MIDEA OPEN FOR OEM

ChangeLog

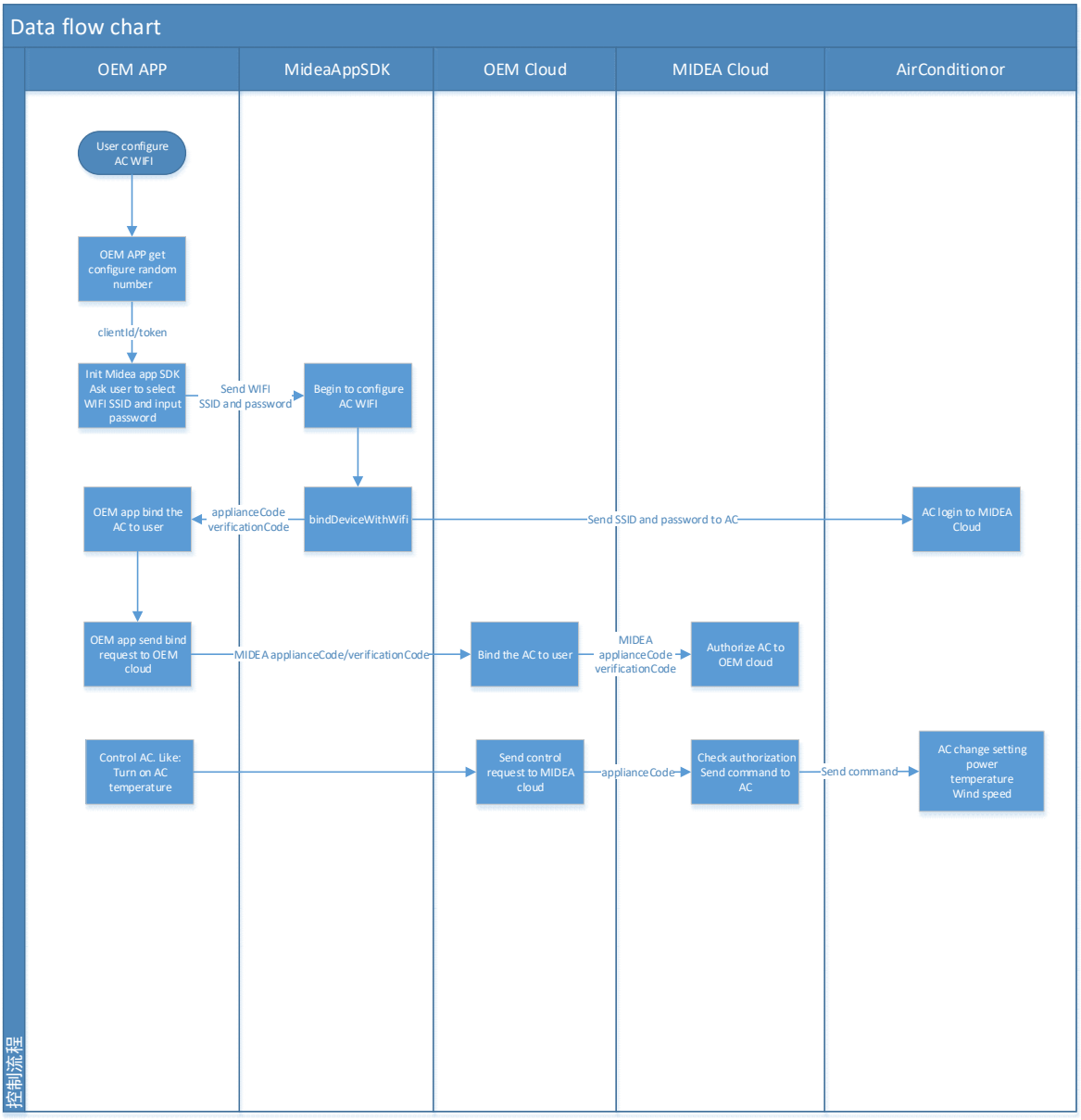
version	date	content
V0.1	2020-5-10	Define OEM communication scheme
V0.2	2020-6-1	1. Add test environment host 2. Add reqId field as request id
V0.3	2021-3-26	1. remove API:/oem/v1/device/random/get 2. In /oem/v1/device/bind: use verificationCode instead of randomData
V0.4	2021-12-25	add dehumidifier query and control API.
V0.5	2022-5-26	add dehumidifier "pump" function.
V0.6	2022-7-15	Add AC parameters query function: group one
V0.7	2022-12-9	Add AC functions: 1. 8 Degree Heat 2. C/F temperature unit 3. terminal barcode 4. add AC error check

Scheme description

OEM APP: The APP used by customers, developed by OEM partner. The customers use the OEM APP to control MIDEA AC

OEM cloud: The cloud developed by OEM partner. OEM APP connect to the OEM cloud

MideaAppSDK: Provided by the MIDEA, integrated in OEM APP. MideaAppSDK sends the WIFI SSID and password the AC.
AirConditioner:
MIDEA cloud: The cloud developed by MIDEA. It controls the Air Conditioner, and check the request OEM cloud.


