ROMA Connect

User Guide (New Version)

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HUAWEI

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1.1 Creating a ROMA Connect Instance

1.1.1 Preparing Resources

Before creating a ROMA Connect instance, you need to ensure availability of resources, including a virtual private cloud (VPC) and subnet. Each ROMA Connect instance is deployed in a VPC and bound to a subnet. In this way, ROMA Connect provides an isolated virtual network environment that can be easily configured and managed by users.

Required Resources

The following table lists the resources required by a ROMA Connect instance.

Table 1-1 Resources

Resource	Requirements	Operation
VPC and subnet	Different ROMA Connect instances can use the same or different VPCs and subnets based on site requirements. Note the following when creating a VPC and subnet: • The created VPC and ROMA Connect must be in the same region. • Retain the default settings unless otherwise specified.	For details on how to create a VPC and subnet, see **Creating a VPC**. If you need to create and use a new subnet in an existing VPC, see **Creating a Subnet for the VPC**.

1.1.2 Creating an Instance

Before using ROMA Connect, you need to create a ROMA Connect instance. A ROMA Connect instance is an independent resource space. Resources of different instances are isolated from each other. You can use one or more instances as required.

NOTE

If you delete an instance, all resource data created in the instance will be deleted. Exercise caution when performing this operation. Before deleting an instance, back up data by **exporting asset data of the instance**.

Prerequisites

A VPC is available and a subnet has been configured. Otherwise, create a VPC and subnet by referring to **1.1.1 Preparing Resources**.

Procedure

1. Go to the **Buy ROMA Connect Instance** page.
2. On the **Buy ROMA Connect Instance** page, configure basic instance information and click **Next**.

Table 1-2 Basic configurations

Parameter	Description
Region	Select the region where the instance resides. Instances in different regions cannot communicate with each other. Select the nearest region to reduce network latency.
AZ	Select the availability zone (AZ) where the instance resides. Different AZs are physically isolated but can communicate with each other via a private network. • To enhance ROMA Connect availability, create instances in different AZs. • To shorten network latency, create instances in the same AZ.
CPU Architecture	Currently, only **x86** is supported.
Instance Name	Customize the instance name.
Description	Describe the instance.

Parameter	Description
RCU Allocation	Allocate RCUs to integration capabilities. Only integration capabilities with RCUs are available. • The ROMA compute unit (RCU) can be allocated to different integration capabilities. More RCUs indicate higher capability performance. • You can use the RCU values recommended by the system or customize them for different capabilities. The total RCU value cannot be 0. • Some integration capabilities depend on each other. – **Composed Application (Flow running)** and **Service Integration (Data API/Function API)** are dependent on **Service Integration (API management)**. – **Device Integration** is dependent on **Message Integration**.

3. On the **Advanced Configuration** page displayed, complete the information and click **Next**.

Table 1-3 Advanced Configuration

Parameter	Description
Network Configuration	
VPC	Select the VPC and subnet associated with the instance. The VPC and subnet must have been created in **1.1.1 Preparing Resources**.
Accessing Internet	Whether to enable the function of accessing ROMA Connect from a public network based on service requirements.
Public Network Bandwidth	Mandatory only when **Accessing Internet** is enabled. Select the bandwidth of the public network.
Message Integration Configuration (Displayed only when RCUs are allocated to **Message Integration**.)	
Engine Version	Version number of the Kafka server for message integration. Currently, version 2.7 is supported.

Parameter	Description
MQS Capacity Threshold Policy	Select a processing policy that will be used when the number of messages in MQS reaches the capacity threshold (95% of the storage space). • **Stop creation**: New message creation requests are rejected until messages are deleted after the configured aging time and the available storage space is greater than 5%. This policy applies when message consumption is slow or stacked messages need to be repeatedly consumed and cannot be deleted in advance. • **Automatic deletion**: The earliest messages (10% of the total number of messages) are automatically deleted to free up storage space for new requests. This policy has no adverse impact on message creation. It applies when message consumption is fast and there are no stacked messages.
SASL_SSL	Whether to enable SASL authentication and SSL encryption for message transmission. Enabling this parameter better secures data transmission. Enabling SASL_SSL cannot be undone.
Intra-VPC Plaintext Access	Available only when **SASL_SSL** is enabled. Whether plaintext access is used in the VPC. If intra-VPC plaintext access is enabled, you do not need to connect to topics in the VPC via SASL. In this case, no certificate is required for connecting to topics.

4. On the **Configuration confirmation** page, select **I agree to the Customer Agreement and Privacy Statement,** and click **Buy Instance**.

   The instance creation takes about 15 to 25 minutes. After the instance is created, the instance status is **Available** in **Resource**.

   If the ROMA Connect instance fails to be created, delete the failed instance and create a new one. If the creation still fails, contact technical support.

Related Operations

After the instance is created, relevant integration capabilities are available.

- For details about how to create a composite application, see **Creating a Composite Application**.
- For details about how to use FDI, see **Data Integration Guide**.
- For details about how to use APIC, see **Service Integration Guide**.
- For details about how to use MQS, see **Message Integration Guide**.
- For details about how to use LINK, see **Device Integration Guide**.

1.2 Viewing Details of an Instance

Overview

After an instance is created, you can view and edit its basic information, configuration parameters, data dictionaries, and background tasks, and import and export assets.

For details about how to view background tasks, see **Viewing Background Tasks**. For details about how to configure parameters, see **Modifying Instance Configuration Parameters**. For details about data dictionaries, see **Creating a Data Dictionary**. For details about how to import and export assets, see **Importing and Exporting Assets**.

Procedure

On the **Instance Information** page of the console, click the **Basic Information** tab to view and edit basic information about the instance.

Table 1-4 Basic information

Item	Description
Instance	Basic information about the instance, including the instance name, instance ID, description, availability zone, and creation time. • You can modify **Instance Name** and **Description** as required. • Click next to **Instance ID** to copy the instance ID.
VPC	VPC associated with the instance. You can click the VPC name to view the VPC configuration.
Subnet	Subnet associated with the instance. You can click the subnet name to view the subnet configuration.
Security Group	Security group associated with the instance. You can click the security group name to view the security group configuration or click **Edit** to bind a new one.
Routes	Private network segments. A ROMA Connect instance can communicate with the VPC subnet segment specified during instance creation by default. To communicate with other private network segments, configure the routes.
Billing Information	Billing mode of the instance.
RCU Distribution Configuration	RCU values distributed to different integration capabilities.

Item	Description
Message Storage Space	Information about the MQS message storage space of the instance, including the storage class and space usage (percentage).
MQS Information	Basic MQS configuration information about the instance. Corresponding to the Kafka engine type. You can modify **MQS Capacity Threshold Policy** as required.
Connection Address	Connection addresses of the instance: • **ROMA Connect Address** • **LINK Address** • **APIC Address** • **APIC Intranet Address** (for backend and gateway components) • **MQS Intranet Address** • **MQS Public Address** (available only when a public access is enabled) You can click next to a connection address to copy the address.
Public Network Access Entry	• If the public access entry is not enabled for the instance, you can click on the right to enable it. • If the public network access entry is enabled, you can click next to the EIP address to copy the address. • If the public network access entry is enabled, you can click next to **Public Network Bandwidth** to modify it. • If the public network access entry is enabled, you can click on the right disable it. **NOTICE** EIPs are randomly assigned. The EIP may differ after it is rebound.
Public IP Address Access Control (Whitelist)	Available only when **Public Network Access Entry** is enabled. The public IP address access control is whitelist-based. If this parameter is enabled, only IP addresses in the whitelist can be accessed. Otherwise, all IP addresses can be accessed by default. Click **Edit** on the right to add or delete IP addresses.
Private IP Address Access Control (Whitelist)	The private IP address access control is whitelist-based. If this parameter is enabled, only IP addresses in the whitelist can be accessed. Otherwise, all IP addresses can be accessed by default. Click **Edit** on the right to add or delete IP addresses.

1.3 Modifying Instance Specifications

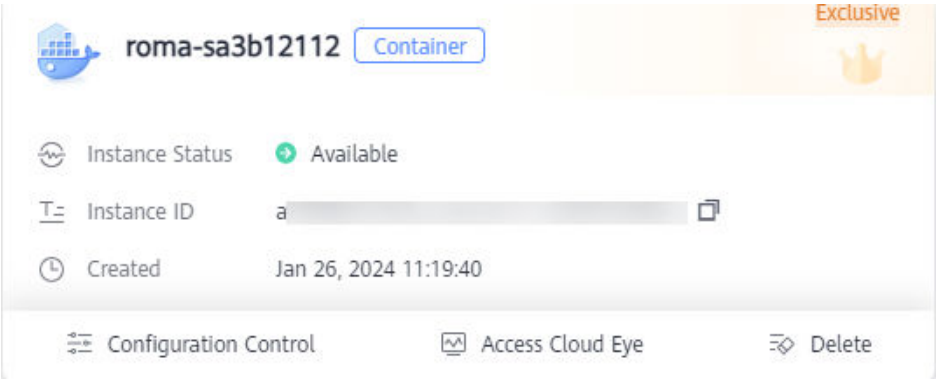
If the current instance specifications cannot meet service requirements or an integration capability needs to be enabled or disabled, you can reallocate RCUs to dynamically scale in or out the integration capability.

NOTE

- Message integration supports only scale-out. You can set RCU to **0** to disable it.
- Ensure that the integration capability is no longer used before disabling it.

Modifying Instance Specifications

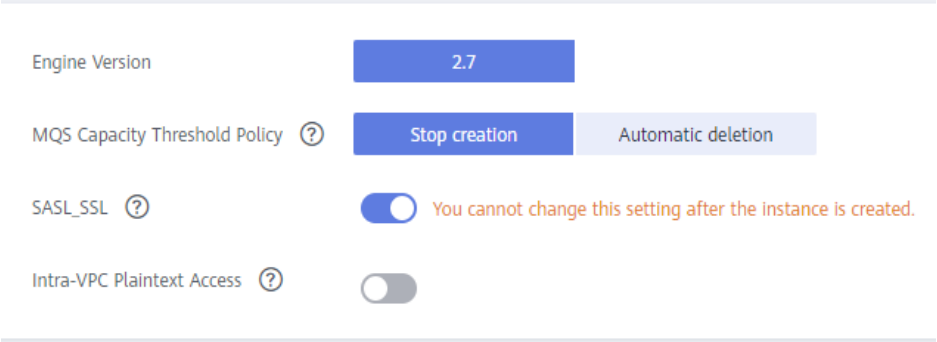
1. Log in to the new **ROMA Connect console**.
2. In the navigation pane on the left, choose **Resource**. Hover the pointer over the instance whose RCU needs to be adjusted and click **Configuration Control**.



3. Adjust RCUs on the **Configuration Control** page. The system will recalculate the fee based on the new RCU configuration.

   If RCUs are allocated to message integration for the first time, configure MQS information by referring to **Table 1-3**. Then click **Next**.

Figure 1-1 Configuring MQS

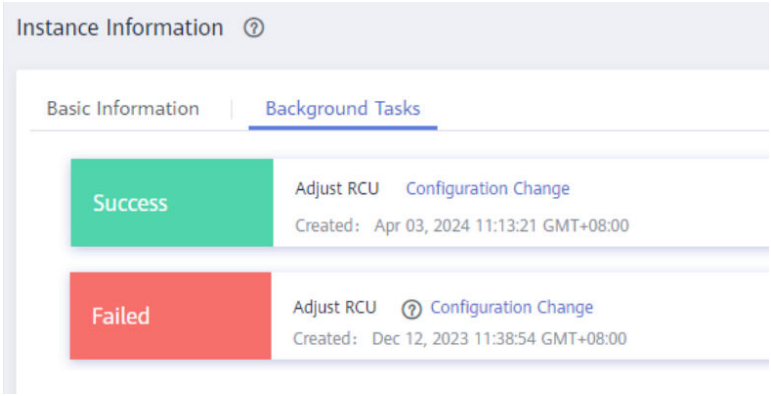


4. On the **Confirm** page, confirm the new configuration and click **Configuration Control**.
5. Wait for the instance to start to reallocate RCUs. The scale-out takes 10 to 20 minutes, and the scale-in takes about 10 minutes.

6. On the **Resource** page, click the instance that is undergoing specification changes to go to the instance console.
7. On the **Instance Information** page, click the **Background Tasks** tab and view the progress of the instance specification change task.

Viewing Background Tasks

1. On the **Instance Information** page of the console, click the **Background Tasks** tab to view the result of the **instance specification change** task. The task status can be **Success** or **Failed**.



2. Hover the pointer over **Configuration Change** to view the configurations before and after the change.

2 Creating a Composite Application

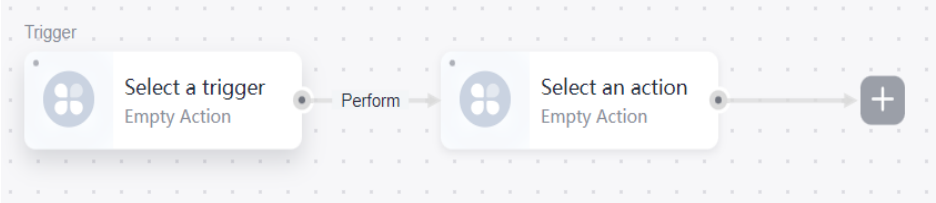
2.1 Creating a Composite Application with a Template

Composite applications are built by integrating multiple existing applications via open APIs and event channels, implementing fast service replication and innovation.

A composite application is a basic unit for running one or more flow tasks.

Procedure

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click **Create**.
3. In the **Select Template** box, you can select the blank template or an existing service template to create a composite application.
4. On the canvas page for creating a composite application, configure and orchestrate flow tasks.
   - For a composite application using an existing service template, the flow task configurations and orchestration corresponding to the service scenario are provided. Modify the settings as required.
   - For a composite application using the blank template, customize the configurations and orchestrate flow tasks as required. The following example is a composite application using a blank template.



5. Click the trigger box and action box on the page to configure and orchestrate the flow task.

- Trigger: Only trigger connectors are supported. For details about how to configure a trigger, see **4.1 Triggers**.
- Action: You can select various types of connectors and processors as an action. For details about how to configure triggers and connectors, see **4 Connectors** and **5 Processors**.

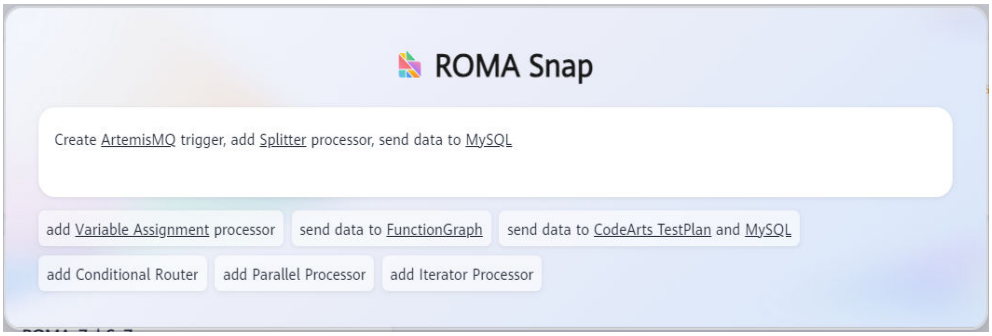
6. Click **Save** in the upper right corner.
7. In the dialog box displayed, enter the name and description of the composite application, and click **Yes**.

2.2 ROMA Snap

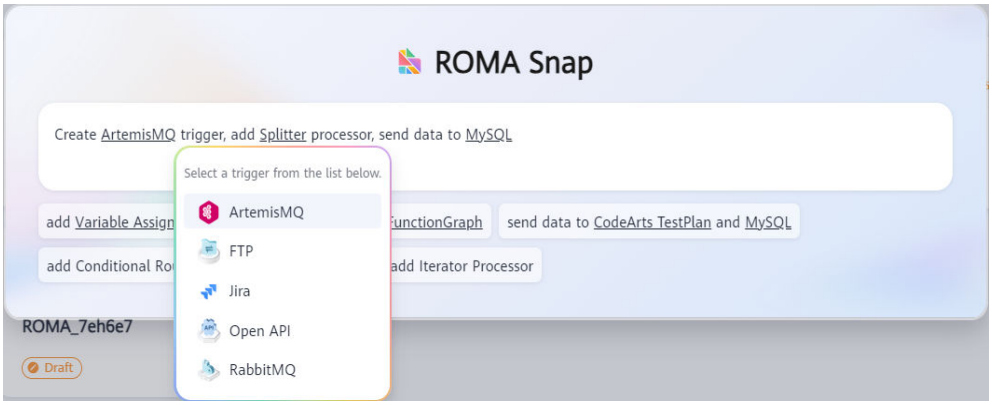
ROMA Snap captures the requirements for service integration based on user inputs by way of Natural Language Processing (NLP) machine learning, matching triggers, connectors, and data processors supported by the system to generate a composite application. You can further configure and orchestrate the generated composite application for building and deployment.

Procedure

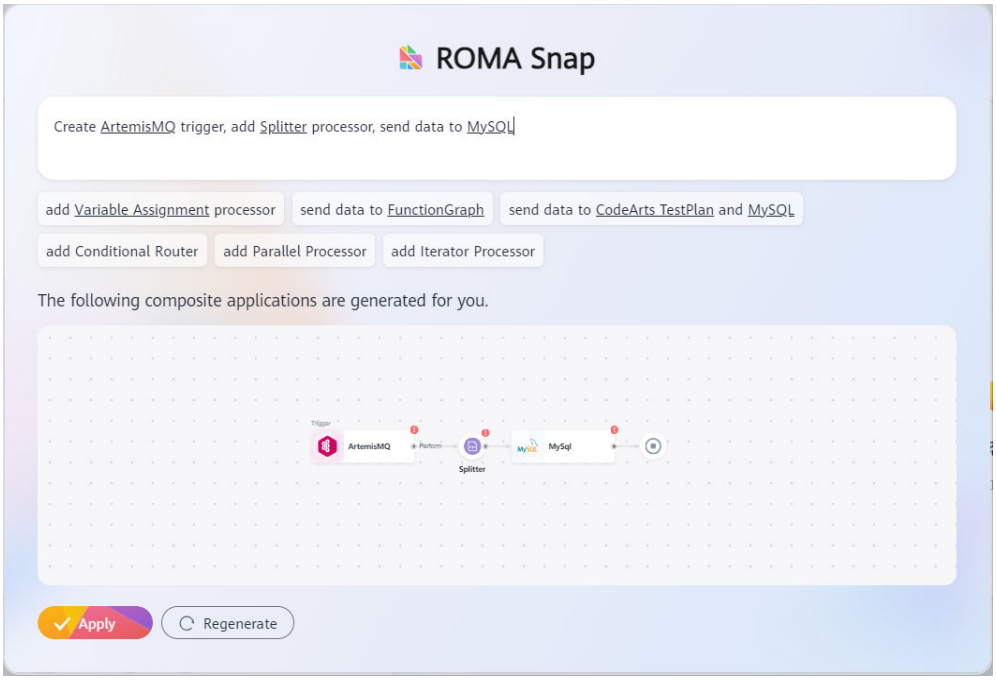
1. Log in to the new ROMA Connect console.
2. On the **Workbench** page, click **ROMA Snap**.
3. In the pop-up box, enter the description of the composite application to be created, or click the action templates under the text box.



4. Click the underlined connector or processor to replace it with a desired one in the drop-down list.

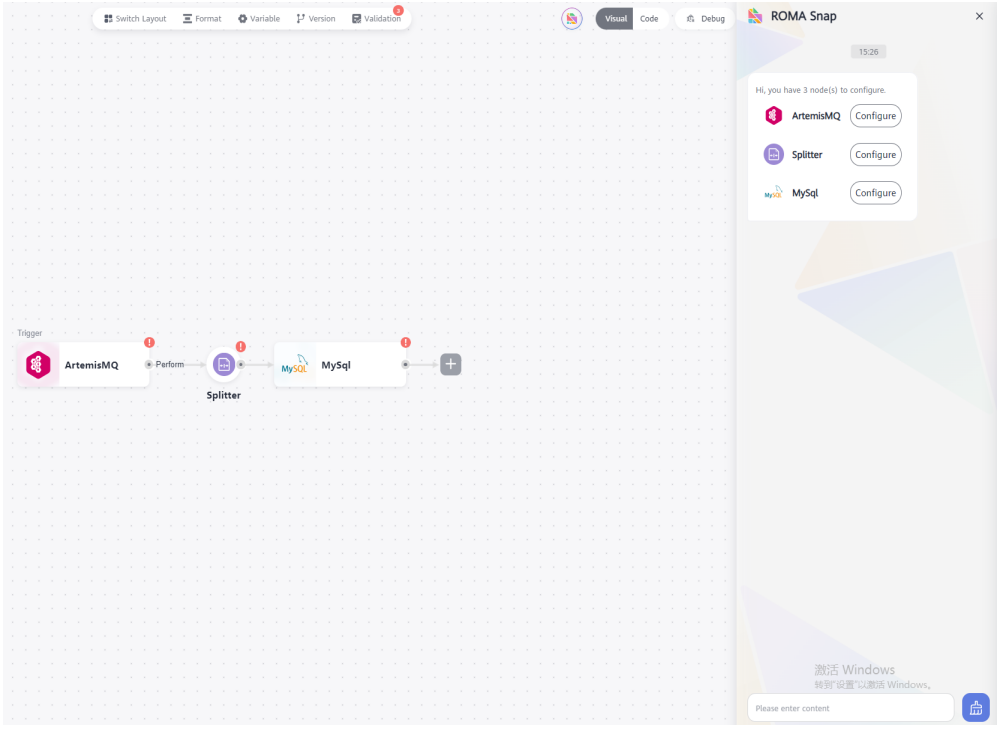


5. Press **Enter**, and then click **Apply** to generate a composite application.



6. On the canvas for editing the composite application, configure and orchestrate the flow task.

   You can also configure components with interactive inputs.



7. Click **Save** in the upper right corner.
8. In the upper left corner, click the edit button next to the composite application name. In the dialog box displayed, modify the name and enter a description, and click **Yes**.

3 Composite Application Management

3.1 Viewing Runtime Logs

This section describes how to view runtime logs of a composite application.

Viewing Runtime Logs

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click the target composite application.
3. On the details page, click the **Runtime Log** tab to view the runtime logs of the flows.

Table 3-1 Parameters of runtime logs

Parameter	Description
Start Time	Time when a flow starts.
End Time	Time when a flow ends.
Run ID	Run ID of a flow.
Run Time	The duration that a flow has run.
Status	Status of a flow.

4. (Optional) Configure access logs to store exception monitoring logs.

   a. Click **Enable**. In the **Access Logs** dialog box, configure log access information.

   Table 3-2 Parameters for configuring access logs

Parameter	Description
Log Group	Select the log group to which the log stream belongs. If no log group is available, click **View Log Groups** to go to the LTS log management console and create a log group. For details, see .
Log Stream	Select the log stream for storing the monitoring logs. If no log stream is available, click **View Log Streams** to go to the LTS log management console and create a log stream. For details, see .

   b. Click **OK**.

3.2 Viewing System Logs

Overview

This section describes how to view system logs of a composite application.

Viewing System Logs

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click the target composite application.
3. On the details page, click the **System Log** tab to view the start, stop, and deployment records of the flows.

   Table 3-3 Log field description

Field	Description
Time	Log report time
Log level	Levels: **Info**, **Error**, and **Debug**
ID	Task flow ID
Details	Log content

3.3 Viewing Monitoring Data

This section describes how to view monitoring data of a composite application.

Viewing monitoring data

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click the target composite application.
3. On the details page, click the **Monitoring** tab.
4. View the **Runs**, **Duration**, and **Failures** data of any flow as required.

3.4 Importing and Exporting a Composite Application

ROMA Connect allows you to import and export composite applications using files.

- Importing composite applications in JSON format
- Exporting composite applications in JSON format

Exporting a Composite Application

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click the target composite application.
3. Click ··· on the composite application and choose **Export** to export the composite application file in JSON format to the local host.

Importing a Composite Application

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click **Create**.
3. In the **Select Template** box, choose **Import** under **Import from Files**.
4. On the page displayed, click ⋮ to select a composite application file in JSON format.
5. Click **Upload** to import the composite application.

3.5 Creating a Composite Application Template

Users can generate a template from a well-designed composite application. Other users can quickly create composite applications using the template.

Procedure

1. Log in to the new ROMA Connect console.

2. In the navigation pane on the left, choose **Application**. On the page displayed, click the target composite application.
3. Click ••• on the composite application and choose **Modify** to enter the canvas page.
4. Click **Save** > **Save as Template** in the upper right corner of the page.
5. In the dialog box displayed, enter the name and description of the composite application, and click **Yes**.
6. Return to the home page. In the navigation pane on the left, choose **Asset** to view the published composite application template.
   - Click a composite application template to view its details.
   - Click **Apply** on a specific template to quickly create a composite application. You can also select a template when **creating a composite application**.
   - Click ☆ on a template to add the template to **My Favorites**.

