/python3.6/lib/python3.6/site-packages/pip (python 3.6)
```

若得到类似输出，则代表安装成功。特别注意pip版本、路径与前面步骤安装的版本一致。

获取azero本地调试项目并搭建环境

获取版本

```
https://github.com/sai-azero/azero-skills-kit-sdk-for-python
```

安装项目根目录下lib中的所有安装包

(在lib目录下执行pip install xxx.tar.gz)，例如：

```
pip install azero-sdk-2.0.2.tar.gz
pip install azero-sdk-util-1.0.3.tar.gz
pip install azero-sdk-mongodb-persistence-adapter-1.0.1.tar.gz
```

安装必要库：

```
pip install -r requirements.txt
```

注意：如果某个库无法下载，请删除requirements.txt中的库的版本号。

运行python SDK并使用postman测试

运行python SDK

执行如下命令。

```
$ python app.py
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production
  deployment.
  Use a production WSGI server instead.
* Debug mode: off
INFO:werkzeug: * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
```

若得到同样输出，或使用浏览器访问所提示的网址，看到“启动成功”字样，则代表运行成功。

使用postman测试

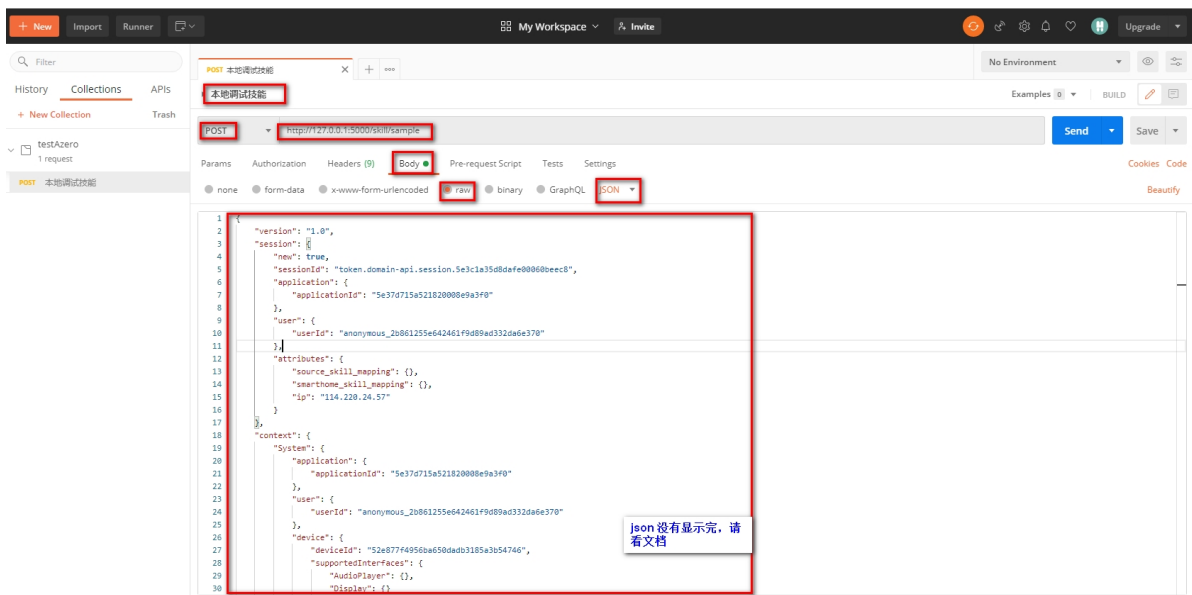
保持python SDK运行，使用postman使用POST方法发送如下json串到地址<http://127.0.0.1:5000/skill/sample> 注：skill/sample与index.py所在路径保持一致

```
{
  "version": "1.0",
  "session": {
    "new": true,
    "sessionId": "token.domain-api.session.5e3c1a35d8d8afe00060beec8",
    "application": {
      "applicationId": "5e37d715a521820008e9a3f0"
    },
  },
  "user": {
    "userId": "anonymous_2b861255e642461f9d89ad332da6e370"
  },
  "attributes": {
    "source_skill_mapping": {},
  },
}
```

