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FunctionFlow

Management Flow

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Document conventions

Style	Description	Example
Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	Danger: Resetting will result in the loss of user configuration data.
Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	Notice: If the weight is set to 0, the server no longer receives new requests.
Note	A note indicates supplemental instructions, best practices, tips, and other content.	Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click **Settings**> **Network**> **Set network type**.
Bold	Bold formatting is used for buttons , menus, page names, and other UI elements.	Click **OK**.
`Courier font`	Courier font is used for commands	Run the `cd /d C:/window` command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	`bae log list --instanceid` *Instance_ID*
[] or [a|b]	This format is used for an optional value, where only one item can be selected.	`ipconfig [-all|-t]`
{} or {a|b}	This format is used for a required value, where only one item can be selected.	`switch {active|stand}`

Table of Contents

1.Overview of flows

This topic introduces the basics of flows, including the basic concepts and attributes of flows.

Basic concepts

A flow defines the general information required for describing the business logic and executing the flow. For example, an order management flow may involve creating the order, processing the payment, reserving the item, and notifying the user. After you create a flow, you can execute it multiple times. Generally, each execution has a different input. For example, an order management flow is executed each time a user places an order, and the input of the execution is order information.

Attributes

When you create a flow, you must specify the following information:

- Name: Required. The name of the flow. The flow name must be unique within a region and meet the following requirements:
  - A name can contain uppercase letters (A to Z), lowercase letters (a to z), digits (0 to 9), underscores (_), and hyphens (-).
  - The name must start with an uppercase letter (A to Z), a lowercase letter (a to z), or an underscore (_).
  - The name is case-sensitive.
  - The name must be 1 to 128 characters in length.
- Description: Required. The description of the flow. It must be 1 to 128 characters in length.
- Type: Required. Flow Definition Language (FDL) is supported.
- Definition: Required. The flow definition. For more information, see Flow Definition Language.
- RoleArn: Optional. The Alibaba Cloud Resource Name (ARN) of the RAM role that the flow assumes. Grant Serverless workflow the permissions required to execute a task. If the task requires access to Function Compute, Serverless workflow will assume the role (AssumeRole) to call functions in Function Compute. For more information about how to create a role, see Create execution roles.

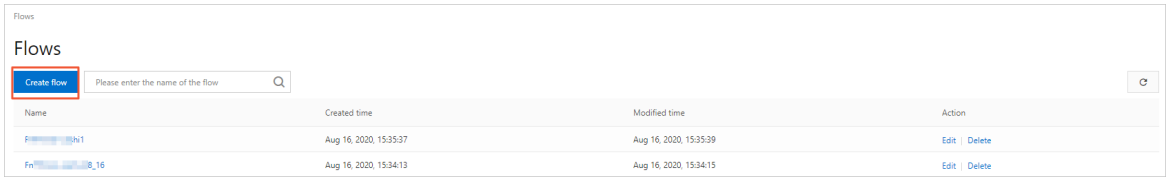
Except for Name, other attributes can be modified after the flow is created.