3.6 Referencing Variables

Orchestrating a composite application flow and configuring connectors and processors involve various inputs, outputs, and configurations, which can be referenced as variables when you edit and design a composite application to create efficiency.

Variables of composite applications are classified as system, node, and custom variables. Variables with the same name are prioritized as follows: system variable > node variable > custom variable.

System Variables

System variables indicate system parameters or specific outputs of some connectors. **Table 3-4** lists the system variables for composite applications.

System variable reference mode: **${***Variable name***}**

Table 3-4 System variables

Variable	Description
step_execution_time	Execution duration of the previous node, in milliseconds.
response_code	Response code of the previous HTTP request node.
selected_row_count	Number of data records queried in the previous database node. Only MySQL, Gauss 200, PostgreSQL, Oracle, SQL Server, and Db2 databases are supported.

Variable	Description
updated_row_count	Number of data records that are inserted, updated, and deleted in the previous database node. Only MySQL, Gauss 200, PostgreSQL, Oracle, SQL Server, and Db2 databases are supported.
loop_index	Previous loop node; index of the current loop; the value starts from 0.
loop_size	Total number of loops in the previous loop node.
split_index	Previous splitter node; index of the current data block during data splitting; the value starts from 0.
split_size	Number of data splits on the previous splitter node.
split_complete	Whether data splitting is complete in the previous splitter node.

Node Variables

The execution result of the previous node can be used as a node variable and referenced by subsequent nodes, such as the request body of an OpenAPI, database query result, and HTTP request result.

Node variable reference mode: **${payload}**

If the execution result is an object, such as a JSON or XML object, use **${payload.id}** or **${payload[0].id}** to reference certain data in the execution result.

Example:

If the response body received by an HTTP request node is in JSON format as follows, use **${payload}** to reference the JSON data, **${payload.id}** to reference the value **00000000**, and **${payload.data[0].value}** to reference the value **x**.

```
{
   "id":"00000000",
   "name":"sample01",
   "data":[
      {
         "id":1,
         "value":"x"
      },
      {
         "id":2,
         "value":"y"
      },
      {
         "id":3,
         "value":"z"
      }
   ]
}
```

Custom Variables

Custom variables can be referenced in subsequent nodes, and include the following items: variables added when configuring variables, request parameters

added in the OpenAPI and the variable assignment nodes, and output variables configured in the script node.

Custom variable reference mode: **${variable name/parameter name}**

- Adding variables on the canvas page
  a. Log in to the new ROMA Connect console.
  b. In the navigation pane on the left, choose **Composite Applications**. On the page displayed, click the target composite application.
  c. Click ··· on the composite application and choose **Modify** to enter the canvas page.
  d. Click **Variable** on the top of the page.
  e. In the pop-up box displayed, click **Add**.

  Table 3-5 Configure variables

Parameter	Description
Variable	Enter a variable name to be referenced.
Type	Data type of the variable: string, integer, long integer, decimal, boolean, and password.
Value	Enter the value of the variable.
Scope	Select the effective scope of the variable: global (all composite applications); current composite application.
Description	Enter a description of the variable.

  f. Click **Save**.
- Adding request parameters in the OpenAPI node
  For details, see **4.1.1 OpenAPI**.
- Adding variables in the variable assignment node
  For details, see **5.5 Variable Assignment**.
- Configuring output variables in the script processing node
  For details, see **5.11 Script**.

4 Connectors

4.1 Triggers

4.1.1 OpenAPI

The OpenAPI connector is used to generate and release an API. The API is implemented by the subsequent components of the OpenAPI component. Therefore, the OpenAPI component can be used only as the trigger in a composite application and must be followed by other nodes.

After a flow is started, you can choose **API Connect** > **APIs** to view and edit the released API.

Action

Receiving API calls

Configuration Parameters

Parameter	Description
Name	Enter an API name. The name will be displayed on the **APIs** page of the corresponding ROMA Connect instance.
Security Authentication	Select a security authentication mode. Options: • **App**: ROMA Connect authenticates API requests. When calling an API, a user gets authenticated using the key and secret of an authorized integration application. APIs using this mode can be called by all users. • **IAM**: IAM authenticates API requests. When calling an API, a user gets authenticated using a token or an AK/SK pair. APIs using this mode can be called only by users on the same cloud service platform. • **None**: Authentication is not required for API requests. APIs using this mode are less secure and can be called by all users. Be careful when using this mode.
Request Method	Select a request method of the API.
Request Path	Enter the API request path.
Matching	Select a matching mode of the API request path. • **Exact match**: The path in an API request must be the same as the value of **Request Path**. • **Prefix match**: The path in an API request must be prefixed with the value of **Request Path**. For example, if **Request Path** is set to **/test/AA** and **Matching** is set to **Prefix match**, the API can be accessed using **/test/AA/BB** or **/test/AA/CC** but cannot be accessed using **/test/AACC**.
Request Parameter	Configure the request parameters of the API. Click **Add** to define API request parameters as required. • **Name**: name the request parameter • **Type**: Select the type of the request parameter. The options are **Header** and **Query**. If the request path contains the **Path** parameter, the **Path** parameter is required. • **Mandatory**: Whether the request parameter is mandatory in an API request. • **Default Value**: Available when **Mandatory** is set to **No** If no value is assigned to this parameter when the API is called, the default value is used. **NOTE** Request parameters can be referenced as custom variables in subsequent nodes. For details, see **Custom Variables**.

Parameter	Description
Example Body	Available when **Request Method** is set to **POST** or **PUT**. Example request body of an API **NOTE** The request body can be referenced as node variables in subsequent nodes. For details, see **Node Variables**.
Response Mode	Select a response mode of the API. • **Synchronous**: After receiving a request, the API processes the request immediately and returns a result. • **Asynchronous**: After receiving a request, the API returns a response body, queues the request, and returns a result after the request is successfully processed.
Response Body	Available when **Response Mode** is set to **Asynchronous**. Response body returned after the API receives a request.

4.1.2 FTP

The FTP connector is a channel for file transfer based on the FTP/SFTP protocol. Through the FTP connector, files can be exchanged with an external FTP server.

- The File Transfer Protocol (FTP) is in the TCP/IP protocol group. It consists of two parts: FTP server and FTP client. The FTP server is used to store files. Users can use the FTP client to access resources on the FTP server.
- The SSH File Transfer Protocol (SFTP) is a secure version of FTP and a part of the SSH protocol. SFTP enables easy data transmission and data access through the data flow shell. SFTP, also known as the SSH file transfer protocol, provides a secure connection to transfer files and traverses file systems on local and remote systems.

By default, FTP uses TCP ports 20 and 21. Port 20 is used to transmit data, and port 21 is used to transmit control information (commands). Whether to use port 20 as the port for data transmission depends on the FTP transmission mode. In the active mode, the data transmission port number is 20. In the passive mode, the port is determined after the negotiation between the server and the client.

Creating an FTP Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the FTP connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.

Parameter	Description
Protocol	Protocol used by the FTP connector. Options are **FTP** and **SFTP**.
Host IP	IP address of the FTP server.
Port	By default, FTP uses TCP ports 20 and 21. Port 20 is used to transmit data, and port 21 is used to transmit control information (commands).
Username	FTP username.
Password	FTP user password.
Description	Enter the description of the connector to identify it.

Action

Listening to a directory

Configuration Parameters

Parameter	Description
Directory Path	Enter the relative path of the file in the FTP server.

4.1.3 ActiveMQ

ActiveMQ is an open-source message middleware based on the Java Message Service (JMS). ActiveMQ provides a reliable, efficient, and scalable message transfer mechanism and supports multiple message and transmission protocols, such as TCP, UDP, SSL, and NIO. ActiveMQ supports multiple queue and topic modes and can be used in scenarios such as asynchronous message transfer, publishing/subscription, and message routing. It provides a visualized management interface, facilitating configuration and monitoring with high reliability and flexibility. ActiveMQ can be used to build distributed systems. It supports multiple programming languages and platforms and provides various APIs.

Creating an ActiveMQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the ActiveMQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Brokers	List brokers of the ActiveMQ.
Username	Username for connecting to ActiveMQ.
Password	Password for connecting to ActiveMQ.
SSL Authentication	Whether SSL authentication is used for connecting ActiveMQ.
Description	Enter the description of the connector to identify it.

Action

Listening to a queue

Configuration Parameters

Parameter	Description
Name	Name of the message queue to listen.

4.1.4 Jira Software

Jira is a popular and powerful project and issue tracking tool widely used in teams and organizations, including IT, operations, sales, marketing, and human resources. The main functions of Jira are as follows: project management, issue tracking, workflow management, reporting and analysis, and integration and expansion. Jira facilitates team management and collaboration and improves work efficiency and quality.

Creating a Jira Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Jira Software connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.

Parameter	Description
Type	Select the type of the Jira connector. • **Cloud**: The Jira instance is deployed on the cloud. Users can use a browser to access it from anywhere. • **On-Premise**: The Jira instance is installed locally. Jira is installed and configured on your own server or local PC.
Connection Address	Enter the connection address of Jira. • When **Type** is set to **Cloud**, the format of the address is https://*your-domain*.atlassian.net. *your-domain* indicates the domain name of an organization or team. A valid Jira Cloud subscription is required to access the address. If you are not sure about your Jira Cloud address, obtain it from your Atlassian account or administrator. • When **Type** is set to **On-Premise**, enter the IP address or host name of the server where Jira is located. Example: http://192.168.0.1:8080 or http://Jira.example.com:8080
Authentication	Select the Jira authentication type. The options are **Basic** and **API Token**.
Username	Required only when **Authentication** is set to **Basic** Username for connecting to Jira
Password	Required only when **Authentication** is set to **Basic** Password for connecting to Jira
Email	Required only when **Authentication** is set to **API Token** Jira email address
API Token	Required only when **Authentication** is set to **API Token** Generate an API token in the personal settings in Jira. The API token is used for identity authentication and allows Jira users to access their accounts and related data via APIs.
Description	Enter the description of the connector to identify it.

Action

Listening to custom events

Configuration Parameters

Parameter	Description
Listen Events	Select the events to listen in on. The listener in Jira can perform a series of operations when a specified event occurs to automatically extend Jira functions.

4.1.5 Timer

A timer is a trigger that can trigger a specific operation at a preset interval. It can trigger an operation periodically within a specified period or at a specified time point. A timer is used to implement scheduled tasks and scheduling.

Action

- Every Minute
- Hourly
- Weekly
- Monthly
- Fixed Interval

Configuration Parameters

Table 4-1 Every Minute

Parameter	Description
Interval	Every hour, the task is executed at a fixed interval from the start of the hour. Range: 1 to 60
Rule	• Daily • Weekdays • Weekends • Custom
Time Zone	• Shanghai/Asia • GMT
Task Mode	• **Parallel**: The task is executed using the preset period. • **Serial**: The next task is triggered only after the current task is complete. Actual execution period = Max (task duration, period)
Execute Once at Once	Whether to execute the task immediately after startup.

Table 4-2 Hourly

Parameter	Description
Start	Time from 00:00 (the task is also executed within the hour). Range: 0 to 23
End	Time from 00:00 (the task is also executed within the hour). Range: 0 to 23. The value must be greater than the start time.
Trigger Minute	The minute the task is triggered. Range: 0 to 59
Rule	• Daily • Weekdays • Weekends • Custom
Time Zone	• Shanghai/Asia • GMT
Task Mode	• **Parallel**: The task is executed using the preset period. • **Serial**: The next task is triggered only after the current task is complete. Actual execution period = Max (task duration, period)
Execute Once at Once	Whether to execute the task immediately after startup.

Table 4-3 Daily

Parameter	Description
Rule	• Daily • Weekdays • Weekends • Custom
Time	Example: 00:59
Time Zone	• Shanghai/Asia • GMT
Task Mode	• **Parallel**: The task is executed using the preset period. • **Serial**: The next task is triggered only after the current task is complete. Actual execution period = Max (task duration, period)
Execute Once at Once	Whether to execute the task immediately after startup.

Table 4-4 Weekly

Parameter	Description
Weekly Trigger Day	Monday to Sunday
Time	Example: 00:59
Time Zone	• Shanghai/Asia • GMT
Task Mode	• **Parallel**: The task is executed using the preset period. • **Serial**: The next task is triggered only after the current task is complete. Actual execution period = Max (task duration, period)
Execute Once at Once	Whether to execute the task immediately after startup.

Table 4-5 Monthly

Parameter	Description
Weekly Trigger Day	Monday to Sunday
Time	Example: 00:59
Time Zone	• Shanghai/Asia • GMT
Task Mode	• **Parallel**: The task is executed using the preset period. • **Serial**: The next task is triggered only after the current task is complete. Actual execution period = Max (task duration, period)
Execute Once at Once	Whether to execute the task immediately after startup.

Table 4-6 Fixed Interval

Parameter	Description
Interval	Value of the interval

Parameter	Description
Execution Interval Unit	• Second • Minute • Hour • Day • Week
Task Mode	• **Parallel**: The task is executed using the preset period. • **Serial**: The next task is triggered only after the current task is complete. Actual execution period = Max (task duration, period)
Execute Once at Once	Whether to execute the task immediately after startup.

4.1.6 ArtemisMQ

ArtemisMQ is an open-source high-performance message queue system built on Apache ActiveMQ and Apache Artemis. ArtemisMQ provides a reliable asynchronous message transfer mechanism that allows different applications to communicate with each other through messages. It uses the message-based middleware mode, allowing producers (senders) to send messages to queues or topics, while consumers (receivers) can receive and process these messages from queues or topics.

Creating an ArtemisMQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the ArtemisMQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
IP Address	Enter the IP address of ArtemisMQ.
Port	Port number for connecting to ArtemisMQ
Username	Username for connecting to ArtemisMQ
Password	Password for connecting to ArtemisMQ
SSL Authentication	Whether SSL authentication is used for connecting to ArtemisMQ.
Description	Enter the description of the connector to identify it.

Action

- Listening to a queue
- Listening to a topic

Configuration Parameters

Table 4-7 Listening to a queue

Parameter	Description
Name	Name of the message queue to listen

Table 4-8 Listening to a queue

Parameter	Description
Name	Name of the message topic to listen

4.1.7 RabbitMQ

RabbitMQ is an open-source message queue system with an efficient message transfer mechanism and can asynchronously transfer and process messages in a distributed system. RabbitMQ is based on Advanced Message Queuing Protocol (AMQP), and supports multiple languages, including Java, Python, Ruby, and .NET.

Creating a RabbitMQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the RabbitMQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter a name for the connector.
IP Address	Enter the IP address for connecting to RabbitMQ
Port	Port number for connecting to RabbitMQ
Username	Username for connecting to RabbitMQ
Password	Password for connecting to RabbitMQ
Virtual Host	Virtual host for connecting to RabbitMQ
SSL Authentication	Whether SSL authentication is used for connecting to RabbitMQ.

Parameter	Description
Description	Enter the description of the connector to identify it.

Action

Listening to an exchange

Configuration Parameters

Table 4-9 Listening to an exchange

Parameter	Description
Name	Name of the exchange to listen

4.1.8 QQ Mail

The QQ Mail trigger is used to receive new emails as triggers.

Creating a QQ Mail Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the QQ Mail connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Email Address	QQ Mail address of the sender.
Authorization Code	Authorization code of the QQ Mail sender, which is obtained from the settings in the QQ Mail personal center. For details, see **Configuring a QQ Mail Authorization Code**.
Description	Enter the description of the connector to identify it.

Action

Receiving new mails

Configuration Parameters

Table 4-10 Receiving new mails

Parameter	Description
Delete Upon Receiving	Whether to delete an email after the email is received.
Unread Only	Whether to receive only unread mails.

4.1.9 IBM MQ

IBM MQ is a message queue software for asynchronous communication in a distributed system to secure reliable data transmission between applications, platforms, and systems. It serves as a middleware and prevents message loss, duplication, or disorder during transmission, and converts and formats data between different systems.

Creating an IBM MQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the IBM MQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
IP Address	Enter the IP address of the IBM MQ host.
Port	Enter the port number of the IBM MQ host.
Queue Mananger	A system management program that provides queue services, APIs, and queue management services.
CCSID	Character set used to encode character strings in messages.
Channel Name	Channel for transferring messages between queue managers in the MQ system.
Username	User name for connecting to the IBM MQ.
Password	User password for connecting to the IBM MQ.
SSL Enable	Whether to use SSL authentication when connecting to the IBM MQ. • True • False

Parameter	Description
Cipher Suite	Mandatory when **SSL Enable** is set to **True**. Enter the cipher suite.
Trust Store	Mandatory when **SSL Enable** is set to **True**. Enter the Base64-encoded trust store file.
Trust Store Password	Mandatory when **SSL Enable** is set to **True**. Enter the password of the trust store.
Description	Enter the description of the connector to identify it.

Action

- Listening to a topic
- Listening to a queue

Configuration Parameters

Table 4-11 Listening to a topic

Parameter	Description
Name	Name of the message queue to listen.

Table 4-12 Listening to a queue

Parameter	Description
Name	Name of the message queue to listen.

4.1.10 Kafka

Kafka is a distributed streaming platform developed by LinkedIn. It features high throughput and low latency for massive amounts of real-time data streaming. Kafka consists of producers, consumers, and brokers. Producers send data to the Kafka cluster; consumers subscribe to the cluster and process the data; brokers are the core component of a Kafka cluster as they are responsible for storing and forwarding messages. Featuring scalability, high throughput, low latency, reliability, and durability, Kafka is widely used for big data processing, real-time data streaming, and log collection.

Creating a Kafka Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.

3. Select the Kafka connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Broker Address	Enter the Kafka broker address.
Authentication Mode	Select the authentication mode of Kafka. • SSL • None
SASL	Mandatory when **Authentication Mode** is set to **SSL**. Select the SASL mechanism. • PLAIN • SCRAM-SHA-512
SSL Username	Mandatory when **Authentication Mode** is set to **SSL**. Enter the SSL username or application key.
SSL Password	Mandatory when **Authentication Mode** is set to **SSL**. Enter the SSL password.
SSL Certificate Format	Mandatory when **Authentication Mode** is set to **SSL**. Select the SSL certificate format. • PEM • JKS
SSL Certificate	Mandatory when **Authentication Mode** is set to **SSL**. Enter the Base64-encoded certificate content.
SSL Certificate Password	Mandatory when **Authentication Mode** is set to **SSL**. Enter the SSL certificate password.
Description	Enter the description of the connector to identify it.

Action

Consuming messages

Configuration Parameters

Parameter	Description
Topic	Topic to listen in on.
GroupId	Unique string to identify the group of consumer processes. Processes with the same group ID belong to the same consumer group.

Parameter	Description
KeyDeserializer	Deserialization mode of a key. Default: org.apache.kafka.common.serialization.StringDeserializer
ValueDeserializer	Deserialization mode of a value. Default: org.apache.kafka.common.serialization.StringDeserializer
AutoOffsetReset	Where to start consumption when there is no initial offset or the offset is out of range. • latest: Start consumption from the latest offset. • earliest: Start consumption from the earliest offset. • none: Report an error.

4.2 HTTP

4.2.1 HTTP Request

The HTTP request connector calls other OpenAPIs through HTTP/HTTPS to obtain data required for orchestration.

Creating an HTTP Request Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the HTTP request connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Base Address	API request address.
Security Authentication	Authentication mode used to invoke an API. • **App**: Users are authenticated using the key and secret of an authorized integration application. • **None**: Authentication is not required for API requests.
App Key	Required when **Security Authentication** is set to **App**. Key of the integration application for authentication.
APP Secret	Required when **Security Authentication** is set to **App**. Secret of the integration application for authentication.
Description	Enter the description of the connector to identify it.

Action

- GET
- POST
- PUT
- DELETE
- HEAD

Configuration Parameters

Parameter	Description
Request URL	API request URL.
Stop on Failure	Whether to stop when an API fails to be called.
Parameter	Configure the request parameters of the API. Click **Add** to add request parameters based on the API definition.
Request Body Type	Required when **Action** is set to **POST** or **PUT**. Select the request body type of the API.
Body	Required when **Action** is set to **POST** or **PUT**. Enter the API body.

4.2.2 HTTP Response

The HTTP response connector is used to customize the information returned by an API. This way, an OpenAPI will return the specified response code and response body after it is called.

Action

Custom HTTP response

Configuration Parameters

Parameter	Description
Header	Configure the response header parameter of the API response. Use constants, or data from previous nodes by **referencing variables**.
Body	Configure the API response body. Use constants, or data from previous nodes by **referencing variables**.
Response Code	Configure the response code of the API response. Select an existing response code or customize one.
Custom Status Code	Required only when **Response Code** is set to **Custom**. Enter a custom status code.

4.3 Databases

4.3.1 MySQL

The MySQL connector is used to connect to the MySQL database by establishing and maintaining the connection between applications and the database, and managing data transmission.

- MySQL is a popular, open-source relational database widely used as the backend of web applications. It supports multiple operating systems, such as Windows, Linux, Unix, and macOS X. MySQL features high performance, reliability, and flexibility, and is popular among enterprises and developers.
- The default MySQL port number is 3306. The administrator can change the port number as required. MySQL supports multiple storage engines, including InnoDB, MyISAM, and MEMORY. Each storage engine has its own pros and cons and can be configured flexibly.

Creating a MySQL Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the MySQL connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.
Connection and Security	Select the connection mode for the database. Currently, the **Default** mode is supported.
IP Address	Enter the IP address of the database.
Port	Enter the port number to which the database is connected.
Database Name	Enter the name of the database to be connected.
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.

Parameter	Description
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records
- Custom SQL

Configuration Parameters

Table 4-13 Obtaining records

Parameter	Description
Table Name	Enter the name of the data table to be queried.
Column Name	Enter the column name of the data table.
Field Name	Enter the fields to be queried. Separate multiple fields with commas (,).
WHERE Condition	Enter the conditions for the queried data.
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the pagination query.

Table 4-14 Adding records

Parameter	Description
Table Name	Enter the name of the table where data will be inserted.
Data to Insert	Enter the value of the target field in the insert operation.

Table 4-15 Updating records

Parameter	Description
Table Name	Enter the name of the table where data will be updated.

Parameter	Description
Data to Update	Enter the value of the target field in the update operation.
WHERE Condition	Enter the conditions for the data to be updated.

Table 4-16 Deleting records

Parameter	Description
Table Name	Enter the name of the table where data will be deleted.
WHERE Condition	Specifies the conditions for the data to be deleted.

Table 4-17 Custom SQL

Parameter	Description
Statement	Enter the native SQL statement for operating the database. • Statements display all your inputs as plain text. Do not include sensitive information. • Be careful when using non-query statements such as drop and truncate.

4.3.2 Redis

The Redis connector is used to connect to a Redis database, helping applications quickly and efficiently interact with the Redis database.

- Redis is a high-performance key-value storage system. It is often used in scenarios such as caching, session management, real-time message transfer, and rankings. Redis supports multiple data structures, including strings, hash tables, lists, sets, and sorted sets. It also provides advanced functions such as transactions, publish/subscription, Lua script execution, persistence, and clustering.
- The default Redis port number is 6379. The administrator can change the port number as required.

Creating a Redis Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Redis connector.

4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Host IP Address	Enter the IP address of the database.
Port	Enter the port number to which the database is connected.
Database	Enter the name of the database to be connected.
Password	Password for connecting to the database.
Description	Enter the description of the connector to identify it.

Action

- Basic operations on sorted sets
- Basic operations on sets
- Basic operations on hashes
- Basic operations on lists
- Basic operations on strings
- Basic operations on keys
- Basic operations on strings

Configuration Parameters

The following configuration is equivalent to the **ZADD key score member** command to add an element to a sorted set. **key** indicates the name of the sorted set, **score** indicates the score of the element, and **member** indicates the member value of the element. This configuration means to add the element **apple** to the sorted set **myset** and the score of this element is 3.

Parameter	Description
Sorted set • zadd • zrem • zcard • zrangebyscore/ zrevrangebyscore • zrange/zrevrange	• **Key**: name of the sorted set. • **Value**: member value of an element. • **Score**: score of an element. • **Start Index**: lowest score. • **End Index**: highest score.

