

Huawei Cloud Astro Zero

API Reference

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Contents

1 Before You Start.....	1
2 API Overview.....	4
3 Calling APIs.....	11
3.1 Making an API Request.....	11
3.2 Authentication.....	16
3.3 Response.....	33
4 APIs.....	35
4.1 Data Modules.....	35
4.1.1 Querying Data by Record ID.....	35
4.1.2 Deleting Data by Record ID.....	38
4.1.3 Updating Data by Record ID.....	40
4.1.4 Querying Data by Record ID List.....	43
4.1.5 Adding Data to an Object.....	45
4.1.6 Deleting Data by Record ID List.....	48
4.1.7 Updating Data by Condition.....	50
4.1.8 Querying Data by Condition.....	53
4.1.9 Deleting Data by Condition.....	60
4.1.10 Querying the Number of Object Records by Condition.....	63
4.1.11 Batch Adding or Updating Object Data.....	66
4.2 Metadata.....	68
4.2.1 Operating an Object.....	68
4.2.2 Operating an Object Instance.....	69
4.2.3 Operations on Custom Objects.....	71
4.2.3.1 Creating a Custom Object.....	71
4.2.3.2 Querying All Custom Objects.....	77
4.2.3.3 Querying a Custom Object Instance by ID.....	80
4.2.3.4 Adding a Field to an Object Instance.....	82
4.2.3.5 Adding a Trigger for an Object Instance.....	91
4.2.3.6 Adding a Validator for an Object Instance.....	95
4.2.3.7 Adding a Layout for an Object Instance.....	99
4.2.3.8 Querying a Field by field_id.....	102
4.2.3.9 Querying a Layout by object_id.....	105

4.2.3.10 Querying a Layout by layout_id.....	108
4.2.3.11 Querying a Button by object_id.....	111
4.2.3.12 Querying a Button by button_id.....	113
4.2.3.13 Querying a Trigger by object_id.....	115
4.2.3.14 Querying a Trigger by trigger_id.....	117
4.2.3.15 Querying an Object Verification Rule by object_id.....	120
4.2.3.16 Querying a Validator by validator_id.....	122
4.2.4 Operations on Picklist Instances.....	124
4.2.4.1 Creating a Picklist Instance.....	124
4.2.4.2 Querying Picklist Instances by Condition.....	127
4.2.4.3 Adding Values to a Picklist Instance.....	130
4.2.4.4 Querying a Picklist Instance or Objects That Reference a Picklist Instance.....	133
4.2.4.5 Updating a Picklist Instance.....	136
4.2.4.6 Deleting a Picklist Instance or the Value of a Picklist Instance.....	138
4.2.5 Application Object Operations.....	140
4.2.5.1 Listing All Applications.....	141
4.2.5.2 Querying an Application by ID.....	144
4.2.6 View Object Operations.....	148
4.2.6.1 Querying the Standard Page List.....	148
4.2.6.2 Querying a Standard Page by ID.....	151
4.2.7 Tab Object Operations.....	155
4.2.7.1 Querying Application Tabs.....	155
4.3 Flows.....	158
4.3.1 Creating a Flow.....	158
4.3.2 Querying Flows.....	162
4.3.3 Querying a Flow Instance.....	166
4.3.4 Orchestrating a Flow.....	170
4.3.5 Querying Flows or Flow Input and Output Parameters by Flow_id.....	174
4.3.6 Modifying a Flow by ID.....	177
4.3.7 Deleting a Flow by ID.....	182
4.4 Scripts.....	183
4.4.1 Running a Script.....	184
4.4.2 Debugging a Script.....	186
4.4.3 Obtaining Script Signature Information.....	188
4.4.4 Obtaining the Built-in Library Declaration of a Script.....	195
4.4.5 Obtaining Formulas of a Flow Instance.....	197
4.5 BPMs.....	199
4.5.1 Creating a BPM.....	199
4.5.2 Starting a BPM Instance.....	216
4.5.3 Querying a BPM Instance.....	219
4.5.4 Suspending, Resuming, or Terminating a BPM Instance.....	223
4.5.5 Deleting a BPM Instance.....	225

4.5.6 Deleting a BPM by ID.....	227
4.5.7 Setting or Modifying the Values of Variables in a BPM Instance.....	229
4.5.8 Querying BPMs by Condition.....	230
4.5.9 Querying a BPM by ID.....	233
4.5.10 Modifying a BPM by ID.....	239
4.6 Import and Export.....	256
4.6.1 Exporting Data.....	256
4.6.2 Importing Data.....	264
4.6.3 Exporting Metadata.....	266
4.6.4 Importing Metadata.....	271
4.6.5 Importing Data by Using a Template.....	273
4.7 Connectors.....	274
4.7.1 Uploading a File.....	274
4.7.2 Downloading a File.....	278
4.7.3 Deleting a File.....	281
4.7.4 Deleting a Directory.....	283
4.7.5 Listing Files in a Directory.....	285
4.7.6 Uploading Multipart.....	289
4.7.7 Obtaining an Endpoint.....	306
4.7.8 Sharing Token.....	308
5 Preset APIs.....	313
5.1 Preset APIs in the Script.....	313
5.2 Preset APIs on Standard Pages.....	314
5.3 Preset APIs on Advanced Pages.....	332
6 Examples.....	340
6.1 Creating an Object and Defining Fields.....	340
6.2 Obtaining an Object List.....	342
7 Permissions and Supported Actions.....	345
8 Appendixes.....	347
8.1 Status Codes.....	347
8.2 Error Codes.....	350
8.3 Logging In to the Application Designer.....	352
8.4 API Rate Limiting Suggestions.....	353
A Change History.....	354

1 Before You Start

Huawei Cloud Astro Zero is a no-/low-code development platform. It is built on Huawei practices in application development and digital transformation to improve development efficiency. Astro Zero also provides application asset development standards and microservice frameworks, helping enterprises accumulate replicable suites, accelerate application customization, and monetize suites through an open ecosystem. On this platform, you can use its visual orchestration tools, such as GUIs, logic, and objects, to quickly build applications through drag-and-drop operations.

This document describes how to use application programming interfaces (APIs) to perform operations on data, metadata, access control, scripts, and flows on Huawei Cloud Astro Zero, such as running, terminating, or deleting a flow instance. For details about supported operations, see [API Overview](#).

Endpoints

An endpoint is the request address for calling an API. The default develop-state domain name of a Huawei Cloud Astro Zero endpoint is **appcube.cn-north-4.huaweicloud.com**.

appcube.cn-north-4.huaweicloud.com is used as an example domain name of the development environment in this document. The actual domain name is subject to your region.

Concepts

- **Account**
An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity and should not be used directly to perform routine management. For security purposes, create IAM users and grant them permissions for routine management.
- **User**
An Identity and Access Management (IAM) user is created using an account to use cloud services. Each IAM user has its own identity credentials (password and access keys).

In Huawei Cloud Astro Zero, users can develop applications, manage and configure applications, and manage portal users.

- Portal User

Portal users access the applications developed in Huawei Cloud Astro Zero. For example, a device maintenance management service application is developed by user A. The customer service personnel, dispatchers, and maintenance personnel who use this service application are portal users. User A is a user but not a portal user.

- Region

Regions are geographic areas isolated from each other. Resources are region-specific and cannot be used across regions through internal network connections. For low network latency and quick resource access, select the nearest region. The choice of regions may also be subject to legal compliance requirements.

For the regions of all services, see [Region and AZ](#).

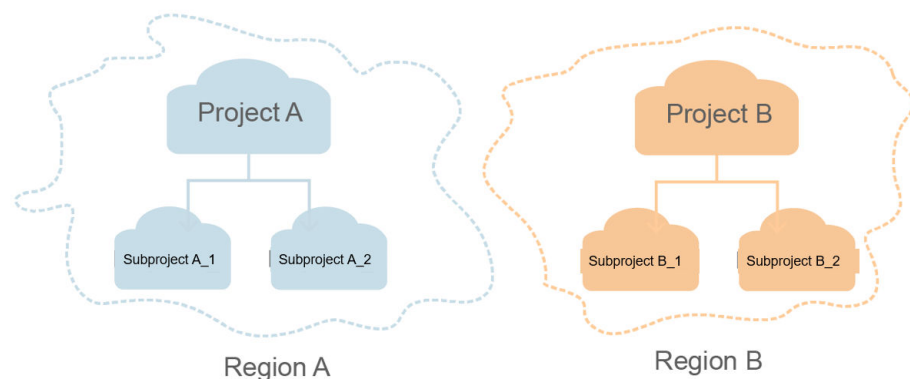
- Availability Zone (AZ)

An availability zone (AZ) contains one or more physical data centers. Each AZ has independent cooling, fire extinguishing, moisture-proof, and electricity facilities. Within an AZ, computing, network, storage, and other resources are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

- Project

A project corresponds to a region. Projects are preset by the system and have physically isolated resources (including compute, storage, and network resources) across regions. Users can be granted permissions in a default project to access all resources in the region associated with the project. For more refined access control, create subprojects under a project and create resources in the subprojects. Users can then be assigned permissions to access only specific resources in the subprojects.

Figure 1-1 Project isolating model



- Enterprise Project

Enterprise projects group and manage resources across regions. Resources in enterprise projects are logically isolated from each other. An enterprise project

can contain resources in multiple regions, and resources can be transferred between enterprise projects.

2 API Overview

Data Modules

You can use data module APIs to query, update, or delete data by record ID. These APIs allow you to both query and add data within an object.

Table 2-1 Data module APIs

API	Description
Querying Data by Record ID	Query data by record ID.
Deleting Data by Record ID	Delete data by record ID.
Updating Data by Record ID	Update data by record ID.
Querying Data by Record ID List	Query data by record ID list.
Adding Data to an Object	Add data to an object.
Deleting Data by Record ID List	Delete data by record ID list.
Updating Data by Condition	Update data by condition.
Querying Data by Condition	Query data by condition.
Deleting Data by Condition	Delete data by condition.
Querying the Number of Object Records by Condition	Query the number of object records based on conditions.

API	Description
Batch Adding or Updating Object Data	Add or update data records in batches. If the request contains id , this API is used to update data. If the request does not contain id , this API is used to add data.

Metadata

You can use metadata APIs to create objects, flows, and creating workflows.

Table 2-2 Metadata APIs

API	Description
Creating a Custom Object	Create an object instance.
Querying All Custom Objects	Query all object instances.
Querying a Custom Object Instance by ID	Query an object instance by ID.
Adding a Field to an Object Instance	Add a custom field to an object instance.
Adding a Trigger for an Object Instance	Add a trigger for an object instance.
Adding a Validator for an Object Instance	Add a validator for an object instance.
Adding a Layout for an Object Instance	Add a layout for an object instance.
Querying a Field by field_id	Query a field by field_id.
Querying a Layout by object_id	Query a layout by object_id.
Querying a Layout by layout_id	Query a layout by layout_id.
Querying a Button by object_id	Query a button by object_id.
Querying a Button by button_id	Query a button by button_id.
Querying a Trigger by object_id	Query a trigger by object_id.
Querying a Trigger by trigger_id	Query a trigger by trigger_id.

API	Description
Querying an Object Verification Rule by object_id	Query a validator by object_id.
Querying a Validator by validator_id	Query a validator by validator_id.
Creating a Picklist Instance	Create a picklist instance.
Querying Picklist Instances by Condition	Query picklist instances by condition.
Adding Values to a Picklist Instance	Add values to a picklist instance by picklist_id.
Querying a Picklist Instance or Objects That Reference a Picklist Instance	Query a picklist instance or the objects that reference a picklist instance.
Updating a Picklist Instance	Update a picklist instance.
Deleting a Picklist Instance or the Value of a Picklist Instance	Delete a picklist instance or the value of a picklist instance.
Listing All Applications	Query all applications under the current account.
Querying an Application by ID	Query an application based on the application ID.
Querying the Standard Page List	Query the list of standard pages, including only basic information. To obtain the content of a standard page, query the content by ID.
Querying a Standard Page by ID	Query standard pages by view_id.
Querying Application Tabs	Query the list of application tab pages.

Flows

You can use flow APIs to orchestrate flows and view the running flow instances.

Table 2-3 Flow APIs

API	Description
Creating a Flow	Create a flow instance.
Querying Flows	Query flow instances that meet specific conditions.

API	Description
Querying a Flow Instance	Query a flow instance.
Orchestrating a Flow	Orchestrate a flow instance.
Querying Flows or Flow Input and Output Parameters by Flow_id	Query the input and output parameters of a flow instance.
Modifying a Flow by ID	Update a flow instance.
Deleting a Flow by ID	Delete a flow by flow ID.

Scripts

You can use script APIs to run, debug, and obtain script signature information.

Table 2-4 Script APIs

API	Description
Running a Script	Run a script.
Debugging a Script	Debug a script.
Obtaining Script Signature Information	Obtain signature information of a script.
Obtaining the Built-in Library Declaration of a Script	Obtain the declaration of the built-in library of a script.
Obtaining Formulas of a Flow Instance	Obtain a flow formula.

BPMs

You can use business process management (BPM) APIs to start, delete, suspend, resume, and terminate BPM instances.

Table 2-5 BPM APIs

API	Description
Creating a BPM	Create a BPM.
Starting a BPM Instance	Create and start a BPM instance.
Querying a BPM Instance	Obtain information about all BPM instances of the current account.

API	Description
Suspending, Resuming, or Terminating a BPM Instance	Suspend, resume, or terminate a BPM instance. After a BPM instance is suspended, it will not be displayed in the to-do task list, the SLA timer stops, and no follow-up reminder will be sent. After a BPM instance is resumed, the system proceeds with subsequent operations. After a BPM instance is terminated, the BPM instance is forcibly stopped and you can view the BPM instance only in the historical task list.
Deleting a BPM Instance	Delete a BPM instance. It is recommended that a BPM be deleted only when the administrator needs to clear expired data. In other cases, do not delete BPM instance data.
Deleting a BPM by ID	Delete a BPM by BPM ID.
Setting or Modifying the Values of Variables in a BPM Instance	Modify variable values in a BPM instance, allowing updates to single, multiple, or all variables simultaneously. Nonexistent or read-only variables are ignored.
Querying BPMs by Condition	Obtain the BPM list that matches the query criteria.
Querying a BPM by ID	Query a BPM instance by BPM ID.
Modifying a BPM by ID	Update a BPM instance by ID.

Import and Export

You can use import and export APIs to import and export data and metadata, enabling data migration.

Table 2-6 Import and export APIs

API	Description
Exporting Data	Export specific data of a table. The internal data of the objects created in Huawei Cloud Astro Zero can be exported. This API exports the data of these objects based on the preset period, frequency, and filter criteria.
Importing Data	Import data. The data to be imported should be compressed to a .zip package. Data files in the package must be in .txt or .csv format. In each file, the first row indicates the object to which the data belongs, the second row indicates the field names, and the other rows indicate data records.

API	Description
Exporting Metadata	Export the metadata of a data table, that is, export the information about each field in the data table, excluding specific data records.
Importing Metadata	Import the metadata of a table. If the metadata of a data table is available, you can quickly create an object table based on the metadata.
Importing Data by Using a Template	Import data by using a template. Before importing data, you need to create a data import template and define data mapping rules in the template. When this API is called, the template name must be specified and the operation script must be defined in the template.

Connectors

You can use the preset connector APIs to upload, download, delete, and list files and directories.

Table 2-7 Connector APIs

API	Description
Uploading a File	Upload local files to the storage. By default, files are uploaded to the first bucket set up for the connector.
Downloading a File	Download files from the storage.
Deleting a File	Delete useless files from the storage.
Deleting a Directory	Delete a directory from storage. All files within it will be deleted along with the directory.
Listing Files in a Directory	List files in a directory on the storage.
Uploading Multipart	To upload a large file, multipart upload is recommended. Multipart upload is applicable to many scenarios, including: - Files to be uploaded are larger than 100 MB. - The network condition is poor, and the connection between the storage server such as OBS is frequently disconnected. - Sizes of files to be uploaded are uncertain.

API	Description
Obtaining an Endpoint	endpoint is the prefix of the file storage address. Combine it with the object's path to get the full access path. In Uploading a File , the path of the uploaded file on the bucket is returned. You can call the API in this section to obtain the endpoint and combine it with the returned path to get the full access path.
Sharing Token	You can call this API (described in Obtaining a Sharing Token) to obtain a temporary token. You can use this temporary token to access the file without using the access-token for authentication.

3 Calling APIs

3.1 Making an API Request

This section describes the structure of a REST API request, and uses the API for obtaining a user access token in OAuth 2.0 client authentication mode as an example to demonstrate how to call an API. The obtained access token can then be used to authenticate the calling of other APIs.

Request URI

A request URI is in the following format:

{URI-scheme}://{Endpoint}/{resource-path}?{query-string}

Although a request URI is included in the request header, most programming languages or frameworks require passing the request URI separately.

Table 3-1 URI parameters

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS .
Endpoint	Domain name or IP address of the Huawei Cloud Astro Zero server bearing the REST service.
resource-path	Access path of an API for performing the specified operation. Obtain the path from the URI of an API. For example, the resource-path of the API used to obtain a user token is /baas/auth/v1.0/oauth2/token .
query-string	(Optional) Query parameter. Ensure that a question mark (?) is included before each query parameter. For example, ? limit=10 indicates that a maximum of 10 data records will be displayed. Separate multiple query parameters with ampersands (&).

For example, to obtain the user access token using OAuth 2.0 client credentials, obtain the resource path **/baas/auth/v1.0/oauth2/token**, assume that the domain name of Huawei Cloud Astro Zero in the development state is **appcube.cn-north-4.huaweicloud.com**, and construct the URI as follows:

```
https://appcube.cn-north-4.huaweicloud.com/baas/auth/v1.0/oauth2/token
```

Request Methods

The HTTP protocol defines the following request methods that can be used to send a request to the server.

Table 3-2 HTTP-based methods

Method	Description
GET	Requests the server to return specified resources, for example, to return an object list.
PUT	Requests the server to update a specified resource, for example, update data by record ID.
POST	Requests the server to add resources or perform special operations, such as adding object data.
DELETE	Requests the server to delete a specified resource, for example, delete object data by record ID.
HEAD	Requests the server to return the response header.
PATCH	Requests the server to update partial contents of a specified resource. If the resource was not found, a new resource will be created.

For example, in the case of the API used to obtain a user access token by using OAuth 2.0 client credentials, the request method is **POST**. The request is as follows:

```
POST https://appcube.cn-north-4.huaweicloud.com/baas/auth/v1.0/oauth2/token
```

Request Header

Request headers include those required by a specific URI or HTTP method, such as **Content-Type**, which defines the data type, or the authentication header.

Table 3-3 describes common request headers.

Table 3-3 Common request headers

Header	Description	Mandatory
Content-Type	Parameter defined in the HTTP protocol, which identifies the format for parsing the returned content. - If the value is application/json, the browser parses the returned content into a JSON object. - If the value is application/x-www-form-urlencoded, the browser parses the returned content into URL-encoded format.	Yes
tenant-id	Account ID, which is unique and identifies the account who receives the request.	No
access-token	Access token required for calling the Huawei Cloud Astro Zero APIs. Include this token in the request header when making the API call to authenticate and gain permission to operate the API. When a user or portal user logs in to the platform with an account and password, the backend generates an access token. This token is then included in the response message and stored in the browser. When the user/portal user sends a request to Astro Zero, the token will be carried, indicating that the user/portal has been authenticated. When a third-party system accesses Huawei Cloud Astro Zero APIs, it must first be authenticated using the OAuth protocol to obtain a client ID and client secret. Then, use these credentials to call the API via /baas/auth/v1.0/oauth2/token to obtain an access token, which grants access to Huawei Cloud Astro Zero's APIs.	No Mandatory for access-token authentication.

If OAuth 2.0 client credentials are used, the API for obtaining a user's access_token does not require access-token authentication. Therefore, only the **Content-Type** field whose value is **application/x-www-form-urlencoded** needs to be added to requests for calling the API. An example of such requests is as follows:

```
POST https://appcube.cn-north-4.huaweicloud.com/baas/auth/v1.0/oauth2/token
Content-Type: application/x-www-form-urlencoded
```

(Optional) Request Body

The body of a request is often sent in a structured format (JSON or XML) as specified in the **Content-type** header field. The request body transfers content except the request header. Chinese characters in a request body must be UTF-8 encoded.

Request bodies vary with APIs. Some APIs do not require a request body, such as the APIs requested using the GET and DELETE methods.

For the request parameters of the API used to obtain a user access token using OAuth 2.0 client credentials, see [Table 3-4](#).

Table 3-4 Request parameters

Name	Type	Mandatory (M)/ Optional (O)	Location	Description
grant_type	String	M	Body	Authorization mode, which is the value of grant_type in OAuth 2.0. Options: - client_credentials - authorization_code

Name	Type	Mandatory (M)/ Optional (O)	Location	Description
client_id	String	M	Body	Client ID. To obtain the client ID, perform the following steps: 1. On the homepage of the Huawei Cloud Astro Zero console, click Access Homepage to go to the application development page. 2. In the upper left corner of the page, click  and choose Environments > Environment Configuration. 3. Choose Integrated connection > OAuth and click New. 4. Enter a name, set the authorization type to client mode, and select a user. After the authentication is successful, the user obtains the same permissions as the user. Do not select users with Anonymous_User_Profile permission because they cannot access APIs. 5. In the OAuth Manager list, click  in the row where the OAuth is located to download the key file to the local host and obtain the value of client_id.
client_secret	String	M	Body	Client secret. Refer to the operations for obtaining the client_id to get the client_secret value.

Name	Type	Mandatory (M)/ Optional (O)	Location	Description
redirect_url	String	O	Body	Redirection URL.
locale	String	O	Body	Language. Example: en_US

The following provides an example request with a body included. Replace the italic fields in bold with the actual values.

```
POST https://appcube.cn-north-4.huaweicloud.com/baas/auth/v1.0/oauth2/token
Content-Type: application/x-www-form-urlencoded

grant_type=client_credentials&client_id=*****&client_secret=*****
```

Initiating a Request

If all data required for the API request is available, you can send the request to call the API through [curl](#), [Postman](#), or coding.

For the response of the API used to obtain a user access token using OAuth 2.0 client credentials, **access_token** is the user access token which can be used to call other Huawei Cloud Astro Zero APIs.

3.2 Authentication

Users can call APIs provided by Huawei Cloud Astro Zero only after being authenticated. Authentication modes are classified into the following types:

- Setting **access-token** in the request header
- Setting **Authorization** in the request header

In either mode, a token needs to be obtained through an authentication interface. A token is used to acquire temporary permissions. During API authentication using a token, the token is added to request headers to obtain permissions for calling an API.

Users are classified into the following types and they have different permissions to access APIs:

- **User**: This type of users manages and develops applications in running or development environments.
They use the account-password, SSO login, and OAuth 2.0 authentication.
- **Portal User**: This type of users accesses the services provided by Huawei Cloud Astro Zero.
They use the account-password, SSO login, and OAuth 2.0 authentication.
- **Guest**: This type of users must be authenticated when they access any platform API. **Guest** is used to access platform APIs before login. Generally, the minimum permission is assigned to **Guest**.
They use the OAuth 2.0 authentication mechanism.

Table 3-5 describes the authentication modes for obtaining a token.

Table 3-5 Authentication modes

Mode	Description	User for Token Generation	Accessed Directly
Account and password login	Use the account and password to access the login API. If the authentication is successful, the access-token is returned and written to cookies.	Users and portal users	Yes
SSO with CAS	CAS SSO is supported. After a user logs in to the system through the CAS server, the ticket is redirected to Huawei Cloud Astro Zero. After Huawei Cloud Astro Zero obtains the ticket, it verifies the ticket validity on the CAS server, obtains the account (if any) and user information, and checks whether the user exists. If the account is specified but the user does not exist, create the user. If no tenant is specified and the user does not exist, an error is displayed and returned to the CAS server. After the user is successfully authenticated, a session is generated and written to cookies, and the user will be redirected to the specified page.	Users and portal users	Yes
OAuth 2.0 client_credentials	Call the API for obtaining a user token based on the client ID and client secret to obtain access_token. Anonymous users usually use this method to obtain access_token. For details, see Client Mode.	Users and guests	Yes

Mode	Description	User for Token Generation	Accessed Directly
OAuth 2.0 authorization_code	Call the API for obtaining a user token based on the client ID, client secret, and authorization code to obtain access_token . The access_token will be used to obtain user information subsequently. For details, see the description of the authorization code mode .	Users and guests	Yes
Huawei WeLink SSO	Quick applications or WeCodes developed on Huawei Cloud Astro Zero support WeLink login. Users can open quick applications or WeCodes in WeLink without logging in to Huawei Cloud Astro Zero.	Portal users	No
Portal user login (using the PORTALUSERLOGIN formula in a Flow instance)	Use the PORTALUSERLOGIN formula of a flow instance to log in to the platform with the portal user name specified.	Portal users	No (APIs can be accessed only in flows.)

Mode	Description	User for Token Generation	Accessed Directly
Obtaining a new token by using refresh_token as a portal user	Set the built-in system parameter bingo.service.refresh_token.enable to true to enable the RefreshToken feature. When a portal user logs in to the platform using PORTALUSERLOGIN, the refresh-token parameter is returned in cookies. The portal user can request the API "POST https://Huawei Cloud Astro Zero domainName/baas/auth/v1.0/refresh_token" to obtain a new token. When calling this API, set Content-Type to application/json and grant_type to refresh_token. The value of refresh_token is that of refresh-token returned in cookies. After you obtain a new token, the original token is invalidated no matter whether it has expired. Generally, the refresh-token has a long validity period. You can change the validity period by setting the Refresh token timeout parameter in the relevant profile. For details, see Obtaining a New Token as a Portal User Using refresh_token.	Portal users	Yes
(JSON Web Tokens (JWT) authentication	The access-token generated in other modes can be converted into a token in JWT format through the JWT API. It is used for mutual access between internal services of Huawei Cloud Astro Zero. An internal service reads SecretKey configured on etcd to parse the token in JWT format to obtain user information.	Users	Yes

Mode	Description	User for Token Generation	Accessed Directly
Username and password login (used for the CAS server)	The CAS server of Huawei Cloud Astro Zero does not have an independent persistence mechanism. It uses the user system of the Authcenter module, which provides an interface for user authentication. sequenceDiagram participant CAS Server participant Authcenter CAS Server ->> Authcenter: Calls the Authcenter authentication API using the account and password. Authcenter -->> CAS Server: Returns the authentication result. If the authentication is successful, the authentication result contains the account information. CAS Server -->> CAS Server: Generates a TCG. CAS Server -->> Authcenter: Redirects the ticket to the Authcenter.	Users	No

OAuth Authentication

Huawei Cloud Astro Zero supports authentication with client credentials or with authorization codes for OAuth authentication. The two modes apply to different scopes.

- The **access-token** obtained in **client_credentials** mode can be used for authentication when an API is called. Set **access-token** in the request header when using this mode.
 - a. On the homepage of the [Huawei Cloud Astro Zero console](#), click **Access Homepage** to go to the application development page.
 - b. Click  and choose **Environments > Environment Configuration**.
 - c. In the navigation pane, choose **Integrated Connection > OAuth** and click **New**.

Figure 3-1 Creating an authentication key in the client credential mode

< OAuth Manager

Authentication Keys

Once you click "Save", your application will be assigned a unique "App ID" (otherwise known as Consumer Key or API key) and "App Secret" value. you will need to integrate them into the configuration files or the actual code of your application.

* Name

testOAuth

Authorization Type

Client Credential

* User

@weibo.com

Description

Please Input

Save

Cancel

- After a third-party system accesses the platform in OAuth mode, the third-party system will operate data as the selected user. Therefore, ensure that the selected user has the permissions to call APIs.
 - Do not grant Anonymous_User_Profile to the selected user, because guest users do not have permissions to call any APIs.
- d. On the OAuth management list page, click  in the row where the authentication is located to download the key file.

Table 3-6 Key file parameters

Parameter	Description
username	This parameter is contained in the key file only if Authorization Type is set to Client Credential . It must be the username selected during OAuth creation.
client_id	Client ID for authentication.
client_secret	Client secret for authentication.

- e. Call the API via **<https://Huawei Cloud Astro Zero domain name/baas/auth/v1.0/oauth2/token>** to obtain **access_token** based on the client ID and client secret.

Table 3-7 Request parameters

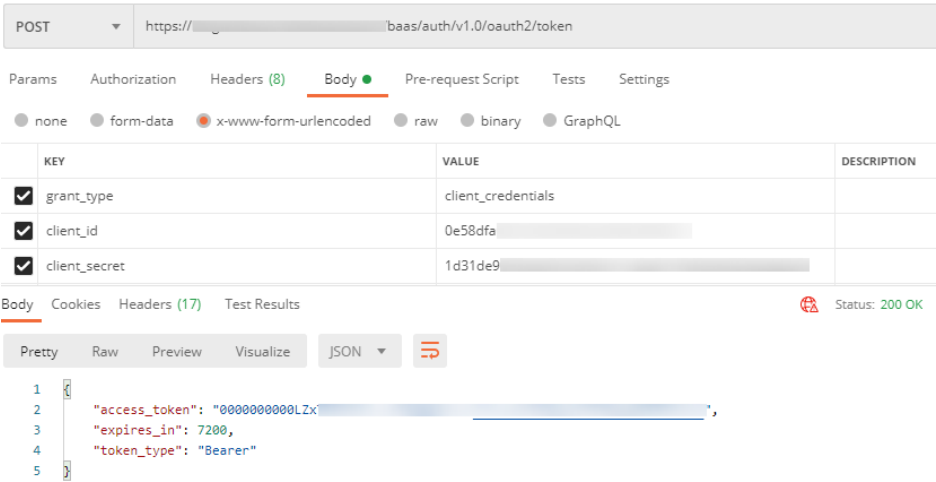
Name	Type	Mandatory (M)/Optional (O)	Location	Description	Value
grant_type	String	M	Body	Authorization mode, which is the value of grant_type in OAuth 2.0. Options: - client_credentials - authorization_code	client_credentials
client_id	String	M	Body	Client ID, which you can view in the OAuth client.	Obtain the value from the previous step.

Name	Type	Mandatory (M)/Optional (O)	Location	Description	Value
client_secret	String	M	Body	Client secret, which you can view in the OAuth client. Do not configure client_secret in the URL query parameters. You are advised to configure client_secret in the request body.	Obtain the value from the previous step.
redirect_url	String	O	Body	Redirection URL.	http://www.example.com
locale	String	O	Body	Language.	en_US

Table 3-8 Response parameters

Parameter	Description
access_token	Trusted access token obtained after authentication.
expires_in	Validity period of the current access token, in seconds.
token_type	Type of the access token.

Figure 3-2 API calling result



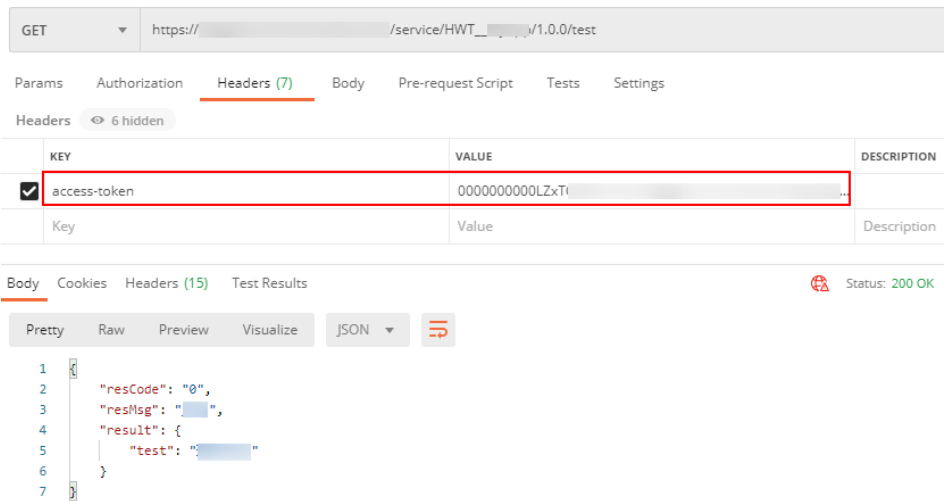
If an error occurs during API calling, the error code 400 and its message will be displayed. The following shows an error response body.

```
{
  "error": "unauthorized_client",
  "error_description": "The client is not authorized to request a token using this method."
}
```

In the response body, **error** is an error type, and **error_description** provides information about the error.

- f. Set **access-token** in **Headers** to the value of **access_token** obtained in the previous step to call the custom API.

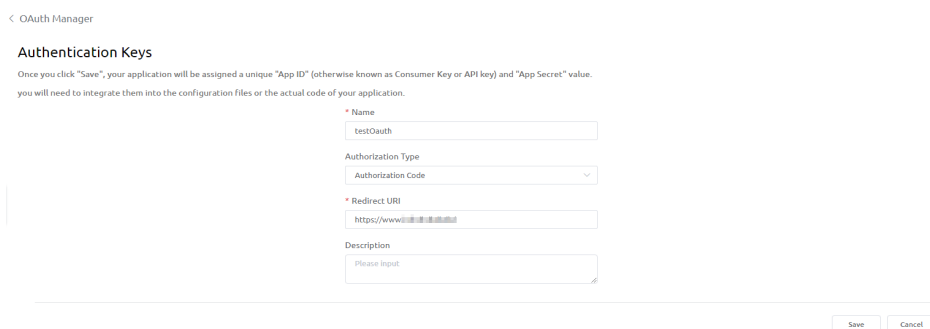
Figure 3-3 API successfully called



The response body contains three types of parameters. The **resCode** and **resMsg** parameters indicate the status code and request information of the request. You can customize error codes to set the response information when a request error occurs. For details, see [Error Codes](#). The **result** parameter indicates the data returned by a called API, which is the same as the value of the return message when you view the API information.

- Authorization code mode: The obtained **access-token** is used to authenticate requests for obtaining user information. Set **Authorization** in the request header.
 - a. On the homepage of the [Huawei Cloud Astro Zero console](#), click **Access Homepage** to go to the application development page.
 - b. In the upper left corner of the page, click  and choose **Environments > Environment Configuration**.
 - c. In the navigation pane, choose **Integrated Connection > OAuth** and click **New**.

Figure 3-4 Creating an authentication key in the authorization code mode



Redirect URL is used as the redirected-to page after the third-party system approves the authorization, and the authorization code is contained in the URL.

- d. On the OAuth management list page, click  in the row where the authentication is located to download the key file.

Table 3-9 Key file parameters

Parameter	Description
redirect_uri	This parameter is contained in the key file only if Authorization Type is set to Authorization Code . It must be the redirection address configured in the previous step.
client_id	Client ID for authentication.
client_secret	Client secret for authentication.

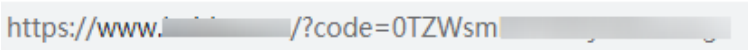
- e. Use a browser to access the **<https://Huawei Cloud Astro Zero domain name/baas/auth/v1.0/oauth2/authorize>** API to obtain the authorization code based on the client ID and redirection address.

Table 3-10 Request parameters

Name	Type	Mandato ry (M)/ Optional (O)	Locat ion	Description	Value
respon se_type	Strin g	M	Para ms	Returned type of the authorization interface, that is, the authorization code.	code
client_i d	Strin g	M	Para ms	Client ID, which you can view in OAuth.	Obtain the value from the previous step.
redirec t_url	Strin g	M	Para ms	Redirect URL.	Obtain the value from the previous step.

- f. Click **Authorize**. The redirection address is displayed, containing the authorization code.

Figure 3-5 Authorization code information



- g. Call the API **https://Huawei Cloud Astro Zero domain name/baas/auth/v1.0/oauth2/token** to obtain the **access_token** based on the authorization code, client ID, and client secret.

Table 3-11 Request parameters

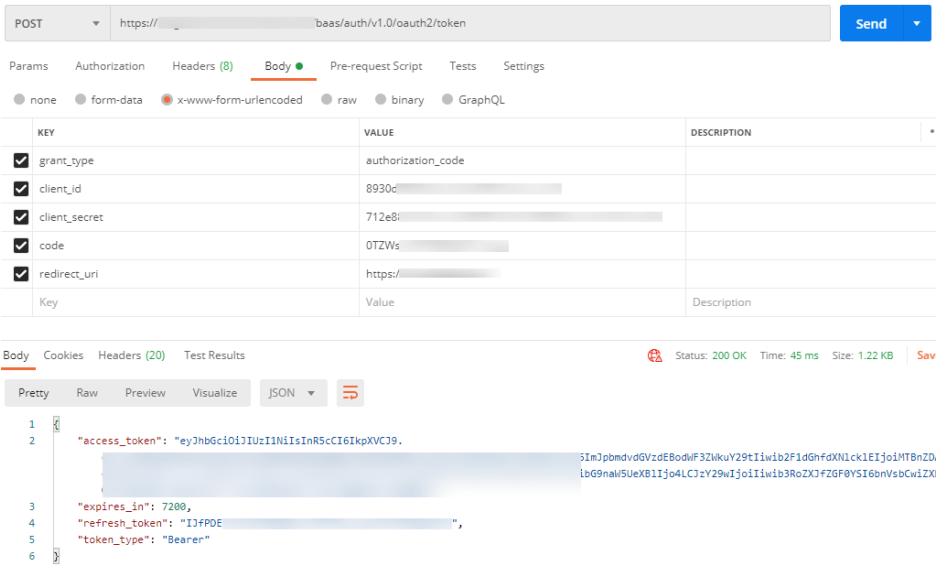
Name	Type	Mandatory (M)/Optional (O)	Location	Description	Value
grant_type	String	M	Body	Authorization mode, which is the value of grant_type in OAuth 2.0.	Explanation Authorization mode, which is the value of grant_type in OAuth 2.0. Constraints None Value authorization_code Default value None
client_id	String	M	Body	Client ID, which you can view in OAuth.	Obtain the value from d .
client_secret	String	M	Body	Client secret, which you can view in the OAuth manager.	Obtain the value from d .
redirect_url	String	M	Body	Redirect URL.	Obtain the value from d .
code	String	M	Body	Authorization code.	Obtain the value from f .
locale	String	O	Body	Language.	en_US

Table 3-12 Response parameters

Parameter	Description
access_token	Trusted access token obtained after authentication.
expires_in	Validity period of the current access token.
refresh_token	Access token used for refreshing.

Parameter	Description
token_type	Type of the access token.

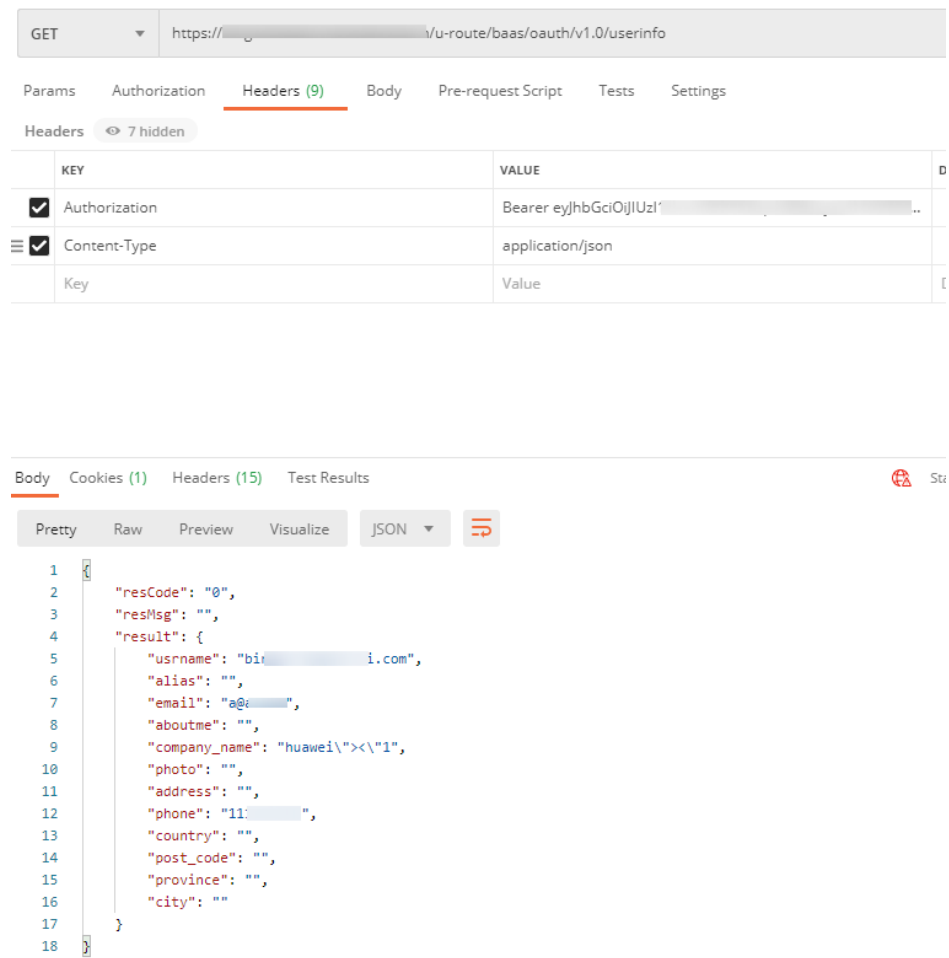
Figure 3-6 API calling result



An authorization code becomes invalid after it is used to obtain an access token. To obtain a new access token, a new authorization code must be generated.