Data flow chart
OEM APP
MideaAppSDK
OEM Cloud
MIDEA Cloud
AirConditionor
User configure AC WIFI
OEM APP get configure random number
clientId/token
Init Midea app SDK Ask user to select WIFI SSID and input password
Send WIFI SSID and password
Begin to configure AC WIFI
OEM app bind the AC to user
applianceCode verificationCode
bindDeviceWithWifi
Send SSID and password to AC
AC login to MIDEA Cloud
OEM app send bind request to OEM cloud
MIDEA applianceCode/verificationCode
Bind the AC to user
MIDEA applianceCode verificationCode
Authorize AC to OEM cloud
Control AC. Like: Turn on AC temperature
Send control request to MIDEA cloud
applianceCode
Check authorization Send command to AC
Send command
AC change setting power temperature Wind speed
控制流程

MIDEA APP SDK

The OEM APP needs clientId、clientSecret to initialize MIDEA APP SDK.

client_id: test_client_id
client_secret: test_client_secret

MIDEA Cloud API

1. Host

Production environment host: https://obm.midea.com
Test environment host: https://oemtest.midea.com

2. OAuth2

The MIDEA cloud assign client_id and client_secret to the OEM cloud.

client_id：The development ID assigned by the MIDEA cloud for developers, the platform itself will also have a developer ID for permission control.
client_secret: The development key allocated by the MIDEA cloud for each developer is used for identity authentication, information digest, encryption and other security authentication marks, which shall be properly kept to prevent leakage.

Get OAuth2 token (/oem/v1/oauth2/token)

The OEM cloud must get OAuth2 token from MIDEA cloud first.
Example:
curl https://HOST/oem/v1/oauth2/token -d
'grant_type=client_credentials&client_id=100&client_secret=4e37f8feaaa5487
6a00f697e5f78068d'

Returns:

{"access_token":"6d8600eb-a732-4dca-b6e0-3b3cfe41466f","token_type":"bearer","expires_in":28799}

The access token will expire, so the OEM cloud need to refresh the access token regularly.

3. APIs

The OEM cloud send requests to MIDEA cloud, with the access token.
The access token is sent in the HTTP headers.
The request format like:
curl 'https://HOST/URI' -d '{JSON-DATA}' -H 'Authorization: Bear 775ff5eb-6ac8-4a34-a3b2-49f64841b8b9' -H 'Content-Type:application/json'

If access token is not valid, MIDEA cloud will return:
{"error":401,"message":"invalid token"}

1. Bind AC (/oem/v1/device/bind)

URI: /oem/v1/device/bind

HTTP method: POST

Content-Type: application/json

Description: The MIDEA cloud binds the AC to the OEM cloud. If the AC is not belongs to the OEM cloud, other request like /oem/v1/device/status/get /oem/v1/device/status/control will fail.

Request params:

name	MUST	type	description
applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.
verificationCode	true	String	verificationCode returns in APP SDK api: bindDeviceWithWifi.

reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8

example:

```
{
        "applianceCode":"123123",
        "verificationCode":"1b17635135591e215b28323a181e280e",
        "reqId":"0d08a76c-4029-4396-b2eb-77b0d269fdc8"
}
```

returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSONObject	The returns data

returns:

JSON example

```
{
    "errorCode": "0",
    "msg": "success",
    "result": {}
}
```

2. Get AC status (/oem/v1/device/status/get)

URI：/oem/v1/device/status/get

HTTP metho：POST

Content-Type: application/json

Description：The OEM cloud request the AC status。

Request params：

name	MUST	type	description
applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.
reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8