```

        "smarthome_skill_mapping": {},
        "ip": "114.220.24.57"
    },
    },
    "context": {
        "system": {
            "application": {
                "applicationId": "5e37d715a521820008e9a3f0"
            },
            "user": {
                "userId": "anonymous_2b861255e642461f9d89ad332da6e370"
            },
            "device": {
                "deviceId": "52e877f4956ba650dadb3185a3b54746",
                "supportedInterfaces": {
                    "AudioPlayer": {},
                    "Display": {}
                }
            }
        }
    },
    "request": {
        "type": "IntentRequest",
        "requestId": "e4308cca-6e8f-488b-a365-da70453972cf",
        "timestamp": "2020-02-14T00:52:53.541Z",
        "dialogState": "COMPLETED",
        "intent": {"如果需要命中意图并获取意图标识以及槽位信息在这里处理"}
    }
}

```



遇到问题

第一次使用postman 会报错

POST 本地测试技能 POST 原始index X + ... No Environment Examples 0 BUILD

POST http://127.0.0.1:5000/skill/sample Send Save

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies Code

none form-data x-www-form-urlencoded raw binary GraphQL JSON Beautify

```
31  }
32  }
33  },
34  },
35  "request": {
36    "type": "IntentRequest",
37    "requestId": "a4308cca-6e8f-4880-a365-da70453972cf",
38    "timestamp": "2020-01-14T00:52:53.541Z",
39    "dialogState": "COMPLETED",
40    "intent": {
41    }
42  }
43  }
44  }
45  }
```

Body Cookies Headers (4) Test Results Status: 500 INTERNAL SERVER ERROR Time: 409 ms Size: 449 B Save Response

Pretty Raw Preview Visualize HTML

```
1 <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 3.2 Final//EN">
2 <title>500 Internal Server Error</title>
3 <h1>Internal Server Error</h1>
4 <p>The server encountered an internal error and was unable to complete your request. Either the server is overloaded or
5 there is an error in the application.</p>
```

服务器报错

```

D:\Programs\azero-skills-kit-sdk-for-python-master>
D:\Programs\azero-skills-kit-sdk-for-python-master>python app.py
* Serving Flask app "app" (lazy loading)
* Environment: production
  WARNING: This is a development server. Do not use it in a production deployment.
  Use a production WSGI server instead.
* Debug mode: off
INFO:werkzeug: * Running on http://127.0.0.1:5000/ (Press CTRL+C to quit)
2020-12-09 11:59:48,687 - azero_logger.py[line:52] - INFO: {'msg': '当前IP对应的城市是: 苏州', 'skill_id': '5e37d715a521820008e9a3f0', 'options': {}}
INFO:python-skills: {'msg': '当前IP对应的城市是: 苏州', 'skill_id': '5e37d715a521820008e9a3f0', 'options': {}}
--- Logging error ---
Traceback (most recent call last):
  File "app.py", line 35, in home
    data = module.invoke_skill(app)
  File "D:\Programs\azero-skills-kit-sdk-for-python-master\skills\sample\index.py", line 154, in invoke_skill
    result = skill_adapter.dispatch_request()
  File "D:\Programs\Python\Python37\lib\site-packages\azero_sdk\skill_adapter.py", line 48, in dispatch_request
    request_envelope=request_envelope, context=None)
  File "D:\Programs\Python\Python37\lib\site-packages\ask_sdk_core\skill.py", line 207, in invoke
    handler_input=handler_input) # type: Response
  File "D:\Programs\Python\Python37\lib\site-packages\ask_sdk_runtime\dispatch.py", line 130, in dispatch
    raise e
  File "D:\Programs\Python\Python37\lib\site-packages\ask_sdk_runtime\dispatch.py", line 118, in dispatch
    output = self.__dispatch_request(handler_input) # type: Union[Output, None]

  File "D:\Programs\Python\Python37\lib\site-packages\ask_sdk_runtime\dispatch.py", line 183, in __dispatch_request
    handler_input=handler_input, handler=request_handler) # type: Union[Output, None]
  File "D:\Programs\Python\Python37\lib\site-packages\ask_sdk_runtime\dispatch_components\request_components.py", line 437, in execute
    return handler.handle(handler_input)
  File "D:\Programs\azero-skills-kit-sdk-for-python-master\skills\sample\index.py", line 114, in handle
    mongodb_adapter = MongoDBPersistenceAdapter<
NameError: name 'MongoDbPersistenceAdapter' is not defined

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "D:\Programs\Python\Python37\lib\logging\__init__.py", line 1034, in emit
    msg = self.format(record)
  File "D:\Programs\Python\Python37\lib\logging\__init__.py", line 880, in format
    return fmt.format(record)
  File "D:\Programs\Python\Python37\lib\logging\__init__.py", line 619, in format