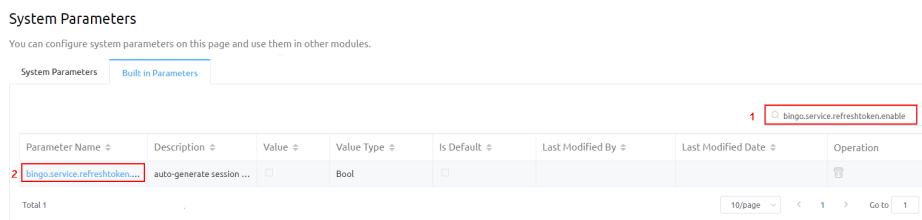
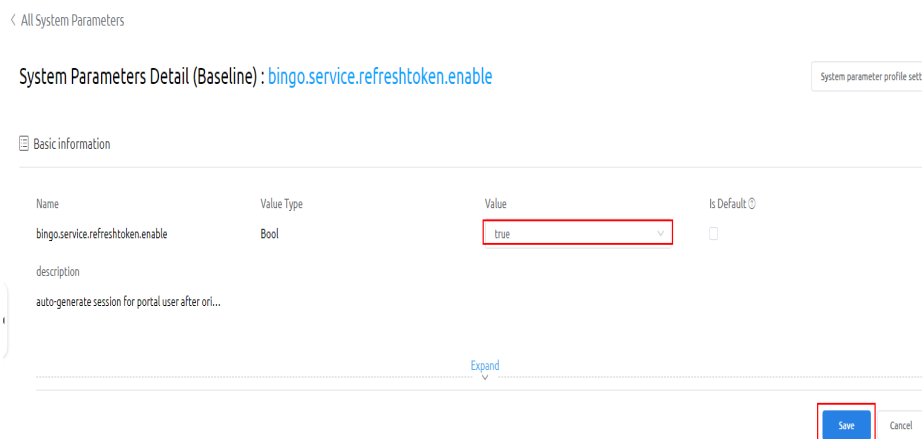
- h. Combine the obtained `token_type` and `access_token`, set the **Authorization** parameter in Headers in the format of `{token_type} {access_token}`, and call the **https://Huawei Cloud Astro Zero domain name/u-route/baas/oauth/v1.0/userinfo** API through a GET request to obtain user information.

Figure 3-7 Obtaining the user information



Obtaining a New Token as a Portal User Using refresh_token

- Step 1 Enable the RefreshToken feature.
- On the homepage of the [Huawei Cloud Astro Zero console](#), click **Access Homepage** to go to the application development page.
 - In the upper left corner of the page, click  and choose **Environments > Environment Configuration**.
 - In the navigation pane, choose **System Settings > System Parameters**.
 - Click the **Built-in System Parameters** tab, search for **bingo.service.refreshtoken.enable**, and click the parameter name in the search result. On the parameter details page, click the edit icon next to **Value**, set the parameter to **true**, and click **Save**.

Figure 3-8 Searching for bingo.service.refreshtoken.enable**Figure 3-9** Changing the value to true

Step 2 A portal user (for example, **test_cs**) uses the **PORTALUSERLOGIN** formula to log in to the platform.

1. On the application page, click an application to access the application development platform.
2. Move the pointer to a folder on the left, click **+** displayed, and choose **Flow** from the shortcut menu.
3. Set **Label** to **testPortalUserLogin** and click the **Name** text box. The system automatically fills in the text box. Click **Add**.
4. On the right of the flow editor page, click . On the **Context** page, click the plus sign (+) next to **Formula**.
5. On the **Formula** page, set **Name** to **portal**, **Data Type** to **Text**, and **Expression** to **PORTALUSERLOGIN("test_cs")**, and click **Save**. **test_cs** in the expression indicates the name of the portal user used for logging in to the system.

Figure 3-10 Creating a formula variable

Formula

Basic Information

* Name

portal

Data Type

Text

Description

Please input

Expression

Function

PORTALUSERLOGIN("te

decimal

encoding

user

util

anonymization

string

Expression

PORTALUSERLOGIN("test_cs")

Cancel

Save

6. In the right pane of the flow editing page, click .

7. On the **Context** pane, click the plus sign (+) next to **Variable**. A text variable named **variable0** is created by default.

8. In the right pane of the flow editing page, click  and drag parameters from the **Context** pane to **Output Parameters**, as shown in the following figure.

Figure 3-11 Setting the output parameter of the flow

Params

Context <

Context

You can drag variables and object variables from context panel here as input or output params of flow.

Input Parameters

Drag Area

Output Parameters

variable0

Text

variable0

Text

Variable

variable0

Text

Constant

Formula

portal

Text

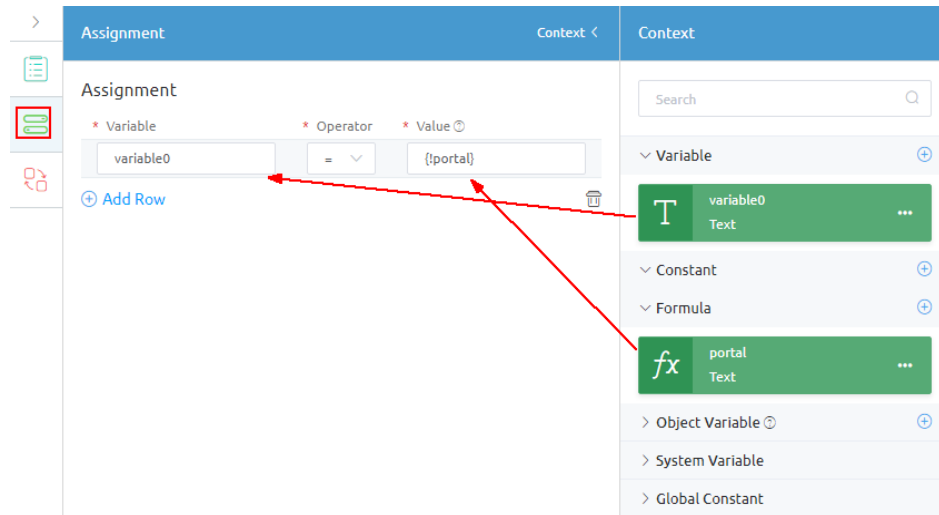
Object Variable

System Variable

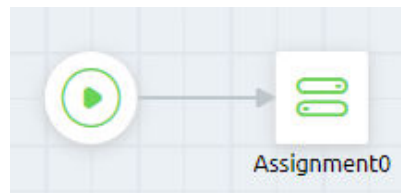
Global Constant

9. Drag the **Assignment** diagram element from **Logic** on the left to the canvas and set the **Assignment** diagram element as shown in the following figure.

Figure 3-12 Configuring the Assignment diagram element



10. Connect all elements.



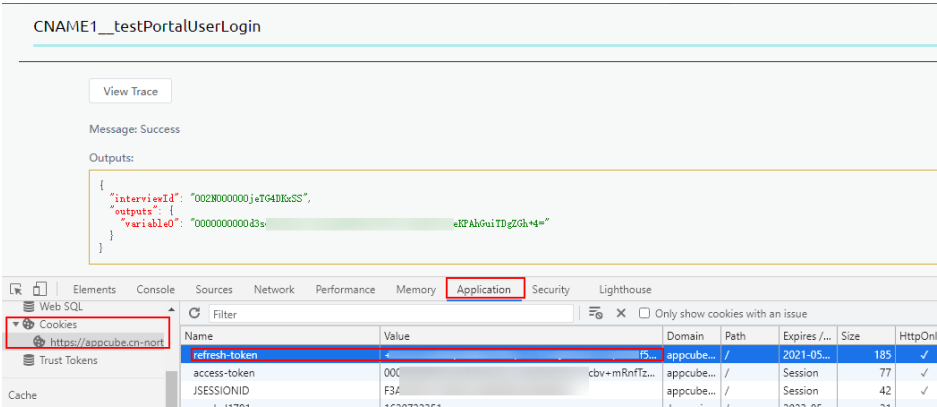
11. In the upper part of the page, click  to save the flow.
12. After the settings are saved, click  and click the run button to run the flow without setting input parameters.

If the following information is displayed, the portal user has logged in to the platform.

```
{
  "interviewId": "002N000000jeTG4DKxSS",
  "outputs": {
    "variable0": "XXX"
  }
}
```

The value of **variable0** is the **access-token** of the portal user.

13. On the output page, press **F12** or **Ctrl+Shift+I** to start the debugging tool.
14. Obtain the value of **refresh-token** from Cookies.



- Step 3** Use **Postman** to send a request to obtain a new token.
- Download and install **Postman** on the local PC. This tool is used only for tests.
 - Use Postman to send a POST request. Set the URL to **https://Huawei Cloud Astro Zero domain name/baas/auth/v1.0/refreshToken**, set **Content-Type** in HEADERS to **application/json**, and set **grant_type** in BODY to **refresh_token**. The value of **refresh_token** is that of **refresh-token** obtained in **Step 2.14**. The output result is the new token. After you obtain a new token, the original token is invalidated no matter whether it has expired.

Figure 3-13 Sending a request by using Postman

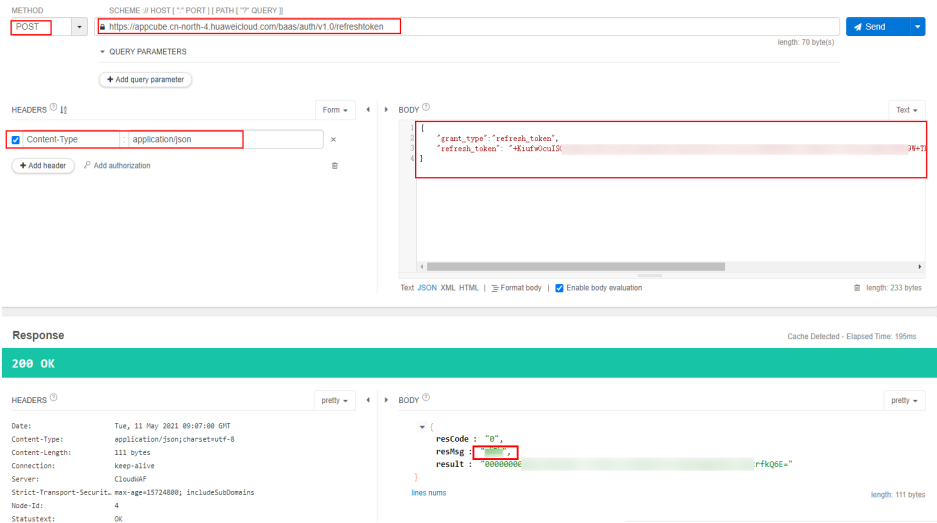


Table 3-13 Request header

Header	Description	Mandatory
Content-Type	Parameter defined in the HTTP protocol, which identifies the format for parsing the returned content. This parameter must be set to application/json , indicating that the browser parses the returned content into a JSON object.	Yes

Table 3-14 Message body

Parameter	Description	Mandatory
grant_type	Grant type. Set this parameter to refresh_token .	Yes
refresh_token	Set this parameter to the value of refresh-token obtained in Step 2.14 .	Yes

----End

3.3 Response

After sending a request, you will receive a response, including a status code, response header, and response body.

Status Code

A status code is a group of digits ranging from 2xx (indicating successes) to 4xx or 5xx (indicating errors). It indicates the status of a response. For more information, see [Status Codes](#).

If status code **200** is returned for calling the API for obtaining access token in OAuth 2.0 client authentication mode, the request is successful.

Response Header

Similar to a request, a response also has a header, for example, **Content-Type**.

The following is a part of the response header for the API for obtaining a user token by using OAuth 2.0 client credentials.

Figure 3-14 Response Headers

POST	https://[redacted]baas/auth/v1.0/oauth2/token	Send
KEY	VALUE	DESCRIPTION
☒ grant_type	client_credentials	
☒ client_id	a3f1[redacted]b79fa8da0a	
☒ client_secret	a7a4[redacted]ba9af3a288b8f8513ce6844c8b8ac	
Key	Value	Description

Body Cookies (2) Headers (17) Test Results Status: 200 OK Time: 1578 ms Size: 827 B

KEY	VALUE
Date	Tue, 26 May 2020 07:28:47 GMT
Content-Type	application/json;charset=UTF-8
Content-Length	125
Connection	keep-alive
Server	CloudWAF
Set-Cookie	HWWAFSEID=865a273d249f6f026; path=/
Set-Cookie	HWWAFSESTIME=1590478127210; path=/
Cache-Control	no-cache, no-store, max-age=0, must-revalidate
Expires	Fri, 01 Jan 1990 00:00:00 GMT
Pragma	no-cache
Strict-Transport-Security	max-age=15724800; includeSubDomains;
bingo-env	dev
X-Frame-Options	SAMEORIGIN
X-Content-Type-Options	nosniff
X-XSS-Protection	1
X-Via	1.1 P5bjvjBGP2ut45:1 (Cdn Cache Server V2.0), 1.1 P5gdjdx10uq29:8 (Cdn Cache Server V2.0)
X-We-Request-Id	5eccc52f_P5gdjdx10mh28_10040-25339

(Optional) Response Body

The body of a response is often sent in a structured format (for example, JSON or XML) as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following is a part of the response body for the API for obtaining a user access token by using OAuth 2.0 client credentials. **access_token** indicates the user token to be obtained, and its value is represented by variable **XXX**. **access_token** can then be used to authenticate the calling of other APIs.

```
{
  "access_token": "XXX",
  "expires_in": 600,
  "token_type": "Bearer"
}
```

If an error occurs during API calling, the error code 400 and its message will be displayed. The following shows an error response body.

```
{
  "error": "unauthorized_client",
  "error_description": "The client is not authorized to request a token using this method."
}
```

In the response body, **error** is an error type, and **error_description** provides information about the error.

4 APIs

4.1 Data Modules

4.1.1 Querying Data by Record ID

Function

This API is used to query data by record ID. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before calling this API, you must create an object and data records.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/bobject/
{objectName}/*{recordId}*?fields={f1,f2}

Table 4-1 URI parameters

Parameter	Mandator y	Type	Description
objectName	Yes	String	Explanation Data object name. For details, see Logging In to the Application Designer. You can access the application designer and choose Data > Object to view data object names. Constraints None Value 1–80 characters Default value None
recordId	Yes	String	Explanation Record ID, which can be obtained by calling the API of Querying Data by Condition (id in the response message). Constraints None Value None Default value None
fields	No	Array	Explanation Fields in the object. Multiple fields are separated by commas (,). If this parameter is specified, only the specified fields and necessary information (for example, data record owner and the owner ID) are returned. If this parameter is left unspecified, the entire data record is returned. Constraints None

Request Parameters

None

Response Parameters

Table 4-2 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, there is only one object in the array, and the object contains the data record.

Example Request

To query a record whose ID is **cfw0000000aKin6AQgfQ** in the **TestProject__testForObject__CST** object, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/  
TestProject__testForObject__CST/cfw0000000aKin6AQgfQ
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": [  
    {  
      "TestProject__address__CST": null,  
      "createdBy": "10gd000000SDzgXNSckK",  
      "createdBy.__objectType": "User",  
      "createdBy.name": "test0xx",  
      "createdDate": "2020-05-28 14:34:40",  
      "currencyIsoCode": "",  
      "id": "cfw0000000aKin6AQgfQ",  
      "installedPackage": null,  
      "lastModifiedBy": "10gd000000SDzgXNSckK",  
      "lastModifiedBy.__objectType": "User",  
      "lastModifiedBy.name": "test0xx",  
      "lastModifiedDate": "2020-05-28 14:34:40",  
      "name": "testd",  
      "owner": "10gd000000SDzgXNSckK",  
      "owner.__objectType": "User",  
      "owner.name": "test0xx"  
    }  
  ]  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.2 Deleting Data by Record ID

Function

This API is used to delete data by record ID. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before calling this API, you must create an object and data records.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/bobject/{objectName}/{recordId}

Table 4-3 URI parameters

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view object names. Constraints None Value 1–80 characters Default value None

Parameter	Mandatory	Type	Description
recordId	Yes	String	Explanation Record ID, which can be obtained by calling the API of Querying Data by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-4 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Number	Explanation Number of deleted records. This parameter is carried when the request is successful. Value Generally, the value is 1 if the deletion is successful.

Example Request

To delete a record whose ID is **cfw0000000aKin6AQgfQ** in the **TestProject_testForObject_CST** object, send the following request:

```
DELETE https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/  
TestProject_testForObject_CST/cfw0000000aKin6AQgfQ
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": 1  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.3 Updating Data by Record ID

Function

This API is used to update data by record ID. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before calling this API, you must create an object and data records.

URI

```
PUT Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/  
{objectName}/{recordId}
```

Table 4-5 URI parameters

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view object names. Constraints None Value 1–80 characters Default value None
recordId	Yes	String	Explanation Record ID, which can be obtained by calling the API of Querying Data by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-6 Request parameter

Parameter	Mandatory	Type	Description
setValue	Yes	Object	Explanation An object consisting of the changed attributes and their new values. Constraints None

Response Parameters

Table 4-7 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Number	Explanation Number of updated records. This parameter is carried when the request is successful. Value Number. Generally, the value is 1 if the update is successful.

Example Request

To update a record whose ID is **cfw0000000aKin6AQgfQ** in the **TestProject_testForObject_CST** object, send the following request:

PUT https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/TestProject_testForObject_CST/cfw0000000aKin6AQgfQ

```
{
  "setValue": {
    "name": "newName"
  }
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": 1
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.4 Querying Data by Record ID List

Function

This API is used to query data by record ID list. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before calling this API, you must create an object and data records.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/bobject/{objectName}?fields={f1,f2}&records={id1,id2}

Table 4-8 URI parameters

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view object names. Constraints None Value 1–80 characters Default value None
records	Yes	Array	Explanation Record ID list. This parameter must contain at least one record ID. {id1,id2} can be queried by calling the API of Querying Data by Condition (id in the response message). Constraints None

Parameter	Mandatory	Type	Description
fields	No	Array	Explanation Fields in the object. Multiple fields are separated by commas (.). If this parameter is specified, only the specified fields and necessary information (for example, data record owner and the owner ID) are returned. If this parameter is left unspecified, the entire data record is returned. Constraints None

Request Parameters

None

Response Parameters

Table 4-9 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation An array of the queried records.

Example Request

To query records whose IDs are **cfw0000000aKin6AQgfQ** and **cfw0000000aKlMSFn7vk** in the **TestProject__testForObject__CST** object, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/  
TestProject__testForObject__CST?records=cfw0000000aKin6AQgfQ,cfw0000000aKlMSFn7vk
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": [  
    {  
      "TestProject__address__CST": null,  
      "createdBy": "10gd000000SDzgXNSckK",  
      "createdBy.__objectType": "User",  
      "createdBy.name": "test",  
      "createdDate": "2020-05-28 14:34:40",  
      "currencyIsoCode": "",  
      "id": "cfw0000000aKin6AQgfQ",  
      "installedPackage": null,  
      "lastModifiedBy": "10gd000000SDzgXNSckK",  
      "lastModifiedBy.__objectType": "User",  
      "lastModifiedBy.name": "test",  
      "lastModifiedDate": "2020-05-28 15:03:15",  
      "name": "newName",  
      "owner": "10gd000000SDzgXNSckK",  
      "owner.__objectType": "User",  
      "owner.name": "test"  
    },  
    {  
      "TestProject__address__CST": null,  
      "createdBy": "10gd000000SDzgXNSckK",  
      "createdBy.__objectType": "User",  
      "createdBy.name": "test",  
      "createdDate": "2020-05-28 15:10:38",  
      "currencyIsoCode": "",  
      "id": "cfw0000000aKlMSFn7vk",  
      "installedPackage": null,  
      "lastModifiedBy": "10gd000000SDzgXNSckK",  
      "lastModifiedBy.__objectType": "User",  
      "lastModifiedBy.name": "test",  
      "lastModifiedDate": "2020-05-28 15:10:38",  
      "name": "test2",  
      "owner": "10gd000000SDzgXNSckK",  
      "owner.__objectType": "User",  
      "owner.name": "test"  
    }  
  ]  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.5 Adding Data to an Object

Function

This API is used to add data to an object. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before adding data to an object, you must create an object.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/bobject/{*objectName*}

Table 4-10 URI parameter

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Name of the data object to be created Constraints None Value 1–80 characters Default value None

Request Parameters

Table 4-11 Request parameter

Parameter	Mandatory	Type	Description
records	Yes	Array	Explanation An object array consisting of attributes and values. Constraints None

Response Parameters

Table 4-12 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation An object array of record IDs.

Example Request

To add two records to the **TestProject__testForObject__CST** object, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/  
TestProject__testForObject__CST  
  
{  
  "records": [  
    {  
      "name": "name1"  
    },  
    {  
      "name": "name2"  
    }  
  ]  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": [  
    {  
      "id": "cfw0000000aKmGskAsDo"  
    },  
    {  
      "id": "cfw0000000aKmGskAsDp"  
    }  
  ]  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.6 Deleting Data by Record ID List

Function

This API is used to delete data by record ID list. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before calling this API, you must create an object and data records.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/bobject/{*objectName*}

Table 4-13 URI parameter

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Name of the data object to be deleted. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view data object names. Constraints None Value 1–80 characters Default value None

Request Parameters

Table 4-14 Request parameter

Parameter	Mandatory	Type	Description
records	Yes	Array	Explanation Record ID list, which can be obtained by calling the API of Querying Data by Condition (id in the response message). Constraints A maximum of 100 record IDs are supported.

Response Parameters

Table 4-15 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Number	Explanation Number of deleted records. This parameter is carried when the request is successful. Value 0–100

Example Request

To delete records whose IDs are **cfw0000000aKmGskAsDo** and **cfw0000000aKmGskAsDp** in the **TestProject__testForObject__CST** object, send the following request:

```
DELETE https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/  
TestProject__testForObject__CST?records=cfw0000000aKmGskAsDo,cfw0000000aKmGskAsDp
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": 2  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.7 Updating Data by Condition

Function

This API is used to update data by condition. It is a synchronous API. (Invocation result is returned only after the function execution is complete.)

Before calling this API, you must create an object and data records.

URI

PUT *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/bobject/
{objectName}

Table 4-16 URI parameter

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Data object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view data object names. Constraints None Value: 1–80 characters Default value None

Request Parameters

Table 4-17 Request parameters

Parameter	Mandatory	Type	Description
setValue	Yes	Object	Explanation Modifies the fields and values of an object. You can do as follows to view the fields and values of an object: 1. Access the application designer by referring to Logging In to the Application Designer. 2. Choose Data > Object, click  over the object, and choose Details. 3. On the Fields tab page of the object details page, view the fields contained in the object and their values. Constraints None
condition	Yes	Object	Explanation Condition for updating a record, which is similar to the where condition in SQL statements. Constraints None

Response Parameters

Table 4-18 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Number	Explanation Number of updated records. This parameter is carried when the request is successful. Value None

Example Request

To select records where **name** is **newName** in the **TestProject__testForObject__CST** object and update the **name** value to **name3**, send the following request:

PUT *https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/bobject/TestProject__testForObject__CST*

```
{
  "setValue": {
    "name": "name3"
  },
  "condition": {
    "conjunction": "AND",
    "conditions": [
      {
        "field": "name",
        "operator": "eq",
        "value": "newName"
      }
    ]
  }
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": 1
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.8 Querying Data by Condition

Function

This API is used to query data by condition.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/query/{*objectName*}?base=X&fields=f1,f2

Table 4-19 URI parameters

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Data object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view data object names. Constraints None Value 1–80 characters Default value None
base	No	String	Explanation Query parameter, which is used to distinguish the data passed by objectName . Constraints None Value The options are as follows: • I: ID of the corresponding object. • N: An object name is transferred. Default value None

Parameter	Mandatory	Type	Description
fields	No	Array	Explanation Field displayed in an object. Set this parameter to the unique ID of a field. Use commas (,) to separate multiple fields. If this parameter is specified, only the specified fields and necessary information (for example, data record owner and the owner ID) are returned. If this parameter is left unspecified, the entire data record is returned. 1. Access the application designer by referring to Logging In to the Application Designer. 2. Choose Data > Object, click  over the object, and choose Details. 3. On the Fields tab page of the object details page, view the unique identifiers of fields. Constraints None

Request Parameters

Table 4-20 Request parameters

Parameter	Mandatory	Type	Description
condition	No	Object	Explanation Query condition. If this parameter is left unspecified, all object data is queried. This parameter contains the following elements: • conjunction: number of conditions to meet. – AND: All conditions must be met. – OR: At least one condition must be met. • conditions: array of conditions. If this parameter is left unspecified, all object data is queried. If this parameter is specified, each element contains the following fields: – field: field name. – operator: operator, which can be: eq indicates equal to, ne indicates not equal to, gt indicates greater than, lt indicates less than, ge indicates greater than or equal to, and le indicates less than or equal to. – value: comparison value. • relation: The array contains parents (upward query) and children (downward query). The parents field contains the condition array and relatedField (name of the associated field). The children field contains the condition array and relationName (name of the associated field). Constraints None

Parameter	Mandatory	Type	Description
relation	No	Object	Explanation Associated query, including parents (upward query) and children (downward query). The parents field contains the condition array and relatedField (name of the associated field). The children field contains the condition array and relationName (name of the associated field). The condition array contains conjunction, conditions, and relation. The parameter description is the same as that of condition. <pre>{ //Upward query parents: [//Level-1 parent object { relatedField: "CarHolder__CST", // Current object field (Lookup/MasterDetail type), which is used to determine the parent object options: { fields: ["id", "name", "Age__CST"] // Field to be queried of the parent object }, parents: [// (Optional) Level-2 parent object { relatedField: "cust__CST", // Parent object field (Lookup/MasterDetail type), which is used to determine the grandparent object options: { fields: ["id", "name", "Email__CST"] // Field to be queried of the grandparent object } }] }], //Downward query childs: [//Level-1 child object { relationName: "Contacts," // Child object relationship name (specified when Lookup/MasterDetail is defined for a child object). The child object is determined based on the relationship name. options: { fields: ["id", "name", "Age__CST", "cust__CST"] // Child object field to be queried }, childs: [// (Optional) Level-2 child object { relationName: "ContactCars", // Relationship name of the grandchild object options: { fields: ["id", "name", "Price__CST", "CarHolder__CST"] // Grandchild object field to be queried } }] }] }</pre> Constraints

Parameter	Mandatory	Type	Description
			None
options	No	Object	Explanation Additional option, which is used to perform operations on the query result. orderby: used to sort the query result by the value of a specific field. The value can be asc (ascending order) or desc (descending order). <pre>options: { orderby: [{ field: "name", order: db.Order.desc }], }</pre> groupby: used to group the query result based on specified fields. <pre>options: { groupby: [{ field: "name", }], }</pre> distinct: used to deduplicate the query result. <pre>options: { distinct: true, }</pre> skip and limit: limit specifies the total number of records to be returned, and skip specifies the ID of the first record to be returned. They are used together to limit the number of returned records. <pre>{ options: { skip: 100, limit: 100 } }</pre> Constraints None

Response Parameters

Table 4-21 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation Returned object data.
count	number	Explanation Total number of records that meet the conditions in the object. Value None

Example Request

To query the number of records where **name** is **zhang** in the **TestProject__testForObject1__CST** object and return three records sorted in descending order by the **TestProject__length__CST** field, send the following request:

POST `https://Huawei Cloud Astro Zero domain names /u-route/baas/data/v1.0/query/TestProject__testForObject1__CST?base=N`

```
{
  "condition": {
    "conjunction": "AND",
    "conditions": [
      {
        "field": "name",
        "operator": "eq",
        "value": "zhang"
      }
    ]
  },
  "options": {
    "orderby": [
      {
        "field": "TestProject__length__CST",
        "order": "desc"
      }
    ]
  },
  "limit": 3
}
```

```
}  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": [  
    {  
      "TestProject__age__CST": null,  
      "TestProject__length__CST": "888",  
      "TestProject__name__CST": null,  
      "createdBy": "10gd000000SDzgXNSckK",  
      "createdBy.__objectType": "User",  
      "createdBy.name": "test0xx",  
      "createdDate": "2020-05-29 12:50:59",  
      "currencyIsoCode": "",  
      "id": "cglE000000aMGHkvmhmb",  
      "installedPackage": null,  
      "lastModifiedBy": "10gd000000SDzgXNSckK",  
      "lastModifiedBy.__objectType": "User",  
      "lastModifiedBy.name": "test0xx",  
      "lastModifiedDate": "2020-05-29 12:50:59",  
      "name": "zhang",  
      "owner": "10gd000000SDzgXNSckK",  
      "owner.__objectType": "User",  
      "owner.name": "test0xx"  
    },  
    {  
      "TestProject__age__CST": null,  
      "TestProject__length__CST": "456",  
      "TestProject__name__CST": null,  
      "createdBy": "10gd000000SDzgXNSckK",  
      "createdBy.__objectType": "User",  
      "createdBy.name": "test0xx",  
      "createdDate": "2020-05-29 12:50:59",  
      "currencyIsoCode": "",  
      "id": "cglE000000aMGHkvmhma",  
      "installedPackage": null,  
      "lastModifiedBy": "10gd000000SDzgXNSckK",  
      "lastModifiedBy.__objectType": "User",  
      "lastModifiedBy.name": "test0xx",  
      "lastModifiedDate": "2020-05-29 12:50:59",  
      "name": "zhang",  
      "owner": "10gd000000SDzgXNSckK",  
      "owner.__objectType": "User",  
      "owner.name": "test0xx"  
    },  
    {  
      "TestProject__age__CST": null,  
      "TestProject__length__CST": "17",  
      "TestProject__name__CST": null,  
      "createdBy": "10gd000000SDzgXNSckK",  
      "createdBy.__objectType": "User",  
      "createdBy.name": "test0xx",  
      "createdDate": "2020-05-29 12:43:11",  
      "currencyIsoCode": "",  
      "id": "cglE000000aMFjB9ipAu",  
      "installedPackage": null,  
      "lastModifiedBy": "10gd000000SDzgXNSckK",  
      "lastModifiedBy.__objectType": "User",  
      "lastModifiedBy.name": "test0xx",  
      "lastModifiedDate": "2020-05-29 12:43:11",  
      "name": "zhang",  
      "owner": "10gd000000SDzgXNSckK",  
      "owner.__objectType": "User",  
      "owner.name": "test0xx"  
    }  
  ]  
}
```

```
    ],  
    "count": 5  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.9 Deleting Data by Condition

Function

This API is used to delete data by condition.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/delete/{objectName}

Table 4-22 URI parameter

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Data object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view data object names. Constraints None Value 1–80 characters Default value None

Request Parameters

Table 4-23 Request parameter

Parameter	Mandatory	Type	Description
condition	Yes	Object	Explanation Condition used for deletion. If this parameter is left unspecified, all object data is deleted. This parameter contains the following elements: • conjunction: number of conditions to meet. – AND: All conditions must be met. – OR: At least one condition must be met. • conditions: array of conditions. If this parameter is left unspecified, all object data is queried. If this parameter is specified, each element contains the following fields: – field: field name, which is a string. – operator: operator, which is a string. – value: comparison value, which is a string. • relation: The array contains parents (upward query) and children (downward query). The parents field contains the condition array and relatedField (name of the associated field). The children field contains the condition array and relationName (name of the associated field). The condition array contains the following fields: – conjunction: The value can be AND or OR. – conditions: same as the preceding conditions parameter. – relation: same as the preceding relation parameter. Constraints None

Response Parameters

Table 4-24 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Number	Explanation Number of deleted records. Value None

Example Request

To delete records where **name** is **test** in the **TestProject__testForObject1__CST** object, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/delete/
TestProject__testForObject1__CST
{
  "condition": {
    "conjunction": "AND",
    "conditions": [
      {
        "field": "NAME",
        "operator": "eq",
        "value": "test"
      }
    ]
  }
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": 0
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.10 Querying the Number of Object Records by Condition

Function

This API is used to query the number of object records by condition.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/count/{objectName}?base=X

Table 4-25 URI parameters

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Data object name. For details, see Logging In to the Application Designer . You can access the application designer and choose Data > Object to view data object names. Constraints None Value 1–80 characters Default value None
base	No	String	Explanation Query parameter, which is used to distinguish the data passed by objectName . Constraints None Value The options are as follows: • I: ID of the corresponding object. • N: An object name is transferred. Default value None

Request Parameters

Table 4-26 Request parameter

Parameter	Mandatory	Type	Description
condition	Yes	Object	Explanation Query conditions. If this parameter is left unspecified, all object data is queried. This parameter contains the following elements: • conjunction: number of conditions to meet. – AND: All conditions must be met. – OR: At least one condition must be met. • conditions: array of conditions. If this parameter is left unspecified, all object data is queried. If this parameter is specified, each element contains the following fields: – field: field name. – operator: operator, which can be: eq indicates equal to, ne indicates not equal to, gt indicates greater than, lt indicates less than, ge indicates greater than or equal to, and le indicates less than or equal to. – value: comparison value. • relation: The array contains parents (upward query) and children (downward query). The parents field contains the condition array and relatedField (name of the associated field). The children field contains the condition array and relationName (name of the associated field). Constraints None

Response Parameters

Table 4-27 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Number	Explanation Number of records. Value None

Example Request

To query the number of records where **name** is **lisi** in the **TestProject_testForObject1_CST** object, send the following request:

POST https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/count/TestProject_testForObject1_CST

```
{
  "condition": {
    "conjunction": "AND",
    "conditions": [
      {
        "field": "NAME",
        "operator": "eq",
        "value": "lisi"
      }
    ]
  }
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": 8
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.1.11 Batch Adding or Updating Object Data

Function

This API is used to add or update data records in batches. If the request contains **id**, it is used to update data. If the request does not contain **id**, it is used to add data.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/data/v1.0/upsert/{objectName}

Table 4-28 URI parameter

Parameter	Mandatory	Type	Description
objectName	Yes	String	Explanation Data object name. For details, see Logging In to the Application Designer. You can access the application designer and choose Data > Object to view data object names. Constraints None Value 1–80 characters Default value None

Request Parameters

Table 4-29 Request parameter

Parameter	Mandatory	Type	Description
records	Yes	Array	Explanation Array of the data to be added or updated. Constraints If the parameter value contains id , the request is used to update data. Otherwise, the request is used to add data.

Response Parameters

Table 4-30 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, an array of record IDs is returned.