Parameter	Description
Set • srem • sismember • srandmember • spop • sadd	• **Key**: name of the set. • **Value**: member value of an element.
Hash • hdel • hlen • hset/hsetnx • hincrby • hget • hgetall	• **Key**: name of the hash. • **Field Name**: value of the key in the hash. • **Value**: value corresponding to the key in the hash. • **No operation is performed when the key exists**: **No**: zset; **Yes**: zsetnx • **Increment**: adds a specified value to a numeric field in the hash.
List • lrange • lpop/rpop • lpush/rpush • lrem • llen • lindex • leset	• **Table Name**: name of a data table in the database. • **Data to Insert**: value of each field in the target record of the **insert** operation.
String • set/setnx • append • setbit • get • incrby • decrby • getrange • strlen	• **Key**: name of the character string. • **Value**: value of the character string. • **Timeout (s)**: expiration time of the character string. • **No operation is performed when the key exists**: **No**: set; **Yes**: setnx
Key • del • lrem • expire • expireat • ttl • persist	**Key**: name of the key.

4.3.3 Db2

The Db2 connector is used to connect to a Db2 database by establishing and maintaining the connection between applications and the database, and managing data transmission.

- Db2 is a relational database management system.
- The default Db2 port number is 5000. The administrator can change the port number as required.

Creating a Db2 Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Db2 connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.
Connection and Security	Select the connection mode for the database. • **Default**: The system automatically concatenates data source connection character strings based on configured data. • **Professional**: You need to specify the data source connection string manually.
IP Address	Required when **Connection and Security** is set to **Default**. Enter the IP address of the database.
Port	Required when **Connection and Security** is set to **Default**. Enter the port number to which the database is connected.
Database Name	Required when **Connection and Security** is set to **Default**. Enter the name of the database to be connected.

Parameter	Description
Connection String	Required when **Connection and Security** is set to **Professional**. Enter the JDBC connection string of the Db2 database, for example, **jdbc:db2://***hostname*:*port*/*dbname*.
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records

Configuration Parameters

Table 4-18 Obtaining records

Parameter	Description
Table Name	Name of the table where data will be queried.
Column Name	Column name of the data table.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be queried.
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the pagination query.

Table 4-19 Adding records

Parameter	Description
Table Name	Name of the table where data will be inserted.
Data to Insert	Enter the value (enclose it in single quotation marks) to be inserted.

Table 4-20 Updating records

Parameter	Description
Table Name	Name of the table where data will be updated.
Data to Update	Enter the updated value (enclose it in single quotation marks).
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be updated.

Table 4-21 Deleting records

Parameter	Description
Table Name	Name of the table where data will be deleted.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be deleted.

4.3.4 GaussDB 200

The Gauss 200 connector is used to connect to the Gauss 200 database by establishing and maintaining the connection between applications and the database, and managing data transmission.

- Gauss 200 adopts the Massive Parallel Processing (MPP) architecture, supports both row-based and column-based storage, and is capable of processing PB-level data.
- The default Gauss 200 port number is 25308. The administrator can change the port number as required.

Creating a Gauss 200 Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Gauss 200 connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.

Parameter	Description
Connection and Security	Select the connection mode for the database. • **Default**: The system automatically concatenates data source connection character strings based on configured data. • **Professional**: You need to specify the data source connection string manually.
IP Address	Required when **Connection and Security** is set to **Default**. Enter the IP address of the database.
Port	Required when **Connection and Security** is set to **Default**. Enter the port number to which the database is connected.
Database Name	Required when **Connection and Security** is set to **Default**. Enter the name of the database to be connected.
Connection String	Required when **Connection and Security** is set to **Professional**. Enter the JDBC connection string of the GaussDB 200 database, for example, **jdbc:postgresql://***host***:***port***/***dbname***.**
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records

Configuration Parameters

Table 4-22 Obtaining records

Parameter	Description
Table Name	Name of the table where data will be queried.
Column Name	Column name of the data table.

Parameter	Description
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be queried.
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the pagination query.

Table 4-23 Adding records

Parameter	Description
Table Name	Name of the table where data will be inserted.
Data to Insert	Enter the value (enclose it in single quotation marks) to be inserted.

Table 4-24 Updating records

Parameter	Description
Table Name	Name of the table where data will be updated.
Data to Update	Enter the updated value (enclose it in single quotation marks).
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be updated.

Table 4-25 Deleting records

Parameter	Description
Table Name	Name of the table where data will be deleted.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be deleted.

4.3.5 GaussDB 100

GaussDB 100 is a distributed database system developed by Huawei. It is designed for enterprise applications and features high reliability, availability, performance, and scalability, covering relational, non-relational, document, and graph database services. It also supports distributed transactions, locks, and storage for large-scale data storage and processing.

Creating a Gauss 100 Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Gauss 100 connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.
Connection and Security	Select the connection mode for the database. • **Default**: The system automatically concatenates data source connection character strings based on configured data. • **Professional**: You need to specify the data source connection string manually.
Version	Select the Gauss 100 version. Options are **V100R003C20** and **V300R001C00**.
IP Address	Required when **Connection and Security** is set to **Default**. Enter the IP address of the database.
Port	Required when **Connection and Security** is set to **Default**. Enter the port number to which the database is connected.
Database Name	Required when **Connection and Security** is set to **Default**. Enter the name of the database to be connected.
Connection String	Required when **Connection and Security** is set to **Professional**. Enter the JDBC connection string of the GaussDB 100 database, for example, **jdbc:postgresql://***host*:*port*/*dbname*.
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records

Configuration Parameters

Table 4-26 Obtaining records

Parameter	Description
Table Name	Select the name of the table where data will be queried.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be queried.
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the page-based query.

Table 4-27 Adding records

Parameter	Description
Table Name	Select the name of the table where data will be inserted.
Data to Insert	Enter the value (enclose it in single quotation marks) to be inserted.

Table 4-28 Updating records

Parameter	Description
Table Name	Select the name of the table where data will be updated.
Data to Update	Enter the updated value (enclose it in single quotation marks).
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be updated.

Table 4-29 Deleting records

Parameter	Description
Table Name	Select the name of the table where data will be deleted.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be deleted.

4.3.6 Oracle

The Oracle connector is used to connect to an Oracle database by establishing and maintaining the connection between applications and the database, and managing data transmission.

- Oracle is a relational database featuring high performance.
- The default Oracle port number is 1521. The administrator can change the port number as required.

Creating an Oracle Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Oracle connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.
Connection and Security	Select the connection mode for the database. • **Default**: The system automatically concatenates data source connection character strings based on configured data. • **Professional**: You need to specify the data source connection string manually.
IP Address	Required when **Connection and Security** is set to **Default**. Enter the IP address of the database.

Parameter	Description
Port	Required when **Connection and Security** is set to **Default**. Enter the port number to which the database is connected.
Database Name	Required when **Connection and Security** is set to **Default**. Enter the name of the database to be connected.
Encoding Format	Required when **Connection and Security** is set to **Default**. Enter the encoding format of the database.
Timeout	Required when **Connection and Security** is set to **Default**. Enter the timeout interval for connecting to the database.
Connection String	Required when **Connection and Security** is set to **Professional**. Enter the JDBC connection string of the Oracle database, for example, **jdbc:oracle:thin:@***{hostname}:{port}:{dbname}*.
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records

Configuration Parameters

Table 4-30 Obtaining records

Parameter	Description
Table Name	Name of the table where data will be queried.
Column name	Column name of the data table.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be queried.

Parameter	Description
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the pagination query.

Table 4-31 Adding records

Parameter	Description
Table Name	Name of the table where data will be inserted.
Data to Insert	Enter the value (enclose it in single quotation marks) to be inserted.

Table 4-32 Updating records

Parameter	Description
Table Name	Name of the table where data will be updated.
Data to Update	Enter the updated value (enclose it in single quotation marks).
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be updated.

Table 4-33 Deleting records

Parameter	Description
Table Name	Name of the table where data will be deleted.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be deleted.

4.3.7 PostgreSQL

The PostgreSQL connector is used to connect to a PostgreSQL database by establishing and maintaining the connection between applications and the database, and managing data transmission.

- PostgreSQL is a full-featured, open-source object-relational database.
- The default PostgreSQL port number is 5432. The administrator can change the port number as required.

Creating a PostgreSQL Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the PostgreSQL connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.
Connection and Security	Select the connection mode for the database. • **Default**: The system automatically concatenates data source connection character strings based on configured data. • **Professional**: You need to specify the data source connection string manually.
IP Address	Required when **Connection and Security** is set to **Default**. Enter the IP address of the database.
Port	Required when **Connection and Security** is set to **Default**. Enter the port number to which the database is connected.
Database Name	Required when **Connection and Security** is set to **Default**. Enter the name of the database to be connected.
Connection String	Required when **Connection and Security** is set to **Professional**. Enter the JDBC connection string of the PostgreSQL database, for example, **jdbc:postgresql://***{hostname}:{port}/{dbname}*.
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records

Configuration Parameters

Table 4-34 Obtaining records

Parameter	Description
Table Name	Name of the table where data will be queried.
Column Name	Column name of the data table.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be queried.
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the pagination query.

Table 4-35 Adding records

Parameter	Description
Table Name	Name of the table where data will be inserted.
Data to Insert	Enter the value (enclose it in single quotation marks) to be inserted.

Table 4-36 Updating records

Parameter	Description
Table Name	Name of the table where data will be updated.
Data to Update	Enter the updated value (enclose it in single quotation marks).
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be updated.

Table 4-37 Deleting records

Parameter	Description
Table Name	Name of the table where data will be deleted.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be deleted.

4.3.8 SQL Server

The SQL Server connector is used to connect to the SQL Server database by establishing and maintaining the connection between applications and the database, and managing data transmission.

- SQL Server is an easy-to-use relational database featuring high scalability.
- The default SQL Server port number is 1433. The administrator can change the port number as required.

Creating an SQL Server Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the SQL Server connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Region	Select a region.
Project	Select a project.
Instance	Select an instance for subsequent connectivity verification.
Connection and Security	Select the connection mode for the database. Currently, the **Default** mode is supported. • **Default**: The system automatically concatenates data source connection character strings based on configured data. • **Professional**: You need to specify the data source connection string manually.
IP Address	Required when **Connection and Security** is set to **Default**. Enter the IP address of the database.

Parameter	Description
Port	Required when **Connection and Security** is set to **Default**. Enter the port number to which the database is connected.
Database Name	Required when **Connection and Security** is set to **Default**. Enter the name of the database to be connected.
Connection String	Required when **Connection and Security** is set to **Professional**. Enter the JDBC connection string of the SQL Server database, for example, **jdbc:sqlserver://***{hostname}:{port};DatabaseName={dbname}*.
Username	Enter the username used to connect to the database.
Password	Enter the password used to connect to the database.
Description	Enter the description of the connector to identify it.

Action

- Obtaining records
- Adding records
- Updating records
- Deleting records

Configuration Parameters

Table 4-38 Obtaining records

Parameter	Description
Table Name	Name of the table where data will be queried.
Column name	Column name of the data table.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be queried.
Order By Field	Enter the sorting fields of the returned result.
Limits	Enter the number of records on each page in the returned result.
Offset	Enter the offset of the pagination query.

Table 4-39 Adding records

Parameter	Description
Table Name	Name of the table where data will be inserted.
Data to Insert	Enter the value (enclose it in single quotation marks) to be inserted.

Table 4-40 Updating records

Parameter	Description
Table Name	Name of the table where data will be updated.
Data to Update	Enter the updated value (enclose it in single quotation marks).
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be updated.

Table 4-41 Deleting records

Parameter	Description
Table Name	Name of the table where data will be deleted.
WHERE Condition	Enter the condition value (enclose it in single quotation marks) of the data to be deleted.

4.4 Huawei Cloud Services

4.4.1 FunctionGraph

The FunctionGraph connector is used to interconnect with FunctionGraph to call created functions to process data. The processing result can be referenced in subsequent nodes by **referencing variables**.

Prerequisites

To use FunctionGraph, you also need to have the **FunctionGraph Administrator** permission for project-level services.

Creating a FunctionGraph Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.

3. Select the FunctionGraph connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Authenticated By	Select an authentication mode for the connector. • **Cloud service agency** • **AK/SK**
Access Key	Mandatory when **Authentication Mode** is set to **AK/SK**. Access key ID (AK) of the current account. Obtain the AK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Secret Access Key	Mandatory when **Authentication Mode** is set to **AK/SK**. Secret access key (SK) of the current account. Obtain the SK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Description	Enter the description of the connector to identify it.

Action

Invoking a function

Configuration Parameters

Parameter	Description
Region	Region where FunctionGraph is located.
Project	Project to which FunctionGraph belongs.
Function	Select the function to be invoked.
Calling Method	Select an invocation mode for the function. Currently, only **Synchronous** is supported.
Request Data	The request body for executing a function must be in JSON format. You can use data from previous nodes by **referencing variables**.

NOTE

FunctionGraph provides powerful data processing capabilities in various scenarios. For example, when you use a **Data Source** component to query BLOB data (such as images) from a database (such as MySQL), the query result is in byte arrays. In this case, further process the data queried from the database with FunctionGraph, for example, encode the data using Base64.

4.4.2 SMS

The SMS connector is used to interconnect with Huawei Cloud SMS service to send SMS messages.

Prerequisites

SMS is enabled.

Creating an SMS Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the SMS connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
App Key	Access key. When you create a Message&SMS application, the platform automatically generates the APP_Key and APP_Secret, which are used for authentication when the SMS APIs are called.
App Secret	Access key. When you create a Message&SMS application, the platform automatically generates the APP_Key and APP_Secret, which are used for authentication when the SMS APIs are called.
Description	Enter the description of the connector to identify it.

Action

Sending SMSs

Configuration Parameters

Parameter	Description
Region	Region where the SMS service resides.
Project	Project to which the SMS service belongs.

Parameter	Description
Channel ID	Enter the channel number for sending SMSs. • For Chinese mainland SMSs, set this parameter to the channel number allocated by the platform to the SMS signature, which you get when applying for the SMS signature. Example channel number: **csms100000001**. The signature type corresponding to the channel number must match the template type corresponding to the template ID. • For international SMSs, set this parameter to the channel number allocated when the SMS application is created. Example: **isms100000001**. View the signature channel ID on the Message & SMS console by choosing **Chinese Mainland SMS** > **Signature Management**. The signature corresponds to the template. You can view the template's signature at **Chinese Mainland SMS** > **Template Management**.
Send With	Select the SMS sending mode. You can select **Custom content** or **Template**.
Message Content	Required when **Send With** is set to **Custom content**. Enter the SMS content of maximum 2000 bytes. Chinese mainland SMSs must contain an SMS signature. Example: **[SMS notification]** Welcome to the SMS service.
Template ID	Required when **Send With** is set to **Template**. Enter the unique ID obtained when applying for an SMS template. **Template ID** must be used together with **Template Variable Values**.
Template Variable Values	Required when **Send With** is set to **Template**. Enter the variable value in the SMS template. The number and length of variables must be consistent with those defined in the template specified by **Template ID**. For example, if the template specified by **Template ID** contains two variables with lengths of 5 and 6, set two variables with lengths not exceeding 5 and 6, respectively. For template content **You have ${1} parcel to be claimed at ${2}**, this parameter can be set to '["3", "Park Main Entrance"]'.

Parameter	Description
Recipient Number	Enter the number of the SMS message recipient. • Chinese mainland SMSs: If the recipient number is a Chinese mainland mobile number, **+86** is default but optional. Other numbers must have the standard format of **+{country code}{region code}{recipient number}**. Examples: +861234***5555, +86123****6666. • International SMSs: Recipient numbers must be in the standard format of **+{country code}{region code}{recipient number}**. Examples: +2412****00 (Gabon), +3366****212 (France). Separate multiple recipient numbers with commas (,). Maximum number length: 21 digits. Maximum number quantity: 500 numbers.
Callback URL	Enter the callback address for receiving the SMS status report, for example, **http://xx.com/receiveSMSReport**.
Extended Parameter	Enter the extended parameter to be returned in the status report. Braces ({}) are not allowed.
Signature Name	The signature name must be approved and consistent with the template type. This parameter is valid and required when a general template is specified. This is the signature before the SMS content in the general template. This parameter is not required for international SMSs.

4.4.3 SMN

The SMN connector is used to interconnect with Huawei Cloud Simple Message Notification (SMN) to efficiently send messages to phone numbers, email addresses, and applications.

Creating an SMN Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the SMN connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Authenticated By	Select an authentication mode for the connector. • **Cloud service agency** • **AK/SK**

Parameter	Description
Access Key	Mandatory when **Authentication Mode** is set to **AK/SK**. Access key ID (AK) of the current account. Obtain the AK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Secret Access Key	Mandatory when **Authentication Mode** is set to **AK/SK**. Secret access key (SK) of the current account. Obtain the SK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Description	Enter the description of the connector to identify it.

Action

- Publishing a message with template
- Publishing a text message

Configuration Parameters

Table 4-42 Publishing a message with template

Parameter	Description
Region	Region where the SMN service resides.
Project	Project to which the SMN service belongs.
Topic	The SMN topic, which stores a specific type of events for message publishing and subscription.
Message Subject	The email subject when emails are sent to subscribers.
Template	The SMN template, which specifies a fixed message format. When publishing a message using a template, set relevant parameters in the template.

Table 4-43 Publishing a text message

Parameter	Description
Region	Region where the SMN service resides.
Project	Project to which the SMN service belongs.
Topic	The SMN topic, which stores a specific type of events for message publishing and subscription.

Parameter	Description
Message Subject	The email subject when emails are sent to subscribers.
Message Content	Message body sent to the subscriber.

4.4.4 OBS

The OBS connector is used to connect to Huawei Cloud Object Storage Service (OBS).

OBS provides massive, secure, highly reliable, and low-cost object-based cloud storage capabilities.

Creating an OBS Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the OBS connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
App Key	Access key ID (AK) of the current account. Obtain the AK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
App Secret	Secret access key (SK) of the current account. Obtain the SK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Description	Enter the description of the connector to identify it.

Action

- Downloading an object
- Deleting an object
- Listing buckets
- Creating a bucket
- Deleting a bucket
- Obtaining bucket metadata
- Listing objects in a bucket

- Deleting objects in batches from a bucket
- Uploading an object

Configuration Parameters

Table 4-44 Action parameters

Parameter	Description	Actions with the Parameter
Connection Type	Select a connection mode. • Region ID • Endpoint	All
Region ID	Select a region ID.	All
Endpoint	Enter an endpoint.	All
Bucket Name	OBS bucket name.	Downloading, deleting, or uploading an object, creating or deleting a bucket, obtaining bucket metadata, and deleting objects in batches from a bucket
Object Name	Enter an object name. Example: **123.png**. Only TXT, CSV, PNG, JPG, and JPEG files are supported. Unlike file system, OBS does not have files or folders. The slash (/) in an object name simulates the folder path. Object name (key) of **test/123.jpg** is **test/123.jpg**. In this case, set this parameter to **test/123.jpg**.	Downloading, deleting, or uploading an object
Character Set	UTF-8 or GBK (for downloaded files containing Chinese characters)	Downloading an object
Bucket Type	Specify the bucket type. Default: **OBJECT** • **OBJECT** • **POXIS**	Listing buckets
Bucket Location	Whether to query the bucket location. **Yes** **No** (default)	Listing buckets

Parameter	Description	Actions with the Parameter
Region	Where to create the bucket in. Mandatory unless the endpoint is **obs.myhuaweicloud.com**. Default for endpoint **obs.myhuaweicloud.com** without specified region: CN North-Beijing1 (cn-north-1).	Creating a bucket
CORS Origin	Origin (usually a domain name) specified by the cross-origin pre-request. Separate origins with line breaks. Each origin can contain one wildcard character (*) at most.	Obtaining bucket metadata
HTTP Request Header	HTTP headers in the cross-domain request. CORS requests must match the allowed headers.	Obtaining bucket metadata
Object Name Prefix	Objects to list must contain this prefix.	Listing objects in a bucket
Start Position	Where the object listing begins, in lexicographical order.	Listing objects in a bucket
Max.	The upper limit for objects in the response. Range: 1–1000. If the input value is greater than 1,000, only 1,000 objects are returned.	Listing objects in a bucket
Delimiter	For grouping object names. If an object name contains the set delimiter, the string from the first character to the first delimiter in the object name (excluding any prefix) is taken as a group under **commonPrefix**.	Listing objects in a bucket
Coding Type	Encoding method to apply to some elements in the response. For **delimiter**, **marker**, **prefix**, **nextMarker**, and **key** containing control characters not supported by the XML 1.0 standard, set **encodingType** to encode the response **delimiter**, **marker**, **prefix** (including the prefix in **commonPrefixes**), **nextMarker**, or **key**.	Listing objects in a bucket

Parameter	Description	Actions with the Parameter
Response Mode	Response mode for deleting objects in batches. **No** (default): The response includes the deletion result of each requested object. **Yes**: The response includes only results of objects failed to be deleted.	Deleting objects in batches from a bucket
Basic Type	Basic type of the object. **Text** (default): TXT or CSV. **Image**: PNG, JPG, or JPEG.	Uploading an object
Content	Mandatory for a text object. The system generates an object based on the content and object name.	Uploading an object
Base64 Code	Mandatory for a binary object. The system generates an object based on the Base64 code and object name.	Uploading an object

4.4.5 DSC

The DSC connector is used to connect to the Huawei Cloud Data Security Center (DSC).

DSC is a latest-generation cloud data security management platform that protects data assets by data classification, risk identification, data masking, and watermark-based source tracking. Its asset map provides an overview of the security status of each stage across the data security lifecycle.

Creating a DSC Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. CreatingSelect the DSC connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Access Key	Access key ID (AK) of the current account. Obtain the AK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).

Parameter	Description
Secret Access Key	Secret access key (SK) of the current account. Obtain the SK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Description	Enter the description of the connector to identify it.

Action

- Deleting data asset authorization
- Adding asset authorization
- Viewing assets
- Editing data asset name
- Starting/Stoping a data masking task
- Listing data masking tasks
- Extracting the dark image watermark from an image (image address)
- Extracting the dark text watermark from an image (image address)
- Injecting an invisible watermark into an image (image addresses)
- Extracting an invisible watermark from a document (document address)
- Injecting a watermark into a document (document address)
- Masking sensitive data
- Extracting the data watermark
- Injecting a data watermark

Configuration Parameters

Table 4-45 Deleting data asset authorization

Parameter	Description
bucket_id	Bucket ID.
project_id	Project ID.
region_id	Region ID.

Table 4-46 Adding asset authorization

Parameter	Description
project_id	Project ID.
region_id	Region ID.
type	Asset type.

Parameter	Description
buckets	OBS bucket list.
asset_name	Asset name.
location	Bucket location.
bucket_name	Bucket name.
bucket_policy	Bucket policy.

Table 4-47 Viewing assets

Parameter	Description
project_id	Project ID.
region_id	Region ID.
added	Whether the asset is authorized. • **true** • **false**
offset	Page number.
limit	Number of records displayed on each page.

Table 4-48 Editing data asset name

Parameter	Description
asset_id	Asset ID.
project_id	Project ID.
region_id	Region ID.
name	Asset name.

Table 4-49 Starting/Stoping a data masking task

Parameter	Description
project_id	Project ID.
template_id	Template ID.
region_id	Region ID.
status	Status of the task.

Table 4-50 Listing data masking tasks

Parameter	Description
project_id	Project ID.
template_id	Template ID.
region_id	Region ID.
workspace_id	Workspace ID.
offset	Page number.
limit	Number of records displayed on each page.

Table 4-51 Extracting the dark image watermark from an image (image address)

Parameter	Description
project_id	Project ID.
region_id	Region ID.
region_id	ID of the region where the project is located. Example: **xx-xx-1**.
src_file	Address of the image that the dark image watermark needs to be extracted from, in the **obs://bucket/object** format. **bucket**: name of the OBS bucket in the same region as the current project; **object**: full path name of the object. Huawei Cloud OBS objects only. Example: **obs://hwbucket/hwinfo/hw.png**, where **obs://** is OBS, **hwbucket** is the bucket name, and **hwinfo/hw.png** is the full path name of the object.
image_watermark	Storage address of the extracted image watermark in the format of **src_file**.

Table 4-52 Extracting the dark text watermark from an image (image address)

Parameter	Description
project_id	Project ID.
region_id	Region ID.
region_id	ID of the region where the project is located. Example: **xx-xx-1**.

Parameter	Description
src_file	Address of the image that the dark text watermark needs to be extracted from, in the **obs://bucket/object** format. **bucket**: name of the OBS bucket in the same region as the current project; **object**: full path name of the object. Huawei Cloud OBS objects only. Example: **obs://hwbucket/hwinfo/hw.png**, where **obs://** is OBS, **hwbucket** is the bucket name, and **hwinfo/hw.png** is the full path name of the object.
mark_len	Length of the watermark to extract. Range: 0–32. This parameter improves watermark extraction performance.

