Object Storage Service

Permission Configuration Guide

Issue 09

Date 2024-02-28

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Contents

1 Introduction to OBS Access Control

By default, OBS resources (buckets and objects) are private. Only resource owners can access their OBS resources. Without authorization, other users cannot access OBS. OBS permission control refers to granting permissions to other accounts or IAM users by editing access policies. For example, if you have a bucket, you can authorize another IAM user to upload objects to your bucket. You can also open buckets to non-public cloud users, so that anyone can access your buckets as public resources over the Internet. OBS offers different methods to help resource owners grant resource permissions to others as required, keeping data secure.

OBS Permission Control Model

OBS provides multiple permission control mechanisms, including IAM permissions, bucket policies, object ACLs, and bucket ACLs. **Table 1-1** describes the mechanisms and application scenarios.

Figure 1-1 OBS permission control mechanisms

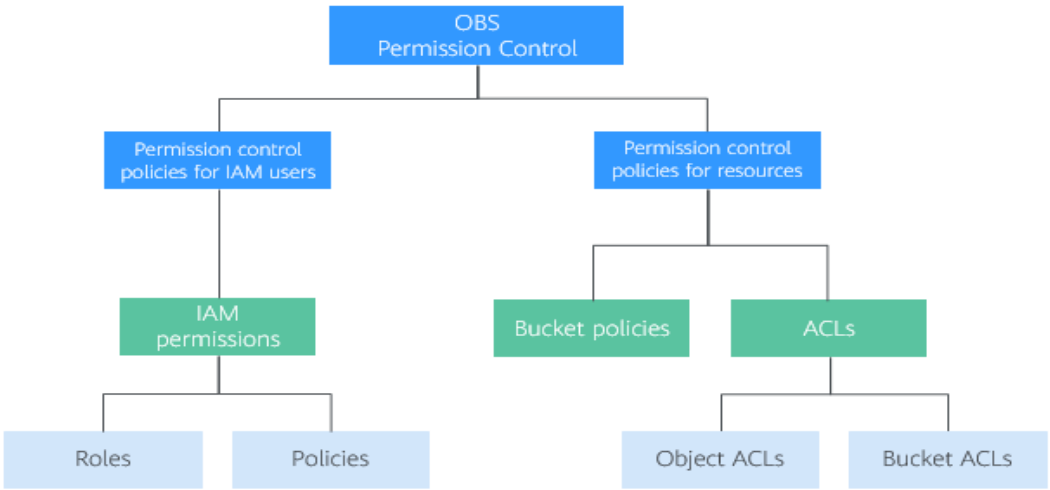


Table 1-1 OBS permission control mechanisms and application scenarios

Method	Description	Scenario
IAM permissions	IAM permissions define the actions that can be performed on your cloud resources. In other words, IAM permissions specify what actions are allowed or denied. After an IAM user is created, the administrator needs to add the user to a group. IAM can grant the user group required OBS access permissions, and then all users in the group automatically inherit the permissions of the user group.	• Controlling access to cloud resources as a whole under an account • Controlling access to all OBS buckets and objects under an account • Controlling access to specified OBS resources under an account
Bucket policies	A bucket policy is attached to a bucket and objects in the bucket. Bucket owners can use bucket policies to grant IAM users or other accounts the permissions to operate buckets and objects in the buckets. ACLs of buckets and objects supplement bucket policies, and in many cases, bucket policies replace ACLs.	• Granting other Huawei Cloud accounts the permissions to access OBS resources • Configuring bucket policies to grant IAM users various access permissions to different buckets

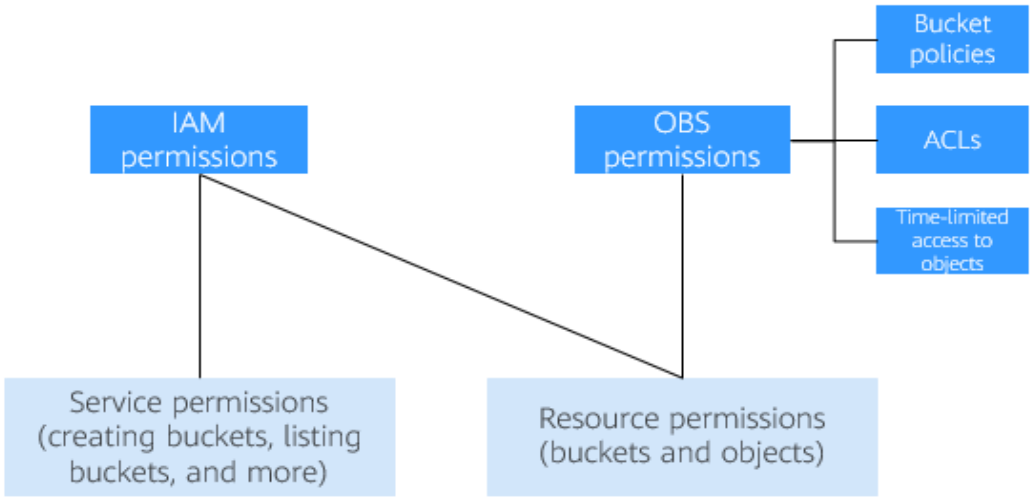
Method	Description	Scenario
Object ACLs	Controls access to objects for accounts or user groups. Object owners can configure the object access control list (ACL) to grant basic read and write permissions to specified accounts or user groups. **NOTE** • By default, an object ACL is created upon the creation of the object. The object owner has full control over the object. • An object owner is the account that uploads the object, but may not be the owner of the bucket that stores the object. For example, account **B** is granted the permission to access a bucket of account **A**, and account **B** uploads a file to the bucket. In that case, instead of the bucket owner account **A**, account **B** is the owner of the object. By default, account A is not allowed to access this object and cannot read or modify the object ACL.	• If object-level access control is required, a bucket policy can be used to grant the access permission to an object or a set of objects. After the access permission is granted to an object set, it is not practical to configure a bucket policy to grant the access permission to an object in the object set separately. Then the object ACL is recommended for easier access control over single objects. • An object is accessed through a URL. Generally, if you want to grant anonymous users the permission to read an object through a URL, use the object ACL.
Bucket ACLs	Controls access to buckets for accounts or user groups. Bucket owners can configure the bucket ACL to grant basic read and write permissions to specified accounts or user groups. **NOTE** • By default, a bucket ACL is created upon the creation of the bucket. The bucket owner has full control over the bucket. • Bucket ACLs do not provide fine-grained permission control. Generally, IAM permissions and bucket policies are recommended.	• Granting an account the read and write access to a bucket, so that data in the bucket can be shared or external buckets can be added. For example, after account **A** grants account **B** the read and write access to a bucket, account **B** can access the bucket by adding an external bucket through OBS Browser+ or using APIs and SDKs. • Grant the log delivery user write access to the target bucket that stores access logs.

Relationship Between OBS Permissions and IAM Permissions

OBS provides multiple permission control mechanisms, including time-limited access to objects, object ACLs, bucket ACLs, and bucket policies. Some service-level

permissions (for example, creating a bucket and listing all buckets) cannot be configured through OBS and can only be configured on IAM. OBS permissions apply only to resources (buckets and objects). To grant both OBS service-level and resource-level permissions, you must use IAM permissions or both IAM and OBS permissions.

Figure 1-2 Relationship between OBS permissions and IAM permissions



OBS Permission Control Elements

The following factors determine the authorization result:

- **Principal (authorized user)**
- **Effect**
- **Resource**
- **Action**
- **Condition**

For details about elements, see **A.1 Bucket Policy Parameters**.

Table 1-2 describes elements in different permission control mechanisms.

Table 1-2 OBS permission control elements in different permission control mechanisms

Method	Principal	Supported Effect	Authorized Resource	Authorized Action	Condition Configuration
IAM Permissions	IAM user	• Allow • Deny	All or specified OBS resources	All permissions to access OBS	Supported

Method	Principal	Supported Effect	Authorized Resource	Authorized Action	Condition Configuration
Bucket Policy	• Account • IAM user • All accounts	• Allow • Deny	Specified bucket and resources in the bucket	All permissions to access OBS	Supported
Object ACL	• Account • Anonymous users	Allow	Specified object	• Obtains the content and metadata of a specified object. • Obtains the content and metadata of an object with a specified version. • Obtains information about an object ACL. • Obtains information about the ACL for an object of a specified version. • Configures an object ACL. • Configures the ACL for an object of a specified version.	Not supported

Method	Principal	Supported Effect	Authorized Resource	Authorized Action	Condition Configuration
Bucket ACL	• Account • Anonymous users • Log delivery user groups	Allow	Specified bucket	• Identifies whether a bucket exists. • Lists objects in a bucket, and obtains the bucket metadata. • Lists versioned objects in a bucket. • Lists multipart uploads. • Performs PUT upload, POST upload, multipart upload, initialization of uploaded parts, and merging of parts. • Deletes an Object. • Deletes an object of a specified version. • Obtains bucket ACL information. • Configures a bucket ACL. • Obtains object content. • Obtains object metadata.	Not supported

How to Select IAM Permissions, Bucket Policies, and ACLs

Based on the advantages and disadvantages of the three elements, you are advised to preferentially use IAM permissions and bucket policies.

- Select IAM permissions in the following scenarios:
  - Grant the same permissions to numerous IAM users under the same account.
  - Grant the same permissions to all OBS resources or multiple buckets.
  - Configure OBS service-level permissions, such as creating and listing buckets.
  - Restrict the permissions of temporary access keys used for temporarily authorized access to OBS.
- Select bucket policies in the following scenarios:
  - Grant permissions across accounts or grant permissions to all users.
  - Grant different permissions to different IAM users under the same account.

- Still do not know what to select?

  Identify the problem you are most concerned with:

  – What the user can do - IAM permissions recommended

    You can search for an IAM user and check the permissions of the user group to which the user belongs to know what the user can do.

  – Who can access the bucket? — Use bucket policies.

    You can query the bucket and check the bucket policy to know who can access the bucket.

NOTE

It is better for you to use the same method for access control, because as the number of IAM permissions and bucket policies increase, access maintenance will become increasingly difficult.

When to Select an ACL?

- As a supplement to IAM permissions and bucket policies:

  IAM permissions and bucket policies have granted access permissions to an object set, but you want to grant access permissions to a single object.

- To allow an object to be accessible to all anonymous Internet users, configuring object ACL operations is more convenient.

  When uploading an object, you can use the ACL header to specify the read and write permissions of the object.

Relationship Between Bucket ACLs and Bucket Policies

Bucket ACLs are used to control basic read and write access to buckets. Custom settings of bucket policies support more actions that can be performed on buckets. Bucket ACLs supplement bucket policies. In many cases, bucket policies can replace bucket ACLs to manage access to buckets. **A.2 Relationship Between Bucket Policies and Bucket ACLs** shows the mapping between bucket ACL access permissions and bucket policy actions.

OBS Permission Control Principles

- Least privilege

  Never grant IAM users more than the minimum level of access needed to complete a task. For example, if an IAM user only needs to upload and download objects to a directory, you do not need to assign the user the read and write permissions for the entire bucket.

- Separation of duties

  Management of resources or of permissions can be assigned to different IAM users. For example, you can let one IAM user assign permissions, and let other IAM users manage OBS resources.

- Restriction by condition

  To enhance the security of the resources in a bucket, specific conditions can be configured to control when a permission is applied. For example, a bucket policy with conditions contained can be configured for OBS to accept requests only from a specific IP address.

How Do Access Control Mechanisms Work When They Conflict?

In the OBS permission control elements, there are allow and deny effects, which indicate the permission to allow or deny an operation.

Based on the least-privilege principle, decisions default to deny, and an explicit deny statement always takes precedence over an allow statement. For example, IAM permissions grant a user access to an object, a bucket policy denies the user's access to that object, and there is no ACL. Then access will be denied.

If no method specifies an allow statement, then the request will be denied by default. Only if no method specifies a deny statement and one or more methods specify an allow statement, will the request be allowed. For example, if a bucket has multiple bucket policies with allow statements, adding such a new bucket policy applies the allowed permissions to the bucket, but adding a new bucket policy with a deny statement will make the permissions work differently. The deny statement will take precedence over allow statements, even if the denied permissions are allowed in other bucket policies.

Figure 1-3 Authorization process

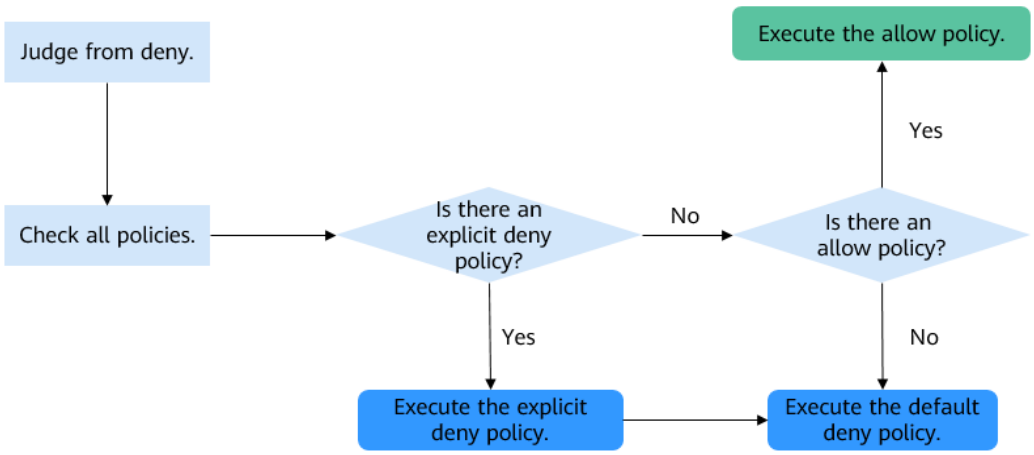


Figure 1-4 describes how bucket policies, IAM permissions, and ACLs work (allow or deny) when you grant the IAM users of your account the access to OBS buckets and resources in the buckets. ACLs are applied to accounts and do not control IAM users' read and write permissions for the buckets and the sources in the buckets under their account.

Figure 1-4 Working mechanisms (allow or deny) of bucket policies and IAM permissions in the same account

Bucket Policy	IAM Policy		
	Deny	Allow	Default Deny
Deny	Deny	Deny	Deny
Allow	Deny	Allow	Allow
Default Deny	Deny	Allow	Deny

Permissions configured
The final result of all settings is Deny
The final result of all settings is Allow

[Figure 1-5](#) describes how bucket policies, IAM permissions, and ACLs work (allow or deny) when you grant any other Huawei Cloud account and the IAM users of this account the access to OBS buckets and resources in the buckets.

Figure 1-5 Working mechanisms (allow or deny) of bucket policies, IAM permissions, and ACLs in cross-account access grant scenarios

Bucket Policy	IAM Policy			ACL
	Deny	Allow	Default Deny	
Deny	Deny	Deny	Deny	Allow
				Default Deny
Allow	Deny	Allow	Deny	Allow
				Default Deny
Default Deny	Deny	Allow	Deny	Allow
		Deny	Deny	Default Deny

Permissions configured
The final result of all settings is Deny
The final result of all settings is Allow

NOTE

- If both the bucket policy and IAM policy are set to **Default Deny**, but the ACL is set to **Allow**, the final result is **Deny**. ACLs are used to supplement bucket policies.

Concepts

- Account: An account that is automatically created during your registration with Huawei Cloud. This account has full access control over its resources and IAM users.
- IAM user: A user created by the administrator in IAM. An IAM user may be an employee, a system, or an application. An IAM user has access permissions to specified resources. IAM users have identity credentials (passwords and access keys) and can log in to the management console or call APIs.
- Anonymous user: A common visitor who has not registered with Huawei Cloud.
- A log delivery user group: A user group who only delivers access logs of buckets and objects to the specified target bucket. OBS does not create or upload any file to a bucket automatically. If you want to record access logs for a bucket, you must grant the log delivery user group required permissions, so that OBS can write the access logs to the specified bucket. This user group is only used to record internal logs of OBS.

2 Permission Control Mechanisms

2.1 IAM Permissions

IAM Permissions Overview

By default, newly created IAM users do not have any permissions. You need to add the user to one or more groups, and attach permission policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specified operations on cloud services based on the permissions.

IAM permissions take effect on all OBS buckets and objects. To grant an IAM user the permission to operate OBS resources, you need to assign one or more OBS permission sets to the user group to which the user belongs.

OBS is a global service because it is available for all physical regions. IAM permissions are assigned to users in the global project, and users do not need to switch regions when accessing OBS.

You can grant permissions to users by roles and policies.

- Roles: A type of coarse-grained authorization mechanism that defines permissions related to user responsibilities. This mechanism provides only a limited number of service-level roles for authorization. When using roles to grant permissions, you need to also assign other roles on which the permissions depend to take effect. However, roles are not an ideal choice for fine-grained authorization and secure access control.
- Policies: A type of fine-grained authorization mechanism that defines permissions required to perform operations on specific cloud resources under certain conditions. This mechanism allows for more flexible policy-based authorization, meeting requirements for secure access control. For example, you can grant OBS users only the permissions for managing a certain type of OBS resources. Most policies define permissions based on APIs. For the API actions supported by OBS, see **Permissions and Supported Actions**.

> **NOTE**
>
> Due to data caching, a role and policy involving OBS actions will take effect 10 to 15 minutes after it is attached to a user, an enterprise project, and user group.

IAM presets system permissions for each cloud service so that you can quickly configure basic permissions. **Table 2-1** describes all system permissions of OBS.

Custom policies can be created to supplement the system-defined policies of OBS. For the actions supported for custom policies, see **Bucket-Related Actions** and **Object-Related Actions**.

Table 2-1 OBS system permissions

Role/Policy Name	Description	Type	Dependency
Tenant Administrator	Users with this permission can perform all operations on all services except IAM.	System-defined role	N/A
Tenant Guest	Users with this permission can perform read-only operations on all services except IAM.	System-defined role	N/A
OBS Administrator	Users with this permission are OBS administrators and can perform any operations on all OBS resources under the account.	System-defined role	N/A
OBS Buckets Viewer	Users with this permission can list buckets, obtain basic bucket information, and obtain bucket metadata.	System-defined role	N/A
OBS ReadOnlyAccess	Users with this permission can list buckets, obtain basic bucket information, obtain bucket metadata, and list objects (not the objects that have been versioned). **NOTE** If a user with this permission fails to list objects on OBS Console, there may be multiple versions of objects in the bucket. In this case, you need to grant the user the **obs:bucket:ListBucketVersions** permission so that the user can view different versions of objects on OBS Console.	System-defined policy	N/A

Role/Policy Name	Description	Type	Dependency
OBS OperateAccess	Users with this permission can perform all OBS ReadOnlyAccess operations and perform basic object operations, such as uploading objects, downloading objects, deleting objects, and obtaining object ACLs. **NOTE** If a user with this permission fails to list objects on OBS Console, there may be multiple versions of objects in the bucket. In this case, you need to grant the user the **obs:bucket:ListBucketVersions** permission so that the user can view different versions of objects on OBS Console.	System-defined policy	N/A

The following table lists the common operations supported by each system-defined policy or role of OBS. Select the policies or roles as required.

Table 2-2 Permissions and the allowed operations on OBS resources

Operation	Tenant Administrator	Tenant Guest	OBS Administrator	OBS Buckets Viewer	OBS ReadOnly Access	OBS Operate Access
Listing buckets	Yes	Yes	Yes	Yes	Yes	Yes
Creating buckets	Yes	No	Yes	No	No	No
Deleting buckets	Yes	No	Yes	No	No	No
Obtaining basic bucket information	Yes	Yes	Yes	Yes	Yes	Yes
Controlling bucket access	Yes	No	Yes	No	No	No
Managing bucket policies	Yes	No	Yes	No	No	No

Operation	Tenant Administrator	Tenant Guest	OBS Administrator	OBS Buckets Viewer	OBS ReadOnly Access	OBS Operate Access
Modifying bucket storage classes	Yes	No	Yes	No	No	No
Listing objects	Yes	Yes	Yes	No	Yes	Yes
Listing versioned objects	Yes	Yes	Yes	No	No	No
Uploading a file	Yes	No	Yes	No	No	Yes
Creating a folder	Yes	No	Yes	No	No	Yes
Deleting a file	Yes	No	Yes	No	No	Yes
Deleting a folder	Yes	No	Yes	No	No	Yes
Downloading a file	Yes	Yes	Yes	No	No	Yes
Deleting files with multiple versions	Yes	No	Yes	No	No	Yes
Downloading files with multiple versions	Yes	Yes	Yes	No	No	Yes
Modifying object storage classes	Yes	No	Yes	No	No	No
Restoring files	Yes	No	Yes	No	No	No
Undeleting a file	Yes	No	Yes	No	No	Yes
Deleting fragments	Yes	No	Yes	No	No	Yes

Operation	Tenant Administrator	Tenant Guest	OBS Administrator	OBS Buckets Viewer	OBS ReadOnly Access	OBS Operate Access
Controlling object access	Yes	No	Yes	No	No	No
Configuring object metadata	Yes	No	Yes	No	No	No
Obtaining object metadata	Yes	Yes	Yes	No	No	Yes
Managing versioning	Yes	No	Yes	No	No	No
Managing logging	Yes	No	Yes	No	No	No
Managing tags	Yes	No	Yes	No	No	No
Managing lifecycle rules	Yes	No	Yes	No	No	No
Managing static website hosting	Yes	No	Yes	No	No	No
Managing CORS rules	Yes	No	Yes	No	No	No
Managing URL validation	Yes	No	Yes	No	No	No
Managing domain names	Yes	No	Yes	No	No	No
Managing cross-region replication	Yes	No	Yes	No	No	No
Managing image processing	Yes	No	Yes	No	No	No

Operation	Tenant Administrator	Tenant Guest	OBS Administrator	OBS Buckets Viewer	OBS ReadOnly Access	OBS Operate Access
Appending an Object	Yes	No	Yes	No	No	Yes
Configuring an object ACL	Yes	No	Yes	No	No	No
Configuring the ACL for an object of a specified version	Yes	No	Yes	No	No	No
Obtaining an object ACL	Yes	Yes	Yes	No	No	Yes
Obtaining the ACL of a specified object version	Yes	Yes	Yes	No	No	Yes
Performing a multipart upload	Yes	No	Yes	No	No	Yes
Listing uploaded parts	Yes	Yes	Yes	No	No	Yes
Canceling a multipart upload	Yes	No	Yes	No	No	Yes

Application Scenarios of IAM Permissions

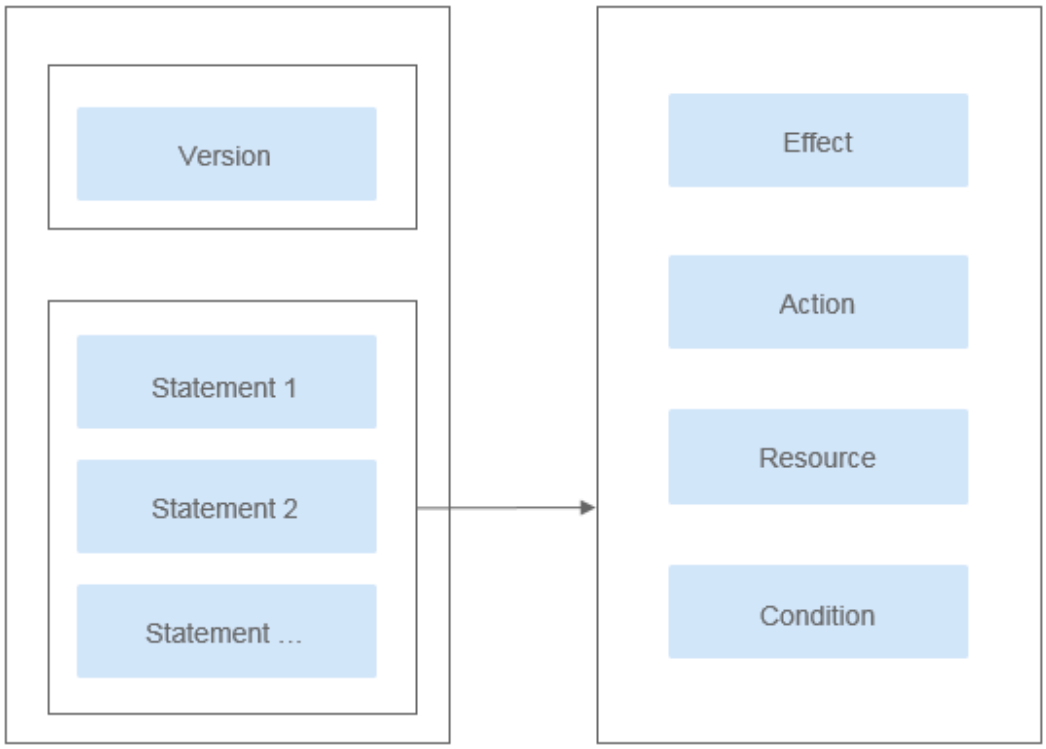
IAM permissions are used to authorize IAM users under an account.

- Controlling access to cloud resources as a whole under an account
- Controlling access to all OBS buckets and objects under an account
- Controlling access to specified OBS resources under an account

Policy Structure and Syntax

A policy consists of a version and statements. Each policy can have multiple statements.

Figure 2-1 Policy structure



Policy syntax example:

```
{
   "Version": "1.1",
   "Statement": [
            {
         "Effect": "Allow",
         "Action": [
            "obs:bucket:HeadBucket",
            "obs:bucket:ListBucket",
            "obs:bucket:GetBucketLocation"
         ],
         "Resource": [
            "obs:*:*:bucket:*"
         ],
         "Condition": {
            "StringEndWithIfExsits": {
               "g:UserName": ["specialCharacter"]
            },
            "Bool": {
               "g:MFAPresent": ["true"]
            }
         }
      }
   ]
}
```


Table 2-3 Policy syntax parameters

Parameter	Description
Version	The version number of a policy. • **1.0**: RBAC policies. An RBAC policy consists of permissions for an entire service. Users in a group with such a policy assigned are granted all of the permissions required for that service. • **1.1**: Fine-grained policies. A fine-grained policy consists of API-based permissions for operations on specific resource types. Fine-grained policies, as the name suggests, allow for more fine-grained control on specific operations and resources than RBAC policies. For example: You can restrict an IAM user to access only the objects in a specific directory of an OBS bucket.

Parameter	Description
Statement	Detailed descriptions of a policy, including **Effect**, **Action**, **Resource**, and **Condition**. **Resource** and **Condition** are optional. • **Effect** The valid values for **Effect** are **Allow** and **Deny**. System policies contain only **Allow** statements. For custom policies containing both **Allow** and **Deny** statements, the **Deny** statements take precedence. • **Action** Actions allowed on resources. An action is in the format of *Service name*:*Resource type*:*Action*. A policy can contain one or more actions. You can use a wildcard (*) to indicate all of the services, resource types, or actions depending on their location in the action. There are two types of OBS resources: buckets and objects. For details about actions, see **Bucket-Related Actions** and **Object-Related Actions**. • **Resource** Resources on which the policy takes effect. A resource is in the format of *Service name*:*Region*:*Domain ID*:*Resource type*:*Resource path*. You can use a wildcard (*) to indicate all of the services, regions, domain IDs, resource types, or resource paths depending on their location in the resource. In the JSON view, if **Resource** is not specified, the policy takes effect for all resources. The value of **Resource** supports uppercase (A to Z), lowercase (a to z) letters, digits (0 to 9), and the following characters: **-_*./**. If the value contains invalid characters, use the wildcard character (*). OBS is a global service. Therefore, set **Region** to ***. **Domain ID** indicates the ID of the resource owner. Set it to * to indicate the ID of the account to which the resources belong. Examples: – **obs:*:*:bucket:***: all OBS buckets – **obs:*:*:object:my-bucket/my-object/***: all objects in the **my-object** directory of the **my-bucket** bucket • **Condition** When creating a custom policy, you can add condition elements to control when the policy takes effect. A condition consists of a condition key and an operator. Condition keys are either global or service-level and are used in the condition elements of a policy statement. **Global condition keys** (starting with **g:**) are available for actions of all services, while service-level condition keys (starting with a service name acronym like **obs:**) are available only for actions of a specific service. An operator

Parameter	Description
	is used together with a condition key to form a complete condition statement. OBS has a group of predefined condition keys that can be used in IAM. For example, to define an allow permission, you can use the condition key **obs:SourceIp** to filter matching requesters by IP address. The condition keys and operators supported by OBS are the same as those in the bucket policy. When configuring condition keys in IAM, start the condition keys and operators with **obs:**. For detailed condition information, see **A.1 Bucket Policy Parameters**. The value of **Condition** can contain only uppercase letters (A to Z), lowercase letters (a to z), digits (0 to 9), and the following characters: **-,./_@#$%&**. If the value contains unsupported characters, consider using the condition operators (like StringMatch) for fuzzy match. Examples: – **StringEndWithIfExists":{"g:UserName":["specialCharacter"]}**: The statement is valid for users whose names end with **specialCharacter**. – **"StringLike":{"obs:prefix":["private/"]}**: When listing objects in a bucket, you need to set prefix to **private/** or include **private/**.

NOTE

- Fine-grained permission control at the **Resource** level will be deployed in regions one after another. Before using this feature, ensure that the region where your bucket resides supports the feature.
- To use the fine-grained permission control at the **Resource** level, **submit a service ticket** to OBS.

Configuring IAM Permissions

- **Creating a User and Granting OBS Permissions**
- **Creating a Custom Policy**

Example Custom Policies

- **Example 1: Grant all OBS permissions to users.**

  This policy allows users to perform any operation on OBS using the API, SDKs, OBS Console, or tools.