2.Create flows

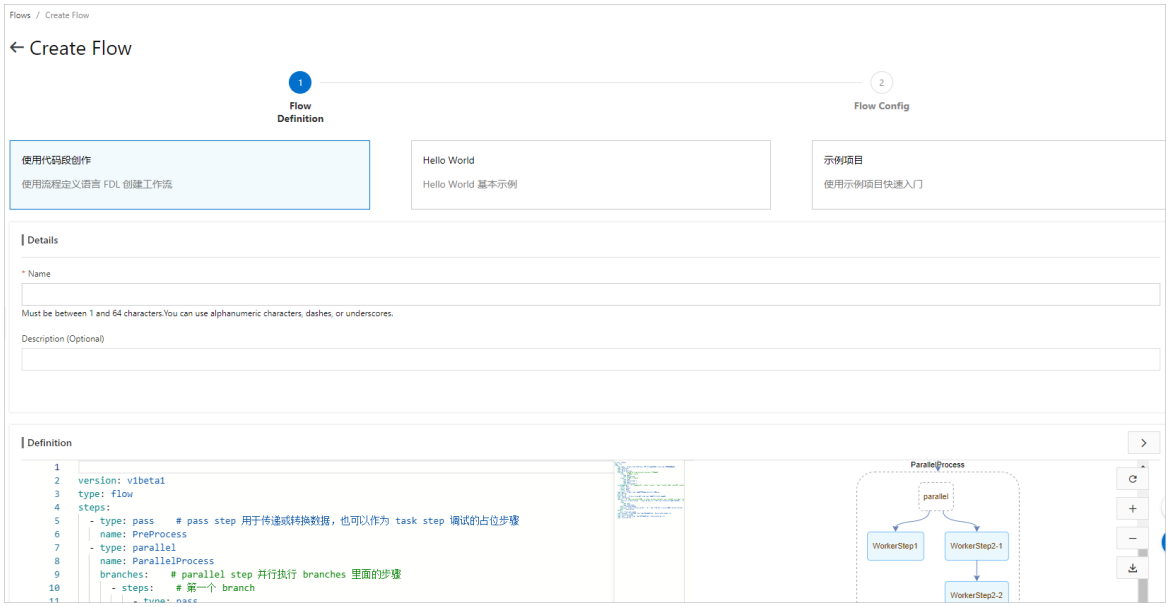
This topic describes how to create a flow in the Serverless Workflow console or by using Alibaba Cloud CLI.

Create a flow in the console

1. Log on to the Serverless Workflow console.
2. On the Flows page, click **Create Flow**.



3. On the **Create Flow** page, set **Name** and **Definition**. You can also use **visual flows** to assist in writing flow definitions.