Example Request

To add three data records into the **TestProject__testForObject1__CST** object, send the following request, in which the body contains the records to be added:

POST https://Huawei Cloud Astro Zero domain name/u-route/baas/data/v1.0/upsert/TestProject__testForObject1__CST

```
{
  "records":[
    {
      "name":"zhang",
      "TestProject__length__CST":"17"
```

```
    },  
    {  
      "name": "li",  
      "TestProject__length__CST": "30"  
    },  
    {  
      "name": "wang",  
      "TestProject__length__CST": "20"  
    }  
  ]  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": [  
    {  
      "id": "cglE000000aMFjB9ipAu"  
    },  
    {  
      "id": "cglE000000aMFjB9ipAv"  
    },  
    {  
      "id": "cglE000000aMFjB9ipAw"  
    }  
  ]  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2 Metadata

4.2.1 Operating an Object

Function

This API is used to create, update, delete, or query an object by object name. This API is a unified API.

URI

POST, GET, PUT, and DELETE Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/{object_name}

Table 4-31 URI parameter

Parameter	Mandatory	Type	Description
object_name	Yes	String	Explanation Name of the object. Constraints None Value 1–80 characters Default value None

Request Parameters

The parameters in the request body vary depending on the value of **object_name**, which can be **Object**, **Flow**, **BPM**, or **Picklist**. The following topics describe the operations on each type of objects.

Response Parameters

For details, see the objects in the corresponding sections.

Example Request

For details, see the objects in the corresponding sections.

Example Response

For details, see the objects in the corresponding sections.

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.2 Operating an Object Instance

Function

This API is used to create, update, delete, or query an object instance by object name and object instance ID. This API is a unified API.

URL

POST, GET, PUT, and DELETE Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/{object_name}/{object_id}

Table 4-32 URI parameters

Parameter	Mandatory	Type	Description
object_name	Yes	String	Explanation Name of the object. Constraints None Value 1–80 characters Default value None
object_id	Yes	String	Explanation ID of the object instance, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

The parameters in the request body vary depending on the value of **object_name**, which can be **Object**, **Flow**, **BPM**, or **Picklist**. The following topics describe the operations on each type of objects.

Response Parameters

For details, see the objects in the corresponding sections.

Example Request

For details, see the objects in the corresponding sections.

Example Response

For details, see the objects in the corresponding sections.

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3 Operations on Custom Objects

4.2.3.1 Creating a Custom Object

Function

This API is used to create a custom object.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Object

Request Parameters

Table 4-33 Request parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of the custom object. Constraints The value cannot be changed after being specified. Value The value must start with a letter and can contain only letters, digits, and underscores (_). It cannot end with an underscore (_) and can contain a maximum of 63 characters. Default value None

Parameter	Mandatory	Type	Description
label	No	String	Explanation Alias of an object, which can be modified after being created. Constraints None Value 1–80 characters Default value None
description	No	String	Explanation Description of the object. Constraints None Value 1–80 characters Default value None
fields	Yes	Array of field object	Explanation Object fields. For details about the field parameters, see Table 4-34 . Constraints None

Table 4-34 fields parameters

Parameter	Mandatory	Type	Description
label	Yes	String	Explanation Label of the new field. Constraints None Value 1–80 characters Default value None

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of the new field. Constraints The value cannot be changed after being specified. Value The value must start with a letter and can contain only letters, digits, and underscores (_). It cannot end with an underscore (_) and can contain a maximum of 63 characters. Default value None

Parameter	Mandatory	Type	Description
dataType	Yes	String	Explanation Type of the new field. Constraints The value cannot be changed after being specified. Value • text: You can enter a maximum of 255 characters, including any combination of letters and digits. • encryptedtext: You can enter a maximum of 111 characters and store them in encrypted format, including any combination of letters and digits. • textarea: You can enter up to 1,048,576 characters in multiple lines. • number: You can enter any digit. Leading zeros are removed. • percent: You can enter a percentage number, for example, 10, and the percent sign is automatically added to the number. • phone: You can enter any phone number, which is automatically displayed in the phone number format. • currency: You can enter amounts in other currencies, which will automatically be converted to the correct format. This function is useful when exporting data to Excel or other spreadsheets. • date: You can enter a date or select a date from the calendar that is displayed. • datetime: You can enter a date and time or select a date from the calendar that is displayed. When you click a date in the calendar that is displayed, the date and current time are shown in this field. • email: You can enter an email address. The system validates the

Parameter	Mandatory	Type	Description
			email address format. If this field is specified for a contact or a potential customer, you can select an address when you send an email. Note that custom e-mail addresses cannot be used for bulk e-mail. • checkbox: You can select a true (checked) or false (unchecked) value. • singleselect: You can select a value from a defined list. • multiselect: You can select multiple values from a defined list. • url: You can enter any valid URL. When you click this field, you will visit the URL in a separate browser window. • lookup: You can create a relationship that associates this object to another object. • autonumber: The system generates serial numbers in the format that you define. The sequence number increases by one for each newly added record. • formula: The system generates a read-only field in the formula expression that you define. If the source field used in any expression is changed, the value of this field will be updated. • masterdetail: You can create a type of primary/secondary relationship between one object and another. Ownership of detailed records is determined by the master record. When you delete the master record, all detailed records will be deleted. • multilanguage: You can select content in multiple languages from the customized resource table. • attachment: You can save the addresses of multiple uploaded

Parameter	Mandatory	Type	Description
			files. Images and documents are supported. Default value None

Response Parameters

Table 4-35 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, an ID is returned. Value None

Example Request

To create an object instance, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object
```

```
{
  "label": "VehicleType",
  "name": "VehicleType__CST",
  "description": "",
  "fields": [
    {
      "label": "Name",
      "name": "name",
      "dataType": "Name"
    }
  ]
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "cust***aKtFZpERvc"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.2 Querying All Custom Objects

Function

This API is used to query all custom objects.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Object

Request Parameters

None

Response Parameters

Table 4-36 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	Array	Explanation If the request is successful, all defined objects under the account are returned and displayed in a list. Each item in the list is an object.

Example Request

To query all object instances, send the following request:

GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "id": "cust000000aKtFZpERvc",
      "keyPrefix": "c02W",
      "name": "SmartCampus__OperatorOrganization__CST",
      "category": 3,
      "label": "OperatorOrganization",
      "pluralLabel": "OperatorOrganizations",
      "version": 7,
      "contextSetup": 0,
      "trackFieldHistory": false,
      "allowReports": false,
      "allowActivities": false,
      "allowChatter": false,
      "allowStreamingApiAccess": false,
      "allowBulkApiAccess": false,
      "allowSearch": false,
      "allowSharing": false,
      "sharingMode": 0,
      "deploymentStatus": 0,
      "properties": "",
      "status": 0,
      "createdBy": "10gd000000SDyqaQW6uu",
      "createdDate": "2020-03-12 15:14:56",
      "lastModifiedBy": "10gd000000SDyqaQW6uu",
      "lastModifiedDate": "2020-03-12 15:15:00",
      "description": "",
      "objectType": 0,
      "protectMode": 1,
      "installedPackage": "003L000000YGxJbahwps",
      "createdBy.name": "test0xx",
      "lastModifiedBy.name": "test0xx",
      "childObjects": null,
      "parentObjects": [
        {
          "parentObject": "cust000000PeSg3hYOOG",
          "cascadeDelete": true
        },
        {
          "parentObject": "stad0000000000000000GD",
          "cascadeDelete": false
        },
        {
          "parentObject": "stad0000000000000000GG",
          "cascadeDelete": false
        }
      ]
    }
  ]
}
```

```
    },
    {
      "parentObject": "stup0000000000000002I",
      "cascadeDelete": false
    },
    {
      "parentObject": "stup0000000000000003L",
      "cascadeDelete": false
    }
  ]
},
{
  "id": "cust000000aKoa6I4E6K",
  "keyPrefix": "cE6K",
  "name": "test__qw__CST",
  "category": 3,
  "label": "qw",
  "pluralLabel": "qws",
  "version": 3,
  "contextSetup": 0,
  "trackFieldHistory": false,
  "allowReports": false,
  "allowActivities": false,
  "allowChatter": false,
  "allowStreamingApiAccess": false,
  "allowBulkApiAccess": false,
  "allowSearch": false,
  "allowSharing": false,
  "sharingMode": 0,
  "deploymentStatus": 0,
  "properties": "",
  "status": 0,
  "createdBy": "10gd000000SDyqaQW6uu",
  "createdDate": "2020-05-28 15:55:42",
  "lastModifiedBy": "10gd000000SDyqaQW6uu",
  "lastModifiedDate": "2020-05-28 17:47:03",
  "description": "",
  "objectType": 0,
  "protectMode": 0,
  "installedPackage": "",
  "createdBy.name": "test0xx",
  "lastModifiedBy.name": "test0xx",
  "childObjects": null,
  "parentObjects": [
    {
      "parentObject": "stad000000000000000GD",
      "cascadeDelete": false
    },
    {
      "parentObject": "stad000000000000000GG",
      "cascadeDelete": false
    },
    {
      "parentObject": "stup0000000000000002I",
      "cascadeDelete": false
    },
    {
      "parentObject": "stup0000000000000003L",
      "cascadeDelete": false
    }
  ]
}
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.3 Querying a Custom Object Instance by ID

Function

This API is used to query custom object instances by ID.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Object/{*object_id*}

Table 4-37 URI parameter

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-38 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the details about each field in the object instance are returned, including information about the table, tables it depends on, and tables that depend on it.

Example Request

Query an object instance by ID.

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/  
cust000000aKtFZpERvc
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "tableInfo": {  
      "id": "cust000000aKtFZpERvc",  
      "keyPrefix": "cRvc",  
      "name": "test_dfg_CST",  
      "category": 3,  
      "label": "dfg",  
      "pluralLabel": "dfgs",  
      "version": 0,  
      "contextSetup": 0,  
      "trackFieldHistory": false,  
      "allowReports": false,  
      "allowActivities": false,  
      "allowChatter": false,  
      "allowStreamingApiAccess": false,  
      "allowBulkApiAccess": false,  
      "allowSearch": false,  
      "allowSharing": false,  
      "sharingMode": 0,  
      "deploymentStatus": 0,  
      "properties": "",  
      "status": 0,  
      "createdBy": "10gd000000SDyqaQW6uu",  
      "createdDate": "2020-05-28 17:01:02",  
      "lastModifiedBy": "10gd000000SDyqaQW6uu",  
      "lastModifiedDate": "2020-05-28 17:01:02",  
      "description": "",  
      "objectType": 0,  
      "protectMode": 0,  
      "installedPackage": "",  
      "createdBy.name": "test0xx",  
      "lastModifiedBy.name": "test0xx"  
    },  
    "childObjects": null,  
    "parentObjects": [  
      {  
        "id": "cust000000aKtFZpERvc",  
        "keyPrefix": "cRvc",  
        "name": "test_dfg_CST",  
        "category": 3,  
        "label": "dfg",  
        "pluralLabel": "dfgs",  
        "version": 0,  
        "contextSetup": 0,  
        "trackFieldHistory": false,  
        "allowReports": false,  
        "allowActivities": false,  
        "allowChatter": false,  
        "allowStreamingApiAccess": false,  
        "allowBulkApiAccess": false,  
        "allowSearch": false,  
        "allowSharing": false,  
        "sharingMode": 0,  
        "deploymentStatus": 0,  
        "properties": "",  
        "status": 0,  
        "createdBy": "10gd000000SDyqaQW6uu",  
        "createdDate": "2020-05-28 17:01:02",  
        "lastModifiedBy": "10gd000000SDyqaQW6uu",  
        "lastModifiedDate": "2020-05-28 17:01:02",  
        "description": "",  
        "objectType": 0,  
        "protectMode": 0,  
        "installedPackage": "",  
        "createdBy.name": "test0xx",  
        "lastModifiedBy.name": "test0xx"  
      }  
    ]  
  }  
}
```

```
{
  "parentObject": "stad00000000000000GD",
  "cascadeDelete": false
},
{
  "parentObject": "stad00000000000000GG",
  "cascadeDelete": false
},
{
  "parentObject": "stup000000000000002I",
  "cascadeDelete": false
},
{
  "parentObject": "stup000000000000003L",
  "cascadeDelete": false
}
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.4 Adding a Field to an Object Instance

Function

This API is used to add required fields to custom object instances.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Object/{object_id}/Field

Table 4-39 URI parameter

Parameter	Mandatory	Type	Description
Object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-40 Request parameters

Parameter	Mandator y	Type	Description
name	Yes	String	Explanation Name of the new field. Constraints The value cannot be changed after being specified. Value The value must start with a letter and can contain only letters, digits, and underscores (_). It cannot end with an underscore (_) and can contain a maximum of 63 characters. Default value None
label	Yes	String	Explanation Label of the new field. Constraints None Value 1-80 characters Default value None
inlineHelpText	No	String	Explanation Description of the new field. Constraints None Value 1-255 characters Default value None

Parameter	Mandator y	Type	Description
dataLength	Yes	Int	Explanation Length of new fields. Constraints None Value 1-64 characters Default value None

Parameter	Mandatory	Type	Description
dataType	Yes	String	Explanation Type of the new field. Constraints The value cannot be changed after being specified. Value • text: You can enter a maximum of 255 characters, including any combination of letters and digits. • encryptedtext: You can enter a maximum of 111 characters and store them in encrypted format, including any combination of letters and digits. • textarea: You can enter up to 1,048,576 characters in multiple lines. • number: You can enter any digit. Leading zeros are removed. • percent: You can enter a percentage number, for example, 10, and the percent sign is automatically added to the number. • phone: You can enter any phone number, which is automatically displayed in the phone number format. • currency: You can enter amounts in other currencies, which will automatically be converted to the correct format. This function is useful when exporting data to Excel or other spreadsheets. • date: You can enter a date or select a date from the calendar that is displayed. • datetime: You can enter a date and time or select a date from the calendar that is displayed. When you click a date in the calendar that is displayed, the date and current time are shown in this field. • email: You can enter an email address. The system validates the

Parameter	Mandator y	Type	Description
			email address format. If this field is specified for a contact or a potential customer, you can select an address when you send an email. Note that custom e-mail addresses cannot be used for bulk e-mail. • checkbox: You can select a true (checked) or false (unchecked) value. • singleselect: You can select a value from a defined list. • multiselect: You can select multiple values from a defined list. • url: You can enter any valid URL. When you click this field, you will visit the URL in a separate browser window. • lookup: You can create a relationship that associates this object to another object. • autonumber: The system generates serial numbers in the format that you define. The sequence number increases by one for each newly added record. • formula: The system generates a read-only field in the formula expression that you define. If the source field used in any expression is changed, the value of this field will be updated. • masterdetail: You can create a type of primary/secondary relationship between one object and another. Ownership of detailed records is determined by the master record. When you delete the master record, all detailed records will be deleted. • multilanguage: You can select content in multiple languages from the customized resource table. • attachment: You can save the addresses of multiple uploaded

Parameter	Mandator y	Type	Description
			files. Images and documents are supported. Default value None
description	No	String	Explanation Description of the new field. Constraints None Value 1–80 characters Default value None
defaultValue	No	String	Explanation Default value of the new field. Constraints The format must comply with the rules of the type configured in the field type (dataType). Value None Default value None
caseSensitiv e	No	Boolean	Explanation Whether the value is case sensitive. For example, if ABC and abc are considered equal, the setting is case insensitive. If they are treated as different, the setting is case sensitive. Constraints None Value • true: The value is case-sensitive. • false: The value is case-insensitive. Default value false

Parameter	Mandatory	Type	Description
isRequired	No	Boolean	Explanation Whether the field is mandatory. Constraints None Value • true: The field is mandatory. • false: The field is optional. Default value false
isUnique	No	Boolean	Explanation Whether duplicate data is allowed in a field. Constraints None Value • true: The field is unique. • false: The field is not unique. Default value false
profiles	No	Array	Explanation Profiles assigned. Field-level security configuration. You can configure whether each profile is visible or editable for each field. Constraints None
layouts	No	Array	Explanation Layout name of the field. Constraints None
view	No	Object	Explanation Each item is a string array. The name is the layout of the field, and the content is the fields contained in the layout. Constraints None

Parameter	Mandator y	Type	Description
isSearchable	No	Boolean	Explanation Whether the search statement can be used to search for the field. Constraints None Value • true: The field can be searched. • false: The field cannot be searched. Default value false

Response Parameters

Table 4-41 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, an ID is returned. Value None

Example Request

To add a field to an object instance, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/  
cust0000000aKoa6l4E6K/Field  
{  
  "label":"test",  
  "name":"CNAME1__test__CST",
```

```
"inlineHelpText": "dsf",
"description": "fsdf",
"dataType": "text",
"dataLength": 255,
"defaultValue": "vfdsg",
"caseSensitive": true,
"isRequired": true,
"isUnique": true,
"isSearchable": true,
"profiles": [
  {
    "profile": "000T0000000000000002",
    "readable": true,
    "editable": true
  },
  {
    "profile": "000T0000000000000003",
    "readable": true,
    "editable": true
  },
  {
    "profile": "000T0000000000000004",
    "readable": true,
    "editable": true
  },
  {
    "profile": "000T0000000000000006",
    "readable": true,
    "editable": true
  },
  {
    "profile": "000T000000Tiq6fUQhjk",
    "readable": true,
    "editable": true
  },
  {
    "profile": "000T000000Tiq6UCs2y",
    "readable": true,
    "editable": true
  },
  {
    "profile": "000T000000W1a8iTFglU",
    "readable": true,
    "editable": true
  }
],
"layouts": [
  "000D000000aKoa6OJOxk"
],
"view": {
  "000D000000aKoa6OJOxk": {
    "fields": [
      "name",
      "test_df_CST",
      "test_sdadsd_CST",
      "test_sdd_CST"
    ]
  }
}
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "cust000000iY8i3Jvyng"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.5 Adding a Trigger for an Object Instance

Function

This API is used to add a trigger for an object instance.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Object/{*object_id*}/Trigger

Table 4-42 URI parameter

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-43 Request parameters

Parameter	Mandato ry	Type	Description
name	Yes	String	Explanation Name of the trigger to be added. Constraints None Value Start with a letter and can contain only letters, digits, and single underscores (_). The value cannot use consecutive underscore (__) and cannot end with an underscore. A maximum of 64 characters are allowed. Default value None
label	No	String	Explanation Label of the trigger to be added. Constraints None Value 1-64 characters Default value None
description	No	String	Explanation Description of the trigger. Constraints None Value 1-255 characters Default value None

Parameter	Mandatory	Type	Description
script	Yes	String	Explanation Name of the script that implements trigger functions. Constraints None Value None Default value None
jscode	No	string	Explanation JavaScript code in the trigger. Constraints None Value None Default value None
active	No	String	Explanation Whether to activate the trigger. Constraints None Value • true: The license is activated. • false: The value is not activated. Default value false

Parameter	Mandatory	Type	Description
event	No	String	Explanation Conditions for starting a trigger. Constraints None Value • BeforeInsert: Starts the trigger before inserting a record. • AfterInsert: Starts the trigger after a record is inserted. • BeforeUpdate: Starts the trigger before records are updated. • AfterUpdate: Starts the trigger after a record is updated. • BeforeDelete: Starts the trigger before a record is deleted. • AfterDelete: Starts the trigger after a record is deleted. Default value None

Response Parameters

Table 4-44 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes.
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	string	Explanation If the request is successful, an ID is returned. Value None

Example Request

To add a trigger for an object instance, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/  
cust000000aKtFZpERvc/Trigger  
{  
  "name": "Trigger_01",  
  "label": "Trigger 01",  
  "description": null,  
  "script": "string",  
  "jscode": "Hello, world;\r\n",  
  "active": true,  
  "event": "BeforeInsert"  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": "001i000000S1rEi3E0a8"  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.6 Adding a Validator for an Object Instance

Function

This API is used to add a validator for an object instance. When adding data to an object instance, you can define rules to verify the field values and logical relationships between fields to ensure the validity of the object data. For example, the **name** field cannot be left empty, and the value of **MinPrice** cannot be greater than that of **maxPrice**.

URI

```
POST Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/  
Object/{object_id}/Validator
```

Table 4-45 URI parameter

Parameter	Mandatory	Type	Description
Object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-46 Request parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of the validator. Constraints None Value Start with a letter and can contain only letters, digits, and single underscores (_). The value cannot use consecutive underscore (__) and cannot end with an underscore. A maximum of 64 characters are allowed. Default value None

Parameter	Mandatory	Type	Description
label	No	String	Explanation Label of the validator. Constraints None Value 1–80 characters Default value None
description	No	String	Explanation Description of the validator. Constraints None Value None Default value None
active	Yes	String	Explanation Activation status. Constraints If this parameter is passed, other parameters will be ignored. In other words, other attributes cannot be modified during activation or deactivation of the validator. Value • true: activated. • false: not activated. Default value false
errorExpression	No	String	Explanation Rule expression of the validator. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
errorMessage	No	String	Explanation Error information, that is, the information displayed when the verification fails. Constraints None Value None Default value None
errorLocation	No	String	Explanation Location where the error information is displayed. Currently, the error information can be displayed only on the top of the page when this parameter is set to topOfPage . Constraints None Value topOfPage Default value topOfPage

Response Parameters

Table 4-47 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, an ID is returned. Value None

Example Request

To add a validator for an object instance, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/
cust000000aKtFZpERvc/Validator
{
  "active": true,
  "name": "age",
  "label": "age",
  "errorExpression": "age_CST>10",
  "errorMessage": "The age is greater than 10.",
  "errorLocation": "topOfPage"
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "001j000000SNRBr3JnOq"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.7 Adding a Layout for an Object Instance

Function

This API is used to add a layout for an object instance. Field values can be visualized through layouts. When creating a field, you can add the field to a specific layout for visualization.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Object/{*object_id*}/Layout

Table 4-48 URI parameter

Parameter	Mandatory	Type	Description
Object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-49 Request parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of the table object to be created. Constraints The value cannot be changed after being specified. Value The name must start with a letter and cannot contain special characters, underscores (_), and consecutive spaces. A maximum of 64 characters are allowed. Default value None

Parameter	Mandatory	Type	Description
viewName	No	String	Explanation Alias of an object. The format is __layout__ + Object name + __Layout name. Layout name is the name in the request body, and Object name can be obtained by calling the API in Querying All Custom Objects (that is, name in the response message). Constraints None Value None Default value None
existingPageLayout	Yes	String	Explanation ID of the existing page layout. Constraints None Value None Default value None

Response Parameters

[Table 4-50](#) describes the response parameters.

Table 4-50 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, an ID is returned. Value None

Example Request

To add a layout for an object instance, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/  
cust000000aKoa6l4E6K/Layout  
{  
  "name": "dsaf",  
  "existingPageLayout": "000D000000aKoa6OJOxl",  
  "viewName": "dsaf"  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": "000D000000aL60EyXgUS"  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.8 Querying a Field by field_id

Function

This API is used to query a field by field_id.

URI

```
GET Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object/  
{object_id}/Field/{field_id}
```

Table 4-51 URI parameters

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None
field_id	Yes	String	Explanation Field ID, which can be viewed by calling the API described in Querying a Custom Object Instance by ID . Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-52 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the detailed information about the field is returned.

Example Request

Query a field by field ID.
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/
cust000001Dgez2L19N2/Field/cust000001DoWciUWMaG

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "name": "CNAME1__test__CST",
    "col": "D0.V4",
    "objectId": "cust000001Dgez2L19N2",
    "id": "cust000001DoWciUWMaG",
    "label": "test",
    "dataType": "Text",
    "category": 4,
    "isRequired": true,
    "isUnique": true,
    "isIndexed": true,
    "isUnionIndexed": false,
    "dataLength": 255,
    "scale": 0,
    "status": 0,
    "encryptType": 0,
    "caseSensitive": true,
    "enableFilter": true,
    "enableSort": true,
    "visibleLines": 3,
    "populateRows": 1,
    "startingNumber": 0,
    "defaultValue": "vfdsg",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdDate": "2024-06-11 10:02:59",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedDate": "2024-06-11 10:02:59",
    "inlineHelpText": "dsf",
    "description": "fsdf",
    "sequenceNo": 1005,
    "protectMode": 0,
    "installedPackage": "",
    "isSearchable": true,
    "visibility": 0,
    "belongTo": "",
    "minEncryptedSearchableLength": 0,
    "rollbackType": false,
    "autoType": ""
  }
}
```

```
"resetUnit": "",  
"autoExpand": false,  
"createdBy.name": "hw065922111",  
"lastModifiedBy.name": "hw065922111"  
}  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.9 Querying a Layout by object_id

Function

This API is used to query a layout of an object instance by object_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/Layout

Table 4-53 URI parameter

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-54 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, the list of layout object instances is returned.

Example Request

Query the layout list by ObjectID.
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object/cust000001Dgez2L19N2/Layout

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "belongTo": "",
      "content": "{\n  \"name\": \"\", \"type\": \"\", \"view\": {\n    \"name\": \"_layout_Test_t1_CST_detail\n    \", \"fields\": [\n      {\n        \"name\": \"Test_xxx_CST\", \"Test_Field1_CST\", \"Test_Field11_CST\", \"Test_Field3_CST\n      }\n    ]\n  }\",
      \"createdBy\": \"10gd000001DHHEwmE1NQ\",
      \"createdBy.name\": \"test00xx\",
      \"createdDate\": \"2024-06-06 16:19:07\",
      \"custom\": true,
      \"description\": \"Object detail layout\",
      \"events\": [],
      \"id\": \"000D000001Dgez2PYjS4\",
      \"isBaseline\": false,
      \"label\": \"t1 Detail\",
      \"lastModifiedBy\": \"10gd000001DHHEwmE1NQ\",
      \"lastModifiedBy.name\": \"test00xx\",
      \"lastModifiedDate\": \"2024-06-07 11:05:50\",
      \"name\": \"t1 Detail\",
      \"objectId\": \"cust000001Dgez2L19N2\",
      \"owner\": \"10gd000001DHHEwmE1NQ\",
      \"owner.name\": \"test00xx\",
      \"params\": [],
      \"protectMode\": 0,
```

```
    "type": "ObjectDetailLayout",
    "visibility": 0
  },
  {
    "belongsTo": "",
    "content": "{\n  \"name\": \"\\\", \"type\": \"\\\", \"view\": {\n    \"name\": \"__layout__Test__t1__CST__tymbj\n    \\\", \"fields\": [\n      {\n        \"name\": \"Test__xxx__CST\\\", \"Test__Field1__CST\\\", \"Test__Field11__CST\\\", \"Test__Field3__CST\n        \\\"}\n      ]\n    }\n  }\",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-07 11:41:37",
    "custom": true,
    "description": "Object detail layout",
    "events": [],
    "id": "000D000001Di03Y85Faq",
    "isBaseline": false,
    "label": "tymbj",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-07 11:41:37",
    "name": "tymbj",
    "objectId": "cust000001Dgez2L19N2",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.name": "test00xx",
    "params": [],
    "protectMode": 0,
    "type": "ObjectDetailLayout",
    "visibility": 0
  },
  {
    "belongsTo": "",
    "content": "{\n  \"name\": \"\\\", \"type\": \"\\\", \"view\": {\n    \"name\n    \\\": \"__lay#@#@#out__Test__t1__CST__asdasdassdasdassssssssssssssssssssssssdasfasfasf\\\", \"fields\":\n    [\n      {\n        \"name\": \"Test__xxx__CST\\\", \"Test__Field1__CST\\\", \"Test__Field11__CST\\\", \"Test__Field3__CST\\\"}\n      ]\n    }\n  }\",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-07 14:12:39",
    "custom": true,
    "description": "Object detail layout",
    "events": [],
    "id": "000D000001DiAqgg54Nc",
    "isBaseline": false,
    "label": "asdasdasdasfasadsdasd",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-07 14:12:39",
    "name": "asdasdasdasfasadsdasd",
    "objectId": "cust000001Dgez2L19N2",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.name": "test00xx",
    "params": [],
    "protectMode": 0,
    "type": "ObjectDetailLayout",
    "visibility": 0
  },
  {
    "belongsTo": "",
    "content": "{\n  \"name\": \"\\\", \"type\": \"\\\", \"view\": {\n    \"name\": \"__layout__Test__t1__CST__records\n    \\\", \"fields\": [\n      {\n        \"name\": \"\\\"}\n      ]\n    }\n  }\",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-06 16:19:07",
    "custom": true,
    "description": "Object records layout",
    "events": [],
    "id": "000D000001Dgez2PYjS5",
    "isBaseline": false,
    "label": "t1 Records",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
```

```
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-06 16:19:07",
    "name": "t1 Records",
    "objectId": "cust000001Dgez2L19N2",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.name": "test00xx",
    "params": [],
    "protectMode": 0,
    "type": "ObjectRecordsLayout",
    "visibility": 0
  },
  {
    "belongTo": "",
    "content": "{\\\"name\\\":\\\"\\\",\\\"type\\\":\\\"\\\",\\\"view\\\":{\\\"name\\\":\\\"_layout_Test_t1_CST_dasdsdasdasdsdddddddddddd\\\",\\\"fields\\\":[{\\\"name\\\":\\\"\\\"}]}}",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-07 11:45:07",
    "custom": true,
    "description": "Object records layout",
    "events": [],
    "id": "000D000001Di0J4JicDo",
    "isBaseline": false,
    "label": "dasdsdasdasdsdddddddddddddddd",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-07 11:45:07",
    "name": "dasdsdasdasdsdddddddddddddddd",
    "objectId": "cust000001Dgez2L19N2",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.name": "test00xx",
    "params": [],
    "protectMode": 0,
    "type": "ObjectRecordsLayout",
    "visibility": 0
  }
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.10 Querying a Layout by layout_id

Function

This API is used to query a layout of an object instance by layout_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/Layout/{layout_id}

Table 4-55 URI parameters

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None
layout_id	Yes	String	Explanation Object layout ID, which can be obtained by calling the API of 5.2.3.9 Querying a Layout by object_id (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-56 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the detailed information about the layout is returned.

Example Request

Query a layout by layout ID.

GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/
cust000001Dgez2L19N2/Layout/000D000001Dgez2PYjS4

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "belongTo": "",
    "content": {
      "name": "",
      "type": "",
      "view": {
        "fields": [
          "name",
          "Test__xxx__CST",
          "Test__Field1__CST",
          "Test__Field11__CST",
          "Test__Field3__CST"
        ],
        "name": "__layout__Test__t1__CST__detail"
      }
    },
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-06 16:19:07",
    "custom": true,
    "description": "Object detail layout",
    "events": [],
    "id": "000D000001Dgez2PYjS4",
    "isBaseline": false,
    "label": "t1 Detail",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-07 11:05:50",
    "name": "t1 Detail",
    "objectId": "cust000001Dgez2L19N2",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.name": "test00xx",
    "params": [],
    "protectMode": 0,
    "type": "ObjectDetailLayout",
    "visibility": 0
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.11 Querying a Button by object_id

Function

This API is used to query a button by object_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/Button

Table 4-57 URI parameter

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-58 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, the list of button information is returned.

Example Request

Query the button list by ObjectID.
 GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object/cust000001Dgez2L19N2/Button

Example Response

```

{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "actionId": "",
      "actionScript": "",
      "belongTo": "",
      "createdBy": "10gd000001DHHEwmE1NQ",
      "createdBy.name": "test00xx",
      "createdDate": "2024-06-11 11:17:13",
      "custom": true,
      "description": "",
      "id": "000q000001DobvdqMuVk",
      "isBaseline": false,
      "label": "testLabel",
      "lastModifiedBy": "10gd000001DHHEwmE1NQ",
      "lastModifiedBy.name": "test00xx",
      "lastModifiedDate": "2024-06-11 11:17:13",
      "name": "TestNameForButton",
      "objectId": "cust000001Dgez2L19N2",
      "owner": "10gd000001DHHEwmE1NQ",
      "owner.name": "test00xx",
      "properties": "",
      "protectMode": 0,
      "source": "",
      "type": "Button",
    }
  ]
}
```

```
    "visibility": 0
  }
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.12 Querying a Button by button_id

Function

This API is used to query a button by button_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/{button_id}

Table 4-59 URI parameters

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Custom object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
button_id	Yes	String	Explanation Button ID, which can be queried by calling the API of 5.2.3.11 Querying a Button By object_id (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-60 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the detailed information about the button is returned.

Example Request

Query the button based on the object ID and button ID.
GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/cust000001Dgez2L19N2/Button/000q000001DobvdqMuVk>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "actionId": "",
    "actionScript": "",
    "belongTo": "",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-11 11:17:13",
    "custom": true,
    "description": "",
    "id": "000q000001DobvdqMuVk",
    "isBaseline": false,
    "label": "testLabel",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-11 11:17:13",
    "name": "TestNameForButton",
    "objectId": "cust000001Dgez2L19N2",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.name": "test00xx",
    "properties": "",
    "protectMode": 0,
    "source": "",
    "type": "Button",
    "visibility": 0
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.13 Querying a Trigger by object_id

Function

This API is used to query a trigger by object_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/Trigger

Table 4-61 URI parameter

Parameter	Mandatory	Type	Description
object_Id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-62 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, the trigger list is returned.

Example Request

```

Query the trigger list by ObjectID.
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object/cust000001Dgez2L19N2/Trigger

```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [{
    "active": true,
    "apiVersion": null,
    "belongTo": null,
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.__objectType": "User",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-11 11:27:02",
    "custom": true,
    "description": null,
    "event": "BeforeInsert",
    "event.name": "BeforeInsert",
    "id": "001i000001Docd70WYZU",
    "installedPackage": null,
    "jscode": "Hello, world;rn",
    "label": "Trigger 01",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-11 11:27:02",
    "name": "Trigger_01",
    "objectId": "cust000001Dgez2L19N2",
    "objectId.__objectType": "Object",
    "objectId.name": "Test_t1_CST",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.__objectType": "User",
    "owner.name": "test00xx",
    "protectMode": 0,
    "script": "string",
    "sourceMap": null,
    "visibility": 0
  ]
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.14 Querying a Trigger by trigger_id

Function

This API is used to query a trigger by trigger_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/{trigger_id}

Table 4-63 URI parameters

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None
trigger_id	Yes	String	Explanation Trigger ID, which can be queried by calling the API of 5.2.3.13 Querying a Trigger By object_id (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-64 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the detailed information about the trigger is returned.

Example Request

Query a trigger by trigger ID.

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/  
cust000001Dgez2L19N2/Trigger/001i000001Docd70WYZU
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "active": true,  
    "apiVersion": null,  
    "belongTo": null,  
    "createdBy": "10gd000001DHHEwmE1NQ",  
    "createdBy.__objectType": "User",  
    "createdBy.name": "hw065922111",  
    "createdDate": "2024-06-11 11:27:02",  
    "custom": true,  
    "description": null,  
    "event": "BeforeInsert",  
    "event.name": "BeforeInsert",  
    "id": "001i000001Docd70WYZU",  
    "installedPackage": null,  
    "jrcode": "Hello, world;\r\n",  
    "label": "Trigger 01",  
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",  
    "lastModifiedBy.__objectType": "User",  
    "lastModifiedBy.name": "hw065922111",  
    "lastModifiedDate": "2024-06-11 11:27:02",  
    "name": "Trigger_01",  
    "objectId": "cust000001Dgez2L19N2",  
    "objectId.__objectType": "Object",  
    "objectId.name": "HW_00644562__t1__CST",  
    "owner": "10gd000001DHHEwmE1NQ",  
    "owner.__objectType": "User",  
    "owner.name": "hw065922111",  
    "protectMode": 0,  
    "script": "string",  
    "sourceMap": null,  
    "visibility": 0  
  }  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.15 Querying an Object Verification Rule by object_id

Function

This API is used to query an object validation rule by object_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/Validator

Table 4-65 URI parameter

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-66 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the operation is successful, the list of validators is returned.

Example Request

Query the validator list by ObjectID.
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object/
cust000001Dgez2L19N2/Validator

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "active": false,
      "belongTo": null,
      "createdBy": "10gd000001DHHEwmE1NQ",
      "createdBy.__objectType": "User",
      "createdBy.name": "test00xx",
      "createdDate": "2024-06-07 11:29:52",
      "custom": true,
      "description": "dasdas",
      "errorExpression": "CONTAINS(name, 'aa')!=true",
      "errorLocation": "topOfPage",
      "errorMessage": "name must contains 'aa'",
      "field": null,
      "id": "001j000001DhzDVw81Vw",
      "installedPackage": null,
      "label": "tbq1dasdasssssssssssssss",
      "lastModifiedBy": "10gd000001DHHEwmE1NQ",
      "lastModifiedBy.__objectType": "User",
      "lastModifiedBy.name": "test00xx",
      "lastModifiedDate": "2024-06-07 11:34:50",
      "name": "tbq1dadasssssssssssssss",
      "objectId": "cust000001Dgez2L19N2",
      "objectId.__objectType": "Object",
      "objectId.name": "Test__t1__CST",
      "owner": "10gd000001DHHEwmE1NQ",
      "owner.__objectType": "User",
      "owner.name": "test00xx",
      "protectMode": 0,
      "visibility": 0
    }
  ]
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.3.16 Querying a Validator by validator_id

Function

Query a validator by validator_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/object/{object_id}/{validator_id}

Table 4-67 URI parameters

Parameter	Mandatory	Type	Description
object_id	Yes	String	Explanation Object instance ID, which can be queried by calling the API of Querying All Custom Objects (id in the response message). Constraints None Value None Default value None
validator_id	Yes	String	Explanation Validator ID, which can be queried by calling the API of Querying an Object Verification Rule by object_id (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-68 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the detail information about the validator object is returned.

Example Request

Query a validator by validator ID.

GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Object/cust000001Dgez2L19N2/Validator/001j000001E0YI3AmTx2

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "active": true,
    "belongTo": null,
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.__objectType": "User",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-18 15:57:34",
    "custom": true,
    "description": null,
    "errorExpression": "age__CST>10",
    "errorLocation": "topOfPage",
    "errorMessage": "The age is greater than 10.",
    "field": null,
    "id": "001j000001E0YI3AmTx2",
    "installedPackage": null,
    "label": "age",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-18 15:57:34",
    "name": "age",
    "objectId": "cust000001Dgez2L19N2",
    "objectId.__objectType": "Object",
```

```
{  "objectId.name": "Test_t1__CST",  "owner": "10gd000001DHHewmE1NQ",  "owner.__objectType": "User",  "owner.name": "test00xx",  "protectMode": 0,  "visibility": 0}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.4 Operations on Picklist Instances

4.2.4.1 Creating a Picklist Instance

Function

Create a picklist instance, that is, go to the **Data > Picklists** page in the application designer. You can customize the option list used in the application.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/picklist

Request Parameters

Table 4-69 Request parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation Name of the picklist instance. Constraints If a namespace is set for the environment, add the prefix <i>Namespace__</i> to the name. Value Start with a letter and can contain only letters, digits, and single underscores (_). There is no consecutive underscore (_) and the value cannot end with an underscore (_). A maximum of 64 characters are allowed. Default value None
masterLabel	Yes	String	Explanation Label of the picklist instance. Constraints None Value 1–64 characters Default value None
description	No	String	Explanation Description of the Picklist instance. Constraints None Value 1–255 characters Default value None

Parameter	Mandatory	Type	Description
useFirstAsDefault	No	String	Explanation Whether the first value is used as the default value. Constraints None Value None Default value None
picklistValues	No	Array	Explanation One or more values of the Picklist instance. Semicolons (;) are not allowed in the value. Constraints None

Response Parameters

Table 4-70 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, an ID is returned. Value None

Example Request

To create a Picklist instance, send the following request:

POST *https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Picklist*

```
{
  "name": "CNAME1__testName",
  "picklistValues": [
    {
      "label": "A",
      "value": "A"
    },
    {
      "label": "B",
      "value": "B"
    },
    {
      "label": "C",
      "value": "C"
    }
  ],
  "masterLabel": "Label for pick list ABC"
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "0004000001MPkyhd1gHo"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.4.2 Querying Picklist Instances by Condition

Function

This API is used to query Picklist instances that meet specific conditions.

URI

GET *Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/picklist*

Request Parameters

Table 4-71 Request parameters

Parameter	Mandatory	Type	Description
flag	No	String	Explanation Specifies the method of querying the value set list of a picklist. Constraints None Value flag=A indicates that all Picklist instances are queried, including the global Picklist and field-level Picklist instances. - If flag is not passed, a condition-based query will be performed. Default value None
project	No	String	Explanation Name of the project to which the Picklist instance belongs. Constraints None Value None Default value None
type	No	String	Explanation Type of the project to which the Picklist instance belongs. Constraints None Value app: The project type is application. bo: The project type is BO, that is, a service that encapsulates a complete scenario. Default value None

Parameter	Mandatory	Type	Description
name	No	String	Explanation Name of the picklist instance. Constraints None Value None Default value None
isGlobal	No	String	Explanation Whether the picklist instance is a global Picklist. Constraints isGlobal=true can be transferred only when project and type are transferred to filter the global picklist related to the application. Otherwise, isGlobal does not take effect. Value true Default value None

Response Parameters

Table 4-72 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	Array	Explanation If the request is successful, the Picklist instances that meet the conditions are returned.

Example Request

To query Picklist instances by condition, send the following request:
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Picklist?
name=testName&isGlobal=false

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "controlField": null,
      "createdBy": "testUserId",
      "createdBy.__objectType": "User",
      "createdBy.name": "test0xx",
      "createdDate": "2019-08-05 20:38:24",
      "custom": true,
      "description": "",
      "id": "testListId",
      "installedPackage": null,
      "isGlobal": true,
      "isRestricted": false,
      "isSorted": false,
      "lastModifiedBy": "testUserId",
      "lastModifiedBy.__objectType": "User",
      "lastModifiedBy.name": "test0xx",
      "lastModifiedDate": "2019-08-05 20:38:24",
      "masterLabel": "testLabel",
      "name": "testName",
      "owner": "testUserId",
      "owner.__objectType": "User",
      "owner.name": "test0xx",
      "protectMode": 0
    }
  ]
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.4.3 Adding Values to a Picklist Instance

Function

This API is used to add values to a Picklist instance specified by **picklist_id**.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Picklist/{*Picklist_id*}

Table 4-73 URI parameters

Parameter	Mandatory	Type	Description
Picklist _id	Yes	String	Explanation Picklist instance ID, which can be queried by invoking the API of Querying Picklist Instances by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-74 Request parameter

Parameter	Mandatory	Type	Description
picklistValues	Yes	Array	Explanation Add one or more values to a Picklist instance. Constraints Semicolons (;) are not allowed in the value. The value to add must be different from any existing value of the Picklist instance.

Response Parameters

Table 4-75 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	String	Explanation If the request is successful, 1 is returned. Value None

Example Request

To add a value to a Picklist instance, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Picklist/000y000000aM92DCu6hU
{
  "picklistValues": [
    {
      "value": "F",
      "label": "ff"
    }
  ]
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": 1
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.4.4 Querying a Picklist Instance or Objects That Reference a Picklist Instance

Function

This API is used to query a specific Picklist instance or the objects that reference a specific Picklist instance.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Picklist/{*Picklist_id*}

Table 4-76 URI parameters

Parameter	Mandatory	Type	Description
Picklist_id	Yes	String	Explanation Picklist instance ID, which can be queried by invoking the API of Querying Picklist Instances by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-77 Request parameter

Parameter	Mandatory	Type	Description
flag	No	String	Explanation Query mode, which is used to query a picklist instance or the objects that reference a picklist instance. Constraints None Value • flag=R indicates that the list of objects that reference the Picklist instance is queried. • If flag is not passed, the Picklist instance is queried. Default value None

Response Parameters

Table 4-78 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	Object	Explanation If the request is successful, a Picklist instance or the objects that reference the Picklist instance is returned.

Example Request

To query a Picklist instance, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Picklist/  
000y000000aM92DCu6hU
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": [  
    {  
      "id": "testListId",  
      "name": "testName",  
      "isSorted": false,  
      "isRestricted": false,  
      "controlField": "",  
      "masterLabel": "testLabel",  
      "description": "",  
      "isGlobal": true,  
      "isBaseline": false,  
      "picklistValues": [  
        {  
          "id": "testValueId",  
          "value": "A",  
          "isDefault": false,  
          "isActive": true,  
          "label": "A",  
          "sequenceNo": 0,  
          "color": "",  
          "controlFieldValue": "",  
          "description": "",  
          "isBaseline": false,  
          "createdBy": "testUserId",  
          "createdBy.name": "test0xx",  
          "createdDate": "2019-08-05 20:38:24",  
          "lastModifiedBy": "testUserId",  
          "lastModifiedBy.name": "test0xx",  
          "lastModifiedDate": "2019-08-05 20:38:24",  
          "owner": "testUserId",  
          "owner.name": "test0xx",  
          "custom": true  
        }  
      ],  
      "createdBy": "testUserId",  
      "createdBy.name": "test0xx",  
      "createdDate": "2019-08-05 20:38:24",  
      "lastModifiedBy": "testUserId",  
      "lastModifiedBy.name": "test0xx",  
      "lastModifiedDate": "2019-08-05 20:38:24",  
      "owner": "testUserId",  
      "owner.name": "test0xx",  
      "custom": true  
    }  
  ]  
}
```

```
]
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.4.5 Updating a Picklist Instance

Function

This API is used to update a picklist by ID.

URI

PUT *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Picklist/
{*Picklist_id*}

Table 4-79 URI parameters

Parameter	Mandator y	Type	Description
Picklist_id	Yes	String	Explanation Picklist instance ID, which can be queried by invoking the API of Querying Picklist Instances by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-80 Request parameters

Parameter	Mandatory	Type	Description
masterLabel	Yes	String	Explanation Label of the picklist instance. Constraints None Value 1–64 characters Default value None
description	No	String	Explanation Description of the Picklist instance. Constraints None Value 1–255 characters Default value None

Response Parameters

Table 4-81 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	String	Explanation If the request is successful, 1 is returned. Value None

Example Request

To update a Picklist instance, send the following request:

```
PUT https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Picklist/  
000y000000aM92DCu6hU  
{  
  "masterLabel": "string",  
  "description": "string"  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": "1"  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.4.6 Deleting a Picklist Instance or the Value of a Picklist Instance

Function

This API is used to delete a Picklist instance or the value of a Picklist instance.