Table 4-53 Injecting an invisible watermark into an image (image addresses)

Parameter	Description
project_id	Project ID.
region_id	Region ID.
region_id	ID of the region where the project is located. Example: **xx-xx-1**.
src_file	Address of the image to add the dark watermark to, in the **obs://bucket/object** format. **bucket**: name of the OBS bucket in the same region as the current project; **object**: full path name of the object. Huawei Cloud OBS files only. Example: **obs://hwbucket/hwinfo/hw.png**, where **obs://** is OBS, **hwbucket** is the bucket name, and **hwinfo/hw.png** is the full path name of the object.
blind_watermark	Content of the invisible text watermark. Max.: 32 characters. Digits and letters only. Set either this parameter or **image_watermark**.
image_watermark	Address of the invisible image watermark in the format of **src_file**. Set either this parameter or **blind_watermark**. If both are set, **image_watermark** takes effect.
dst_file	Storage address of the watermarked image in the format of **src_file**. If not specified, the value of **src_file** is used (the original file is overwritten after the watermark is added).

Table 4-54 Extracting an invisible watermark from a document (document address)

Parameter	Description
project_id	Project ID.
region_id	Region ID.

Parameter	Description
region_id	ID of the region where the project is located. Example: **xx-xx-1**.
doc_type	Type of the document a watermark needs to be extracted from. Options: • WORD • EXCEL • PDF • PPT
src_file	Address of the document that the dark text watermark needs to be extracted from, in the **obs://bucket/object** format. **bucket**: name of the OBS bucket in the same region as the current project; **object**: full path name of the object. Huawei Cloud OBS objects only. Example: **obs://hwbucket/hwinfo/hw.doc**, where **obs://** is OBS, **hwbucket** is the bucket name, and **hwinfo/hw.doc** is the full path name of the object.
file_password	Password for opening a file. Max.: 256 characters. If an Office Word document requires a password for read or domain control, you need to enter the password to open the file.

Table 4-55 Injecting a watermark into a document (document address)

Parameter	Description
project_id	Project ID.
region_id	Region ID.
region_id	ID of the region where the project is located. Example: **xx-xx-1**.
src_file	Address of the document to add the watermark to. Format: **obs://bucket/object**, where **bucket** is the name of the OBS bucket in the same region as the current project and **object** is the full path name of the object. Huawei Cloud OBS objects only. Example: **obs://hwbucket/hwinfo/hw.png**, where **obs://** is OBS, **hwbucket** is the bucket name, and **hwinfo/hw.png** is the full path name of the object.

Parameter	Description
doc_type	Type of the document to watermark. Options: • WORD • EXCEL • PDF • PPT
dst_file	Storage address of the watermarked document in the format of **src_file**. If not specified, the value of **src_file** is used (the original file is overwritten after the watermark is added).
blind_watermark	Content of the invisible text watermark. Either this parameter or **visible_watermark** must be set.
visible_watermark	Content of the visible text watermark. Either this parameter or **blind_watermark** must be set.
image_mark	Address of document to inject with a visible image watermark. The field is in the format of **src_file**. The image must be a PNG or JPG file (max.: 1 MB).
visible_type	Whether to inject visible text or image watermarks. **TEXT** (default): **visible_watermark** is set to visible text watermark; **IMAGE**: **image_watermark** is set to an image watermark address without the **visible_watermark**, **font_size**, **rotation**, and **opacity** fields. Options: • TEXT • IMAGE
file_password	Password for opening a file. Max.: 256 characters. If an Office Word document requires a password for read or domain control, you need to enter the password to open the file.
marked_file_password	Password for a watermarked document. Max.: 256 characters. Default: no password.
readonly_password	Read-only password for a watermarked document. Max.: 256 characters. Default: no read-only password.
front	Font size of a visible watermark. Range: 1–100. Default: 50.
rotation	Font angle of a visible watermark (anticlockwise). Range: 0–90. Default: 45.
opacity	Transparency of a visible watermark. Range: 0–1. Default: 0.3.

Table 4-56 Masking sensitive data

Parameter	Description
project_id	Project ID.
region_id	Region ID.
mask_strategies	List of masking policies. Each policy corresponds to a field. Max.: 100 policies.
name	Name of the field containing sensitive data to mask. Max.: 256 characters.
algorithm	Data masking algorithm name. Options: • SHA256 • SHA512 • AES • PRESNM • MASKNM • PRESXY • MASKXY • SYMBOL • KEYWORD • NUMERIC
parameters	Data masking algorithm parameters.
data	Data list.

Table 4-57 Extracting a data watermark

Parameter	Description
project_id	Project ID.
region_id	Region ID.
watermark_key	Watermark key.
columns	List of field types. Max.: 100 types. Must include all fields with **primary_key** as true and at least one field with **primary_key** as false to extract watermarks.
name	Field name. Max.: 256 characters.

Parameter	Description
type	Field type. Options: • INTEGER • STRING • DOUBLE
primary_key	Whether the field is a primary key. **true**: primary key, for locating the watermark. **false**: non-primary key, for embedding or extracting the watermark content in this column. The field type list can contain multiple fields with **primary_key** as **true** or **false**.
data	Watermark data. Max.: 30,000 records.

Table 4-58 Injecting a data watermark

Parameter	Description
project_id	Project ID.
region_id	Region ID.
watermark_content	Watermark content.
watermark_key	Watermark key.
columns	List of field types. Max.: 100 types. Include at least two fields: one **primary_key** as **true** (for the primary key) and one **primary_key** as false (for watermark injection).
name	Field name. Max.: 256 characters.
type	Field type. Options: • INTEGER • STRING • DOUBLE
primary_key	Whether the field is a primary key. **true**: primary key, for locating the watermark. **false**: non-primary key, for embedding or extracting the watermark content in this column. The field type list can contain multiple fields with **primary_key** as **true** or **false**.
data	Content of a field, which can contain a maximum of 2,000 characters.

4.4.6 Image Recognition

The Image Recognition connector is used to interconnect with Huawei Cloud Image Recognition to accurately identify the content of images.

Prerequisites

Huawei Cloud Image Recognition is enabled.

Creating an Image Recognition Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Choose **Huawei Cloud Services** > **Image Recognition**
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Authenticated By	Select an authentication mode for the connector. • **Cloud service agency** • **AK/SK**
Access Key	Mandatory when **Authentication Mode** is set to **AK/SK**. Access key ID (AK) of the current account. Obtain the AK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Secret Access Key	Mandatory when **Authentication Mode** is set to **AK/SK**. Secret access key (SK) of the current account. Obtain the SK by referring to **Access Keys**. If an AK/SK pair has been generated, find the downloaded AK/SK file (such as **credentials.csv**).
Description	Enter the description of the connector to identify it.

Action

- Celebrity recognition: Identifying movie stars and internet celebrities in images.
- Tag recognition: Identifying the name, category, and confidence of an object in an image.

Configuration Parameters

Table 4-59 Celebrity recognition

Parameter	Description
Region	Region where the Image Recognition service resides.
Project	Project to which the Image Recognition service belongs.
Obtain Image from	Method to obtain the image. Options are API form parameters, Base64 encoding, and URL path.
API form parameters	If **Obtain Image from** is set to **API form parameters**, the trigger of this task flow must be OpenAPI, and images must be uploaded using form parameters of the **form-data** type. Set this parameter to the name of the form parameters.
Base64 encoding	If **Obtain Image from** is set to **Base64 encoding**, set this parameter to the Base64-encoded character string of the image. The size cannot exceed 10 MB.
URL path	If **Obtain Image from** is set to **URL path**, set this parameter to the URL of the image. The value can be: • HTTP/HTTPS URLs on the public network • Huawei Cloud OBS URLs. To use OBS data, authorization is required, including service authorization, temporary authorization, and anonymous public authorization. For details, see **Configuring the Access Permission of OBS**.
Confidence	Threshold (0 to 1) of the confidence score. Tags with a confidence score lower than the threshold will not be returned.
Tags	Maximum number of tags that can be returned. The default value is **30**.

Parameter	Description
Tag Language	Language of the returned tags. • **zh**: Chinese • **en**: English The default value is **zh**.

Table 4-60 Tag recognition

Parameter	Description
Region	Region where the Image Recognition service resides.
Project	Project to which the Image Recognition service belongs.
Obtain Image from	Method to obtain the image, including API form parameters, Base64 encoding, and URL path.
API form parameters	If **Obtain Image from** is set to **API form parameters**, the trigger of this task flow must be OpenAPI, and images must be uploaded using form parameters of the **form-data** type. Set this parameter to the name of the form parameters.
Base64 encoding	If **Obtain Image from** is set to **Base64 encoding**, set this parameter to the Base64-encoded character string of the image. The size cannot exceed 10 MB.
URL path	If **Obtain Image from** is set to **URL path**, set this parameter to the URL of the image. The value can be: • HTTP/HTTPS URLs on the public network • Huawei Cloud OBS URLs. To use OBS data, authorization is required, including service authorization, temporary authorization, and anonymous public authorization. For details, see **Configuring the Access Permission of OBS**.

Parameter	Description
Confidence	Threshold (0 to 1) of the confidence score. Tags with a confidence score lower than the threshold will not be returned.

4.5 SaaS Applications

4.5.1 GitHub

The GitHub connector is used to connect to the GitHub platform.

GitHub is a hosting platform for open-source and private software projects. It is mainly used for version control and collaborative development. GitHub provides code hosting services based on its version control system, and other tools such as wiki, issue tracker, and code review.

Creating a GitHub Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the GitHub connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Token	GitHub account authorization token, created in **Settings** on the GitHub official website.
Description	Enter the description of the connector to identify it.

Action

- Adding a comment under a pull request
- Closing a pull request
- Creating an issue

Configuration Parameters

Table 4-61 Adding a comment under a pull request

Parameter	Description
Registry Name	Enter the name of the GitHub code repository.

Parameter	Description
Repository Owner	Enter the owner of the GitHub code repository.
Pull Request No.	Enter the ID of the pull request to which a comment will be added?
Content	Enter the content of the comment.

Table 4-62 Closing a pull request

Parameter	Description
Registry Name	Enter the name of the GitHub code repository.
Repository Owner	Enter the owner of the GitHub code repository.
Pull Request No.	Enter the ID of the pull request to be deleted.

Table 4-63 Creating an issue

Parameter	Description
Registry Name	Enter the name of the GitHub code repository.
Repository Owner	Enter the owner of the GitHub code repository.
Title	Enter the issue title.
Content	Enter the content of the new issue.

4.5.2 WordPress

The WordPress connector can push articles to websites and delete pushed articles based on requirements.

Creating a WordPress Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the WordPress connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
IP Address	Enter the WordPress address. Example: **http://myblog.com**.
Username	Enter the WordPress username.
Password	Enter the WordPress password.
Description	Enter the description of the connector to identify it.

Action

- Publishing an article
- Deleting an article

Configuration Parameters

Table 4-64 Publishing an article

Parameter	Description
Title	Title of the article to be published.
Parameter	Content of the article to be published.

Table 4-65 Deleting an article

Parameter	Description
ID	ID of the article to be deleted.

4.5.3 SAP

The SAP connector is used to interconnect with the SAP system.

The SAP system is a set of modern, information-based, and intelligent enterprise application software for enterprise resource planning (ERP). It provides reference for enterprise management and systematic planning for enterprise development. The SAP system is popular among enterprises for business modernization and informatization with streamlined process and less resources.

Creating an SAP connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.

3. Select the SAP connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Login Language	Select a language. • Chinese • English
SAP Server IP Address	Enter the IP address of the SAP server.
System ID	Enter the system ID.
SAP Group	Enter the SAP group name.
SAP Username	Enter the username for connecting to SAP.
Password	Enter the password for connecting to SAP.
Description	Enter the description of the connector to identify it.

Action

Accessing SAP functions

Configuration Parameters

Parameter	Mandatory	Description
SAP Function	Yes	Enter the name of the SAP function to be accessed.
Parameter	No	Enter the parameter name and value for accessing the function.

4.5.4 Jira Software

Jira is a popular and powerful project and issue tracking tool widely used in teams and organizations, including IT, operations, sales, marketing, and human resources. The main functions of Jira are as follows: project management, issue tracking, workflow management, reporting and analysis, and integration and expansion. Jira facilitates team management and collaboration and improves work efficiency and quality.

Creating a Jira Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Jira Software connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Type	Select the type of the Jira connector. • **Cloud**: The Jira instance is deployed on the cloud. Users can use a browser to access it from anywhere. • **On-Premise**: The Jira instance is installed locally. Jira is installed and configured on your own server or local PC.
Connection Address	Enter the connection address of Jira. • When **Type** is set to **Cloud**, the format of the address is https://*your-domain*.atlassian.net. *your-domain* indicates the domain name of an organization or team. A valid Jira Cloud subscription is required to access the address. If you are not sure about your Jira Cloud address, obtain it from your Atlassian account or administrator. • When **Type** is set to **On-Premise**, enter the IP address or host name of the server where Jira is located. Example: http://192.168.0.1:8080 or http://Jira.example.com:8080
Authentication	Select the Jira authentication type. The options are **Basic** and **API Token**.
Username	Required only when **Authentication** is set to **Basic** Username for connecting to Jira
Password	Required only when **Authentication** is set to **Basic** Password for connecting to Jira
Email	Required only when **Authentication** is set to **API Token** Jira email address
API Token	Required only when **Authentication** is set to **API Token** Generate an API token in the personal settings in Jira. The API token is used for identity authentication and allows Jira users to access their accounts and related data via APIs.
Description	Enter the description of the connector to identify it.

Action

- Creating a project
- Updating a project
- Querying project details
- Deleting a project
- Creating an issue
- Modifying an issue
- Changing issue status
- Querying issues
- Querying issue details
- Searching for available users to assign issues
- Adding a comment
- Modifying a comment
- Querying comments

Configuration Parameters

Table 4-66 Creating a project

Parameter	Description
Project Name	Name of the project.
Project Key	Unique ID of the project.
ProjectTemplateType	Project template.
Project description	Description of the project.

Table 4-67 Updating a project

Parameter	Description
update by Project Key	Unique ID of the project.
Project Name	Name of the project.
Project description	Description of the project.

Table 4-68 Querying project details

Parameter	Description
Project Key	Unique ID of the project.

Table 4-69 Deleting a project

Parameter	Description
delete by Project Key	Unique ID of the project.

Table 4-70 Creating an issue

Parameter	Description
Project Type	Project type.
Project Key	Unique ID of the project.
Issue Type	Issue type.
Priority	Issue priority.
Summary	Issue summary.
Raised By	Enter a username.
Assign To	Enter a username.
Description	Description of the issue.

Table 4-71 Modifying an issue

Parameter	Description
Project Type	Project type.
Project Key	Unique ID of the project.
Name	Issue name or ID.
Issue Type	Issue type.
Priority	Issue priority.
Summary	Issue summary.
Raised By	Enter a username.
Assign To	Enter a username.

Parameter	Description
Description	Description of the issue.

Table 4-72 Changing issue status

Parameter	Description
Issue Name/ID	Issue name or ID.
Target Status	Select a status supported by the issue.

Table 4-73 Querying issues

Parameter	Description
Jql	Jira Query Language (JQL) expression.
Offset	Pagination offset. The default value is **0**.
Max. Records Returned	Pagination limit.

Table 4-74 Querying issue details

Parameter	Description
Issue Name/ID	Enter an issue name or ID.

Table 4-75 Searching for available users to assign issues

Parameter	Description
Project Key	Unique ID of the project (mandatory for new issues).
Issue Name/ID	Enter an issue name or ID (mandatory when **Project Key** is not specified).
Jira Username	Used for exact search.

Table 4-76 Adding a comment

Parameter	Description
Issue Name/ID	Enter an issue name or ID.

Parameter	Description
Visibility	Select a visible scope.
Description	Comment content.

Table 4-77 Modifying a comment

Parameter	Description
Issue Name/ID	Enter an issue name or ID.
Comment ID	ID of the comment.
Description	Comment content.
Visibility	Select a visible scope.

Table 4-78 Querying comments

Parameter	Description
Issue Name/ID	Enter an issue name or ID.
Offset	Pagination offset. The default value is **0**.
Max. Records Returned	Pagination limit.

4.5.5 WeCom

The WeCom connector allows you to use WeCom functions in a workflow after a few configurations.

WeCom is a communication and office tool designed for enterprises by Tencent. WeCom provides the same communication experience as WeChat, along with rich OA applications and capabilities to connect to the WeChat ecosystem, helping enterprises connect to internal systems, ecosystem partners, and consumers. WeCom features professional collaboration, security management, and people-as-a-service.

Creating a WeCom Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the WeCom connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Type	Select the connection type. • Chatbot: Message pushing by chatbot. • Application: Other functions.
Enterprise ID	Mandatory when the connection type is set to **Application**. Each enterprise has a unique **corpid**. For details, see "Basic Concepts" in the documentation for WeCom enterprise internal development server APIs.
AppSecret	Mandatory when the connection type is set to **Application**. Each application has an independent access secret. For details, see "Basic Concepts" in the documentation for WeCom enterprise internal development server APIs.
Chatbot Key	Mandatory when the connection type is set to **Chatbot**. Value of the request parameter key in the robot webhook.
Description	Enter the description of the connector to identify it.

Action

- Obtaining department IDs
- Creating a department
- Updating a department
- Deleting a department
- Obtaining member IDs
- Creating a member
- Updating a member
- Deleting a member
- Obtaining a group chat
- Creating a group chat
- Modifying a group chat
- Pushing a text message
- Pushing a markdown message
- Pushing a file message
- Pushing an image message
- Pushing an image and text message
- Pushing a text card message
- Withdrawing an application message
- Pushing a text message to a group chat

- Pushing a markdown message to a group chat
- Pushing a file message to a group chat
- Pushing an image message to a group chat
- Pushing a text and image message to a group chat
- Pushing a text card message to a group chat
- Pushing a text message by chatbot
- Pushing a markdown message by chatbot
- Pushing a file message by chatbot
- Pushing an image message by chatbot
- Pushing an image and text message by chatbot

Configuration Parameters

Table 4-79 Obtaining department IDs

Parameter	Description
Department ID	Obtains a specified department and its sub-departments (and sub-departments of sub-departments, recursively). If left empty, the full organizational structure is obtained by default.

Table 4-80 Creating a department

Parameter	Description
Dept Name	Department names at the same level must be unique. The value contains 1 to 32 UTF-8 characters and cannot contain the following characters: *?"<>|:
English Name	Department names at the same level must be unique. This takes effect only after the multi-language function is enabled on the management backend. The value contains 1–64 characters, excluding the following characters: *?"<>|:
Parent Dept ID	Parent department ID, which is a 32-digit integer.
Order	Sequence number in the parent department in descending order. Range: [0, 2^32).
Dept ID	If specified, the value must be a 32-digit integer greater than 1. If not specified, a default ID is generated.

Table 4-81 Updating a department

Parameter	Description
Dept ID	Department ID.

Parameter	Description
Dept Name	The value contains 1 to 32 UTF-8 characters and cannot contain the following characters: *?"<>|:
English Name	This takes effect only after the multi-language function is enabled on the management backend. The value contains 1–64 characters, excluding the following characters: *?"<>|:
Parent Dept ID	Parent department ID.
Order	Sequence number in the parent department in descending order. Range: [0, 2^32).

Table 4-82 Deleting a department

Parameter	Description
Dept ID	Department ID.

Table 4-83 Obtaining member IDs

Parameter	Description
Pagination Cursor	Cursor used for pagination query. The value is a character string and is returned by the last invoking. Leave this empty for the first invoking.
Total Data	Expected requested data volume. Range: 1 to 10000.

Table 4-84 Creating a member

Parameter	Description
Member ID	Member user ID. Unique management account in an enterprise. Max.: 64 characters. Start with a digit or letter and use only digits, letters, underscores (_), hyphens (-), at signs (@), and periods (.). This is case-insensitive.
Member Name	Max.: 64 UTF-8 characters
Alias	Max.: 64 UTF-8 characters
Gender	1: male; 2: female.
Enable Member	1: enabled; 0: disabled.
Major Dept ID	Major department ID.

Parameter	Description
Title	Position information. Max.: 128 characters.
Dept IDs	ID list of departments to which the member belongs. Max.: 100 IDs. Separate IDs with commas (,).
Sorting Members in Dept	The default value is 0. Members are sorted by earliest creation time. The number must match that of departments. Values are listed in descending order. Range: [0, 2^32). Separate values with commas (,).
Department Leaders?	The number must match that of departments. The value indicates whether the user is the leader of the department. **1**: leader; **0**: non-leader. It can be used to identify the upper-level approver in self-built or third-party applications. Separate values with commas (,).
Immediate Superior IDs	User IDs of enterprise members. Max.: 5 IDs. Separate IDs with commas (,).
Fixed-line Phone	The value consists of digits, hyphens (-), plus signs (+), or commas (,). Max.: 32 bytes.
Mobile Number	The value must be unique in an enterprise. **Enter either the mobile number or email address, or both.**
Email Address	An email address of 6 to 64 bytes. The value must be unique in an enterprise. **Enter either the mobile number or email address, or both.**
Enterprise Mailbox	Only for enterprises that have enabled the enterprise email function. An email address of 6 to 64 bytes, and must be unique in an enterprise. If not specified, the system generates a default enterprise email address for the user. (The system-generated email address can be changed once only.)
Address	Max.: 128 characters.

Table 4-85 Updating a member

Parameter	Description
Member ID	Member user ID. Unique management account in an enterprise. The value is case-insensitive and contains 1–64 bytes.
Member Name	Max.: 64 UTF-8 characters
Alias	Max.: 64 UTF-8 characters
Gender	1: male; 2: female.

Parameter	Description
Enable Member	1: enabled; 0: disabled.
Major Dept ID	Major department ID.
Job Title	Max.: 128 UTF-8 characters.
Dept IDs	IDs of departments to which the member belongs. Max.: 100 IDs. Separate IDs with commas (,).
Sorting Members in Dept	The default value is **0**. This parameter is valid when **Dept IDs** is transferred. The number must match that of departments. Values are listed in descending order. Range: [0, 2^32). Separate values with commas (,).
Department Leaders?	The number must match that of departments. The value indicates whether the member is the department leader. **1**: leader; **0**: non-leader. Separate values with commas (,).
Immediate Superior IDs	Enterprise members. Max.: 5. Separate IDs with commas (,).
Fixed-line Phone	The value consists of digits, hyphens (-), plus signs (+), or commas (,). Length: 1–32 bytes.
Mobile Number	Phone number, must be unique in an enterprise. If a member has enabled the WeCom account, they need to modify this parameter by themselves. (In this case, this parameter is ignored, and no error is reported.)
Email Address	An email address of up to 64 bytes. It must be unique in an enterprise. If the WeCom account is bound to a Tencent XMail address, this parameter can only be modified in XMail. (In this case, this parameter is ignored, and no error is reported.)
Enterprise Mailbox	This parameter is available only for enterprises that have enabled the enterprise email function. The value is an email address of 6 to 64 bytes, and must be unique in an enterprise. This can be modified once by members whose enterprise email address was system-generated.
Address	Max.: 128 characters.

Table 4-86 Deleting a member

Parameter	Description
Member ID	Member user ID.

Table 4-87 Obtaining a group chat

Parameter	Description
Group Chat ID	Group chat ID.

Table 4-88 Creating a group chat

Parameter	Description
Group Chat Name	Up to 50 UTF-8 characters. Any excess will be truncated.
Group Owner ID	ID of the specified group owner. If not specified, the system randomly selects a user from the user list as the group owner.
Group Member IDs	2 to 2000 members. Separate IDs with commas (,).
Group Chat ID	Unique ID of a group chat. The value is a string of up to 32 characters. Use only digits and uppercase or lowercase letters. If not specified, the system randomly generates a value.

Table 4-89 Modifying a group chat

Parameter	Description
Group Chat ID	Group chat ID.
Group Chat Name	New group chat name. If no update is required, ignore this parameter. Up to 50 UTF-8 characters. Any excess will be truncated.
Group Owner ID	ID of the new group owner. If no update is required, ignore this parameter. The group owner of a course group chat must be in the group owner list.
Member IDs to Add	IDs of members to be added.
Member IDs to Remove	IDs of members to be removed.

Table 4-90 Pushing a text message

Parameter	Description
Receiver ID	Member IDs for receiving the message. Separate multiple recipients by vertical bars (|). Max.: 1,000 IDs. Special case: If specified as **@all**, the message is sent to all members of the enterprise application.
Recipient Dept ID	Department IDs for receiving the message. Separate recipients by vertical bars (|). Max.: 100 IDs. Skip this parameter when the receiver is set to **@all**.
Enterprise App ID	Enterprise application ID. The value is an integer. It can be viewed on the settings page of the application.
Content	Message content. Max.: 2048 bytes. Any excess will be truncated. **(ID translation is supported.)**
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked.