  When a user logs in to OBS Console, the user accesses resources of other services, such as audit information in CTS, acceleration domain names in CDN, and keys in KMS. Therefore, in addition to the OBS permissions, you need to grant users the permissions for other services. CDN is a global service, while CTS and KMS are regional ones. You need to configure the **Tenant Guest**

permission for the global project and regional projects based on the services and regions that you use.

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "obs:*:*"
         ]
      }
   ]
}
```

- **Example 2: Grant the read-only permission on a bucket to users (any directory).**

  This policy allows users to list and download all objects in bucket **obs-example**.

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "obs:object:GetObject",
            "obs:bucket:ListBucket"
         ],
         "Resource": [
            "obs:*:*:object:obs-example/*",
            "obs:*:*:bucket:obs-example"
         ]
      }
   ]
}
```

- **Example 3: Grant the read-only permission on a bucket to users (specified directory).**

  This policy allows users to only download objects in the **my-project/** directory of bucket **obs-example**. Objects in other directories can be listed but cannot be downloaded.

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
         "Action": [
            "obs:object:GetObject",
            "obs:bucket:ListBucket"
         ],
         "Resource": [
            "obs:*:*:object:obs-example/my-project/*",
            "obs:*:*:bucket:obs-example"
         ]
      }
   ]
}
```

- **Example 4: Grant the read and write permissions on a bucket to users (specified directory).**

  This policy allows users to list, download, upload, and delete objects in the **my-project** directory of bucket **obs-example**.

```
{
   "Version": "1.1",
   "Statement": [
      {
         "Effect": "Allow",
```



```
            "Action": [
                "obs:object:GetObject",
                "obs:object:ListMultipartUploadParts",
                "obs:bucket:ListBucket",
                "obs:object:DeleteObject",
                "obs:object:PutObject"
            ],
            "Resource": [
                "obs:*:*:object:obs-example/my-project/*",
                "obs:*:*:bucket:obs-example"
            ]
        }
    ]
}
```

- **Example 5: Grant all permissions on a bucket to users.**

  This policy allows users to perform any operation on bucket **obs-example**.

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "obs:*:*"
            ],
            "Resource": [
                "obs:*:*:bucket:obs-example",
                "obs:*:*:object:obs-example/*"
            ]
        }
    ]
}
```

- **Example 6: Deny a user the permission to upload objects.**

  A policy with only "Deny" permissions must be used in conjunction with other policies to take effect. If the permissions assigned to a user contain both "Allow" and "Deny", the "Deny" permissions take precedence over the "Allow" permissions.

  The following method can be used if you need to assign permissions of the **OBS OperateAccess** policy to a user but also forbid the user from uploading objects. Create a custom policy for denying object upload, and assign both policies to the user. Then the user can perform all **OBS OperateAccess** permissions except uploading objects. The following is an example of a deny policy:

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Deny",
            "Action": [
                "obs:object:PutObject"
            ]
        }
    ]
}
```

- **Example 7: Grant users the permissions required to change a bucket's storage class and to delete certain objects in the bucket.**

  This policy allows users to change the storage class of bucket **obs-example** and to delete object **my-object.txt** in the bucket.

```
{
    "Version": "1.1",
    "Statement": [
        {
```



```
            "Effect": "Allow",
            "Action": [
                "obs:bucket:ListAllMyBuckets",
                "obs:bucket:ListBucket"
            ]
        },
        {
            "Effect": "Allow",
            "Action": [
                "obs:object:DeleteObject",
                "obs:bucket:PutBucketStoragePolicy"
            ],
            "Resource": [
                "OBS:*:*:object:obs-example/my-object.txt",
                "OBS:*:*:bucket:obs-example"
            ]
        }
    ]
}
```

2.2 Bucket Policies

Overview

A bucket policy applies to an OBS bucket and objects in the bucket. By leveraging bucket policies, the owner of a bucket can authorize IAM users or other accounts the permissions to operate the bucket and objects in the bucket.

NOTE

- Creating a bucket and obtaining a bucket list are service-level operations. To obtain such operation permissions, you need to configure **IAM permissions**.
- Due to data caching, after a bucket policy is configured, it takes 5 minutes at most for the policy to take effect.

Bucket Policy Templates

OBS Console provides bucket policy templates for eight typical scenarios. You can use these templates to quickly create bucket policies.

When using a template to create a bucket policy, you need to specify principals (authorized users) and resources, or you can modify the template settings, including principal, resources, actions, and conditions.

Table 2-4 Bucket policy templates

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
All accounts	Entire bucket (including the objects in it)	Public Read	**Allows all accounts to perform the following actions on a bucket and the objects in it:** HeadBucket (to check whether the bucket exists and obtain the bucket metadata) GetBucketLocation (to get the bucket location) GetObject (to obtain object content and metadata) RestoreObject (to restore objects from Archive storage) GetObjectVersion (to obtain the content and metadata of a specified object version)	Excluding the specified actions is not allowed.

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
		Public Read/ Write	**Allows all accounts to perform the following actions on a bucket and the objects in it:** ListBucket (to list objects in the bucket and obtain the bucket metadata) ListBucketVersions (to list object versions in the bucket) HeadBucket (to check whether the bucket exists and obtain the bucket metadata) GetBucketLocation (to get the bucket location) PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts) GetObject (obtaining object content and metadata) ModifyObjectMetaData (to modify object metadata) ListBucketMultipartUploads (to list multipart uploads) ListMultipartUploadParts (to list uploaded parts) AbortMultipartUpload (to abort multipart uploads) RestoreObject (to restore objects from Archive storage) GetObjectVersion (to obtain the content and metadata of a specified object version) PutObjectAcl (to configure the object ACL) GetObjectVersionAcl (to obtain the ACL of a specified object version) GetObjectAcl (to obtain the object ACL)	Excluding the specified actions is not allowed.

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
Current account/ Other accounts/ Delegated accounts	Entire bucket (including the objects in it)	Bucket Read-Only	**Allows specified accounts to perform the following actions on a bucket and the objects in it:** Get* (all GET actions) List* (all LIST actions) HeadBucket (to check whether the bucket exists and obtain the bucket metadata)	Excluding the specified actions is not allowed.
		Bucket Read/ Write	**Allows specified accounts to perform all actions excluding the following ones on a bucket and the objects in it:** DeleteBucket (to delete a bucket) PutBucketPolicy (to configure a bucket policy) PutBucketAcl (to configure a bucket ACL)	The specified actions are excluded.
All accounts/ Current account/ Other accounts/ Delegated accounts	Current bucket + Specified objects	Directory Read-Only	**Allows all accounts or specified accounts to perform the following actions on the current bucket and the specified resources in it:** GetObject (to obtain object content and metadata) GetObjectVersion (to obtain the content and metadata of a specified object version) GetObjectVersionAcl (to obtain the ACL of a specified object version) GetObjectAcl (to obtain the object ACL) RestoreObject (to restore objects from Archive storage) HeadBucket (to check whether the bucket exists and obtain the bucket metadata) GetBucketLocation (to get the bucket location) **NOTE** If you apply the policy to **All accounts**, **ListBucket** and **ListBucketVersions** are not included in the template.	Excluding the specified actions is not allowed.

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
		Directory Read/Write	**Allows all accounts or specified accounts to perform the following actions on the current bucket and the specified resources in it:** PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts) GetObject (to obtain object content and metadata) GetObjectVersion (to obtain the content and metadata of a specified object version) ModifyObjectMetaData (to modify object metadata) ListBucketMultipartUploads (to list multipart uploads) ListMultipartUploadParts (to list uploaded parts) AbortMultipartUpload (to abort multipart uploads) GetObjectVersionAcl (to obtain the ACL of a specified object version) GetObjectAcl (to obtain the object ACL) PutObjectAcl (to configure the object ACL) RestoreObject (to restore objects from Archive storage) ListBucket (to list objects in the bucket and obtain the bucket metadata) ListBucketVersions (to list object versions in the bucket) HeadBucket (to check whether the bucket exists and obtain the bucket metadata) GetBucketLocation (to get the bucket location)	Excluding the specified actions is not allowed.

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
All accounts/ Current account/ Other accounts/ Delegated accounts	Specified objects	Object Read-Only	**Allows all accounts or specified accounts to perform the following actions on specified resources in the bucket:** GetObject (to obtain object content and metadata) GetObjectVersion (to obtain the content and metadata of a specified object version) GetObjectVersionAcl (obtaining the ACL of a specific object version) GetObjectAcl (to obtain the object ACL) RestoreObject (to restore objects from Archive storage)	Excluding the specified actions is not allowed.
		Object Read/ Write	**Allows all accounts or specified accounts to perform the following actions on specified resources in the bucket:** PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts) GetObject (to obtain object content and metadata) GetObjectVersion (to obtain the content and metadata of a specified object version) ModifyObjectMetaData (to modify object metadata) ListMultipartUploadParts (to list uploaded parts) AbortMultipartUpload (to abort multipart uploads) GetObjectVersionAcl (to obtain the ACL of an object version) GetObjectAcl (to obtain the object ACL) PutObjectAcl (to configure the object ACL) RestoreObject (to restore objects from Archive storage)	Excluding the specified actions is not allowed.

Custom Bucket Policies

You can also customize a bucket policy based on your service requirements. A custom bucket policy consists of five basic elements: effect, principal, resources, actions, and conditions. For details, see **OBS Permission Control Elements**.

Object Policy

Object policies apply to objects in a bucket. A bucket policy is applicable to a set of objects (with the same object name prefix) or to all objects (specified by an asterisk *) in the bucket. To configure an object policy, select an object, and then configure a policy for it.

Object Policy Templates:

OBS Console provides object policy templates for two typical scenarios. You can use these templates to quickly create object policies.

When using a template to create an object policy, you need to specify principals (authorized users), or you can modify the template settings, including the principal, actions, and conditions. The resource is the object for which a policy is configured. This resource is automatically specified by the system and does not need to be modified.

Table 2-5 Object policy templates

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
All accounts/ Current account/ Other accounts/ Delegated accounts	Specified objects	Object Read-Only	**Allows all accounts or specified accounts to perform the following actions on specified resources in the bucket:** GetObject (to obtain object content and metadata) GetObjectVersion (to obtain the content and metadata of a specified object version) GetObjectVersionAcl (to obtain the ACL of a specified object version) GetObjectAcl (to obtain the object ACL) RestoreObject (to restore objects from Archive storage)	Excluding the specified actions is not allowed.

Principal	Resource	Template Name	Actions Allowed	Advanced Settings
		Object Read/Write	**Allows all accounts or specified accounts to perform the following actions on specified resources in the bucket:** PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts) GetObject (to obtain object content and metadata) GetObjectVersion (to obtain the content and metadata of a specified object version) ModifyObjectMetaData (to modify object metadata) ListMultipartUploadParts (to list uploaded parts) AbortMultipartUpload (to abort multipart uploads) GetObjectVersionAcl (to obtain the ACL of an object version) GetObjectAcl (to obtain the object ACL) PutObjectAcl (to configure the object ACL) RestoreObject (to restore objects from Archive storage)	Excluding the specified actions is not allowed.

Custom Object Policies

You can also customize an object policy as needed. A custom object policy consists of five basic elements: effect, principal, resources, actions, and conditions. For details, see **A.1 Bucket Policy Parameters**. The resource is the selected object and is automatically specified by the system.

Relationship Between Bucket Policies and Object Policies

An object policy applies to only one object in a bucket. A bucket policy applies to multiple or all objects in a bucket.

Bucket Policy Application Scenarios

- You can use bucket policies to grant other Huawei Cloud accounts the permissions to access OBS resources.
- You can configure bucket policies to grant IAM users various access permissions to different buckets.

Configuring a Bucket Policy

- **Creating a Bucket Policy with a Template**
- **Creating a Custom Bucket Policy (Visual Editor)**
- **Creating a Custom Bucket Policy (JSON View)**

Bucket Policy Example

- **Example 1: Grant an IAM user the specified operation permission on all objects in a specified bucket.**

  The following example policy grants the PutObject and PutObjectAcl permissions to the IAM user whose ID is **71f3901173514e6988115ea2c26d1999** under account **b4bf1b36d9ca43d984fbcb9491b6fce9** (account ID).

```
{
   "Statement":[
   {
     "Sid":"AddCannedAcl",
     "Effect":"Allow",
     "Principal": {"ID": ["domain/b4bf1b36d9ca43d984fbcb9491b6fce9:user/
71f3901173514e6988115ea2c26d1999"]},
     "Action":["PutObject","PutObjectAcl"],
     "Resource":["examplebucket/*"]
   }
 ]
}
```

- **Example 2: Grant all permissions for a specified bucket to an IAM user.**

  The following example policy grants all operation permissions (including bucket operations and object operations) of **examplebucket** to the user whose ID is **71f3901173514e6988115ea2c26d1999** in account **b4bf1b36d9ca43d984fbcb9491b6fce9** (account ID).

```
{
   "Statement":[
   {
     "Sid":"test",
     "Effect":"Allow",
     "Principal": {"ID": ["domain/b4bf1b36d9ca43d984fbcb9491b6fce9:user/
71f3901173514e6988115ea2c26d1999"]},
     "Action":["*"],
     "Resource":[
       "examplebucket/*",
       "examplebucket"
     ]
   }
 ]
}
```

- **Example 3: Grant all permissions except the object deletion permission to an OBS user.**

  The following example policy grants a user (user ID **71f3901173514e6988115ea2c26d1999**) of an account (ID **b4bf1b36d9ca43d984fbcb9491b6fce9**) all permissions for the **examplebucket** bucket, excluding the permission to delete objects.

```
{
   "Statement":[
   {
     "Sid":"test1",
     "Effect":"Allow",
     "Principal": {"ID": ["domain/b4bf1b36d9ca43d984fbcb9491b6fce9:user/
71f3901173514e6988115ea2c26d1999"]},
```



```
    "Action":["*"],
    "Resource":["examplebucket/*"]
   },
   {
    "Sid":"test2",
    "Effect":"Deny",
    "Principal": {"ID": ["domain/b4bf1b36d9ca43d984fbcb9491b6fce9:user/
71f3901173514e6988115ea2c26d1999"]},
    "Action":["DeleteObject"],
    "Resource":["examplebucket/*"]
   }
  ]
}
```

- **Example 4: Grant the read-only permission on a specified object to all accounts.**

  The following example policy grants the **GetObject** (download object) permission of **exampleobject** in bucket **examplebucket** to all accounts, allowing everyone to read data of the exampleobject object.

```
{
   "Statement":[
   {
    "Sid":"AddPerm",
    "Effect":"Allow",
    "Principal": "*",
    "Action":["GetObject"],
    "Resource":["examplebucket/exampleobject"]
   }
  ]
}
```

- **Example 5: Restrict access to a specific IP address.**

  The following policy grants all users the permission to perform any OBS operation. However, the requests must be from the specified IP address range. The IP address range that is allowed by the statement is 192.168.0.* with an exception of 192.168.0.1.

  Use **IpAddress** and **NotIpAddress** conditions, and use the **SourceIp** (in OBS range) condition key. The value of **SourceIp** is the CIDR notation described in RFC 4632.

```
{
  "Statement": [
    {
      "Sid": "IPAllow",
      "Effect": "Allow",
      "Principal": "*",
      "Action": "*",
      "Resource": "examplebucket/*",
      "Condition": {
         "IpAddress": {"SourceIp": "192.168.0.0/24"},
         "NotIpAddress": {"SourceIp": "192.168.0.1/32"}
      }
    }
  ]
}
```

2.3 ACLs

An ACL is a list that defines grantees and their granted permissions.

Bucket and object ACLs are attached to accounts. By default, an ACL is created when a bucket or object is created, authorizing the owner the full control over the bucket or object.

To implement simple and practical authorization for users, the OBS ACL has the following features:

- The ACL takes effect for both the account and the users under the account.
- When the owner of a bucket is the same as the owner of an object, the ACL configured on the bucket takes effect on the bucket and objects in the bucket by default.
- An ACL can be carried when a bucket is created, or an ACL can be configured after a bucket is created. An object can carry an ACL when it is uploaded. You can also configure the ACL after the object is uploaded successfully.

ACLs are write and read control rules attached to accounts, whose permission granularity is not as fine as bucket policies and IAM policies. Generally, it is recommended that you use IAM permissions and bucket policies for access control.

Table 2-6 lists users to whom you can grant bucket access permissions by configuring an ACL.

Table 2-6 Authorized users supported by OBS

Principal	Description
Specific User	ACLs can be used to grant accounts with bucket/object access permissions. Once a specific account is granted with certain bucket/object access permissions, all IAM users who have OBS resource permissions under this account can have the same access permissions to operate the bucket or object. You can configure bucket policies to grant different permissions to different IAM users.
Owner	The owner of a bucket is the account that created the bucket. The bucket owner has all bucket access permissions by default. The read and write permissions to the bucket ACL are permanently available to the bucket owner, and cannot be modified. An object owner is the account that uploads the object, but may not be the owner of the bucket that stores the object. The object owner has all control over the object by default. The read and write permissions to the object ACL are permanently available to the object owner, and cannot be modified. **NOTICE** Do not modify the bucket owner's read and write access permissions for the bucket.
Anonymous users	Visitors who have not registered with Huawei Cloud. If the permissions to access a bucket or an object are granted to anonymous users, everyone can access the object or bucket without identity authentication. **NOTICE** If the permissions to access a bucket or an object are granted to anonymous users, everyone can access the object or bucket without identity authentication.

Principal	Description
Log delivery user groups **NOTE** Only the bucket ACL supports authorizing permissions to the log delivery user.	A log delivery user group only delivers access logs of buckets and objects to the configured target bucket. OBS does not create or upload any file to a bucket automatically. Therefore, if you want to record access logs for buckets, you need to grant the permission to a log delivery user group who will deliver the access logs to your specified target bucket. This user group is only used to record internal logs of OBS. **NOTICE** After logging is enabled, the log delivery user will be automatically granted the permission to read the bucket ACL and write the bucket where logs are saved. If you manually disable such permissions, bucket logging fails.

Bucket ACL

Table 2-7 lists the access permissions controlled by a bucket ACL.

Table 2-7 Access permissions controlled by a bucket ACL

Permission	Option	Description
Access to bucket	Read	Allows a grantee to obtain the list of objects in a bucket and the bucket metadata.
	Write	Allows a grantee to upload, overwrite, and delete any object in a bucket.
Access to object	Read	Allows a grantee to obtain the object content and metadata.
Access to ACL	Read	Allows a grantee to obtain the bucket ACL. The bucket owner has this permission permanently by default.
	Write	Allows a grantee to update the bucket ACL. The bucket owner has this permission permanently by default.

Table 2-8 lists the access permissions of an object ACL.

Table 2-8 Access permissions controlled by an object ACL

Permission Related Concepts	Option	Description
Access to Object	Read	A grantee with the read access to an object can obtain the content and the metadata of the object.
Access to ACL	Read	A grantee with the read access to an object ACL can obtain the ACL of the object. The object owner has this permission permanently by default.
	Write	A grantee with the write access to an object ACL can update the ACL of the object. The object owner has this permission permanently by default.

NOTE

Every time you change the bucket or object access permission setting in an ACL, it overwrites the existing setting instead of adding a new access permission to the bucket or object.

Application Scenarios of Bucket ACLs

You can configure bucket ACLs to:

- Grant an account the read and write access to a bucket, so that data in the bucket can be shared or external buckets can be added. For example, after account **A** grants account **B** the read and write access to a bucket, account **B** can access the bucket by adding an external bucket through OBS Browser+ or using APIs and SDKs.
- Grant the log delivery user group with the write access to the target bucket, so that access logs can be delivered to the target bucket.

Application Scenarios of Object ACLs

You can configure object ACLs to:

- Control access to objects. A bucket policy can control access to a single object or a set of objects. If you want to further separately control access to a single object in the set of objects for which a bucket policy has been configured, the object ACL is recommended.
- Access an object through a URL. Generally, if you want to grant anonymous users the permission to read an object through a URL, use the object ACL.

Configuring an ACL Using Header Fields

Access Control Policies

You can set an access control policy in a header when creating a bucket or uploading an object (for details about the examples, see **Creating a Bucket** and

Uploading Objects - PUT). Only the access control policies predefined in OBS are available. The **x-obs-acl** is special, which can be configured with six types of permissions. No matter what type of permissions is configured, the owner has full control permission for the buckets or objects. The following table lists the predefined policies.

Table 2-9 Predefined access control policies in OBS

Policy	Description
private	Indicates that a bucket or object can be accessed only by its owner.
public-read	If this permission is set for a bucket, everyone can obtain the object list, multipart tasks, and bucket metadata. If this permission is set for an object, everyone can obtain the content and metadata of the object.
public-read-write	If this permission is configured for a bucket, everyone can obtain the object list, multipart uploads, bucket metadata, and can upload or delete objects, initiate multipart uploads, upload parts, assemble parts, copy parts, and cancel multipart uploads. If this permission is set for an object, everyone can obtain the content and metadata of the object.
public-read-delivered	If this permission is set for a bucket, everyone can obtain the object list, multipart tasks, bucket metadata, and obtain the content and metadata of the objects in the bucket. This permission does not apply to objects.
public-read-write-delivered	If this permission is configured for a bucket, everyone can obtain the object list, multipart uploads, bucket metadata, and can upload or delete objects, initiate multipart uploads, upload parts, assemble parts, copy parts, and cancel multipart uploads. Users can also obtain content and metadata of objects in the bucket. This permission does not apply to objects.
bucket-owner-full-control	If this permission is configured for an object, the bucket and object owners have the full control over the object. By default, if you upload an object to a bucket of any other user, the bucket owner does not have the permissions on your object. After you grant this policy to the bucket owner, the bucket owner can have full control over your object.

NOTE

By default, the access control policy is **private**.

You can also use the following header fields to set access control policies when creating a bucket or uploading an object.

Table 2-10 Header fields for setting bucket or object ACLs

Header	Description
x-obs-grant-read	Used to grant the READ permission to all users in a specific account.
x-obs-grant-write	Used to grant the WRITE permission to all users in a specific account.
x-obs-grant-read-acp	Used to grant the READ_ACP permission to all users in a specific account.
x-obs-grant-write-acp	Used to grant the WRITE_ACP permission to all users in a specific account.
x-obs-grant-full-control	Used to grant the FULL_CONTROL permission to all users in a specific account.
x-obs-grant-read-delivered	Used to grant the READ permission for buckets and objects in the buckets to all users in a specific account, and objects inherit the permissions of their bucket. This permission does not apply to objects.
x-obs-grant-full-control-delivered	Used to grant the FULL_CONTROL permission for buckets and objects in the buckets to all users in a specific account, and objects inherit the permissions of their bucket. This permission does not apply to objects.

3 Access Requests

3.1 Accessing OBS Using Permanent Access Keys

OBS provides REST APIs that supports authenticated requests and anonymous requests. Anonymous requests are typically used for scenarios that require public access, such as accessing a hosted static website. In most scenarios, accessing OBS resources require authenticated requests. An authenticated request contains a signature value. The signature value is calculated based on the requester's access keys (a pair of AK and SK) as the encryption factor and the specific information carried by the request body. The signature calculation process is included in the SDK. You only need to prepare the access keys when initializing the SDK. Then the signature calculation is implemented automatically. However, if a client uses the REST APIs to develop a program to access OBS, the client needs to calculate the signature based on the signature algorithm defined by the OBS and add the signature to the request.

Users can create permanent access keys (a pair of AK and SK) on the **My Credentials** page.

- AK stands for the access key ID. It is the unique ID associated with the secret access key (SK). An AK is used together with an SK to encrypt and sign a request.
- They can identify a request sender and prevent the request from being modified.

An AK is also the unique identifier of an IAM user. OBS identifies a user based on its AK and SK, and then checks the permissions.

For details about how to obtain the permanent access keys, see **Obtaining Access Keys (AK/SK)**.

3.2 Accessing OBS Using Temporary Access Keys

Temporary Access Keys

OBS can be accessed through temporary access keys and the security token, which can be obtained on IAM. You can assign the temporary access keys (including the security token) to a third-party application and an IAM user, so they can access OBS within a specified period of time.

You can obtain the temporary access keys and security token by calling the IAM API in **Obtaining a Temporary Access Key and Security Token Through a Token**.

Temporary AK/SK and security token comply with the least privilege principle and can be used to temporarily access OBS. When you use a temporary AK/SK pair to call an API for authentication, you must use the temporary AK/SK and security token at the same time and add the **x-obs-security-token** field to the request header.

Temporary access keys have the following advantages over permanent access keys of IAM users:

- Temporary access keys are valid for 15 minutes to 24 hours. You do not need to expose the permanent access keys of IAM users, reducing security risks.
- When obtaining temporary access keys, you can pass policy parameters to further restrict the temporary permissions granted to users. This ensures that IAM users can effectively control permissions granted to other users.

For details, see **User Signature Authentication**.

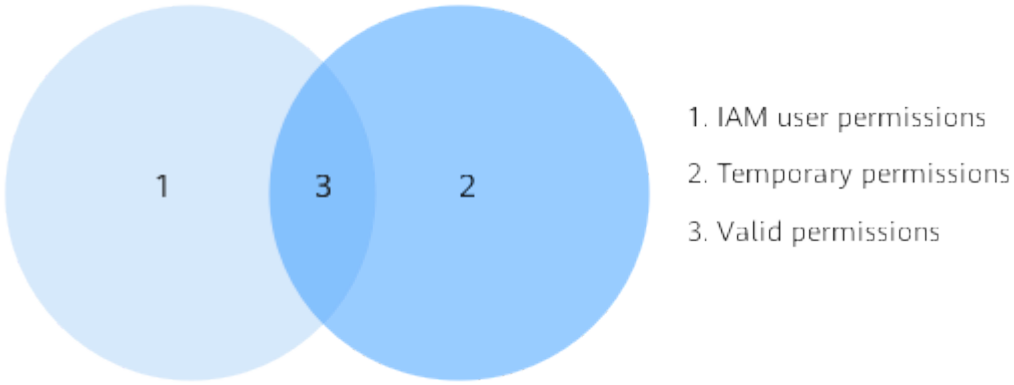
Permissions of the Temporary Access Keys

When an IAM user calls the IAM API in **Obtaining a Temporary Access Key and Security Token Through a Token**, the user can specify parameter **policy** to add a temporary policy for the temporary access keys to further restrict the permissions granted to other users. The format and content of a temporary policy are consistent with those specified in **2.1 IAM Permissions**.

- If policy parameters are not specified, no temporary policies are used. The temporary access keys inherit the IAM user's permissions.
- If policy parameters are specified, a temporary policy is enabled. Then the temporary access keys confine the granted permissions according to the temporary policy and the IAM user permissions.

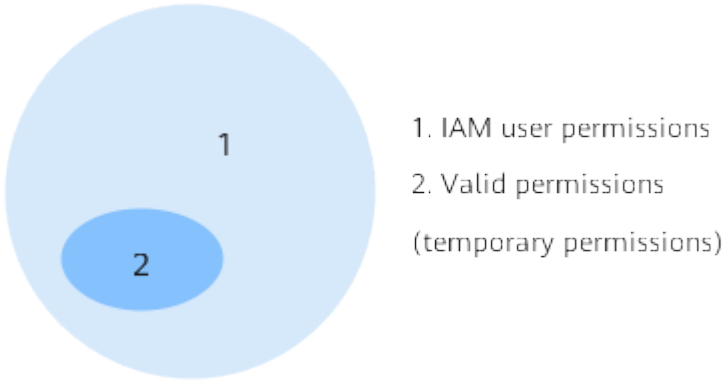
As shown in the following figure, circle 1 indicates the original permissions of an IAM user, and circle 2 indicates the temporary permissions specified by a temporary policy. The overlapped part 3 is the scope of permissions enabled by the temporary access keys.

Figure 3-1 Intersection of IAM user permissions and temporary policy permissions



Temporary access keys comply with the least privilege principle. Configure a temporary policy within the original permission scope of an IAM user. Otherwise you may be confused about why permissions enabled by a temporary policy are not effective. As illustrated by the following figure, the finally effective permissions are the authorized temporary permissions.

Figure 3-2 Restricting temporary permissions within the scope of IAM user permissions



A temporary policy authentication starts from the Deny statements. Unspecified permissions are denied by default.

NOTE

Therefore, you are advised to specify only the allowed permission.

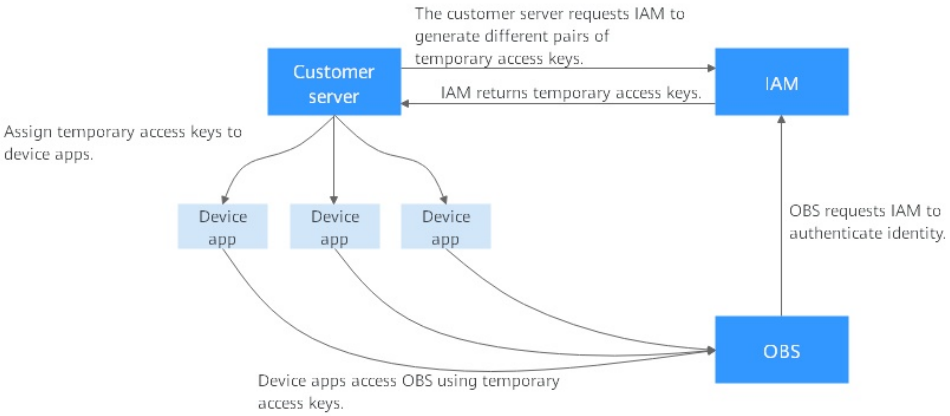
Application Scenarios

Temporary access keys are used to authorize third parties to temporarily access OBS. For example, some companies have their user management systems, which manage device app users and local enterprise users. These users do not have IAM user permissions, so IAM users can grant temporary access keys to these users when they need to access OBS.

Typical application scenario:

A company has a large number of device apps that need to access OBS. Different apps represent different end users who require different access permissions. In this case, temporary access keys can be used to access OBS.

Figure 3-3 Application scenarios of temporary access keys



1. If the customer's server can obtain permanent access keys for IAM users, the server can send requests to IAM to generate different temporary access keys for different apps.

   IAM users can obtain the temporary access keys and security token by calling the IAM API in **Obtaining a Temporary Access Key and Security Token Through a Token**. When calling this API, pass the **policy** parameter to set a temporary policy. An example is provided as follows:

   ```
   {
       "auth": {
           "identity": {
               "methods": [
                   ... ...
               ],
               "policy": {
                   ... ...
               }
           }
       }
   }
   ```

   The policy's syntax and format are the same as those specified in **2.1 IAM Permissions**. For details, see **Permissions and Supported Actions**.

2. IAM generates temporary access keys with different permissions and validity periods based on the passed policy parameters and returns the access keys to the customer server.

3. Then the customer server distributes the temporary access keys to device apps that require such permissions.
4. A device app can use the temporary access keys to access OBS through OBS SDKs or APIs. Temporary access keys are valid for a short period of time. If the device app needs to prolong its use of OBS, it should send a request to the customer server for updating temporary access keys before they expire.

Configuration Example

For details, see **5.5 Granting Temporary Access to OBS**.

3.3 Accessing OBS Using a Temporary URL

You can use a temporary URL to access OBS and perform operations such as bucket creation or object upload and download. For details, see **Using a URL for Authorized Access**. This section describes how to share objects using a temporary URL.

Sharing Objects

You can share objects (files or folders) stored in OBS with all users within a specified period.

Sharing a file

File sharing is temporary. All shared URLs are temporary with a validity period.

A temporary URL consists of the access domain name and the temporary authentication information of a file. Example:

```
https://bucketname.obs.cn-north-4.myhuaweicloud.com:443/image.png?
AccessKeyId=xxx&Expires=xxx&response-content-disposition=xxx&x-obs-security-token=xxx&Signature=xxx
```

The temporary authentication information contains the **AccessKeyId**, **Expires**, **x-obs-security-token**, and **Signature** parameters. The **AccessKeyId**, **x-obs-security-token**, and **Signature** parameters are used for authentication. The **Expires** parameter specifies the validity period of the authentication. For details about the temporary authentication method and parameters, see **Authentication of Signature in a URL** in *Object Storage Service API Reference*. A temporary URL also contains the **response-content-disposition** parameter that defines whether an object is directly downloaded or previewed in a browser when it is accessed. This is determined by the browser based on the **Content-Type** of the shared object.

After an object is shared through OBS Console, the system will generate a URL that contains the temporary authentication information, valid for five minutes since its generation by default. Each time when you change the validity period of a URL, OBS obtains the authentication information again to generate a new URL for sharing, which takes effect since the time when the validity period is changed.

Sharing a folder

Folder sharing is temporary and has a validity period. Folders can be temporarily shared by access code or URL:

- By access code: Specify a six-digit access code before creating a sharing task. After the sharing task is created, OBS aggregates the download links of all objects in the folder to a static website that is hosted by a public OBS bucket. Then anyone who has the created temporary URL and access code can access the static website and download the shared files.
- By URL: Specify a validity period and then share the generated link with others. Anyone can use a signature to access all objects in the shared folder.

Limitations and Constraints

- A file or folder shared through OBS Console is valid for one minute to 18 hours. If you need a longer validity period for a shared file or folder, use the client tool OBS Browser+ that allows a validity period of up to one year. If you want the shared file or folder to be permanently accessed, use a bucket policy to **grant all accounts the read permission for it**.
- Only buckets 3.0 support file and folder sharing. You can view the bucket version in the **Basic Information** area on the **Overview** page of a bucket.
- With file sharing, objects in the Archive or Deep Archive storage class can be shared only after they have been restored. With folder sharing, objects in the Archive or Deep Archive storage class must be restored in their original bucket before they are shared, so that users whom the objects are shared with can download them.

Configuration Procedure

For details about how to share files and folders, see **5.4.4 Temporarily Sharing Objects with All Accounts**.

3.4 Accessing OBS Using an IAM Agency

The IAM agency is a function of Identity and Access Management (IAM). In some OBS application scenarios (such as CDN private bucket retrieval and cross-region replication), IAM agencies are required to grant other users or cloud services the permission to access OBS and manage OBS resources for the delegating party, thus implementing secure and efficient agent maintenance.

For details about IAM agencies, see **Identity and Access Management User Guide**.

4 Typical Permission Control Scenarios

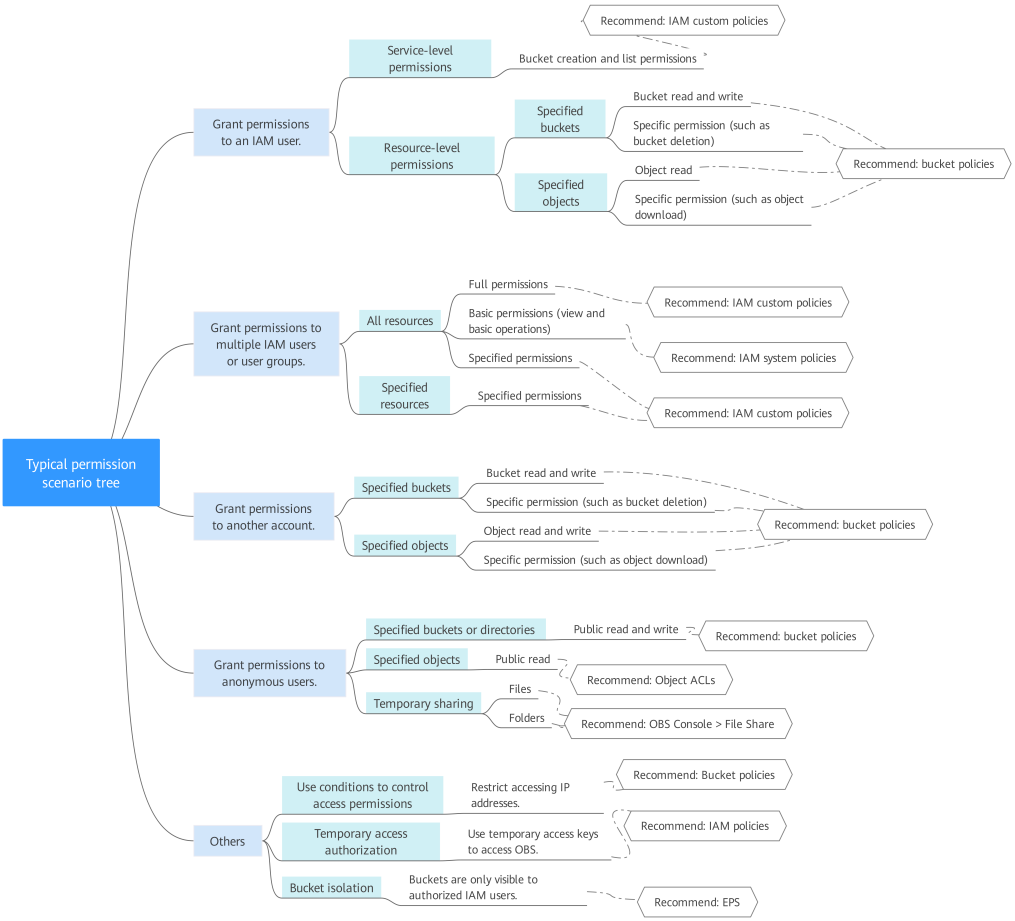
The following typical scenarios are provided to help you better configure OBS permission control.

Factors to consider before configuring permission control:

1. **Who are granted**: Grantees can be a single IAM user, multiple IAM users or user groups, other accounts, and anonymous users.
2. **What resources will be accessed**: Such resources can be all OBS resources (requiring service-level permissions), specified buckets, and specified objects.
3. **What permissions are granted**: In addition to configure basic permissions, such as read and read/write permissions, you can also customize permissions based on your needs.

OBS provides various permission control mechanisms for different scenarios. The following figure can help you quickly find the best method that matches your requirements.

Figure 4-1 Typical permission scenarios



The following table lists the permission control cases in typical scenarios for your reference.

Table 4-1 Configuration cases in typical scenarios

Scenario	Configuration Case
Granting permissions to an IAM user under the current account	**5.1.1 Granting an IAM User the Permissions Required to List and Create Buckets**
	5.1.2 Granting an IAM User the Read/Write Permission for a Bucket
	5.1.3 Granting an IAM User the Specified Permissions for a Bucket
	5.1.4 Granting an IAM User the Read Permission for Specific Objects
	5.1.5 Granting an IAM User the Specified Permissions for Certain Objects

Scenario	Configuration Case
Granting permissions to multiple IAM users or user groups under the current account	5.2.1 Granting IAM User Groups All Permissions for All OBS Resources
	5.2.2 Granting IAM User Groups Basic Permissions for All OBS Resources
	5.2.3 Granting IAM User Groups the Specified Permissions for All OBS Resources
	5.2.4 Granting IAM User Groups the Specified Permissions for Certain OBS Resources
Granting permissions to other accounts	5.3.1 Granting Other Accounts the Read/Write Permission for a Bucket
	5.3.2 Granting Other Accounts the Specified Permissions for a Bucket
	5.3.3 Granting IAM Users Under an Account the Access to a Bucket and the Resources in It
	5.3.4 Granting Other Accounts the Read Permission for Certain Objects
	5.3.5 Granting Other Accounts the Specified Permissions for Certain Objects
Granting permissions to all accounts	5.4.1 Granting All Accounts the Public Read Permission for a Bucket
	5.4.2 Granting All Accounts the Read Permission for a Directory
	5.4.3 Granting All Accounts the Read Permission for Certain Objects
	5.4.4 Temporarily Sharing Objects with All Accounts
Granting temporary permissions	5.5 Granting Temporary Access to OBS
Using enterprise projects to isolate resources	5.6 Allowing IAM Users to View Only Authorized Buckets
Restricting access to specified IP addresses	5.7 Restricting Access to a Bucket for Specific IP Addresses

5 Configuration Cases in Typical Permission Control Scenarios

5.1 Granting Permissions to an IAM User Under the Current Account

5.1.1 Granting an IAM User the Permissions Required to List and Create Buckets

Scenario

This topic describes how to grant an IAM user the permissions required to create and list buckets. An IAM user with this permission can create buckets. The created buckets are still owned by the account of the IAM user. The IAM user can view all buckets under the account.

Recommended Configuration

Permissions to create and list buckets are at OBS service-level, which can be implemented only through IAM. You are advised to use IAM custom policies.

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-1 Configuring a custom policy

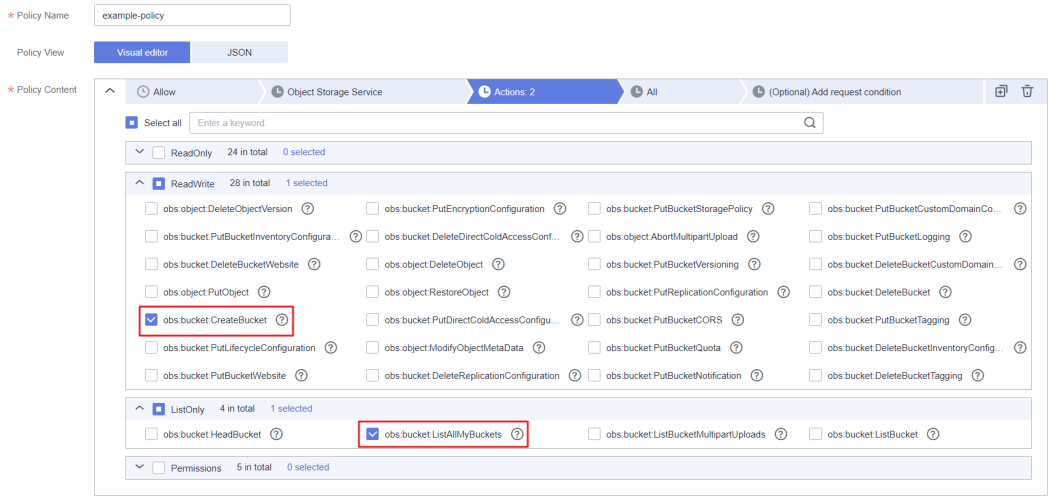


Table 5-1 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.
Policy Content	• Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:CreateBucket** from **ReadWrite** actions and **obs:bucket:ListAllMyBuckets** from **ListOnly** actions. • Select **All** for resources.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.1.2 Granting an IAM User the Read/Write Permission for a Bucket

Scenario

This topic describes how to grant an IAM user the read/write permission for an OBS bucket.

Recommended Configuration

You are advised to use bucket policies to grant resource-level permissions to an IAM user.

Configuration Precautions

In this case, the preset template **Bucket Read/Write** allows specified IAM users to perform all actions excluding the following ones on a bucket and the objects in it:

- DeleteBucket (to delete a bucket)
- PutBucketPolicy (to configure a bucket policy)
- PutBucketAcl (to configure a bucket ACL)

After the configuration is complete, read and write operations (uploading, downloading, and deleting all objects in the bucket) can be performed using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to perform those operations, an error is reported indicating that you do not have required permissions. For details, see the **error cause**.

If you want an IAM user to perform read and write operations on OBS Console or OBS Browser+, configure custom IAM policies by referring to **Follow-up Procedure**.

After the configuration is complete, the system still displays a message indicating that you do not have the permission to access the bucket. This is normal because the console invokes other advanced configuration APIs, but you can still perform operations allowed in read/write mode.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 Click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-2 Configuring a bucket policy

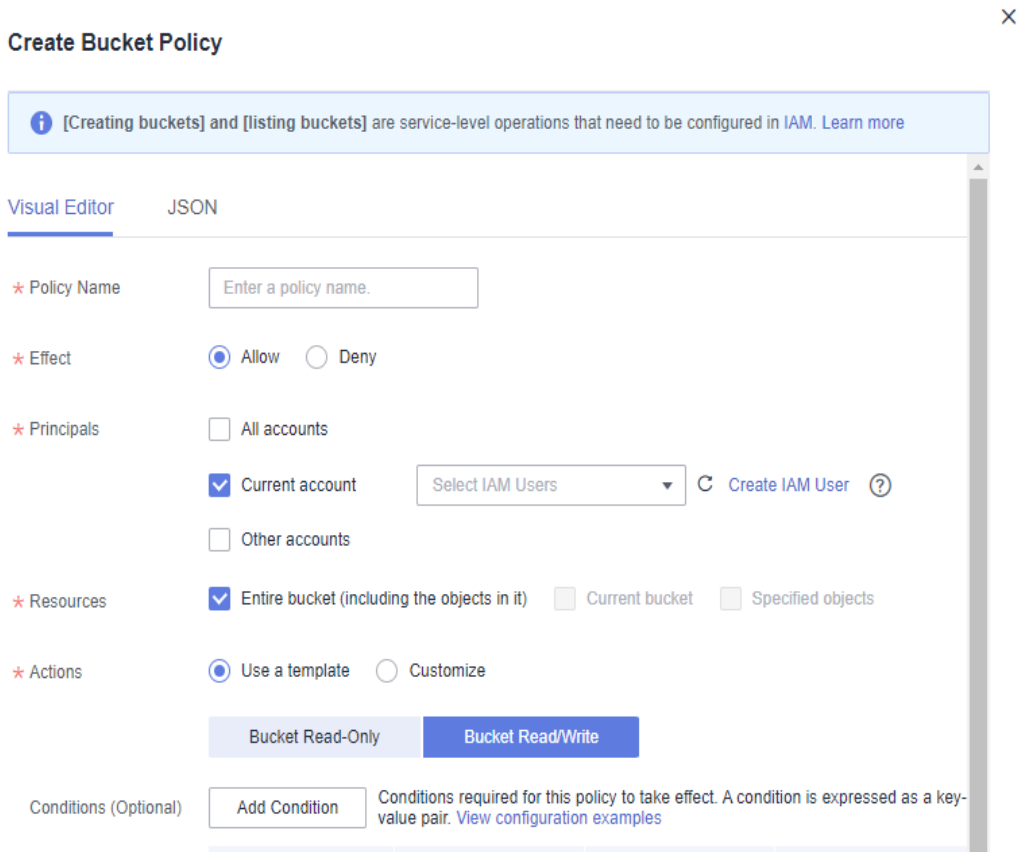


Table 5-2 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Current account**. • IAM users: Select an IAM user whom you want to grant permissions to.
	Resources	• Select **Entire bucket (including the objects in it)**.
	Actions	• Choose **Use a template**. • Select **Bucket Read/Write**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Follow-up Procedure

To perform read and write operations on OBS Console or OBS Browser+, you must add the **obs:bucket:ListAllMyBuckets** (for listing buckets) and **obs:bucket:ListBucket** (for listing objects in a bucket) permissions to the custom IAM policy.

NOTE

obs:bucket:ListAllMyBuckets applies to all resources, while **obs:bucket:ListBucket** applies to the authorized bucket only. Therefore, you need to add two permissions to the policy.

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-3 Configuring a custom policy

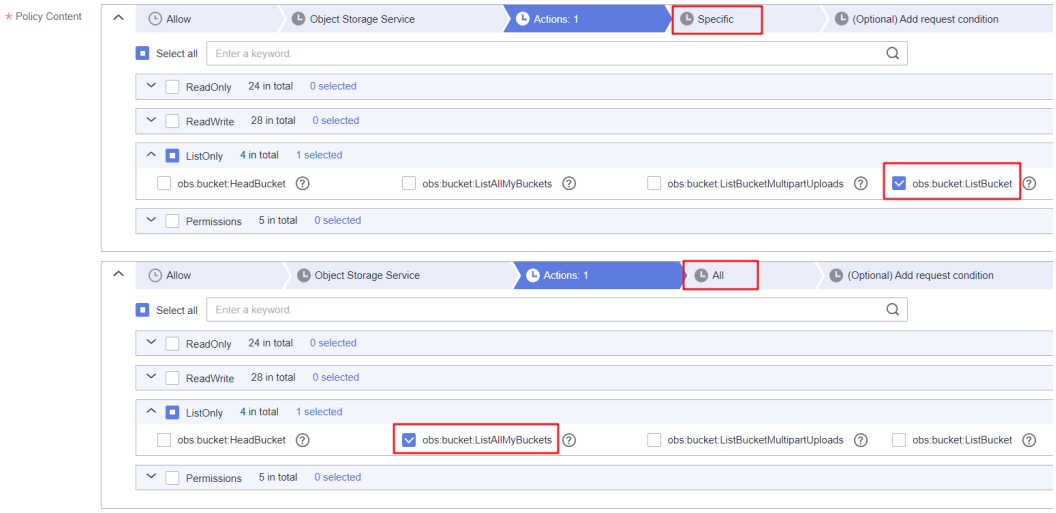


Table 5-3 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.

Parameter	Description
Policy Content	[Permission 1] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListAllMyBuckets** from the actions. • Select **All** for resources. [Permission 2] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListBucket** from the actions. • For **Resources**, select **Specific**, and for **bucket**, select **Specify resource path**, and click **Add Resource Path**. Enter the bucket name in the **Path** text box, indicating that the policy takes effect only for this bucket.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.1.3 Granting an IAM User the Specified Permissions for a Bucket

Scenario

This topic describes how to grant an IAM user the permissions required to perform specific operations on an OBS bucket. Below describes how to grant the bucket deletion permission.

If you need to configure other permissions, select the corresponding actions from the **Action Name** drop-down list in the bucket policy. For details about the actions supported by OBS, see **Action/NotAction**.

Recommended Configuration

You are advised to use bucket policies to grant resource-level permissions to an IAM user.

Configuration Precautions

After the configuration is complete, you can delete buckets using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to delete buckets, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, more APIs (such as **ListAllMyBuckets** and **ListBucketVersions**) are called to load the list of buckets and versioned objects, but your permissions do not cover those APIs. In such case, your access is denied or your operation is not allowed.

If you want an IAM user to delete buckets on OBS Console or OBS Browser+, allow the **ListBucketVersions** permission in the bucket policy and configure a custom IAM policy to grant the **ListAllMyBuckets** permission by referring to **Follow-up Procedure**.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-4 Configuring a bucket policy

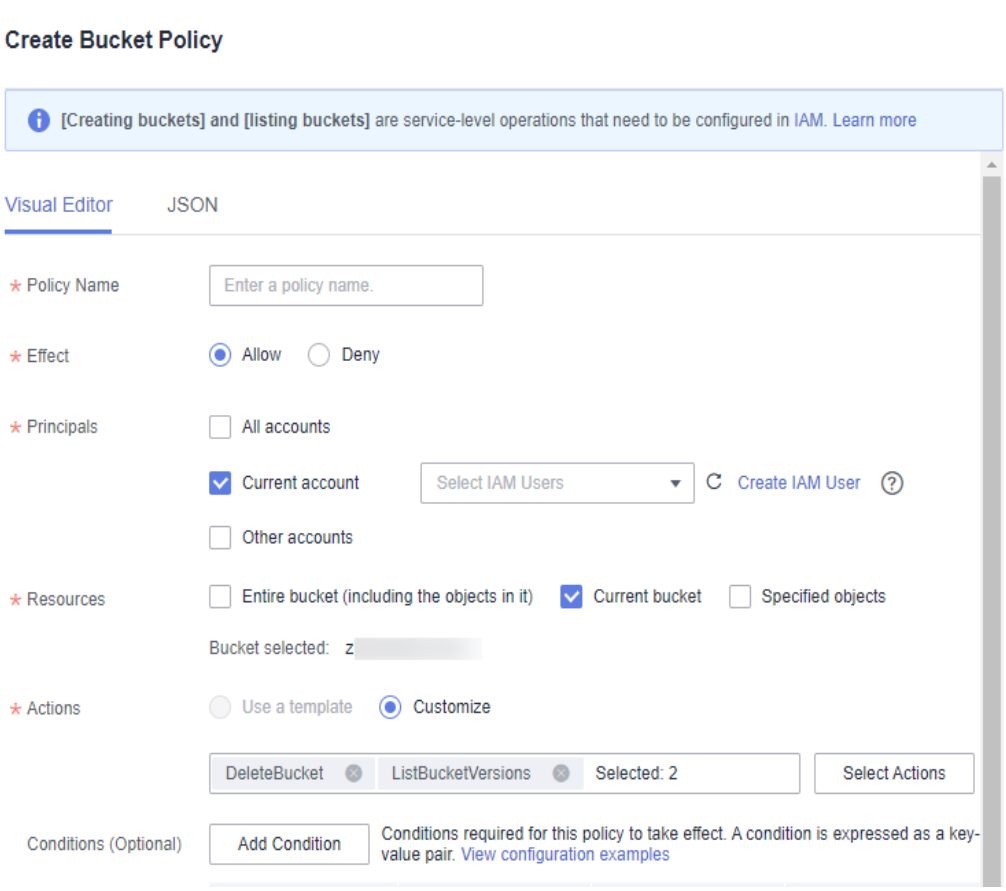


Table 5-4 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Current account**. • IAM users: Select an IAM user whom you want to grant permissions to.
	Resources	• Select **Current bucket**.
	Actions	• Choose **Customize**. • Select the following actions: – DeleteBucket (to delete a bucket) – ListBucketVersions (to list object versions in the bucket) **NOTE** To configure other permissions, select the corresponding actions. For details about the actions supported by OBS, see **Action/NotAction**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Follow-up Procedure

To successfully delete buckets on OBS Console or OBS Browser+, you need to allow the **obs:bucket:ListAllMyBuckets** (for listing buckets) permission in the IAM policy.

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-5 Configuring a custom policy

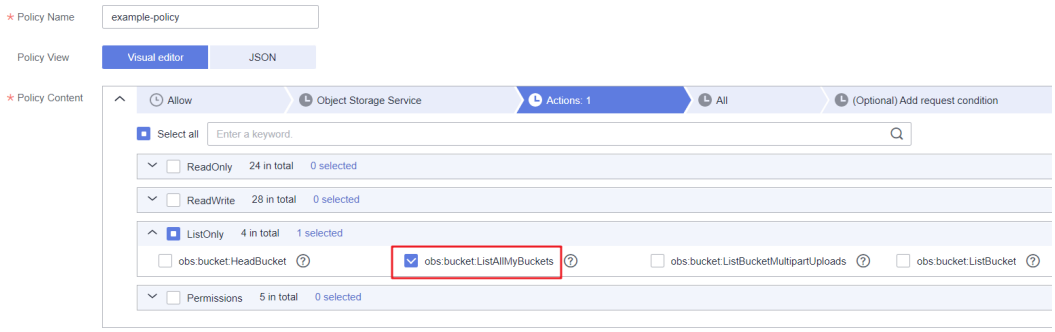


Table 5-5 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.
Policy Content	• Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListAllMyBuckets** from the actions. • Select **All** for resources.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.1.4 Granting an IAM User the Read Permission for Specific Objects

Scenario

This topic describes how to grant an IAM user the read permission for an object or a set of objects in an OBS bucket.

Recommended Configuration

You are advised to use bucket policies to grant resource-level permissions to an IAM user.

Configuration Precautions

In this case, the preset template **Object Read-Only** allows specified IAM users to perform the following actions on specified objects in a bucket:

- GetObject (to obtain object content and metadata)
- GetObjectVersion (to obtain the content and metadata of a specified object version)
- GetObjectVersionAcl (to obtain the ACL of a specified object version)
- GetObjectAcl (to obtain the object ACL)
- RestoreObject (to restore objects from Archive storage)

After the configuration is complete, you can read (download) specific objects using APIs or SDKs. However, if you download an object from OBS Console or OBS Browser+, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, the **ListAllMyBuckets** API is called to load the bucket list, the **ListBucket** API is called to load the object list, and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access is denied or your operation is not allowed.

If you want an IAM user to perform read operations on OBS Console or OBS Browser+, configure custom IAM policies by referring to **Follow-up Procedure**.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-6 Configuring a bucket policy

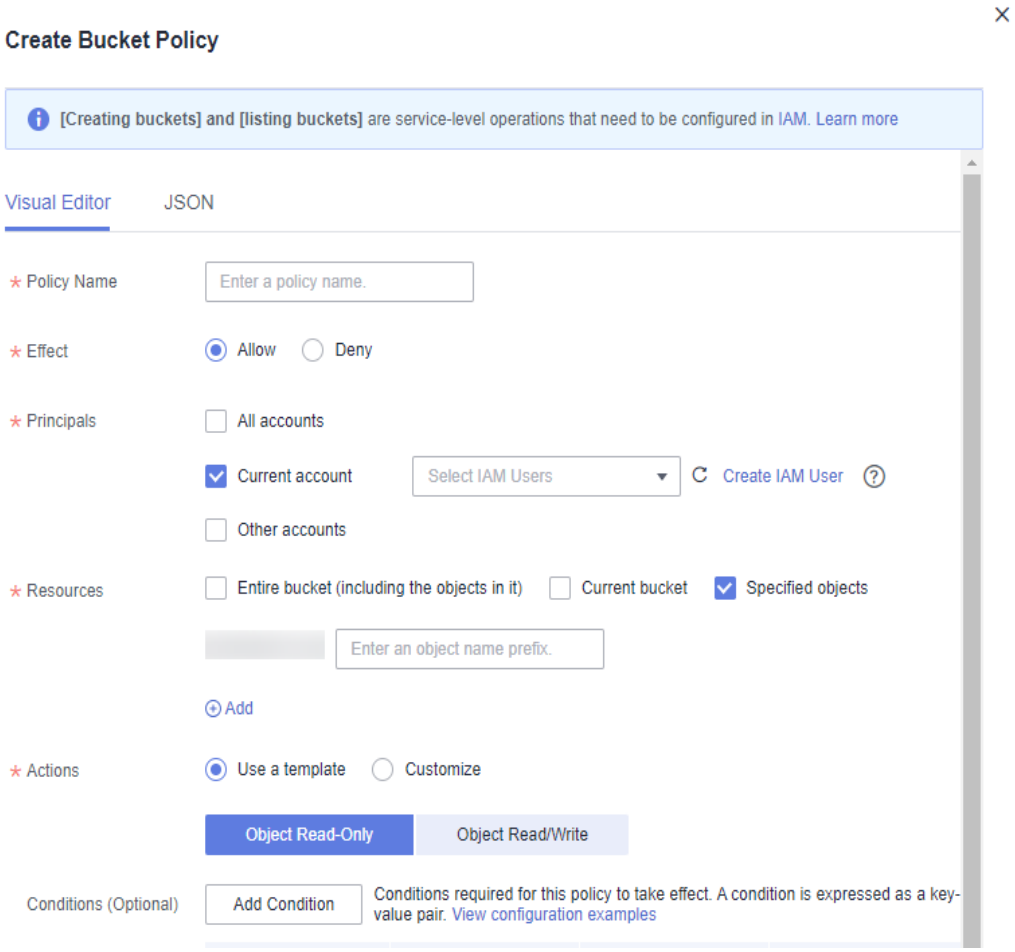


Table 5-6 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Current account**. • IAM users: Select an IAM user whom you want to grant permissions to.

Parameter		Description
	Resources	• Select **Specified objects**. • Enter an object name prefix for the resource path. **NOTE** – You can click **Add** to specify multiple resource paths. – You can specify a specific object, an object set, or a directory. * indicates all objects in the bucket. To specify a specific object, enter the object name. To specify a set of objects, enter *Object name prefix**, **Object name suffix*, or *.
	Actions	• Choose **Use a template**. • Select **Object Read-Only**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Follow-up Procedure