- To delete a Picklist instance (the request does not carry the **value** parameter), ensure that the instance is not referenced by any object.
- To delete a value of a Picklist instance (the request carries the **value** parameter), ensure that the value to delete is not the last activated value of the instance.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Picklist/{*Picklist_id*}

Table 4-82 URI parameters

Parameter	Mandatory	Type	Description
Picklist_id	Yes	String	Explanation Picklist instance ID, which can be queried by invoking the API of Querying Picklist Instances by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-83 Request parameter

Parameter	Mandatory	Type	Description
value	No	String	Explanation ID of the value to delete. This parameter is used only when you want to delete a specific value. Constraints None Value None Default value None

Response Parameters

Table 4-84 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, 1 is returned. Value None

Example Request

To delete a Picklist instance, send the following request:
`DELETE https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Picklist/000y000000aM92DCu6hU`

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": 1
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.5 Application Object Operations

4.2.5.1 Listing All Applications

Function

This API is used to list all applications under the current account.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Application

Request Parameters

None

Response Parameters

Table 4-85 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, all applications under the account are displayed in a list. Each value indicates an application.

Table 4-86 Main properties of each object in result

Parameter	Type	Description
id	String	Explanation Application ID. Value None

Parameter	Type	Description
label	String	Explanation Label name of an application. Value None
name	String	Explanation Name of an application. Value None
description	String	Explanation Description of an application. Value None
type	String	Explanation Application type. Value • NoCode Application: no-code application. • Custom Application: low-code application.
logo	String	Explanation Application icon. You can enter the image address (the prefix is restricted). Value The prefix value range is as follows: "/u-route/baas/file/v1.0/media", "/besBaas/baas/studio/img", "/img", "/besBaas/images", "/nc-icon", "/nocode/service/file/v1.0/media", "/menuicon", "/lowcode/home/img"
properties	String	Explanation Application properties, including the application package ID and version number. Value None

Example Request

To list all applications under the current account, send the following request:
GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Application>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [{
    "active": true,
    "belongTo": null,
    "category": null,
    "coreVersion": null,
    "createdBy": "10gd000000bZHUAq7Pea",
    "createdBy.__objectType": "User",
    "createdBy.name": "test",
    "createdDate": "2019-02-10 22:14:41",
    "custom": true,
    "defaultTabId": "001g0000000000000000",
    "defaultTabId.__objectType": "Tab",
    "defaultTabId.name": "Home",
    "description": "Application 1",
    "id": "000f000000Nhiwso4p6",
    "installedPackage": "003L000000mR6pf2uFqi",
    "installedPackage.__objectType": "PackageInstall",
    "installedPackage.name": "FacilityManagement",
    "introductionPageId": null,
    "isIncremental": false,
    "label": "Facility Management",
    "lastModifiedBy": "10gd000000bZHUAq7Pea",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test",
    "lastModifiedDate": "2020-01-10 15:21:18",
    "logo": null,
    "name": "SmartCampus_FacilityManagement",
    "owner": "10gd000000bZHUAq7Pea",
    "owner.__objectType": "User",
    "owner.name": "test",
    "properties": "{\\\"version\\\":\\\"0.0.0\\\",\\\"packageId\\\":\\\"testPackageId\\\"}",
    "protectMode": 1,
    "runtimeProperties": null,
    "supportBO20": false,
    "theme": null,
    "type": "Custom Application",
    "type.name": "Custom Application",
    "visibility": null,
    "visibleScope": null
  }],
  {
    "active": true,
    "belongTo": null,
    "category": "",
    "coreVersion": "1.3.3",
    "createdBy": "10gd000000bZHUAq7Pea",
    "createdBy.__objectType": "User",
    "createdBy.name": "test",
    "createdDate": "2020-09-28 20:30:35",
    "custom": true,
    "defaultTabId": "001g0000000000000000",
    "defaultTabId.__objectType": "Tab",
    "defaultTabId.name": "Home",
    "description": "Demonstrable configurable scenario case",
    "id": "000f000000ddHP8z87N2",
    "installedPackage": "003L000000llRwGwwuDg",
    "installedPackage.__objectType": "PackageInstall",
    "installedPackage.name": "$caseDemo_a",
    "introductionPageId": null,
    "isIncremental": false,
    "label": "Trouble ticket process",
    "lastModifiedBy": "10gd000000bZHUAq7Pea",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test",
    "lastModifiedDate": "2021-08-02 10:20:56",
```

```
"logo": "/img/03.cd9e2a5.jpg",
"name": "caseDemo",
"owner": "10gd000000bZHUAq7Pea",
"owner.__objectType": "User",
"owner.name": "test",
"properties": "{\\\"version\\\":\\\"0.0.0\\\",\\\"packageId\\\":\\\"003G000000ddHP8QV3VA\\\"}",
"protectMode": 0,
  "runtimeProperties": "{\\\"version\\\":\\\"180828\\\",\\\"packageId\\\":\\\"003G000000ddHP8QV3VA\\\"}",
  "supportBO20": false,
  "theme": null,
  "type": "Custom Application",
  "type.name": "Custom Application",
  "visibility": null,
  "visibleScope": null
}
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.5.2 Querying an Application by ID

Function

This API is used to query application details based on the application ID.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Application/{app_id}

Table 4-87 Parameters

Parameter	Mandatory	Type	Description
app_id	Yes	String	Explanation Application ID, which can be queried by invoking the API of Listing All Applications (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-88 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the application details are returned. For details, see Table 4-89 .

Table 4-89 Main properties of each object in result

Parameter	Type	Description
id	String	Explanation Application ID. Value None
label	String	Explanation Display name of an application. Value None
name	String	Explanation Unique ID of the application in the system. Value None

Parameter	Type	Description
description	String	Explanation Description of an application. Value None
type	String	Explanation Application type. Value • NoCode Application: no-code application. • Custom Application: low-code application.
logo	String	Explanation Application icon. You can enter the image address (the prefix is restricted). Value The prefix value range is as follows: "/u-route/baas/file/v1.0/media", "/besBaas/baas/studio/img", "/img", "/besBaas/images", "nc-icon", "/nocode/service/file/v1.0/media", "menuicon", "/lowcode/home/img"
properties	String	Explanation Application properties. Value None
active	Boolean	Explanation An application is enabled. Value None
createdBy	String	Explanation Application creator ID. Value None
createdDate	String	Explanation Date when an application is created. Value None

Parameter	Type	Description
lastModifiedBy	String	Explanation ID of the last person who modified the application. Value None
lastModifiedDate	String	Explanation Date when the application is last modified. Value None
isIncremental	Boolean	Explanation The application package is an incremental package. Value None
defaultTabId	String	Explanation Default navigation bar ID of an application. Value None
owner	String	Explanation ID of the application owner. Generally, the owner is the creator. Value None
protectMode	Integer	Explanation Application protection mode. Value • 0: Unprotected. • 1: Protected. The application cannot be modified
visibility	Integer	Explanation Application visibility. Value • 0: Public data, which is visible to external systems. • 1: Private data, which is invisible to external systems.

Example Request

To query the detailed information about the application based on the application ID **000f000000g3Yhaz5ipE**, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Application/  
000f000000g3Yhaz5ipE
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "active": true,  
  
    "createdBy": "10gd000000bZHUAq7Pea",  
    "createdDate": "2020-12-28 09:33:29",  
    "defaultTabId": "001g0000000000000000",  
    "description": "",  
    "id": "000f000000g3Yhaz5ipE",  
    "isIncremental": false,  
    "label": "Mobile phone sales statistics",  
    "lastModifiedBy": "10gd000000bZHUAq7Pea",  
    "lastModifiedDate": "2021-01-15 15:22:55",  
    "logo": "",  
    "name": "CHAME__phoneSales",  
    "owner": "10gd000000bZHUAq7Pea",  
    "properties": "{\n  \"version\": \"180828\",\n  \"skava\": {\n    \"id\": \"001S000000g3YhZ1bP9c\",\n    \"websiteId\": \"517297\",\n    \"name\": \"CHAME__phoneSales_0000000000Z16qkNc1Uv\",\n    \"packageId\": \"003G000000g3YhapixX6\"\n  },\n  \"protectMode\": 0,\n  \"type\": \"Custom Application\",\n  \"visibility\": 0\n}",  
    "protectMode": 0,  
    "type": "Custom Application",  
    "visibility": 0  
  }  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.6 View Object Operations

4.2.6.1 Querying the Standard Page List

Function

This API is used to query the list of standard pages, including only basic information. To obtain the content of a standard page, query the content by ID.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/View

Request Parameters

None

Response Parameters

Table 4-90 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, information about all standard pages is displayed in a list. Each value is a standard page.

Example Request

To query the standard page list, send the following request:
GET *https://Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/View

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [{
    "active": false,
    "application": null,
    "belongTo": "000f000001DHIByJ3nKC",
    "belongTo.__objectType": "Application",
    "belongTo.name": "",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.__objectType": "User",
    "createdBy.name": "test00xx",
    "createdDate": "2024-05-22 16:02:55",
```

```
"custom": true,
"customStyle": null,
"deletedDate": null,
"description": null,
"id": "003g000001DHkGa4LkkC",
"installedPackage": null,
"isDeleted": false,
"label": "Test__ApprovedResource__CST Detail",
"lastModifiedBy": "10gd000001DHHEwmE1NQ",
"lastModifiedBy.__objectType": "User",
"lastModifiedBy.name": "test00xx",
"lastModifiedDate": "2024-05-22 16:02:55",
"layer": "null",
"libraries": "[]",
"logo": null,
"name": "__layout__Test__ApprovedResource__CST__detail",
"overridable": true,
"owner": "10gd000001DHHEwmE1NQ",
"owner.__objectType": "User",
"owner.name": "test00xx",
"pageType": null,
"protectMode": 0,
"referencePageId": null,
"systemModifiedDate": null,
"type": "Page",
"version": "1.0.1",
"visibility": 0
},
{
  "active": false,
  "application": "000f000001Df2QvzMS4O",
  "application.__objectType": "Application",
  "application.name": "N2109869914__psi",
  "belongTo": null,
  "createdBy": "10gd000001DHHEwmE1NQ",
  "createdBy.__objectType": "User",
  "createdBy.name": "test00xx",
  "createdDate": "2024-06-05 16:52:39",
  "custom": true,
  "customStyle": ".newmodal .form-buttons-container{\n display: none\n}",
  "deletedDate": null,
  "description": null,
  "id": "003g000001Df2TOk6oxl",
  "installedPackage": "003L000001Df2QxT2t6U",
  "installedPackage.__objectType": "PackageInstall",
  "installedPackage.name": "",
  "isDeleted": false,
  "label": "Repository administrator management",
  "lastModifiedBy": "10gd000001DHHEwmE1NQ",
  "lastModifiedBy.__objectType": "User",
  "lastModifiedBy.name": "test00xx",
  "lastModifiedDate": "2024-06-05 16:52:41",
  "layer": "null",
  "libraries": "",
  "logo": null,
  "name": "N2109869914__Managewarehouse_admin",
  "overridable": true,
  "owner": "10gd000001DHHEwmE1NQ",
  "owner.__objectType": "User",
  "owner.name": "test00xx",
  "pageType": "Manage",
  "protectMode": 0,
  "referencePageId": null,
  "systemModifiedDate": null,
  "type": "Page",
  "version": "1.0.9",
  "visibility": 0
},
{
```

```
{
  "active": false,
  "application": "000f000001Df2fEmnBmy",
  "application.__objectType": "Application",
  "application.name": "N2211461455__psi",
  "belongTo": "000f000001Df2fEmnBmy",
  "belongTo.__objectType": "Application",
  "belongTo.name": "N2211461455__psi",
  "createdBy": "10gd000001DHHEwmE1NQ",
  "createdBy.__objectType": "User",
  "createdBy.name": "test00xx",
  "createdDate": "2024-06-05 16:55:53",
  "custom": true,
  "customStyle": ".newmodal .form-buttons-container{\n  display: none\n}",
  "deletedDate": null,
  "description": null,
  "id": "003g000001Df2hjjDouB",
  "installedPackage": "003L000001Df2fGPHBr4",
  "installedPackage.__objectType": "PackageInstall",
  "installedPackage.name": "",
  "isDeleted": false,
  "label": "Buyers management",
  "lastModifiedBy": "10gd000001DHHEwmE1NQ",
  "lastModifiedBy.__objectType": "User",
  "lastModifiedBy.name": "test00xx",
  "lastModifiedDate": "2024-06-05 16:55:55",
  "layer": "null",
  "libraries": "",
  "logo": null,
  "name": "N2211461455__Managebuyer",
  "overridable": true,
  "owner": "10gd000001DHHEwmE1NQ",
  "owner.__objectType": "User",
  "owner.name": "test00xx",
  "pageType": "Manage",
  "protectMode": 0,
  "referencePagelId": null,
  "systemModifiedDate": null,
  "type": "Page",
  "version": "1.0.8",
  "visibility": 0
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.6.2 Querying a Standard Page by ID

Function

This API is used to query standard pages by view_id.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/View/{view_id}

Table 4-91 Parameters

Parameter	Mandatory	Type	Description
view_id	Yes	String	Explanation ID of the standard page. You can call an API (see Querying the Standard Page List) to view id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-92 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes.
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation The detailed information about the standard page is displayed.

Example Request

To query the detailed application information based on the standard page ID **003g000001DHkGa4LkkC**, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/View/Huawei Cloud Astro Zero domain name
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "active": false,
    "application": null,
    "belongTo": "000f000001DHlByJ3nKC",
    "belongTo.__objectType": "Application",
    "belongTo.name": "",
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.__objectType": "User",
    "createdBy.name": "test00xx",
    "createdDate": "2024-05-22 16:02:55",
    "custom": true,
    "customStyle": null,
    "description": null,
    "events": [{
      "action": "[{"type": "$core.execJSCode", "options": {"content": "// Current Component\\r\\nlet _component = context.getCurrentComponent()\\r\\n\\r\\n// Current Form\\r\\nlet _form = _component.getForm()\\r\\n\\r\\n\\r\\n_form.formSave()\\r\\n\\r\\n}}]",
      "belongTo": null,
      "createdBy": "10gd000001DHHEwmE1NQ",
      "createdBy.__objectType": "User",
      "createdBy.name": "test00xx",
      "createdDate": "2024-05-22 16:02:55",
      "custom": true,
      "id": "003h000001DHkGa8bjhA",
      "installedPackage": null,
      "lastModifiedBy": "10gd000001DHHEwmE1NQ",
      "lastModifiedBy.__objectType": "User",
      "lastModifiedBy.name": "test00xx",
      "lastModifiedDate": "2024-05-22 16:02:55",
      "name": "button_0_click",
      "owner": "10gd000001DHHEwmE1NQ",
      "owner.__objectType": "User",
      "owner.name": "test00xx",
      "protectMode": 0,
      "view": "003g000001DHkGa4LkkC",
      "view.__objectType": "View",
      "view.name": " _layout__Test__ApprovedResource__CST__detail",
      "visibility": 0
    }],
    {
      "action": "[{"type": "$core.execJSCode", "options": {"content": "// Current Component\\r\\nlet _component = context.getCurrentComponent()\\r\\n\\r\\n// Current Form\\r\\nlet _form = _component.getForm()\\r\\n\\r\\n\\r\\n_form.resetFields()\\r\\n\\r\\n}}]",
      "belongTo": null,
      "createdBy": "10gd000001DHHEwmE1NQ",
      "createdBy.__objectType": "User",
      "createdBy.name": "test00xx",
      "createdDate": "2024-05-22 16:02:55",
      "custom": true,
      "id": "003h000001DHkGa8tKpE",
      "installedPackage": null,
      "lastModifiedBy": "10gd000001DHHEwmE1NQ",
      "lastModifiedBy.__objectType": "User",
      "lastModifiedBy.name": "test00xx",
      "lastModifiedDate": "2024-05-22 16:02:55",
    }
  ]
}
```

```

    "name": "button_1_click",
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.__objectType": "User",
    "owner.name": "test00xx",
    "protectMode": 0,
    "view": "003g000001DHkGa4LkkC",
    "view.__objectType": "View",
    "view.name": "_layout_Test_ApprovedResource_CST_detail",
    "visibility": 0
  },
  {
    "id": "003g000001DHkGa4LkkC",
    "installedPackage": null,
    "label": "Test_ApprovedResource_CST Detail",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-05-22 16:02:55",
    "layer": "null",
    "libraries": "[]",
    "lockTime": "",
    "lockUser": "",
    "logo": null,
    "name": "_layout_Test_ApprovedResource_CST_detail",
    "overridable": true,
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.__objectType": "User",
    "owner.name": "test00xx",
    "pageType": null,
    "protectMode": 0,
    "referencePageld": null,
    "type": "Page",
    "version": "1.0.1",
    "viewData": "{\n  \"key\": \"1\", \"type\": \"DesignerPage\", \"props\": {\n    \"name\": \"DesignerPage_1\", \"elements\": [\n      {\n        \"key\": \"1538107283948000\", \"type\": \"form\", \"props\": {\n          \"labelPosition\": \"top\", \"labelWidth\": 120, \"name\": \"form_0\", \"dataSource\": \"Test_ApprovedResource_CST\", \"dataSourceType\": \"Entity\", \"layout\": {\n            \"key\": \"one_one_one\", \"value\": [8, 8], \"dataSourceId\": \"Test_ApprovedResource_CST\", \"attrs\": {\n              \"on\": {}, \"elements\": [{\n                \"key\": \"1535715199303019\", \"type\": \"title\", \"props\": {\n                  \"text\": \"ApprovedResource\", \"value\": \"ApprovedResource\", \"class\": \"form-title-container\", \"name\": \"title_1\", \"attrs\": {}, \"on\": {}, \"elements\": [], \"key\": \"1535715199303039\", \"type\": \"container\", \"props\": {\n                    \"name\": \"container_1\", \"attrs\": {}, \"on\": {}, \"elements\": [{\n                      \"key\": \"1535715199303036\", \"type\": \"layoutgrid\", \"props\": {\n                        \"name\": \"layoutgrid_1\", \"attrs\": {}, \"on\": {}, \"elements\": [{\n                          \"key\": \"1888001472428500\", \"type\": \"row\", \"props\": {\n                            \"layout\": \"pc\", \"key\": \"one_one_one\", \"value\": [8, 8], \"pad\": {\n                              \"key\": \"pad1\", \"value\": [24], \"phone\": {\n                                \"key\": \"phone1\", \"value\": [24] \n                              }, \"name\": \"row_0\", \"attrs\": {}, \"on\": {}, \"elements\": [{\n                                  \"key\": \"1888001472428501\", \"type\": \"col\", \"props\": {\n                                    \"align\": \"left\", \"lg\": 8, \"md\": 8, \"sm\": 24, \"xs\": 24, \"name\": \"col_3\", \"attrs\": {}, \"on\": {}, \"elements\": [{\n                                      \"key\": \"1888001472428502\", \"dataBinding\": {\n                                        \"default\": {\n                                          \"model\": {\n                                            \"form_0\": {\n                                              \"name\": \"input\", \"props\": {\n                                                \"type\": \"text\", \"dataField\": \"name\", \"dataFieldType\": \"xs_string\", \"label\": \"en_US\\\\zh_CN\\\\\" Save \", \"style\": {\n                                                  \"margin-right: 20px;\", \"type\": \"primary\", \"name\": \"button_0\", \"attrs\": {\n                                                    \"on\": {\n                                                      \"click\": {\n                                                        \"actions\": {\n                                                          \"type\": \"$core.execJSCode\", \"options\": {\n                                                            \"content\": \"// Current Component\\r\\nlet _component = context.getCurrentComponent()\\r\\n\\r\\n// Current Form\\r\\nlet _form = _component.getForm()\\r\\n\\r\\n\\r\\n_form.formSave()\\r\\n\\r\\n}}\", \"graph\": \"\", \"serviceList\": [], \"elements\": [], \"key\": \"1535946611880037\", \"type\": \"button\", \"props\": {\n                                                              \"text\": \"en_US\\\\\" Reset\", \"fr_FR\": \"\", \"ja_JP\": \"\", \"zh_CN\": \"Reset \", \"style\": \"\", \"name\": \"button_1\", \"attrs\": {\n                                                                \"on\": {\n                                                                  \"click\": {\n                                                                    \"actions\": {\n                                                                      \"type\": \"$core.execJSCode\", \"options\": {\n                                                                        \"content\": \"// Current Component\\r\\nlet _component = context.getCurrentComponent()\\r\\n\\r\\n\\r\\n// Current Form\\r\\nlet _form = _component.getForm()\\r\\n\\r\\n\\r\\n_form.resetFields()\\r\\n\\r\\n}}\", \"graph\": \"\", \"serviceList\": [], \"elements\": []}], \"dataBinding\": {\n                                                                \"default\": {\n                                                                  \"model\": {\n                                                                    \"form_0\": {} \n                                                                  } \n                                                                }, \"dependencies\": {\n                                                                  \"names\": {\n                                                                    \"extendNames\": [], \"pageMasterNames\": [], \"cardNames\": [] \n                                                                  }, \"version\": \"1.0.2\" \n                                                                }, \"viewModel\": {\n                                                                    \"form_0\": {\n                                                                      \"mapping\": {\n                                                                          \"bindType\": \"object\", \"bindValue\": \"Test_ApprovedResource_CST\", \"include\": \"ALL\", \"exclude\": \"\", \"fields\": {\n                                                                              \"name\": \"form_0\", \"label\": \"form_0\", \"type\": \"object\", \"isRequired\": false, \"defaultValue\": {}, \"expand\": false, \"origin\": {\n                                                                                \"type\": \"Test_ApprovedResource_CST\", \"name\": \"Test_ApprovedResource_CST\", \"mappingField\": \"Test_ApprovedResource_CST\", \"rootInstanceld\": \"form_0\", \"uid\": 0, \"name\": \"name\", \"label\": \"en_US\\\\zh_CN\\\\\" Name\", \"zh_CN\\\\Name\", \"type\": \"xs string\n
```

```
\,\"orign\":{\\"type\\":\\"object\\",\\"name\\":\\"Test__ApprovedResource__CST\\",\\"mappingField\\":\\"name\\",\\"parentId\\":\\"form_0\\",\\"expand\\":false,\\"rootInstanceId\\":\\"form_0\\",\\"uid\\":1}},\\"actions\\":{\\"name\\":\\"query\\",\\"type\\":\\"object\\",\\"method\\":\\"query\\",\\"uri\\":\\"Test__ApprovedResource__CST\\",\\"input\\":[],\\"output\\":{\\"fieldName\\":\\"name\\",\\"mappingField\\":\\"name\\",\\"name\\":\\"save\\",\\"type\\":\\"object\\",\\"method\\":\\"save\\",\\"uri\\":\\"Test__ApprovedResource__CST\\",\\"output\\":[],\\"input\\":{\\"fieldName\\":\\"name\\",\\"mappingField\\":\\"name\\",\\"name\\":\\"delete\\",\\"type\\":\\"object\\",\\"method\\":\\"delete\\",\\"uri\\":\\"Test__ApprovedResource__CST\\",\\"output\\":[],\\"input\\":{\\"fieldName\\":\\"name\\",\\"mappingField\\":\\"name\\",\\"name\\":\\"count\\",\\"type\\":\\"object\\",\\"method\\":\\"count\\",\\"uri\\":\\"Test__ApprovedResource__CST\\",\\"input\\":[],\\"output\\":[]}}}},\\"visibility\\": 0  
  }  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.2.7 Tab Object Operations

4.2.7.1 Querying Application Tabs

Function

This API is used to query the list of application tab pages.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Tab

Request Parameters

None

Response Parameters

Table 4-93 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array	Explanation If the request is successful, information about all standard pages is displayed in a list. Each value is a standard page.

Example Request

To query the list of application tab pages, send the following request:
GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Tab>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [{
    "belongTo": null,
    "bpld": null,
    "createdBy": "10gd000001DHHEwmE1NQ",
    "createdBy.__objectType": "User",
    "createdBy.name": "test00xx",
    "createdDate": "2024-06-13 10:11:07",
    "custom": true,
    "description": "home tab",
    "id": "001g0000000000000000",
    "installedPackage": null,
    "kanbanId": null,
    "label": "Home",
    "lastModifiedBy": "10gd000001DHHEwmE1NQ",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test00xx",
    "lastModifiedDate": "2024-06-13 10:11:07",
    "layoutId": null,
    "logo": "home.logo",
    "name": "Home",
    "objectId": "",
    "openWay": 0,
    "owner": "10gd000001DHHEwmE1NQ",
    "owner.__objectType": "User",
    "owner.name": "test00xx",
    "pageId": null,
    "properties": "",
    "protectMode": 0,
    "reportId": null,
    "showDeviceType": null,
    "showRegion": 0,
    "type": "PortalTab",
    "type.name": "PortalTab",
    "visibility": null,
    "webURL": null,
    "websiteId": null
  ]
}
```

```
},
{
  "belongTo": null,
  "bpId": null,
  "createdBy": "10gd000001DHHEwmE1NQ",
  "createdBy.__objectType": "User",
  "createdBy.name": "test00xx",
  "createdDate": "2024-06-12 17:12:34",
  "custom": true,
  "description": null,
  "id": "001g000001DqgE2h6vUO",
  "installedPackage": null,
  "kanbanId": null,
  "label": "management t134",
  "lastModifiedBy": "10gd000001DHHEwmE1NQ",
  "lastModifiedBy.__objectType": "User",
  "lastModifiedBy.name": "test00xx",
  "lastModifiedDate": "2024-06-12 17:12:34",
  "layoutId": null,
  "logo": "menuicon icon-app",
  "name": "Test__asda_t1",
  "objectId": null,
  "openWay": 0,
  "owner": "10gd000001DHHEwmE1NQ",
  "owner.__objectType": "User",
  "owner.name": "test00xx",
  "pageId": null,
  "properties": null,
  "protectMode": 0,
  "reportId": null,
  "showDeviceType": "0",
  "showRegion": 0,
  "type": "ViewTab",
  "type.name": "ViewTab",
  "visibility": 0,
  "webURL": "Test__Managet1",
  "websiteId": null
},
{
  "belongTo": null,
  "bpId": null,
  "createdBy": "10gd000001DHHEwmE1NQ",
  "createdBy.__objectType": "User",
  "createdBy.name": "test00xx",
  "createdDate": "2024-06-13 10:05:50",
  "custom": true,
  "description": null,
  "id": "001g000001DrqdSfgNXc",
  "installedPackage": null,
  "kanbanId": null,
  "label": "management t1342",
  "lastModifiedBy": "10gd000001DHHEwmE1NQ",
  "lastModifiedBy.__objectType": "User",
  "lastModifiedBy.name": "test00xx",
  "lastModifiedDate": "2024-06-13 10:05:50",
  "layoutId": null,
  "logo": "menuicon icon-app",
  "name": "Test__asda_t11",
  "objectId": null,
  "openWay": 0,
  "owner": "10gd000001DHHEwmE1NQ",
  "owner.__objectType": "User",
  "owner.name": "test00xx",
  "pageId": null,
  "properties": null,
  "protectMode": 0,
  "reportId": null,
  "showDeviceType": "0",
  "showRegion": 0,
```

```
"type": "ViewTab",
"type.name": "ViewTab",
"visibility": 0,
"webURL": "Test_Managet12",
"websiteId": null
}
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3 Flows

4.3.1 Creating a Flow

Function

This API is used to create a flow.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Flow

Request Parameters

Table 4-94 Request parameters

Parameter	Mandato ry	Type	Description
name	Yes	String	Explanation The flow name. Constraints None Value Start with a letter and can contain only letters, digits, and single underscores (_). The value cannot use consecutive underscore (__) and cannot end with an underscore. A maximum of 64 characters are allowed. Default value None

Parameter	Mandatory	Type	Description
label	Yes	String	Explanation The flow label. Constraints None Value 1–64 characters Default value None
processType	Yes	String	Explanation Type of the Flow instance. The options are as follows: Constraints None Value • Autolaunched Flow: a flow instance that is automatically started. After the API is called, the logic defined in the Flow model is immediately executed. • Event Trigger: A flow that is triggered by an event. The logic defined in the flow model is executed only when the event is triggered. If this type is selected, you must configure events and condition rules. Default value Autolaunched Flow
startElement	No	String	Explanation Start element of a flow, that is, the name of the first diagram element pointed by the start node. For example, if the diagram element pointed by the start node is script0, the start element of the flow is script0. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
interviewLabel	No	String	Explanation Flow instance label. Constraints None Value None Default value None
localUrl	Yes	String	Explanation Local URL, which consists of /run/ and the flow name. For example, if the flow name is Namespace_das, set the URL to /run/Namespace_das. Constraints None Value None Default value None
event	No	String	Explanation Flow event. Constraints This parameter is mandatory when processType is set to Event Trigger. Value None Default value None
variables	No	Array	Explanation Variables bound to the flow instance. Constraints This parameter is valid only when processType is set to Event Trigger.

Parameter	Mandatory	Type	Description
eventCriteria	No	String	Explanation Trigger condition configured for the event involved in a flow. Constraints None Value None Default value None

Response Parameters

Table 4-95 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the flow ID is returned.

Example Request

Create a flow instance. The flow instance label is **das** and the name is **t__das**.

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Flow
{
  "label": "das",
  "name": "t__das",
  "processType": "Autolaunched Flow",
  "localUrl": "/run/t__das",
  "startElement": "",

```

```
"event": "",  
"eventCriteria": "",  
"interviewLabel": "das {!$Flow.CurrentDateTime}"  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "errors": [  
      "startElement in Flow(t__das) is mandatory."  
    ],  
    "id": "000y000000aM8XixTN0S",  
    "warnings": []  
  }  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3.2 Querying Flows

Function

This API is used to query flows by condition.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Flow

Request Parameters

Table 4-96 Request parameters

Parameter	Mandatory	Type	Description
like	No	String	Explanation If like is true , fuzzy match is used for names. Otherwise, exact match is used. Constraints None Value None Default value Exact match

Parameter	Mandatory	Type	Description
name	No	String	Explanation Name of the flow, that is, the value of name in the request body when the flow is created in Creating a Flow. Constraints None Value None Default value None
processType	No	String	Explanation Type of the Flow instance. Constraints None Value • Autolaunched Flow: a flow instance that is automatically started. After the API is called, the logic defined in the Flow model is immediately executed. • Event Trigger: A flow that is triggered by an event. The logic defined in the flow model is executed only when the event is triggered. If this type is selected, you must configure events and condition rules. Default value None
active	No	String	Explanation Whether the flow is enabled. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
baseline	No	String	Explanation Whether the Flow instance is preset in the system. Constraints None Value None Default value None
skip	No	String	Explanation ID of the first record from which the search starts. skip is greater than or equal to 0. Constraints None Value An integer greater than or equal to 0. Default value None
limit	No	String	Explanation The maximum number of records returned. limit is greater than or equal to 1. Constraints None Value An integer greater than or equal to 1. Default value None

Response Parameters

Table 4-97 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	array	Explanation If the operation is successful, the flow list that meet the conditions is returned.

Example Request

Query service orchestration instances by condition.
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Flow?name=testName&processType=Autolaunched Flow&active=true

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "boID": null,
      "catalogue": "Out",
      "createdBy": "testUserId",
      "createdBy.__objectType": "User",
      "createdBy.name": "test0xx",
      "createdDate": "2019-08-04 16:21:58",
      "custom": true,
      "description": "Updated Description",
      "id": "000y000000aM8XixTN0S",
      "installedPackage": null,
      "lastModifiedBy": "testUserId",
      "lastModifiedBy.__objectType": "User",
      "lastModifiedBy.name": "test0xx",
      "lastModifiedDate": "2019-08-04 16:22:58",
      "name": "testName",
      "namespace": "testSpace",
      "owner": "testUserId",
      "owner.__objectType": "User",
      "owner.name": "test0xx",
      "protectMode": 0,
      "structMembers": [
        {
```

```
"createdBy": "testUserId",
"createdBy.__objectType": "User",
"createdBy.name": "test0xx",
"createdDate": "2019-08-04 16:21:58",
"currencyFactor": 1,
"custom": true,
"dataType": "text",
"defaultValue": null,
"defaultValueType": null,
"description": null,
"id": "000y000000bM2XixVA0P",
"ignoreNull": true,
"installedPackage": null,
"isCollection": true,
"isNested": false,
"lastModifiedBy": "testUserId",
"lastModifiedBy.__objectType": "User",
"lastModifiedBy.name": "test0xx",
"lastModifiedDate": "2019-08-04 16:21:58",
"name": "testName",
"namespace": null,
"owner": "testUserId",
"owner.__objectType": "User",
"owner.name": "test0xx",
"parent": "testId",
"parent.__objectType": "ExtStruct",
"parent.name": "TestName",
"picklistValues": null,
"protectMode": 0,
"required": true,
"structType": null
}
}
}
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3.3 Querying a Flow Instance

Function

This API is used to query the information about a Flow instance by filtering the instance information based on the entered parameters.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/v1.0/flow/{action}{{?owner&creator&fields&orderField&orderType&limit&offset}}

Table 4-98 URI parameters

Parameter	Mandatory	Type	Description
action	Yes	String	Explanation Flow status to be queried or Flow information queried by ID. Constraints None Value The values and meanings of each status are as follows: • activeFlow: a Flow instance that is being executed • suspendedFlow: a Flow instance that is suspended • terminatedFlow: a Flow instance that is terminated • completedFlow: a Flow instance that finishes running • instanceId: ID of a Flow instance Default value None
owner	No	String	Explanation Account ID. Constraints None Value None Default value None
creator	No	String	Explanation Creator ID. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
fields	No	Array	Explanation Fields to query. If this parameter is not passed, the default value is used. Constraints None Value None Default value None
orderField	No	String	Explanation Field used for sorting. The field must be a value of fields. Constraints None Value None Default value None
orderType	No	String	Explanation Sorting order. Constraints None Value • 0: ascending order. • 1: descending order. Default value None
limit	No	Integer	Explanation Maximum number of data records. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
offset	No	Integer	Explanation Start position of the query. Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-99 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, content is returned, including the fields or default fields in the request.

Example Request

To query the Flow instance whose ID is **002N000000jrOCerKZBQ**, send the following request:

GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/v1.0/flow/002N000000jrOCerKZBQ>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "createdBy": "10gd000000QwWjXspAOW",
    "createdBy.__objectType": "User",
    "createdBy.name": "bingo",
    "createdDate": "2021-05-19 11:41:30",
    "curElement": "isMasterAccountByIdentityId",
    "description": "",
    "endTime": "",
    "id": "002N000000jrOCerKZBQ",
    "label": "isMasterAccount 2021-05-19 11:41:30",
    "lastHandler": null,
    "lastModifiedBy": "10gd000000QwWjXspAOW",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "bingo",
    "lastModifiedDate": "2021-05-19 11:41:30",
    "name": "CP_DS_isMasterAccountForOperator",
    "owner": "10gd000000QwWjXspAOW",
    "owner.__objectType": "User",
    "owner.name": "bingo",
    "rootID": "",
    "runMode": 2,
    "startTime": "2021-05-19 11:41:30",
    "state": "Broken",
    "suspended": false,
    "type": "Flow",
    "type.name": "Flow",
    "version": "1.0.1"
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3.4 Orchestrating a Flow

Function

This API is used to orchestrate a flow. You can execute a flow step by step, including starting the flow, running the flow, performing the next or previous step, completing the flow, terminating the flow, or deleting the flow. The input parameters include the operation to be performed and the name or ID of the flow.

URI

POST Huawei Cloud Astro Zero domain name/u-route/baas/v1.0/flow/{action}/{name_or_id}

Table 4-100 URI parameters

Param eter	Mandatory	Type	Description
action	Yes	String	Explanation Operation to be performed on the Flow instance. Constraints None Value The values and meanings of each operation are as follows: start: used to start a Flow instance. This is a standard system startup operation. run: used to run a Flow instance. This is a custom startup operation. next: used to perform the next step of the Flow instance. back: used to perform the previous step of the Flow instance. finish: used to complete the Flow instance. terminate: used to terminate the Flow instance and related resources. del: used to delete the Flow instance and related resources. Default value None

Parameter	Mandatory	Type	Description
name_or_id	Yes	String	Explanation When action is set to start or run, set this parameter to the flow name. For other actions, set this parameter to the ID of the running Flow instance. You can call the API for Querying a Flow Instance to query the id in the response message. Constraints None Value None Default value None

Request parameters

The parameters in the request body are the input parameters defined in the Flow instance.

Response parameters

Table 4-101 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	result object	Explanation If the request is successful, the interviewId and outputs fields are returned.

Table 4-102 result field description

Parameter	Type	Description
interviewId	String	Explanation ID of the Flow instance. After the Flow instance is started, you can obtain its ID from the returned result. Value None
outputs	Any	Explanation Execution result of the Flow instance. It can be any value.

Example Request

To start the Flow instance named **testFlowXyz**, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/v1.0/flow/start/testFlowXyz
{
  "paramA": "valueA",
  "paramB": {
    "subParamBA": [
      "A",
      "B"
    ],
    "subParamBB": "BB"
  }
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "interviewId": "1234567890",
    "outputs": {
      "outA": "123",
      "outB": "456"
    }
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3.5 Querying Flows or Flow Input and Output Parameters by Flow_id

Function

This API is used to query the input and output parameters of a flow instance.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Flow/{flow_id}

Table 4-103 URI parameter

Parameter	Mandatory	Type	Description
flow_id	Yes	String	Explanation Flow instance ID, which can be queried by calling the API of Querying Flows (id in the response message) Constraints None Value None Default value None

Request Parameters

Table 4-104 Request parameter

Parameter	Mandatory	Type	Description
flag	No	String	Explanation Flow query mode. Constraints None Value There are four cases: • If flag is not passed in the request, the request is used to query the flow instance specified by flow_id. • If flag=check is carried, the request is used to query the flow instance specified by flow_id. • If flag=Describe is carried, the request is used to query the input and output parameters of the flow instance specified by flow_id. • If flag=dep is carried, the request is used to query the dependent object instances of the flow instance specified by flow_id. Default value None

Response Parameters

Table 4-105 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the operation is successful, the service orchestration information is returned.

Example Request

This API is used to query the input and output parameters of a flow instance.

GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Flow/000y000000aM8XixTN0S>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "active": false,
    "catalogue": "",
    "compilerVersion": 0,
    "createdBy": "testUserId",
    "createdBy.__objectType": "User",
    "createdBy.name": "test0xx",
    "createdDate": "2019-08-03 18:19:13",
    "custom": true,
    "description": "",
    "event": "",
    "eventCriteria": "",
    "id": "testId",
    "installedPackage": null,
    "interviewLabel": "",
    "label": "A Brand New Label",
    "lastModifiedBy": "testUserId",
    "lastModifiedBy.__objectType": "User",
    "lastModifiedBy.name": "test0xx",
    "lastModifiedDate": "2019-08-04 17:57:29",
    "localUrl": "",
    "lockUser": "",
    "name": "testName",
    "owner": "testUserId",
    "owner.__objectType": "User",
    "owner.name": "test0xx",
    "private": false,
    "processType": "",
    "protectMode": 0,
    "reserved": 0,
    "startElement": "",
    "status": "Error",
    "usingSLA": null,
    "version": "1.0.1"
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3.6 Modifying a Flow by ID

Function

This API is used to update a flow by ID.