Table 4-91 Pushing a markdown message

Parameter	Description
Receiver ID	Member IDs for receiving the message. Separate multiple recipients by vertical bars (|). Max.: 1,000 IDs. Special case: If this parameter is set to **@all**, the message is sent to all members of the enterprise application.
Recipient Dept ID	Department IDs for receiving the message. Separate recipients by vertical bars (|). Max.: 100 IDs. Skip this parameter when the receiver is set to **@all**.
Enterprise App ID	Enterprise application ID. The value is an integer. It can be viewed on the settings page of the application.
Content	Content of the markdown message. The value is UTF-8 encoded and up to 2048 bytes.

Table 4-92 Pushing a file message

Parameter	Description
Receiver ID	Member IDs for receiving the message. Separate multiple recipients by vertical bars (|). Max.: 1,000 IDs. Special case: If this parameter is set to **@all**, the message is sent to all members of the enterprise application.

Parameter	Description
Recipient Dept ID	Department IDs for receiving the message. Separate recipients by vertical bars (|). Max.: 100 IDs. Skip this parameter when the receiver is set to **@all**.
Enterprise App ID	Enterprise application ID. The value is an integer. It can be viewed on the settings page of the application.
File ID	Can be obtained by invoking the API for uploading temporary materials.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked.

Table 4-93 Pushing an image message

Parameter	Description
Receiver ID	Member IDs for receiving the message. Separate multiple recipients by vertical bars (|). Max.: 1,000 IDs. Special case: If this parameter is set to **@all**, the message is sent to all members of the enterprise application.
Recipient Dept ID	Department IDs for receiving the message. Separate recipients by vertical bars (|). Max.: 100 IDs. Skip this parameter when the receiver is set to **@all**.
Enterprise App ID	Enterprise application ID. The value is an integer. It can be viewed on the settings page of the application.
Image Media File ID	Can be obtained by invoking the API for uploading temporary materials.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked.

Table 4-94 Pushing an image and text message

Parameter	Description
Receiver ID	Member IDs for receiving the message. Separate multiple recipients by vertical bars (|). Max.: 1,000 IDs. Special case: If this parameter is set to **@all**, the message is sent to all members of the enterprise application.
Recipient Dept ID	Department IDs for receiving the message. Separate recipients by vertical bars (|). Max.: 100 IDs. Skip this parameter when the receiver is set to **@all**.
Enterprise App ID	Enterprise application ID. The value is an integer. It can be viewed on the settings page of the application.

Parameter	Description
Subject	Max.: 128 bytes. Any excess will be truncated.
Message Thumbnail	Thumbnail ID of an image and text message. Obtained via the material management API (value of **media_id** returned by the upload API).
Content	HTML tags are supported. Max.: 666 KB.
Message Author	Max.: 64 bytes.
Source Link	Page link of **Read More**.
Description	Max.: 512 bytes. Any excess will be truncated.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked; **2**: public within the enterprise.

Table 4-95 Pushing a text card message

Parameter	Description
Receiver ID	Member IDs for receiving the message. Separate multiple recipients by vertical bars (|). Max.: 1,000 IDs. Special case: If this parameter is set to **@all**, the message is sent to all members of the enterprise application.
Recipient Dept ID	Department IDs for receiving the message. Separate recipients by vertical bars (|). Max.: 100 IDs. Skip this parameter when the receiver is set to **@all**.
Enterprise App ID	Enterprise application ID. The value is an integer. It can be viewed on the settings page of the application.
Subject	Max.: 128 bytes. Any excess will be truncated.
Description	Max.: 512 bytes. Any excess will be truncated.
Redirection Link	Max.: 2,048 bytes (HTTP/HTTPS included).
Button Text	The default value is **More**. Max.: 4 characters. Any excess will be truncated.

Table 4-96 Withdrawing an application message

Parameter	Description
Message ID	Obtained from the response of the message sending API of the application.

Table 4-97 Pushing a text message to a group chat

Parameter	Description
Group Chat ID	The group specified by the chat ID must be created by the connected application.
Content	Max.: 2048 bytes. Any excess will be truncated.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked.

Table 4-98 Pushing a markdown message to a group chat

Parameter	Description
Group Chat ID	The group specified by the chat ID must be created by the connected application.
Content	Content of the markdown message. The value is UTF-8 encoded and up to 2048 bytes.

Table 4-99 Pushing a file message to a group chat

Parameter	Description
Group Chat ID	The group specified by the chat ID must be created by the connected application.
File ID	Obtained by invoking the API for uploading temporary materials.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked.

Table 4-100 Pushing an image message to a group chat

Parameter	Description
Group Chat ID	The group specified by the chat ID must be created by the connected application.
Image Media File ID	Can be obtained by invoking the API for uploading temporary materials.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked.

Table 4-101 Pushing a text and image message to a group chat

Parameter	Description
Group Chat ID	The group specified by the chat ID must be created by the connected application.
Subject	Max.: 128 bytes. Any excess will be truncated.
Message Thumbnail	Thumbnail ID of an image and text message. Obtained via the material management API (value of **media_id** returned by the upload API).
Content	Message content. HTML tags are supported. Max.: 666 KB.
Message Author	Max.: 64 bytes.
Source Link	Page link of **Read More**.
Description	Max.: 512 bytes. Any excess will be truncated.
Confidentiality	Whether the message is confidential. **0** (default): public; **1**: private and watermarked; **2**: public within the enterprise.

Table 4-102 Pushing a text card message to a group chat

Parameter	Description
Group Chat ID	The group specified by the chat ID must be created by the connected application.
Subject	Max.: 128 bytes. Any excess will be truncated.
Description	Max.: 512 bytes. Any excess will be truncated.
Redirection Link	Max.: 2,048 bytes (HTTP/HTTPS included).
Button Text	The default value is **More**. Max.: 4 characters. Any excess will be truncated.

Table 4-103 Pushing a text message by chatbot

Parameter	Description
Content	Max.: 2048 bytes. The excess part will be truncated.
User IDs to Mention	**@***a member*: mention a specified member in the group; **@all**: mention all members. Separate IDs with commas (,).
Mobile Numbers to Remind	**@***a member*: mention a specified member corresponding to the phone number; **@all**: mention all members. Separate numbers with commas (,).

Table 4-104 Pushing a markdown message by chatbot

Parameter	Description
Content	Content of the markdown message. The value is UTF-8 encoded and up to 4096 bytes.

Table 4-105 Pushing a file message by chatbot

Parameter	Description
File ID	Obtained via the group chatbot file upload API.

Table 4-106 Pushing an image message by chatbot

Parameter	Description
Base64-encoded Image Content	Base64-encoded image content.
MD5 Value	MD5 value of the image content before Base64 encoding.

Table 4-107 Pushing an image and text message by chatbot

Parameter	Description
Subject	Max.: 128 bytes. Any excess will be truncated.
Description	Max.: 512 bytes. Any excess will be truncated.
Redirection URL	Click to go to the redirect link.
Image URL	Image link of the image and text message. Available: JPG and PNG formats. Use 1068 x 455 and 150 x 150 sizes for better experience.

4.5.6 DingTalk

The DingTalk connector allows you to use DingTalk functions in a workflow after a few configurations.

DingTalk is an enterprise-level intelligent mobile office platform developed by Alibaba. It features office collaboration and application development in the digital era.

Creating a DingTalk Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the DingTalk connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
AppKey	Client ID in "application development" > "internal applications" > "application details" > "application information" in DingTalk.
AppSecret	Client Secret in "application development" > "internal applications" > "application details" > "application information" in DingTalk.
RobotCode	RobotCode in "application development" > "internal applications" > "application details" > "robot and message push" in DingTalk. Mandatory for the chatbot function.
Description	Enter the description of the connector to identify it.

Action

- Sending a link message by chatbot
- Sending a Markdown message by chatbot
- Sending an image message by chatbot
- Sending a file message by chatbot
- Sending an ActionCard message by chatbot
- Sending a text message by chatbot

Configuration Parameters

Table 4-108 Sending a link message by chatbot

Parameter	Description
Group Chat ID	Obtain the value from the DingTalk API for creating an enterprise internal group or other groups. For an existing group, obtain the value by calling the JSAPI **biz.chat.chooseConversationByCorpId**.
Subject	Message subject.
Content	Message content.
Image URL	Link to the preview image.

Parameter	Description
Redirection URL	Redirection link opened after clicking the message.

Table 4-109 Sending a Markdown message by chatbot

Parameter	Description
Group Chat ID	Obtain the value from the DingTalk API for creating an enterprise internal group or other groups. For an existing group, obtain the value by calling the JSAPI **biz.chat.chooseConversationByCorpId**.
Subject	Message subject.
Content	Message content.

Table 4-110 Sending an image message by chatbot

Parameter	Description
Group Chat ID	Obtain the value from the DingTalk API for creating an enterprise internal group or other groups. For an existing group, obtain the value by calling the JSAPI **biz.chat.chooseConversationByCorpId**.
Image URL	Link to the preview image.

Table 4-111 Sending a file message by chatbot

Parameter	Description
Group Chat ID	Obtain the value from the DingTalk API for creating an enterprise internal group or other groups. For an existing group, obtain the value by calling the JSAPI **biz.chat.chooseConversationByCorpId**.
Media File ID	Value of **media_id** of the API for uploading media files.
File Name	Name of the file to be sent.
File Type	**xlsx**, **pdf**, **zip**, **rar**, **doc** and **docx** files are supported.

Table 4-112 Sending an ActionCard message by chatbot

Parameter	Description
Group Chat ID	Obtain the value from the DingTalk API for creating an enterprise internal group or other groups. For an existing group, obtain the value by calling the JSAPI **biz.chat.chooseConversationByCorpId**.
Subject	Message subject.
Content	Message content.
Redirect Button	Text displayed on the redirect button.
Redirection URL	Redirection link opened after clicking the message.

Table 4-113 Sending a text message by chatbot

Parameter	Description
Group Chat ID	Obtain the value from the DingTalk API for creating an enterprise internal group or other groups. For an existing group, obtain the value by calling the JSAPI **biz.chat.chooseConversationByCorpId**.
Content	Message content.

4.5.7 Polarion

The Polarion connector allows you to use Polarion functions in a workflow after a few configurations.

Polarion is a full lifecycle management platform for software development and product management. It provides tools and functions for requirement management, defect tracking, version control, test management, and project management. Polarion accelerates development and improves product quality by facilitating team collaboration and management throughout the development process.

Creating a Polarion Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Polarion connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Connection Address	Enter the connection address. Example: **http://endpoint:*port*/polarion**.
API Token	Enter the API token.
Description	Enter the description of the connector to identify it.

Action

- Listing software requirements
- Updating software requirement status
- Listing test cases
- Listing software test cases
- Listing associations between test cases and requirements
- Adding a software test report
- Updating a software test report
- Listing issues

Configuration Parameters

Table 4-114 Listing software requirements

Parameter	Description
Project ID	Enter the project ID of the requirement.

Table 4-115 Updating software requirement status

Parameter	Description
Project ID	Enter the project ID of the requirement.
Work Item ID	Enter the work item ID.
Status	Select a requirement status. • Draft • Reviewed • Approved • Rejected

Parameter	Description
Resolution	Select a rejection reason. • Obsolete • Duplicate • Invalid • Later

Table 4-116 Listing test cases

Parameter	Description
Project ID	Enter the project ID of the requirement.

Table 4-117 Listing software test cases

Parameter	Description
Project ID	Enter the project ID of the requirement.

Table 4-118 Listing associations between test cases and requirements

Parameter	Description
Project ID	Enter the project ID of the requirement.
Test Case ID	Enter the test case ID.

Table 4-119 Adding a software test report

Parameter	Description
Project ID	Enter the project ID of the requirement.
Space ID	Enter the space ID.
Title	Enter the report title.
Name (ID)	Enter the name (ID).
Type	Select a work item type. • Software Test Case • est Case

Parameter	Description
Link Role	Select a role. • has parent • duplicates • relates to
Content Type	Select a content type. • text/html • text/plain
Content	Enter the report content.

Table 4-120 Updating software test report

Parameter	Description
Project ID	Enter the project ID of the requirement.
Space ID	Enter the space ID.
Title	Enter the report title.
Name (ID)	Enter the name (ID).
Type	Select a work item type. • Software Test Case • est Case
Content Type	Select a content type. • text/html • text/plain
Content	Enter the report content.

Table 4-121 Listing issues

Parameter	Description
Project ID	Enter the project ID of the requirement.

4.6 Emails

4.6.1 QQ Mail

The QQ Mail connector is used to interconnect with QQ Mail to send emails.

Tencent's QQ Mail is a popular free email service in China. Users can use QQ Mail to send and receive emails with attachments, manage schedules and memos, and set security protection measures such as email and spam filtering.

Prerequisites

You have obtained the QQ Mail authorization code. For details, see **Configuring a QQ Mail Authorization Code**.

Creating a QQ Mail Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the QQ Mail connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Email Address	QQ Mail address of the sender.
Authorization Code	Authorization code of the QQ Mail sender, which is obtained from the settings in the QQ Mail personal center. For details, see **Configuring a QQ Mail Authorization Code**.
Description	Enter the description of the connector to identify it.

Action

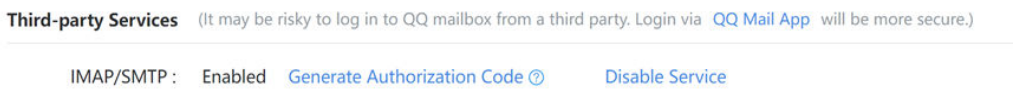
Sending an email

Configuration Parameters

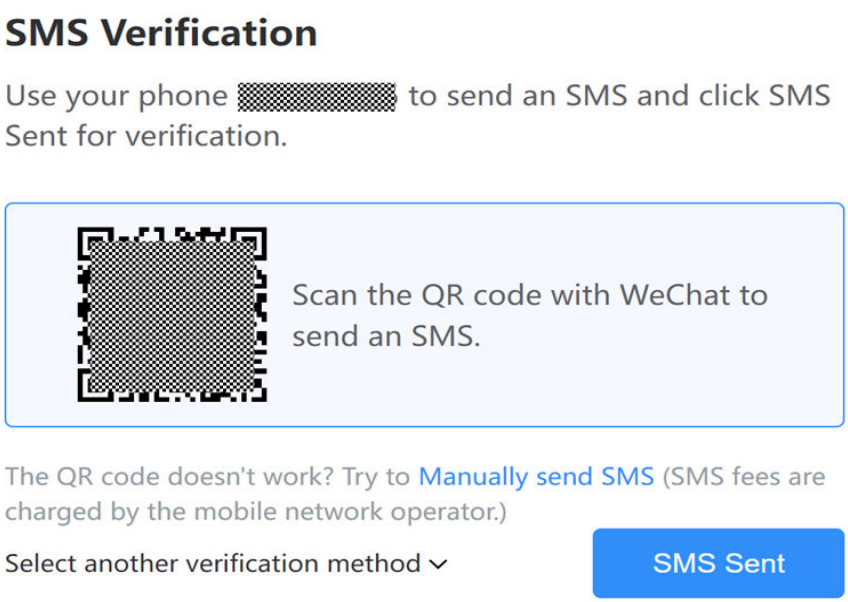
Parameter	Description
To	Enter the recipients' email addresses. Use commas (,) to separate.
Copy To	Enter the CC email addresses. Use commas (,) to separate.
Bcc	Enter the BCC email addresses. Use commas (,) to separate.
Subject	Enter the email subject.
Content	Enter the email content.

Configuring a QQ Mail Authorization Code

1. Log in to QQ Mail (https://en.mail.qq.com/) in a browser and go to the QQ Mail home page.
2. On the home page, go to **Settings** > **General**.
3. Find **IMAP/SMTP**, and click **Generate Authorization Code**.



4. Perform SMS verification as required, and click **SMS Sent**.



5. The authorization code is displayed.

4.6.2 163 Mail

The 163 Mail connector is used to interconnect with 163 Mail to send emails.

NetEase's 163 Mail is one of the first free email services in China. Users can send and receive emails through web pages, mobile apps, and POP3/SMTP. 163 Mail features a simplified interface, high usability, and strong security, along with large storage and versatile functions, such as mail filtering, spam blocking, and mail archiving. In addition, 163 Mail provides value-added services such as the enterprise mailbox and VIP mailbox for different user requirements.

Prerequisites

You have obtained the 163 Mail authorization code. For details, see **Configuring a 163 Mail Authorization Code**.

Creating a 163 Mail Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the 163 Mail connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Email Address	163 Mail address of the sender.
Authorization Code	Authorization code of the 163 Mail sender, which is obtained from the settings in the 163 Mail personal center. For details, see **Configuring a 163 Mail Authorization Code**.
Description	Enter the description of the connector to identify it.

Action

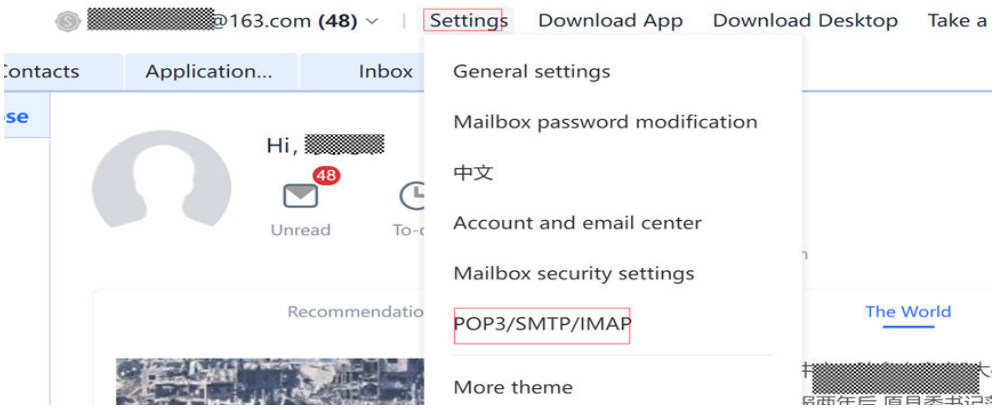
Sending emails

Configuration Parameters

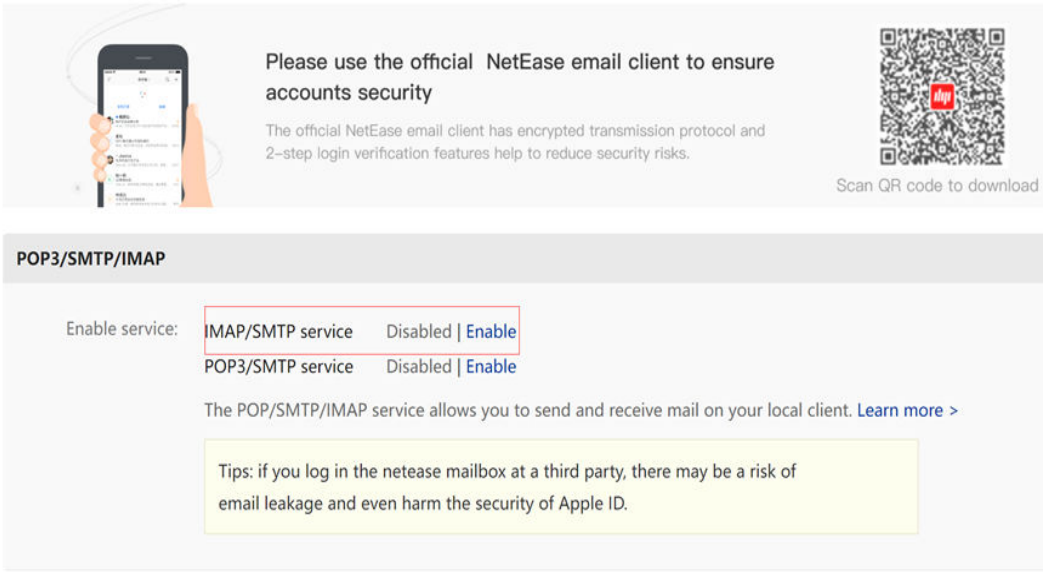
Parameter	Description
To	Enter the recipients' email addresses. Separate addresses with commas (,).
Copy To	Enter the CC email addresses. Separate addresses with commas (,).
Bcc	Enter the BCC email addresses. Separate addresses with commas (,).
Subject	Enter the email subject.
Content	Enter the email content.

Configuring a 163 Mail Authorization Code

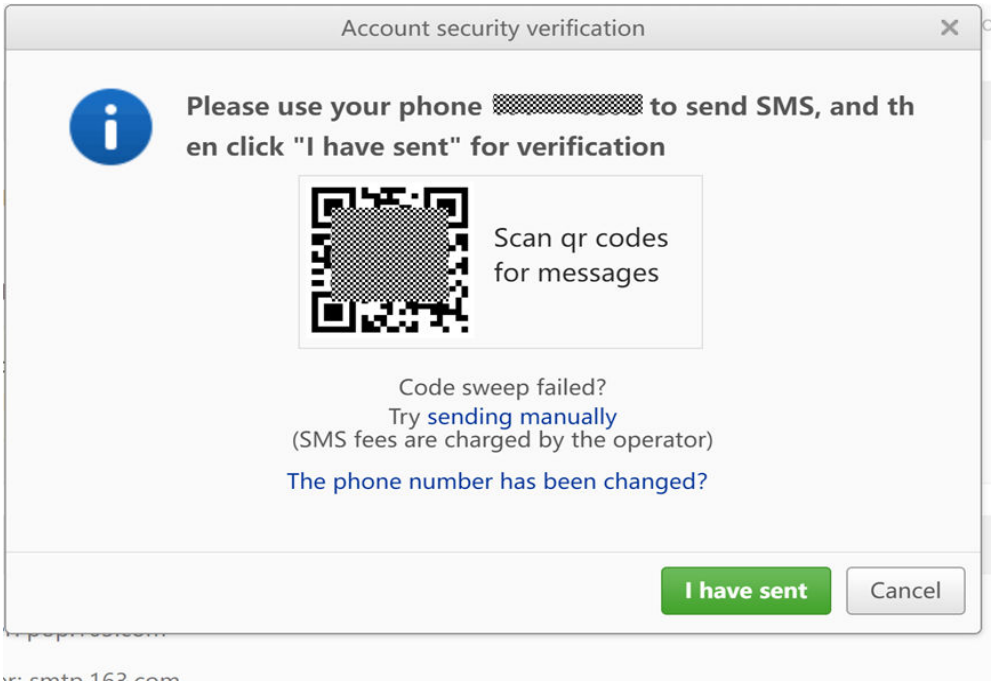
1. Log in to 163 Mail (https://hw.mail.163.com/) in a browser and go to the 163 Mail home page.
2. Choose **Settings** > **POP3/SMTP/IMAP**.



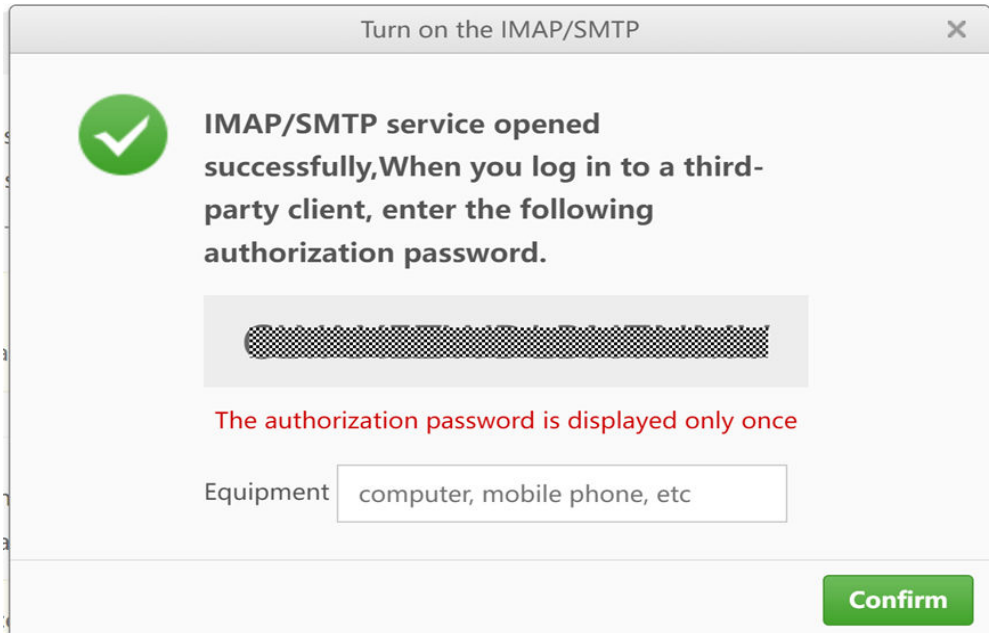
3. Enable **IMAP/SMTP service**.