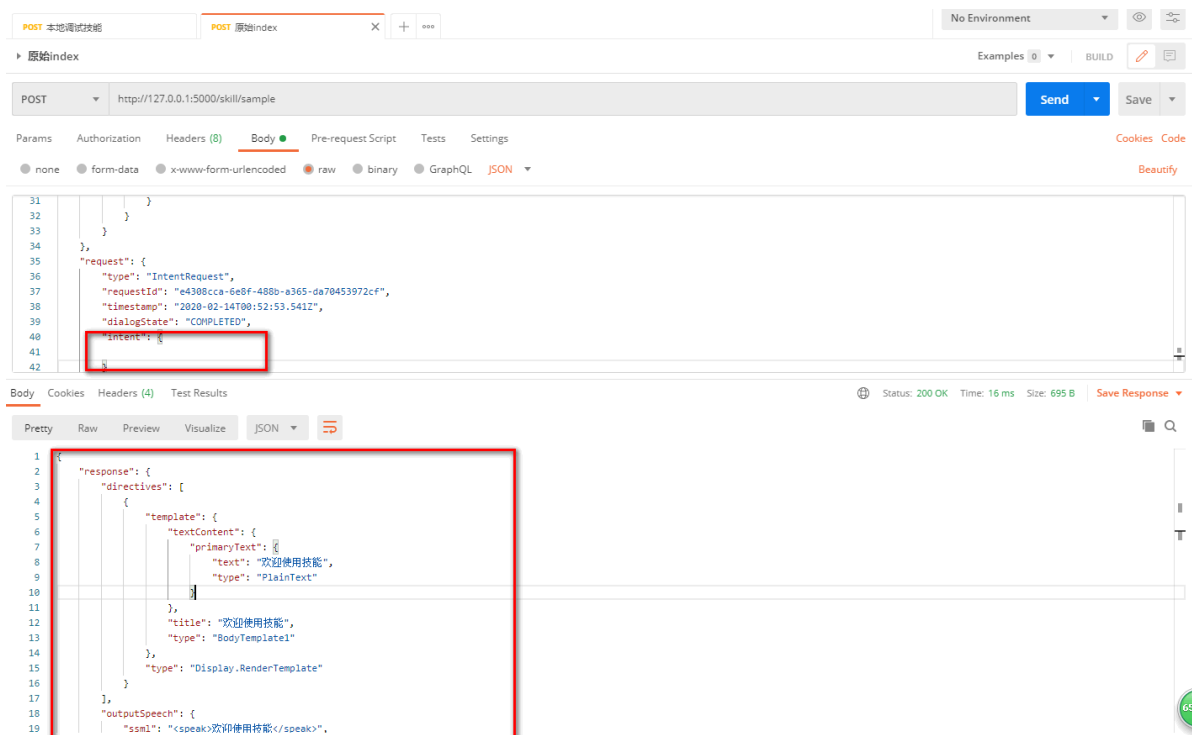
```

原因：在azero本地调试的项目工程中的index.py文件中的IntentRequestHandler 使用了Mongodb持久化的功能，将对于的代码注释掉即可。