To perform read operations on OBS Console or OBS Browser+, you must add the **obs:bucket:ListAllMyBuckets** (for listing buckets) and **obs:bucket:ListBucket** (for listing objects in a bucket) permissions to the custom IAM policy.

NOTE

obs:bucket:ListAllMyBuckets applies to all resources, while **obs:bucket:ListBucket** applies to the authorized bucket only. Therefore, you need to add two permissions to the policy.

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-7 Configuring a custom policy

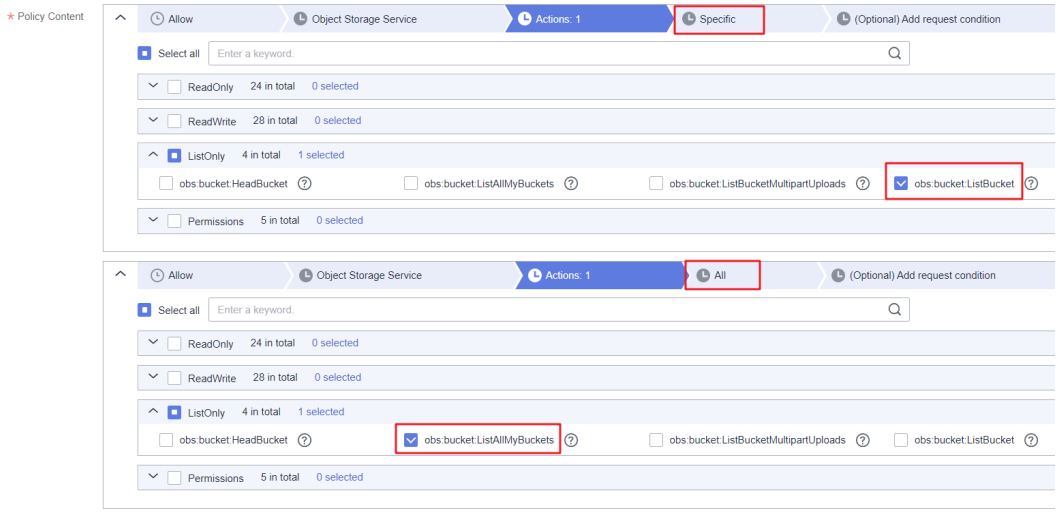


Table 5-7 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.
Policy Content	[Permission 1] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListAllMyBuckets** from the actions. • Select **All** for resources. [Permission 2] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListBucket** from the actions. • For **Resources**, select **Specific**, and for **bucket**, select **Specify resource path**, and click **Add Resource Path**. Enter the bucket name in the **Path** text box, indicating that the policy takes effect only for this bucket.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.1.5 Granting an IAM User the Specified Permissions for Certain Objects

Scenario

This topic describes how to grant an IAM user the specified permissions on certain objects in a bucket. Below explains how to grant the object download permission.

If you need to configure other permissions, select the corresponding actions from the **Action Name** drop-down list in the bucket policy. For details about the actions supported by OBS, see **Action/NotAction**.

Recommended Configuration

You are advised to use bucket policies to grant resource-level permissions to an IAM user.

Configuration Precautions

After the configuration is complete, you can download objects using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to download an object, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, APIs (such as **ListAllMyBuckets** and **ListBucket**) are called to load the bucket list and object list and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access is denied or your operation is not allowed.

If you want an IAM user to successfully download objects on OBS Console or OBS Browser+, configure custom IAM policies by referring to **Follow-up Procedure**.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-8 Configuring a bucket policy

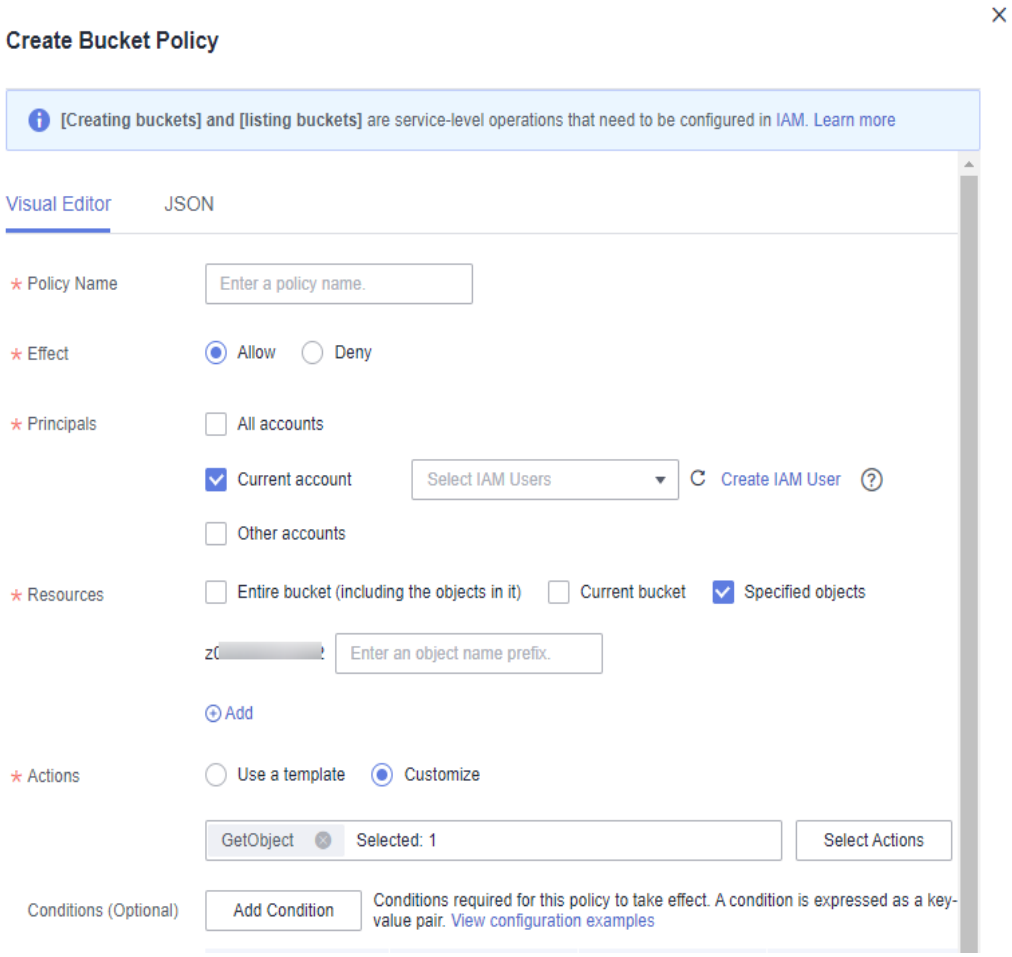


Table 5-8 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Current account**. • IAM users: Select an IAM user whom you want to grant permissions to.

Parameter		Description
	Resources	• Select **Specified objects**. • Enter an object name prefix for the resource path. **NOTE** – You can click **Add** to specify multiple resource paths. – You can specify a specific object, an object set, or a directory. * indicates all objects in the bucket. To specify a specific object, enter the object name. To specify a set of objects, enter *Object name prefix**, **Object name suffix*, or *.
	Actions	• Choose **Customize**. • Select GetObject (to obtain object content and metadata). **NOTE** To configure other permissions, select the corresponding actions. For details about the actions supported by OBS, see **Action/NotAction**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Follow-up Procedure

To perform specific operations on OBS Console or OBS Browser+, you must add the **obs:bucket:ListAllMyBuckets** (for listing buckets) and **obs:bucket:ListBucket** (for listing objects in a bucket) permissions to the custom IAM policy.

NOTE

obs:bucket:ListAllMyBuckets applies to all resources, while **obs:bucket:ListBucket** applies to the authorized bucket only. Therefore, you need to add two permissions to the policy.

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-9 Configuring a custom policy

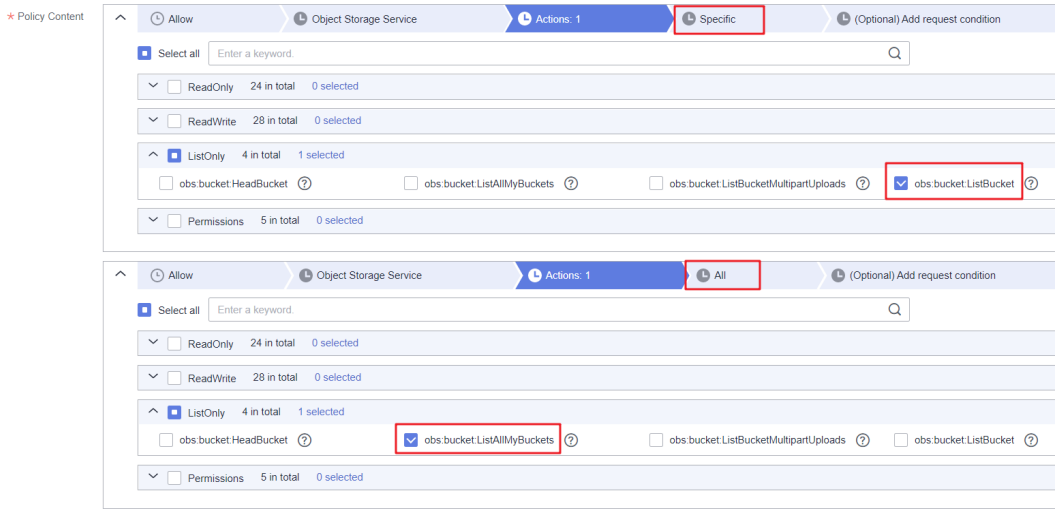


Table 5-9 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.
Policy Content	[Permission 1] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListAllMyBuckets** from the actions. • Select **All** for resources. [Permission 2] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListBucket** from the actions. • For **Resources**, select **Specific**, and for **bucket**, select **Specify resource path**, and click **Add Resource Path**. Enter the bucket name in the **Path** text box, indicating that the policy takes effect only for this bucket.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.2 Granting Permissions to Multiple IAM Users or User Groups Under the Current Account

5.2.1 Granting IAM User Groups All Permissions for All OBS Resources

Scenario

This topic describes how to grant multiple IAM users or user groups all permissions for all OBS resources. Users with this permission can perform any OBS operation.

Recommended Configuration

IAM custom policies

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-10 Configuring a custom policy

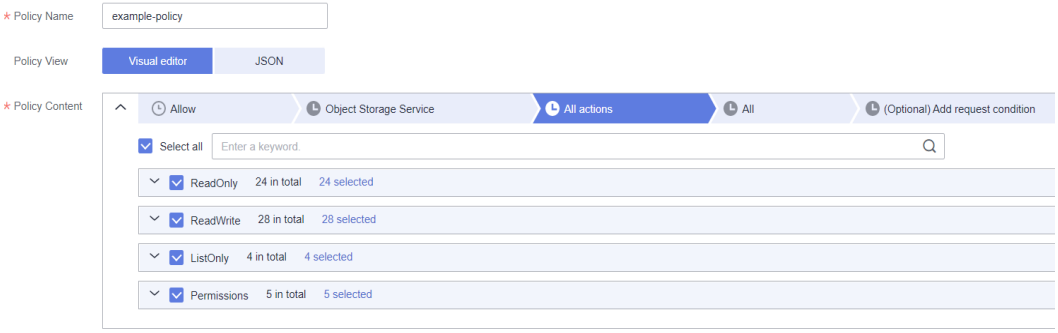


Table 5-10 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.
Policy Content	• Select **Allow**. • Select **Object Storage Service (OBS)**. • Select all actions. • Select **All** for resources.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.2.2 Granting IAM User Groups Basic Permissions for All OBS Resources

Scenario

This topic describes how to use the OBS-related system roles and policies preset in IAM to grant basic operation permissions for all OBS resources to multiple IAM users or user groups. The following table lists the permissions supported by preset system roles and policies.

Table 5-11 OBS system permissions

Role/Policy Name	Description	Type
Tenant Administrator	Users with this permission can perform all operations on all services except IAM.	System-defined role
Tenant Guest	Users with this permission can perform read-only operations on all services except IAM.	System-defined role

Role/Policy Name	Description	Type
OBS Administrator	Users with this permission are OBS administrators and can perform any operations on all OBS resources under the account.	System-defined policy
OBS Buckets Viewer	Users with this permission can list buckets, obtain basic bucket information, and obtain bucket metadata.	System-defined role
OBS ReadOnlyAccess	Users with this permission can list buckets, obtain basic bucket information, obtain bucket metadata, and list objects (not the objects that have been versioned). **NOTE** If a user with this permission fails to list objects on OBS Console, there may be multiple versions of objects in the bucket. In this case, you need to grant the user the **obs:bucket:ListBucketVersions** permission so that the user can view different versions of objects on OBS Console.	System-defined policy
OBS OperateAccess	Users with this permission can perform all OBS ReadOnlyAccess operations and perform basic object operations, such as uploading objects, downloading objects, deleting objects, and obtaining object ACLs. **NOTE** If a user with this permission fails to list objects on OBS Console, there may be multiple versions of objects in the bucket. In this case, you need to grant the user the **obs:bucket:ListBucketVersions** permission so that the user can view different versions of objects on OBS Console.	System-defined policy

Recommended Configuration

IAM system roles and policies

Configuration Precautions

After a system role or policy is configured according to this case, if you log in to the system using OBS Console or OBS Browser+, a message may be displayed indicating that you do not have the permission.

Authorized permissions are valid, though operations on the console or client are restricted. You can call the APIs directly or through SDKs.

With **OBS OperateAccess** configured, you can upload or download objects on OBS Console or OBS Browser+.

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 **Create a user group and assign permissions**.

Add system roles or policies that meet the service scenario requirements to the user group by following the instructions provided in the IAM document.

Step 4 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for the configured permissions to take effect.

----End

5.2.3 Granting IAM User Groups the Specified Permissions for All OBS Resources

Scenario

This topic describes how to grant multiple IAM users or user groups specified permissions for all OBS resources.

Recommended Configuration

IAM custom policies

Configuration Precautions

After the configuration is complete, you can perform allowed operations using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to perform those operations, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, APIs (such as **ListAllMyBuckets** and **ListBucket**) are called to load the bucket list and object list and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access to OBS Console or OBS Browser+ is denied or your operation is not allowed.

To allow IAM users to operate buckets and objects on OBS Console or OBS Browser+, add at least the **obs:bucket:ListAllMyBuckets** and **obs:bucket:ListBucket** permissions to the custom policy.

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-11 Configuring a custom policy

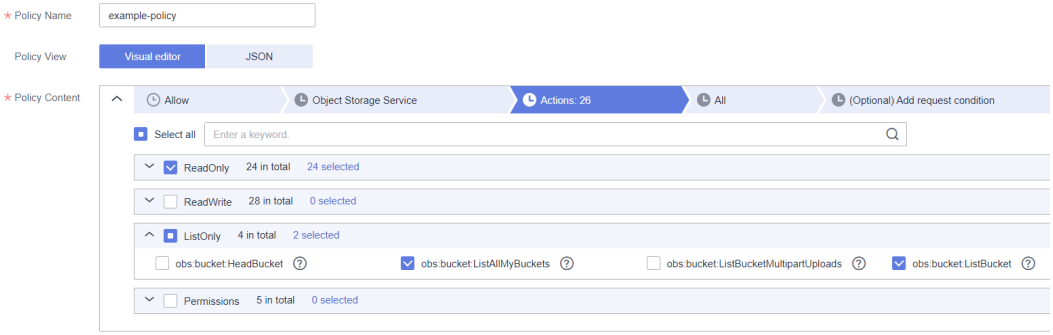


Table 5-12 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.
Policy Content	• Select **Allow**. • Select **Object Storage Service (OBS)**. • Select the actions to be authorized. For details about operations and permissions supported by OBS, see **Bucket-Related Actions** and **Object-Related Actions**. • Select **All** for resources.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.2.4 Granting IAM User Groups the Specified Permissions for Certain OBS Resources

Scenario

This topic describes how to grant specified operation permissions for certain OBS resources (can be a bucket or an object) to multiple IAM users or user groups.

Recommended Configuration

IAM custom policies

Configuration Precautions

After the configuration is complete, you can perform allowed operations using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to perform those operations, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, APIs (such as **ListAllMyBuckets** and **ListBucket**) are called to load the bucket list and object list and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access to OBS Console or OBS Browser+ is denied or your operation is not allowed.

To allow IAM users to operate buckets and objects on OBS Console or OBS Browser+, add at least the **obs:bucket:ListAllMyBuckets** and **obs:bucket:ListBucket** permissions to the custom policy.

NOTE

obs:bucket:ListAllMyBuckets applies to all resources. You need to select all resources.

obs:bucket:ListBucket applies only to the authorized bucket. You can select all resources or a specified bucket as needed.

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-12 Configuring a custom policy

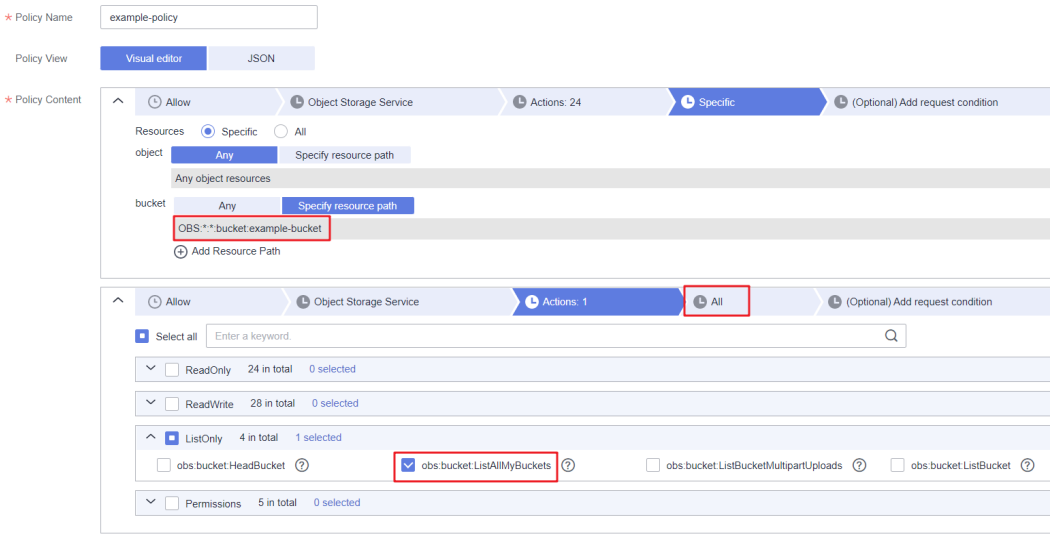


Table 5-13 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.

Parameter	Description
Policy Content	[Permission 1] It is mandatory when an authorized user needs to perform operations on OBS Console or OBS Browser+. • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListAllMyBuckets** from the actions. • Select **All** for resources. [Permission 2] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select the actions to be authorized. For details about operations and permissions supported by OBS, see **Bucket-Related Actions** and **Object-Related Actions**. • Choose **Specific resources** > **Bucket** to specify bucket resources. [Format] **obs:*:*:bucket:***bucket name*** [Note] For bucket resources, IAM automatically generates the prefix of the resource path: **obs:*:*:bucket:**. For the path of a specific bucket, add the *bucket name* to the end. You can also add a wildcard character (*) to indicate any bucket. Examples are given as follows: – **obs:*:*:bucket:*** (indicating any OBS bucket) – **obs:*:*:bucket:examplebucket** (indicating that the policy applies to bucket **examplebucket**) To perform operations on OBS Console or OBS Browser +, grant the **obs:bucket:ListBucket** permission to a specified bucket. • Choose **Specific resources** > **Object** to specify an object resource. [Format] Objects in a specified directory: **obs:*:*:object:***Bucket name*/*Prefix*/*** Specified object: **obs:*:*:object:***Bucket name*/*Object name* [Note] For object resources, IAM automatically generates the prefix of the resource path: **obs:*:*:object:** For the path of a specific object, add the *bucket name*/*object name* to the end. You can also add a wildcard character (*) to indicate any object in a bucket. Examples are given as follows:

Parameter	Description
	– **obs:*:*:object:my-bucket/my-object/*** (indicating any object in the **my-object** directory of bucket **my-bucket**) – **obs:*:*:object:my-bucket/exampleobject** (indicating object **exampleobject** in bucket **my-bucket**)
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.2.5 Granting IAM User Groups the Specified Permissions for a Folder

Scenario

This topic describes how to grant specified permissions for a folder in an OBS bucket to multiple IAM users or user groups.

Recommended Configuration

IAM custom policies

Configuration Precautions

After the configuration is complete, you can perform allowed operations using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to perform those operations, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, APIs (such as **ListAllMyBuckets** and **ListBucket**) are called to load the bucket list and object list and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access to OBS Console or OBS Browser+ is denied or your operation is not allowed.

To allow IAM users to operate buckets and objects on OBS Console or OBS Browser+, add at least the **obs:bucket:ListAllMyBuckets** and

obs:bucket:ListBucket permissions to the custom policy. (In this case, these two permissions are configured in permission 2 and 3.)

NOTE

obs:bucket:ListAllMyBuckets applies to all resources. You need to select all resources.

obs:bucket:ListBucket applies only to the authorized bucket. You can select all resources or a specified bucket as needed.

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-13 Configuring a custom policy

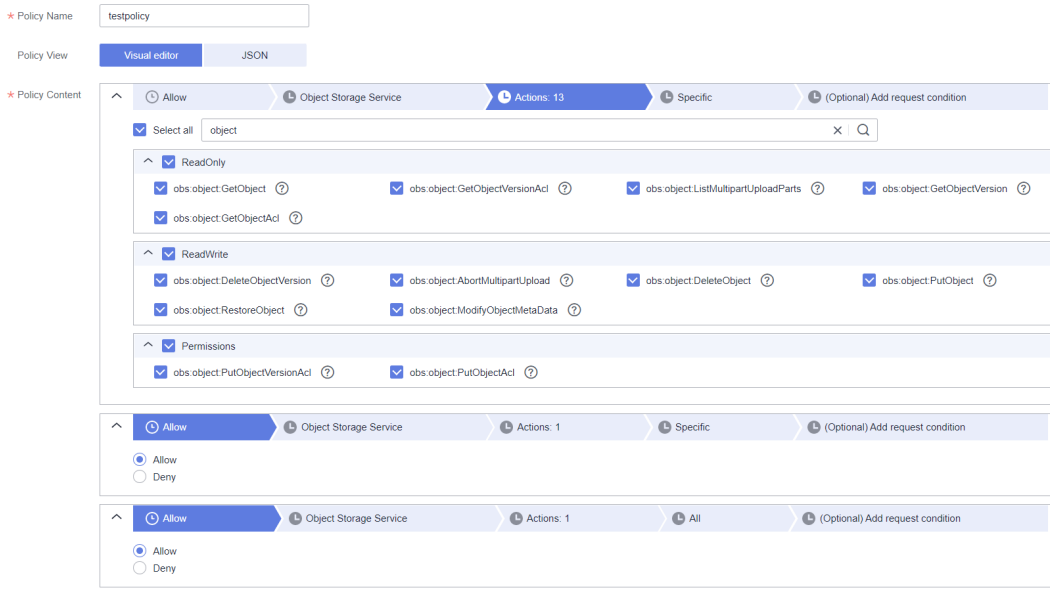


Table 5-14 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.

Parameter	Description
Policy Content	[Permission 1] • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select all the object-related permissions under **ReadOnly**, **ReadWrite**, and **Permissions**. • On the **All** tab, choose **Specific** > **Specify resource path** to specify a folder. [Path Format] **obs:*:*:object:***Bucket name*/*Folder name*/*** [Notes] For bucket resources, IAM automatically generates the prefix of the resource path **obs:*:*:object:**. You can add *Bucket name/Object name* at the end of the generated path prefix to specify a resource path. Wildcards (*) are also supported. For example, **OBS:*:*:object:example-002/folder-001/*** indicates any object in folder **folder-001** of bucket **example-002**. [Permission 2] It is mandatory when an authorized user needs to perform operations on OBS Console or OBS Browser+. • Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListBucket** from the actions. • On the **All** tab, choose **Specific** > **Specify resource path** to specify a bucket. [Path Format] **obs:*:*:bucket:***Bucket name* • On the **(Optional) Add request condition** tab, click **Add Request Condition**. – **Condition key**: Select **obs:prefix** from the drop-down list. – **Operator**: Select **StringMatch** from the drop-down list. – **Value**: *Folder name*/ [Notes] If you want a user to have only the permission to list a folder in the bucket, add a request condition for action **obs:bucket:ListBucket**. **prefix** is included in the request for listing objects in a bucket. In this way, when you specify **prefix** to list objects whose names start with *Folder name*/, the objects in the bucket can be listed. [Permission 3] It is mandatory when an authorized user needs to perform operations on OBS Console or OBS Browser+.