4. Complete the account security verification as required, and click **I have sent**.



5. The 163 Mail authorization code is displayed.



4.7 Others

4.7.1 FTP

The FTP connector is a channel for file transfer based on the FTP/SFTP protocol. Through the FTP connector, files can be exchanged with an external FTP server.

- The File Transfer Protocol (FTP) is in the TCP/IP protocol group. It consists of two parts: FTP server and FTP client. The FTP server is used to store files. Users can use the FTP client to access resources on the FTP server.
- The SSH File Transfer Protocol (SFTP) is a secure version of FTP and a part of the SSH protocol. SFTP enables easy data transmission and data access through the data flow shell. SFTP, also known as the SSH file transfer protocol, provides a secure connection to transfer files and traverses file systems on local and remote systems.

By default, FTP uses TCP ports 20 and 21. Port 20 is used to transmit data, and port 21 is used to transmit control information (commands). Whether to use port 20 as the port for data transmission depends on the FTP transmission mode. In the active mode, the data transmission port number is 20. In the passive mode, the port is determined after the negotiation between the server and the client.

Creating an FTP Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the FTP connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Protocol	Protocol used by the FTP connector. Options are **FTP** and **SFTP**.
Host IP	IP address of the FTP server.
Port	By default, FTP uses TCP ports 20 and 21. Port 20 is used to transmit data, and port 21 is used to transmit control information (commands).
Username	FTP username.
Password	FTP user password.
Description	Enter the description of the connector to identify it.

Action

Writing data to a file

Configuration Parameters

Parameter	Description
Path	Enter the relative path of the file on the FTP server.
File Name	Enter the name of the target file.

Parameter	Description
Content	Enter the content to be written.
Write Policy	Select a policy. • **Overwrite**: Overwrite the content of the file with the same name. • **Append**: Add content to the end of the file with the same name. • **Backup**: Back up the file with the same name. The suffix is the execution time.

4.8 Message Systems

4.8.1 ActiveMQ

ActiveMQ is an open-source message middleware based on the Java Message Service (JMS). ActiveMQ provides a reliable, efficient, and scalable message transfer mechanism and supports multiple message and transmission protocols, such as TCP, UDP, SSL, and NIO. ActiveMQ supports multiple queue and topic modes and can be used in scenarios such as asynchronous message transfer, publishing/subscription, and message routing. It provides a visualized management interface, facilitating configuration and monitoring with high reliability and flexibility. ActiveMQ can be used to build distributed systems. It supports multiple programming languages and platforms and provides various APIs.

Creating an ActiveMQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the ActiveMQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Brokers	List brokers of the ActiveMQ.
Username	Username for connecting to ActiveMQ.
Password	Password for connecting to ActiveMQ.
SSL Authentication	Whether SSL authentication is used for connecting ActiveMQ.
Description	Enter the description of the connector to identify it.

Action

Sending messages

Configuration Parameters

Parameter	Description
Destination Object Type	Type of the destination object to which a message is sent. • Topic • Queue
Destination Object Name	Enter the name of the destination object, that is, the name of the topic or queue.
Content	Enter the content of the message to be sent.

4.8.2 ArtemisMQ

ArtemisMQ is an open-source high-performance message queue system built on Apache ActiveMQ and Apache Artemis. ArtemisMQ provides a reliable asynchronous message transfer mechanism that allows different applications to communicate with each other through messages. It uses the message-based middleware mode, allowing producers (senders) to send messages to queues or topics, while consumers (receivers) can receive and process these messages from queues or topics.

Creating an ArtemisMQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the ArtemisMQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
IP Address	Enter the IP address of ArtemisMQ.
Port	Port number for connecting to ArtemisMQ
Username	Username for connecting to ArtemisMQ
Password	Password for connecting to ArtemisMQ
SSL Authentication	Whether SSL authentication is used for connecting to ArtemisMQ.
Description	Enter the description of the connector to identify it.

Action

None

Configuration Parameters

None

4.8.3 IBM MQ

IBM MQ is a message queue software for asynchronous communication in a distributed system to secure reliable data transmission between applications, platforms, and systems. It serves as a middleware and prevents message loss, duplication, or disorder during transmission, and converts and formats data between different systems.

Creating an IBM MQ Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the IBM MQ connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
IP Address	Enter the IP address of the IBM MQ host.
Port	Enter the port number of the IBM MQ host.
Queue Mananger	A system management program that provides queue services, APIs, and queue management services.
CCSID	Character set used to encode character strings in messages.
Channel Name	Channel for transferring messages between queue managers in the MQ system.
Username	User name for connecting to the IBM MQ.
Password	User password for connecting to the IBM MQ.
SSL Enable	Whether to use SSL authentication when connecting to the IBM MQ. • True • False
Cipher Suite	Mandatory when **SSL Enable** is set to **True**. Enter the cipher suite.

Parameter	Description
Trust Store	Mandatory when **SSL Enable** is set to **True**. Enter the Base64-encoded trust store file.
Trust Store Password	Mandatory when **SSL Enable** is set to **True**. Enter the password of the trust store.
Description	Enter the description of the connector to identify it.

Action

Sending messages

Configuration Parameters

Table 4-122 Sending messages

Parameter	Description
Destination Object Type	Select the destination object type. • Topic • Queue
Destination Object Name	Enter the topic/queue name of the destination object.
Content	Enter the message content.

4.8.4 Kafka

Kafka is a distributed streaming platform developed by LinkedIn. It features high throughput and low latency for massive amounts of real-time data streaming. Kafka consists of producers, consumers, and brokers. Producers send data to the Kafka cluster; consumers subscribe to the cluster and process the data; brokers are the core component of a Kafka cluster as they are responsible for storing and forwarding messages. Featuring scalability, high throughput, low latency, reliability, and durability, Kafka is widely used for big data processing, real-time data streaming, and log collection.

Creating a Kafka Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click **New Connection**.
3. Select the Kafka connector.
4. In the dialog box displayed, configure the connector and click **OK**.

Parameter	Description
Name	Enter the connector instance name.
Broker Address	Enter the Kafka broker address.
Authentication Mode	Select the authentication mode of Kafka. • SSL • None
SASL	Mandatory when **Authentication Mode** is set to **SSL**. Select the SASL mechanism. • PLAIN • SCRAM-SHA-512
SSL Username	Mandatory when **Authentication Mode** is set to **SSL**. Enter the SSL username or application key.
SSL Password	Mandatory when **Authentication Mode** is set to **SSL**. Enter the SSL password.
SSL Certificate Format	Mandatory when **Authentication Mode** is set to **SSL**. Select the SSL certificate format. • PEM • JKS
SSL Certificate	Mandatory when **Authentication Mode** is set to **SSL**. Enter the Base64-encoded certificate content.
SSL Certificate Password	Mandatory when **Authentication Mode** is set to **SSL**. Enter the SSL certificate password.
Description	Enter the description of the connector to identify it.

Action

Writing messages

Configuration Parameters

Table 4-123 Sending messages

Parameter	Description
Topic	Enter the topic to be listened.
Partition	Partition to which the message will be written.
Key	Key value of the message.
Message	Message content.

Parameter	Description
Acks	Producer acknowledgement. • all • -1 • 0 • 1
KeySerializer	Method of turning the key into bytes. The default value is **org.apache.kafka.common.serialization.StringSerializer**.
ValueSerializer	Method of turning the value into bytes. The default value is **org.apache.kafka.common.serialization.StringSerializer**.
BufferMemorySize	Total bytes of memory the producer can use to buffer records waiting to be sent to the server. The default value is 33554432.
Retries	Number of retries.

4.9 Custom Connectors

4.9.1 OpenAPI

You can create a custom OpenAPI connector and import OpenAPI files in JSON or YAML format. Currently, OpenAPI 2.0 and 3.0 are supported.

The OpenAPI connector supports multiple authentication modes, connection types, and custom actions and action parameters.

Creating an OpenAPI Connector

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click the **Custom Connector** tab.
3. Click **New Connector**. The **New OpenAPI Connector** dialog box is displayed.
4. Select a file to be imported.

Table 4-124 Description for file importing

Parameter	Description
Select an OpenAPI file.	• Select the OpenAPI version. You can select **2.0** or **3.0**. • Click **Download Template** to download the OpenAPI template file of the corresponding version. • Modify the template file based on service requirements and upload the file.

Parameter	Description
Authentication Type	Select the authentication type required when the connector is used to create a connection. The authentication type is extracted from the security mode in the OpenAPI specification. The template file for version 3.0 is used as an example. The following authentication types are available: • **api_key**: API key authentication. Authentication parameters can be modified in this case. • **x-bfs-iam-token**: IAM user token authentication. • **x-bfs-iam-aksk**: IAM user AK/SK authentication. • **Basic**: Basic authorization. • **None**: No authentication is required.
Action	Select the action to be configured. The action is extracted from the API in the OpenAPI specification. After a connector is generated, you can add a trigger.

5. Configure basic information.

Table 4-125 Parameter description

Parameter	Description
Icon	Icon for the custom connector. Click **Upload Icon** to upload an icon from the local host. If this parameter is not uploaded, a default icon is generated based on the initial letter of the connector name.
Name	Enter the connector name.
Tag	Enter a tag for the connector.
Type	Select a connector type. • HTTP • Database • Huawei Cloud service • SaaS application • Email • Other • Message system
Description	Enter the description of the connector to identify it.

6. Click **Create and Configure Details**. The action configuration page is displayed.

7. Click . In the pop-up box, configure action information and click **OK**.

Table 4-126 Parameter description

Parameter	Description
Name	Enter the action name.
Type	Select an action type. • GET • POST • PUT • DELETE
Path	Enter a path, for example, **/history**.
Description	Enter the action description.

8. After the action is added, configure action parameters.

Table 4-127 Parameter description

Parameter	Description
Input Parameter	Options are **Query**, **Header**, and **Path**. • **Name**: Enter the parameter name. • **Display Name**: Enter the parameter display name. • **Type**: Select the parameter type. Options are **string**, **integer**, and **number**. • **Mandatory**: Whether a parameter is mandatory. • **Description**: Enter the parameter description. Click + in the **Operation** column to add a parameter.
Body	Configure request body parameters. When the action type is **POST**, **PUT,** or **DELETE**, request body parameters are required. • **Name**: Enter the parameter name. • **Display Name**: Enter the parameter display name. • **Type**: Select the parameter type. Options are **object**, **string**, **integer**, and **number**. • **Mandatory**: Whether a parameter is mandatory. • **Description**: Enter the parameter description. Click + in the **Operation** column to add a parameter. **NOTE** By default, the name of the first parameter is a root node, and the parameter type is **object**. Both of them cannot be modified.

Parameter	Description
Return Value	Configure return value parameters. Click + in the **Return Value** column and add different return values in the drop-down list. • **Name**: Enter the parameter name. • **Display Name**: Enter the parameter display name. • **Type**: Select the parameter type. Options are **object**, **array**, **string**, and **integer**. • **Mandatory**: Whether a parameter is mandatory. • **Description**: Enter the parameter description. Click + in the **Operation** column to add a parameter. **NOTE** By default, the name of the first parameter is a root node, and the parameter type is **object**. Both of them cannot be modified.

9. Click **Save**.

Creating an OpenAPI Connection

1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Connector**. On the page displayed, click the **Custom Connector** tab.
3. Click **New Connection** in an OpenAPI connector.
4. In the pop-up box displayed, configure the information.

Table 4-128 Parameter description (Basic authentication)

Parameter	Description
Name	Enter the connection name.
URL	Enter the connection address.
Username	Enter a username.
Password	Enter the password.
Description	Enter a description.

NOTE

In this example, the OpenAPI connector uses the basic authentication. OpenAPI connectors using other types of authentication require corresponding authentication parameters when creating a connection.

If a custom connector uses no authentication, no connection is required.

5. Click **OK**.

5 Processors

5.1 Conditions

The conditioning processor is used to create condition branches to determine the execution logic of subsequent nodes. You need to configure the conditions of each branch on the connection line between the **Conditions** node and subsequent nodes.

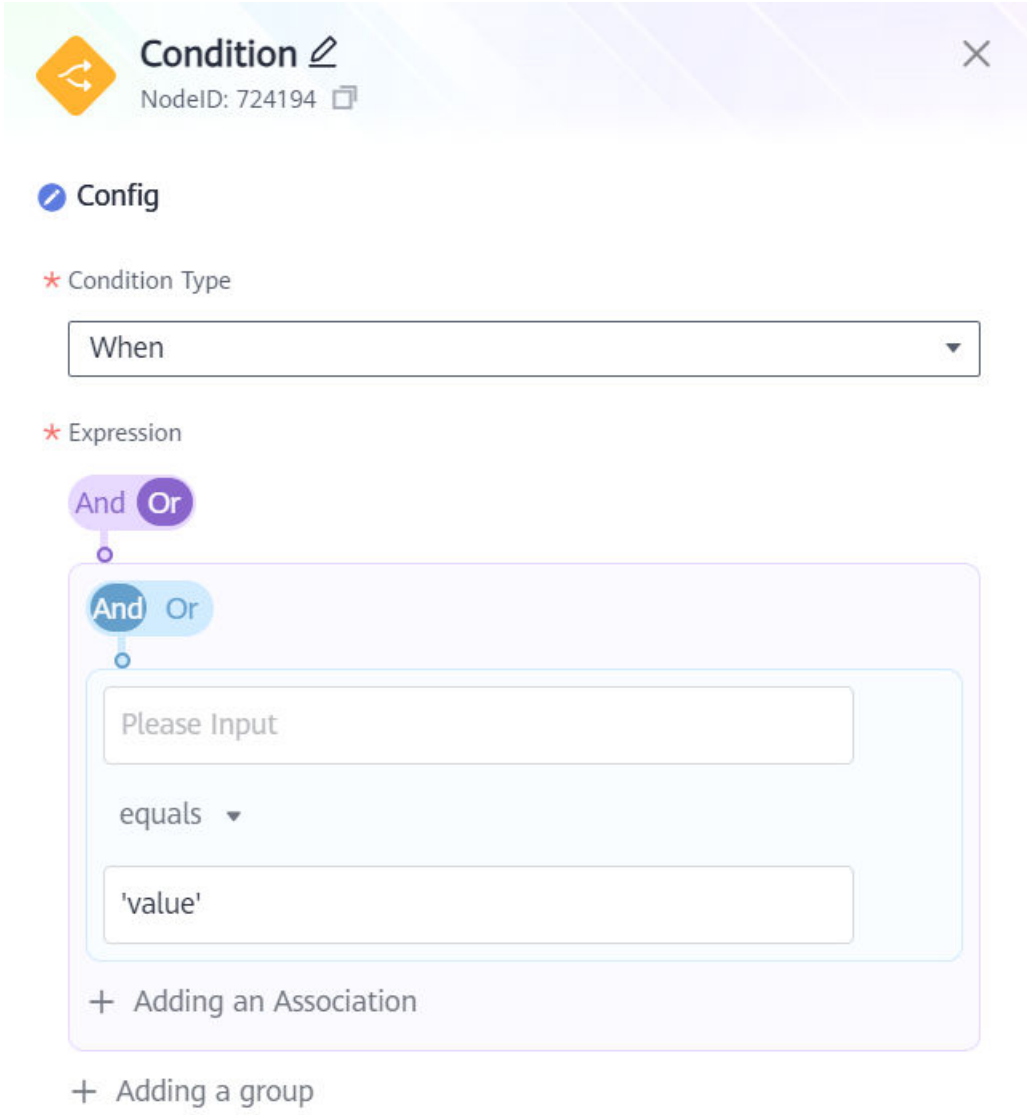
Constraints

- In a **Conditions** node, if there are multiple expressions of the same type that meet the **When** condition, the first created branch is executed.
- In a **Conditions** node, only one branch of the **Otherwise** condition type is allowed.

Configuration Parameters

Parameter	Description
Condition Type	There are two condition types: **When** and **Otherwise**. • **When**: If the current condition is met, the branch is executed when the data transferred to the **Conditions** node meets the specified expression. • **Otherwise**: If other conditions are not met, the branch is executed when the data transferred to the **Conditions** node does not meet the conditions of all other branches.
Expression	Expression of the current condition branch. As shown in **Figure 5-1**, the **AND** and **OR** logical operators in box 1 indicate the association between outer logical groups. Click **Add Group** in box 5 to add an outer logical group. The logical operator in box 2 indicates the association relationship between inner logic groups. Click **Add Associations** in box 4 to add an inner logic group. The drop-down list in box 3 indicates the logic of the value in the two text boxes. Options are **equals**, **not equals**, **less than**, **not less than**, **larger than**, and **not larger than**.

Figure 5-1 Branching conditions



5.2 Parallel Processor

The parallel processor is used to create multiple parallel processing branches so that multiple branch tasks can be executed at the same time. The merged branch execution result can be referenced using the ROMA expression **${body}** in subsequent steps.

Configuration Parameters

Parameter	Description
Merge Output Format	Format of the merge result. Currently, only JSON is supported, indicating that the merge result is output in JSON character string format. You can use either of the following methods to obtain the result of a branch: ● If the subsequent node is **Script**, use **JSON.parse('${body}')** to convert the merge result into a JSON object, and then obtain the branch result based on the branch name. Example: var result=JSON.parse('${body}'); var branch_result=result.*branch name* or var branch_result=result['*branch name*'] ● If the subsequent node is **Variable Assignment**, **Conditions**, or **Data Conversion**, use **$.***branch name* to obtain the execution result of the branch.
Stop On Failure	Whether to stop the task when an error occurs during parallel processing. ● **True**: When an error occurs in any parallel processor branch, the entire task stops and an error message is returned. ● **False**: When an error occurs in the parallel processor branch, the entire task continues to be executed on subsequent nodes.
Timeout (ms)	Maximum execution time of the parallel processing, within which if a branch task is not completed, the branch task will be discarded and excluded in the final merge result. If this parameter is set to **0**, the system waits till all branch tasks are complete.

NOTE

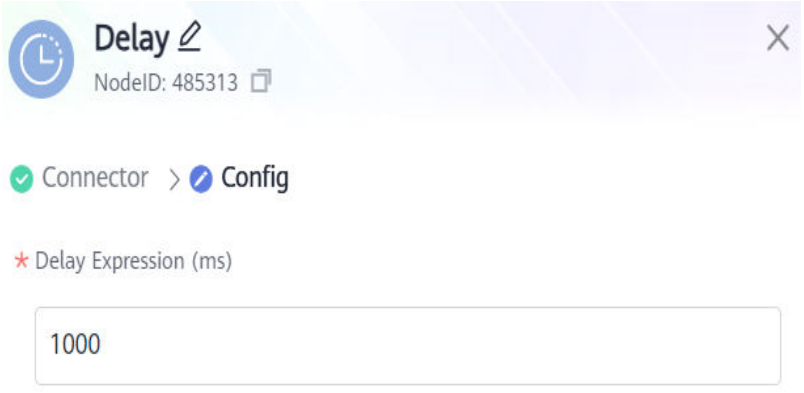
The branch name of a **Parallel Processor** node needs to be configured on the connection line between adjacent nodes.

5.3 Delay

The delayer processor is used to create a delay of a specified time. A typical application scenario is as follows: If a step is a time-consuming task and the subsequent step depend on the execution result of the step, you can add the delayer processor between the two steps to ensure that the subsequent step is executed properly.

Configuration Parameters

Parameter	Description
Latency (ms)	Delay duration, in milliseconds.

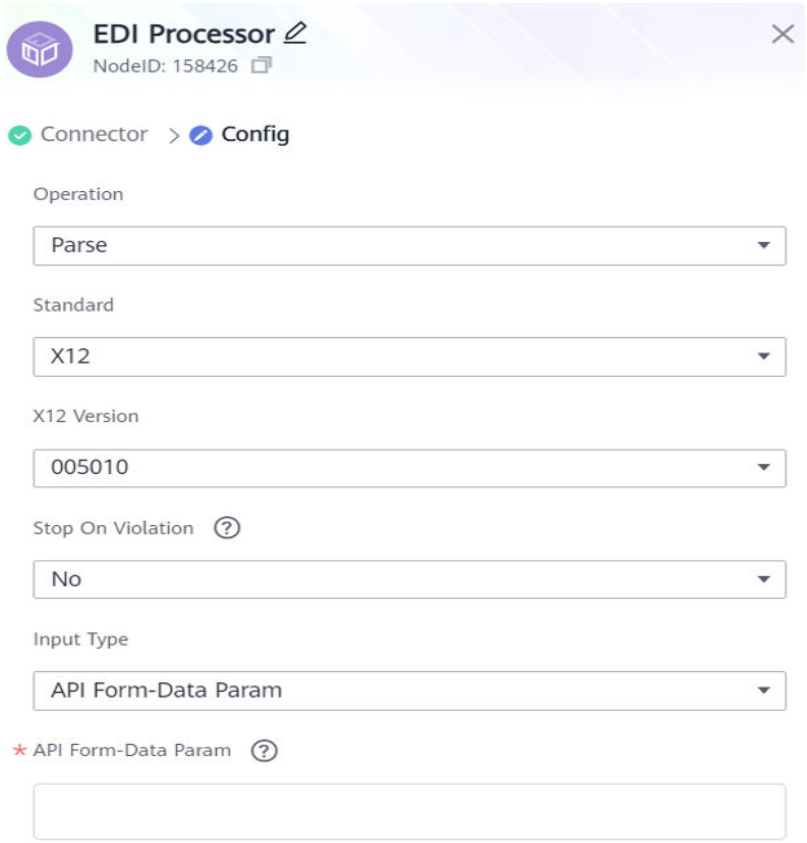


5.4 EDI Processor

The EDI processor exchanges and automatically processes data using a standard format between two computer systems.

Configuration Parameters

Parameter	Description
Operation	Select an operation for the component. • **Parse**: parses received EDI files of a specified standard into JSON files. • **Generate**: converts JSON files into EDI files of a specified standard.
Standard	Supported message standards are: **X12** and **EDIFACT**
EDIFACT Version	This parameter is required for **Standard** set to **EDIFACT**. Select the EDIFACT version. EDIFACT is mainly used in Europe and Asia. The default version is 40100.
X12 Version	This parameter is required for **Standard** set to **X12**. Select the X12 version. X12 is mainly used in North America. The default version is 005010.
Stop On Violation	Whether to stop the entire task upon EDI processing failure.
Input Type	Component deployment mode. • **API Form-Data Param**: submits target file information using an API form. • **Text**: submits target file information through a file transfer server, for example, an FTP server.
API Form-Data Param	Required when **Input Type** is set to **API Form-Data Param**. Enter the parameter name used for uploading the file in the API request body table to obtain the file information transferred by the previous node. You can use variables to reference the data in previous nodes. For details, see **3.6 Referencing Variables**.
Content	Required when **Input Type** is set to **Text**. You can reference data in the previous node to obtain the file information. For details, see **3.6 Referencing Variables**.

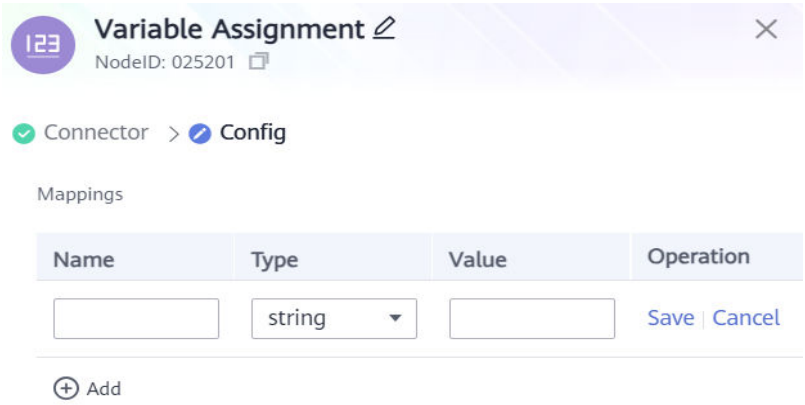


5.5 Variable Assignment

The variable assignment processor is used to create variables, which can be used in subsequent steps. Multiple variables can be created in a **Variable Assignment** node.

Configuration Parameters

Parameter	Description
Name	Enter the name of the variable.
Type	Type of the variable. Supported types are: string, integer, long integer, decimal, boolean, and object.
Value	Enter the value of the variable. The value can be a constant, for example, **hello world**. You can also use an expression to reference variables from previous nodes, for example, **${a}** and **${payload}**.