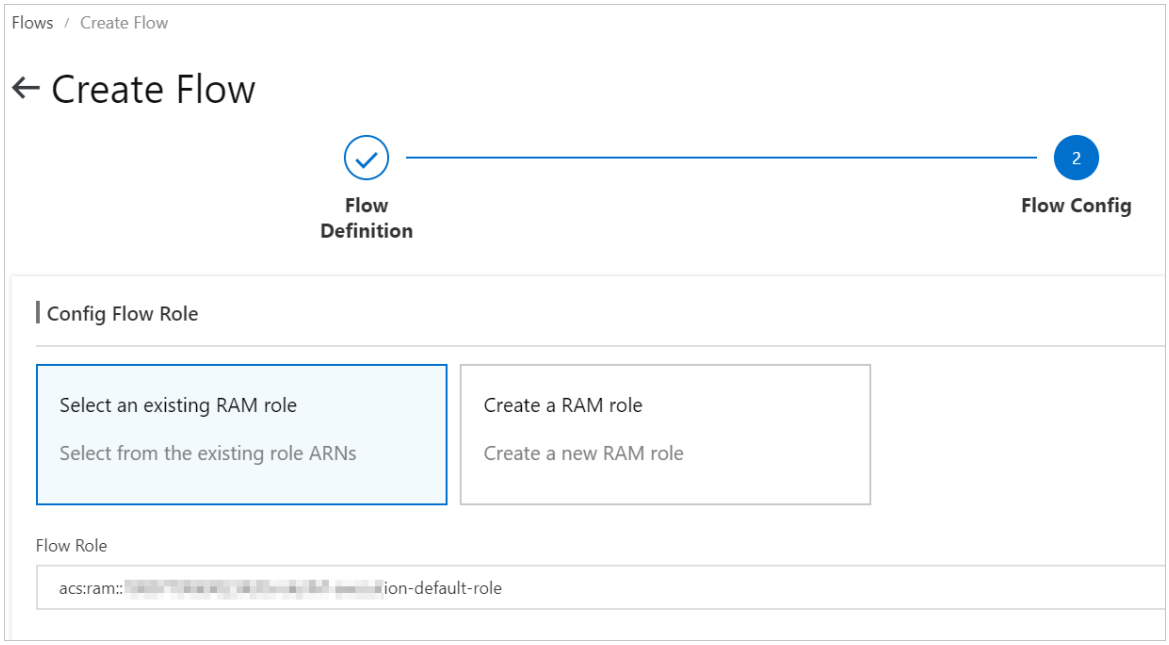


The Serverless Workflow console provides a default flow definition. The following YAML text-defined flow contains a pass step (`pass1`). For more information about flow definitions, see Flow Definition Language.

```
version: v1
type: flow
steps:
- type: pass
name: pass1
```

4. Click **Next Step**.
5. (Optional)In the **Flow Role** field, enter the Alibaba Cloud Resource Name (ARN) of the Resource Access Management (RAM) role created in Create execution roles. This role grants Serverless Workflow access to your cloud service resources, such as Function Compute. This

example flow does not access other cloud services such as Function Compute. Therefore, you can leave the Flow Role field blank.



6. Click **Create Flow**.

Create a flow by using Alibaba Cloud CLI

Before you use Alibaba Cloud CLI to create a flow, you must install this tool. For more information, see Installation Guide and Configure Alibaba Cloud CLI.

```
# Help
$ aliyun fnf CreateFlow help
Alibaba Cloud CLI 3.0.12

Product: fnf (Serverless Workflow)

Parameters:
--Definition String Required
--Description String Required
--Name String Required
--RoleArn String Optional
--Type String Required
--RequestID String Optional
```

You can use the **CreateFlow** command to create a flow.

1. Prepare for creating a flow. You can store the following flow definition in a file in the current path.

```
version: v1
type: flow
steps:
- type: pass
name: pass1
```

2. Create a flow.

> **Notice** You must replace `RoleArn` in the following content with your flow role. For more information about flow roles, see Execution roles.

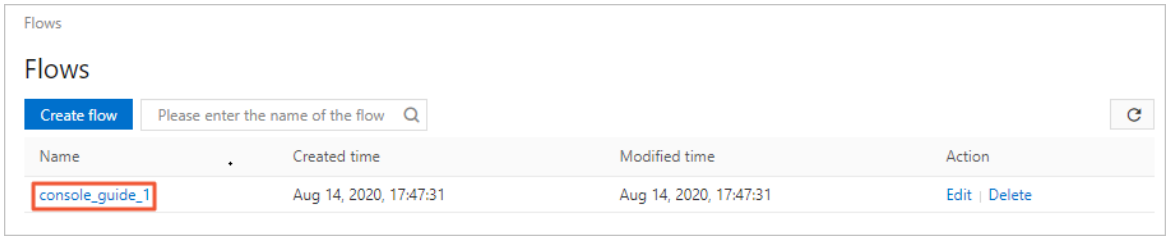
```
$ aliyun fnf CreateFlow --Description "demo" --Type FDL --RoleArn acs:ram::xxx:xxx --Name cli_guide_1 --Definition "$(<./flow.yaml)"
# Command execution result
{
"Name": "cli_guide_1",
"Description": "demo",
"Definition": "version: v1beta1\ntype: flow\nsteps:\n - type: pass\n name: pass1",
"Id": "78c68342-d63b-4cb5-9207-4e44eeb7e632",
"Type": "FDL",
"RoleArn": "acs:ram::xxx:xxx",
"CreatedTime": "2019-05-13T05:59:51.762Z",
"LastModifiedTime": "2019-05-13T05:59:51.762Z",
"RequestId": "xxxx"
}
```