```
index.py main.py index原始.py 空调.py
105 # type: (HandlerInput) -> bool
106 return azero_utils.is_request_type("IntentRequest")(handler_input)
107
108 def handle(self, handler_input):
109     city = ipdb.city.find_info("114.220.24.57", "CN").city_name
110     logger.info("当前IP对应的城市是: " + city, request_envelope=handler_input.request_envelope)
111
112     request_envelope = handler_input.request_envelope
113     partition_keygen.return_value = request_envelope.context.system.user.user_id
114
115     # mongodb_adapter = MongoDBPersistenceAdapter(
116     #     request_envelope=request_envelope,
117     #     table_name="table_name", # 要创建的表名
118     #     attribute_name="obj", # 查询对象, 不写默认为attributes
119     #     partition_key_name="sss", # 查询关键字 不写默认为id
120     # )
121     # # 删除数据
122     # mongodb_adapter.delete_attributes(request_envelope=request_envelope)
123     # data = {"mongo_adapter": { "test": datetime.datetime.now()}}
124     # # 添加数据
125     # mongodb_adapter.save_attributes(request_envelope=request_envelope, attributes=data)
126     # # 查询数据
127     # response = mongodb_adapter.get_attributes(request_envelope=request_envelope)
128     # for result in response:
129     #     print(result)
130
131     speak_output = "欢迎使用技能"
132     return {
133         handler_input.response_builder.add_directive(
134             RenderTemplateDirective(
135                 BodyTemplate1(
136                     title=speak_output,
137                     text_content=get_text_content(primary_text=speak_output)))
138             ,speak(speak_output)
139             .set_should_end_session(True)
140             .response
141         )
142     }
```

注释掉这段代码

注释代码后再postman试试

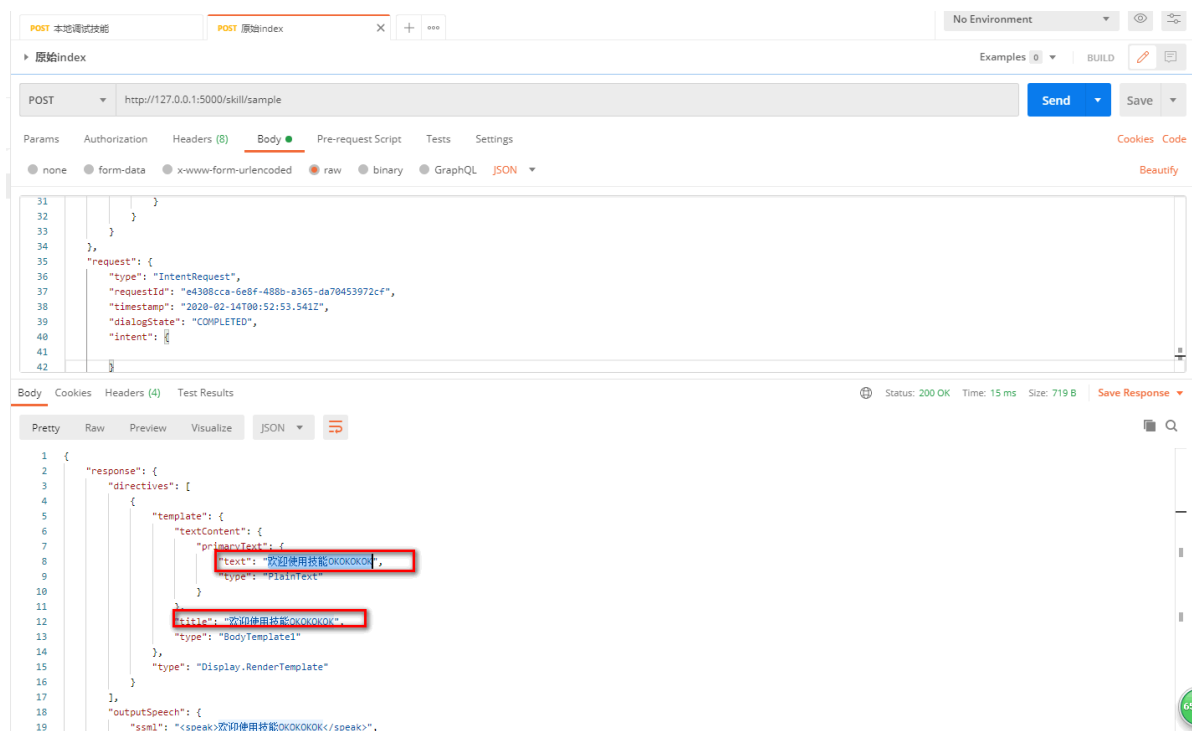


修改index中的代码后再试试，

修改如下：

```
102
103 class IntentRequestHandler(AbstractRequestHandler):
104     def can_handle(self, handler_input):
105         # type: (HandlerInput) -> bool
106         return azero_utils.is_request_type("IntentRequest")(handler_input)
107
108     def handle(self, handler_input):
109         city = ipdb.city.find_info("114.220.24.57", "CN").city_name
110         logger.info("当前IP对应的城市是: " + city, request_envelope=handler_input.request_envelope)
111
112         request_envelope = handler_input.request_envelope
113         partition_keygen.return_value = request_envelope.context.system.user.user_id
114         # mongodb_adapter = MongoDBPersistenceAdapter(
115         #     request_envelope=request_envelope,
116         #     table_name="table_name", # 要创建的表名
117         #     attribute_name="obj", # 查询对象, 不写默认为attributes
118         #     partition_key_name="sss", # 查询关键字 不写默认为id
119         #     partition_keygen=partition_keygen
120         # )
121         #
122         # # 删除数据
123         # mongodb_adapter.delete_attributes(request_envelope=request_envelope)
124         # data = {"mongo_adapter": {"test": datetime.datetime.now()}}
125         # # 添加数据
126         # mongodb_adapter.save_attributes(request_envelope=request_envelope, attributes=data)
127         # # 查询数据
128         # response = mongodb_adapter.get_attributes(request_envelope=request_envelope)
129         # for result in response:
130             # print(result)
131         speak_output = "欢迎使用技能OKOKOKOK"
132         return (
133             handler_input.response_builder.add_directive(
134                 RenderTemplateDirective(
135                     BodyTemplate1(
136                         title=speak_output,
137                         text_content=get_text_content(primary_text=speak_output)))
138             ), speak(speak_output)
139             .set_should_end_session(True)
140             .response
141         )
142
143 IntentRequestHandler().handle()
```

postman测试结果



强化调试手段（重点）

上面的测试都只能走到每个技能的IntentRequestHandler 类中的handle方法中，那么怎么走到我们自定义的意图中呢？

调试自定义的意图

比如：自定义意图