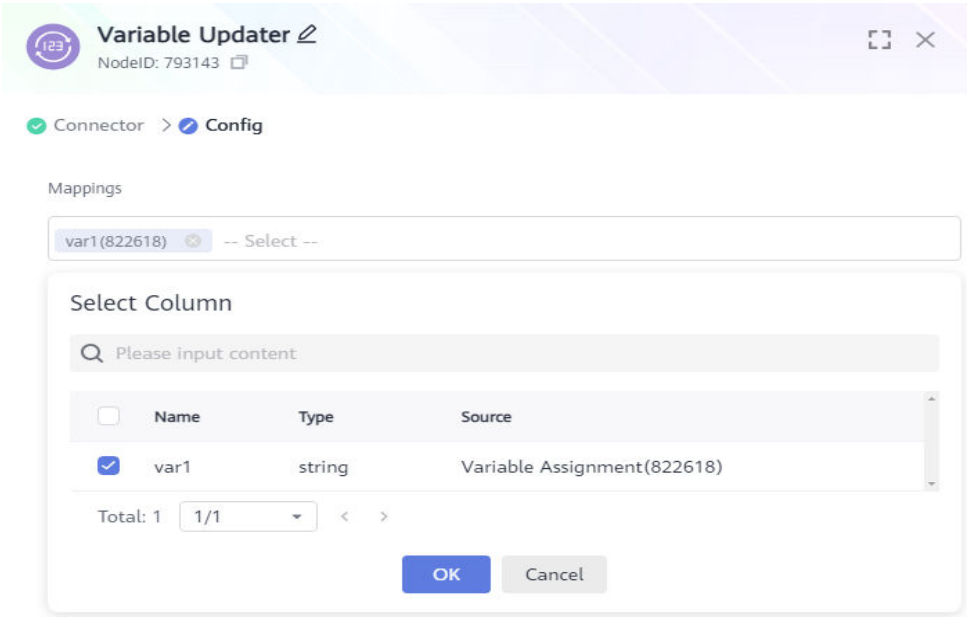


5.6 Variable Updater

The variable updater is used to modify the values of variables from a preceding **Variable Assignment** node. Multiple variables can be modified in a **Variable Updater** node.

Configuration Parameters

Parameter	Description
Variable	Select the variable created in a preceding value assignment processor.
Value	Enter the new variable value. The value can be a constant, for example, **hello world**. You can also use an expression to reference variables from previous nodes, for example, **${a}** and **${payload}**.

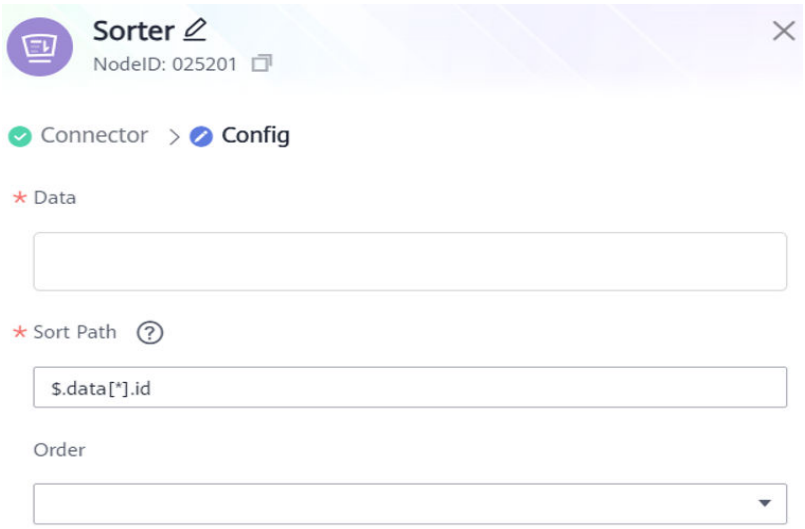


5.7 Sorter

The sorter processor is used to sort data.

Configuration Parameters

Parameter	Description
Dataset	Data to be sorted, which can be the data transferred from the previous node or custom data. You can reference data from previous nodes. For details, see **3.6 Referencing Variables**.
Path	Parameter used for sorting. You can reference data from previous nodes. For details, see **3.6 Referencing Variables**.
Sort By	Select a sorting mode. Options are **Ascendingly** and **Descendingly**.



5.8 Data Conversion

The data conversion connector is used to convert the format of data streams. Currently, XML-to-JSON and JSON-to-XML are supported.

Configuration Parameters

Parameter	Description
Conversion Mode	Select the data conversion mode. Options are **XML TO JSON** and **JSON TO XML**.

Parameter	Description
Content	Use a script to compile the data to be converted. You can reference data from previous nodes. For details, see **3.6 Referencing Variables**.

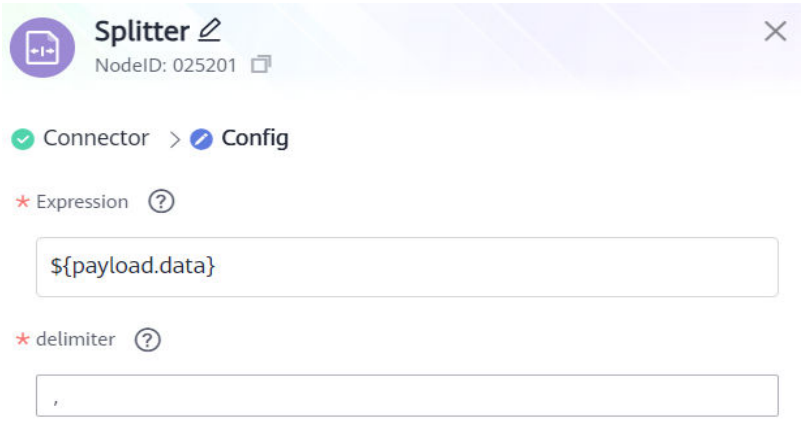
5.9 Splitter

The splitter processor splits the data transferred to this node based on the specified expression and transfers the split data to subsequent nodes through **node variables**. Generally, a splitter component is followed by a **filter** component.

Splitter is an asynchronous processing component. If a task contains a **Splitter** node, the OpenAPI will return the data transferred to the **Splitter** node.

Configuration Parameters

Parameter	Description
Expression	Expression for splitting data. An expression is used to split data into data blocks for subsequent processes in parallel. For example, if the payload data is *{"data":[{"id":1},{"id":2}]}*, you can use **$***{payload.data}* to split the data into *{"id":1}* and *{"id":2}*.



5.10 Filter

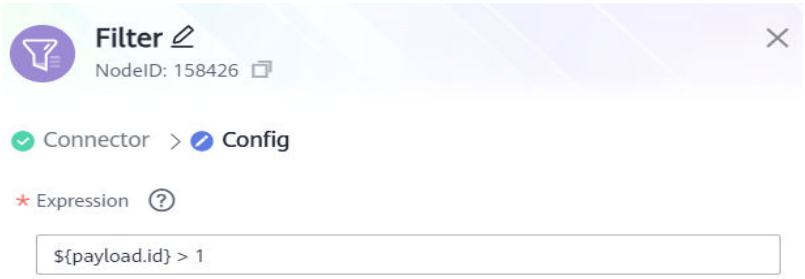
The filter component filters the data transferred to this component based on the specified expression and transfers the filtered data to subsequent nodes through **node variables**. Generally, a filter component is the subsequent node of a **splitter** component.

Configuration Parameters

Parameter	Description
Expression	Expression for filtering data. Use an expression to filter data and transfer the filtered data to subsequent nodes. For example, if multiple data blocks are *{"id":1}* and *{"id":2}*, you can use expression **${***payload.id***} > 1** to filter out the data block *{"id":2}*.

NOTE

If no data matches the filtering expression, subsequent nodes of the **Filter** node will not be executed.



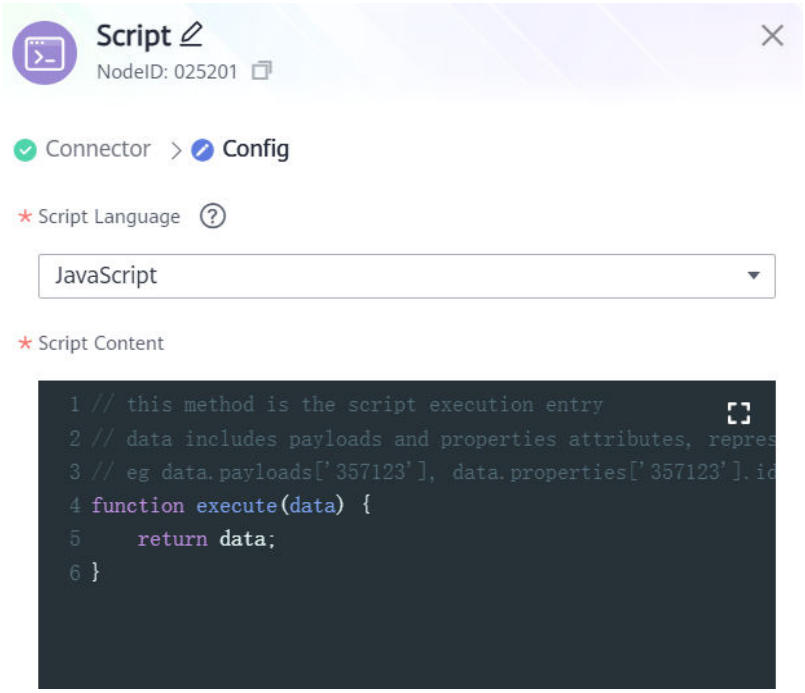
5.11 Script

The script processing component is used to process data. You can use a specified programming language to compile a script, process the data transferred to the script processing component, and generate new data for subsequent steps.

Configuration Parameters

Parameter	Description
Script Language	Programming language used for writing scripts. Currently, only JavaScript of the ES5 version is supported.

Content	Compile the script content.
	You can reference data from previous nodes. For details, see **3.6 Referencing Variables**.
	To parse content data in JSON format, use **JSON.parse('${body}')** to convert the content data into a JSON object and then parse the data.
	The script processing component can generate an output result and transfer it to subsequent nodes. **You need to specify the name of the variable to be output at the end of the script**. For example:
	`function getUser(){`
	`  return {"id": ${property.id},"name":"${property.name}"};`
	`}`
	`var user=getUser();`
	`user;`
	NOTE
	If you need to write a function or logic code block, use braces ({}) to surround the code block.

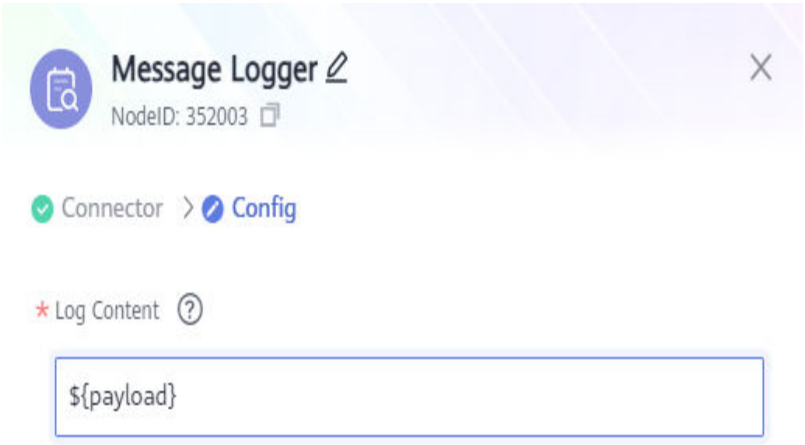


5.12 Message Logger

The **Message Logger** component is used to customize log information (log level: debug), which will be recorded in the runtime log of the current task.

Configuration Parameters

Parameter	Description
Log Content	Constants, or data in preceding steps by referencing variables. For details, see **3.6 Referencing Variables**.

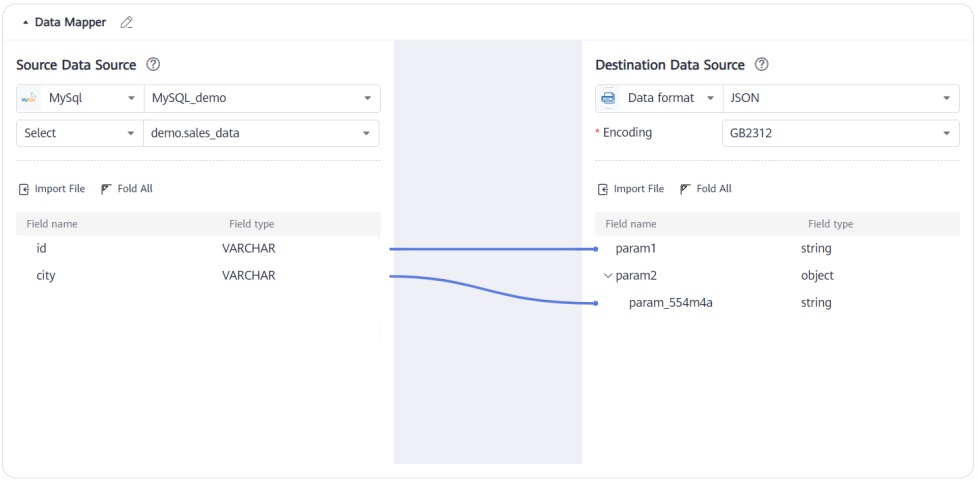


5.13 Data Mapper

The data mapper processor is used to convert the data format. Subsequent nodes can reference the output data from a data mapper using **${payload}**.

Configuration Parameters

Parameter	Description
Source Data Source	If the data source is a database, the field information is automatically displayed after a table is selected. In other cases, manually add fields or import a file. Only JSON, XML, and CSV files can be imported.
Destination Data Source	If the data source is a database, the field information is automatically displayed after a table is selected. In other cases, manually add fields or import a file. Only JSON, XML, and CSV files can be imported.

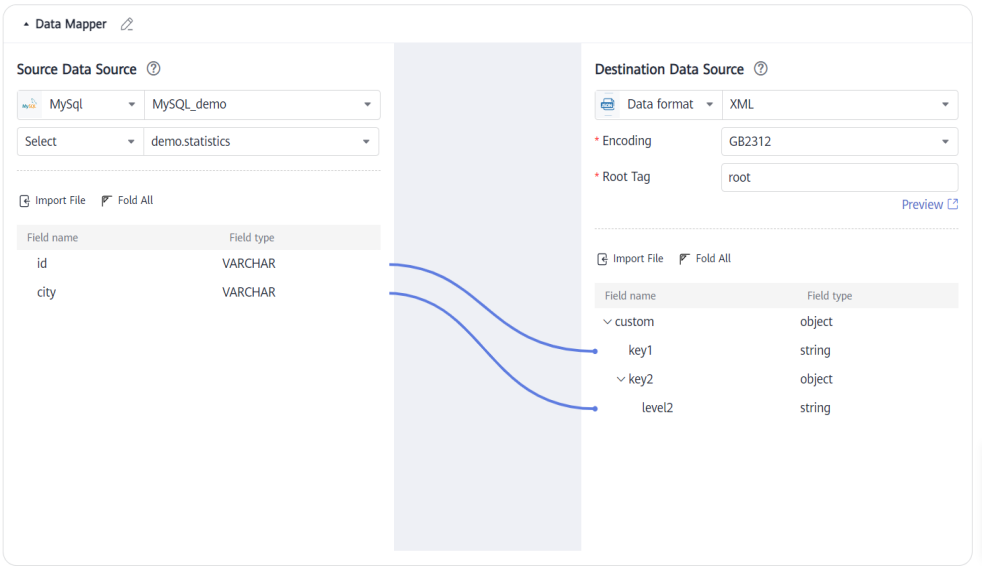


NOTE

Subsequent nodes can reference the output data of a data mapper processor using **${***node ID***|payload.***xxx***}**. The node ID is displayed after you click a data mapper node.

Destination - XML Data Example

When destination data source format is XML, **Root Tag** defaults to **root**. You can set this parameter to other values but cannot leave it empty.



Data in the **demo.statistics** table of the source MySQL database:

id	city
uuid1	suzhou
uuid2	shanghai

Mapping result:

```
<root>
   <custom>
      <key1>uuid1</key1>
      <key2>
         <level2>suzhou</level2>
      </key2>
   </custom>
   <custom>
      <key1>uuid2</key1>
      <key2>
         <level2>shanghai</level2>
      </key2>
   </custom>
</root>
```

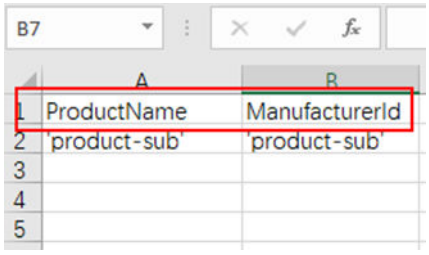
Destination - CVS Data Example

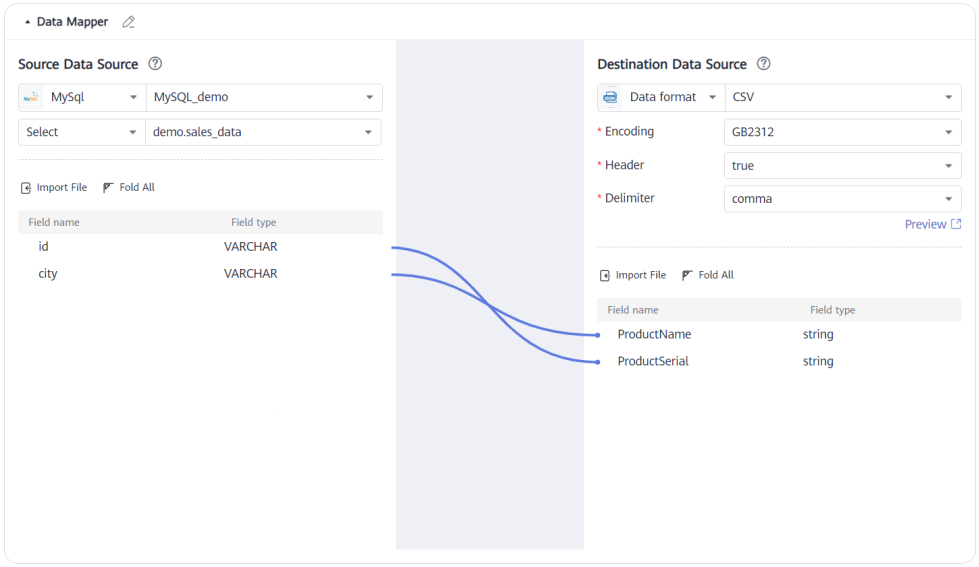
Header: Whether to include the table header of the CSV file in the output. Options are **true** and **false**.

Delimiter: Data in each file column is separated by cells, which can be represented as tab characters, spaces, commas, or semicolons.

Scenario 1: Set the destination data source format to CSV, **Header** to **true**, and **Delimiter** to **comma**.

When a file is imported, if **Header** is set to **true**, the first line of the CSV file is the field names.





Data in the **demo.statistics** table of the source MySQL database:

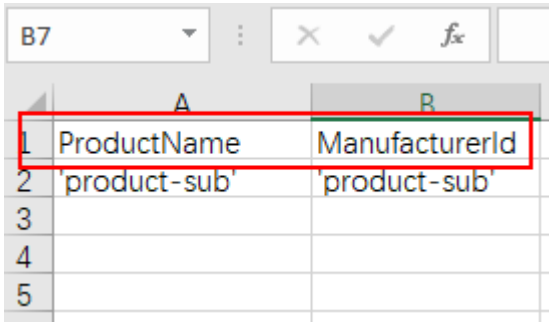
id	city
uuid1	suzhou
uuid2	shanghai

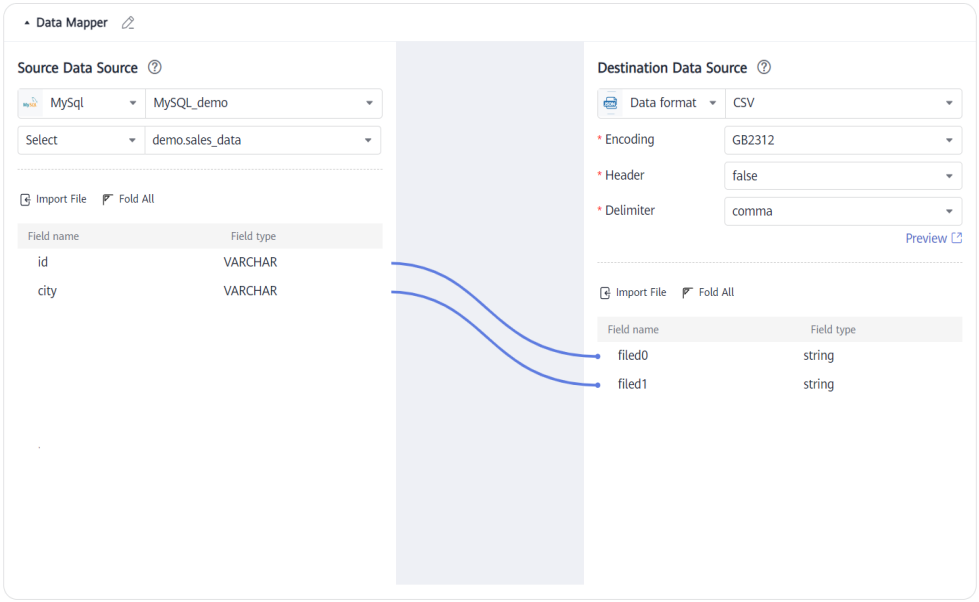
Mapping result:

```
ManufacturerId, ProductName
uuid1, suzhou
uuid2, shanghai
```

Scenario 2: Set the destination data source format to CSV, **Header** to **false**, and **Delimiter** to **comma**.

When a file is imported, if **Header** is set to **false**, the header field of the imported file is not used. The **filedN** field is used by default.





Data in the **demo.statistics** table of the source MySQL database:

id	city
uuid1	suzhou
uuid2	shanghai

Mapping result:

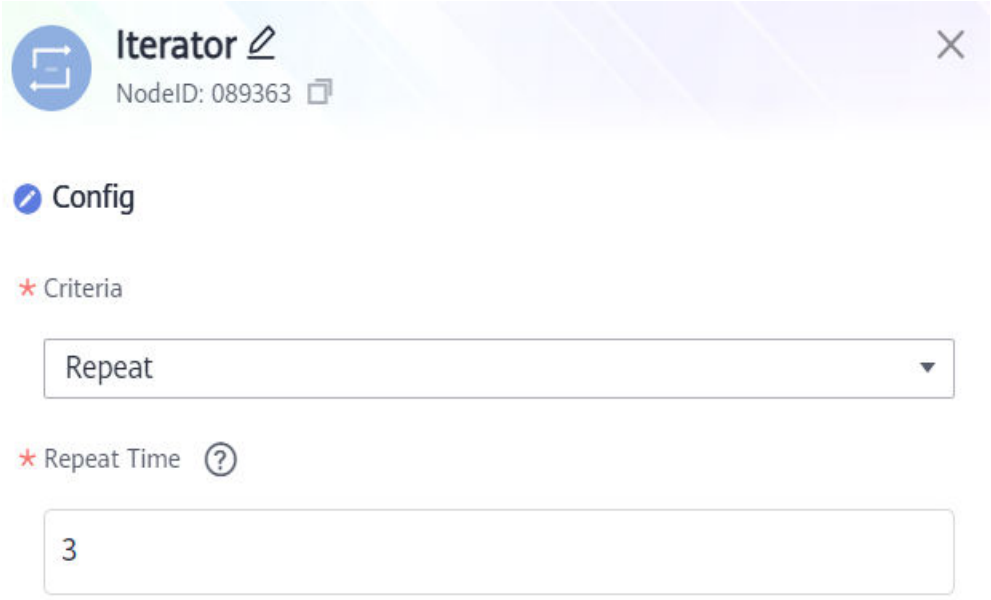
```
uuid1, suzhou
uuid2, shanghai
```

5.14 Iterator

The iterator processor is used to process data cyclically. You can specify the number of iterations, conditions, or arrays.

Configuration Parameters

Parameter	Description
Criteria	Specify the iteration criteria. • **Repeat** • **Do While** • **Foreach**
Count	When **Criteria** is set to **Repeat**, configure the number of iterations. The default value is **3**. A maximum of 100 iterations can be executed. Any access will trigger an error report.
Condition	When **Criteria** is set to **Do While**, configure the iteration conditions. When the conditions are met, a maximum of 100 iterations can be executed. Any access will trigger an error report.
Array	When **Criteria** is set to **Foreach**, configure the arrays to be iterated, which can be obtained from the preceding node. For details, see **3.6 Referencing Variables**. A maximum of 100 elements can be included in an array. Any access will trigger an error report.
Parallel Process	Required when **Criteria** is set to **Foreach**. A maximum of 10 parallel processes are supported.