3.View flows

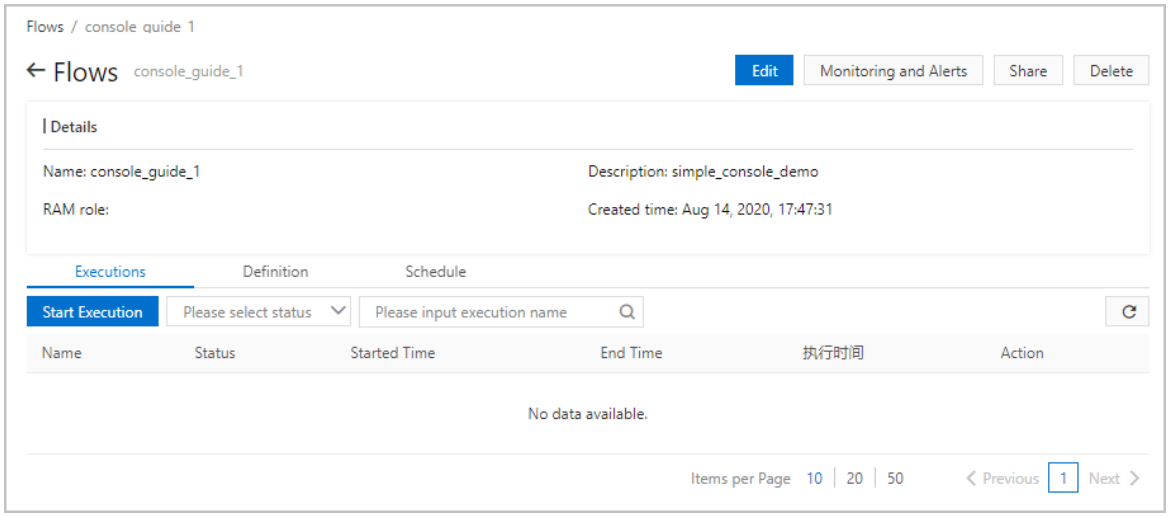
This topic describes how to view one or more flows in the Serverless Workflow console or by using Alibaba Cloud CLI.

View flows in the console

1. Log on to the Serverless workflow console.
2. On the **Flows** page, view all flows, including **console_guide_1** that you created in the preceding step.



3. Click the **name** of the target flow to view relevant details.



View flows by using Alibaba Cloud CLI

- You can use the **DescribeFlow** command to view a flow.

```
aliyun fnf DescribeFlow --Name cli_guide_1
# Command execution result
{
"Name": "cli_guide_1",
"Description": "demo",
"Definition": "version: v1\ntype: flow\nsteps:\n - type: pass\n name: pass1",
"Id": "78c68342-d63b-4cb5-9207-4e44eeb7e632",
"Type": "FDL",
"RoleArn": "acs:ram::xxx:xxx",
"CreatedTime": "2019-05-13T05:59:51.762Z",
"LastModifiedTime": "2019-05-13T05:59:51.762Z",
"RequestId": "xxxx"
}
```

- You can also use the **ListFlows** command to view multiple flows.

```
$ aliyun fnf ListFlows --Limit 1
# Command execution result
{
"Flows": [
{
"Name": "cli_guide_1",
"Description": "demo",
"Definition": "version: v1\ntype: flow\nname: test\nsteps:\n - type: pass\n name: pass1",
"Id": "78c68342-d63b-4cb5-9207-4e44eeb7e632",
"Type": "FDL",
"RoleArn": "acs:ram::xxx:xxx",
"CreatedTime": "2019-05-13T05:59:51.762Z",
"LastModifiedTime": "2019-05-13T05:59:51.762Z"
}
],
"NextToken": "cli_guide_2",
"RequestId": "232ee8b3-d19e-e68c-c928-31540f8a4dff"
}
```

> **Note** Limit: the number of flows to be obtained. If an execution involves other data, the result contains `NextToken`. In the next query, you can use the --NextToken parameter to specify the starting position of the query.