Example:

```
{
        "applianceCode":"123123",
        "reqId":"0d08a76c-4029-4396-b2eb-77b0d269fdc8"
}
```

returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSONObject	The returns data
onlineStatus	String	Whether the AC is connected to MIDEA cloud. 1 online, 0 offline
power	String	Whether the air conditioner is work. 1 work. 0 idle.
mode	String	The AC mode setting. Values: auto, cool ,dry, heat, fan
tempSet	String	The AC temperature setting
tempIn	String	The indoor temperature
eco	String	Eco setting
wind_speed	String	Wind speed setting. Values: low, medium, high, auto
wind_swing_lr	String	Wind swing direction left and right. 1 the wind swap. 0 the wind stop swap.
wind_swing_ud	String	Wind swing direction up and down. 1 the wind swap. 0 the wind stop swap.
8DegreeHeat	String	The 8 degree heat function 1 function on 0 function off
tempModeStr	String	The temperature unit of "tempSet" F Fahrenheit C Celsius

sn	string	The terminal barcode, e.g: 000000P0000000Q1A0681C0567890000

example：


```
{
    "errorCode":"0",
    "msg":"success",
    "reqId":"1001",
    "result":{
        "8DegreeHeat":"0",
        "applianceCode":"123",
        "eco":"0",
        "mode":"heat",
        "onlineStatus":"1",
        "power":"1",
        "power_off_time_value":"0",
        "power_off_timer":"0",
        "power_on_time_value":"0",
        "power_on_timer":"0",
        "sn":"000000P0000000Q1A0681C0567890000",
        "tempIn":"22.5",
        "tempMode":"0",
        "tempModeStr":"C",
        "tempSet":"19",
        "turbo":"0",
        "wind_speed":"low",
        "wind_swing_lr":"0",
        "wind_swing_ud":"0"
    }
}
```


3. Control AC (/oem/device/control)

URI：/oem/v1/device/control

HTTP metho：POST

Content-Type: application/json

Description: The OEM cloud send control json to MIDEA cloud。

Request params:

name	MUST	type	description
reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8
applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.
power	false	String	Whether the air conditioner is work. 1 work. 0 idle.
mode	false	String	The AC mode setting. Values: auto, cool ,dry, heat, fan
tempSet	false	String	The AC temperature setting
tempIn	false	String	The indoor temperature
eco	false	String	Eco setting
wind_speed	false	String	Wind speed setting. Values: low, medium, high, auto
wind_swing_lr	false	String	Wind swing direction left and right. 1 the wind swap. 0 the wind stop swap.
wind_swing_ud	false	String	Wind swing direction up and down. 1 the wind swap. 0 the wind stop swap.
8DegreeHeat	false	String	The 8 degree heat function 1 function on 0 function off
tempModeStr	false	String	The temperature unit of "tempSet" F Fahrenheit C Celsius

examples:

```
{
        "applianceCode":"123",
        "mode":"auto",
        "reqId":"0d08a76c-4029-4396-b2eb-77b0d269fdc8"
}
```


returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSONObject	The returns data
onlineStatus	String	Whether the AC is connected to MIDEA cloud. 1 online, 0 offline
power	String	Whether the air conditioner is work. 1 work. 0 idle.
mode	String	The AC mode setting. Values: auto, cool ,dry, heat, fan
tempSet	String	The AC temperature setting
tempIn	String	The indoor temperature
eco	String	Eco setting
wind_speed	String	Wind speed setting. Values: low, medium, high, auto
wind_swing_lr	String	Wind swing direction left and right. 1 the wind swap. 0 the wind stop swap.
wind_swing_ud	String	Wind swing direction up and down. 1 the wind swap. 0 the wind stop swap.

exmaples：


```
{
        "errorCode":"0",
        "msg":"ok",
        "result":{
                "onlineStatus":"1",
                "eco":"0",
                "mode":"auto",
                "power":"0",
                "tempIn":"22.4",
                "tempSet":"26",
                "wind_speed":"low",
                "wind_swing_lr":"1",
                "wind_swing_ud":"1"
        }
}
```


4. Get Dehumidifier status (/oem/v1/dehumidifier/status/get)

URI：/oem/v1/dehumidifier/status/get

HTTP metho：POST

Content-Type: application/json

Description：The OEM cloud request the dehumidifier status。

Request params：

name	MUST	type	description

applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.
reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8

Example:

```
{
    "applianceCode":"123123",
    "reqId":"0d08a76c-4029-4396-b2eb-77b0d269fdc8"
}
```

returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSONObject	The returns data
onlineStatus	String	Whether the dehumidifier is connected to MIDEA cloud. 1 online, 0 offline
power	String	Whether the dehumidifier is work. 1 work. 0 idle.
mode	String	The dehumidifier mode setting. Values: set continuous smart dryer
humiditySet	String	The dehumidifier humidity setting
tempIn	String	The indoor temperature

humidityCur	String	The humidity around the dehumidifier. Read only.
wind_speed	String	Wind speed setting. Values: low, medium, high, auto
pumpSwitch	String	Switch status of dehumidifier "pump" Values:[0,1] 0:Pump is off 1:Pump is on
sn	string	The terminal barcode, e.g: 000000P0000000Q1A0681C0567890000

example:


```
{
    "errorCode":"0",
    "msg":"success",
    "reqId":"1001",
    "result":{
        "humidityCur":"44",
        "humiditySet":"50",
        "mode":"continuous",
        "onlineStatus":"1",
        "power":"0",
        "tempIn":"21",
        "wind_speed":"low",
        "pumpSwitch":"1"
    }
}
```