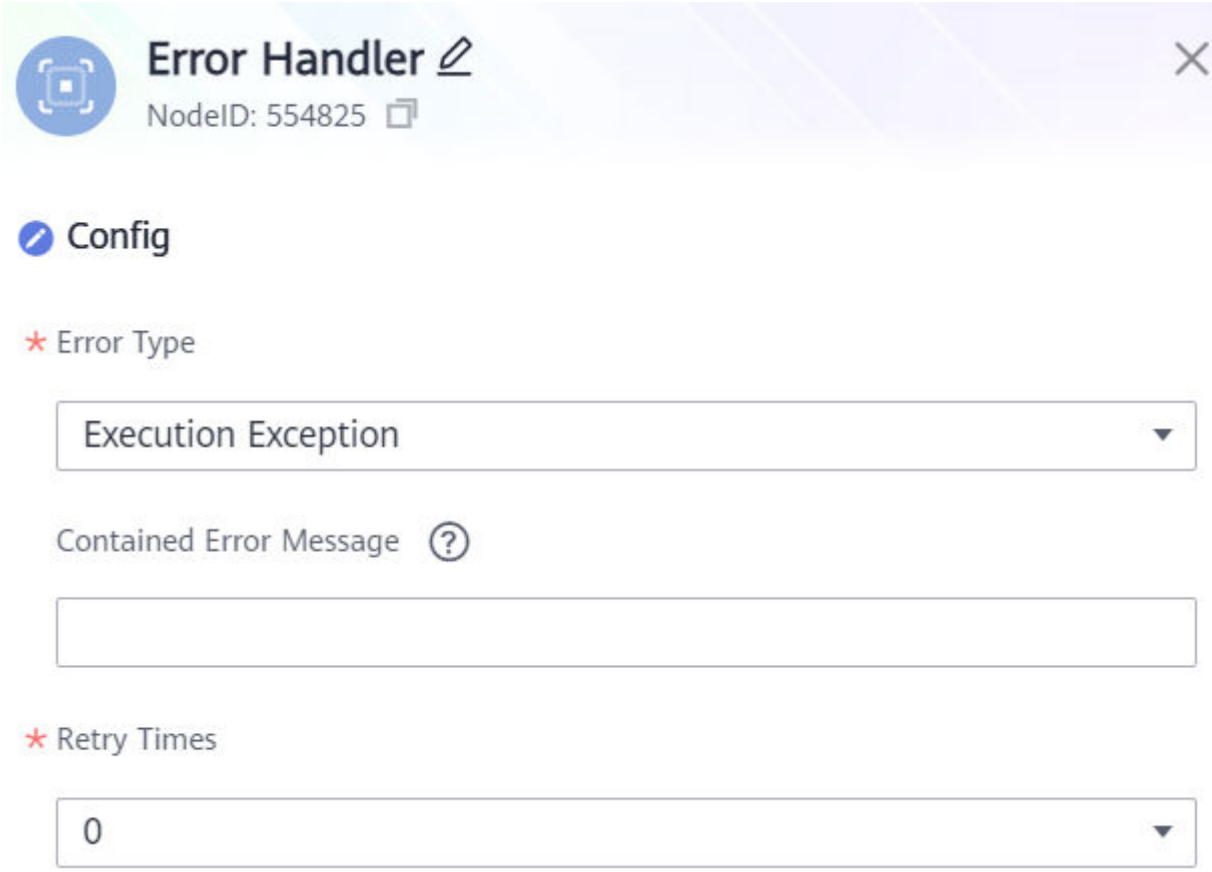


5.15 Error Monitoring

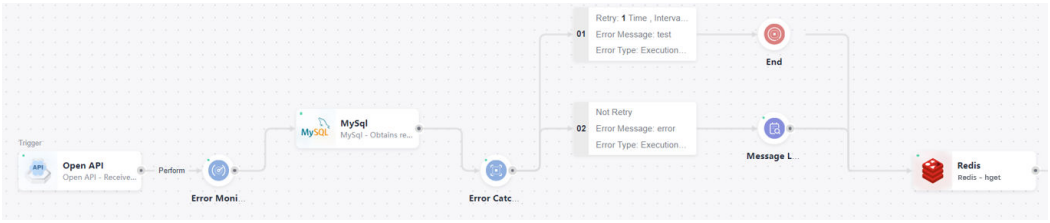
The error monitoring processor is used to monitor a specified process, capture exceptions, and perform retry and exception handling operations based on configured parameters.

Configuration Parameters

Parameter	Description
Error Type	Type of the captured exception. **Execution Exception** covers all service exceptions.
Error Message	Error message contained in the captured exceptions. The exception handling procedure is performed only when the captured exception contains specified error message.
Retry Times	Maximum number of retry times of monitored processes when an exception occurs.
Retry Delay (Second)	Retry interval of monitored processes when an exception occurs, in seconds.



Configuration Example



In the preceding figure, error monitoring is configured to monitor the MySQL component to obtain records. If an exception occurs and the error message contains **test**, the MySQL operation will be retried in two seconds and then terminated. Subsequent processes will not be performed. If an exception occurs and the error message contains **error**, the MySQL operation will not be retried, and the task proceeds to log collection and the Redis **hget** operation.

5.16 End

The end processor is used to end a flow of a composite application. No configuration is required.

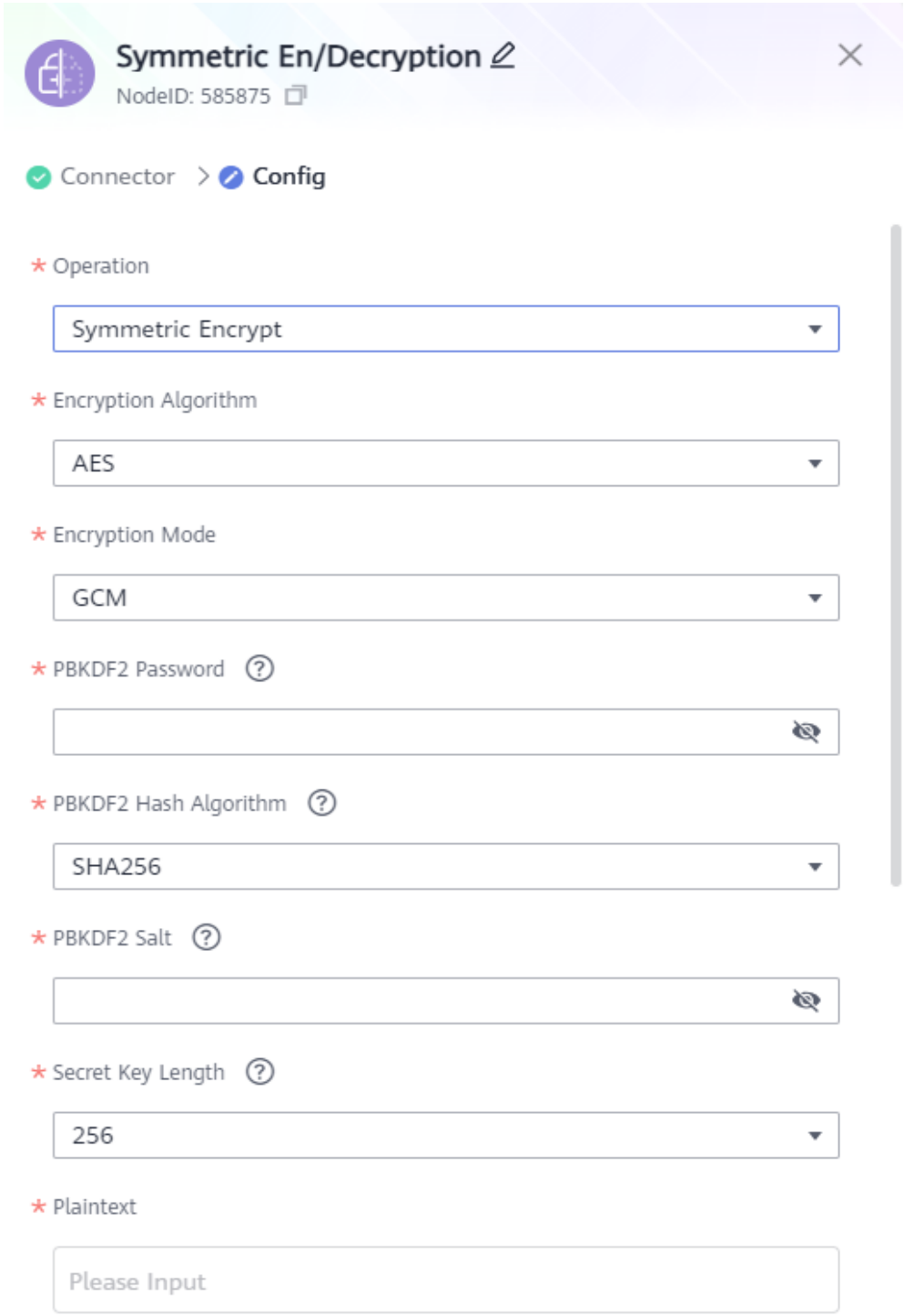
5.17 Symmetric Encrypt/Decrypt

The symmetric encrypt/decrypt processor is used to encrypt plaintext and decrypt ciphertext by using the specified symmetric encryption algorithm.

Configuration Parameters

Parameter	Description
Operation	Options are symmetric encrypt, symmetric decrypt, HMAC signing, and HMAC signature verification.
Encryption Algorithm	Symmetric encrypt or decrypt supports only the AES algorithm. HMAC signing or signature verification supports only HMAC algorithm.
Encryption Mode	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. Currently, only GCM is supported.
PBKDF2 Password	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. Used to generate the PBKDF2 key.
PBKDF2 Hash Algorithm	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. SHA256 and SHA384 are supported.

Parameter	Description
PBKDF2 Salt	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. Used to generate the PBKDF2 key.
Secret Key Length	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. Length of the generated key. Options are **128**, **192**, or **256**.
Plaintext	Plaintext to be encrypted, or signed, or verified.
Ciphertext	Ciphertext to be decrypted.
Content Padding Mode	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. Currently, only PKCS5Padding is supported.
PBKDF2 Iteration Count	Mandatory when **Operation** is set to **Symmetric Encrypt** or **Symmetric Decrypt**. Used to generate the PBKDF2 secret key. The default value is **1000000**.
TAG Length	Mandatory when **Operation** is set to **Symmetric Encrypt**. Used to generate a random tag. The default value is **16**.
IV Length	Mandatory when **Operation** is set to **Symmetric Encrypt**. Used to generate a random IV. The default value is **12**.
AAD Length	Mandatory when **Operation** is set to **Symmetric Encrypt**. Used to generate a random AAD. The default value is **16**.
Secret Key	Mandatory when **Operation** is set to **HMAC Signing** or **HMAC Signature Verification**. HMAC signature key.
Signature	Mandatory only when **Operation** is set to **HMAC Signature Verification**. HMAC signing result.
Signature Algorithm	Mandatory when **Operation** is set to **HMAC Signing** or **HMAC Signature Verification**. HMAC signing algorithm. Options are SHA256 and SHA384.

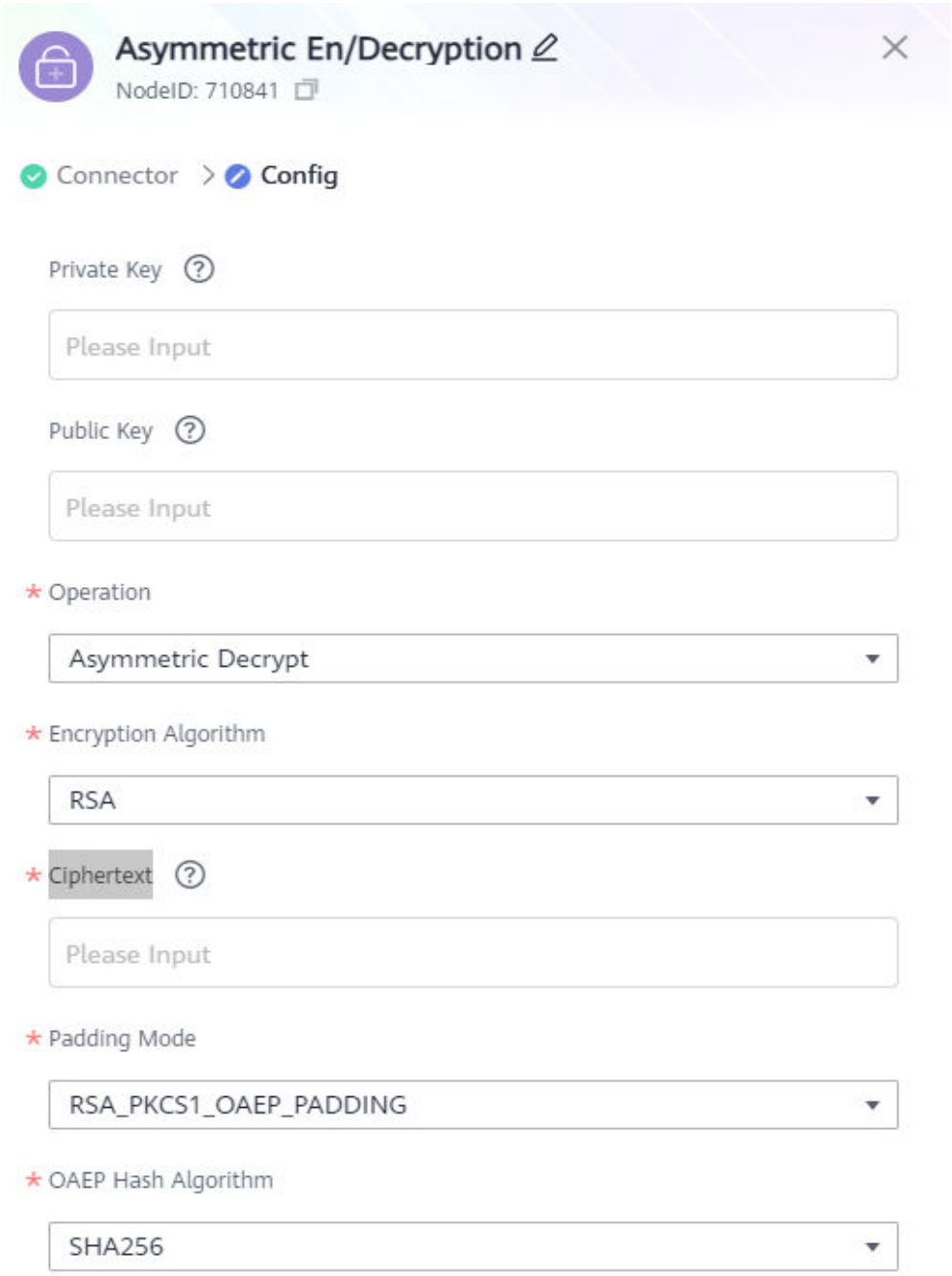


5.18 Asymmetric Encrypt/Decrypt

The asymmetric encrypt/decrypt processor is used to encrypt plaintext and decrypt ciphertext by using the specified asymmetric encryption algorithm.

Configuration Parameters

Parameter	Description
Private Key	Base64-encoded, mandatory for decryption.
Public Key	Base64-encoded, mandatory for encryption.
Operation	Asymmetric encryption or decryption.
Encryption Algorithm	Currently, only RSA is supported.
Plaintext	Mandatory when **Operation** is set to **Asymmetric Encrypt**. Plaintext to be encrypted.
Ciphertext	Mandatory when **Operation** is set to **Asymmetric Decrypt**. Base64-encoded ciphertext to be decrypted.
Padding Mode	Plaintext padding mode. Currently, only **RSA_PKCS1_OAEP_PADDING** is supported.
OAEP Hash Algorithm	Mandatory when **Padding Mode** is set to **RSA_PKCS1_OAEP_PADDING**. Options are SHA256 and SHA384.



6 Debugging a Task Flow Online

After creating and configuring a composite application and its task flows, you can debug the flows online and view the running information of each node in real time to meet service requirements.

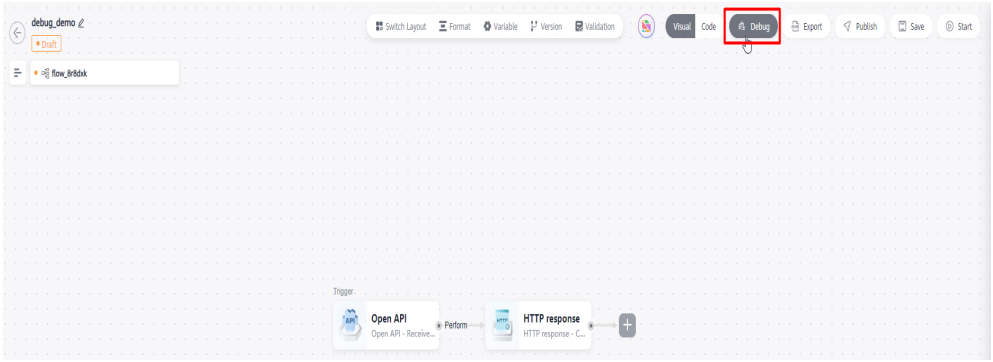
Prerequisites and Constraints

- A ROMA Connect instance is required to serve as the debugging environment. You can purchase an exclusive ROMA Connect instance or use a shared instance.
- Online flow debugging may affect other flows running on the instance. You are advised to use an exclusive instance for debugging.
- A shared instance allows only one flow to be debugged at a time. An exclusive instance allows a maximum of five flows to be debugged at a time.
- The trigger node does not run during online debugging. For example, the OpenAPI node does not publish any API during debugging. Manually configure the trigger node to trigger the flow.
- The debugging process pauses at a node for a maximum of 60 seconds, and then proceeds to the next one.

Procedure

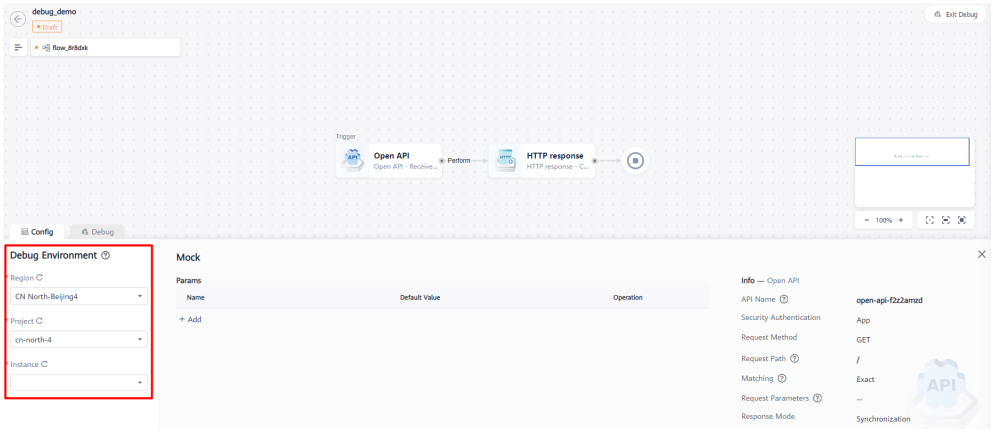
1. Log in to the new ROMA Connect console.
2. In the navigation pane on the left, choose **Application**. On the page displayed, click the target application.
3. Click **Modify** in the upper right to go to the design page.
4. Click **Debug** at the top to enter the debugging mode.

Figure 6-1 Canvas for application designing



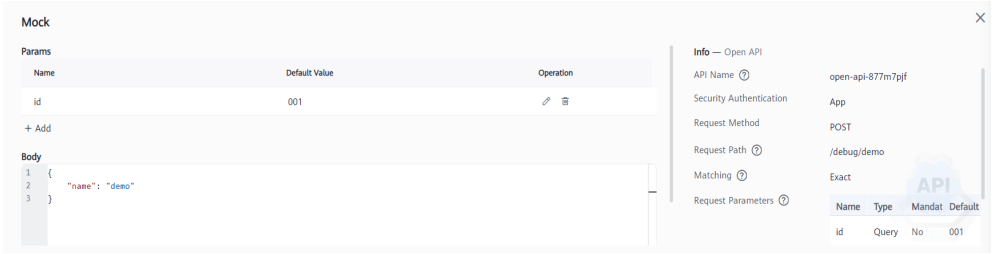
5. Select a debug environment. Set **Region**, **Project**, and **Instance** for the online debugging environment.

Figure 6-2 Configuring debugging environment



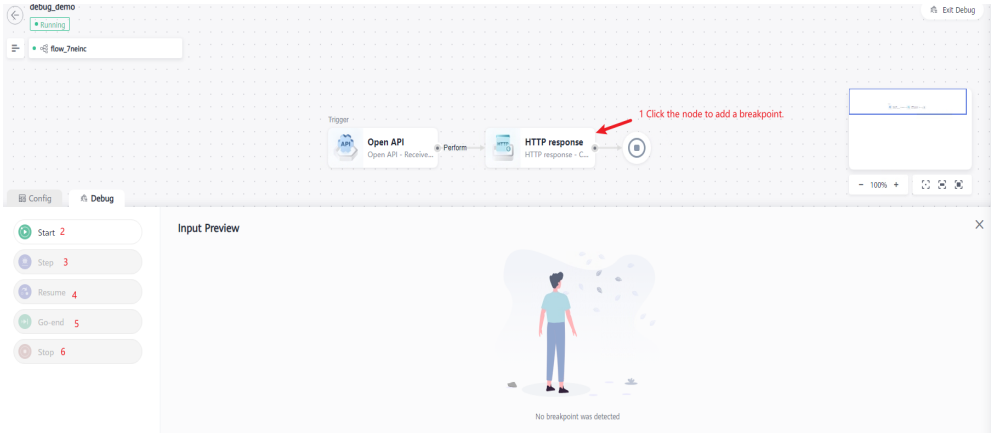
6. Configure the trigger node. Configure trigger parameters based on the trigger type. For example, configure API request parameters and request body for an OpenAPI node.

Figure 6-3 Configuring OpenAPI node parameters



7. Click **Save**.
8. Debug the flow.

Figure 6-4 Debugging a flow



a. Click a node of the flow to add a breakpoint. The flow may stop at a breakpoint during debugging. To remove the breakpoint, click the node again.

   NOTE

   Breakpoints cannot be added to trigger, parallel processor, or conditioning nodes.

b. **Start**: Click **Start** to start debugging a flow. If a breakpoint exists in the flow, the task stops at the breakpoint and the **properties** and **payload** data that enters the breakpoint is displayed. In other cases, the task automatically runs through the flow, or stops at the error node with the error information.

c. **Step**: When the debugging process pauses at a node, click **Step** to proceed to the next node.

d. **Resume**: When the debugging process pauses at a node, click **Resume** to proceed to the next breakpoint. If no such breakpoint exists, the task automatically runs through the flow, or stops at the error node with the error information.

e. **Go-end**: When the debugging process pauses at a node, click **Go-end** to run through the flow, or the task stops at the error node with the error information.

f. **Stop**: When a flow is in the debugging state, click **Stop** to terminate the debugging.

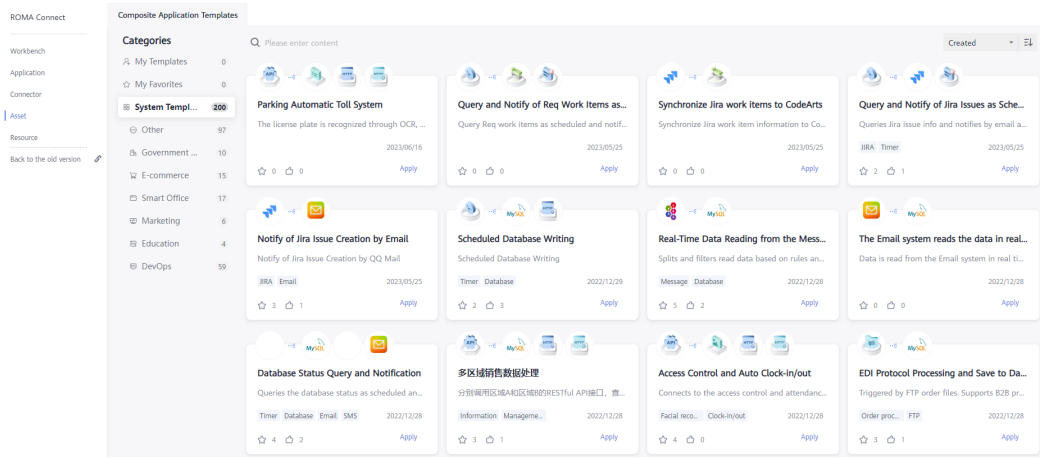
9. After the debugging is complete, click **Exit Debug** in the upper right to exit the debugging mode and return to the application design page.

7 Asset

All composite application templates, including custom, favorite and system templates are stored in **Asset**.

You may add system templates to **My Favorites**, click a template to view its details, or click **Apply** to create a composite application with a template.

Figure 7-1 Asset



8 Related Concepts

Composite Application

Composite applications are built by integrating multiple existing applications via open APIs and event channels for fast service replication and innovation with tailored integration experience.

Connector

An iPaaS connector is a cloud service that can be used to connect applications, data, and devices to implement various integration solutions. Connectors provide pre-built connection points to transfer data from one application or system to another.