URI

PUT *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/Flow/{flow_id}

Table 4-106 URI parameter

Parameter	Mandatory	Type	Description
low_id	Yes	String	Explanation Flow instance ID, which can be queried by calling the API of Querying Flows (id in the response message) Constraints None Value None Default value None

Request Parameters

Table 4-107 Request parameters

Parameter	Mandatory	Type	Description
label	Yes	String	Explanation The flow label. Constraints None Value 1–64 characters Default value None
processType	Yes	String	Explanation Type of the Flow instance. The options are as follows: Constraints None Value • Autolaunched Flow: a flow instance that is automatically started. After the API is called, the logic defined in the Flow model is immediately executed. • Event Trigger: A flow that is triggered by an event. The logic defined in the flow model is executed only when the event is triggered. If this type is selected, you must configure events and condition rules. Default value Autolaunched Flow
startElement	No	String	Explanation Start element of the Flow instance. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
interviewLabel	No	String	Explanation Flow instance label. Constraints None Value None Default value None
localUrl	No	String	Explanation Local URL, which consists of /run/ and the flow name. For example, if the flow name is test_test, the URL is /run/test_test. Constraints None Value None Default value None
event	No	String	Explanation Flow event. Constraints This parameter is mandatory when processType is set to Event Trigger. Value None Default value None
variables	No	Array	Explanation Variables bound to the flow instance. Constraints This parameter is valid only when processType is set to Event Trigger.
formulas	No	Array of object	Explanation Formula defined in the flow. Constraints None

Parameter	Mandatory	Type	Description
structs	No	Array of object	Explanation Structure defined in the flow. Constraints None
constants	No	Array of object	Explanation Constants defined in Context of a flow can be used in the flow. Constraints None
structVariables	No	Array of object	Explanation Structure variables. Constraints None
objectVariables	No	Array of object	Explanation Object variables. Constraints None
catalogue	No	String	Explanation Flow category. Constraints None Value None Default value None
private	No	String	Explanation Whether the flow instance is private. Constraints Private flows cannot be called using REST APIs or custom APIs (public APIs). Value true: private. false: public. Default value None

Response Parameters

[Table 4-108](#) describes the response parameters.

Table 4-108 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation Error and warning information of the flow instance returned.

Example Request

Modify a flow instance.

```
PUT https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Flow/000y000000aM8XixTN0S
{
  "label": "updated label",
  "processType": "Autolaunched Flow"
}
```

Example Response

```
{
  "resCode": "XXX",
  "resMsg": "Failure",
  "result": {
    "errors": [
      "string"
    ],
    "warnings": [
      "string"
    ]
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.3.7 Deleting a Flow by ID

Function

This API is used to delete a flow by ID.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/metadata/v1.0/
Flow/{flow_id}

Table 4-109 URI parameter

Parameter	Mandatory	Type	Description
flow_id	Yes	String	Explanation Flow instance ID, which can be queried by calling the API of Querying Flows (id in the response message) Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-110 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation Deletion result. Value If the request is successful, 1 is returned.

Example Request

Delete a flow instance.
DELETE *https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/Flow/000y000000aM8XixTN0S*

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "1"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.4 Scripts

4.4.1 Running a Script

Function

This API is used to run the script. It is a synchronous API. (Invocation result is returned only after the function execution is complete.) When the conditions specified by input parameters are met, the script is executed. No log is displayed on the console, but the execution result is displayed.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/script/v1.0/run/{*scriptName*}{*?version=1.0.1*}

Table 4-111 URI parameters

Parameter	Mandator y	Type	Description
scriptName	Yes	String	Explanation Script name. For details, see Logging In to the Application Designer . Go to the application designer and view the script name in the Logic > Script list. Constraints None Value None Default value None
version	No	String	Explanation Version number of the script. If this parameter is not set, the script of the latest version is executed. Constraints None Value None Default value None

Request Parameters

The parameters in the request body are custom input parameters defined in the script.

Response Parameters

Table 4-112 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation Content returned when the request is successful.

Example Request

To run the *Namespace_editEquipment* script, which contains the input parameters **equipment**, **name**, and *Namespace_equipmentSN_CST*, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/script/v1.0/run/  
Namespace_editEquipment?version=1.0.1
```

```
{  
  "equipment": {  
    "name": "No.16, Unit 1, Building A, Campus B",  
    "Namespace_equipmentSN_CST": "3217890020"  
  }  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "value": {  
      "equipmentId": "c9uK000000iYJt41oj8S"  
    },  
    "log": ""  
  }  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.4.2 Debugging a Script

Function

This API is used to debug the script. It is a synchronous API. (Invocation result is returned only after the function execution is complete.) When the conditions specified by the input parameters are met, the script is executed, and the debug log and execution result are displayed on the console.

The script can be executed only when it is saved and the input parameters are correct.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/script/v1.0/debug/{scriptName}?version=1.0.1}

Table 4-113 URI parameters

Parameter	Mandatory	Type	Description
scriptName	Yes	String	Explanation Script name. For details, see Logging In to the Application Designer . Go to the application designer and view the script name in the Logic > Script list. Constraints None Value None Default value None

Parameter	Mandator y	Type	Description
version	No	String	Explanation Version number of the script. If this parameter is not set, the script of the latest version is executed. Constraints None Value None Default value None

Request Parameters

The request parameters are the input parameters of the script.

Response Parameters

Table 4-114 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	result object	Explanation Content returned when the request is successful.

Table 4-115 result parameters

Parameter	Type	Description
value	Any type	Explanation Return value of the script.
log	String	Explanation Debug log. Value None

Example Request

To debug the *Namespace__editEquipment* script, which contains the input parameters **equipment**, **name**, and *Namespace__equipmentSN__CST*, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/script/v1.0/debug/  
Namespace__editEquipment?version=1.0.1  
{  
  "equipment": {  
    "name": "No.14, Unit 1, Building A, Campus B",  
    "Namespace__equipmentSN__CST": "32178900014"  
  }  
}
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "value": {  
      "equipmentId": "c9uK000000iYJXUUnQcC"  
    },  
    "log": "****"  
  }  
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.4.3 Obtaining Script Signature Information

Function

This API is used to obtain the script signature information, including script name, input and output parameters, declared class names, and method names. It is synchronous, meaning the invocation result is returned only after the function execution is complete.

This API can be called only when you save or save as a script. If the type of an input or output parameter defined in the script is incorrect, an error message is reported when this API is called.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/script/v1.0/signature/{scriptName}{?version=1.0.1}

Table 4-116 URI parameters

Parameter	Mandator y	Type	Description
scriptName	Yes	String	Explanation Script name. For details, see Logging In to the Application Designer . Go to the application designer and view the script name in the Logic > Script list. Constraints None Value None Default value None
version	No	String	Explanation Version number of the script. If this parameter is not set, the script of the latest version is executed. Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-117 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	result object	Explanation Content returned when the request is successful.

Table 4-118 result parameters

Parameter	Type	Description
description	String	Explanation Description of the script. Value None
script	String	Explanation Name of a script. Value None
methodName	String	Explanation Method name. The method name is available only after the @action.method is used in the script. Value None

Parameter	Type	Description
methodObject	String	Explanation Class that the method belongs to. Value None
input	String	Explanation Input type. Generally, this parameter is set to Input . When defining the input and output parameters of a script, you need to define an input parameter class and an output parameter class. Here, input is the input parameter class name. Value None
output	String	Explanation Output type. Generally, this parameter is set to Output . When defining the input and output parameters of a script, you need to define an input parameter class and an output parameter class. Here, output is the name of the output parameter class. Value None
label	String	Explanation Label of the script. Value None
inputs	Array of inputs objects	Explanation Variables of the input type.
outputs	Array of inputs objects	Explanation Variables of the output type.
types	Object	Explanation Name of the class that uses the @action.param annotation in the script.

Table 4-119 inputs and outputs parameters

Parameter	Type	Description
description	String	Explanation Description of the script. Value None
name	String	Explanation Name of the script. Value None
label	String	Explanation Method name. The method name is available only after the @action.method is used in the script. Value None
message	String	Explanation Error message returned when an invalid parameter is entered during script running. Value None
isCollection	String	Explanation Whether the variable type is a collection. Value None
pattern	String	Explanation Regular expression that a variable must comply with. Value None

Parameter	Type	Description
valueType	String	Explanation Type of the variable. Value • Date: date • DateTime: date and time • Number: number • String: text • Boolean: Boolean • Struct: structure • ExtStruct: external structure • Map: map type • Object: object • EncryptedText: encrypted text
required	String	Explanation Whether the variable is mandatory. Value None

Example Request

To obtain the signature information of the *Namespace__editEquipment* script, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/script/v1.0/signature/  
Namespace__editEquipment
```

Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "methodName": "run",  
    "methodObject": "Calculator",  
    "label": "",  
    "description": "do a operation",  
    "script": "Namespace__editEquipment",  
    "types": {  
      "Input": [  
        {  
          "name": "op",  
          "label": "",  
          "description": "the operation type",  
          "isCollection": false,  
          "required": true,  
          "pattern": "",  
          "message": "",  
          "valueType": "String",  
          "structType": "",  
          "lengthInCharacter": false,  
          "min": null,  
          "max": null,  
          "defaultValue": ""  
        }  
      ]  
    }  
  }  
}
```

```
    "max": null
  },
  {
    "name": "value1",
    "label": "",
    "description": "the operation value 1",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "Number",
    "structType": "",
    "lengthInCharacter": false,
    "min": null,
    "max": null
  },
  {
    "name": "value2",
    "label": "",
    "description": "the operation value 2",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "Number",
    "structType": "",
    "lengthInCharacter": false,
    "min": null,
    "max": null
  }
],
"Output": [
  {
    "name": "result",
    "label": "",
    "description": "",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "Number",
    "structType": "",
    "lengthInCharacter": false,
    "min": null,
    "max": null
  }
]
},
"inputs": [
  {
    "name": "op",
    "label": "",
    "description": "the operation type",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "String"
  },
  {
    "name": "value1",
    "label": "",
    "description": "the operation value 1",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "Number"
  }
],
```

```
{
  {
    "name": "value2",
    "label": "",
    "description": "the operation value 2",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "Number"
  }
],
"input": "Input",
"outputs": [
  {
    "name": "result",
    "label": "",
    "description": "",
    "isCollection": false,
    "required": true,
    "pattern": "",
    "message": "",
    "valueType": "Number"
  }
],
"output": "Output"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.4.4 Obtaining the Built-in Library Declaration of a Script

Function

This API is used to obtain the declaration of the built-in script library. It is a synchronous API, meaning that the result is returned only after the function execution is complete. The API can also be used to obtain the TypeScript library that can be invoked by Huawei Cloud Astro Zero, including script functions and function information, and obtain the standard library of the ES5 syntax.

The script functions that can be invoked by Huawei Cloud Astro Zero must be mapped to the go function to become a part of the TypeScript library.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/script/v1.0/declaration

Request Parameters

None

Response Parameters

Table 4-120 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	result object	Explanation Content returned when the request is successful.

Table 4-121 result parameters

Parameter	Type	Description
bingo.d.ts	String	Explanation Invoked script library. Value None
lib.es2017.d.ts	String	Explanation Standard library of the ES2017 syntax. For details, see ECMAScript® 2017 Language Specification (ecma-international.org) . Value None

Example Request

To obtain the declaration of a built-in library, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/script/v1.0/declaration
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "bingo.d.ts": "string",
    "lib.es2017.d.ts": "string"
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.4.5 Obtaining Formulas of a Flow Instance

Function

This API is used to obtain formulas of a Flow instance. It is a synchronous API. (Invocation result is returned only after the function execution is complete.) These formulas enable the Flow instance to convert variables or expressions and assign values to other variables.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/formula/v1.0/functions

Request Parameters

None

Response Parameters

Table 4-122 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	result object	Explanation Content returned when the request is successful.

Table 4-123 result parameters

Parameter	Type	Description
name	String	Explanation Flow formula name. Value: None
category	String	Explanation Flow formula type. Value None
format	String	Explanation Flow formula invocation format. Value None
description	String	Explanation Flow formula description. Value None

Example Request

To obtain the formulas that can be invoked by the Flow instance, send the following request:

GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/formula/v1.0/functions>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "name": "string",
    "category": "string",
    "format": "string",
    "description": "string"
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5 BPMs

4.5.1 Creating a BPM

Function

This API is used to create a BPM.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/metadata/definitions

Request Parameters

Table 4-124 Request parameters

Parameter	Mandator y	Type	Description
name	Yes	String	Explanation BPM name. Constraints None Value range Start with a letter and can contain only letters, digits, and single underscores (_). There is no consecutive underscore (__) and the value cannot end with an underscore (_). A maximum of 64 characters are allowed. Default value None

Parameter	Mandator y	Type	Description
label	Yes	String	Explanation BPM label. Constraints None Value 1–80 characters Default value None
description	No	String	Explanation BPM description. Constraints None Value None Default value None
version	No	String	Explanation BPM version. When saving a BPM, you can save it as different versions. When enabling a BPM, you can select different versions. However, only one version can be enabled at a time. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
instanceLabel	No	String	Explanation Label of the BPM instance, which can contain system variables. Constraints None Value None Default value None
laneSet	No	object	Explanation Lanes. A lane represents a user role in a BPM. Each lane in a BPM corresponds to a work queue. After a work queue is configured, diagram elements in different lanes are processed by users in different work queues. A work queue records a set of members with the same permissions and task objects. Constraints None
config	No	object	Explanation The basic configuration in a BPM determines whether a process or task is private (viewable only by the current owner), whether the process can be canceled, and whether it can be canceled after passing through a BPM node. Constraints None

Parameter	Mandatory	Type	Description
startEvents	No	Array of object	Explanation Start diagram elements. The start diagram element, which serves as the start node of a BPM, includes properties such as the name of the next connected diagram element. Its default type is Start. Constraints None
dataMappers	No	Array of object	Explanation Data mappings. The data mapping diagram element is used to assign values to variables, fields, properties, and constants. For example, you can use this diagram to assign the value of a variable or constant to another variable. When the Data Mapper activity is reached in the process, the value assignment operation is performed. After values are assigned, the BPM execution continues along the subsequent route. Constraints None

Parameter	Mandatory	Type	Description
userTasks	No	Array of object	Explanation User tasks. A user activity is used to indicate the work that is accomplished by the user in the BPM. When the engine reaches this node during processing, the engine creates a task item to be processed for a specified user (participant) or a group of users (for example, a working queue of a lane), and waits for the user to process the task item. You can configure the approval information, GUI rendering information, recipient information, pre- and post-actions, and data mapping of user tasks. Constraints None

Parameter	Mandator y	Type	Description
serviceTasks	No	Array of object	Explanation Automatic task definition, which is the collection of configuration information about the script diagram element, flow diagram element, record creation diagram element, record query diagram element, record update diagram element, record deletion diagram element, and email diagram element. • Script diagram element: You can use this diagram element to configure the input and output parameters of a script and execute a script in a BPM. • Flow diagram element: You can use this diagram element to execute a flow in a BPM. • Diagram element for recording adding, deletion, modification, and query: You can use these diagram elements to add, delete, modify, and query an object in a BPM. Constraints None

Parameter	Mandator y	Type	Description
businessRuleTasks	No	Array of object	Explanation Business rule tasks. This diagram element generates business rules based on the configuration in the decision table. Then, the system routes the messages to other element nodes based on the output connection gateway of the business rules. During the Business Rule task in the process, the system routes the messages to different route nodes according to the business rules. When using this diagram element, you need to select the decision table to be used. Constraints None
callActivities	No	Array of object	Explanation Call activities. Other BPMs can be nested in a BPM. When Call Activity is reached in the BPM, the system automatically executes the activity (calls another BPM). After the activity is executed, the BPM execution continues along the subsequent route. You can configure the properties of other BPMs, for example, the input and output parameters of the selected BPM. Constraints None

Parameter	Mandatory	Type	Description
subProcesses	No	Array of object	Explanation Embedded subprocesses. The Call Activity and Sub Process diagram elements are embedded subprocesses of a BPM. The differences are as follows: • Call Activity regards the sub-process as a black box and calls the sub-process through parameter transfer. • If a sub-process is embedded, a sub-process is directly planned in the current BPM. The sub-process can share the variables of the parent process. It can be used to divide, encapsulate, and reuse process steps. Constraints None
sendEvents	No	Array of object	Explanation Events to throw. When the Throw Signal event is reached during BPM execution, the engine sends an event to the system. Then, the BPM execution continues along the subsequent route. The thrown signal can be subscribed to and processed by the Signal Catch event. When using this element, you need to configure the specific event to be thrown, and configure event parameter in the Input Parameters area. Constraints None

Parameter	Mandatory	Type	Description
catchEvents	No	Array of object	Explanation Capture events, which include the configuration information of the Timer Catch diagram element and Signal Catch diagram element. - When the Timer Catch event is reached during BPM execution, the BPM is interrupted. The engine creates a timer. After the timer is triggered, the event ends and the BPM execution continues along the subsequent route. When using this element, you need to configure Base Time, Offset Time, and Offset Unit. - When the Signal Catch event is reached during the BPM execution, the BPM is interrupted. After the Throw Signal or the matched signal sent by APIs ends, the BPM execution continues along the subsequent route. When using this element, you need to configure Event, Event Conditions, and Outputs. Constraints None

Parameter	Mandator y	Type	Description
exclusiveGate ways	No	Array of object	Explanation Exclusive gateways. An exclusive gateway is used to make a unique decision for a group of branches in a process. The system evaluates the branch that flows out of the gateway based on the condition order. The process executes the first branch whose connection condition is evaluated as true (when multiple conditions are evaluated as true, the first decision is executed) and does not evaluate the subsequent branches. If all branch condition decisions are false and the gateway defines a default connection, the default branch is executed. If no reachable branch is available, an exception is thrown and the process is interrupted. Constraints None
inclusiveGate ways	No	Array of object	Explanation Inclusive gateways. Inclusive gateways are a special type of parallel gateways. On the basis of parallel gateways, a condition can be configured for each connection line. All connection lines that meet the condition are executed in parallel. If no condition is met, the default branch is executed if it is configured. Each inclusive gateway should appear in pairs, starting from the inclusive divergent gateway and finally connecting to the aggregation gateway. Constraints None

Parameter	Mandator y	Type	Description
parallelGatew ays	No	Array of object	Explanation Parallel gateways. Parallel gateways are used to combine branches unconditionally. Such gateways ignore connection conditions. A BPM can have multiple incoming and one outgoing branches, which are concurrently executed by the BPM engine. The parallel gateway appears in pairs. A pair of gateways can have multiple parallel branches. Constraints None
eventGateway s	No	Array of object	Explanation Event gateways. Generally, the gateway determines the subsequent path based on the connection condition, which requires that the condition information exists in the process. However, if the conditions for selecting the subsequent path are not from the process, event-based gateways can be used. The event-based gateway has only the branch behavior. It allows the branch (such as a time event or message event) where the event reaches first to be selected from multiple candidate branches and the other branches to be cancelled. Constraints None

Parameter	Mandatory	Type	Description
slas	No	Array of object	Explanation SLA. SLA: You can also set an SLA timer for the user activity. If the timer expires, the urgency level is increased and the corresponding action is performed. Constraints None
constants	No	Array of object	Explanation Constant definition, that is, constant information configured in Context. Constraints None
variables	No	Array of object	Explanation Variable definition, that is, variable information configured in Context. Constraints None
endEvents	No	Array of object	Explanation End event definition, indicating the natural end of a BPM or branch. If there are multiple execution branches, the BPM instance ends after the last branch ends naturally. Constraints None

Response Parameters

Table 4-125 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, an ID of the BPM instance is returned. If the request fails, an error and alarm information is returned.

Example Request

Create a BPM instance.

POST <https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/metadata/definitions>

```
{
  "config": {
    "cancelable": false,
    "noCancelAfterElem": ""
  },
  "dataMappers": [
    {
      "assignmentItems": [
        {
          "assignTo": "dateList",
          "name": "",
          "operator": "add",
          "value": "2019-03-04",
          "valueType": ""
        },
        {
          "assignTo": "dateList",
          "name": "",
          "operator": "add",
          "value": "2020-01-02",
          "valueType": ""
        }
      ],
      "connector": "userTask",
      "connectorPoint": "{\"fromPort\":\"R1\",\"toPort\":\"L1\",\"points\":[\"619 125\",\"643 125\",\"662.5 125\",\"662.5 100\",\"682 100\",\"706 100\"]}",
      "description": ""
    }
  ]
}
```

```
        "label": "Data Mapper",
        "locationX": 575,
        "locationY": 125,
        "name": "dataMapper",
        "connectors": []
    }
],
"description": "",
"label": "SimpleBP",
"laneSet": {
    "label": "",
    "lanes": [
        {
            "elements": [
                "userTask",
                "userTask1",
                "dataMapper",
                "start"
            ],
            "height": 201.35220031738282,
            "label": "lane",
            "name": "lane",
            "role": "LoanRequest.Applicant",
            "width": 1080
        }
    ],
    "name": ""
},
"name": "SimpleBP",
"slas": [
    {
        "active": true,
        "criteria": "",
        "deadlineDays": 0,
        "deadlineHours": 0,
        "deadlineIncreaseUrgencyBy": 2,
        "deadlineMinutes": 0,
        "deadlineOnlyBusinessDays": false,
        "goalActions": [
            {
                "action": "",
                "criteria": "{!IsMatched} && {!Owner}",
                "name": "sla-act",
                "type": "Notify Manager"
            }
        ],
        "goalDays": 0,
        "goalHours": 0,
        "goalIncreaseUrgencyBy": 1,
        "goalMinutes": 0,
        "goalOnlyBusinessDays": false,
        "label": "userTask1_sla",
        "name": "userTask1_sla",
        "startWhen": "",
        "variable": "",
        "actions": []
    },
    {
        "active": true,
        "criteria": "",
        "deadlineDays": 0,
        "deadlineHours": 0,
        "deadlineIncreaseUrgencyBy": 2,
        "deadlineMinutes": 0,
        "deadlineOnlyBusinessDays": false,
        "goalActions": [
            {
                "action": "NotifyBPMManager",
                "criteria": "",
```

```
        "name": "sla-act1",
        "type": "Notify Manager"
    }
],
"goalDays": 1,
"goalHours": 0,
"goalIncreaseUrgencyBy": 1,
"goalMinutes": 0,
"goalOnlyBusinessDays": false,
"label": "userTask_sla",
"name": "userTask_sla",
"startWhen": "",
"variable": "",
"actions": []
}
],
"startEvents": [
    {
        "connector": "dataMapper",
        "connectorPoint": "{\\"fromPort\\":\\"R1\\",\\"toPort\\":\\"L0\\",\\"points\\":[\\"151.5 100\\",\\"175.5 100\\",\\"341.25 100\\",\\"341.25 110.5\\",\\"507 110.5\\",\\"531 110.5\\"]}",
        "label": "Start",
        "locationX": 125,
        "locationY": 100,
        "name": "start",
        "type": "Start",
        "startType": "",
        "renderType": "",
        "render": "",
        "document": "",
        "description": ""
    }
],
"userTasks": [
    {
        "approvalType": "Single",
        "connector": "userTask1",
        "connectorPoint": "{\\"fromPort\\":\\"R1\\",\\"toPort\\":\\"L1\\",\\"points\\":[\\"794 100\\",\\"818 100\\",\\"875 100\\",\\"875 100\\",\\"932 100\\",\\"956 100\\"]}",
        "description": "wuli desc",
        "groupAsSingleParticipant": false,
        "inputAssignments": [
            {
                "input": "$Task.Title",
                "name": "",
                "value": "{!$GlobalConstant.EmptyString}",
                "valueType": ""
            }
        ],
        "label": "User Task",
        "locationX": 750,
        "locationY": 100,
        "name": "userTask",
        "participants": [
            {
                "type": "user",
                "value": "ecommerce6"
            }
        ],
        "preActions": [
            {
                "action": "{!$GlobalConstant.EmptyString}",
                "criteria": "",
                "name": "action",
                "type": "Set Status"
            }
        ],
        "render": "SimpleBP$form1$form",
        "renderType": "Form",
    }
]
```

```
"routeType": "Name and Expressions",
"router": {
  "defaultRouteTo": "",
  "defaultRouteType": "",
  "name": ""
},
"title": "wu li tu cao",
"usingSLA": "userTask_sla",
"routeTo": "",
"faultConnector": "",
"boundaryEvents": [],
"outputAssignments": [],
"document": "",
"priority": 3
},
{
  "approvalType": "Single",
  "groupAsSingleParticipant": false,
  "label": "User Task",
  "locationX": 1000,
  "locationY": 100,
  "name": "userTask1",
  "priority": 3,
  "render": "SimpleBP$ut1$form",
  "renderType": "Form",
  "routeType": "Last Assignee In Lane",
  "router": {
    "defaultRouteTo": "",
    "defaultRouteType": "",
    "name": ""
  },
  "title": "T2",
  "routeTo": "",
  "connector": "",
  "faultConnector": "",
  "boundaryEvents": [],
  "inputAssignments": [],
  "outputAssignments": [],
  "document": "",
  "description": ""
}
],
"variables": [
  {
    "currencyFactor": 0,
    "dataType": "checkBox",
    "defaultValue": "{!$GlobalConstant.True}",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "IsMatched"
  },
  {
    "currencyFactor": 0,
    "dataType": "text",
    "defaultValue": "Hello",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
```

```
    "name": "Owner"
  },
  {
    "currencyFactor": 0,
    "dataType": "date",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "dateVar"
  },
  {
    "currencyFactor": 0,
    "dataType": "date",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": true,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "dateList"
  },
  {
    "currencyFactor": 0,
    "dataType": "extStruct",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "SimpleBP",
    "extType": "Form1Form",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "Form1Form"
  }
],
"version": "1.0.1",

"constants": [],
"serviceTasks": [],
"businessRuleTasks": [],
"callActivities": [],
"subProcesses": [],
"endEvents": [],
"sendEvents": [],

"catchEvents": [],
"exclusiveGateways": [],
"parallelGateways": [],
"eventGateways": [],
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "errors": [],
  }
}
```

```
{
  "id": "000y000000aM8XixTN0S",
  "warnings": []
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.2 Starting a BPM Instance

Function

This API is used to create and start a BPM instance.

Before starting the BMP instance, ensure that BPM metadata is defined through GUI.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/runtime/instances

Request Parameters

Table 4-126 Request parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation BPM name. For details, see Logging In to the Application Designer . Go to the application designer and view the BPM name in the Process > Business Process list. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
version	No	String	Explanation BPM version. A BPM can have multiple versions. If this parameter is not specified, the current version is used. Obtain the version number by performing the following steps: 1. Access the application designer by referring to Logging In to the Application Designer. 2. Choose Process > Business Process, click  of a BPM and select Detail. 3. You can view the BPM version number in the Basic Information. Constraints None Value None Default value None
variables	No	Object	Explanation Variables defined in BPM metadata, including custom variables and system variables. The variable is in key-value format, in which key indicates the variable name and value indicates the variable value. To set BPM variables before starting a BPM instance, you can specify this parameter. To set variables during startup, set the system variable \$Flow.BusinessKey in variables. To set BPM title, you can set the system variable \$Flow.Title. Constraints None

Response Parameters

Table 4-127 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the running information about the BPM instance after being started will be returned.

Example Request

To create and start a BPM instance whose name is **createCloudOK_NEW**, version is **1.0.1**, and four input parameters are contained, send the following request:

POST <https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/runtime/instances>

```
{
  "name": "createCloudOK_NEW",
  "version": "1.0.1",
  "variables": {
    "name": "sun",
    "memorySize": "15",
    "storageSize": "15",
    "expiryDate": "2018-12-12"
  }
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "name": "bpName1",
    "version": "1.0.1",
    "id": "002N000000Sy2NphoRbU",
    "processDefId": "001L000000S8Yi3xG9Gi",
    "interviewLabel": "BP Label 1",
    "nextElem": "subProcess",
    "isTest": true,
    "state": "Dispatched",
  }
}
```

```
"bpStatus":"New",
"urgency":0,
"taskOutcome":"","
"businessKey":"002N000000Sy2NphoRbU",
"startTime":"2019-08-27 10:53:04",
"endTime":"","
"Ext1":"","
"Ext2":"","
"Ext3":"","
"Ext4":"","
"Ext5":"","
"Ext6":"","
"Ext7":0,
"Ext8":0,
"suspended":false,
"isClosed":false
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.3 Querying a BPM Instance

Function

This API is used to query the BPM instance information of the current account.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/runtime/
instances?states={X}

Table 4-128 URI parameters

Parameter	Mandatory	Type	Description
states	Yes	String	Explanation BPM instance status. Constraints None Value • New • Running • Waiting for user interaction • Waiting for page event • Completed OK • Paused • Broken • Suspended • User Terminated • Terminated • Dispatched • CompletedOkWait Default value None

Request Parameters

Table 4-129 Request parameters

Parameter	Mandatory	Type	Description
fields	No	String	Explanation Fields to be queried. Separate multiple field names with commas (,). If no field is specified, the default field is returned. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
orderField	No	String	Explanation Field names used for sorting. Constraints None Value None Default value None
orderType	No	String	Explanation Sorting type. Constraints None Value • asc: The query results are displayed in ascending order. • desc: The query results are displayed in the descending order. Default value None

Response Parameters

Table 4-130 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	Object	Explanation If the request is successful, a list of BPM instances that meet the search criteria is returned.

Example Request

To query a BPM instance list, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/runtime/instances?
states=Completed OK&orderField=title&orderType=asc
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "bpStage": "Stage 1",
      "bpStatus": "begin",
      "bpStep": "Transfer 1",
      "businessKey": "BK001",
      "createdBy": "10gd0000003T2E10UTfk",
      "createdBy.__objectType": "User",
      "createdBy.name": "ecommerce",
      "createdDate": "2018-08-13 16:21:17",
      "curElement": "",
      "description": "Transfer 1",
      "endTime": "2018-08-17 14:40:09",
      "id": "002N000000lpNGFfNvm4",
      "label": "TestFSM2 2018-08-13 16:21:17",
      "lastHandler": null,
      "lastModifiedBy": "10gd0000003T2E10UTfk",
      "lastModifiedBy.__objectType": "User",
      "lastModifiedBy.name": "ecommerce",
      "lastModifiedDate": "2018-08-17 14:40:09",
      "name": "TestFSM2",
      "owner": "10gd0000003T2E10UTfk",
      "owner.__objectType": "User",
      "owner.name": "ecommerce",
      "startTime": "2018-08-13 16:21:17",
      "state": "Completed OK",
      "suspended": false,
      "title": "Hello, this is a title",
      "type": "BP",
      "urgency": 0,
      "version": "0.0.1"
    }
  ]
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.4 Suspending, Resuming, or Terminating a BPM Instance

Function

This API is used to suspend, resume, or terminate a BPM instance. After a BPM instance is suspended, it will not be displayed in the to-do task list, the SLA timer stops, and no follow-up reminder will be sent. After a BPM instance is resumed, the system proceeds with subsequent operations. After a BPM instance is terminated, the BPM instance is forcibly stopped and you can view the BPM instance only in the historical task list.

URI

PUT *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/runtime/instances/{instance_id}

Table 4-131 URI parameters

Parameter	Mandatory	Type	Description
instance_id	Yes	String	Explanation ID of a BPM instance, which can be obtained by invoking the API for Querying a BPM Instance (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-132 Request parameters

Parameter	Mandatory	Type	Description
action	Yes	String	Explanation Name of the action to be taken for the BPM instance. Constraints None Value ● suspend: Suspend a BPM instance. ● resume: Resume a BPM instance. ● terminate: Terminate a BPM instance. Default value None

Response Parameters

Table 4-133 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes.
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the running information about the BPM instance after being started will be returned.

Example Request

To suspend a running BPM instance whose ID is **002N000000Q3QW4IMAOO**, send the following request:

PUT *https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/runtime/instances/002N000000Q3QW4IMAOO*

```
{
  "action": "suspend"
}
```

Example Response

In the response, the value of **suspended** of the BPM instance is **true**.

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "name": "SimpleBP",
    "version": "1.0.1",
    "id": "002N000000Q3QW4IMAOO",
    "processDefID": "001L000000Peuw1Q318a",
    "interviewLabel": "SimpleBP 2019-05-10 15:14:09",
    "nextElem": "",
    "isTest": true,
    "state": "New",
    "bpStatus": "New",
    "urgency": 0,
    "taskOutcome": "",
    "businessKey": "002N000000Q3QW4IMAOO",
    "startTime": "2019-05-10 15:14:09",
    "endTime": "",
    "Ext1": "",
    "Ext2": "",
    "Ext3": "",
    "Ext4": "",
    "Ext5": "",
    "Ext6": "",
    "Ext7": 0,
    "Ext8": 0,
    "suspended": true,
    "isClosed": false
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.5 Deleting a BPM Instance

Function

This API is used to delete a BPM instance. It is recommended that a BPM be deleted only when the administrator needs to clear expired data. In other cases, do not delete BPM instance data.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/runtime/instances/{instance_id}

Table 4-134 URI parameters

Parameter	Mandatory	Type	Description
instance_id	Yes	String	Explanation ID of a BPM instance, which can be obtained by invoking the API for Querying a BPM Instance (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-135 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Example Request

To delete a BPM instance whose ID is **002N000000Q3QW41MAOO**, send the following request:

```
DELETE https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/runtime/instances/002N000000Q3QW41MAOO
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.6 Deleting a BPM by ID

Function

This API is used to delete a BPM by ID.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/metadata/definitions/{*bpm_id*}

Table 4-136 URI parameters

Parameter	Mandatory	Type	Description
bpm_id	Yes	String	Explanation BPM instance ID, which can be queried by calling the API of Querying BPMs by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-137 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	string	Explanation If the request is successful, 1 is returned. Value None

Example Request

Delete a BPM instance.
DELETE <https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/metadata/definitions/001L000000Peuw1Q318a>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "1"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.7 Setting or Modifying the Values of Variables in a BPM Instance

Function

Modify variable values in a BPM instance, allowing updates to single, multiple, or all variables simultaneously. Nonexistent or read-only variables are ignored. A request parameter is in the key-value format, in which **key** indicates the variable name and **value** indicates the variable value.

URI

PUT *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/runtime/instances/{instance_id}/variables

Table 4-138 URI parameters

Parameter	Mandatory	Type	Description
instance_id	Yes	String	Explanation ID of a BPM instance, which can be obtained by calling the API of Querying a BPM Instance (id in the response message). Constraints None Value None Default value None

Request Parameters

A request parameter is in the key-value format, in which **key** indicates the variable name and **value** indicates the variable value.

There is no fixed request parameter. All parameters are customized by developers. For details about the structure packet, see "Example Request."

Response Parameters

Table 4-139 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Example Request

To change the value of custom field **cpuNumber** to **1** and that of **custVar1** to **value1** for the BPM instance whose ID is **002N000000Q3QW4IMAOO**, send the following request:

PUT <https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/runtime/instances/002N000000Q3QW4IMAOO/variables>

```
{
  "cpuNumber":1,
  "custVar1":"value1"
}
```

Example Response

```
{
  "resCode":"0",
  "resMsg":"Success"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.8 Querying BPMs by Condition

Function

This API is used to obtain the BPM list that matches the query criteria.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/metadata/definitions

Request Parameters

Table 4-140 Request parameters

Parameter	Mandatory	Type	Description
like	No	String	Explanation If like is true , fuzzy match is used for names. Otherwise, exact match is used. Constraints None Value None Default value Exact match is used by default.
name	No	String	Explanation BPM name. Constraints None Value None Default value None
active	No	String	Explanation Whether the BPM is activated. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
skip	No	String	Explanation ID of the first record from which the search starts. skip is greater than or equal to 0 . Constraints None Value None Default value None
limit	No	String	Explanation The maximum number of records returned. limit is greater than or equal to 1 . Constraints None Value None Default value None

Response Parameters

Table 4-141 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	array	Explanation If the request is successful, the BPM instances that meet the conditions are returned.

Example Request

To query BPM instances by condition, send the following request:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/metadata/definitions?name=BP&active=false
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "active": false,
      "config": "{\\cancelable\\":false,\\noCancelAfterElem\\":\\\"\\\",\\noCancelAfterElemLabel\\":\\\"\\\"}",
      "description": "",
      "id": "001L000000Peuw1Q318a",
      "label": "SimpleBP",
      "name": "SimpleBP",
      "status": "Warning",
      "version": "1.0.1"
    }
  ]
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.9 Querying a BPM by ID

Function

This API is used to query a BPM by ID.

URI

```
GET Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/metadata/definitions/{bpm_id}
```

Table 4-142 URI parameters

Parameter	Mandatory	Type	Description
bpm_id	Yes	String	Explanation BPM instance ID, which can be queried by calling the API of Querying BPMs by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

None

Response

Table 4-143 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes.
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the BPM instance information is returned.

Example Request

Query a BPM object instance.