5. Control Dehumidifier(/oem/v1/dehumidifier/control)

URI: /oem/v1/dehumidifier/control

HTTP metho: POST

Content-Type: application/json

Description: The OEM cloud send control json to MIDEA cloud。

Request params:

name	MUST	type	description
reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8
applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.
power	false	String	Whether the dehumidifier is work. 1 work. 0 idle.
mode	false	String	The dehumidifier mode setting. Values: set continuous smart dryer
humiditySet	false	String	The dehumidifier humidity setting
wind_speed	false	String	Wind speed setting. Values: low, medium, high, auto
pumpSwitch	false	String	Switch status of dehumidifier "pump" Values:[0,1] 0:Pump is off 1:Pump is on

examples:

```
{
    "applianceCode":"123123",
    "reqId":"1001",
    "power":1,
    "humiditySet":50,
    "wind_speed":"low",
    "pumpSwitch":"1"
}
```

returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSONObject	The returns data
onlineStatus	String	Whether the dehumidifier is connected to MIDEA cloud. 1 online, 0 offline
power	String	Whether the dehumidifier is work. 1 work. 0 idle.
mode	String	The AC mode setting. Values: set continuous auto dry cloth dry shoe
humiditySet	String	The dehumidifier humidity setting
tempIn	String	The indoor temperature. Read only.
humidityCur	String	The indoor humidity. Read only.
wind_speed	String	Wind speed setting. Values: low, medium, high, auto
pumpSwitch	String	Switch status of dehumidifier "pump" Values:[0,1] 0:Pump is off 1:Pump is on

exmaples:


```
{
    "errorCode":"0",
    "msg":"success",
    "reqId":"1001",
    "result":{
        "humidityCur":"44",
        "humiditySet":"50",
        "mode":"continuous",
        "onlineStatus":"1",
        "power":"0",
        "tempIn":"21",
        "wind_speed":"low",
        "pumpSwitch":"1"
    }
}
```


6. Get AC parameters group one(/oem/v1/device/get/param1)

URI: /oem/v1/device/get/param1

HTTP metho: POST

Content-Type: application/json

Description: AC parameters group one。

Request params:

name	MUST	type	description
reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8
applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.

examples:

```
{
    "applianceCode":"123123",
    "reqId":"1001"
}
```

returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSONObject	The returns data
compressor_actual_freq	int	Actual operating frequency of compressor
compressor_current	float	Compressor current
indoor_target_feq	int	Indoor target frequency
outdoor_current	float	Outdoor current
outdoor_voltage	int	Outdoor voltage
t1_temp	int	The indoor temperature. Read only.
t2_temp	int	Evaporator temperature
t3_temp	int	Condenser temperature
t4_temp	int	Outdoor temperature

exmaples:

```
{
    "errorCode":"0",
    "msg":"success",
    "reqId":"ba3536ab-235a-4b64-ba5a-333",
    "result":{
        "compressor_actual_freq":17,
        "compressor_current":0,
        "indoor_target_feq":73,
        "outdoor_current":4,
        "outdoor_voltage":0,
        "t1_temp":23,
        "t2_temp":24,
        "t3_temp":24,
        "t4_temp":25
    }
}
```


7. Check AC error(/oem/v1/device/check/error)

URI：/oem/v1/device/check/error

HTTP metho：POST

Content-Type: application/json

Description：check if the AC has errors。

Request params：

name	MUST	type	description
reqId	false	String	The id to identify this request. UUID format,like:0d08a76c-4029-4396-b2eb-77b0d269fdc8
applianceCode	true	String	The unique identifier of AC assigned by MIDEA cloud.