Parameter	Description
	• Select **Allow**. • Select **Object Storage Service (OBS)**. • Select **obs:bucket:ListAllMyBuckets** under **ListOnly**. • Select **All** for **Resources**.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

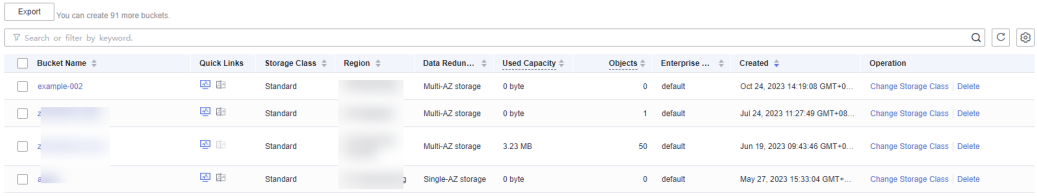
----End

Verification

Step 1 Log in to OBS Console as an IAM user.

Step 2 In the bucket list, click bucket **example-002** to go to the overview page.

Figure 5-14 Viewing the bucket list

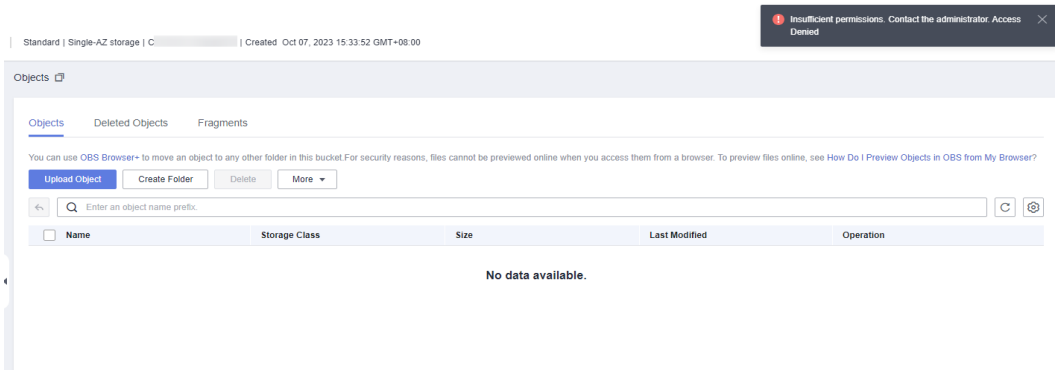


NOTE

After the configuration is complete, it is normal if the system still displays a message indicating that you do not have required permissions, because OBS Console also calls other APIs for advanced settings, but you can still perform the operations allowed on the folder.

Step 3 In the navigation pane, select **Objects**. It is normal that a message indicating no permission is displayed and no object can be viewed.

Figure 5-15 Viewing objects in bucket **example-002**

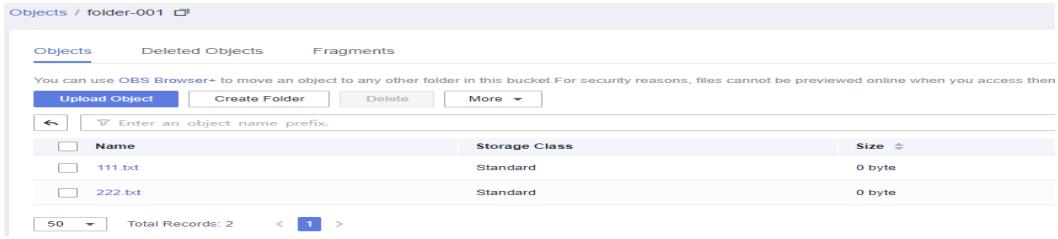


NOTE

The reason why there is no required permission is that listing objects on OBS Console is to list objects in the root folder. This rule does not match the configured custom policy for listing objects in folder **folder-001/**.

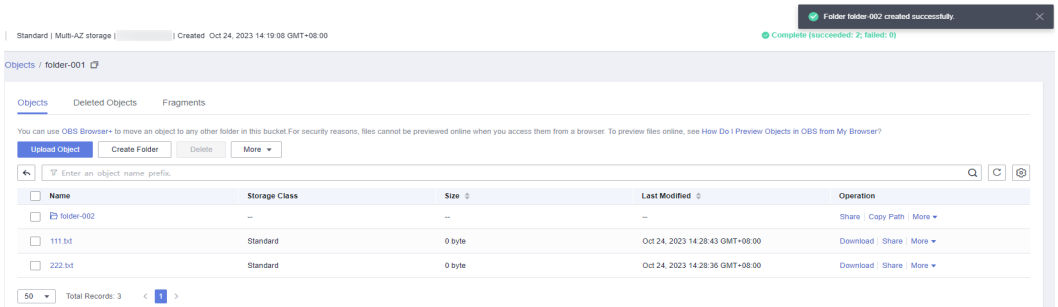
Step 4 In the search box, enter **folder-001/** to view the list of objects in **folder-001**. Objects **222.txt** and **111.txt** are displayed.

Figure 5-16 Viewing files



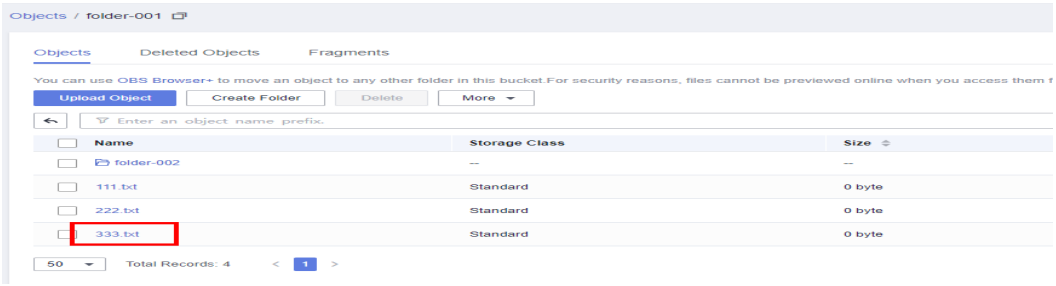
Step 5 Click **Create Folder** to create folder **folder-002**.

Figure 5-17 Creating folder **folder-002** successfully



Step 6 Click **Upload Object** to upload file **333.txt**.

Figure 5-18 Uploading an object successfully



NOTE

If some other permissions are required, hover your cursor over the username and choose **Identity and Access Management** > **Permissions**, and then repeat the operations above to configure custom policies as needed.

----End

5.3 Granting Permissions to Other Accounts

5.3.1 Granting Other Accounts the Read/Write Permission for a Bucket

Scenario

This topic describes how to grant other Huawei Cloud accounts (excluding the IAM users under them) the read/write permission for OBS buckets. For details about how to grant permissions to an IAM user, see **5.3.3 Granting IAM Users Under an Account the Access to a Bucket and the Resources in It**.

Recommended Configuration

You are advised to use bucket policies to grant permissions to other accounts.

Configuration Precautions

In this case, the preset template **Bucket Read/Write** allows other accounts to perform all actions excluding the following ones on a bucket and the objects in it:

- DeleteBucket (to delete a bucket)
- PutBucketPolicy (to configure a bucket policy)
- PutBucketAcl (to configure a bucket ACL)

After the configuration is complete, the authorized account can perform read and write operations (upload, download, or delete all objects in a bucket) by using APIs or SDKs or by adding external buckets through OBS Browser+. Currently, access to buckets of other accounts is not allowed on OBS Console.

When you use OBS Browser+ to access the added external bucket, a message may still be displayed indicating that you do not have required permissions.

Error cause: The loading on the OBS Browser+ bucket details page invokes some other OBS APIs. However, such operations are not allowed by the read and write permissions. Therefore, a message "Access denied. Check the response permission" or "This operation is not allowed on the requested resource" is displayed, however, existing permissions are not affected.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-19 Configuring a bucket policy

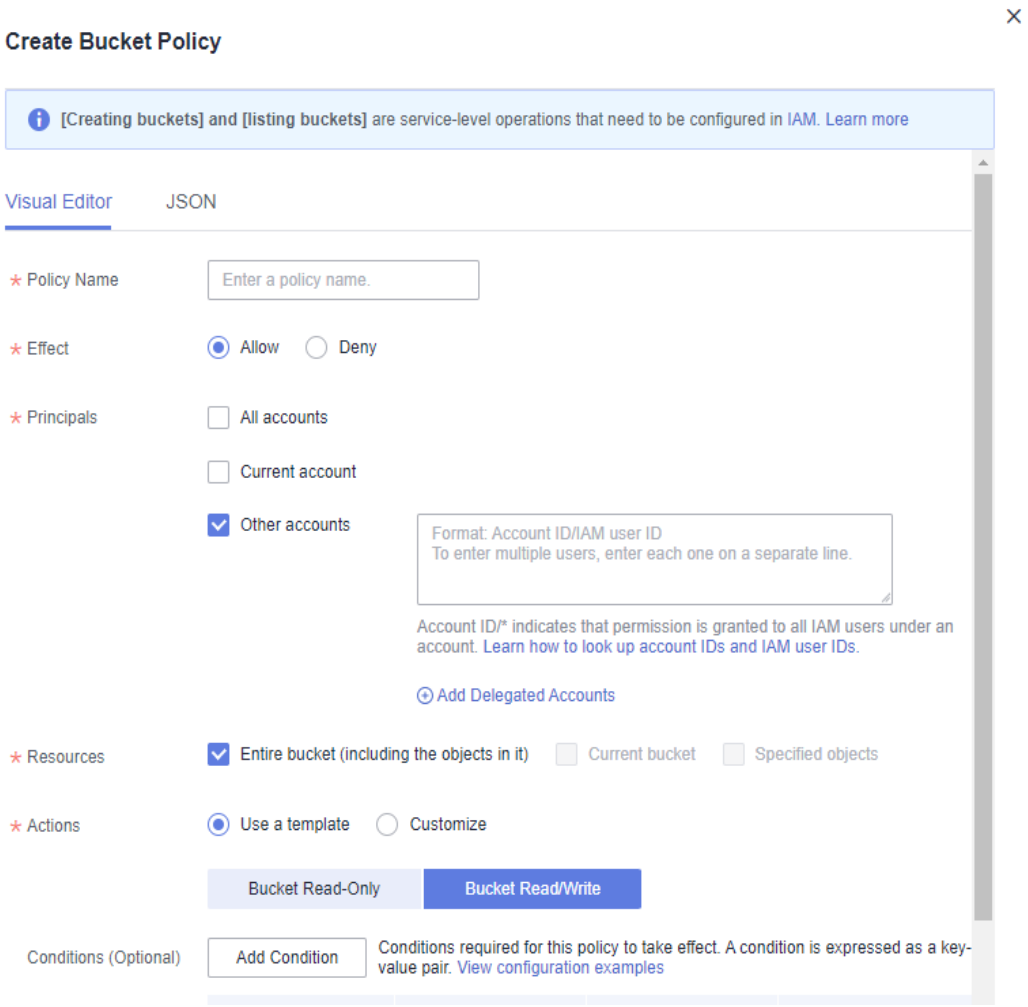


Table 5-15 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Other accounts**. **NOTE** You can obtain the account ID and IAM user ID from the **My Credentials** page. Accounts should be configured in the *Domain ID*/*IAM user ID* format, with each one on a separate line. *Account ID*/* indicates that permission is granted to all IAM users under the account.
	Resources	• Select **Entire bucket (including the objects in it)**.
	Actions	• Choose **Use a template**. • Select **Bucket Read/Write**.
	Advanced Settings > Exclude (Optional)	• **Specified actions** (selected by default)

Step 7 Ensure all the configurations are correct and click **Create**.

----End

5.3.2 Granting Other Accounts the Specified Permissions for a Bucket

Scenario

This topic describes how to grant other Huawei Cloud accounts (excluding the IAM users under them) specific operation permissions for OBS buckets. For details about how to grant permissions to an IAM user, see **5.3.3 Granting IAM Users Under an Account the Access to a Bucket and the Resources in It**.

The following example explains how to grant the permissions to configure a bucket ACL and obtain the bucket ACL configuration information. If you need to configure other permissions, select the corresponding actions from the **Action Name** drop-down list in the bucket policy. For details about the actions supported by OBS, see **Action/NotAction**.

Recommended Configuration

You are advised to use bucket policies to grant permissions to other accounts.

Configuration Precautions

After the configuration is complete, the authorized account can configure and obtain a bucket ACL by using APIs or SDKs or by adding external buckets through OBS Browser+. To do this by adding external buckets, the **ListBucket** permission is also required. Currently, access to buckets of other accounts is not allowed on OBS Console.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-20 Configuring a bucket policy

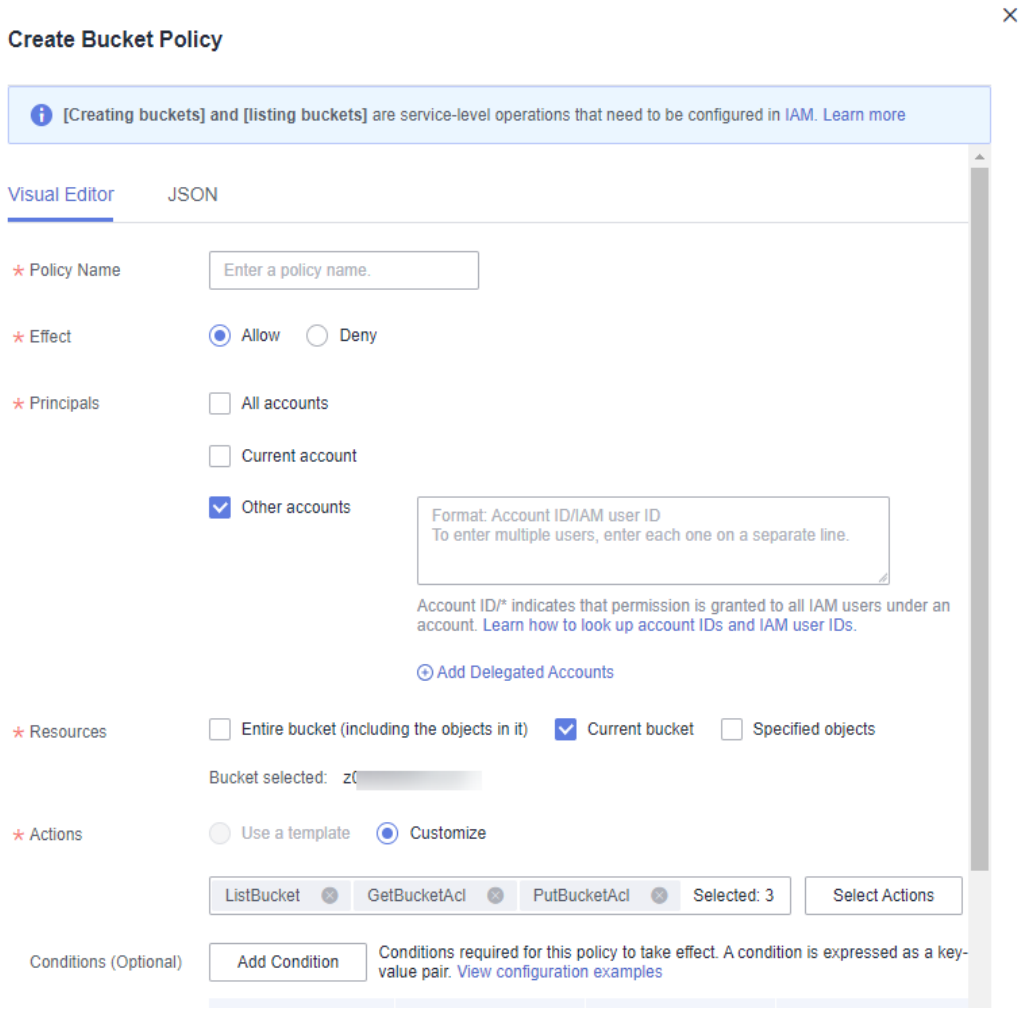


Table 5-16 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Other accounts**. **NOTE** You can obtain the account ID and IAM user ID from the **My Credentials** page. Accounts should be configured in the *Domain ID*/*IAM user ID* format, with each one on a separate line. *Account ID*/* indicates that permission is granted to all IAM users under the account.
	Resources	• Select **Current bucket**.
	Actions	• Choose **Customize**. • Select the following actions: – PutBucketAcl (to configure a bucket ACL) – GetBucketAcl (to obtain the bucket ACL information) – (Optional) ListBucket (to list objects in the bucket and obtain the bucket metadata) **NOTE** 1. After the ListBucket permission is configured, the authorized account can access the bucket from OBS Browser+ by adding an external bucket. 2. To configure other permissions, select the corresponding actions. For details about the actions supported by OBS, see **Action/NotAction**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

5.3.3 Granting IAM Users Under an Account the Access to a Bucket and the Resources in It

Scenario

This topic describes how to grant IAM users the permissions to access OBS buckets and resources in them.

The following describes how to grant the permissions to upload and download objects in a bucket. If you need to configure other specified permissions, configure the corresponding permissions in the bucket policy and IAM permissions.

Recommended Configuration

To grant permissions to IAM users under an account, you need to configure both **bucket policies** and **IAM permissions**.

For example, to allow IAM user **A** of account **A** to access bucket **B** of account **B**, you need to:

1. Configure a bucket policy that allows IAM user **A** to access bucket **B**.
2. Configure IAM permissions for account **A** to allow IAM user **A** to access bucket **B**.

Configuration Precautions

After the configuration is complete, the authorized IAM user can upload and download objects through APIs or SDKs. In addition, the user can upload and download objects by mounting external buckets on OBS Browser+. To add external buckets, the **ListBucket** permission is also required. Currently, access to buckets of other accounts is not allowed on OBS Console.

Procedure 1: The Bucket Owner Configures a Bucket Policy.

The bucket owner or a user who has the permission to configure bucket policies needs to configure a bucket policy that allows IAM users under an account to perform specified operations on the bucket.

In this example, account **B** (owner of bucket **B**) configures a bucket policy that allows IAM user **A** of account **A** to upload objects to and download objects from bucket **B** of account **B**.

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-21 Configuring a bucket policy

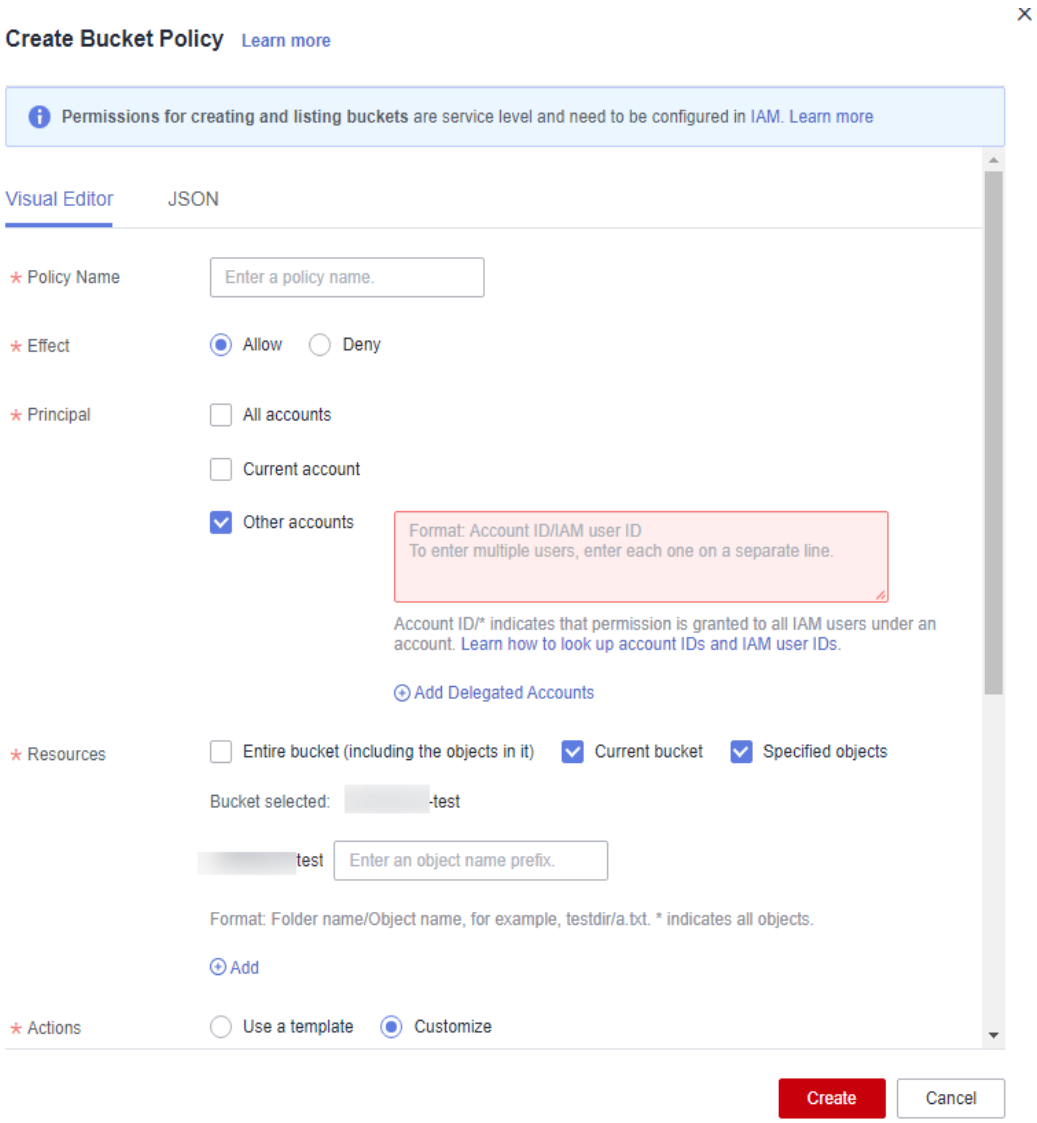


Table 5-17 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.

Parameter		Description
	Principals	• Select **Other accounts**. In this example, you can enter *ID of account A*/*ID of IAM user A*. **NOTE** 1. You can obtain the account ID and IAM user ID from the **My Credentials** page. 2. Accounts should be configured in the *Account ID*/*IAM user ID* format, with each one on a separate line. 3. *Account ID*/***** indicates that permission is granted to all IAM users under the account.
	Resources	• Select **Current bucket** and **Specified objects**. • Enter an object name prefix for the resource path. **NOTE** 1. You can click **Add** to specify multiple resource paths. 2. You can specify a specific object, an object set, or a directory. ***** indicates all objects in the bucket. To specify a specific object, enter the object name. To specify a set of objects, enter *Object name prefix******, ******Object name suffix*, or *****.
	Actions	• Choose **Customize**. • Select the following actions: – GetObject (to obtain object content and metadata) – GetObjectVersion (to obtain the content and metadata of a specified object version) – PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts) – (Optional) ListBucket (to list objects in the bucket and obtain the bucket metadata) **NOTE** 1. After the ListBucket permission is configured, the authorized account can access the bucket from OBS Browser+ by adding an external bucket. 2. To configure other permissions, select the corresponding actions. For details about the actions supported by OBS, see **Action/NotAction**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Procedure 2: The Account Grants Permissions to IAM Users Under It.

The account (not the bucket owner) need to grant permissions to its IAM users to allow them perform specified operations on the bucket. (The allowed operations must be the same as those allowed in the bucket policy.)

In this example, account **A** needs to grant IAM user **A** the permissions to upload objects to and download objects from bucket **B** of account **B**.

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

Step 4 Configure parameters for a custom policy.

Figure 5-22 Configuring a custom policy

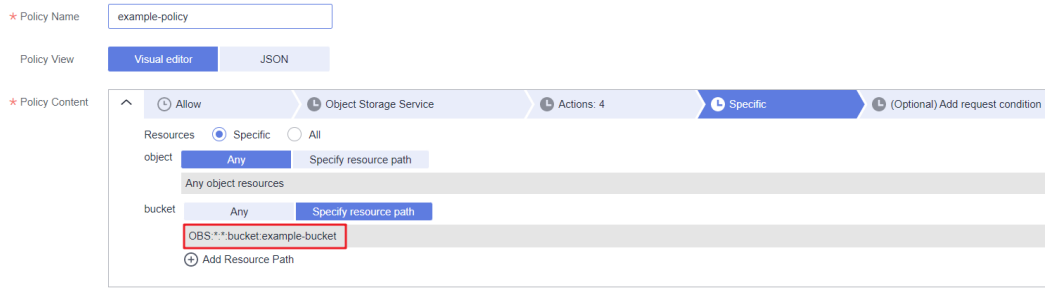


Table 5-18 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **Visual editor** is used here.

Parameter	Description
Policy Content	• Select **Allow**. • Select **Object Storage Service (OBS)**. • Select the actions to be authorized. – ReadOnly > **obs:bucket:ListBucketVersions** and **obs:object:GetObjectVersion** – ReadWrite > **obs:object:PutObject** – ListOnly > **obs:bucket:ListBucket** (Select this operation if you need to use OBS Browser+ to add external buckets.) If you need to configure permissions on other actions, select the corresponding actions. For details, see **Bucket-Related Actions** and **Object-Related Actions**. • Choose **Specific** > **object** to specify an object resource. The specified object or object set must be consistent with the bucket policy. – Select **Any** if the resource set in the bucket policy is *****. – If the resource specified in the bucket policy is a specified object or a set of objects, you need to specify the object or the set of objects the same as that in the bucket policy through the resource path. [Format] obs:*:*:object:*bucket name/object name* Select **Any** as the bucket policy in this example is set to *****. • Choose **Specific** > **bucket** > **Specify resource path** to specify bucket resources. Click **Add Resource Path** and enter the name of the authorized bucket in the **Path** text box, for example, **example-bucket**. The complete path of the resource is as follows: **OBS:*:*:bucket:example-bucket**.
Scope	The default value is **Global services**.

Step 5 Click **OK**. The custom policy is created.

Step 6 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 7 Add the IAM user you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

----End

5.3.4 Granting Other Accounts the Read Permission for Certain Objects

Scenario

This case describes how to grant other accounts (excluding IAM users under the account) the read permission for an object or a type of objects in an OBS bucket. For details about how to grant permissions to an IAM user, see **5.3.3 Granting IAM Users Under an Account the Access to a Bucket and the Resources in It**.

Recommended Configuration

You are advised to use bucket policies to grant permissions to other accounts.

Configuration Precautions

In this case, the preset template **Object Read-Only** allows other accounts to perform the following actions on specified objects in a bucket:

- GetObject (to obtain object content and metadata)
- GetObjectVersion (to obtain the content and metadata of a specified object version)
- GetObjectVersionAcl (to obtain the ACL of a specified object version)
- GetObjectAcl (to obtain the object ACL)
- RestoreObject (to restore objects from Archive storage)

After the configuration is complete, you can read (download) specific objects using APIs or SDKs. However, if you download an object from OBS Console or OBS Browser+, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, the **ListAllMyBuckets** APi is called to load the bucket list, the **ListBucket** API is called to load the object list, and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access is denied or your operation is not allowed.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-23 Configuring a bucket policy

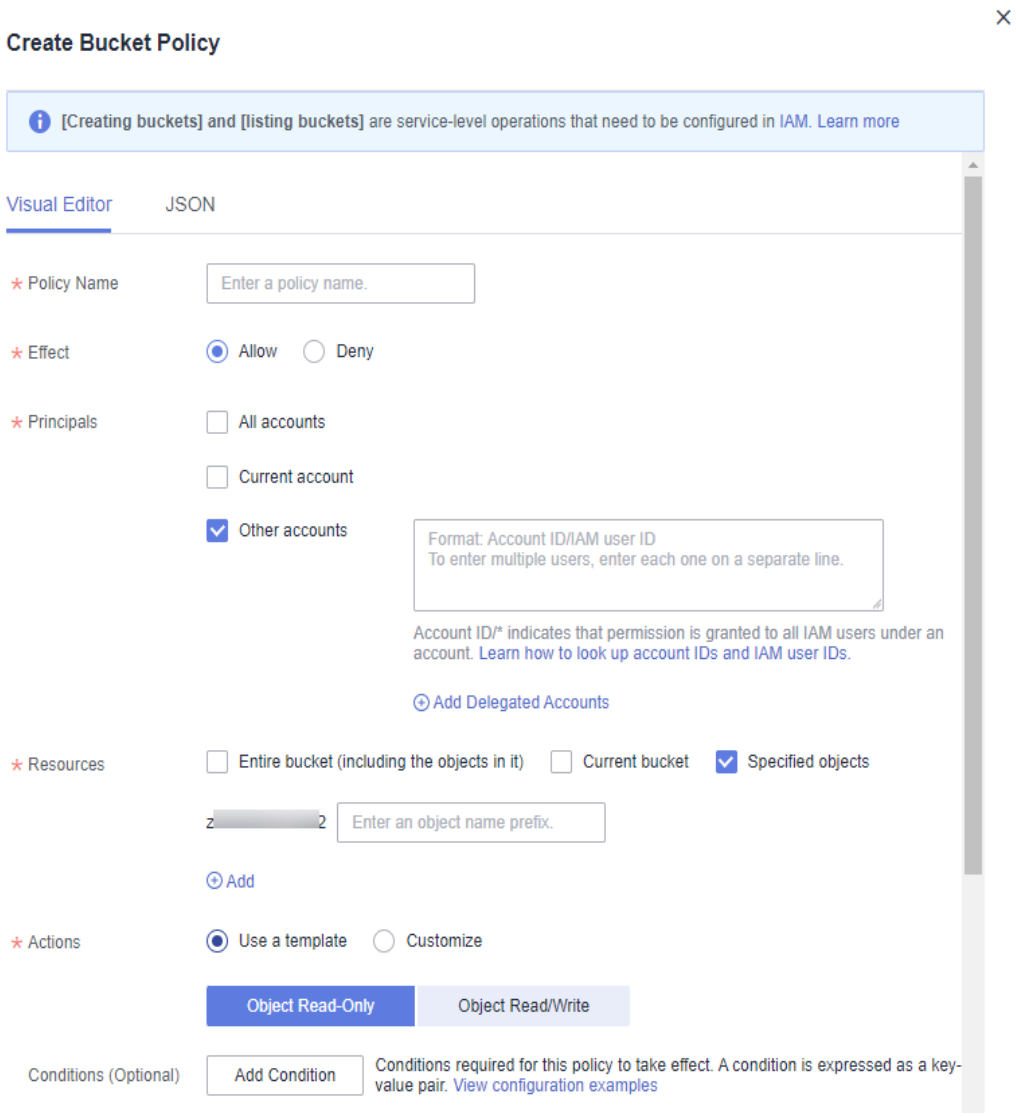


Table 5-19 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.

Parameter		Description
	Principals	• Select **Other accounts**. **NOTE** You can obtain the account ID and IAM user ID from the **My Credentials** page. Accounts should be configured in the *Domain ID*/*IAM user ID* format, with each one on a separate line. *Account ID*/* indicates that permission is granted to all IAM users under the account.