GET <https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/metadata/definitions/001L000000Peuw1Q318a>

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "config": {
      "cancelable": false,
      "noCancelAfterElem": ""
    },
    "dataMappers": [
      {
        "assignmentItems": [
          {
            "assignTo": "dateList",
            "name": "",
            "operator": "add",
            "value": "2019-03-04",
            "valueType": ""
          },
          {
            "assignTo": "dateList",
            "name": "",
            "operator": "add",
            "value": "2020-01-02",
            "valueType": ""
          }
        ],
        "connector": "userTask",
        "connectorPoint": "{\"fromPort\":\"R1\",\"toPort\":\"L1\",\"points\":[\"619 125\",\"643 125\",\"662.5 125\",\"662.5 100\",\"682 100\",\"706 100\"]}",
        "connectors": [
        ],
        "description": "",
        "label": "Data Mapper",
        "locationX": 575,
        "locationY": 125,
        "name": "dataMapper"
      }
    ],
    "description": "",
    "id": "001L000000Peuw1Q318a",
    "label": "SimpleBP",
    "laneSet": {
      "label": "",
      "lanes": [
        {
          "elements": [
            "userTask",
            "userTask1",
            "dataMapper",
            "start"
          ],
          "height": 201.35220031738282,
          "label": "lane",
          "name": "lane",
          "role": "LoanRequest.Applicant",
          "width": 1080
        }
      ],
      "name": ""
    },
    "name": "SimpleBP",
  }
}
```

```
"slas": [
  {
    "actions": [
    ],
    "active": true,
    "criteria": "",
    "deadlineDays": 0,
    "deadlineHours": 0,
    "deadlineIncreaseUrgencyBy": 2,
    "deadlineMinutes": 0,
    "deadlineOnlyBusinessDays": false,
    "goalActions": [
      {
        "action": "",
        "criteria": "{!IsMatched} && {!Owner}",
        "name": "sla-act",
        "type": "Notify Manager"
      }
    ],
    "goalDays": 0,
    "goalHours": 0,
    "goalIncreaseUrgencyBy": 1,
    "goalMinutes": 0,
    "goalOnlyBusinessDays": false,
    "label": "userTask1_sla",
    "name": "userTask1_sla",
    "startWhen": "",
    "variable": ""
  },
  {
    "actions": [
    ],
    "active": true,
    "criteria": "",
    "deadlineDays": 0,
    "deadlineHours": 0,
    "deadlineIncreaseUrgencyBy": 2,
    "deadlineMinutes": 0,
    "deadlineOnlyBusinessDays": false,
    "goalActions": [
      {
        "action": "NotifyBPMManager",
        "criteria": "",
        "name": "sla-act1",
        "type": "Notify Manager"
      }
    ],
    "goalDays": 1,
    "goalHours": 0,
    "goalIncreaseUrgencyBy": 1,
    "goalMinutes": 0,
    "goalOnlyBusinessDays": false,
    "label": "userTask_sla",
    "name": "userTask_sla",
    "startWhen": "",
    "variable": ""
  }
],
"startEvents": [
  {
    "connector": "dataMapper",
    "connectorPoint": "{\n\"fromPort\": \"R1\", \"toPort\": \"L0\", \"points\": [\"151.5 100\", \"175.5 100\", \"341.25 100\", \"341.25 110.5\", \"507 110.5\", \"531 110.5\"]}",
    "description": "",
    "document": "",
    "label": "Start",
    "locationX": 125,
    "locationY": 100,
    "name": "start",
```

```
        "render": "",
        "renderType": "",
        "startType": "",
        "type": "Start"
    }
],
"startStage": null,
"startType": "",
"status": "Warning",
"status.name": "Warning",
"userTasks": [
    {
        "approvalType": "Single",
        "boundaryEvents": [
        ],
        "connector": "userTask1",
        "connectorPoint": "{\"fromPort\":\"R1\",\"toPort\":\"L1\",\"points\":[\"794 100\",\"818 100\",\"875 100\",\"875 100\",\"932 100\",\"956 100\"]}",
        "description": "wuli desc",
        "document": "",
        "faultConnector": "",
        "groupAsSingleParticipant": false,
        "inputAssignments": [
            {
                "input": "$Task.Title",
                "name": "",
                "value": "${GlobalConstant.EmptyString}",
                "valueType": ""
            }
        ],
        "label": "User Task",
        "locationX": 750,
        "locationY": 100,
        "name": "userTask",
        "outputAssignments": [
        ],
        "participants": [
            {
                "type": "user",
                "value": "ecommerce6"
            }
        ],
        "preActions": [
            {
                "action": "${GlobalConstant.EmptyString}",
                "criteria": "",
                "name": "action",
                "type": "Set Status"
            }
        ],
        "priority": 3,
        "render": "SimpleBP$Form1$form",
        "renderType": "Form",
        "routeTo": "",
        "routeType": "Name and Expressions",
        "router": {
            "defaultRouteTo": "",
            "defaultRouteType": "",
            "name": ""
        },
        "title": "wu li tu cao",
        "usingSLA": "userTask_sla"
    },
    {
        "approvalType": "Single",
        "boundaryEvents": [
        ],
        "connector": "",
        "description": "",
```

```
    "document": "",
    "faultConnector": "",
    "groupAsSingleParticipant": false,
    "inputAssignments": [
    ],
    "label": "User Task",
    "locationX": 1000,
    "locationY": 100,
    "name": "userTask1",
    "outputAssignments": [
    ],
    "priority": 3,
    "render": "SimpleBP$ut1$form",
    "renderType": "Form",
    "routeTo": "",
    "routeType": "Last Assignee In Lane",
    "router": {
      "defaultRouteTo": "",
      "defaultRouteType": "",
      "name": ""
    },
    "title": "T2"
  }
],
"usingSLA": "",
"variables": [
  {
    "currencyFactor": 0,
    "dataType": "checkBox",
    "defaultValue": "{!$GlobalConstant.True}",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "IsMatched"
  },
  {
    "currencyFactor": 0,
    "dataType": "text",
    "defaultValue": "Hello",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "Owner"
  },
  {
    "currencyFactor": 0,
    "dataType": "date",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "dateVar"
  },
  {
```

```
    "currencyFactor": 0,
    "dataType": "date",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": true,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "dateList"
  },
  {
    "currencyFactor": 0,
    "dataType": "extStruct",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "SimpleBP",
    "extType": "Form1Form",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "Form1Form"
  }
],
"version": "1.0.1"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.5.10 Modifying a BPM by ID

Function

This API is used to modify a BPM by ID.

URI

PUT *Huawei Cloud Astro Zero domain name*/u-route/baas/bp/v2.0/metadata/definitions/{bpm_id}

Table 4-144 URI parameters

Parameter	Mandatory	Type	Description
bpm_id	Yes	String	Explanation BPM instance ID, which can be queried by calling the API of Querying BPMs by Condition (id in the response message). Constraints None Value None Default value None

Request Parameters

Table 4-145 Request parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Explanation BPM name. Constraints None Value Start with a letter and can contain only letters, digits, and single underscores (_). There is no consecutive underscore (__) and the value cannot end with an underscore (_). A maximum of 64 characters are allowed. Default value None

Parameter	Mandator y	Type	Description
label	Yes	String	Explanation BPM label. Constraints None Value 1–80 characters Default value None
description	No	String	Explanation BPM description. Constraints None Value None Default value None
version	No	String	Explanation BPM version. When saving a BPM, you can save it as different versions. When enabling a BPM, you can select different versions. However, only one version can be enabled at a time. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
instanceLabel	No	String	Explanation Label of the BPM instance, which can contain system variables. Constraints None Value None Default value None
laneSet	No	object	Explanation Lanes. A lane represents a user role in a BPM. Each lane in a BPM corresponds to a work queue. After a work queue is configured, diagram elements in different lanes are processed by users in different work queues. A work queue records a set of members with the same permissions and task objects. Constraints None
config	No	object	Explanation The basic configuration in a BPM determines whether a process or task is private (viewable only by the current owner), whether the process can be canceled, and whether it can be canceled after passing through a BPM node. Constraints None

Parameter	Mandatory	Type	Description
startEvents	No	Array of object	Explanation Start diagram elements. The start diagram element, which serves as the start node of a BPM, includes properties such as the name of the next connected diagram element. Its default type is Start. Constraints None
dataMappers	No	Array of object	Explanation Data mappings. The data mapping diagram element is used to assign values to variables, fields, properties, and constants. For example, you can use this diagram to assign the value of a variable or constant to another variable. When the Data Mapper activity is reached in the process, the value assignment operation is performed. After values are assigned, the BPM execution continues along the subsequent route. Constraints None

Parameter	Mandatory	Type	Description
userTasks	No	Array of object	Explanation User tasks. A user activity is used to indicate the work that is accomplished by the user in the BPM. When the engine reaches this node during processing, the engine creates a task item to be processed for a specified user (participant) or a group of users (for example, a working queue of a lane), and waits for the user to process the task item. You can configure the approval information, GUI rendering information, recipient information, pre- and post-actions, and data mapping of user tasks. Constraints None

Parameter	Mandator y	Type	Description
serviceTasks	No	Array of object	Explanation Automatic task definition, which is a set of configuration information about the script diagram element, flow diagram element, record creation diagram element, record query diagram element, record update diagram element, record deletion diagram element, and email diagram element. • Script diagram element: You can use this diagram element to configure the input and output parameters of a script and execute a script in a BPM. • Flow diagram element: You can use this diagram element to execute a flow in a BPM. • Diagram element for recording adding, deletion, modification, and query: You can use these diagram elements to add, delete, modify, and query an object in a BPM. Constraints None

Parameter	Mandator y	Type	Description
businessRuleTasks	No	Array of object	Explanation Business rule tasks. This diagram element generates business rules based on the configuration in the decision table. Then, the system routes the messages to other element nodes based on the output connection gateway of the business rules. During the Business Rule task in the process, the system routes the messages to different route nodes according to the business rules. When using this diagram element, you need to select the decision table to be used. Constraints None
callActivities	No	Array of object	Explanation Call activities. Other BPMs can be nested in a BPM. When Call Activity is reached in the BPM, the system automatically executes the activity (calls another BPM). After the activity is executed, the BPM execution continues along the subsequent route. You can configure the properties of other BPMs, for example, the input and output parameters of the selected BPM. Constraints None

Parameter	Mandator y	Type	Description
subProcesses	No	Array of object	Explanation Embedded subprocesses. The Call Activity and Sub Process diagram elements are embedded subprocesses of a BPM. The differences are as follows: • Call Activity regards the sub-process as a black box and calls the sub-process through parameter transfer. • If a sub-process is embedded, a sub-process is directly planned in the current BPM. The sub-process can share the variables of the parent process. It can be used to divide, encapsulate, and reuse process steps. Constraints None
sendEvents	No	Array of object	Explanation Events to throw. When the Throw Signal event is reached during BPM execution, the engine sends an event to the system. Then, the BPM execution continues along the subsequent route. The thrown signal can be subscribed to and processed by the Signal Catch event. When using this element, you need to configure the specific event to be thrown, and configure event parameter in the Input Parameters area. Constraints None

Parameter	Mandator y	Type	Description
catchEvents	No	Array of object	Explanation Capture events, which include the configuration information of the Timer Catch diagram element and Signal Catch diagram element. • When the Timer Catch event is reached during BPM execution, the BPM is interrupted. The engine creates a timer. After the timer is triggered, the event ends and the BPM execution continues along the subsequent route. When using this element, you need to configure Base Time, Offset Time, and Offset Unit. • When the Signal Catch event is reached during the BPM execution, the BPM is interrupted. After the Throw Signal or the matched signal sent by APIs ends, the BPM execution continues along the subsequent route. When using this element, you need to configure Event, Event Conditions, and Outputs. Constraints None

Parameter	Mandator y	Type	Description
exclusiveGate ways	No	Array of object	Explanation Exclusive gateways. An exclusive gateway is used to make a unique decision for a group of branches in a process. The system evaluates the branch that flows out of the gateway based on the condition order. The process executes the first branch whose connection condition is evaluated as true (when multiple conditions are evaluated as true, the first decision is executed) and does not evaluate the subsequent branches. If all branch condition decisions are false and the gateway defines a default connection, the default branch is executed. If no reachable branch is available, an exception is thrown and the process is interrupted. Constraints None
inclusiveGate ways	No	Array of object	Explanation Inclusive gateways. Inclusive gateways are a special type of parallel gateways. On the basis of parallel gateways, a condition can be configured for each connection line. All connection lines that meet the condition are executed in parallel. If no condition is met, the default branch is executed if it is configured. Each inclusive gateway should appear in pairs, starting from the inclusive divergent gateway and finally connecting to the aggregation gateway. Constraints None

Parameter	Mandator y	Type	Description
parallelGatew ays	No	Array of object	Explanation Parallel gateways. Parallel gateways are used to combine branches unconditionally. Such gateways ignore connection conditions. A BPM can have multiple incoming and one outgoing branches, which are concurrently executed by the BPM engine. The parallel gateway appears in pairs. A pair of gateways can have multiple parallel branches. Constraints None
eventGateway s	No	Array of object	Explanation Event gateways. Generally, the gateway determines the subsequent path based on the connection condition, which requires that the condition information exists in the process. However, if the conditions for selecting the subsequent path are not from the process, event-based gateways can be used. The event-based gateway has only the branch behavior. It allows the branch (such as a time event or message event) where the event reaches first to be selected from multiple candidate branches and the other branches to be cancelled. Constraints None

Parameter	Mandatory	Type	Description
slas	No	Array of object	Explanation SLA. SLA: You can also set an SLA timer for the user activity. If the timer expires, the urgency level is increased and the corresponding action is performed. Constraints None
constants	No	Array of object	Explanation Constant definition, that is, constant information configured in Context . Constraints None
variables	No	Array of object	Explanation Variable definition, that is, variable information configured in Context . Constraints None

Response parameters

Table 4-146 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	Object	Explanation If the request is successful, the BPM instance information is returned.

Example Request

Modify a BPM object instance.

PUT <https://Huawei Cloud Astro Zero domain name/u-route/baas/bp/v2.0/metadata/definitions/001L000000Peww1Q318a>

```
{
  "config": {
    "cancelable": false,
    "noCancelAfterElem": ""
  },
  "dataMappers": [
    {
      "assignmentItems": [
        {
          "assignTo": "dateList",
          "name": "",
          "operator": "add",
          "value": "2019-03-04",
          "valueType": ""
        },
        {
          "assignTo": "dateList",
          "name": "",
          "operator": "add",
          "value": "2020-01-02",
          "valueType": ""
        }
      ],
      "connector": "userTask",
      "connectorPoint": "{\"fromPort\":\"R1\",\"toPort\":\"L1\",\"points\":[\"619 125\",\"643 125\",\"662.5 125\",\"662.5 100\",\"682 100\",\"706 100\"]}",
      "description": "",
      "label": "Data Mapper",
      "locationX": 575,
      "locationY": 125,
      "name": "dataMapper",
      "connectors": []
    }
  ],
  "description": "",
  "label": "SimpleBP",
  "laneSet": {
    "label": "",
    "lanes": [
      {
        "elements": [
          "userTask",
          "userTask1",
          "dataMapper",
          "start"
        ],
        "height": 201.35220031738282,
        "label": "lane",
        "name": "lane",
        "role": "LoanRequest.Applicant",
        "width": 1080
      }
    ]
  }
}
```

```
    ],
    "name": ""
  },
  "name": "SimpleBP",
  "slas": [
    {
      "active": true,
      "criteria": "",
      "deadlineDays": 0,
      "deadlineHours": 0,
      "deadlineIncreaseUrgencyBy": 2,
      "deadlineMinutes": 0,
      "deadlineOnlyBusinessDays": false,
      "goalActions": [
        {
          "action": "",
          "criteria": "{!IsMatched} && {!Owner}",
          "name": "sla-act",
          "type": "Notify Manager"
        }
      ],
      "goalDays": 0,
      "goalHours": 0,
      "goalIncreaseUrgencyBy": 1,
      "goalMinutes": 0,
      "goalOnlyBusinessDays": false,
      "label": "userTask1_sla",
      "name": "userTask1_sla",
      "startWhen": "",
      "variable": "",
      "actions": []
    },
    {
      "active": true,
      "criteria": "",
      "deadlineDays": 0,
      "deadlineHours": 0,
      "deadlineIncreaseUrgencyBy": 2,
      "deadlineMinutes": 0,
      "deadlineOnlyBusinessDays": false,
      "goalActions": [
        {
          "action": "NotifyBPManager",
          "criteria": "",
          "name": "sla-act1",
          "type": "Notify Manager"
        }
      ],
      "goalDays": 1,
      "goalHours": 0,
      "goalIncreaseUrgencyBy": 1,
      "goalMinutes": 0,
      "goalOnlyBusinessDays": false,
      "label": "userTask_sla",
      "name": "userTask_sla",
      "startWhen": "",
      "variable": "",
      "actions": []
    }
  ],
  "startEvents": [
    {
      "connector": "dataMapper",
      "connectorPoint": "{[\"fromPort\":\"R1\",\"toPort\":\"L0\",\"points\":[[\"151.5 100\",\"175.5 100\",\"341.25 100\",\"341.25 110.5\",\"507 110.5\",\"531 110.5\"]]}",
      "label": "Start",
      "locationX": 125,
      "locationY": 100,
      "name": "start",
```

```
        "type": "Start",
        "startType": "",
        "renderType": "",
        "render": "",
        "document": "",
        "description": ""
    }
],
"userTasks": [
    {
        "approvalType": "Single",
        "connector": "userTask1",
        "connectorPoint": "{\\"fromPort\\":\\"R1\\",\\"toPort\\":\\"L1\\",\\"points\\":[\\"794 100\\",\\"818 100\\",\\"875 100\\",\\"875 100\\",\\"932 100\\",\\"956 100\\"]}",
        "description": "wuli desc",
        "groupAsSingleParticipant": false,
        "inputAssignments": [
            {
                "input": "$Task.Title",
                "name": "",
                "value": "{!$GlobalConstant.EmptyString}",
                "valueType": ""
            }
        ],
        "label": "User Task",
        "locationX": 750,
        "locationY": 100,
        "name": "userTask",
        "participants": [
            {
                "type": "user",
                "value": "ecommerce6"
            }
        ],
        "preActions": [
            {
                "action": "{!$GlobalConstant.EmptyString}",
                "criteria": "",
                "name": "action",
                "type": "Set Status"
            }
        ],
        "render": "SimpleBP$form1$form",
        "renderType": "Form",
        "routeType": "Name and Expressions",
        "router": {
            "defaultRouteTo": "",
            "defaultRouteType": "",
            "name": ""
        },
        "title": "wu li tu cao",
        "usingSLA": "userTask_sla",
        "routeTo": "",
        "faultConnector": "",
        "boundaryEvents": [],
        "outputAssignments": [],
        "document": "",
        "priority": 3
    },
    {
        "approvalType": "Single",
        "groupAsSingleParticipant": false,
        "label": "User Task",
        "locationX": 1000,
        "locationY": 100,
        "name": "userTask1",
        "priority": 3,
        "render": "SimpleBP$ut1$form",
        "renderType": "Form",
```

```
"routeType": "Last Assignee In Lane",
"router": {
  "defaultRouteTo": "",
  "defaultRouteType": "",
  "name": ""
},
"title": "T2",
"routeTo": "",
"connector": "",
"faultConnector": "",
"boundaryEvents": [],
"inputAssignments": [],
"outputAssignments": [],
"document": "",
"description": ""
},
"variables": [
  {
    "currencyFactor": 0,
    "dataType": "checkBox",
    "defaultValue": "${GlobalConstant.True}",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "IsMatched"
  },
  {
    "currencyFactor": 0,
    "dataType": "text",
    "defaultValue": "Hello",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "Owner"
  },
  {
    "currencyFactor": 0,
    "dataType": "date",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "dateVar"
  },
  {
    "currencyFactor": 0,
    "dataType": "date",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "",
    "extType": "",
    "isCollection": true,
```

```
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "dateList"
  },
  {
    "currencyFactor": 0,
    "dataType": "extStruct",
    "defaultValue": "",
    "defaultValueType": "",
    "description": "",
    "extNS": "SimpleBP",
    "extType": "Form1Form",
    "isCollection": false,
    "isInput": false,
    "isNested": false,
    "isOutput": false,
    "name": "Form1Form"
  }
],
"version": "1.0.1"
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "errors": [
      "string"
    ],
    "warnings": [
      "string"
    ]
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.6 Import and Export

4.6.1 Exporting Data

Function

This API is used to export specific data of a table. The internal data of the objects created in the platform can be exported. This API exports the data of these objects based on the preset period, frequency, and filter criteria. Based on the preset execution time, the system generates a scheduled task to export data once or periodically. After the data is exported, you can call the file download API to download the file or view the task execution status based on the obtained scheduled task ID.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/bulk/v1.0/export/
data?*flag=template&file_type=csv*

Table 4-147 URI parameters

Parameter	Mandatory	Type	Description
file_type	Yes	String	Explanation Format of the export file. Constraints None Value • csv: The data is exported to a .csv file. • txt: The data is exported to a .txt file. Default value None

Request Parameters

Table 4-148 Request parameters

Parameter	Mandatory	Type	Description
cond	No	cond object	Explanation Filter criterion for export, which is a structure containing two fields: conditions and conjunction . Constraints None

Parameter	Mandatory	Type	Description
encodeType	Yes	String	Explanation Encoding format of the exported file. Constraints None Value The value can be UTF-8 or GBK. • utf-8: UTF-8 encoding • gbk: GBK encoding Default value None
firstScheduleDate	No	String	Explanation Time when the file is exported for the first time, in the format of yyyy-MM-dd HH:mm:ss. Constraints • This parameter is mandatory when scheduleMode is set to 2. • If scheduleMode is set to 1, this parameter is mutually exclusive with isImmediate. Value None Default value None
objects	No	Array of Strings	Explanation Objects to be exported. The value is a string array. Each string in the array is an object name. Data of multiple objects can be exported at the same time. You can also use the templateName parameter to specify a template for exporting data. Constraints None

Parameter	Mandatory	Type	Description
scheduleMode	Yes	Number	Explanation Execution times of the export task. Constraints None Value 1: Data is exported only once. 2: Data is exported for multiple times at the specified frequency. Default value None
scheduleInterval	No	Number	Explanation Interval for executing an export task. Constraints This parameter is mandatory when scheduleMode is set to 2. Value None Default value None
intervalUnit	No	Number	Explanation Interval unit for executing an export task. Constraints This parameter is mandatory when scheduleMode is set to 2. Value - Hour - Day - Month Default value None

Parameter	Mandatory	Type	Description
isImmediate	No	Boolean	Explanation Whether to export data immediately. Constraints This parameter is optional if scheduleMode is set to 1. This parameter and firstScheduleDate are mutually exclusive when scheduleMode is set to 1. Value None Default value None
templateName	No	String	Explanation Name of the template used for data export. You can also use the objects parameter to specify the objects to be exported. Constraints None Value None Default value None

Table 4-149 cond parameters

Parameter	Type	Description
conditions	Array of condition objects	Explanation Condition array. Each item in the array is used as a condition. Constraints None

Parameter	Type	Description
conjunction	String	Explanation Combination mode of conditions in a condition array. Constraints None Value • AND • OR Default value None

Table 4-150 conditions parameters

Parameter	Mandatory	Description
field	Yes	Explanation Filtering condition field. Constraints None Value • createDate: creation time. • createBy: creator ID. • lastModifiedDate: last modification time. • lastModifiedBy: ID of the last modifier. Default value None

Parameter	Mandatory	Description
operator	Yes	Explanation Filtering operator. Constraints Only the filtering fields of the time type support all operations and the filtering fields of other types support only eq and ne. Value • gt: greater than • ge: greater than or equal to • eq: equal to • ne: not equal to • lt: less than • le: less than or equal to • timeFunc: time function Default value None
value	Yes	Explanation Value to be compared. Constraints None Value When operator is set to timeFunc, the following functions are supported: • today • yesterday • last week • last month • last year • this week • this month • this year If the value to be compared is of the time type, the time character string must be in the yyyy-MM-dd HH:mm:ss format. Default value None

Response Parameters

Table 4-151 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	String	Explanation ID of the record that is successfully created. Value None

Example Request

- Example 1

To create a data export task for which **scheduleMode** is **1**, **firstScheduleDate** is **2020-05-31 00:00:00**, **encodeType** is **utf-8**, **templateName** is **myTemplate**, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/bulk/v1.0/export/data?flag=template&file_type=csv
```

```
{
  "scheduleMode": 1,
  "firstScheduleDate": "2020-05-31 00:00:00",
  "encodeType": "utf-8",
  "templateName": "myTemplate"
}
```

- Example 2

To create a data export task for which **scheduleMode** is **2**, **firstScheduleDate** is **2020-06-01 00:00:00**, **scheduleInterval** is **1**, **intervalUnit** is **Month**, **encodeType** is **GBK**, **objects** is **Flow** and **Page**, **field** is **createdBy**, **operator** is **eq**, and **value** is **1234567890xyz**, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/bulk/v1.0/export/data?flag=template&file_type=txt
```

```
{
  "scheduleMode": 2,
  "firstScheduleDate": "2020-06-01 00:00:00",
  "scheduleInterval": 1,
  "intervalUnit": "Month",
  "templateName": "template01",
  "encodeType": "gbk",
  "objects": "Flow",
  "page": 1,
  "field": "createdBy",
  "operator": "eq",
  "value": "1234567890xyz"
}
```

```
"objects": [
  "Flow",
  "Page"
],
"cond": {
  "conjunction": "AND",
  "conditions": [
    {
      "field": "createdBy",
      "operator": "eq",
      "value": "1234567890xyz"
    }
  ]
}
```

Example Response

- Example 1

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "abcdefghijklmnopqrstuvwxyz"
}
```

- Example 2

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "1234567890abcdefg"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.6.2 Importing Data

Function

This API is used to import the data in the local package to the Huawei Cloud Astro Zero environment in batches. The data to be imported should be compressed to a **.zip** package. Data files in the package must be in **.txt** or **.csv** format. In each file, the first row indicates the object to which the data belongs, the second row indicates the field names, and the other rows indicate data records. The import process may take a long time. The import result will not be returned immediately. After the import, you can view the execution status of the scheduled task based on the obtained task ID.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/bulk/v1.0/import/
data?filename={filename}&flag={hasid}&comment=X

Table 4-152 URI parameters

Parameter	Mandator y	Type	Description
filename	Yes	String	Explanation Name of the file to upload. Constraints Data in the file must be converted into binary streams before being uploaded. Value None Default value None
flag	Yes	String	Explanation Supported flags. Constraints None Value hasid: The imported source data contains ID values. noid: The imported source data does not contain any ID value. Default value None
comment	Yes	Boolean	Explanation Whether to verify the integrity of the .zip file. Constraints None Value true: To verify the integrity of the file false: Not to verify the integrity of the file Default value None

Request Parameters

None

Response Parameters

This API has no response parameter. If the HTTP status code is 200, data is imported. You can determine the request result based on the status code.

Example Request

To import the data of the local file **abcdefg.zip** to the Huawei Cloud Astro Zero (development or runtime) environment in batches, which does not contain any ID value, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/bulk/v1.0/import/data?
filename=abcdefg.zip&flag=noid&comment=true
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "002S000000sncZ4nOeS8"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.6.3 Exporting Metadata

Function

This API is used to export the metadata of a data table, that is, export the information about each field in the data table, excluding specific data records. After the export is complete, you can view the execution status of the scheduled task based on the obtained task ID.

URI

```
POST Huawei Cloud Astro Zero domain name/u-route/baas/bulk/v1.0/export/
schema?flag={template}
```

Table 4-153 URI parameters

Parameter	Mandatory	Type	Description
flag	No	String	Explanation Currently, the supported flag is template , indicating whether to export data using a specified template. Constraints If flag=template is carried, you need to set templateName to specify the name of the template to be used. Value The supported flag is template . Default value None

Request Parameters

Table 4-154 Request parameters

Parameter	Mandatory	Type	Description
encodeType	Yes	String	Explanation Encoding format of the exported file. Constraints None Value • utf-8: UTF-8 encoding • gbk: GBK encoding Default value None

Parameter	Mandatory	Type	Description
firstScheduleDate	No	String	Explanation Start time for data export, which must be in the format of yyyy-MM-dd HH:mm:ss. Constraints - This parameter is mandatory when scheduleMode is set to 2. - If scheduleMode is set to 1, this parameter is mutually exclusive with isImmediate. Value None Default value None
objects	No	Array of Strings	Explanation An array of strings, each of which is the name of an object whose metadata you want to export. Constraints None
scheduleMode	Yes	Number	Explanation Export modes. Constraints None Value 1: Data is exported only once. 2: Data is exported at the specified frequency. Default value None

Parameter	Mandatory	Type	Description
intervalUnit	No	String	Explanation Execution interval unit. Constraints This parameter is mandatory when scheduleMode is set to 2. Value • Hour • Day • Month Default value None
scheduleInterval	No	Number	Explanation Execution interval. Constraints This parameter is mandatory when scheduleMode is set to 2. Value None Default value None
isImmediate	No	Boolean	Explanation Whether to export data immediately. Constraints This parameter is optional if scheduleMode is set to 1. This parameter and firstScheduleDate are mutually exclusive when scheduleMode is set to 1. Value • true: The data is exported immediately. • false: The data is not exported immediately. Default value None

Parameter	Mandatory	Type	Description
templateName	No	String	Explanation Name of the template to be used. Constraints This parameter is used together with flag in the URL parameter. It is mandatory when flag is template. Value None Default value None

Response Parameters

Table 4-155 Response Parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes.
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	String	Explanation ID of the record that is successfully created. Value None

Example Request

To export metadata from the Lead and PortalUser tables, send the following request:

```

POST https://Huawei Cloud Astro Zero domain name/u-route/baas/bulk/v1.0/export/schema

```

```
{
  "scheduleMode":1,
  "firstScheduleDate":"2020-06-02 00:00:00",
  "encodeType":"gbk",
  "objects":["Lead","PortalUser"]
}
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "1234567890abcdefg"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.6.4 Importing Metadata

Function

This API is used to import metadata of a table. If the metadata of a data table is available, you can quickly create an object table based on the metadata.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/bulk/v1.0/import/schema?filename=*X*

Table 4-156 URI parameters

Parameter	Mandatory	Type	Description
filename	Yes	String	Explanation Name of a file to upload. The file must be in ZIP format and contain multiple metadata files. Constraints The file must be in ZIP format. Value None Default value None

Request Parameters

The file to upload must be converted into streams, and no other parameters are required.

Response Parameters

Table 4-157 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	String	Explanation ID of the record that is successfully created. Value None

Example Request

To import metadata in the **importtemplate.zip** file and obtain the scheduled task whose ID is **1234567890abcdefg**, run the following command:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/bulk/v1.0/import/schema?
filename=importtemplate.zip
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "1234567890abcdefg"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.6.5 Importing Data by Using a Template

Function

This API is used to import data by using a template. Before importing data, you need to create a data import template and define data mapping rules in the template. When this API is called, the template name must be specified and the operation script must be defined in the template. The import process may take a long time. The import result will not be returned immediately. After the import is complete, you can view the execution status of the scheduled task based on the obtained task ID.

URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/bulk/v1.0/template/xlsx?template={template}&filename={filename}

Table 4-158 URI parameters

Parameter	Mandatory	Type	Description
template	Yes	String	Explanation Name of the data import template. Constraints None Value None Default value None
filename	Yes	String	Explanation Name of the file to upload. Constraints The file can be in XLS or XLSX format. Value None Default value None

Request Parameters

None

Response Parameters

This API has no response parameter. If the HTTP status code is 200, the file is successfully uploaded. The data import task is executed in the backend.

Example Request

To import local file **myData.xlsx** by using the template named **myTemplate**, send the following request:

```
POST https://Huawei Cloud Astro Zero domain name/ u-route/baas/bulk/v1.0/template/xlsx?
template=myTemplate&filename=myData.xlsx
```

Example Response

None

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7 Connectors

4.7.1 Uploading a File

Function

Upload local files to the storage. By default, files are uploaded to the first bucket set up for the connector. These files can be texts, images, or videos.

URI

```
POST Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/
{connector_type}/{connector_name}/putobject?object=X
```

Table 4-159 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None
object	No	String	Explanation Full path of the file to be uploaded in the bucket, including the file name, file type, and upload path. If no path is specified, the file is uploaded to the root directory of the bucket. For example, if the value is a/b/c/1.txt , file 1.txt is uploaded to the a/b/c path of the bucket. If the path does not exist in the bucket, it will be created. Constraints None Value None Default value None

Request Parameters

Body type in the request, in the *multipart/form-data* format.

Table 4-160 Request parameters

Parameter	Mandatory	Type	Description
dir	No	String	Explanation Directory of the file to be uploaded in the bucket. Constraints None Value None Default value If this parameter is left blank, the root directory of the bucket is used.
acl	No	String	Explanation Access control permission on uploaded files. Constraints None Value - private - public-read - public-read-write - default: The permission is the same as that configured for the bucket. Default value If this parameter is not configured, the permission configured for the bucket is used.

Parameter	Mandatory	Type	Description
object	Yes	String	Explanation File data to be uploaded, including the file name and content. Constraints None Value None Default value None

Response Parameters

Table 4-161 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the path of the uploaded file in the bucket is returned.

Example Request

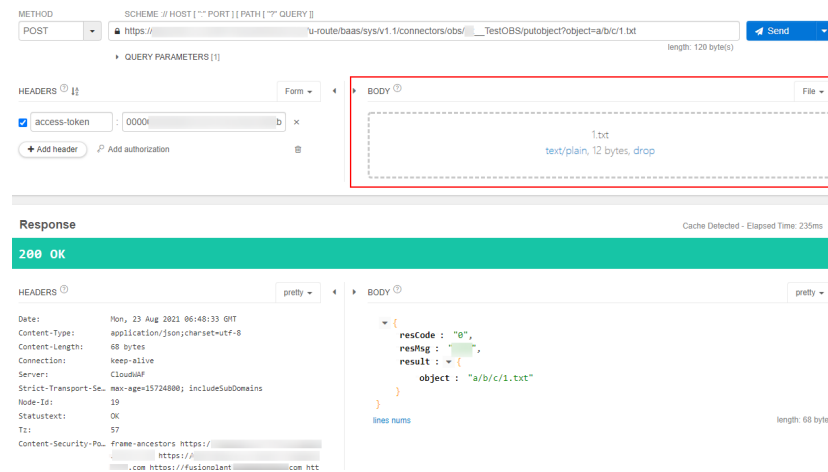
Create an OBS connector. Assume that the connector instance name is ***namespace_TestOBS***. Upload the **1.txt** file to the **a/b/c** directory of the OBS bucket. When you call an API to upload a file, the file can be uploaded only to the first bucket configured for the connector.

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/namespace_TestOBS/putobject?object=a/b/c/1.txt
```

```
{
  "object": "File to be uploaded",
  "acl": "public-read-write",
  "dir": "/"
}
```

In the request parameters, set the object in the *multipart/form-data* format, that is, the file data to be uploaded.

Figure 4-1 Setting the request parameter



After the preceding operations are complete, the **1.txt** file is successfully uploaded to the **a/b/c** directory in the OBS bucket.

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "object": "a/b/c/1.txt"
  }
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7.2 Downloading a File

Function

Download files from the storage.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/sys/v1.1/connectors/{connector_type}/{connector_name}/viewobject?object=X&x-image-process=Y

Table 4-162 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None
object	Yes	String	Explanation Full path of the file in the bucket, including the file name. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
x-image-process	No	String	Explanation Defined in OBS to indicate the image processing service. Example: • Command: x-image-process=image/commands • Style: x-image-process=style/stylename Constraints None Value None Default value None

Request Parameters

Table 4-163 Request header parameters

Header Field	Mandatory	Type	Description
Range	No	String	Explanation Specifies the range of file content to be viewed in the format bytes=numA-numB , where numA is the start byte position and numB is the end byte position. For example, if the value is bytes=0- , the file content of all bytes is returned. Constraints The values of numA and numB must be greater than 0, and numB must be greater than numA . Value None Default value If this parameter is not specified, all file content is returned.

Response Parameters

Only the file content is returned.

Example Request

An OBS connector has been created. The connector instance name is **Namespace__TestOBS**. The **1.txt** file exists in the **a/b/c** directory of the OBS bucket. Run the following request to download the **1.txt** file:

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/Namespace__TestOBS/viewobject?object=a/b/c/1.txt
```

Example Response

The following file content is returned:

```
test
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7.3 Deleting a File

Function

Delete useless files from the storage.

URI

```
DELETE Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/{connector_type}/{connector_name}/delobject?object=X
```

Table 4-164 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None
object	Yes	String	Explanation Full path of the file in the bucket, including the file name. Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-165 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Example Request

An OBS connector has been created. The connector instance name is **Namespace__TestOBS**. The **1.txt** file exists in the **a/b/c** directory of the OBS bucket. Run the following request to delete the file:

```
DELETE https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/Namespace__TestOBS/delobject?object=a/b/c/1.txt
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7.4 Deleting a Directory

Function

Delete a directory from the storage. All files within it will be deleted along with the directory.

URI

DELETE *Huawei Cloud Astro Zero domain name*/u-route/baas/sys/v1.1/connectors/{connector_type}/{connector_name}/deldir?dir=path

Table 4-166 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None
dir	Yes	String	Explanation Directory to be deleted. If the directory is empty or /, the root directory is deleted. Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-167 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Example Request

An OBS connector has been created. The connector instance name is **Namespace__TestOBS**. The **a/b** directory exists in the OBS bucket. Run the following command to delete the directory:

```
DELETE https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/Namespace__TestOBS/deldir?dir=a/b
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success"
}
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7.5 Listing Files in a Directory

Function

List files in a directory on the storage.

URI

GET *Huawei Cloud Astro Zero domain name*/u-route/baas/sys/v1.1/connectors/{connector_type}/{connector_name}/listdir?dir=path&max-keys=A&marker=B

Table 4-168 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None
dir	Yes	String	Explanation Directory to be listed. If the directory is empty or /, the root directory is listed. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
max-keys	No	Number	Explanation Maximum number of files that can be accessed. The maximum value is 1000. The default value is 1000 . Constraints None Value None Default value None
marker	No	String	Explanation File at the access start. Note that the file is not included in the returned result, and the file must be of a full path, that is, a directory is included. If this parameter is not specified, it starts from the beginning. Example: marker=a/b/c/1.txt . Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-169 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Array of object	Explanation The file list of the directory is returned. The fields in the list are described as follows: • name: file name or directory path. • isDir: indicates whether it is a directory. • size: file size.

Example Request

An OBS connector has been created. The connector instance name is **Namespace__TestOBS**. Run the following request to list files in the **a/b/c** path of the OBS bucket. The start file is **1.txt**.

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/Namespace__TestOBS/listdir?dir=a/b/c&max-keys=1000&marker=a/b/c/1.txt
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [{
    "name": "test.zip",
    "isDir": false,
    "size": 833154
  },
  {
    "name": "image_20201220181511.png",
    "isDir": false,
    "size": 78530
  },
  {
    "name": "monthly summary.txt",
    "isDir": false,
    "size": 824
  }
]
```

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7.6 Uploading Multipart

To upload a large file, multipart upload is recommended. Multipart upload is applicable to many scenarios, including:

- Files to be uploaded are larger than 100 MB.
- The network condition is poor, causing frequent disconnections from storage servers such as OBS and MinIO.
- Sizes of files to be uploaded are uncertain.

Multipart upload consists of three steps:

1. **Initializing a Multipart Upload Task:** creates a multipart upload task.
2. **Uploading Parts.**
3. **Completing Multipart Upload** or **Terminating (Canceling) a Multipart Upload Task.**

After the upload is complete, the file is stored in the bucket. If you terminate (cancel) a multipart upload task, all uploaded parts will be discarded.

Initializing a Multipart Upload Task

- Function

Before uploading data in multipart mode, you must create an initial multipart upload task. This operation will return a globally unique identifier (uploadId) of the task to identify the multipart upload task. You can use the identifier to initiate subsequent operations, such as uploading a multipart upload task, merging parts to complete the upload, and terminating (cancelling) the multipart upload task.

- URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/sys/v1.1/connectors/{connector_type}/{connector_name}/createmultipartupload?
object=X

Table 4-170 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
object	Yes	String	Explanation Full path of the file to be uploaded in the bucket, including the file name, file type, and upload path. If no path is specified, the file is uploaded to the root directory of the bucket. For example, if the value is a/b/c/test.mp4, the test.mp4 file is uploaded to the a/b/c path of the bucket. If the path does not exist in the bucket, it will be created. Constraints None Value None Default value None

- Request Parameters

Table 4-171 Request header parameters

Header Field	Mandatory	Type	Description
Content-Type	Yes	String	Explanation Media type of the file to be uploaded. The value must be the same as the file name. For example, if the file name is test.mp4, the value of Content-Type is video/mp4. Constraints None Value The values of content-type corresponding to different file types are as follows. The first column indicates the file type, and the second column indicates the corresponding content-type value. • 7z: application/x-7z-compressed • aac: audio/x-aac • ai: application/postscript • aif: audio/x-aiff • asc: text/plain • asf: video/x-ms-asf • atom: application/atom+xml • avi: video/x-msvideo • bmp: image/bmp • bz2: application/x-bzip2 • cer: application/pkix-cert • crt: application/pkix-crl • crt: application/x-x509-ca-cert • css: text/css • cs: text/csv • cu: application/cu-seeme • deb: application/x-debian-package • doc: application/msword • docx: application/vnd.openxmlformats-officedocument.wordprocessingml.document • dvi: application/x-dvi • eot: application/vnd.ms-fontobject • eps: application/postscript

Header Field	Mandatory	Type	Description
			• epub: application/epub+zip • etx: text/x-setext • flac: audio/flac • flv: video/x-flv • gif: image/gif • gz: application/gzip • htm: text/html • html: text/html • ico: image/x-icon • ics: text/calendar • ini: text/plain • iso: application/x-iso9660-image • jar: application/java-archive • jpe: image/jpeg • jpeg: image/jpeg • jpg: image/jpeg • js: text/javascript • json: application/json • latex: application/x-latex • log: text/plain • m4a: audio/mp4 • m4v: video/mp4 • mid: audio/midi • midi: audio/midi • mov: video/quicktime • mp3: audio/mpeg • mp4: video/mp4 • mp4a: audio/mp4 • mp4v: video/mp4 • mpe: video/mpeg • mpeg: video/mpeg • mpg: video/mpeg • mpg4: video/mp4 • oga: audio/ogg • ogg: audio/ogg • ogv: video/ogg • ogx: application/ogg • pbm: image/x-portable-bitmap

Header Field	Mandatory	Type	Description
			• pdf: application/pdf • pgm: image/x-portable-graymap • png: image/png • pnm: image/x-portable-anymap • ppm: image/x-portable-pixmap • ppt: application/vnd.ms-powerpoint • pptx: application/vnd.openxmlformats-officedocument.presentationml.presentation • ps: application/postscript • qt: video/quicktime • rar: application/x-rar-compressed • ras: image/x-cmu-raster • rss: application/rss+xml • rtf: application/rtf • sgm: text/sgml • sgml: text/sgml • svg: image/svg+xml • swf: application/x-shockwave-flash • tar: application/x-tar • tif: image/tiff • tiff: image/tiff • torrent: application/x-bittorrent • ttf: application/x-font-ttf • txt: text/plain • wav: audio/x-wav • webm: video/webm • wma: audio/x-ms-wma • wmv: video/x-ms-wmv • woff: application/x-font-woff • wsdl: application/wsdl+xml • xbm: image/x-xbitmap • xls: application/vnd.ms-excel • xlsx: application/vnd.openxmlformats-officedocument.spreadsheetml.sheet • xml: application/xml • xpm: image/x-xpixmap

Header Field	Mandatory	Type	Description
			- xwd: image/x-xwindowdump - yaml: text/yaml - yml: text/yaml - zip: application/zip Default value None

- Response Parameters

Table 4-172 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation Object of the created multipart task is returned. The object contains the uploadId field, which indicates the globally unique identifier of the task and is used to identify the multipart upload task. You can use the identifier to initiate subsequent operations, such as uploading a multipart upload task, merging parts to complete the upload, and terminating (canceling) the multipart upload task.

- Example Request

An OBS connector has been created. The connector instance name is **Namespace_TestOBS**. Large files need to be uploaded to the **a/b/c** path of the OBS bucket. Call the following request to initialize the multipart upload task:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/  
Namespace __TestOBS/createmultipartupload?object=a/b/c/test.mp4
```

- Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "uploadId": "0000017B761***8FF0F75F13"
  }
}
```

Record the value of **uploadId**, which is used to identify the multipart upload task and will be used in subsequent operations.

Uploading Parts

- Function

After [Initializing a Multipart Upload Task](#), you can upload data by part based on the specified object file name and **uploadId**. Each uploaded part has a part number, which ranges from 1 to 10000. For the same multipart upload task (with the same **uploadId**), **partNumber** not only uniquely identifies a part of data, but also identifies its relative location in the object file. If new data is uploaded using the same part number, the existing data of the part number on the storage server will be overwritten. Except for the **last part**, the sizes of other parts must be **greater than** 5 MB. The maximum size of each part is not limited by OBS and MINIO. When this API is called through Huawei Cloud Astro Zero, the maximum size of all parts is 100 MB. Parts can be uploaded in sequence or even on different processes or machines. The storage server sorts the parts by part number to form the final object.

- URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/sys/v1.1/
connectors/{connector_type}/{connector_name}/uploadpart?
object=X&uploadId=Y&partNumber=Z

Table 4-173 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None

Parameter	Mandatory	Type	Description
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None
object	Yes	String	Explanation Full path of the file to be uploaded in the bucket, including the file name, file type, and upload path. If no path is specified, the file is uploaded to the root directory of the bucket. For example, if the value is a/b/c/test.mp4, the test.mp4 file is uploaded to the a/b/c path of the bucket. If the path does not exist in the bucket, it will be created. Constraints None Value None Default value None
uploadId	Yes	String	Explanation Identifier of the multipart upload task. You can obtain the value from the returned result of Initializing a Multipart Upload Task. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
partNumber	Yes	Number	Explanation Part number For the same multipart upload task (with the same uploadId), partNumber not only uniquely identifies a part of data, but also identifies its relative location in the object file. Constraints None Value 1-10000 Default value None

- Request Parameters
Body type in the request. The file part is uploaded in the *application/octet-stream* format.
- Response Parameters

Table 4-174 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

Parameter	Type	Description
result	Object	Explanation Returned multipart task object, which contains the following fields: - ETag: identifier of a file part, which is used for subsequent upload. - partNumber: part number, which is used for subsequent upload.

- Example Request

An OBS connector has been created. The connector instance name is **Namespace_TestOBS**. Large files need to be uploaded to the **a/b/c** path of the OBS bucket. The multipart upload task whose **uploadId** is **0000017B761F112966C45D8FF0F75F13** has been initialized. Call the following request to create a multipart upload task and upload the **test.mp4** file whose part number is **1**.

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/  
Namespace __TestOBS/uploadpart?object=a/b/c/  
test.mp4&uploadId=0000017B761F112966C45D8FF0F75F13&partNumber=1
```

In the request body, set the object in the *application/octet-stream* format, that is, the file data to be uploaded.

- Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "ETag": "\"d41d8cd98f00b204e9800998ecf8427e\"",  
    "partNumber": 1  
  }  
}
```

Record the values of **ETag** and **partNumber**, which will be used during the upload.

Completing Multipart Upload

- Function

After all parts are uploaded, you need to call the upload completion API to merge parts on the storage server (for example, OBS) to generate the final object file. After the upload is complete, you need to provide a list of all valid parts (including partNumber and ETag). After receiving the submitted part list, Huawei Cloud Astro Zero verifies the validity of each part one by one. After all parts pass the verification, these parts are combined into the final object. The merged multipart tasks can have inconsecutive part numbers.

After the upload is complete, **uploadId** becomes invalid and cannot be used to terminate (cancel) the multipart upload.

- URI

```
POST Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/  
connectors/{connector_type}/{connector_name}/completeupload?  
object=X&uploadId=Y
```

Table 4-175 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
object	Yes	String	Explanation Full path of the file to be uploaded in the bucket, including the file name, file type, and upload path. If no path is specified, the file is uploaded to the root directory of the bucket. For example, if the value is a/b/c/test.mp4 , the test.mp4 file is uploaded to the a/b/c path of the bucket. If the path does not exist in the bucket, it will be created. Constraints None Value None Default value None
uploadId	Yes	String	Explanation Identifier of the multipart upload task. You can obtain the value from the returned result of Initializing a Multipart Upload Task . Constraints None Value None Default value None

- Request Parameters
Array type. Each element contains the fields listed in [Table 4-176](#).

Table 4-176 Request parameters

Parameter	Mandatory	Type	Description
ETag	Yes	String	Explanation Identifier of a file part. Obtain the value from the result returned by Uploading Parts . Constraints None Value None Default value None
partNumber	Yes	String	Explanation Part number For the same multipart upload task (with the same uploadId), partNumber not only uniquely identifies a part of data, but also identifies its relative location in the object file. Obtain the value from the returned result in Uploading Parts . Constraints None Value 1–10000 Default value None

- Response Parameters

Table 4-177 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

- Example Request

An OBS connector has been created. The connector instance name is **Namespace_TestOBS**. Large files need to be uploaded to the **a/b/c** path of the OBS bucket. There are two multipart upload tasks, and **uploadId** is **0000017B761F112966C45D8FF0F75F13**. Call the following request to complete the multipart upload task and merge all parts to generate the final object file.

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/  
Namespace __TestOBS/completeupload?object=a/b/c/  
test.mp4&uploadId=0000017B761F112966C45D8FF0F75F13
```

```
[{  
  "ETag": "\"d41d8cd98f00b204e9800998ecf8427e\"",  
  "partNumber": 1  
}, {  
  "ETag": "\"7dcad0c8a7398333ff25418bad511581\"",  
  "partNumber": 2  
}]
```

- Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success"  
}
```

Terminating (Canceling) a Multipart Upload Task

- Function Description

After a multipart upload task is canceled, you cannot use its **uploadId** to perform any operation and the uploaded parts will be deleted.

When a file is being uploaded in multipart mode or fails to be uploaded, parts are generated in the bucket. These parts occupy storage space. You can cancel the multipart upload to delete unnecessary parts to save storage space.

- URI

```
POST Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/  
connectors/{connector_type}/{connector_name}/abortupload?  
object=X&uploadId=Y
```

Table 4-178 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None

Parameter	Mandatory	Type	Description
object	Yes	String	Explanation Full path of the file to be uploaded in the bucket, including the file name, file type, and upload path. If no path is specified, the file is uploaded to the root directory of the bucket. For example, if the value is a/b/c/test.mp4, the test.mp4 file is uploaded to the a/b/c path of the bucket. If the path does not exist in the bucket, it will be created. Constraints None Value None Default value None
uploadId	Yes	String	Explanation Identifier of the multipart upload task. You can obtain the value from the returned result of Initializing a Multipart Upload Task. Constraints None Value None Default value None

- Request Parameters
- None
- Response Parameters

Table 4-179 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.

- Example Request

An OBS connector has been created. The connector instance name is **Namespace_TestOBS**. Large files need to be uploaded to the **a/b/c** path of the OBS bucket. If the **uploadId** is **0000017B76500F0662CABA7128913936**, call the following request to cancel the multipart upload task:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/
Namespace __TestOBS/abortupload?object=a/b/c/
test3.mp4&uploadId=0000017B76500F0662CABA7128913936
```

- Example Response

```
{
  "resCode": "0",
  "resMsg": "Success"
}
```

4.7.7 Obtaining an Endpoint

endpoint is the prefix of the file storage address. Combine it with the object's path to get the full access path. In [Uploading a File](#), the path of the uploaded file on the bucket is returned. You can call the API in this section to obtain the **endpoint** and combine it with the returned path to get the full access path.

URI

```
GET Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/
{connector_type}/{connector_name}/getendpoint
```

Table 4-180 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value - obs: connector for interconnecting with OBS. - minio: connector for connecting to MINIO. - objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None

Request Parameters

None

Response Parameters

Table 4-181 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .

Parameter	Type	Description
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation If the request is successful, the endpoint is returned, that is, the prefix of the file storage address. The complete access address of the file is the path of the file to be uploaded returned by endpoint and the file returned in Uploading a File .

Example Request

An OBS connector has been created. The connector instance name is **Namespace__TestOBS**. Run the following request to obtain the **endpoint**, that is, the prefix of the file storage address.

```
GET https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/Namespace__TestOBS/getendpoint
```

Example Response

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": {
    "endpoint": "https://test.obs.***.com/"
  }
}
```

After the **1.txt** file is successfully uploaded to the **a/b/c** path of the bucket by calling the API in [Uploading a File](#), the complete access address of the file is **https://test.obs.***.com/a/b/c/1.txt**.

Status Code

See [Status Codes](#).

Error Code

See [Error Codes](#).

4.7.8 Sharing Token

You can call this API (described in [Obtaining a Sharing Token](#)) to obtain a temporary token. You can use this temporary token to access the file without using the **access-token** for authentication.

To share a token, perform the following steps:

1. **Obtaining a Sharing Token**: obtains a temporary token.
2. **Viewing a Shared Object File**: Use a temporary token to access the file.

Obtaining a Sharing Token

- Function

Used to obtain a temporary token. You can use this token to access files without using the **access-token** for authentication. The obtained token is temporary and has a validity period.

- URI

POST *Huawei Cloud Astro Zero domain name*/u-route/baas/sys/v1.1/connectors/{connector_type}/{connector_name}/sharetoken

Table 4-182 URI parameters

Parameter	Mandatory	Type	Description
connector_type	Yes	String	Explanation Type of a connector. Constraints None Value • obs: connector for interconnecting with OBS. • minio: connector for connecting to MINIO. • objectstorageproxy: object storage proxy type. Default value None
connector_name	Yes	String	Explanation Name of the connector instance, that is, the connector instance name set when the connector is created. Constraints None Value None Default value None

- Request Parameters

Table 4-183 Request body parameters

Parameter	Mandatory	Type	Description
shareType	Yes	Integer	Explanation Sharing type. Constraints None Value 0: sharing by file. 1: sharing by directory. 2: Use character arrays to indicate multiple file paths. Default value None
key	No	String	Explanation Shared objects and directories. Constraints If the value is a directory, it must end with /. Value None Default value None
keys	No	String	Explanation Multiple file paths. Constraints None Value None Default value None
timeoutInMinutes	Yes	Integer	Explanation Validity period of the sharing, in minutes. Constraints None Value 1 to 1440, that is, 1 to 1440 minutes. Default value None

- Response Parameters

Table 4-184 Response parameters

Parameter	Type	Description
resCode	String	Explanation Return code. Value If the request is successful, 0 is returned. For details about other error codes, see Error Codes .
resMsg	String	Explanation Message returned. Value If the request is successful, "Success" is returned. In other cases, an error message is returned.
result	Object	Explanation Returned result object. If the object contains the shareToken field, the token is a temporary token.

- Example Request

An OBS connector has been created. The connector instance name is **Namespace __TestOBS**. Call the following request to obtain a temporary access token for some files:

```
POST https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/connectors/obs/  
Namespace __TestOBS/sharetoken
```

```
{  
  "shareType": 0,  
  "key": "a/b/c/1.txt",  
  "keys": [  
    "a/b/c/2.txt",  
    "ROMAExchange.zip",  
    "some/dir/c.jpg"  
  ],  
  "timeoutInMinutes": 60  
}
```

Users can access the file after obtaining the URL. Therefore, do not share sensitive files.

- Example Response

```
{  
  "resCode": "0",  
  "resMsg": "Success",  
  "result": {  
    "shareToken": "eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJz****tOejj6NEo"  
  }  
}
```

Record the value of **shareToken** for subsequent file access.

Viewing a Shared Object File

- **Function**
See [Obtaining a Sharing Token](#) to view the file based on the returned temporary token.
- **URI**
`GET Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/objectstorage/viewshareobject?object=X&shareToken=Y`

Table 4-185 URI parameters

Parameter	Mandatory	Type	Description
object	Yes	String	Explanation Full path of the file in the bucket, including the file name. Constraints None Value None Default value None
shareToken	Yes	String	Explanation Temporary token returned in Obtaining a Sharing Token . Constraints None Value None Default value None

- **Request Parameters**
None
- **Response Parameters**
Only the file content is returned.
- **Example Request**
An OBS connector has been created. The connector instance name is **Namespace __TestOBS**. Call the following request to use the temporary access token to view the **a/b/c/1.txt** file in the bucket.
`GET https://Huawei Cloud Astro Zero domain name/u-route/baas/sys/v1.1/objectstorage/viewshareobject?object=a/b/c/1.txt&shareToken=eyJhbGciOiJIUzI1NiIsInR5cGE6YW50eXBvc2V0bzIyZW88W8FYgXTGTAtOejj6NEo`
- **Example Response**
`test`

5 Preset APIs

5.1 Preset APIs in the Script

The script engine of Huawei Cloud Astro Zero uses the TypeScript language. During script execution, the TypeScript language is translated into the JavaScript language and executed by the JavaScript engine.

In addition to the official standard libraries of JavaScript ES5, Huawei Cloud Astro Zero provides more than 10 preset standard libraries (that is, preset APIs) to help you develop scripts more efficiently. [Table 5-1](#) describes the standard libraries.

The following is an example of using a library:

```
import * as http from 'http';
```

Table 5-1 Standard library description

Standard Library Name	Description
sys	Provides system-level operations, such as obtaining system parameter values and providing the alarm script library to set tracing points in scripts to report alarms.
context	Provides script execution context, for example, obtains the current tenant ID or current login user ID.
action	Defines the input and output methods of the script and the method of invoking the script.
buffer	Operates the binary buffer, for example, converts the content of the buffer to a string.
setup	Adds, deletes, modifies, and queries standard objects.
db	Adds, deletes, modifies, and queries the custom objects.

Standard Library Name	Description
sql	Executes SQL statements. Currently, only "select" statements can be executed.
bo	Adds, deletes, modifies, and queries business objects.
meta	Operates object metadata, for example, obtains the field name or length.
http	HTTP or HTTPS operation.
iconv	Converts a string into the GBK, GB18030, GB2132, or ISO8859_1 encoding format, or decodes a string.
crypto	Performs encryption operation, including the encapsulation of hash, HMAC, encryption, decryption, signature, and verification.
decimal	Converts the value of the number type queried from the HTTP request or database to a decimal value and perform mathematical operations such as addition, subtraction, multiplication, and division.
excel	Operates an Excel file, for example, generates an Excel file.
text	Operates text, for example, converts text to binary.
xml	Operates XML files, for example, reading XML files.
uuid	Generates a globally unique ID.

5.2 Preset APIs on Standard Pages

When developing a standard page, you can compile JavaScript code to implement the interaction between the page widget and background APIs.

The following is an example of the API code structure preset in the system. The event context is provided to encapsulate common objects and APIs.

```
context
├── $app // Current app information.
├── $user // Current user information.
├── $page // Related operations on the page.
├── $component // Related component operations.
├── $model // Related data model operations.
├── $message // Prompt message.
├── $dialog // Dialog box.
├── $bp // BPM-related operations
├── $bpm // BPM-related operations. This API is recommended and is an atomic operation.
└── $params // Obtain the input parameters of the widget event.
```

The following describes APIs preset on a standard page by category.

Component Class

- Obtain the current component.

context.\$component.current

- Obtain the component based on the key.

API: context.\$component.get(_compKey: number)

Input parameter: component key of the number type.

Output parameter: **Component**

Example:

```
let _compKey = 1546395654403000
let _component = context.$component.get(_compKey)
```

- Obtain the component based on the name.

API: context.\$component.get(_compName: string)

Example:

```
let _compName = 'input_1'
let _component = context.$component.get(_compName)
```

- Obtain the model bound to the component.

API: _component.getDataModel()

In the preceding information, **_component** indicates the current component.

Example:

```
let _component = context.$component.current
let _model = _component.getDataModel()
```

Message and Dialog Box

The default display duration of messages and dialog boxes is 5 seconds. You can transfer the second parameter **duration** to define the display duration.

For example, to set the interval for displaying a success message to 8 seconds, run the following statement:

```
API: context.$message.success(message: string, duration: 8)
```

- Success message

API: context.\$message.success(message: string)

Example:

```
// Success message.
context.$message.success('Successfully')
```

- Failure message

API: context.\$message.error(message: string)

Example:

```
// Failure message.
context.$message.error('Failed')
```

- Common message dialog box

API: context.\$dialog.info(option: object)

Input parameter: **option** indicates parameters about the dialog box. The structure is as follows:

```
{
  title: string,    // Title.
  content: string,  // Content.
  okText: string,   // Confirm button name, which is optional.
  onOk: function    // Confirmation callback function, which is optional.
}
```

Example:

```
// Common pop-up message.
context.$dialog.info({ title: 'Info', content: 'content', okText: 'ok', onOk: () => {alert('click ok')}})
```

- Confirmation message dialog box

API: context.\$dialog.confirm(option: object)

Input parameter: **option** indicates parameters about the dialog box. The structure is as follows:

```
{
  title: string,    // Title.
  content: string,  // Content.
  okText: string,   // Confirm button name, which is optional.
  cancelText: string, // Cancel button name, which is optional.
  onOk: function,   // Confirmation callback function, which is optional.
  onCancel: function // Cancellation callback function, which is optional.
}
```

Example:

```
// Confirm the displayed message.
context.$dialog.confirm({ title: 'Confirm', content: 'content', okText: 'ok', cancelText: 'cancel', onOk: () => {alert('click ok')}, onCancel: () => {alert('click cancel')}})
```

- Success message dialog box

API: context.\$dialog.success(option: object)

Input parameter: **option** indicates parameters about the dialog box. The structure is as follows:

```
{
  title: string,    // Title.
  content: string,  // Content.
  okText: string,   // Confirm button name, which is optional.
  onOk: function    // Confirmation callback function, which is optional.
}
```

Example:

```
// Displayed success message.
context.$dialog.success({ title: 'Info', content: 'content', okText: 'ok', onOk: () => {alert('click ok')}})
```

- Error message dialog box

API: context.\$dialog.error(option: object)

Input parameter: **option** indicates parameters about the dialog box. The structure is as follows:

```
{
  title: string,    // Title.
  content: string,  // Content.
  okText: string,   // Confirm button name, which is optional.
  onOk: function    // Confirmation callback function, which is optional.
}
```

Example:

```
// Displayed error message.
context.$dialog.error({ title: 'Error', content: 'content', okText: 'ok', onOk: () => {alert('click ok')}})
```

- Pop-up page

API: context.\$dialog.popup({ title: 'Error', page: 'date111', width: 60, height: 500, okText: 'ok', loading: true, params: {}, onCancel: () => {alert('click cancel')}, onOk: (data) => { data.visible = false; alert('click ok')}})

Input parameter: **option** indicates parameters about the dialog box. The structure is as follows:

```
{
  title: string,    // Title.
  Page: string      // Name of the page that is displayed.
}
```

```
width:integer // Page width. If the value is less than 100, the value is a percentage. If the value is greater than 100, the value is a pixel.
height:integer // Page height.
okText:string, // Confirm button name, which is optional.
params:object // Page parameters.
onCancel: function // Cancellation callback function, which is optional.
onOk: function // Confirmation callback function, which is optional.
maskClosable: boolean //Whether to allow users to click the mask layer to close it. The default value is true.
footerHide: boolean//Indicates whether to hide the button (OK or Cancel) area. The default value is false.
loading: boolean //Whether to display the loading state when the OK button is clicked. If the loading state is displayed, you need to manually set visible in onOk to close the dialog box.
draggable: boolean //Indicates whether the image can be dragged. The default value is false.
showCancel: boolean //Indicates whether to display the Cancel button. The default value is true.
okFirst: boolean //Indicates whether the OK button is before the Cancel button. The default value is false.
}
```

loading: whether to display the loading state of the **OK** button. The default value is **false**, indicating that the loading state is not displayed. If the value is **true**, the loading state is displayed. You need to use **visible** in **onOk** to close the dialog box.

footerHide: whether to display the buttons in the dialog box. The default value is **false**, indicating that the buttons are not displayed. The value **true** indicates that the buttons are displayed.

- Close the current page on a subpage.
API: `Page.$popup.get(Page.$root.popupKey).close();`

Page

- Obtain the current page.
API: `context.$page.current`
- Obtain the data model bound to the current page.
API: `context.$page.getModel()`
- Obtain the page URL parameters.
API: `context.$page.params.paramName`

Example:

```
// Assume that the current page URL is https://localhost:8080/besBaas/page#/std_1?a=1&b=2. The method of obtaining URL parameters is as follows:
let paramA = context.$page.params.a
let paramB = context.$page.params.b
```

- Open a page on a new tab.
API: `context.$page.open(url: string, queryString: string)`
Input parameters: **url**: page URL; **queryString**: query parameters (URL parameters). The parameters are in key=value format. Multiple parameters are separated by ampersands (&).
Example:
`context.$page.open('https://localhost:8080/besBaas/page#/std_2', 'a=1&b=2')`
- Open a page on the current tab.
API: `context.$page.load(url: string, queryString: string)`
- Refresh the current page.
API: `context.$page.reload()`

- Open a standard page on a new tab.
API: `context.$page.openStdPage(pageName: string, queryString: string)`
Input parameters: **pageName**: page name; **queryString**: query parameters (URL parameters). The parameters are in key=value format. Multiple parameters are separated by ampersands (&).
Example:

```
context.$page.openStdPage('std_2', 'a=1&b=2')
```
- Open a standard page on the current tab.
API: `context.$page.loadStdPage(pageName: string, queryString: string)`
- Open an advanced page on a new tab.
API: `context.$page.openAdvPage(pageName: string, websiteName:string, queryString: string)`
Input parameters: **pageName**: page name; **websiteName**: site name of the advanced page; **queryString**: query parameters (URL parameters). The parameters are in key=value format. Multiple parameters are separated by ampersands (&).
- Open an advanced page on the current tab.
API: `context.$page loadAdvPage (pageName: string, websiteName:string, queryString: string)`
- Close the current page.
API: `window.close()`

Form

- Obtain the current form.
API: `context.$component.form`
If the current component is a form, the form is directly returned. Otherwise, the nearest form is searched for in up search mode based on the context.
- Obtain the form based on the key.
API: `context.getFormByKey(_formKey: number)`
Input parameter: key value of the form. The type is number.
- Verify the entire form.
 - API: `_form.formValidate()`
`_form` indicates the obtained form widget. **promise** is returned.
 - API: `_form.formValidateUnPromise`
If the returned value is not **promise**, **true** or **false** is returned.
- Verify a single field in a form.
API: `_form.validateField(prop, callback)`
The **prop** parameter indicates the attribute to be verified. The **callback** parameter indicates the callback function is invoked to return error information after verification.
Example:

```
_form.validateField("name",function(errorMsg){  
  console.log("validate field", errorMsg)  
});
```

- Reset a form.
API: `_form.resetFields()`
In the preceding information, **_form** indicates the obtained form.
- Submit a form.
API: `_form.formSave()`
In the preceding information, **_form** indicates the obtained form. The API internal implementation has verified the form. After the verification is successful, the form is submitted and saved.

Table

- Obtain the current table.
API: `context.$component.table`
If the current component is a table, the table is directly returned. If the current component is associated with a table, the corresponding table (such as table query conditions and paging) is returned. Otherwise, the nearest table is searched for in up search mode based on the context.
- Obtain query conditions.
API: `_table.getCondition()`
In the preceding information, **_table** indicates the obtained table. The query condition bound to the table is returned.
- Setting search criteria

API:

```
// Obtain the condition and then assign a value.

var condition = _table.getCondition();
// If a field meets a single condition, the default operation is contains.
condition.queryInfo = {
  "fieldName": "1"
}
// If a field meets a single condition, use a customized operation.
condition.queryInfo = {
  "fieldName": {
    operator: "contains",
    value: "1"
  }
}
// The field meets multiple conditions.
condition.queryInfo = {
  "fieldName": [{
    operator: "contains",
    value: "1"
  }],
  {
    operator: "contains",
    value: "2"
  }
}
// Pagination condition.
condition.pageInfo: {
  "pageSize": 10,
  "curPage": 1
}
```

In the preceding information, **_table** indicates the obtained table.
Input parameter: query condition of a table.

- Executing a Query
API: `_table.doQuery()`
In the preceding information, **_table** indicates the obtained table.
- Initialize row data.
API: `_table.rowInit()`
In the preceding information, **_table** indicates the obtained table. After a new row data record is initialized, data is not added to the table.
- Add a row data record.
API: `_table.addRow(newRowData: object)`
In the preceding information, **_table** indicates the obtained table. This method adds the initialized row data to the table. The data is stored in the frontend table, but is not persisted to the backend.
Input parameter: row data.
- Obtain the currently selected row data record of a table.
API: `_table.getSelectedData()`
In the preceding information, **_table** indicates the obtained table.
- Delete table row data.
API: `_table.doDelete(rows: array)`
In the preceding information, **_table** indicates the obtained table.
Input parameter: table row data list.

Example:

```
// Current table.  
let _table = context.$component.table  
// Obtain the selected row.  
let rows = _table.getSelectedData()  
// Delete the selected row.  
_table.doDelete(rows)
```

- Obtain the modified table data (such as added, modified, and deleted records).
API: `_table.getOperatedData()`
In the preceding information, **_table** indicates the obtained table.
- Save table data.
API: `_table.doSave(operatedData: object)`
In the preceding information, **_table** indicates the obtained table. This method persists the modification of the current table.
Input parameter: modified table data.

Example:

```
// Current table.  
let _table = context.$component.table  
// Obtain the modified data.  
let operatedData = _table.getOperatedData()  
// Submit table modification.  
_table.doSave(operatedData)
```

Object Operation

- Obtaining an object
API: `context.object(objectName)`

Input parameter: **objectName**, which indicates the object name.

Output parameter: **object**.

Example:

```
let _object = context.object("objectName")
```

- Query all data of an object.

API:

```
_object.query().then(function (response) {  
  // TODO: Your business logic  
})
```

- Query data that meets conditions.

For example, to query the object data that meets the condition **name = 'test'**, the code is as follows:

```
let _condition = {conjunction: 'AND', conditions: [{ field: 'name', operator: 'eq', value: 'test' }] }  
_object.query({condition:_condition}).then(function (response) {  
  // TODO: Your business logic  
})
```

- Collect statistics on the number of object data records that meet conditions.

API: **_object.count(_condition)**

_object indicates the object name.

Input parameters: **_condition** indicates query conditions. This parameter is optional.

Output parameter: **Promise**

Example:

```
// Collect statistics on all data.  
_object.count().then(function (response) {  
  // TODO: Your business logic  
})  
  
// Collect statistics on data that meets conditions.  
_object.count(_condition).then(function (response) {  
  // TODO: Your business logic  
})
```

- Query the data that meets the conditions, and query only some fields.

```
let _fields = 'id,name'  
_object.query({condition:_condition}, _fields).then(function (response) {  
  // TODO: Your business logic  
})
```

- Query data that meets conditions and query only some fields. Pagination and sorting are supported.

For example, records are sorted in descending order based on the **name** field and displayed in pages. A maximum of 10 records can be displayed on each page. Example code:

```
let _fields = 'id,name'  
let _options= {'skip': 10,'limit': 10,'orderby': [{field: 'name','order': 'desc'}]}  
_object.query({condition:_condition}, _fields, _options).then(function (response) {  
  // TODO: Your business logic  
})
```

- Query common object data.

API: **_object.query({condition:_condition}, fields: string)**

Input parameters: **_condition** indicates query conditions. This parameter is optional. An example is as follows:

```
{  
  conjunction: 'AND', // Condition connector such as AND or OR.
```

```
conditions: [
  {
    field: 'name', // Condition field.
    operator: 'eq', // Condition comparison operator.
    value: 'test' // Condition value.
  },
  {
    condition: { // Embedded condition.
      conjunction: 'OR',
      conditions: [
        {
          field: 'status',
          operator: 'eq',
          value: '1'
        },
        {
          field: 'status',
          operator: 'eq',
          value: '2'
        }
      ]
    }
  }
]
```

The content in the preceding example is as follows: name = 'test' && (status = '1' || status = '2')

Fields: Query fields (only specified fields are returned). Multiple fields are separated by commas (.). The query fields are optional.

Output parameter: **Promise**

- Insert object data. Batch operations are supported.

API: `_object.insert(data: Object[])`

Input parameter: data to be inserted, which is an object array.

Output parameter: **Promise**. The ID of the newly inserted data record is returned.

Example:

```
let data = [{ name: 'test', label: 'test' }]
_object.insert(data).then(function (response){
  if (response && '0' === response.resCode) {
    let _id = response.result[0].id}})
```

- Update object data based on the record ID.

API: `_object.updateById(_id: string, data: Object)`

Input parameters: **id** indicates the record ID. **data** indicates the object update content.

Output parameter: **Promise**

Example:

```
let _id = '{{ id }}'
// Update data based on the record ID.
_object.updateById(_id, { label: 'test2' }).then(function (response) {
  // TODO: Your business logic
})
```

- Query object data based on the record ID.

API: `_object.queryById(_id: string)`

Input parameter: **id** indicates the record ID.

Output parameter: **Promise**

Example:

```
let _id = '{{ id }}'  
// Query a single record based on the record ID.  
_object.queryByID(_id).then(function (response) {  
  // TODO: Your business logic  
})
```

- Delete object data based on the record ID.

API: `_object.deleteByID(_id: string)`

Input parameter: **id** indicates the ID of an object record.

Output parameter: **Promise**

Example:

```
let _id = '{{ id }}'  
// Delete data based on the record ID.  
_object.deleteByID(_id).then(function (response) {  
  // TODO: Your business logic  
})
```

- Query object data in batches based on record IDs.

API: `_object.batchQueryByIDs(_ids: string, fields: string)`

Input parameter: **ids** indicates record IDs separated by commas (,). **fields**:

Query fields. Multiple fields are separated by commas (,). The query fields are optional.

Output parameter: **Promise**

Example:

```
_object.batchQueryByIDs('id1,id2,id3').then(function (response) {  
  // TODO: Your business logic  
})
```

- Delete object data in batches based on record IDs.

API: `_object.batchDeleteByIDs(_ids: string)`

Input parameter: **ids** indicates record IDs separated by commas (,).

Output parameter: **Promise**

Example:

```
_object.batchDeleteByIDs('id1,id2,id3').then(function (response) {  
  // TODO: Your business logic  
})
```

- Insert or update object data in batches.

API: `_object.batchUpsert(data: Object[])`

Input parameters: **data**, which is the data object to be inserted or updated.

When the input parameters contain **id**, the data is updated.

Output parameter: **Promise**

Example:

```
let data = [{id: '1538033158273005', label: 'test'}, {name: 'test', label: 'test'}]  
  
_object.batchUpsert(data).then(function (response) {  
  // TODO: Your business logic  
})
```

Script operation

- Initialize a script.

API: `context.script(scriptName)`

Input parameter: **scriptName** indicates the name of a script.

Output parameter: **Script**

Example:

```
// Initialize a script.  
let _script = context.script('{{ scriptName }}')
```

- Execute a script.

API: `_script.run()`

Input parameter: None

Output parameter: **Promise**

Example:

```
// Initialize a script.  
let _script = context.script('{{ scriptName }}')  
  
// Execute the script.  
_script.run().then(function(response) {  
    // TODO: Your business logic  
})
```

Operations related to service orchestration

- Initialize a flow.

API: `context.flow(flowName)`

Input parameter: **flowName** indicates the name of a flow.

Output parameter: **Flow**

Example:

```
// Initialize a flow.  
let _flow = context.flow("flowName")
```

- Configure the flow version number.

API: `_flow.version(version: string)`

Input parameter: **version** indicates the version number of a flow.

Output parameter: **Flow**

Example:

```
// Configure the flow version number.  
_flow.version("0.0.1")
```

- Execute a flow.

API: `flow.run(params: Object)`

Input parameter: **params**. An example is as follows:

```
{  
  param1: 'param1',  
  param2: {  
    param21: 'param21',  
    param22: 'param22'  
  }  
}
```

Output parameter: **Promise**

Example:

```
// This is applicable to one-time invoking of a flow.  
// Execute the flow.  
_flow.run({ param1: 'param1' }).then(function (res) {  
    // TODO: Your business logic  
})
```

- Start a flow.

API: `_flow.start(params: Object)`

Input parameter: **params**. An example is as follows:

```
{
  param1: 'param1',
  param2: {
    param21: 'param21',
    param22: 'param22'
  }
}
```

Output parameter: **Promise**

Example:

```
// The following is applicable to multi-step operation scenarios.
_flow.start({ param1: 'param1' }).then(function (res) {
  // TODO: Your business logic
})
```

- Go to the next step of the flow.

API: `_flow.next(interviewID: string, params: Object)`

Input parameters: **interviewID** indicates the flow running instance ID. **params** indicates input parameters.

```
{
  param1: 'param1',
  param2: {
    param21: 'param21',
    param22: 'param22'
  }
}
```

Output parameter: **Promise**

Example:

```
// Go to the next step.
_flow.next('{{ interviewID }}', { param1: 'param1' }).then(function (res) {
  // TODO: Your business logic
})
```

- Return to the previous step of the flow.

API: `_flow.back(interviewID: string, params: Object)`

Input parameters: **interviewID** indicates the flow running instance ID. **params** indicates input parameters.