```
python-master / skills / sample / index.py
index.py x main.py x index意图.py x 空调.py x
20 except ImportError:
21     from unittest import mock
22
23 partition_keygen = mock.Mock()
24 sb = SkillBuilder()
25
26 """
27 Azero系统根据您自定义意图的意图标识自动生成此函数。
28 can_handle: 判断传入此意图的请求是否需要被此函数处理。默认判断规则为：请求中的意图标识与本意图标识匹配，且用户与技能一次对话交互已经完成(即DialogState为COMPLETED)。
29 handle: 当can_handle返回为true时，自动执行。开发者需在handle内部编写此意图的业务逻辑代码。
30 用户与技能对话交互过程(DialogState)，有三种状态:STARTED、IN_PROGRESS、COMPLETED。若意图不涉及多轮对话即可只关注COMPLETED状态。
31 若完成当前意图后希望转到新意图withShouldEndSession需设为false，且需返回Dialog的Directive。
32 """
33
34 class CompletedDelegateHandler_hello(AbstractRequestHandler):
35
36     def can_handle(self, handler_input):
37         return (azero_utils.is_request_type("IntentRequest")(handler_input) and
38                 azero_utils.is_intent_name("test")(handler_input) and
39                 azero_utils.get_dialog_state(handler_input).value == 'COMPLETED')
40
41     def handle(self, handler_input):
42         current_intent = handler_input.request_envelope.request.intent
43         name = current_intent.name
44         airconditioner = azero_utils.get_slot_value(handler_input, "airconditioner")
45         speakOutput = '欢迎使用技能，您可根据当前意图和槽位返回您想回复的术222222'
46         myDictData = {}
47         myDictData["airconditioner"] = airconditioner
48         myDictData["name"] = name
49         logger.info(myDictData)
50         return (
51             handler_input.response_builder
52                 .speak(speakOutput)
53                 .set_should_end_session(True)
54                 .response
55         )
```

再看看postman 请求json数据中的request字段：