4.Delete flows

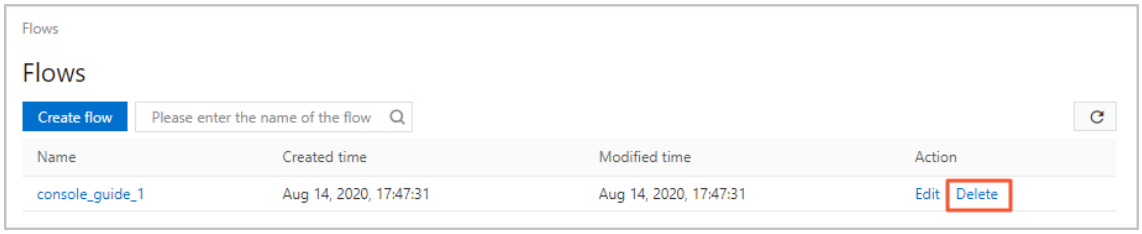
This topic describes how to delete a flow in the Serverless Workflow console or by using Alibaba Cloud CLI.

Context

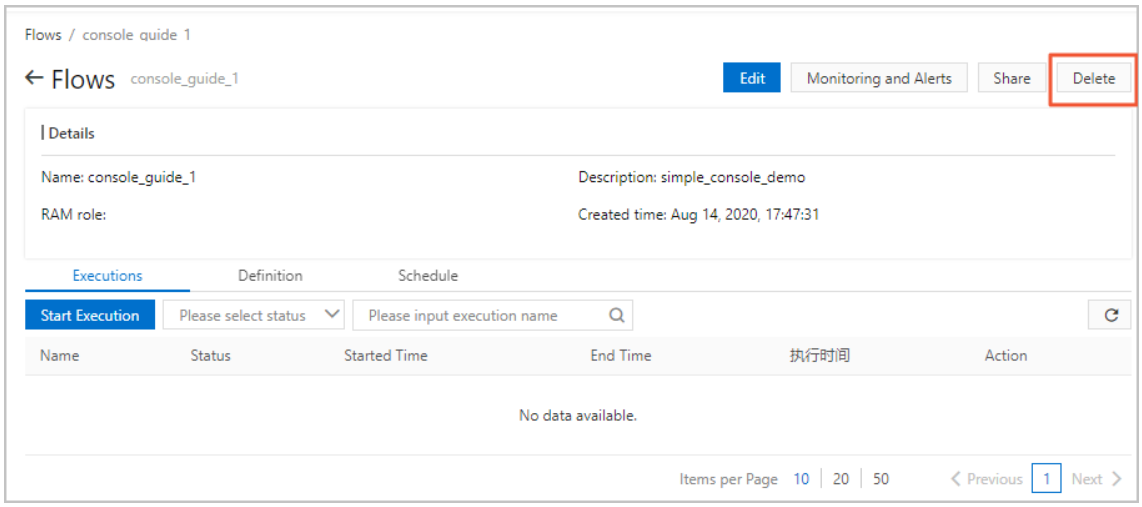
Deleting a flow is an asynchronous operation. After a successful API call, you will receive a response that indicates this operation is successful. After a flow is deleted, all historical execution information of this flow can no longer be queried, and each ongoing flow execution will stop after it completes the most recent step. You can re-create a flow with the same name. In this case, the ID of the new flow is different from the ID of the original flow. The new flow is not affected by the original flow.

Delete a flow in the console

1. Log on to the Serverless workflow console.
2. Delete a flow.
   - On the **Flows** page, click Delete in the Action column to delete a flow.



   - You can also click the name of a flow on the Flows page. Then, on **Flows** page of the target flow, click Delete in the upper-right corner to delete the flow.