	Resources	• Select **Specified objects**. • Enter an object name prefix for the resource path. **NOTE** – You can click **Add** to specify multiple resource paths. – You can specify a specific object, an object set, or a directory. * indicates all objects in the bucket. To specify a specific object, enter the object name. To specify a set of objects, enter *Object name prefix**, **Object name suffix*, or *.
	Actions	• Choose **Use a template**. • Select **Object Read-Only**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

5.3.5 Granting Other Accounts the Specified Permissions for Certain Objects

Scenario

This case describes how to grant other accounts the specified permissions for a specified object in an OBS bucket. The following describes how to grant the permission to download an object.

If you need to configure other permissions, select the corresponding actions from the **Action Name** drop-down list in the bucket policy. For details about the actions supported by OBS, see **Action/NotAction**.

For details about how to grant permissions to an IAM user, see **5.3.3 Granting IAM Users Under an Account the Access to a Bucket and the Resources in It**.

Recommended Configuration

You are advised to use bucket policies to grant permissions to other accounts.

Configuration Precautions

After the configuration is complete, you can download objects using APIs or SDKs. However, if you log in to OBS Console or OBS Browser+ to download an object, an error is reported indicating that you do not have required permissions.

This is because when you log in to OBS Console or OBS Browser+, APIs (such as **ListAllMyBuckets** and **ListBucket**) are called to load the bucket list and object list and some other APIs will also be called on other pages, but your permissions do not cover those APIs. In such case, your access is denied or your operation is not allowed.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-24 Configuring a bucket policy

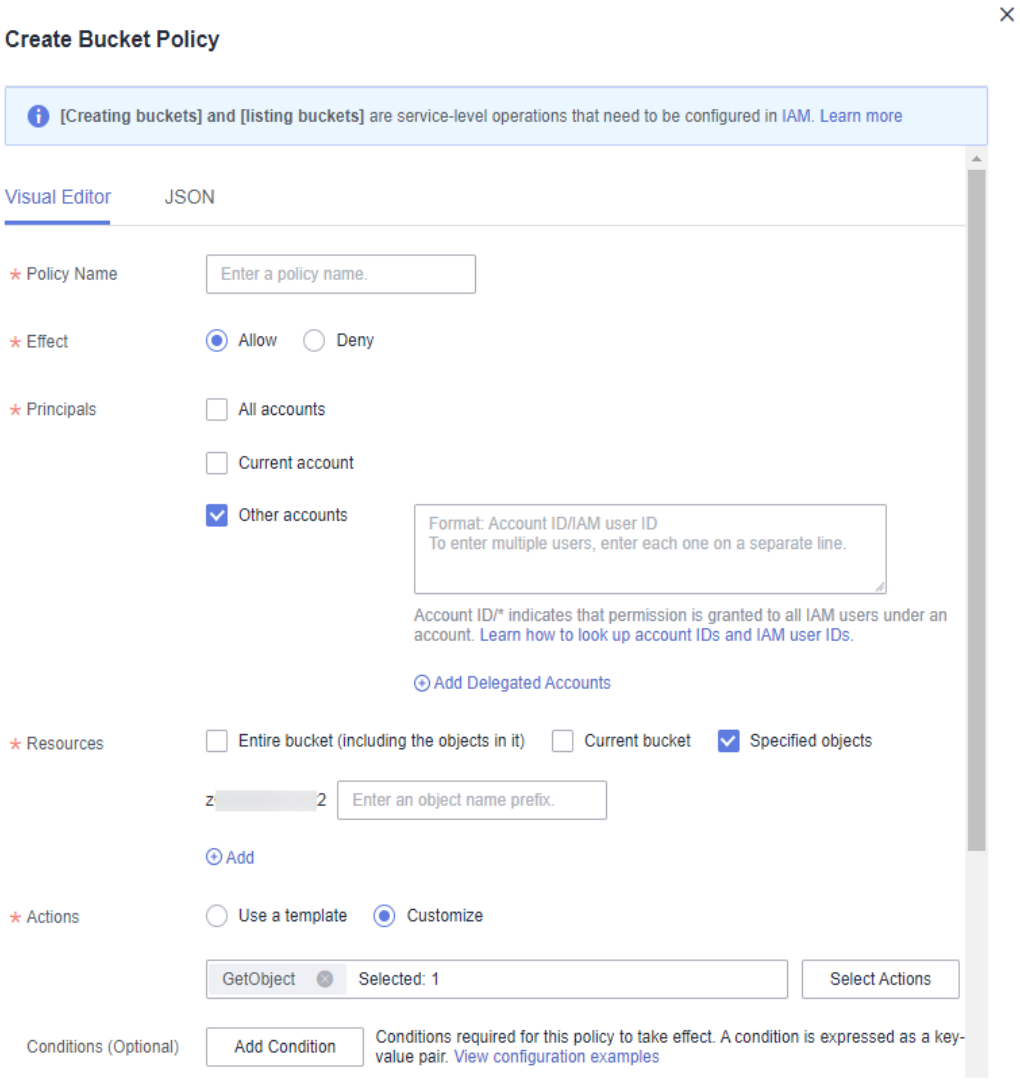


Table 5-20 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **Other accounts**. **NOTE** You can obtain the account ID and IAM user ID from the **My Credentials** page. Accounts should be configured in the *Domain ID*/*IAM user ID* format, with each one on a separate line. *Account ID*/* indicates that permission is granted to all IAM users under the account.

Parameter		Description
	Resources	• Select **Specified objects**. • Enter an object name prefix for the resource path. **NOTE** 1. You can click **Add** to specify multiple resource paths. 2. You can specify a specific object, an object set, or a directory. * indicates all objects in the bucket. To specify a specific object, enter the object name. To specify a set of objects, enter *Object name prefix**, **Object name suffix*, or *.
	Actions	• Choose **Customize**. • Select GetObject (to obtain object content and metadata). **NOTE** To configure other permissions, select the corresponding actions. For details about the actions supported by OBS, see **Action/NotAction**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

5.4 Granting Permissions to All Accounts

5.4.1 Granting All Accounts the Public Read Permission for a Bucket

Scenario

If a bucket needs to be accessed by all accounts, you can configure a bucket policy and bucket ACL to grant the access permission to all accounts. The following uses a bucket policy as an example.

Configuration Precautions

In this case, the preset template **Public Read** allows all accounts to perform the following actions on a bucket and the objects in it:

- HeadBucket (to check whether the bucket exists and obtain the bucket metadata)
- GetBucketLocation (to get the bucket location)
- GetObject (to obtain object content and metadata)
- RestoreObject (to restore objects from Archive storage)
- GetObjectVersion (to obtain the content and metadata of a specified object version)

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-25 Configuring a bucket policy

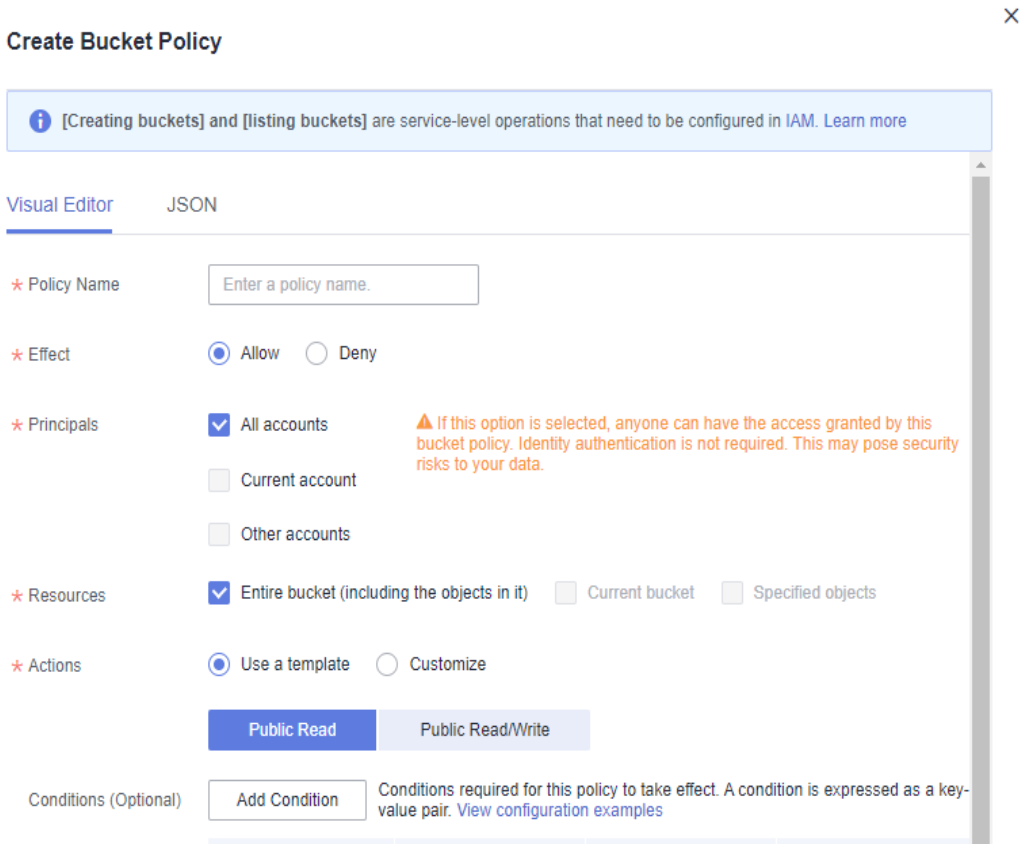


Table 5-21 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **All accounts**.
	Resources	• Select **Entire bucket (including the objects in it)**.

Parameter		Description
	Actions	• Choose **Use a template**. • Select **Public Read**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Verification

Step 1 After the permission is set, in the **Domain Name Details** area of the bucket overview page, locate **Access Domain Name**. Share the URL of the access domain name over the Internet so that all Internet users can access the bucket.

Step 2 On the **Objects** tab page of the bucket, click the target object name and find the object link. Share the object link over the Internet so that all Internet users can access the object.

----End

5.4.2 Granting All Accounts the Read Permission for a Directory

Scenario

If all objects in a folder need to be accessible to all accounts, you can configure a bucket policy to grant all accounts the permission to access the folder.

Configuration Precautions

In this case, the preset template **Directory Read-Only** allows all accounts to perform the following actions on specified directories:

- GetObject (to obtain object content and metadata)
- GetObjectVersion (to obtain the content and metadata of a specified object version)
- GetObjectVersionAcl (to obtain the ACL of a specified object version)
- GetObjectAcl (to obtain the object ACL)
- RestoreObject (to restore objects from Archive storage)
- HeadBucket (to check whether the bucket exists and obtain the bucket metadata)
- GetBucketLocation (to get the bucket location)

NOTE

Some bucket-related permissions (**HeadBucket** and **GetBucketLocation**) are needed in this configuration. Take care when granting such permissions. To narrow down the permission scope, see **5.4.3 Granting All Accounts the Read Permission for Certain Objects**.

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-26 Configuring a bucket policy

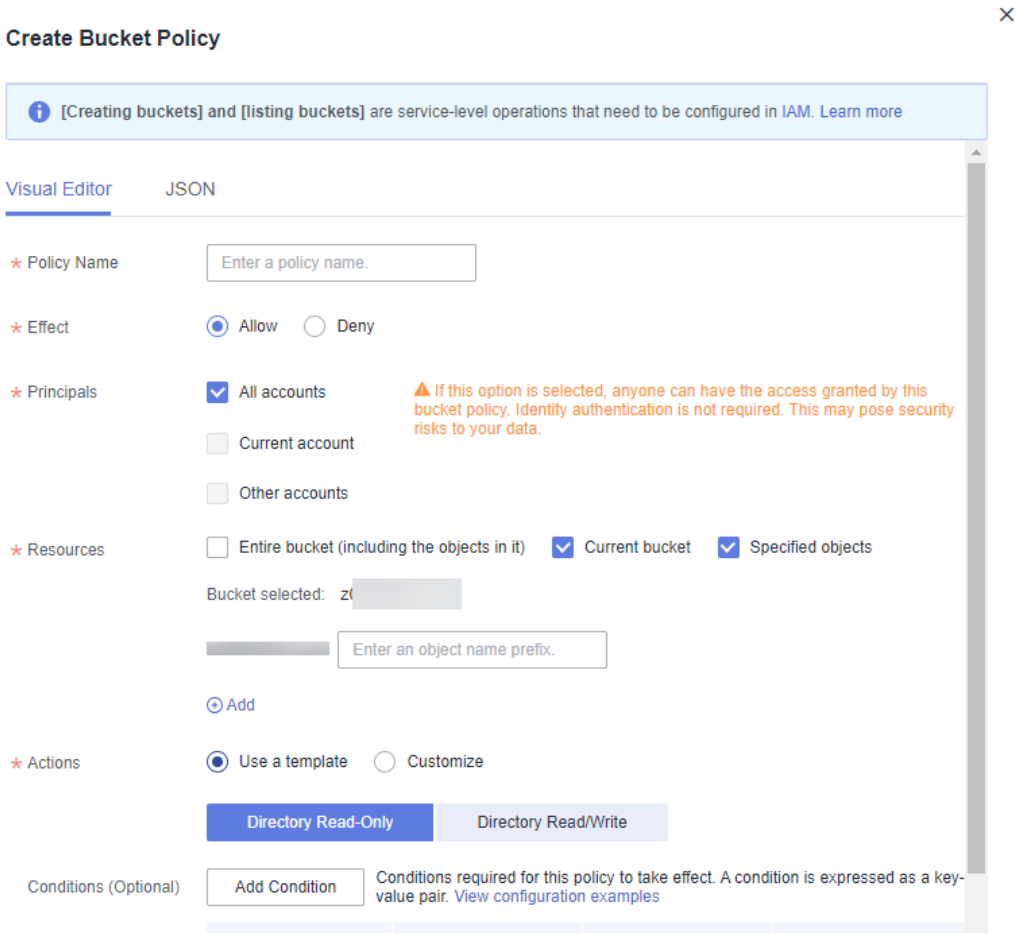


Table 5-22 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **All accounts**.

Parameter		Description
	Resources	• Select **Current bucket** and **Specified objects**. • Set the resource path to **folder-001/*** (as an example), indicating all objects in the **folder-001** folder. **NOTE** You can click **Add** to specify multiple resource paths.
	Actions	• Choose **Use a template**. • Select **Directory Read-Only**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Verification

After the permission is set, click an object in the folder. Its URL is displayed under **Link**. Share the URL over the Internet, so that all users can access or download the object through the Internet.

5.4.3 Granting All Accounts the Read Permission for Certain Objects

Scenario

Enterprise A stores a large volume of map data in OBS, and offers the data for public query. This enterprise sets a read permission for all accounts, and provides the data URLs on the Internet. Then all users can read or download the data through the URLs.

Configuration Precautions

In this case, the preset template **Object Read-Only** allows all accounts to perform the following actions on specified objects in a bucket:

- GetObject (to obtain object content and metadata)
- GetObjectVersion (to obtain the content and metadata of a specified object version)
- GetObjectVersionAcl (to obtain the ACL of a specified object version)
- GetObjectAcl (to obtain the object ACL)
- RestoreObject (to restore objects from Archive storage)

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-27 Configuring a bucket policy

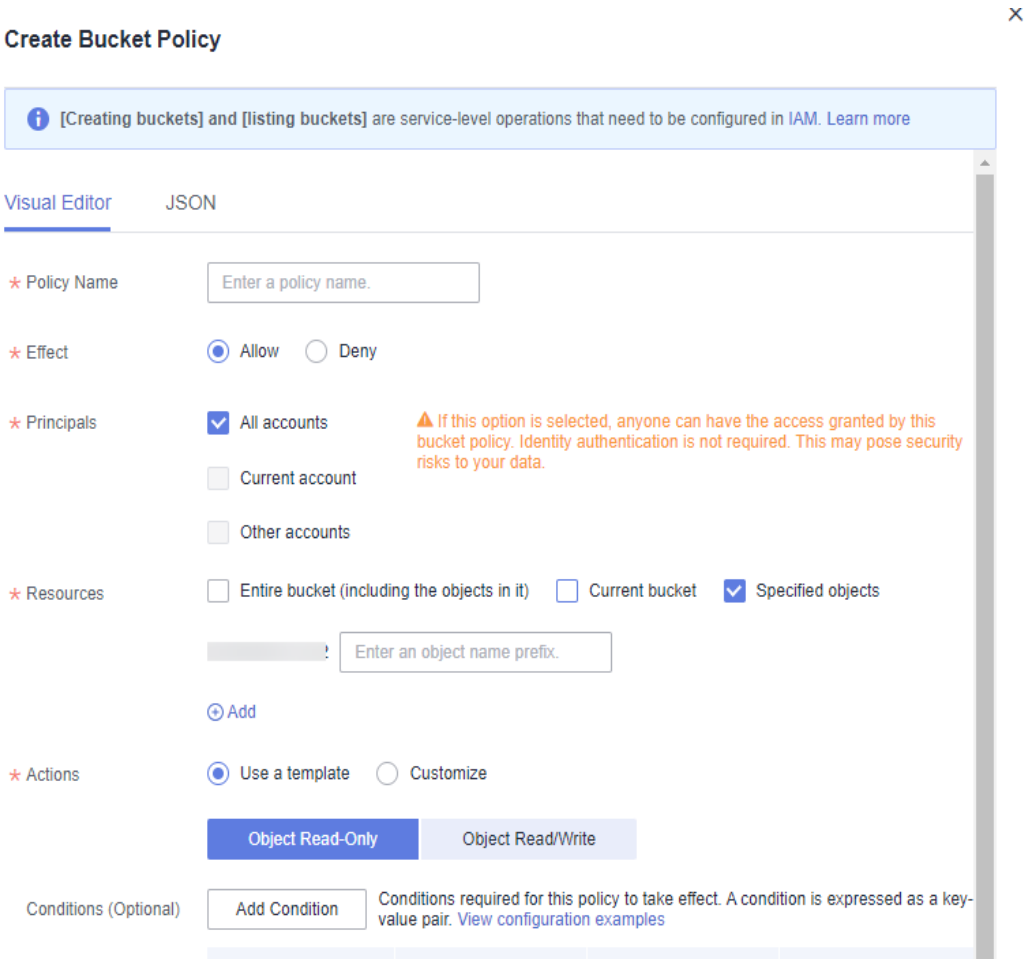


Table 5-23 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	• Select **All accounts**.

Parameter		Description
	Resources	• Select **Specified objects**. • Enter an object name prefix for the resource path. **NOTE** 1. You can click **Add** to specify multiple resource paths. 2. You can specify a specific object or an object set. * indicates all objects in the bucket. For one object, enter *object name*. To specify a set of objects, enter *Object name prefix**, **Object name suffix*, or *.
	Actions	• Choose **Use a template**. • Select **Object Read-Only**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Verification

After the permission is set, click the object. Its URL is displayed under **Link**. Share the URL over the Internet, so that all users can access or download the object through the Internet.

5.4.4 Temporarily Sharing Objects with All Accounts

Scenario

If you want to open an object to all users for a limited period of time, you can use the object sharing function.

Procedure for Sharing a File

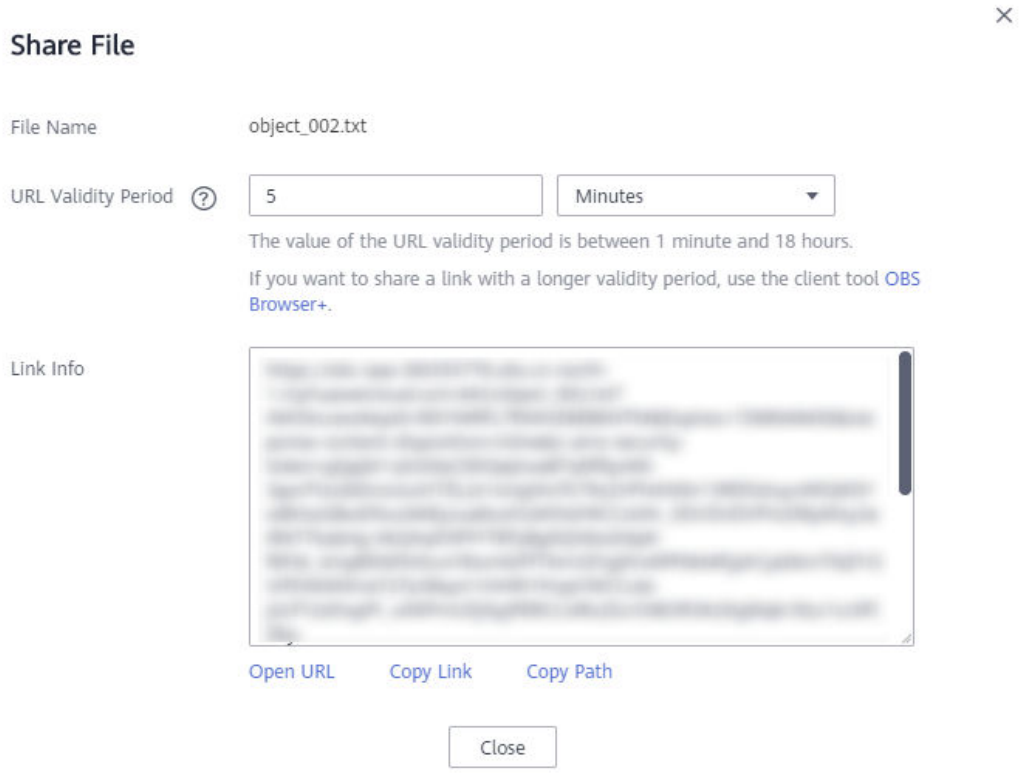
Step 1 In the navigation pane of OBS Console, choose **Object Storage**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 Locate the file to be shared and click **Share** in the **Operation** column. The **Share File** dialog box shown in **Figure 5-28** is displayed.

Once the **Share File** dialog box is opened, the URL is effective and valid for five minutes by default. If you change the validity period, the authentication information in the URL changes accordingly, and the URL's new validity period starts upon the change.

Figure 5-28 Sharing a file



Step 4 Perform URL related operations.

- Click **Open URL** to preview the file on a new page or directly download it to your default download path.
- Click **Copy Link** to share the link to other users, so that they can enter the link to a web browser to access the file.
- Click **Copy Path** to share the file path to users who have access permissions to the bucket. Then the users can search for the file by pasting the path to the search box of the bucket.

NOTE

Within the URL validity period, anyone who has the URL can access the file.

----End

Procedure for Sharing a Folder

Step 1 In the navigation pane of OBS Console, choose **Object Storage**.

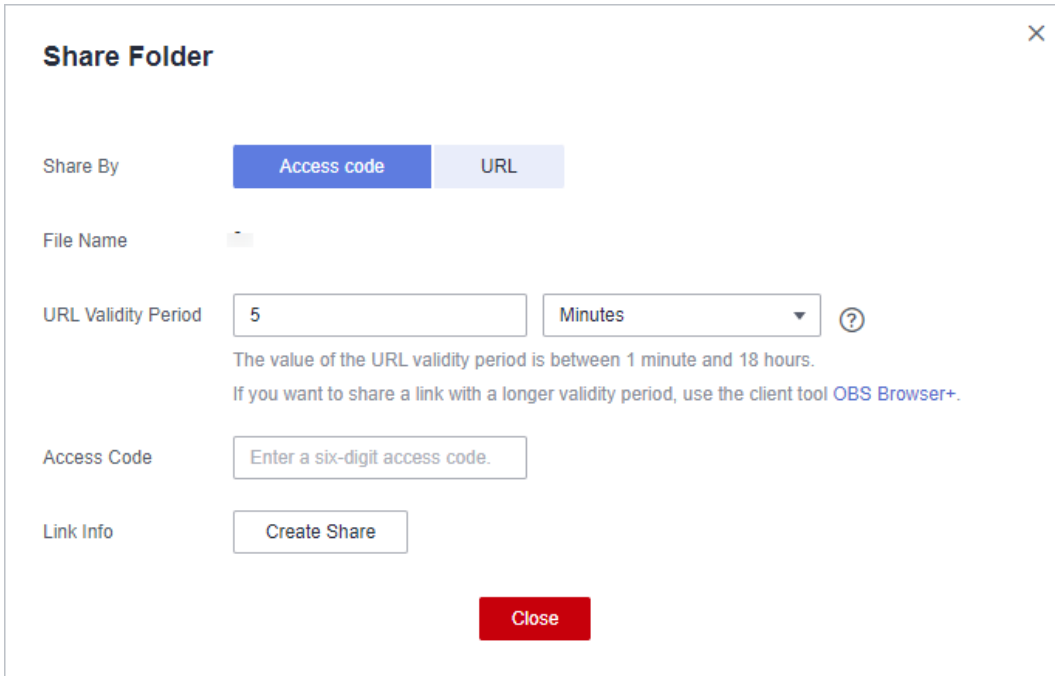
Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 Locate the folder you want to share and click **Share** in the **Operation** column. The **Share Folder** dialog box is displayed.

Step 4 Share the folder by access code or URL.

Step 5 Method 1: Share the folder by access code.

Figure 5-29 Sharing by access code



1. Choose **Access code** for **Share By**.
2. Configure parameters.

   Table 5-24 Parameters for sharing a folder with an access code

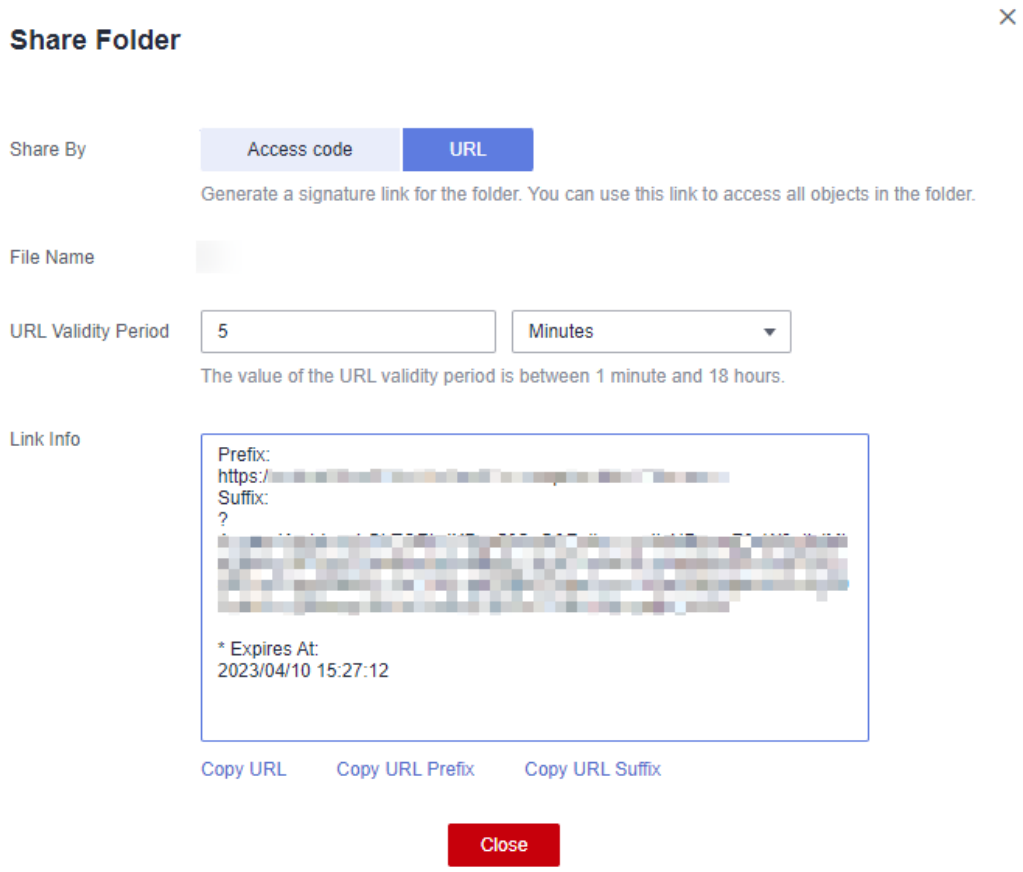
Parameter	Description
URL Validity Period	The validity period is measured by minutes or hours, and ranges from one minute to 18 hours. The default value is five minutes. Within the URL validity period, anyone who has the URL can access the folder.
Access Code	A six-digit code. An extraction code is required to access a shared folder.

3. Click **Create Share** to generate a sharing URL for the folder.
4. Send the URL and access code to others for them to access the folder.
5. Verify that other users can perform the following operations:
   a. Access the shared folder in a browser.
      i. Open a web browser, enter the shared URL, and open it.
      ii. In the dialog box that is displayed, enter the access code and access objects in the shared folder.
   b. Access the shared folder on OBS Browser+.
      i. Start OBS Browser+.

ii. On the login page, click **Authorization Code Login**.
iii. Enter the authorization code and access code.
iv. Click **Log In** to access the shared folder.

Step 6 Method 2: Share the folder by URL.

Figure 5-30 Sharing by URL



1. Choose **URL** for **Share By**.
2. Configure parameters.

Table 5-25 Parameters for sharing a folder by URL

Parameter	Description
URL Validity Period	The validity period is measured by minutes or hours, and ranges from one minute to 18 hours. The default value is five minutes. Within the URL validity period, anyone who has the URL can access the folder.

3. Click **Copy URL** and share the URL with another user. The user then can use this URL to access all objects in this folder. The sharing link consists of the bucket domain name (prefix) and signature information (suffix). Users can

add an object path after the prefix of a sharing link to access or download the specified object in a folder, as shown in **Figure 5-31**.

4. Verify that a user can use the sharing URL to access all objects in the folder.
   a. Open a browser.
   b. Enter the sharing URL in the address box and press **Enter** to list all objects in the folder.
   c. Copy the object path and paste it after the prefix.
   d. Press **Enter**. You can then access and download the specified object.

Figure 5-31 Accessing an object with a sharing URL

----End

5.5 Granting Temporary Access to OBS

Scenario

This case describes how to use temporary access keys (temporary AK/SK and security token) to access OBS in temporary authorization mode.

Assume that you want to enable an IAM user (user name: APPServer) to access the APPClient folder in bucket **hi-company** and apply for two different temporary access keys to distribute to APP-1 and APP-2. APP-1 can only access files in APPClient/APP-1. APP-2 can access only the files in APPClient/APP-2.

Procedure

Step 1 Log in to Huawei Cloud and click **Console** in the upper right corner.

Step 2 On the console, hover your cursor over the username in the upper right corner, and choose **Identity and Access Management** from the drop-down list.

Step 3 Create an IAM user **APPServer**. For details, see **Creating an IAM User**.

Step 4 Create a user-defined policy that allows access to the AppClient folder in bucket hi-company.

1. In the navigation pane, choose **Permissions** > **Policies/Roles** > **Create Custom Policy**.

2. Configure parameters for a custom policy.

   NOTE

   Before configuring an IAM policy, you need to understand what permissions are required. An IAM user only has the permissions defined by the policy. In this example, user **APPServer** only has full permissions on objects in the **APPClient** folder.

   Figure 5-32 Configuring a custom policy

   Table 5-26 Parameters for configuring a custom policy

Parameter	Description
Policy Name	Name of the custom policy
Policy View	Set this parameter based on your own habits. **JSON** is used here.

Policy Content	{
	"Version": "1.1",
	"Statement": [
	{
	"Action": [
	"obs:object:*"
	],
	"Resource": [
	"obs:*:*:object:hi-company/APPClient/*"
	],
	"Effect": "Allow"
	}
	]
	}

Scope	The default value is **Global services**.

3. Click **OK**. The custom policy is created.

Step 5 **Create a user group and assign permissions**.

Add the created custom policy to the user group by following the instructions in the IAM document.

Step 6 Add the IAM user (**APPServer**) you want to authorize to the created user group by referring to **Adding Users to or Removing Users from a User Group**.

NOTE

Due to data caching, it takes about 10 to 15 minutes for a custom policy to take effect after the authorization.

Step 7 The IAM user (APPServer) obtains temporary access keys (temporary access keys and security token) for **APP-1** and **APP-2**.

To obtain temporary access keys with different permissions, you need to set a temporary policy by adding the policy parameter in the request body. For details, see **Obtaining a Temporary Access Key and Security Token Through a Token**.

The following is a sample request for obtaining a pair of temporary access keys. The temporary policy parameters are displayed in bold.

A sample request for obtaining a pair of temporary access keys for the device app APP-1:

```
{
   "auth": {
   "identity": {
      "policy": {
      "Version": "1.1",
      "Statement": [
         {
         "Action": [
            "obs:object:*"
         ],
         "Resource": [
            "obs:*:*:object:hi-company/APPClient/APP-1/*"
         ],
         "Effect": "Allow"
         }
      ]
      },
      "token": {
      "duration-seconds": 900

      },
      "methods": [
      "token"
      ]
   }
   }
}
```

A sample request for obtaining a pair of temporary access keys for the device app APP-2:

```
{
   "auth": {
   "identity": {
      "policy": {
      "Version": "1.1",
      "Statement": [
         {
         "Action": [
            "obs:object:*"
```



```
            ],
            "Resource": [
                "obs:*:*:object:hi-company/APPClient/APP-2/*"
            ],
            "Effect": "Allow"
            }
        ]
        },
        "token": {
        "duration-seconds": 900

        },
        "methods": [
        "token"
        ]
    }
    }
}
```

----End

Verification

After **APP-1** and **APP-2** have the temporary access keys, they can access OBS through OBS APIs or SDKs. **APP-1** can access only files in the **APPClient/APP-1** folder, and **APP-2** can access only files in the **APPClient/APP-2** folder.

5.6 Allowing IAM Users to View Only Authorized Buckets

Scenario

This topic explains how to use the Enterprise Project Management Service (EPS) to authorize an IAM user under an account to operate specific buckets, so that the user can view only the specified buckets and perform authorized operations on OBS Console. In this way, bucket permissions can be isolated.

In this case, the IAM user **test-user** is authorized to view only bucket **example** on OBS Console and has only the upload permission (obs:object:PutObject), object listing permission (obs:bucket:ListBucket), and bucket listing permission (obs:bucket:ListAllMyBuckets). With these permissions, user **test-user** can upload objects.

Recommended Configuration

Use EPS to isolate permissions.

Configuration Precautions

- If an IAM user is authorized for an action through both IAM and EPS, the authorization result is subject to IAM configuration.

  Examples:

  1. If the bucket listing permission (obs:bucket:ListAllMyBuckets) is authorized through both IAM and EPS, the final permission authorization is subject to the IAM configuration. As a result, this authorization allows the user to list all buckets including those that do not belong to the enterprise project.

2. For the upload permission (obs:object:PutObject), if **Allow** is configured in IAM and **Deny** is configured in the enterprise project, **Allow** takes effect, that is, objects can be uploaded.

- If the OBS Viewer permission is configured for an IAM user in IAM and this user's group is added to the enterprise project, the IAM user cannot list buckets after logging in to OBS.
- After the configuration is complete, it is normal if the system still displays a message indicating that you do not have required permissions, because OBS Console also calls other APIs for advanced settings, but you can still perform the allowed read/write operations.

Procedure

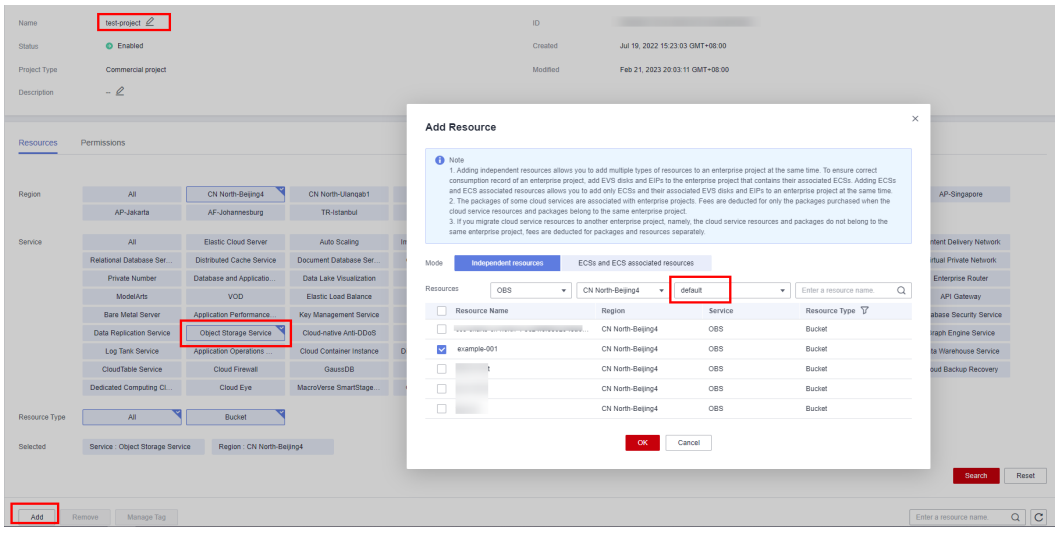
Step 1 Log in to the console and choose **Enterprise** > **Project Management** on the top navigation bar. Then, create an enterprise project named **test-project** using the authorized account by referring to **Creating an Enterprise Project**.

Step 2 Add bucket **example-001** to **test-project**, the project created in **Step 1**. For details, see **Adding Resources to an Enterprise Project**. For more information, see **Figure 5-33**.

NOTE

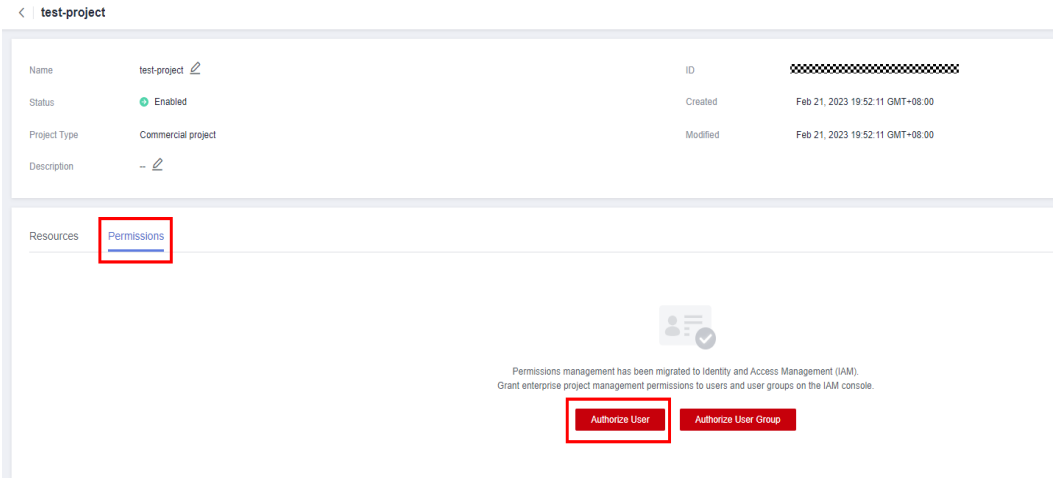
If you need the permissions on multiple buckets, migrate all the buckets to the enterprise project.

Figure 5-33 Adding buckets to an enterprise project



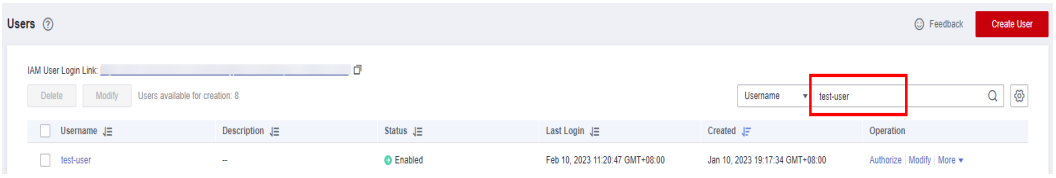
Step 3 Click the **Permissions** tab and then **Authorize User**, as shown in **Figure 5-34**.

Figure 5-34 Authorizing permissions to an enterprise user



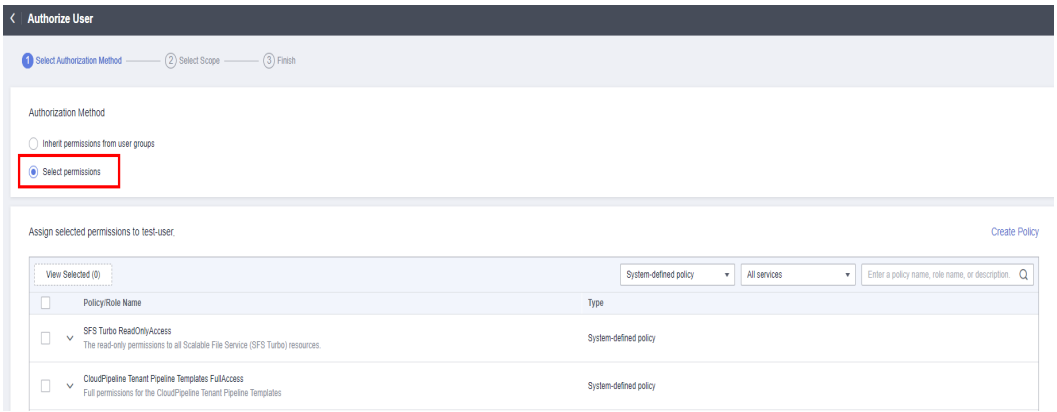
Step 4 Go to the IAM console and find user **test-user**.

Figure 5-35 Finding user **test-user**



Step 5 Click **Authorize** in the **Operation** column to go to the authorization page. Then select **Select permissions** for **Authorization Method**.

Figure 5-36 Authorization method of selecting permissions



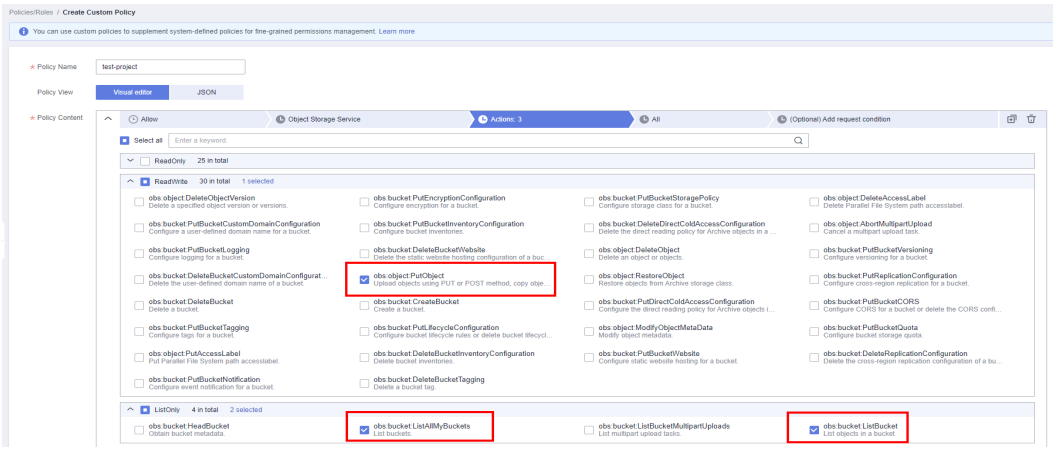
Step 6 Attach policies to **test-user**, so that the user has the permissions defined in the policies in the **test-project** enterprise project.

1. Choose available policies or create a custom policy. You can filter policies by choosing **Custom policy** from the drop-down list or click **Create Policy** on the right to create custom policies.
   - For details about how to create custom policies, see **Creating a Custom Policy**. **Figure 5-37** shows the custom permissions configured in this example, including obs:object:PutObject (for uploading objects),

obs:bucket:ListBucket (for listing objects in a bucket), and obs:bucket:ListAllMyBuckets (for listing buckets).

- For details about OBS system-defined permissions, see **Table 5-11**.

Figure 5-37 Configuring a custom policy

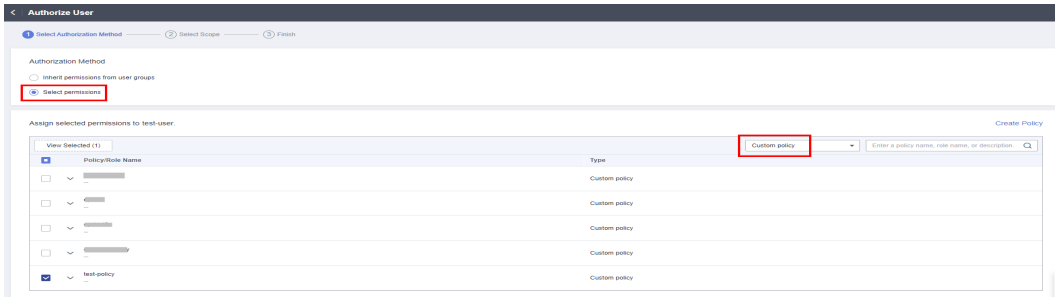


NOTE

The policy you attach here must be different from that added to the user group in IAM. Otherwise, the permission authorization is subject to the settings in IAM.

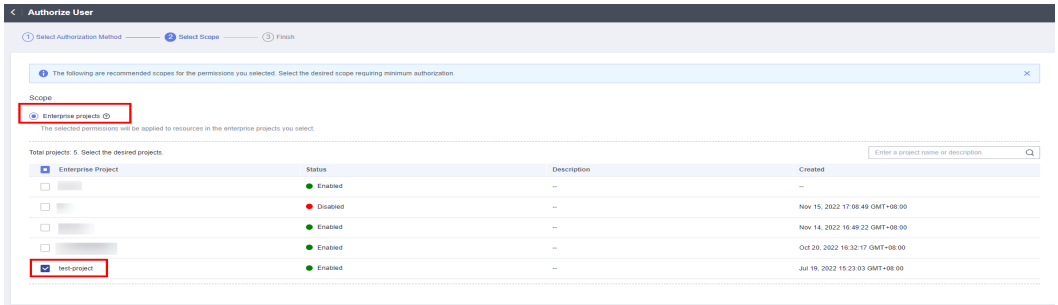
2. Select the desired policies, as shown in **Figure 5-38**.

Figure 5-38 Adding a custom policy



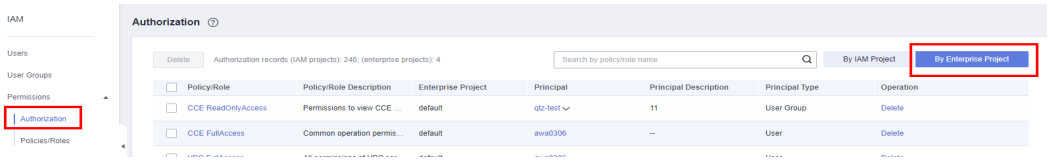
Step 7 Click **Next** and add user **test-user** (not in any user group) to the enterprise project.

Figure 5-39 Adding a user to an enterprise project



Step 8 Click **OK**. The added permissions are displayed in the list in the enterprise project view on the **Permissions** > **Authorization** page.

Figure 5-40 Successful permission add



NOTE

After finishing the configuration in EPS, you do not need to configure the IAM custom or system policies.

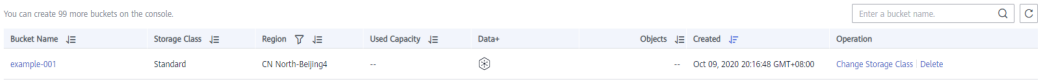
----End

Verification

Step 1 Log in to OBS Console as user **test-user**.

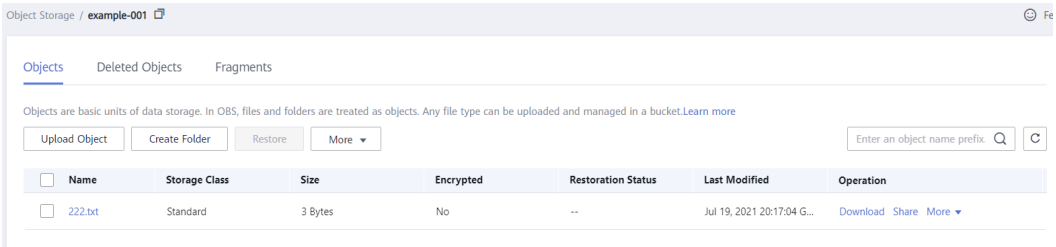
Step 2 Find the only bucket **example-001** in the bucket list, as shown in **Figure 5-41**.

Figure 5-41 Verifying the permission configuration



Step 3 Click bucket **example-001** to go to the overview page and choose **Objects** in the navigation pane. Other objects in the bucket are displayed.

Figure 5-42 Viewing objects in bucket **example-001**

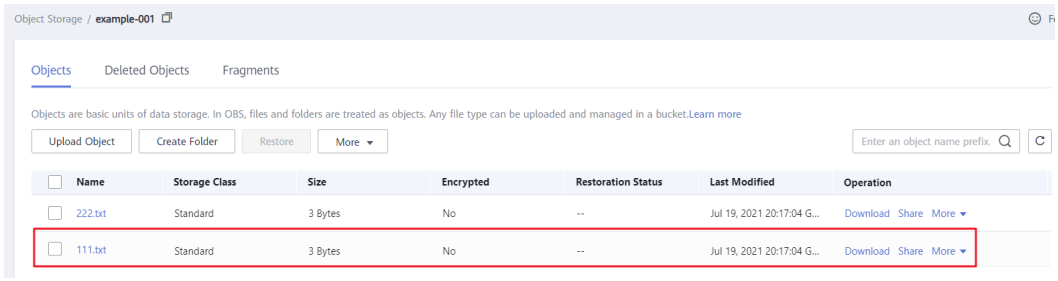


NOTE

After the configuration is complete, it is normal if the system still displays a message indicating that you do not have required permissions, because OBS Console also calls other APIs for advanced settings, but you can still perform the allowed read/write operations.

Step 4 Upload file **111.txt** to bucket **example-001**. The file upload succeeds, indicating that the permission configuration is successful.

Figure 5-43 Uploading a file



NOTE

If some other permissions, such as downloading or deleting an object, are required, hover your cursor over the username and choose **Identity and Access Management** > **Permissions** > **Policies/Roles**, and then configure permissions in the custom policy.

----End

5.7 Restricting Access to a Bucket for Specific IP Addresses

Scenario

This case describes how to restrict the source IP addresses that can access an OBS bucket. The following shows how to deny a client access whose source IP address is within the range of 114.115.1.0/24.

Recommended Configuration

Bucket policy

Procedure

Step 1 In the navigation pane of OBS Console, choose **Buckets**.

Step 2 In the bucket list, click the bucket name you want to go to the **Objects** page.

Step 3 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 4 On the **Bucket Policies** page, click **Create**.

Step 5 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 6 Configure parameters for a bucket policy.

Figure 5-44 Configuring a bucket policy

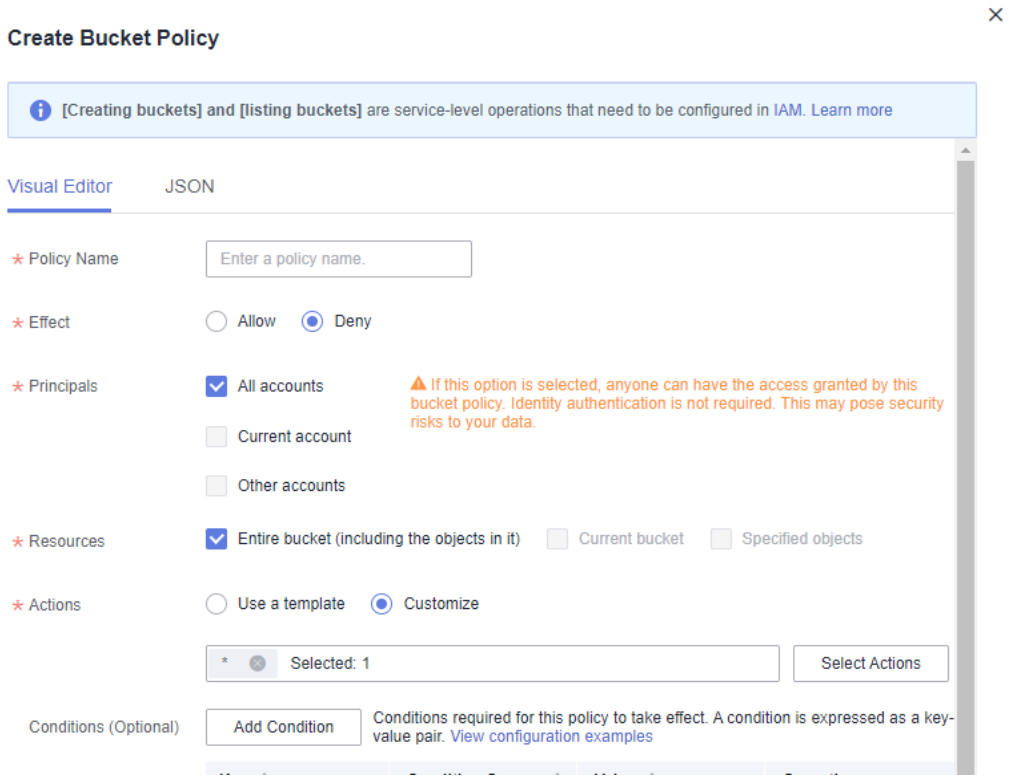


Table 5-27 Parameters for configuring a bucket policy

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Deny**.
	Principals	• Select **All accounts**.
	Resources	• Method 1: – Select **Entire bucket (including the objects in it)**. • Method 2: – Select **Current bucket** and **Specified objects**. – Set the resource path to * to indicate all objects in the bucket.
	Actions	• Choose **Customize**. • Select * (indicating all actions).

Parameter		Description
	Conditions (Optional)	• **Key**: Select **SourceIp**. • **Condition Operator**: Select **IpAddress** • **Value**: Enter **114.115.1.0/24**. **NOTICE** The IP address specified here is only for reference. Configure it based on the site requirements. **NOTE** – You can click **Add** to configure multiple IP addresses (CIDR blocks). – These settings are only for restricting source IP addresses, but cannot distinguish whether they are from an intranet or from the Internet.

NOTE

If you want to allow clients whose IP addresses are outside the configured range to access your bucket, grant access permissions to all accounts by referring to **5.4 Granting Permissions to All Accounts**.

Step 7 Ensure all the configurations are correct and click **Create**.

----End

Verification

Initiate an access request from an IP address within the range of 114.115.1.0/24. The access is denied. Initiate an access request from an IP address outside the range of 114.115.1.0/24. The access is allowed.

Related Scenarios

To allow only a specified IP address to access the OBS bucket, set **Condition Operator** to **NotIpAddress** and specify the allowed IP address as the **Value**.

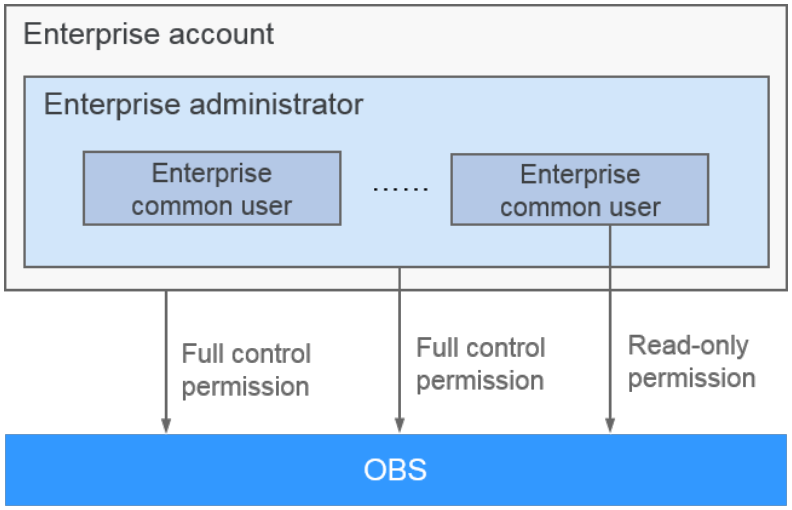
6 Best Practices for Enterprise Data Access Control

6.1 Access Management on Department Public Data

An enterprise has a large number of files to archive but it does not want to put efforts on storage resources. Therefore, this enterprise subscribes to OBS for storing the files, and expects that staff in different departments have different access permissions. By doing so, data access permissions of staff in different departments are isolated.

The enterprise expects that administrators have the full control permission to department public data stored on OBS, and that common users can only read those data. **Figure 6-1** shows the logical relationships.

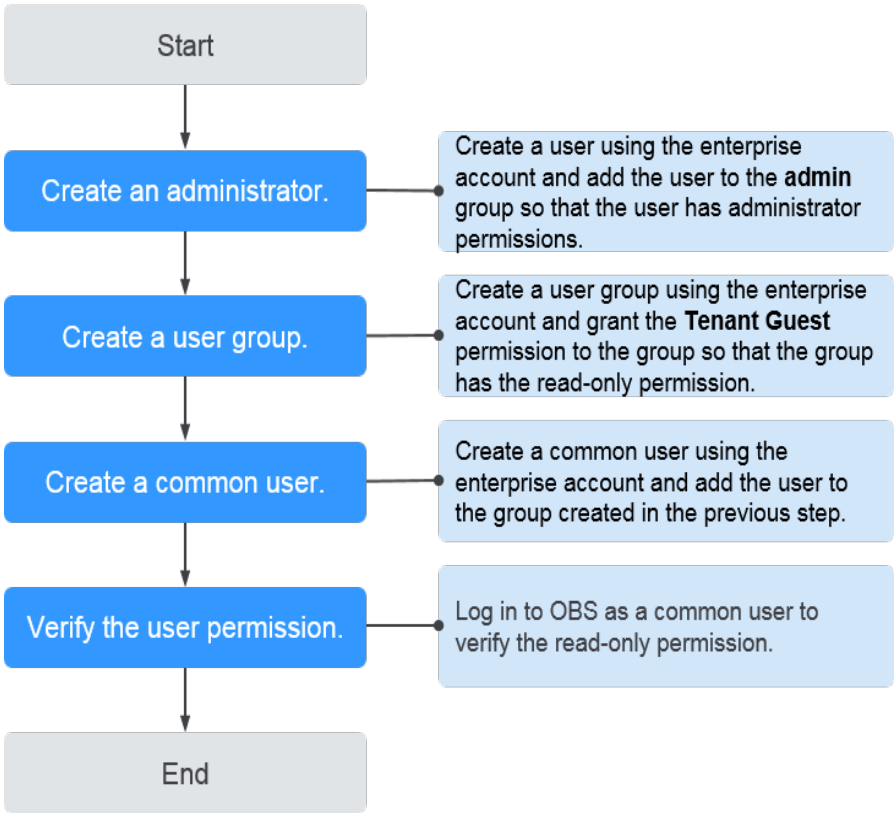
Figure 6-1 Logical relationship



Solution and Process

In this scenario, you can assign permissions by configuring IAM permissions. Set the permission of the user group containing common users to **Tenant Guest**, so that common users can access OBS as guests and have only the read permission. **Figure 6-2** shows the process.

Figure 6-2 Flowchart of managing access to department public data



Procedure

Step 1 Create an administrator.

1. Log in to the Huawei Cloud console using the enterprise account.
2. On the console homepage, choose **Service List** > **Management & Governance** > **Identity and Access Management** to access the IAM console.
3. On the IAM console, choose **User** in the left navigation tree.
4. On the **User** page, click **Create User**. On the page that is displayed, enter a username and configure the following parameters:
   - Select **Password** for **Credential Type**.
   - Select **admin** from the drop-down list of **User Groups**.
5. Click **Next**. Select **Set manually** for **Password Type**.
6. Enter the email address, mobile number, password, and confirm password.
7. Click **OK**.

Step 2 Create a user group with the read-only permission.

1. On the IAM console, choose **User Groups** in the left navigation pane.
2. Click **Create User Group**, and enter a user group name and description.
3. Click **OK**.

   The user group list is displayed, including the newly created user group.
4. Locate the newly created user group, and click **Configure Permission** in the **Operation** column.
5. Click **Authorize**.
6. Select **Global service project**. In the **Permissions** area, select **Tenant Guest**.
7. Click **OK** to save the permission for the user group.

Step 3 Create a common user.

1. On the IAM console, choose **Users** in the left navigation pane.
2. Click **Create User**. On the page that is displayed, enter a username and configure the following parameters:
   - Select **Password** for **Credential Type**.
   - Select the user group created in **Step 2** for **User Groups**.
3. Click **Next**. Select **Set manually** for **Password Type**.
4. Enter the email address, mobile number, password, and confirm password.
5. Click **OK**.

Step 4 Verify the user permission.

After the permission is granted, you can verify the permissions using OBS Console, OBS Browser+, APIs, and SDKs. This section takes OBS Console as an example to present how to verify the read-only permission of common users on department public data.

1. Log in to OBS Console as a common user and check whether you have the permission to access the OBS page.
   - If a message indicating that you do not have the permission to access the page is displayed, you cannot read data in the bucket. In this case, check whether the user permission is correctly configured.
   - If a bucket list is displayed, you have the permission to read the bucket list. Go to the next step.
2. Click the bucket to be operated. On the **Objects** page that is displayed, view the list of objects.
   - If the data cannot be obtained and the message **Access denied** is displayed, you have no permission to read data in the bucket. In this case, check whether the user permission is correctly configured.
   - If the data is displayed, you have the read permission. Go to the next step.
3. On the **Objects** page, perform operations including uploading and deleting objects.
   - If the write and delete operations can be performed, it indicates the read-only permission fails to be granted. Check whether the user permission configuration is correct.

- If not, the read-only permission for common users is correctly configured.

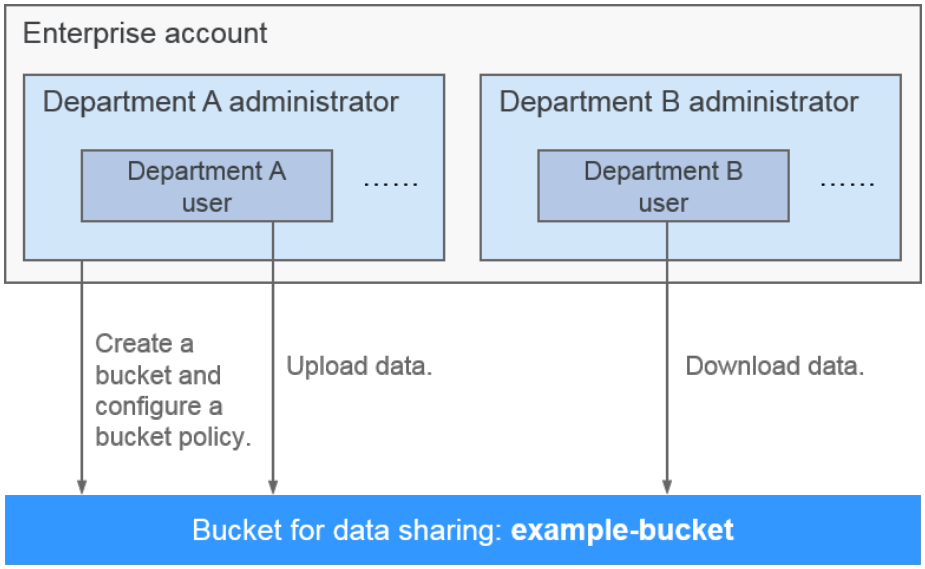
----End

6.2 Data Sharing Among Departments/Projects

An enterprise has data that needs to be shared among different departments or projects. To reduce the risks of mistaken deletion and tampering of shared data, the data can only be downloaded but not modified or deleted by users of other departments.

In this scenario, department A shares data in the bucket **example-bucket** to department B, allowing users of department B to download the data. This case describes how to leverage the least privilege principle to control access permissions for the shared data. **Figure 6-3** shows the logical relationships among administrators, users, and buckets for data sharing between the two departments in this scenario.

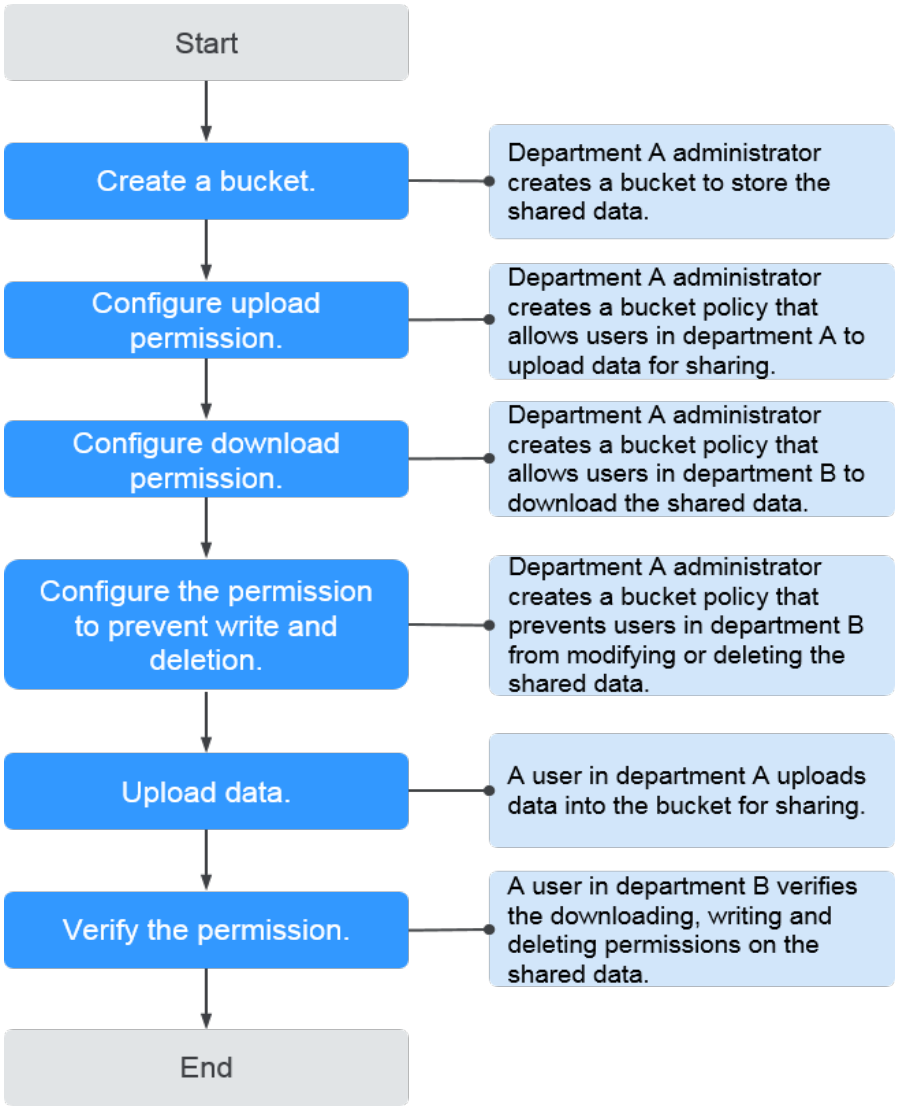
Figure 6-3 Logical relationship



Solution and Process

In this scenario, the administrator of department A can use bucket policies to implement permission control, so that users of department B can only download but not modify or delete the shared data. **Figure 6-4** illustrates the bucket policy configuration process.

Figure 6-4 Configuration process of permission control for data sharing



Prerequisites

Administrators and common users of departments A and B have been created on IAM. For details, see **Creating an IAM User**.

NOTE

The administrator of department A needs to perform operations such as creating buckets and configuring bucket policies. Therefore, when creating an administrator, the user group to which the administrator belongs must be granted at least the **OBS Administrator** permissions of OBS.

Procedure

Step 1 Create a bucket.

1. Log in to the Huawei Cloud console as the administrator of department A.
2. On the homepage, choose **Service List** > **Storage** > **Object Storage Service** to access OBS Console.

3. Click **Create Bucket** in the upper right corner.
4. Configure relevant parameters, including **Region**, **Bucket Name**, **Default Storage Class**, and **Bucket Policy**. For details, see **Creating a Bucket**.

   NOTE

   To ensure data security, you are advised to set **Bucket Policy** to **Private**.
5. Click **Create Now**. The bucket is created.

Step 2 Grant upload permissions to users in department A.