```
..
35 "request": {
36     "type": "IntentRequest",
37     "requestId": "e4308cca-6e8f-488b-a365-da70453972cf",
38     "timestamp": "2020-02-14T00:52:53.541Z",
39     "dialogState": "COMPLETED",
40     "intent": {
41         "name": "test"
42     }
43 }
```

注意：intent中添加了 "name": "test"

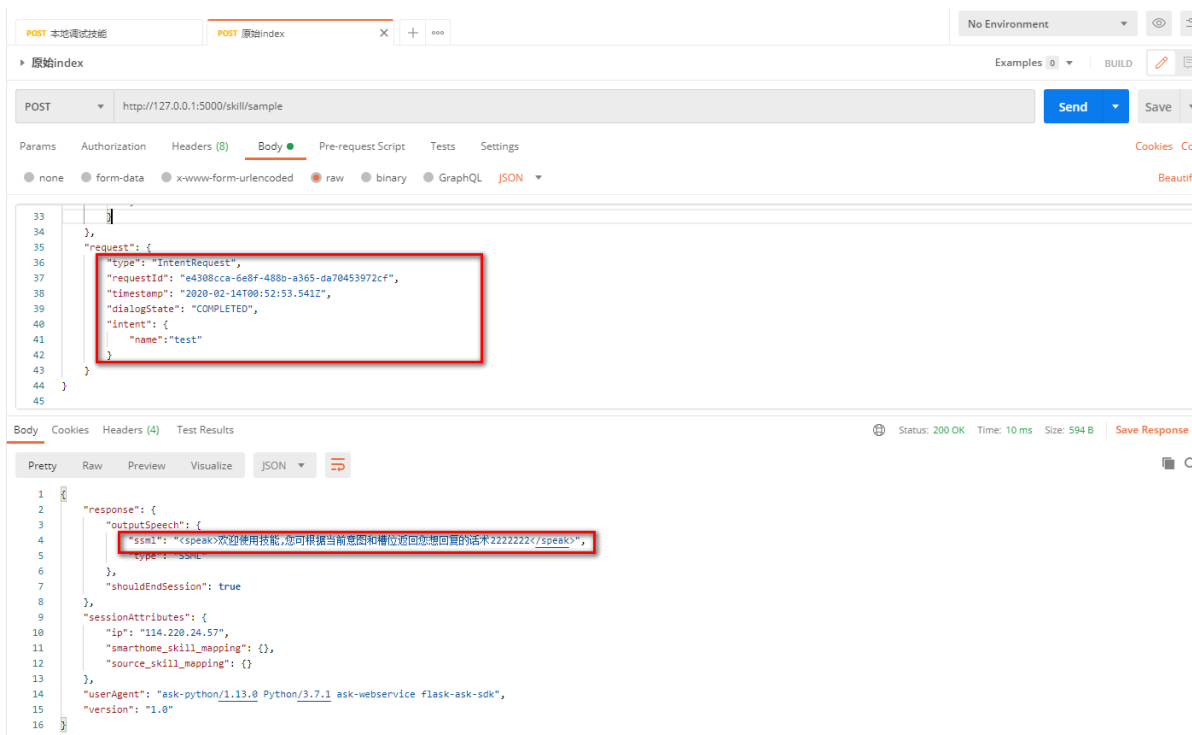
注意：

json中的type 就是python代码can_handle方法中的request_type

json中的dialogState就是python代码can_handle方法中的dialog_state

json中的name就是python代码can_handle方法中的intent_name

postman测试结果



调试自定义意图标识和字典标识

疑问：

在python代码中需要获取意图标识和词典标识的时候，使用postman中的json数据如何配置呢？

1- 意图标识：

上面“调试自定义的意图”中 postman json数据intent下新添加的 "name":"test"，test就是意图标识；

2- 字典标识：

首先在azero平台测试中可以获取到槽位的格式



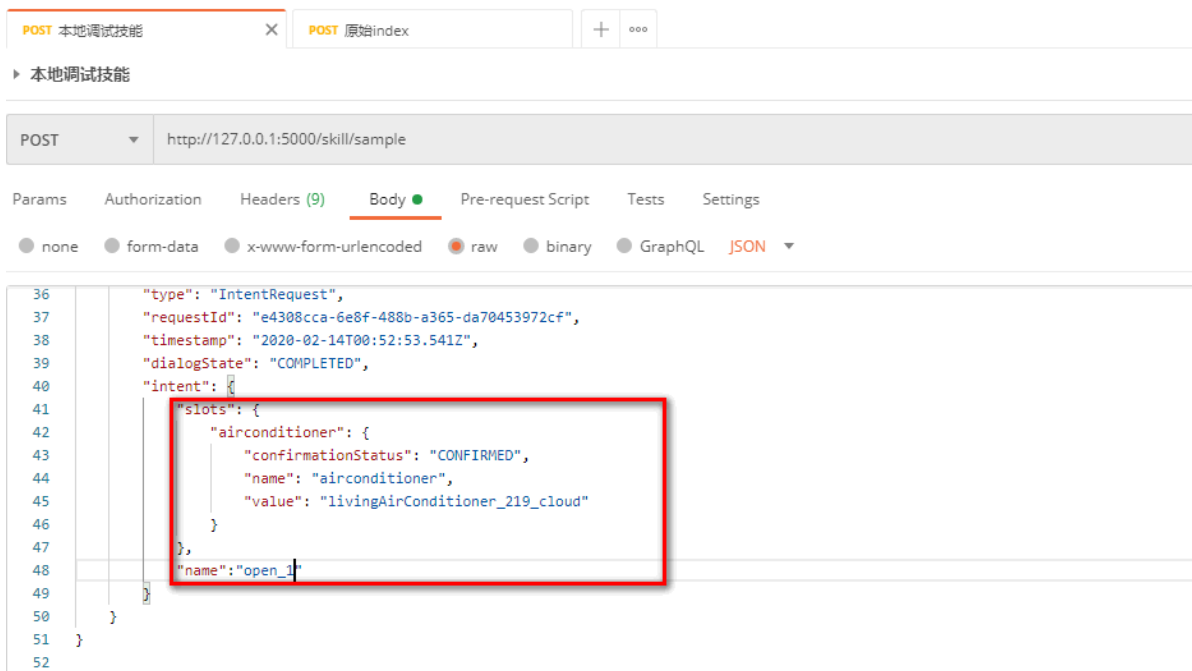
槽位信息的json格式为：

```

"intent": {
  "slots": {
    "airconditioner": {
      "confirmationStatus": "CONFIRMED",
      "name": "airconditioner",
      "value": "livingAirConditioner_219_cloud"
    }
  },
  "name": "open_1"
}

```

将slots数据放到postman请求的json格式的数据中



python代码

1- 添加引用