Delete a flow by using Alibaba Cloud CLI

You can use the **DeleteFlow** command to delete an existing flow.

```
$ aliyun fnf DeleteFlow --Name cli_guide_1
# Successful operation
{
"RequestId": "xxxxx"
}
```

5.Modify flows

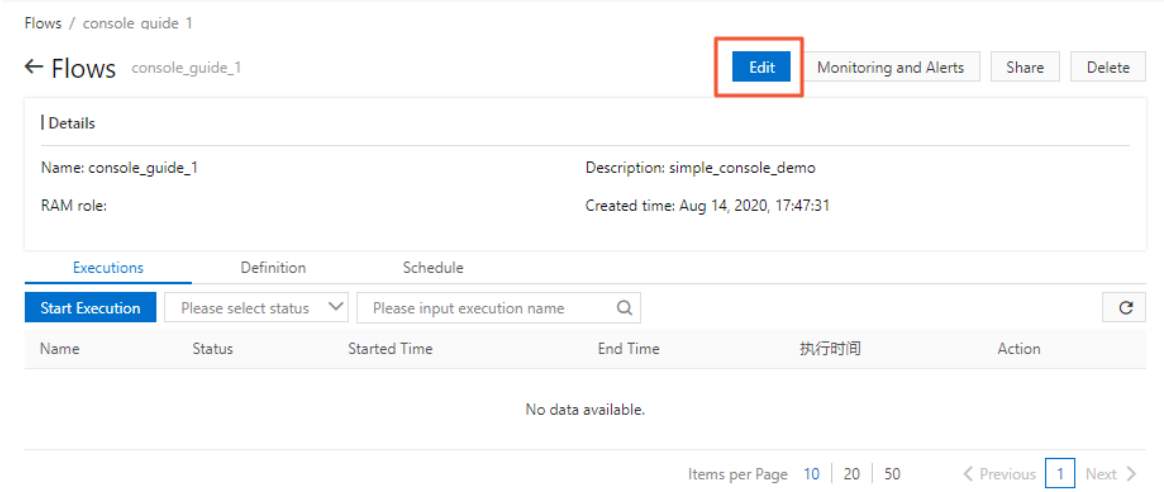
This topic describes how to modify a flow in the Serverless Workflow console or by using Alibaba Cloud CLI.

Context

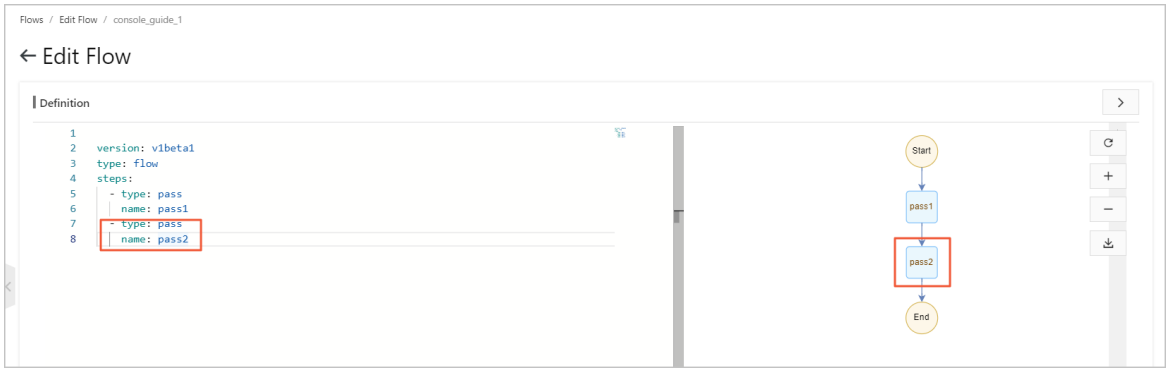
If you execute a flow after you modify it, the new execution is based on the new flow information. The modified flow definition will not affect the completed and ongoing executions.

Modify a flow in the console

1. Log on to the Serverless Workflow console.
2. On the **Flows** page, click the name of the target flow.
3. On the **Flows** page of the target flow, click **Edit** to modify the flow.