examples:

```
{
    "applianceCode":"123123",
    "reqId":"369614ad-9091-4e91-9526-65778343879b"
}
```


returns:

name	Type	description
errorCode	String	Result code. 0 means ok. The others mean fail.
msg	String	Description for the errorCode
reqId	String	The id to identify this request. UUID format
result	JSON Object	The returns data
checkNum	int	Total numbers of parameters
faultNum	float	Total numbers of parameters with error
list	JSON array	Parameters detals
code	int	The code of the parameter
faultMsg	string	The fault message
level	int	1 the protective failure 2 the serious fault
name	int	The name of the parameter
status	int	0 the parameter is ok, without failure 1 the parameter with failure

exmaples:

```
{
    "errorCode":"0",
    "msg":"success",
    "reqId":"1001",
    "result":{
        "checkNum":26,
        "faultNum":0,
        "list":[
            {
                "code":42,
                "faultMsg":"",
                "level":2,
                "name":"Indoor environment sensor",
                "status":0
            },
            {
                "code":43,
                "faultMsg":"",
                "level":2,
                "name":"Indoor pipe temperature sensor",
                "status":0
            },
            {
                "code":0,
                "faultMsg":"",
                "level":2,
                "name":"Indoor EE",
                "status":0
            },
            {
                "code":19,
                "faultMsg":"",
                "level":2,
                "name":"Indoor DC fan stall",
                "status":0
            },
            {
                "code":2,
                "faultMsg":"",
                "level":2,
                "name":"Indoor and outdoor machine communicate ",
                "status":0
            },
            {
                "code":78,
                "faultMsg":"",
                "level":2,
                "name":"Wisdom eye",
                "status":0
            },
            {
                "code":83,
                "faultMsg":"",
```

```
                "level":2,
                "name":"Display panel EE",
                "status":0
            },
            {
                "code":86,
                "faultMsg":"",
                "level":2,
                "name":"F9",
                "status":0
            },
            {
                "code":76,
                "faultMsg":"",
                "level":2,
                "name":"Leakage of refrigerant",
                "status":0
            },
            {
                "code":87,
                "faultMsg":"",
                "level":2,
                "name":"Dust sensor",
                "status":0
            },
            {
                "code":24,
                "faultMsg":"",
                "level":1,
                "name":"E30",
                "status":0
            },
            {
                "code":7,
                "faultMsg":"",
                "level":2,
                "name":"Zero crossing detection",
                "status":0
            },
            {
                "code":66,
                "faultMsg":"",
                "level":2,
                "name":"The main control board and display board communi
cation",
                "status":0
            },
            {
                "code":77,
                "faultMsg":"",
                "level":1,
                "name":"Full water fault E6",
                "status":0
```

```
        },
        {
            "code":119,
            "faultMsg":"",
            "level":1,
            "name":"Full water fault",
            "status":0
        },
        {
            "code":90,
            "faultMsg":"",
            "level":2,
            "name":"Operation fault of filter",
            "status":0
        },
        {
            "code":1,
            "faultMsg":"",
            "level":2,
            "name":"read EE error",
            "status":0
        },
        {
            "code":27,
            "faultMsg":"",
            "level":2,
            "name":"outdoor EE",
            "status":0
        },
        {
            "code":28,
            "faultMsg":"",
            "level":2,
            "name":"T3",
            "status":0
        },
        {
            "code":29,
            "faultMsg":"",
            "level":2,
            "name":"T4",
            "status":0
        },
        {
            "code":30,
            "faultMsg":"",
            "level":2,
            "name":"outdoor exhaust gas sensor",
            "status":0
        },
        {
            "code":100,
            "faultMsg":"",
```

```
                "level":2,
                "name":"The temperature sensor protection ring",
                "status":0
            },
            {
                "code":64,
                "faultMsg":"",
                "level":2,
                "name":"Outdoor DC fan",
                "status":0
            },
            {
                "code":94,
                "faultMsg":"",
                "level":2,
                "name":"outdoor IPM protection",
                "status":0
            },
            {
                "code":95,
                "faultMsg":"",
                "level":1,
                "name":"Low voltage protection",
                "status":0
            },
            {
                "code":96,
                "faultMsg":"",
                "level":1,
                "name":"High voltage protection",
                "status":0
            }
        ],
        "normNum":26
    }
}
```


4. Error Code Description

Error code	Error message	description
0	ok	
40000	invalid access token	
40001	request uri is not support	

40002	invalid request format	
40003	bind code is invalid	
40004	client has no permission	
40005	device response timeout	The network status of the device is not good. The command timed out
40006	this device is already bind to other OEM	
40007	this appliance code is invalid	
40008	device control/query network timeout	The network status of the device is not good. The command timed out
40009	device status error	
40010	device is offline	
45050	device control status is not allowed	Samples: The user cannot adjust the wind speed when the air conditioner is in auto mode.
40998	IoT server error	
40999	Midea ac server internal error	