```

"""自定义模板需要的依赖 开始"""
from azero_sdk_model.interfaces.display.image_instance import ImageInstance
from azero_sdk_model.interfaces.display.image import Image

from azero_sdk_model.interfaces.display.default_template_data import DefaultTemplateData
from azero_sdk_model.interfaces.display.ext_content import ExtContent
from azero_sdk_model.interfaces.display.title import Title

"""自定义模板需要的依赖 结束"""

```

```

3 from azero_sdk_core.response_helper import get_text_content
4 from azero_sdk_model.interfaces.display import (
5     RenderTemplateDirective,
6     BodyTemplate1)
7
8 from azero_sdk_model.directive import *
9 from azero_sdk_model.dialog import *
10 from azero_sdk_core.skill_builder import SkillBuilder
11 from azero_sdk_core.dispatch_components import AbstractRequestHandler
12 import azero_sdk_core.utils as azero_utils
13 from azero_sdk_core.handler_input import HandlerInput
14 from azero_sdk_model import Response
15 from azero_sdk.skill_adapter import AzeroSkillAdapter
16
17 sb = SkillBuilder()
18
19 """自定义模板需要的依赖 开始"""
20 from azero_sdk_model.interfaces.display.image_instance import ImageInstance
21 from azero_sdk_model.interfaces.display.image import Image
22
23 from azero_sdk_model.interfaces.display.default_template_data import DefaultTemplateData
24 from azero_sdk_model.interfaces.display.ext_content import ExtContent
25 from azero_sdk_model.interfaces.display.title import Title
26
27 """自定义模板需要的依赖 结束"""

```

2- 使用自定义意图返回模板

DefaultTemplateData()

```

speakOutput = '好哒'
myDictData = getMyDictData(handler_input)

return (
    handler_input.response_builder.add_directive(
        RenderTemplateDirective(
            DefaultTemplateData(
                ext_content=ExtContent(data=myDictData, type="type",
tts_text="TTSText", asr_text="ASRText")
            )
        )
    ).speak(speakOutput)
    .set_should_end_session(True)
    .response
)

```

```

314 class CompletedDelegateHandler_open_1(AbstractRequestHandler):
315     def can_handle(self, handler_input):
316         return (azero_utils.is_request_type("IntentRequest")(handler_input) and
317                 azero_utils.is_intent_name("open_1")(handler_input) and
318                 azero_utils.get_dialog_state(handler_input).value == 'COMPLETED')
319
320     def handle(self, handler_input):
321         speakOutput = '好哒'
322         myDictData = getMyDictData(handler_input)
323
324         return (
325             handler_input.response_builder.add_directive(
326                 RenderTemplateDirective(
327                     DefaultTemplateData(
328                         ext_content=ExtContent(data=myDictData, type="type", tts_text="TTSText", asr_text="ASRText")
329                     )
330                 )
331             ).speak(speakOutput)
332             .set_should_end_session(True)
333             .response
334         )
335

```

3- 抽取的getMyDictData方法

```
def getMyDictData(handler_input):
    currentIntent = handler_input.request_envelope.request.intent
    name = currentIntent.name
    attributes = handler_input.request_envelope.session.attributes

    airconditioner = azero_utils.get_slot_value(handler_input, 'airconditioner')
    temperature = azero_utils.get_slot_value(handler_input, 'temperature')
    timeMin = azero_utils.get_slot_value(handler_input, "timeMin")
    timeHour = azero_utils.get_slot_value(handler_input, "timeHour")