4. On the **Edit Flow** page, modify the flow definition, role, and description.



```
version: v1
type: flow
steps:
- type: pass
name: pass1
- type: pass
name: pass2
```

5. Click **Save**.

Modify a flow by using Alibaba Cloud CLI

1. First, modify the local flow definition as shown in the following content. The modified flow contains two steps.

```
version: v1
type: flow
steps:
- type: pass
name: pass1
- type: pass
name: pass2
```

2. You can run the **UpdateFlow** command to update a flow.

```
$ aliyun fnf UpdateFlow --Description "update demo" --Type FDL --RoleArn acs:ram::xxx:xxx --Na
me cli_guide_1 --Definition "$(<./flow.yaml)"
# Command execution result
{
"Name": "cli_guide_1",
"Description": "update demo",
"Definition": "version: v1\ntype: flow\nsteps:\n - type: pass\n name: pass1\n - type: pass\n nam
e: pass2",
"Id": "78c68342-d63b-4cb5-9207-4e44eeb7e632",
"Type": "FDL",
"RoleArn": "acs:ram::xxx:xxx",
"CreatedTime": "2019-05-13T05:59:51.762Z",
"LastModifiedTime": "2019-05-13T05:59:51.762Z",
"RequestId": "xxxx"
}
```

6.Authorize RAM users

This topic describes how to grant a Resource Access Management (RAM) user access to Serverless workflow and how to configure user permission policies.

Context

If you use the user name and password of an Alibaba Cloud account to log on to the Serverless Workflow console, or use a RAM user that has been authorized with AdministratorAccess to access the service, you can skip this topic and directly access the service. If you use a RAM user that has limited permissions, perform the following steps to configure permission policies.

Procedure

1. Log on to the RAM console. In the left-side navigation pane, choose Permissions > Policies. On the page that appears, click **Create Policy**. Use the following JSON content as the policy content, and create a policy named **FnFRAMUserPolicy**.

```
{
 "Version": "1",
 "Statement": [
  {
   "Effect": "Allow",
   "Action": "ram:PassRole",
   "Resource": "*"
  },
  {
   "Action": "fc:*",
   "Resource": "*",
   "Effect": "Allow"
  },
  {
   "Action": "fnf:*",
   "Resource": "*",
   "Effect": "Allow"
  },
  {
   "Action": "oss:*",
   "Resource": "acs:oss:*:*:fun-gen-*",
   "Effect": "Allow"
  },
  {
   "Action": "ros:*",
   "Resource": "*",
   "Effect": "Allow"
```

```
    },
    {
      "Effect": "Allow",
      "Action": "ram:CreateRole",
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": "ram:GetPolicy",
      "Resource": "*"
    },
    {
      "Effect": "Allow",
      "Action": "ram:CreatePolicy",
      "Resource": "acs:ram:*:*:policy/*"
    },
    {
      "Effect": "Allow",
      "Action": "ram:DeletePolicy",
      "Resource": [
        "acs:ram:*:*:policy/fnf-sample*"
      ]
    },
    {
      "Effect": "Allow",
      "Action": "ram:AttachPolicyToRole",
      "Resource": [
        "acs:ram:*:*:role/fnf-sample*",
        "acs:ram:*:*:role/fnf-execution-default-role*",
        "acs:ram:*:*:policy/fnf-sample*",
        "acs:ram:*:system:policy/AliyunECSNetworkInterfaceManagementAccess",
        "acs:ram:*:system:policy/AliyunFCInvocationAccess",
        "acs:ram:*:system:policy/AliyunFnFFullAccess",
        "acs:ram:*:system:policy/AliyunMNSFullAccess"
      ]
    },
    {
      "Effect": "Allow",
      "Action": "ram:DetachPolicyFromRole",
      "Resource": [
        "acs:ram:*:*:role/fnf-sample*"
```

```
        "acs:ram:*:*:role/fnf-execution-default-role*",
        "acs:ram:*:*:policy/fnf-sample*",
        "acs:ram:*:system:policy/AliyunECSNetworkInterfaceManagementAccess",
        "acs:ram:*:system:policy/AliyunFCInvocationAccess",
        "acs:ram:*:system:policy/AliyunFnFFullAccess",
        "acs:ram:*:system:policy/AliyunMNSFullAccess"
      ]
    },
    {
      "Effect": "Allow",
      "Action": "ram:ListRoles",
      "Resource": "acs:ram:*:*:role/*"
    },
    {
      "Effect": "Allow",
      "Action": "ram:GetRole",
      "Resource": "acs:ram:*:*:role/*"
    },
    {
      "Effect": "Allow",
      "Action": "ram:DeleteRole",
      "Resource": [
        "acs:ram:*:*:role/fnf-sample*"
      ]
    },
    {
      "Effect": "Allow",
      "Action": "ram:ListPoliciesForRole",
      "Resource": "acs:ram:*:*:role/*"
    }
  ]
}
```