```
{
  param1: 'param1',
  param2: {
    param21: 'param21',
    param22: 'param22'
  }
}
```

Output parameter: **Promise**

Example:

```
// Return to the previous step.
_flow.back('{{ interviewID }}', { param1: 'param1' }).then(function (res) {
  // TODO: Your business logic
})
```

- Complete the flow normally.

API: `_flow.finish(interviewID: string, params: Object)`

Input parameters: **interviewID** indicates the flow running instance ID. **params** indicates input parameters. An example is as follows:

```
{
  param1: 'param1',
  param2: {
    param21: 'param21',
    param22: 'param22'
  }
}
```

Output parameter: **Promise**

Example:

```
// Complete the flow.
_flow.finish("{} {{ interviewID }}", { param1: 'param1' }).then(function (res) {
  // TODO: Your business logic
})
```

- Restore a flow.

API: `_flow.resume(interviewID: string, params: Object)`

Input parameters: **interviewID** indicates the flow running instance ID. **params** indicates input parameters. An example is as follows:

```
{
  param1: 'param1',
  param2: {
    param21: 'param21',
    param22: 'param22'
  }
}
```

Output parameter: **Promise**

Example:

```
// Restore a flow.
_flow.resume("{} {{ interviewID }}", { param1: 'param1' }).then(function (res) {
  // TODO: Your business logic
})
```

- Delete a flow instance.

API: `_flow.terminate(interviewID: string, params: Object)`

Input parameters: **interviewID** indicates the flow running instance ID. **params** indicates input parameters. An example is as follows:

```
{
  param1: 'param1',
  param2: {
    param21: 'param21',
    param22: 'param22'
  }
}
```

Output parameter: **Promise**

Example:

```
// Delete a flow.
_flow.terminate("{} {{ interviewID }}", { param1: 'param1', param2: { param21: 'param21', param22:
'param22' } }).then(function (res) {
  // TODO: Your business logic
})
```

Service requests

Invoke a service API.

API: `context.service('{{url}}').run(_inputParams)`

Input parameters: **url** indicates the URL of the service API. You can click **Service** in the app or BO view to view the URL of the encapsulated flow, script, or object operation API. **_inputParams** indicates input parameters.

Example:

```
var _inputParams = {};  
// Call a microservice  
context.service('{{ url }}').run(_inputParams).then(function(response) {  
    // TODO: Your business logic  
});
```

BPM-related operations (non-atomic-level)

- Obtaining parameter values

API: `context.$bp.loadVariables()`

Input parameter: None

Output parameters: parameter object

Example:

```
context.$bp.loadVariables().then(function (data) {  
    context.$model.ref("loanRequestData").setData(data.result.LoanRequestData);  
    context.$model.ref("statusUpdates").setData(data.result.Status);  
    context.$model.ref("negotiateCount").setData(data.result.NegotiateCount);  
});
```

- Set a variable in the BPM.

API: `context.$bp.putVariables (variables:object, instId: string)`

Input parameters: **variables** indicates the parameter object and is mandatory. **instId** indicates the instance ID and is optional.

Output parameters: execution result

Example:

```
context.$bp.putVariables({  
    LoanRequest: "test"  
});
```

- Submit data to the BPM.

API: `context.$bp.submitTask (variables:object)`

Input parameters: **variables** indicates the parameter object and is mandatory.

Output parameters: none

Example:

```
var data = context.$model.ref("loanRequestData").getData();  
context.$bp.submitTask({  
    LoanRequest: data  
});
```

BPM-related operations (atomic-level)

The difference between **context.\$bp** and **context.\$bpm** is that **context.\$bp** ensures the atomicity of operations. For example, when **context.\$bp.submitTask (variables:object)** is invoked and data is successfully submitted, a dialog box is displayed. If you click **OK**, the current page is automatically closed. When **context.\$bpm.submitTask (variables:object)** is invoked to submit data, only the task is submitted, and no dialog box is displayed. If the task is not submitted in the BPM context (that is, the task is submitted when the BPM instance is not running), a message is displayed. **context.\$bpm** is recommended.

- Obtaining parameter values
API: `context.$bpm.loadVariables()`
Input parameter: None
Output parameters: parameter object
Example:

```
context.$bpm.loadVariables().then(function (data) {  
    context.$model.ref("loanRequestData").setData(data.result.LoanRequestData);  
    context.$model.ref("statusUpdates").setData(data.result.Status);  
    context.$model.ref("negotiateCount").setData(data.result.NegotiateCount);  
});
```
- Set a variable in the BPM.
API: `context.$bpm.putVariables (variables:object, instId: string)`
Input parameters: **variables** indicates the parameter object and is mandatory.
instId indicates the instance ID and is optional.
Output parameters: execution result
Example:

```
context.$bpm.putVariables({  
    LoanRequest: "test"  
});
```
- Submit data to the BPM.
API: `context.$bpm.submitTask (variables:object)`
Input parameters: **variables** indicates the parameter object and is mandatory.
Output parameters: none
Example:

```
var data = context.$model.ref("loanRequestData").getData();  
context.$bpm.submitTask({  
    LoanRequest: data  
});
```
- Obtain all variables and variable values in a BPM instance.
API: `context.$bpm.getVarsByInstanceId("instance_id")`
Input parameters: *instance_id* indicates the BPM instance ID.
Output parameters: all variables and variable values in a BPM instance
Example:

```
context.$bpm.getVarsByInstanceId("instance_id").then(function (resp) {  
    // Callback logic  
});
```
- Obtain the data of a BPM instance.
API: `context.$bpm.getBPInstance("instance_id")`
Input parameters: *instance_id* indicates the BPM instance ID.
Output parameters: BPM instance data
Example:

```
context.$bpm.getBPInstance("instance_id").then(function (resp) {  
    // Callback logic  
});
```

Common API

Obtain the CSRF token.

API: context.\$utils.getCSRFToken()

Other

- Start a Cron job

API: context.timerTask(_timerHandler, _timeout, _executionCondition);

Input parameters: service logic, task interval, and execution condition for scheduled task execution

Example:

```
// Task interval, in milliseconds.
var _timeout = 1000;

// Logic of executing the service periodically.
var _timerHandler = function() {
    // TODO: Your business logic
};

// Execution condition
var _executionCondition = function() {
    return true;
};

// Start the scheduled task.
context.timerTask(_timerHandler, _timeout, _executionCondition);
```

- Download documents stored on the EDM. The EDM is an EDM type storage preset in the system.

API: context.\$edm.download()

Example:

```
// Download a document.
context.$edm.download(' {{docId}} ', ' {{docType}} ', ' {{subClassName}} ', ' {{docVersion}} ', function() {
    // Callback method for download failure.
});
```

- Preview documents stored on the EDM. The EDM is an EDM type storage preset in the system.

API: context.\$edm.preview()

Example:

```
// Preview the document.
context.$edm.preview(' {{hw_doc_id}} ', ' {{hw_doc_version}} ', ' {{docFormat}} ', function() {
    // Callback method after preview.
}, ' {{container}} ', function() {
    // Callback method for preview failure.
});
```

- Intercept a request.

API:

```
// Three parameters are provided: url indicates specified URL. successFun indicates the callback method upon successful request. failFun indicates the callback method upon failed request.
// Set the parameters as required. For example, if successFun is not required, you do not need to provide it. For example, {url:" ", failFun:function(err){}}.
context.filter({
    url: " ",
    successFun: function (response) {
        // TODO: Your business logic
    },
    failFun: function (error) {
        // TODO: Your business logic
    }
});
```

- Obtain the internationalization information in the current language.

API: `context.$t(name: string)`

Input parameter: **name**, which is the unique name of a multi-language item and is mandatory.

Output parameters: value of the current language

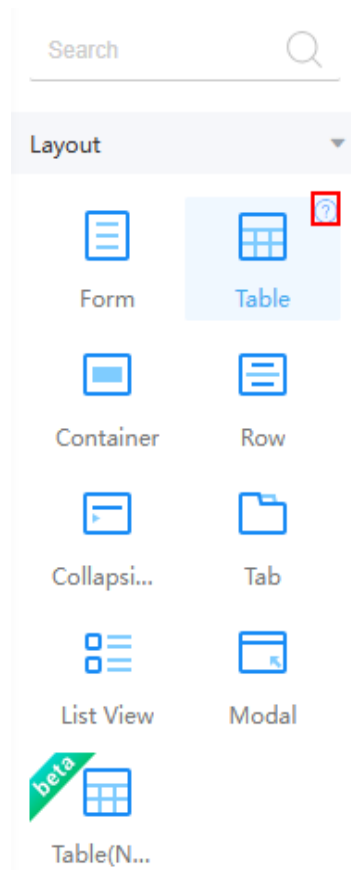
Example:

```
context.$t("app1.button.label")
```

- Obtain input parameters.

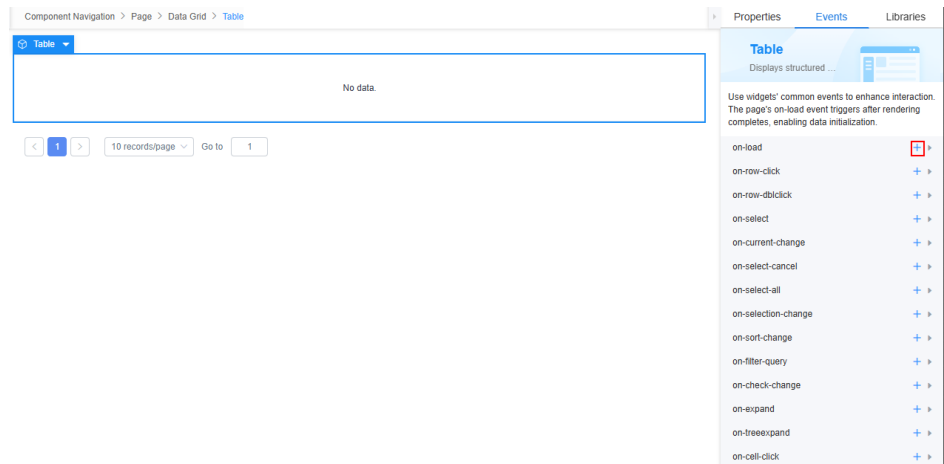
Events opened by some widgets have input parameters. You can obtain the input parameters using **context.\$params** in the custom code of events. The value of **context.\$params** is an array, which corresponds to multiple input parameters of the event. To view the input parameter definition, move the pointer to a widget in the widget area on the left of the standard page design page. A question mark icon is displayed on the upper right of the widget. After you click the icon, the usage description of the widget is displayed, which contains the event input parameter definition.

Figure 5-1 Viewing widget description



Example:

- a. On the **Event** tab page, click the plus sign (+) next to the **on-row-click** event.

Figure 5-2 Clicking the plus sign (+).

- b. In the **Add Action** dialog box, enter the following code:

```
var data = context.$params[0];  
console.log(data);
```

- c. Click the save button on the top of the page, and then click the preview button  on the top of the page.
- d. On the preview page, press **F12** to start the commissioning tool. Click a row in the table to trigger an event.

On the **Console** tab page, view log information. The input parameters of the event are recorded in the log, that is, the data in the current row that is clicked.

Operations on models

- Obtain the **data of the data model= model_1** instance.
API: `$model.ref("model_1").getData()`
- Set the data of the instance whose **data model** is **model_1**. The structure of the input parameter **data** is the same as that of **model_1**. This method is used when the entire model data is changed.
API: `$model.ref("model_1").setData(data)`
- Set the field value of the instance whose **data model** is **model_1**. This method is used when only a field value of the existing model data is changed.
API: `$model.ref("model_1").setValue(field, value)`

Tab Page-related

This function can be used only in the runtime state of the platform and can be implemented using the API exposed by the portal framework. The runtime state of the platform exposes a **bingo** global variable for use. The standard page is in the **iframe** and needs to be accessed using **window.parent.bingo**.

- Open a tab page. The tab ID is returned.
API: `openTab(name, url)`
- Switch to another tab page.
API: `switchTab(tabId)`

- Close a specified tab page.
API: `removeTab(tabId)`
- Current tab page.
API: `getCurrentTab()`
- Default tab page.
API: `getDefaultTab()`
- Open a specified tab.
API: `open({type:'Tab', id: tabId})`
- Open a specified tab.
API: `openTabByMenuName(menuName)`
- Return to the previous route.
API: `back()`

5.3 Preset APIs on Advanced Pages

During the development of advanced pages, the system provides some preset APIs for page widgets and bridges.

Widget

When customizing a widget, you need to define the *Widget name.js* file which is a JavaScript file of the core rendering logic. It is loaded and executed during the widget editing and page publishing and running. For details about the preconfigured APIs, see [Table 5-2](#).

Table 5-2 Description of preconfigured APIs in the Widget name.js file

Sub-Category	API Description
Preset APIs for widget instances	• The init method includes the entry-point function for initializing data during widget rendering. • The render method is used to render widgets. • getConnectorProperties: obtains bridge attribute values. • Obtains bridge instances based on bridge variable names. <i>APIConnector</i> is a string that indicates the bridge variable name. • ConnectorIns.process(renderCb, errCb): invokes the process function using a bridge instance to initiate service invoking requests and process returned results. – Before initiating a request using the process function, set the requestParams attribute of a bridge instance to the request parameter, for example, ConnectorIns.requestParams = param. – renderCb: processes the returned information. This parameter is of the function type. – errCb: processes errors. This parameter is of the function type. • ConnectorIns.query(param): invokes the query function using a bridge instance to initiate service invoking requests and process returned results. The parameters are described as follows: – param: request parameter. – The returned result is the Promise object. • getProperties: returns the customized attribute values of a widget. When developing a widget, you can customize attributes for the widget and configure the attributes on the development page. The getProperties method can be used to return the customized attribute values, for example, var properties = thisObj.getProperties(). • getContainer: returns the DOM node of the container that renders the widget. A code example is as follows: var elem = thisObj.getContainer (). When jQuery is used to query a DOM node in the widget, the \$("#id", elem) method can be used to obtain the DOM node. • getWidgetBasePath: returns the root path that stores static resources of a widget. For example, if the static resource path of a widget is https://10.10.10.1:12900/default/0000000000NABzEjpNIH/assets/bundle/widget/172a6056501-a6f8ce1f-2ed9-4a9a-b883-251aaac14e0a/v1591923270914/test0609.js, https://10.10.10.1:12900/default/0000000000NABzEjpNIH/assets/

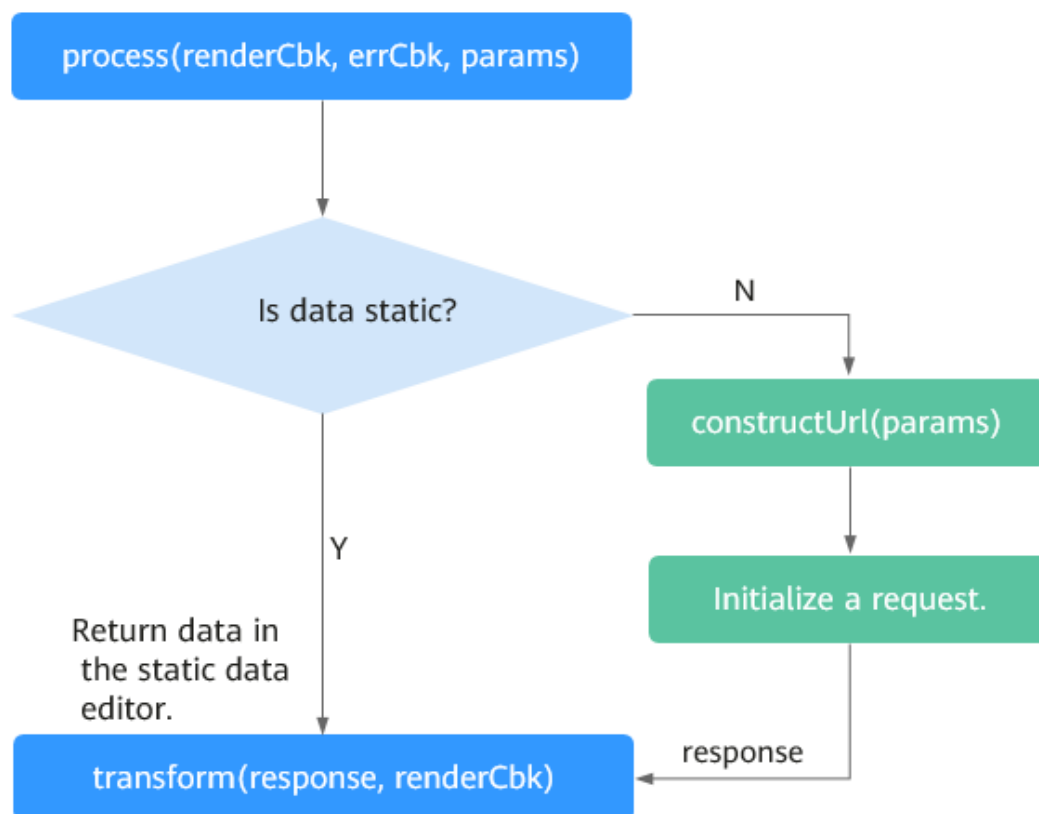
Sub-Category	API Description
	bundle/widget/172a6056501-a6f8ce1f-2ed9-4a9a-b883-251aaac14e0a/v1591923270914 is returned after thisObj.getWidgetBasePath() is executed. • getMessages: returns the internationalization file content defined in the internationalization configuration file of a widget. vue and vue18n are required. For example, the messages-en.json and messages-zh.json internationalization files are defined during widget development. thisObj.getMessages() returns the internationalization content defined in the two files. • hideWidget: hides the dom structure of the widget. This method can be invoked in the preview state to hide a widget. For example, execute the thisObj.hideWidget() method to hide the DOM structure of a widget. • showWidget: displays the DOM structure of the widget. This method can be invoked in the preview state to display a widget. For example, execute the thisObj.showWidget() method to display the DOM structure of a widget. • SITE_ROOT_PATH: obtains the root path of the URL of the current site. This is a preset parameter in Huawei Cloud Astro Zero. One site corresponds to one app. When an app is created, the system creates and allocates a site by default. If the URL of a page is <code>https://10.10.10.1:12900/magno/render/cool_app_0000000000NABzEjpNIH/page1</code>, the root path obtained using SITE_ROOT_PATH is <code>/magno/render/cool_app_0000000000NABzEjpNIH</code>. • triggerEvent: triggers an event. The parameters are described as follows: – eventName: name of the event to be triggered. – {}: assigns values to the parameters passed when the event is triggered, for example, {param: value}.

Sub-Category	API Description
Preset APIs for Studio objects	• Studio.registerWidget: defines a widget. • Studio.registerConnector: defines a bridge. • Studio.registerEvents: registers an event. Only the events registered using this API are displayed in the event list of a widget. – thisObj: current widget, indicating registering an event for the current widget. – eventName: event name, which must be the same as the first parameter in the event triggering API. – Event Label: event title that will be displayed in the event list. – []: parameter model passed when the event is triggered, for example, [{"name": "param"}]. • Studio.registerAction: registers an action. Only events registered using this API are displayed in the action list of the widget. – thisObj: current widget, indicating registering an action for the current widget. – actionName: action name. – Action Label: action label, which will be displayed in the action list. – [] indicates the parameters that will be passed in when the event is triggered. – \$.proxy(this.receiveActionCb, this): callback function that defines the execution logic of an action. – []: Leave this parameter blank. • Studio.registerRouter: defines a route. • Studio.inReader: determines whether the current page is in the develop state or preview state. The value true indicates that the page is in the preview state (runtime state), and the value false indicates that the page is in the develop state. • StudioToolkit.getCatalogProperties(): obtains metadata of the current site.
Preset APIs for magno objects	savePropertiesForWidget(props): saves advanced attributes of the current widget in the develop state. The parameter is set to the attribute set object to be set. An example of the props parameter is as follows: <pre>{ "prop1": "value1", "prop2": ""value2" }</pre>

Sub-Category	API Description
Preset APIs for the HttpUtils tool class	The HttpUtils tool class is built in Huawei Cloud Astro Zero. The preset APIs are as follows: • HttpUtils.getCookie: obtains the value of a cookie. Code example: <code>HttpUtils.getCookie()</code> • HttpUtils.setCookie: sets a cookie value. Code example: <code>HttpUtils.setCookie("key","value")</code> • HttpUtils.getI18n: returns a VueI18n instance, which is used together with Vue and Vuel18n. The VueI18n instance can be assigned an i18n parameter when a new Vue instance is created. Code example: <code>HttpUtils.getI18n({locale: HttpUtils.getLocale(), messages: thisObj.getMessages()})</code> • HttpUtils.getCsrfToken: used when an API of the platform is invoked in AJAX mode. If the platform bridge is used, the platform automatically adds the csrf-token header to the request header. <pre>HttpUtils.getCsrfToken(function(csrfToken) { \$.ajax({ headers: { CSRF-Token: csrfToken }, }) })</pre> • HttpUtils.refreshToken: manually refreshes the access token of the page. Generally, this method is executed to refresh the accesstoken of the page when the exit logic is executed. • HttpUtils.getUrlParam: obtains parameters in the query string. For example, if the URL of a page is <code>https://10.10.10.1:12900/magno/render/cool__app_0000000000NABzEjpNIH/page1?param=1</code>, the value 1 is returned after HttpUtils.getUrlParam("param") is executed. • HttpUtils.getLocalStorage: obtains the value of a localStorage. Code example: <code>HttpUtils.getLocalStorage("key")</code> • HttpUtils.setLocalStorage: sets the value of a localStorage. Code example: <code>HttpUtils.setLocalStorage("key","value")</code>

Bridge

Users do not need to customize a bridge. You can use the preset common Astro Zero API data bridge to invoke the service API of an app. Huawei Cloud Astro Zero also allows users to customize bridges and upload them to the platform for page widgets to use. [Figure 5-3](#) shows the main execution process available on Huawei Cloud Astro Zero.

Figure 5-3 Bridge execution process

The main user-defined functions in the bridge are **createUrl** and **transform**. You can encapsulate these functions as required to implement bridges with different functions. [Table 5-3](#) lists the common APIs for custom bridges. In Huawei Cloud Astro Zero, choose **Maintain > Global Elements > Page Assets Management > Bridge Templates**, download the template, and decompress it to view the API calling example.

Table 5-3 Common APIs in the custom bridge

API Name	Description
<code>init()</code>	Initialization function, which is used to call the setInputParams function to set custom configuration items for a bridge.
<code>setUrl(url)</code>	This API must be invoked in createUrl(params) to set the URL requested by the bridge.

API Name	Description
setLoadMethod(type, dataType, callback, callbackName, ajaxOptions)	This API is invoked in constructUrl(params) to process the parameters in the request constructUrl(params). The parameters in the API are described as follows: • type: request method, which can be POST, GET, PUT, or DELETE. The default value is GET. • dataType: expected type of data returned by the server. Generally, this parameter is set to json, indicating that data in JSON format is returned. • callback: This parameter is used when dataType is set to jsonp, indicating that the callback function name is rewritten in a JSONP request. • callbackName: This parameter is used when dataType is set to jsonp, indicating that the callback function name is specified in a JSONP request. • ajaxOptions: AJAX request setting. The following is an example:<pre>{ data: JSON.stringify(inputParamsObj.input), contentType: "text/html;charset=utf-8", beforeSend: function(xhr) { xhr.setRequestHeader("bass-method", "post"); xhr.setRequestHeader("Content-Type", "application/json"); }}</pre>
constructUrl(params)	This API is executed to construct the request URL before a request is initiated. params is the request parameter. In this API, setUrl(url) must be invoked to assign a value to the URL, and setLoadMethod can also be invoked to process request parameters (optional).
transform(resultData, renderCbkb)	Process the request response. The parameters are described as follows: • resultData: response to the request. • renderCbkb: callback function when the request is responded to. It is defined in the widget.
getUrl()	Used to obtain the URL of the bridge request.

API Name	Description
setInputParams([{},...,{}])	Used to set a custom configuration item for the bridge. • type: type of the configuration item. Common types include text and option. • name: variable name of the configuration item. • label: title of the configuration item. • value: default value of the configuration item. • validation: validation rule of the configuration item. The following example is the code of a custom configuration item for a bridge: <pre>this.setInputParams([{ "type": "select", "name": "requestMethod", "label": JSON.stringify({en_US: "Request Method"}), "options": [{ "label": "post", "value": "post", "selected": "true" }, { "label": "get", "value": "get" }, { "label": "put", "value": "put" }, { "label": "delete", "value": "delete" }], "validation": { "rules": {} } }, { "type": "text", "name": "prefix", "label": JSON.stringify({en_US: "prefix"}), "value": "", "validation": { "rules": {} } }]);</pre>
getInputParams()	Used to obtain the value of a custom configuration item.

6 Examples

6.1 Creating an Object and Defining Fields

Scenarios

You can create a VehicleType object and define fields to store vehicle types and type IDs.

The following describes how to call the APIs for creating an object and defining fields. For details, see [Calling APIs](#).

Creating an Object

- Step 1 Determine the request based on the actual request URI and method.
POST `https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object`
- Step 2 Set the request header.

Table 6-1 Request header

Header Field	Description	Mandatory
Content-Type	Parameter defined in the HTTP protocol, which identifies the format for parsing the returned content. This parameter must be set to application/json , indicating that the browser parses the returned content into a JSON object.	Yes
access-token	When a user login request is authenticated, the backend generates a token, which is contained in the response and saved in the browser. When the user sends a request to Astro Zero, the token will be carried, indicating that the user has been authenticated.	Yes

Step 3 Construct the message body.

```
{
  "label": "VehicleType",
  "name": "VehicleType__CST",
  "description": "",
  "fields": [
    {
      "label": "Name",
      "name": "name",
      "dataType": "Name"
    }
  ],
  "view": {
    "ObjectDetailLayout": {
      "name": "__layout__VehicleType__CST__detail",
      "fields": [
        "name"
      ]
    },
    "ObjectRecordsLayout": {
      "name": "__layout__VehicleType__CST__records",
      "fields": [
        "name"
      ]
    }
  }
}
```

If the following response is returned, the object is created. Record the value **cust000000aHYAsrPh4K** of **result**, which is the object ID.

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": "cust000000aHYAsrPh4K"
}
```

-----End

Defining Fields

Step 1 Determine the request based on the actual request URI and method.
cust000000aHYAsrPh4K is the object ID.

POST <https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object/cust000000aHYAsrPh4K/fields>

Step 2 Set the request header.

Table 6-2 Request header

Header Field	Description	Mandatory
Content-Type	Parameter defined in the HTTP protocol, which identifies the format for parsing the returned content. This parameter must be set to application/json , indicating that the browser parses the returned content into a JSON object.	Yes

Header Field	Description	Mandatory
access-token	When a user login request is authenticated, the backend generates a token, which is contained in the response and saved in the browser. When the user sends a request to Astro Zero, the token will be carried, indicating that the user has been authenticated.	Yes

Step 3 Construct the request body that carries the **VehicleType** and **VehicleNumber** fields.

```
{
  "fields": [
    {
      "label": "VehicleType",
      "name": "VehicleType__CST",
      "dataType": "text",
      "dataLength": 255,
      "caseSensitive": false,
      "isRequired": false,
      "isUnique": false,
      "isSearchable": false
    },
    {
      "label": "VehicleNumber",
      "name": "VehicleNumber__CST",
      "dataType": "text",
      "dataLength": 255,
      "caseSensitive": true,
      "isRequired": false,
      "isUnique": true,
      "isSearchable": false
    }
  ]
}
```

If the following response is returned, the fields are created:

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    "cust000000aHaE6S3mim",
    "cust000000aHaE6TINVA"
  ]
}
```

----End

6.2 Obtaining an Object List

Scenarios

You can query all objects of an account.

The following describes how to call the API for querying the object list. For details, see [Calling APIs](#).

Calling an API

Step 1 Determine the request based on the actual request URI and method.

GET `https://Huawei Cloud Astro Zero domain name/u-route/baas/metadata/v1.0/object?flag=S&type=cst,std`

Parameter description:

- **flag=S**: Queries object information. The query result does not contain any other associated information (default).
- **flag=D**: Queries objects that are not associated with tabs.
- **type=cst**: Queries custom objects. (If type is not specified, the value **cst** is the default value.)
- **type=std**: Queries standard objects.
- **type=stp**: Queries setup objects.
- **type=cst,std**: Queries custom and standard objects. Other combinations are similar. Multiple values are separated with a comma (,).

Objects in the list are sorted alphabetically.

Step 2 Set the request header.

Table 6-3 Request header

Header Field	Description	Mandatory
Content-Type	Parameter defined in the HTTP protocol, which identifies the format for parsing the returned content. This parameter must be set to application/json , indicating that the browser parses the returned content into a JSON object.	Yes
access-token	When a user login request is authenticated, the backend generates a token, which is contained in the response and saved in the browser. When the user sends a request to Astro Zero, the token will be carried, indicating that the user has been authenticated.	Yes

The message body does not need to be constructed for this API. If the following response is returned, the object list is obtained:

```
{
  "resCode": "0",
  "resMsg": "Success",
  "result": [
    {
      "id": "stad00000000000000GH",
      "keyPrefix": "10gh",
      "name": "AttachFile",
      "category": 2,
      "label": "Attach File",
      "pluralLabel": "Attach Files",
      "version": 55834574848,

```

```
"contextSetup": 0,
"trackFieldHistory": false,
"allowReports": false,
"allowActivities": false,
"allowChatter": false,
"allowStreamingApiAccess": false,
"allowBulkApiAccess": false,
"allowSearch": false,
"allowSharing": false,
"sharingMode": 0,
"deploymentStatus": 0,
"properties": "",
"status": 0,
"createdBy": "",
"createdDate": "",
"lastModifiedBy": "",
"lastModifiedDate": "",
"description": "",
"objectType": 0,
"protectMode": 0,
"installedPackage": "",
"createdBy.name": "",
"lastModifiedBy.name": "",
"childObjects": null,
"parentObjects": [
  {
    "parentObject": "stad00000000000000GD",
    "cascadeDelete": false
  },
  {
    "parentObject": "stad00000000000000GG",
    "cascadeDelete": false
  },
  {
    "parentObject": "stup0000000000000002I",
    "cascadeDelete": false
  },
  {
    "parentObject": "stup0000000000000003L",
    "cascadeDelete": false
  }
]
}
```

----End

7 Permissions and Supported Actions

Huawei Cloud Astro Zero allows you to use profiles to configure permissions for users. The system provides the following profiles (undeletable):

- **System Administrator Profile:** grants users full permissions.
- **Developer Profile:** developer permissions, which are generally assigned to users. Users with this permission can perform development on Huawei Cloud Astro Zero, for example, adding an object, adding a field to an object, and adding a process.
- **Portal User Profile:** permission is assigned to portal users. Portal users with this permission can log in to Huawei Cloud Astro Zero through service orchestration authentication.
- **Anonymous User Profile:** access permission of guests. Assign proper permissions to this profile based on service requirements.
- **Standard User Profile:** permissions for running system flows and creating, viewing, modifying, and deleting records of existing system objects when you enable Huawei Cloud Astro Zero. This profile does not include development permissions. For example, adding an object or process.
- **NoCode Developer Profile:** grants permission for no-code application development and is preset only in the runtime environment.
- **NoCode Manager Profile:** grants permission for managing no-code application data and is preset only in the runtime environment.

A profile can be assigned to multiple users, but each user can have only one profile assigned. The following lists the permissions that can be controlled in a profile:

- **Basic permissions**
The basic permissions refer to permissions configured on APIs when the built-in resources of Huawei Cloud Astro Zero are operated. The corresponding permission items must be selected on a profile. Otherwise, an error with status code 403 will be reported. For example, to create an object, you must have the application development permissions. To create a user, you must have the user management permissions.
- **App and menu display permissions**
Permissions required to display the default application and menu items under the application. This permission control is performed only at the frontend.

- Object and field permissions

Permissions for users to access field data records of a specific object. Object permissions include:

- Read: permission to read object instance data. If you do not have this permission, an error message is displayed indicating that you do not have the permission to access object data.
- Create: permission to create an object instance.
- Edit: permission to modify object instance data.
- Delete: permission to delete an object instance.
- View all: permission to view all instances of an object, regardless of whether the instances belong to OWNER.
- Modify all: permission to add, delete, or modify all instances of an object, regardless of whether the instances belong to OWNER.
- API read: permission to initiate a read operation through the HTTP interface, which does not affect the operations initiated in flow and script instances.
- API write: permission to initiate a write operation through the HTTP interface, which does not affect the operations initiated in flow and script instances.

Some special objects, such as the User object, cannot be directly accessed. All profiles provide only the read permission. The create, delete, and modify operations must be performed through APIs. Field permissions include:

- Read: permission to read a field.
- Write: permission to modify a field.

Some fields of some objects, such as the password field of the User object, cannot be directly read or modified.

- Display permissions of object standard pages

Permissions required for displaying the default layout of an object, including the layout of the list, details, creation layout, and editing layout. This permission item applies only to page display.

- API access permissions (flows, scripts, and BPM)

Permissions required to run Flow, Script, and BPM resources. If you do not have this permission when running a Flow, Script, or BPM resource, an error will be reported. For example, to run the **view_product** script, ensure that the **view_product** permission is selected in a profile.

- Connector access permissions

Permissions required to access only connectors that provide the HTTP interface, including S3, OBS, MINIO, and ObjectStorageProxy connectors.

To run these connectors, you must check the permissions required for them.

- Event access permissions

Permissions required only for events that provide HTTP interfaces for external systems, for example, permission to send events of a certain type.

- Service access permissions

Permissions related to a specific service.

8 Appendixes

8.1 Status Codes

Table 8-1 describes the status codes.

Table 8-1 Status codes

Status Code	Message	Description
100	Continue	The client should continue with its request. This provisional response informs the client that part of the request has been received and has not yet been rejected by the server.
101	Switching Protocols	The requester has asked the server to switch protocols and the server is acknowledging that it will do so. The target protocol must be more advanced than the source protocol. For example, the current HTTP protocol is switched to a later version of HTTP.
200	ok	The server successfully processed the request.
201	Created	The request was successful and the server created a new resource
202	Accepted	The server has accepted the request for processing, but the processing has not been completed.
203	Non-Authoritative Information	The server successfully processed the request, but is returning information that may be from another source.

Status Code	Message	Description
204	NoContent	The server has successfully processed the request, but is not returning any content. The status code is returned in response to an HTTP OPTIONS request.
205	Reset Content	The server has successfully processed the request, but is not returning any content.
206	Partial Content	The server is delivering only part of the resource due to a range header sent by the client.
300	Multiple Choices	There are multiple options for the requested resource. For example, this code could be used to present a list of resource characteristics and addresses from which the client such as a browser may choose.
301	Moved Permanently	This and all future requests should be permanently directed to the given URI indicated in this response.
302	Found	The requested resource resides temporarily under a different URI.
303	See Other	The response to the request can be found under a different URI, which should be retrieved using a GET or POST method.
304	Not Modified	The requested resource has not been modified. In such case, there is no need to retransmit the resource since the client still has a previously downloaded copy.
305	Use Proxy	The requester can only access the requested resource using a proxy.
306	Unused	This HTTP status code is no longer used.
400	BadRequest	The request cannot be fulfilled due to bad syntax. The client should not repeat the request without modifications.
401	Unauthorized	The authorization information provided by the client is incorrect or invalid.
402	Payment Required	This status code is reserved for future use.

Status Code	Message	Description
403	Forbidden	The server has received the request and understood it, but the server is refusing to respond to it. The client should not repeat the request without modifications.
404	NotFound	The requested resource cannot be found. The client should not repeat the request without modifications.
405	MethodNotAllowed	A request method is not supported for the requested resource. The client should not repeat the request without modifications.
406	Not Acceptable	The server could not respond with the content characteristics requested.
407	Proxy Authentication Required	This code is similar to 401, but indicates that the client must first authenticate itself with the proxy.
408	Request Time-out	The server timed out waiting for the request. The client may re-initiate the request without modifications at any later time.
409	Conflict	The request cannot be processed due to a conflict. This status code indicates that the resource that the client attempts to create already exists, or the request fails to be processed because of the update of the conflict request.
410	Gone	The requested resource is no longer available. The requested resource has been deleted permanently.
411	Length Required	The server refuses to process the request without a defined Content-Length.
412	Precondition Failed	The server does not meet one of the preconditions that the requester puts on the request.
413	Request Entity Too Large	The server is refusing to process a request because the request is too large. The server may disable the connection to prevent the client from sending requests consecutively. If the server temporarily cannot process the request, the response will contain a Retry-After header field.

Status Code	Message	Description
414	Request-URI Too Large	The server is refusing to process the request because the request URI is longer than that the server is willing to interpret.
415	Unsupported Media Type	The server does not support the media type in the request.
416	Requested range not satisfiable	The requested range is invalid.
417	Expectation Failed	The server cannot meet the requirements of the Expect request-header field.
422	UnprocessableEntity	The request was well-formed but was unable to be followed due to semantic errors.
429	TooManyRequests	The client has sent more requests than its rate limit allowed within a given amount of time, or the server has received more requests than it is able to process within a given amount of time. In this case, it is advisable for the client to re-initiate requests after the time specified in the Retry-After header of the response expires.
500	InternalServerError	The server is able to receive the request, but it could not understand the request.
501	Not Implemented	The server does not support the requested function.
502	Bad Gateway	The server is acting as a gateway or proxy and receives an invalid request from a remote server.
503	ServiceUnavailable	The requested service is unavailable. The client should not repeat the request without modifications.
504	ServerTimeout	The server cannot return a timely response. This status code is returned to the client only when the timeout parameter is specified in the request.
505	HTTP Version not supported	The server does not support the HTTP protocol version used in the request.

8.2 Error Codes

If an error occurs when calling an API, no result is returned. You can locate the cause based on the error code of each API. If an error occurs during API calling,

HTTP status code 4xx or 5xx is returned. The returned message body contains the specific error code and error message.

Format of an Error Response Body

If an error occurs during API calling, an error code and a message will be displayed. The following shows an error response body.

```
{
  "resCode": "Error code",
  "resMsg": "Error message",
}
```

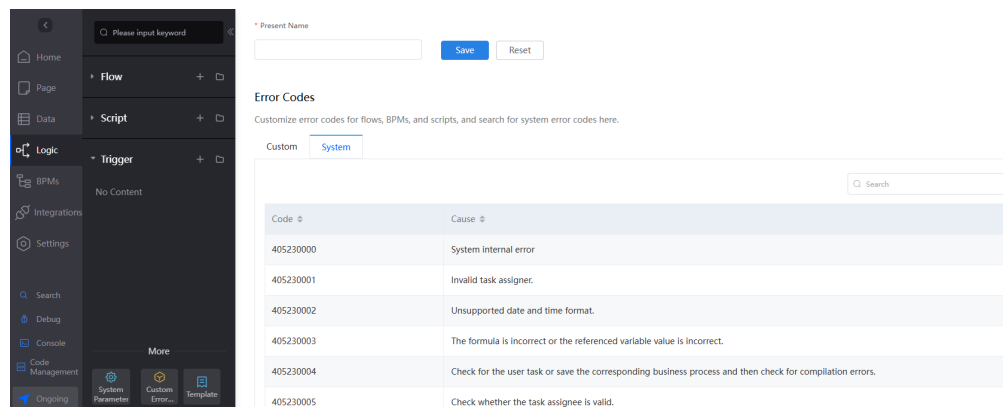
In the response body, **resCode** is an error code, and **resMsg** provides information about the error.

Error Code Description

There are two entrances available for you to view the preset error codes. Locate the error cause based on error codes and rectify the fault accordingly. For example, if the error code is **405230004**, search for the error code and check the cause of the error code. If the cause is "Check whether the user task exists or save the corresponding service process and check whether a compilation error occurs", rectify the fault as prompted. If you are not sure about the handling method, contact technical support.

- In the navigation pane of the application designer, choose **Logic > More > custom error code**. You can view the error codes on the **System Error Code** tab page.

Figure 8-1 Viewing error codes in the app



- On the environment configuration page, choose **Maintain > Global Elements > Error Code**. You can view the error codes on the **System Error Code** tab page.

Figure 8-2 Viewing system error codes

Enter a menu name.

Global Elements

Portal Users

Public Groups

Queues

Permission Sets

Service Permissio...

Picklists

Error Codes

Custom APIs

Template Scenarios

Error Codes

Customize error codes for flows, BPMs, and scripts, and search for system error codes here.

Custom

System

Code	Cause
405230000	System internal error.
405230001	Invalid task assigner.
405230002	Unsupported date and time format.
405230003	The formula is incorrect or the referenced variable value is incorrect.
405230004	Check for the user task or save the corresponding business process and then check for compilation errors.

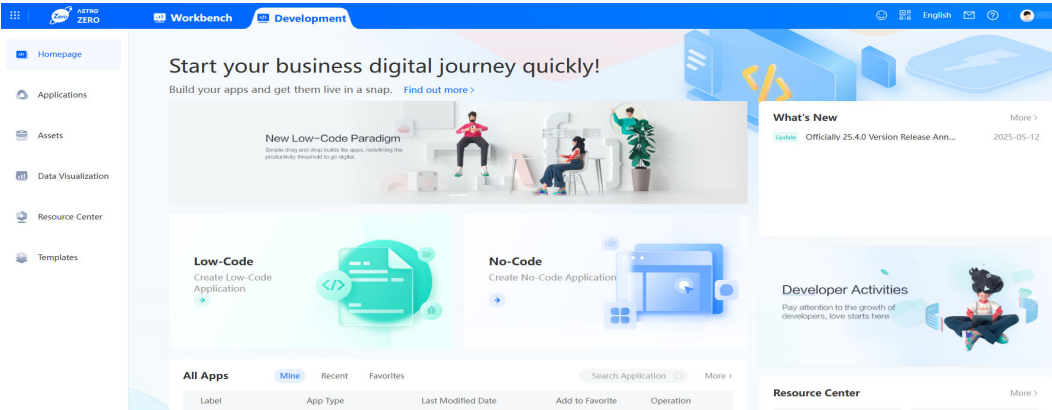
8.3 Logging In to the Application Designer

For API calls requiring object and flow names in the request parameters, check these names in the application designer.

Logging In to the Application Designer

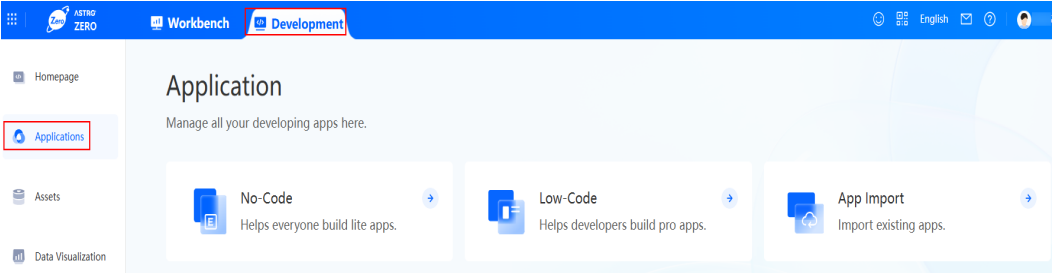
- Step 1
- Go to the [Huawei Cloud Astro Zero console](#).
- Step 2
- On the homepage, click **Access Homepage**. The application development page is displayed.

Figure 8-3 Application development page



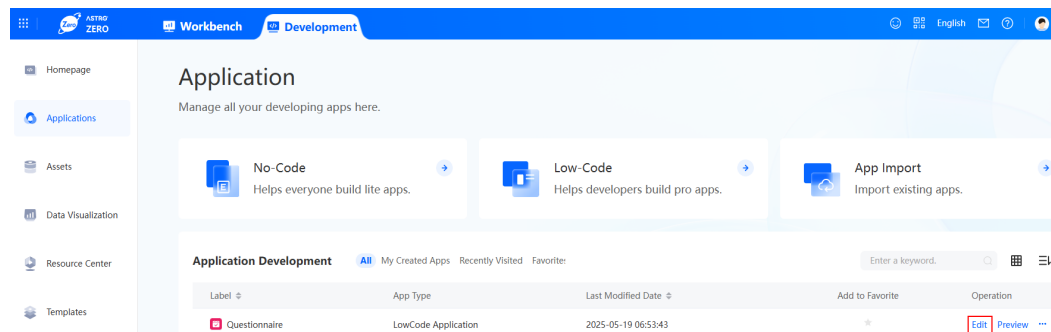
- Step 3
- In the navigation pane, click **Applications**.

Figure 8-4 Application management page



Step 4 Choose **Development > Applications**, click **Edit** next to the low-code application to access the application designer.

Figure 8-5 Editing a low-code application



----End

8.4 API Rate Limiting Suggestions

Symptom

An API returns a "429 Too Many Requests" error, indicating that too many requests were sent in a short time, exceeding the API's rate limit. To solve this issue, you can reduce the request sending frequency, increase the request timeout, perform retries based on the exponential backoff strategy, and check request parameters and headers.

Solutions

1. Reducing request frequency: The most straightforward solution is to decrease the frequency of requests sent by the client. Adjust your application (for example, by increasing client-side caches) to send requests at reasonable intervals based on the API's rate limit, avoiding bursts of requests in a short period.
2. Increasing request timeout: If API requests require long processing time, increase the client-side request timeout to allow sufficient time for the server to complete processing. This helps prevent the 429 error caused by timeouts.
3. Using exponential backoff for retries: When encountering the 429 error, avoid immediate retries. Instead, implement an exponential backoff strategy. Wait a short time (for example, 1 second) after the first failed retry. Wait longer (for example, 2 seconds) for the second retry. Wait even longer (for example, 4 seconds) for the third retry, and so on, until the retry is successful or the maximum allowed limit on retries has been reached.
4. Checking request parameters and headers: Ensure the request parameters and headers are correct to avoid server-side processing errors due to invalid inputs.

By implementing these solutions, you will effectively resolve the "429 Too Many Requests" error and ensure normal application running.

A Change History

Released On	Change History
2025-03-24	This issue is the first official release.