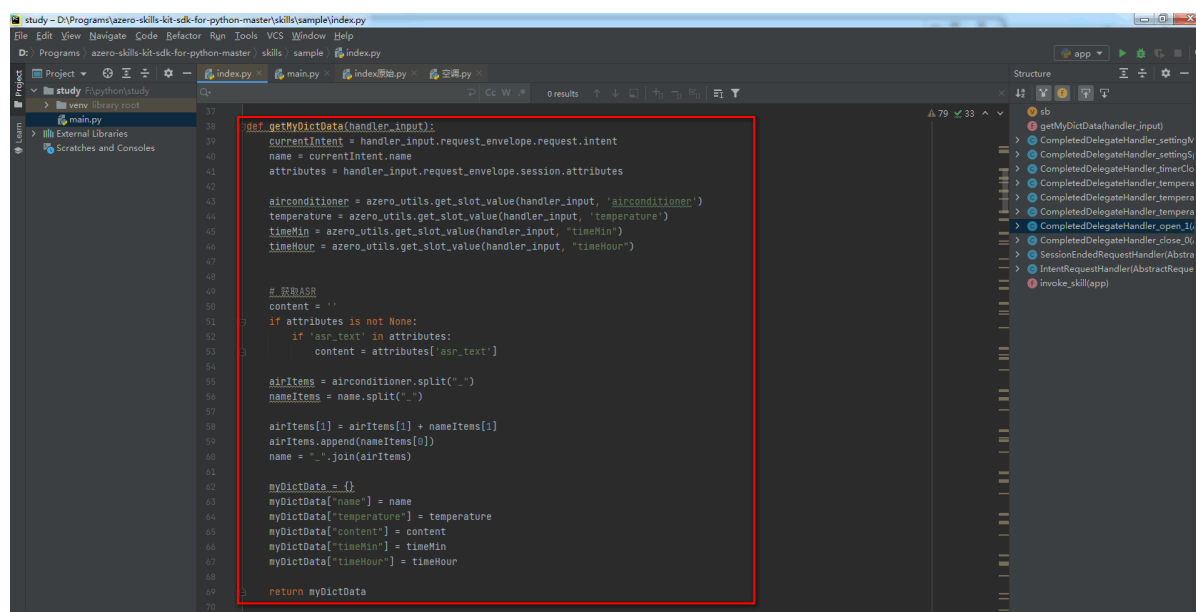
    # 获取ASR
    content = ''
    if attributes is not None:
        if 'asr_text' in attributes:
            content = attributes['asr_text']

    airItems = airconditioner.split("_")
    nameItems = name.split("_")

    airItems[1] = airItems[1] + nameItems[1]
    airItems.append(nameItems[0])
    name = "_".join(airItems)

    myDictData = {}
    myDictData["name"] = name
    myDictData["temperature"] = temperature
    myDictData["content"] = content
    myDictData["timeMin"] = timeMin
    myDictData["timeHour"] = timeHour

    return myDictData
```



postman调试

```
{
  "version": "1.0",
  "session": {
    "new": true,
    "sessionId": "token.domain-api.session.5e3c1a35d8d8afe00060beec8",
    "application": {
      "applicationId": "5e37d715a521820008e9a3f0"
    },
    "user": {
      "userId": "anonymous_2b861255e642461f9d89ad332da6e370"
    },
    "attributes": {
      "source_skill_mapping": {},
      "smarthome_skill_mapping": {},
      "ip": "114.220.24.57"
    }
  },
  "context": {
    "System": {
      "application": {
        "applicationId": "5e37d715a521820008e9a3f0"
      },
      "user": {
        "userId": "anonymous_2b861255e642461f9d89ad332da6e370"
      },
      "device": {
        "deviceId": "52e877f4956ba650dadb3185a3b54746",
        "supportedInterfaces": {
          "AudioPlayer": {},
          "Display": {}
        }
      }
    }
  },
  "request": {
    "type": "IntentRequest",
    "requestId": "e4308cca-6e8f-488b-a365-da70453972cf",
    "timestamp": "2020-02-14T00:52:53.541Z",
    "dialogState": "COMPLETED",
    "intent": {
      "slots": {
        "airconditioner": {
          "confirmationStatus": "CONFIRMED",
          "name": "airconditioner",
          "value": "livingAirConditioner_219_cloud"
        }
      },
      "name": "open_1"
    }
  }
}
```

POST 本地调试技能

POST 基础index

+ ...

No Environment

Examples 0BUILD

本地调试技能

POSThttp://127.0.0.1:5000/skill/sampleSendSave

ParamsAuthorizationHeaders (9)BodyPre-request ScriptTestsSettings

noneform-datax-www-form-urlencodedrawbinaryGraphQLJSON

Beautiful

```
40  "intent": {
41    "slots": {
42      "airconditioner": {
43        "confirmationStatus": "CONFIRMED",
44        "name": "airconditioner",
45        "value": "livingAirConditioner_219_cloud"
46      }
47    },
48    "name": "open_1"
49  }
50 }
51 }
52 }
```

BodyCookiesHeaders (4)Test Results

Status: 200 OKTime: 25 msSize: 720 BSave Response

PrettyRawPreviewVisualizeJSON

```
1 {
2   "response": {
3     "directives": [
4       {
5         "template": {
6           "textContent": {
7             "ASRTText": "ASRTText",
8             "TTSSText": "TTSSText",
9             "data": {
10               "content": "",
11               "name": "livingAirConditioner_2191_cloud_open",
12               "temperature": null,
13               "timeHour": null,
14               "timeMin": null
15             }
16           },
17           "type": "type"
18         }
19       }
20     ]
21   }
22 }
```

返回的就是python代码中的myDictData中的内容