2. In the RAM console, choose **Identities** > Users in the left-side navigation pane. Then, bind the policy created in the preceding step with the RAM user that will use Serverless Workflow.

Note

- The RAM user permissions mentioned in the preceding content apply to basic operations. If permissions are insufficient when you use application templates and sample projects that involve more cloud resources in the console, add the corresponding permissions to the RAM user.
- To control the permission granularity, the sensitive RAM operations in the example, such as AttachPolicyToRole, can be performed only on the roles and policies prefixed with fnf-sample or fnf-execution-default-role. If you need to modify the sample project name or the default application center name, modify the preceding policy as needed.

7.Create execution roles

This topic describes content related to execution roles, including how to create a permission policy and an execution role.

Context

When you use Serverless workflow to create an application, you must create an execution role and grant it related permissions. When Serverless workflow executes a flow, it assumes this role and accesses cloud services on your behalf, such as executing functions, sending messages, and executing flows.

You can use the Serverless workflow console to create an execution role and grant it system permissions. To control access permissions at a finer granularity, for example, to allow flows to access only one or several functions in Function Compute, see the following introduction.

Serverless workflow uses Resource Access Management (RAM) to implement role-based permission management. The following content describes the basic idea of authorization: A policy indicates the capability to access a service. After the policy is bound to a role, this role can access the service. When a third party needs to access this service, it only needs to assume the role that can access the service. This prevents long-term keys from being used and makes the system more secure.

Create permission policies

1. Log on to the RAM console.
2. In the left-side navigation pane, choose **Permissions** > **Policies**.
3. On the Policies page, click **Create Policy**.
4. Set **Policy Name** and Note. For example, set Policy Name to **FnFExecutionRolePolicy**.
5. Select **Script** for Configuration Mode, and edit the policy. For more information, see Policy structure and syntax. The following table provides examples of common permissions.

Description	Effect	Action	Resource
This policy allows access to the Func function of the Test1 service.	Allow	fc:InvokeFunction	acs:fc:::services/Test1/functions/Func1
This policy allows access to all functions of the Test2 service.	Allow	fc:InvokeFunction	acs:fc:::services/Test2/functions/*
This policy allows access to all functions of the services that start with Public.	Allow	fc:InvokeFunction	acs:fc:::services/Public*/functions/*
This policy allows sending messages to the Test1 queue.	Allow	mns:SendMessage	acs:mns:*:*:/queues/Test1/messages

Description	Effect	Action	Resource
This policy allows the execution of the Test1 flow.	Allow	fnf:StartExecution	acs:fnf:::flows/Test1/executions/*

Create an execution role

1. Log on to the RAM console.
2. Choose **RAM Roles** > **Create RAM Role**, and set the following parameters:
   - Select **Alibaba Cloud Service** for Trusted Entity Service.
   - Select **Function Flow** for Selected Trusted Service.
   - Set RAM Role Name to **FnFExecutionRole**.
3. Add the **FnFExecutionRolePolicy** policy to the created **FnFExecutionRole** role.
4. Copy the Alibaba Cloud Resource Name (ARN) of the created role for use when a flow is created or updated.