If the user group where the users of department A belong has been assigned **Tenant Administrator**, **OBS Administrator**, or **OBS OperateAccess**, skip this step and go to **Step 3**. If such permission is not assigned to this user group or **OBS Buckets Viewer**, **OBS ReadOnlyAccess**, or **Tenant Guest** is assigned to the user group, perform the following steps to grant upload permissions to users of department A.

1. On OBS Console, click the name of the bucket where the shared data is stored to go to the **Objects** page.
2. In the navigation pane, choose **Permissions** > **Bucket Policies**.
3. Click **Create**.
4. Choose a policy configuration method you like. **Visual Editor** is used here.
5. Configure parameters listed in the table below to grant users of department A the permissions to access the bucket (to list objects in the bucket) and to upload objects to the bucket.

   Table 6-1 Parameters for granting permissions to access buckets and upload objects

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	– Select **Current account**. – IAM users: Select the users who are allowed to upload data.

Parameter		Description
	Resources	– Method 1: ▪ Select **Entire bucket (including the objects in it)**. – Method 2: ▪ Select **Current bucket** and **Specified objects**. ▪ Set the resource path to * to indicate all objects in the bucket. **NOTE** If you want users only to upload objects to certain folders in the bucket, set the resource path to a folder name plus a wildcard character (for example, **example-folder/***). You can add multiple resource paths.
	Actions	– Choose **Customize**. – Select the following actions: ▪ ListBucket (to list objects in the bucket and obtain the bucket metadata) ▪ PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts)

6. Click **Create**.

Step 3 Grant download permissions to users in department B.

If the user group where the users of department B belong has been assigned **Tenant Administrator**, **OBS Administrator**, **OBS OperateAccess**, or **Tenant Guest**, skip this step and go to **Step 4**. If such permission is not assigned to this user group or **OBS ReadOnlyAccess** or **Tenant Guest** is assigned to the user group, perform the following steps to grant download permissions to users of department B.

1. On OBS Console, click the name of the bucket where the shared data is stored to go to the **Objects** page.
2. In the navigation pane, choose **Permissions** > **Bucket Policies**.
3. Click **Create**.
4. Choose a policy configuration method you like. **Visual Editor** is used here.
5. Configure parameters listed in the table below to grant users of department B the permissions to download objects from the bucket.

Table 6-2 Parameters for granting permissions to download objects from the bucket

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	– Select **Current account**. – IAM users: Select the users who are allowed to download data.
	Resources	– Method 1: ▪ Select **Entire bucket (including the objects in it)**. – Method 2: ▪ Select **Current bucket** and **Specified objects**. ▪ Set the resource path to ***** to indicate all objects in the bucket. **NOTE** If you want the users of department B only to download a set of objects from the bucket, set the resource path to a folder name (for example, **example-folder/**, indicating the objects in this folder) or an object set with ***** (for example, ***.doc**, indicating all objects whose name ends with **.doc**). You can add multiple resource paths.
	Actions	– Choose **Customize**. – Select the following actions: ▪ ListBucket (to list objects in the bucket and obtain the bucket metadata) ▪ GetObject (to obtain the object content and metadata) ▪ GetObjectVersion (to obtain the content and metadata of a specified object version)

6. Click **Create**.

Step 4 Prevent users of department B from writing or deleting the shared data.

1. On OBS Console, click the name of the bucket where the shared data is stored to go to the **Objects** page.
2. In the navigation pane, choose **Permissions** > **Bucket Policies**.
3. Click **Create**.

4. Choose a policy configuration method you like. **Visual Editor** is used here.
5. Configure parameters listed in the table below to prevent users of department B from writing or deleting the shared data.

Table 6-3 Parameters for preventing users from writing or deleting data

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Deny**.
	Principals	– Select **Current account**. – IAM users: Select the users who are not allowed to write or delete data.
	Resources	– Method 1: ▪ Select **Entire bucket (including the objects in it)**. – Method 2: ▪ Select **Current bucket** and **Specified objects**. ▪ Set the resource path to ***** to indicate all objects in the bucket. **NOTE** If you do not want the users of department B to write or delete a set of objects from the bucket, set the resource path to a folder name (for example, **example-folder/**, indicating the objects in this folder) or an object set with ***** (for example, ***.doc**, indicating all objects whose name ends with **.doc**). You can add multiple resource paths.
	Actions	– Choose **Customize**. – Select the following actions: ▪ PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts) ▪ PutObjectAcl (to configure the object ACL) ▪ PutObjectVersionAcl (to configure the ACL for a specific object version) ▪ DeleteObject (to delete objects) ▪ DeleteObjectVersion (to delete a specified object version) ▪ AbortMultipartUpload (to abort multipart uploads)

6. Click **Create**.

Step 5 Upload data.

Users in department A can upload data through OBS Console, OBS Browser+, APIs, and SDKs. This section takes the operations on OBS Console as an example to describe how to upload data.

1. Log in to OBS Console as a user of department A.
2. In the bucket list, click the name of the bucket that stores the shared data.
3. In the navigation pane on the left, click **Objects** and then **Upload Object**.
4. In the displayed **Upload Object** dialog box, select the upload mode, storage class, and data to be uploaded.
5. Click **Upload**.

   You can click **Task Management** in the lower part of the page to view the upload progress and result.

Step 6 Verify the permission.

After the permission is granted, users in department B can verify it using OBS Console, OBS Browser+, APIs, and SDKs. This section takes OBS Console as an example to present how to verify that users of department B can only read the shared data.

1. Log in to OBS Console as an IAM user of department B.
2. In the bucket list, click the name of the target bucket.
3. In the left navigation pane, click **Objects**. The object list is displayed.
4. Click **Download** in the row where a public data record is located.
   - If the download fails, the download permission fails to be granted. Check whether the user group permission configuration is correct.
   - If the download is successful, the download permission is granted successfully. Go to the next step.
5. Click **Upload Object**, select a file, and click **Upload**.
   - If the upload is successful, the permission configuration for preventing write and deletion by users of other departments fails. Check whether the bucket policy is correctly configured.
   - If the upload fails, the permission configuration is successful. Go to the next step.
6. Click **Delete** in the row where a public data record is located.
   - If the deletion is successful, the permission configuration for preventing write and deletion by users of other departments fails. Check whether the bucket policy is correctly configured.
   - If the deletion fails, the permission configuration is successful.

----End

6.3 Authorizing Business Departments with Independent Resource Permissions

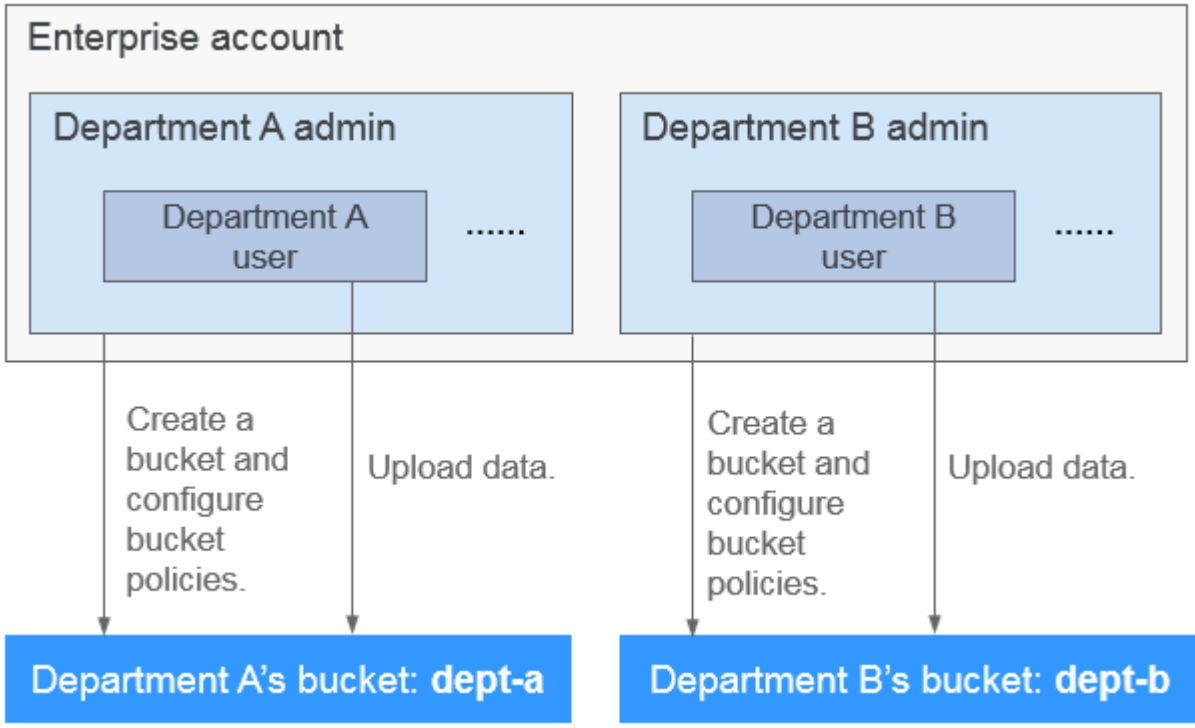
A company usually consists of multiple business departments, and each department requires independent data management. In this scenario, you can allocate IAM users of different roles to each department, and configure bucket policies to authorize the IAM users with independent resource permissions.

Scenario Assumption

Assume that a company has two business departments: A and B. Each department needs a separate bucket to store data, and users of each department have the permission to upload data to their own department's bucket.

Figure 6-5 shows the logical relationships among administrators, users, and buckets between the two departments.

Figure 6-5 Logical relationship



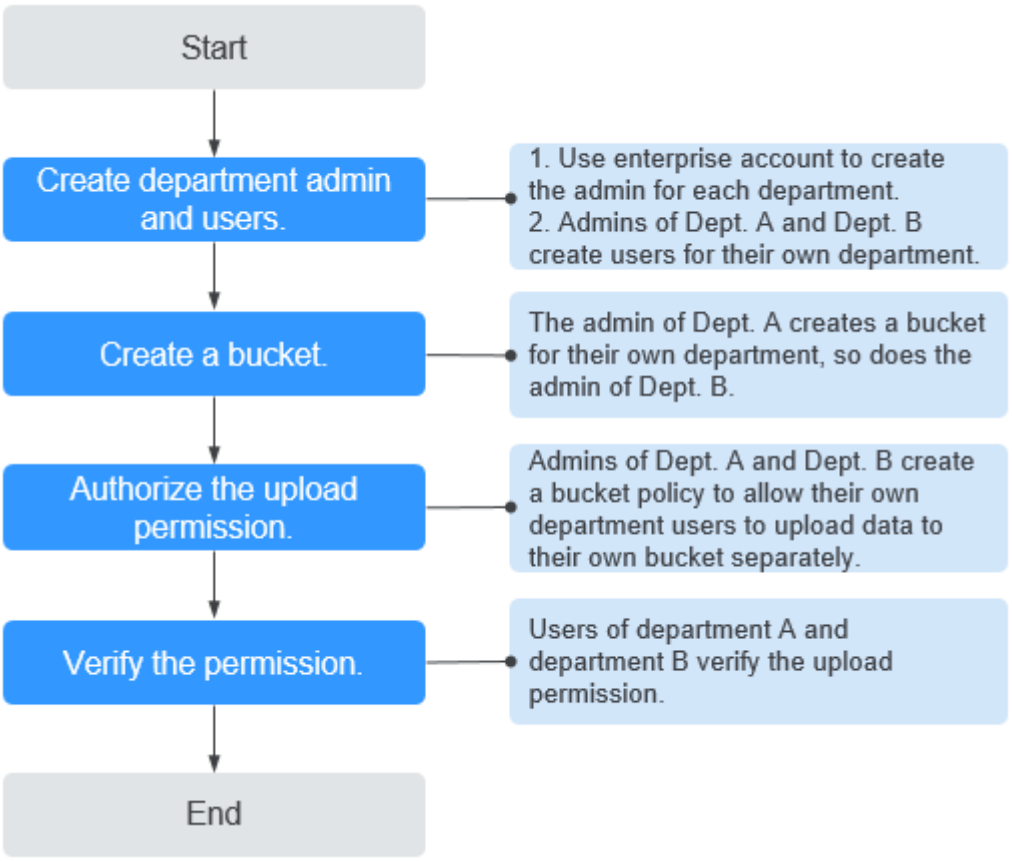
NOTE

This example describes how to configure the upload permission for users of a department. You can configure other permissions based on the site requirements. For details about bucket policy permissions, see **Bucket Policy**.

Solution and Process

The administrators of department A and department B can configure bucket policies to allow only users of their own department to upload data to their own department's bucket. For details about the configuration process, see **Figure 6-6**.

Figure 6-6 Permission control process



Prerequisites

You have an enterprise account of the company.

Procedure

Step 1 Create an administrator for each department and create users.

You need to use the enterprise account of the company to create IAM users as administrators and common users. A department administrator can also create common users. In this example, each department has an administrator and several users.

Add the administrator to the **admin** user group, which has the permissions to create users and buckets and configure bucket policies. Other users only need the permission to list buckets under the account but not permissions to create users or buckets or configure bucket policies. Therefore, add other users to user groups with the **OBS Buckets Viewer** permissions. For details about permissions, see **Permissions Management**.

1. Create a department administrator and some IAM users. For details, see **Creating an IAM User**.
2. Add the administrator to the **admin** user group, and add other users to user groups with the **OBS Buckets Viewer** permissions. For details, see **Assigning Permissions to an IAM User**.

Step 2 Create a bucket.

Create buckets as the administrator of department A and B, respectively.

1. Log in to the Huawei Cloud management console as the administrator of department A and B, respectively.
2. On the homepage, choose **Service List** > **Storage** > **Object Storage Service** to access OBS Console.
3. In the navigation pane, choose **Object Storage**. On the displayed page, click **Create Bucket** in the upper right corner.
4. Configure relevant parameters, including **Region**, **Bucket Name**, **Default Storage Class**, and **Bucket Policy**. For details, see **Creating a Bucket**.

   NOTE

   To ensure data security, you are advised to set **Bucket Policy** to **Private**.
5. Click **Create Now**. The bucket is created.

Step 3 Grant upload permissions to users in department A and department B.

The two administrators grant the upload permission to their own users.

1. Log in to the Huawei Cloud management console as the administrator of department A and B, respectively.
2. On the homepage, choose **Service List** > **Storage** > **Object Storage Service** to access OBS Console.
3. In the navigation pane, choose **Object Storage**. In the bucket list, click the department's bucket to go to the **Objects** page.
4. In the navigation pane, choose **Permissions** > **Bucket Policies**.
5. Click **Create**.
6. Choose a policy configuration method you like. **Visual Editor** is used here.
7. Configure parameters listed in the table below to grant users the permissions to access the bucket (to list objects in the bucket) and to upload objects to the bucket.

Table 6-4 Parameters for granting permissions to access buckets and upload objects

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	– Select **Current account**. – IAM users: Select the users who are allowed to upload data.

Parameter		Description
	Resources	– Method 1: ▪ Select **Entire bucket (including the objects in it)**. – Method 2: ▪ Select **Current bucket** and **Specified objects**. ▪ Set the resource path to * to indicate all objects in the bucket. **NOTE** If you want users only to upload objects to certain folders in the bucket, set the resource path to a folder name plus a wildcard character (for example, **example-folder/***). You can add multiple resource paths.
	Actions	– Choose **Customize**. – Select the following actions: ▪ ListBucket (to list objects in the bucket and obtain the bucket metadata) ▪ PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts)

8. Click **Create**.

Step 4 Verify the permission.

After the permission is configured, users of department A and department B can verify the permissions by uploading objects through OBS Console, OBS Browser+, APIs, and SDKs.

The permission verification should focus on the following aspects (taking department A for an example):

1. Users of department A can successfully upload objects to the bucket of department A.

   If users are allowed to upload objects to only the specified folder, ensure that:

   a. Objects can be successfully uploaded to the specified folder.
   b. Upload of objects to folders other than the specified one will fail.
2. Users of department A fail to upload objects to the bucket of department B.
3. Users of department A fail to download or delete any object from the bucket of department A.
4. Users of department A fail to download or delete any object from the bucket of department B.

If the preceding requirements are met, the permission configuration is successful.

----End

Department Administrator Permission Control

After the preceding configuration, all department administrators have full permissions for buckets of other departments. If you want to deny other department administrators' access to bucket resources of your department, configure a bucket policy according to the following procedure:

Step 1 Log in to the Huawei Cloud management console as the administrator of your department.

Step 2 On the homepage, choose **Service List** > **Storage** > **Object Storage Service** to access OBS Console.

Step 3 In the navigation pane, choose **Object Storage**. In the bucket list, click the department's bucket to go to the **Objects** page.

Step 4 In the navigation pane, choose **Permissions** > **Bucket Policies**.

Step 5 Click **Create**.

Step 6 Choose a policy configuration method you like. **Visual Editor** is used here.

Step 7 Configure parameters listed in the table below to deny other department administrators' access to the bucket of your department.

Table 6-5 Parameters for denying other department administrators' access to the bucket of the current department

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Deny**.
	Principals	• Select **Current account**. • IAM users: Select the administrators of other departments.

	Resources	• Method 1:
		  – Select **Entire bucket (including the objects in it)**.
		• Method 2:
		  – Select **Current bucket** and **Specified objects**.
		  – Set the resource path to * to indicate all objects in the bucket.

	Actions	• Choose **Customize**. • Select * (indicating all actions).

Step 8 Click **Create**.

----End

6.4 Isolating Bucket Resources Between Business Departments

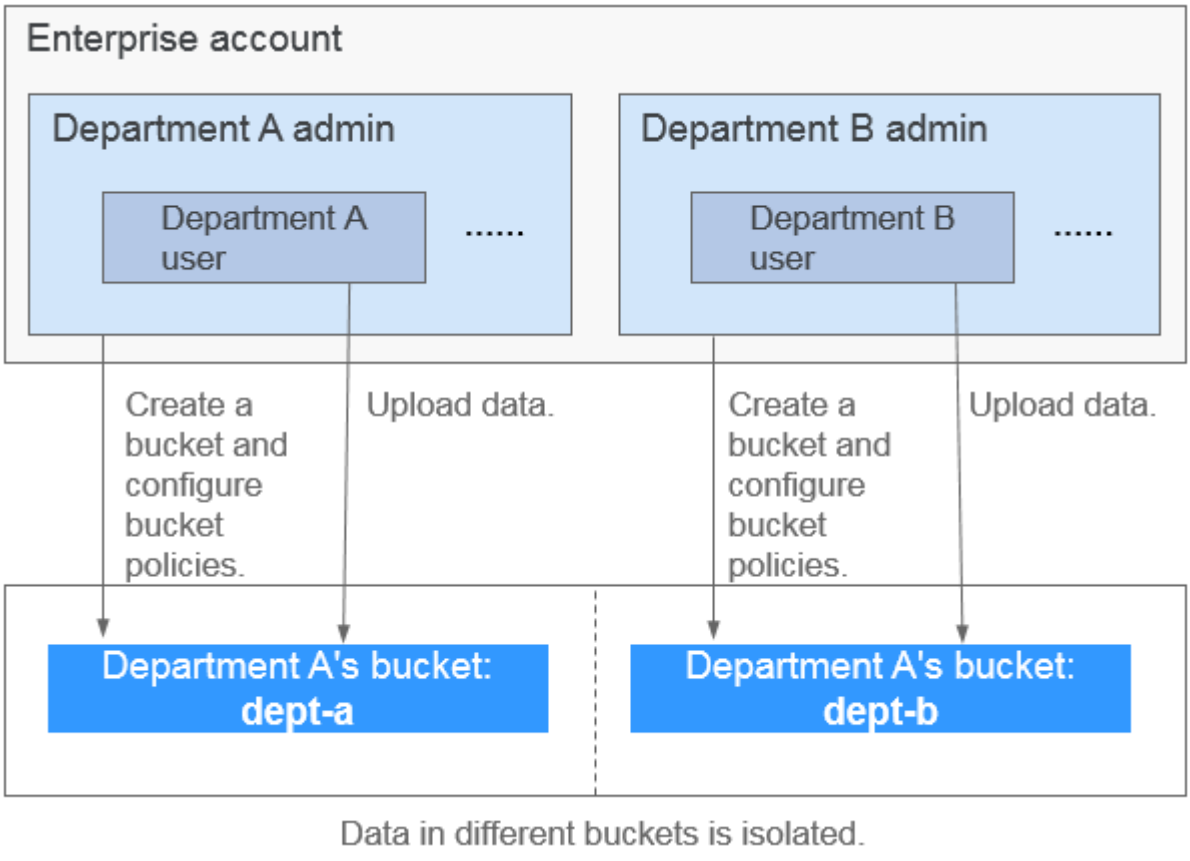
According to the permission control configured in **6.3 Authorizing Business Departments with Independent Resource Permissions**, users in different departments can only access resources of their own departments. However, they can read all bucket resources under the enterprise account. This section describes how to use OBS Browser+ to isolate bucket resources between business departments by adding external buckets.

Scenario Assumption

Assume that a company has two business departments: A and B. Each department needs a separate bucket to store data, and users of each department can view and upload data to only their own department's bucket.

Figure 6-7 shows the logical relationships among administrators, users, and buckets between the two departments.

Figure 6-7 Logical relationship



NOTE

This example describes how to configure the upload permission for users of a department. You can configure other permissions based on the site requirements. For details about bucket policy permissions, see **Bucket Policy**.

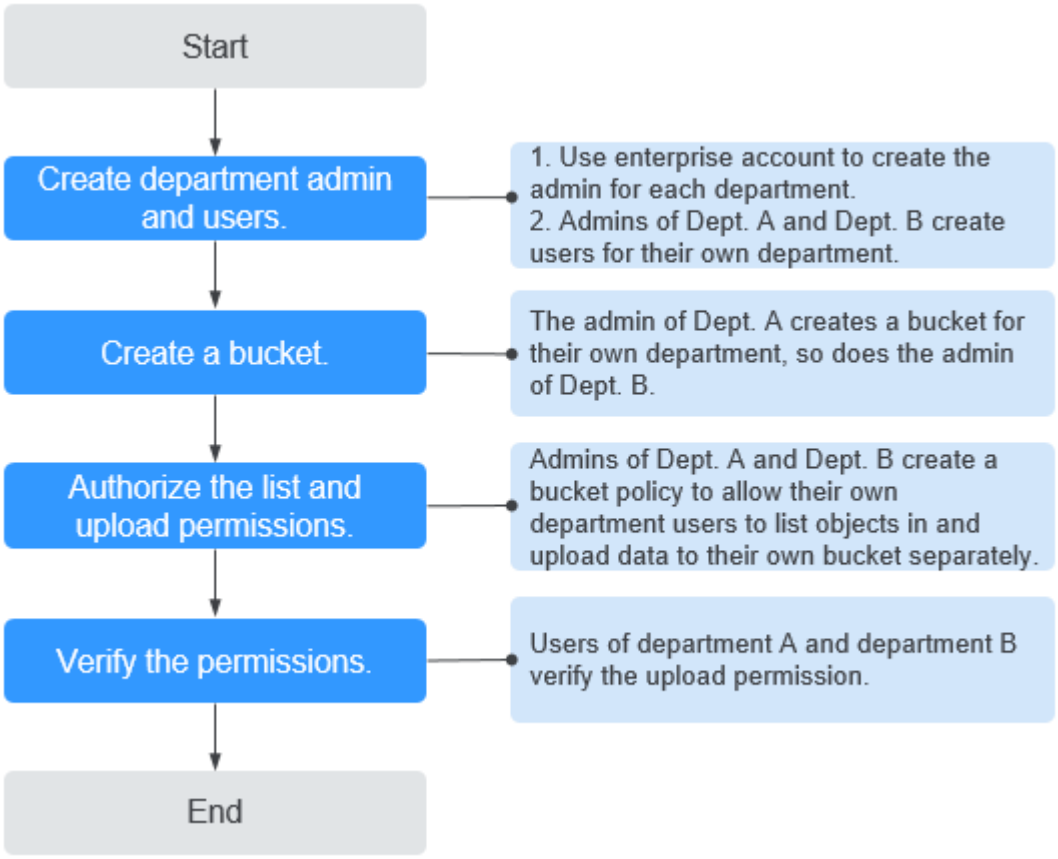
Solution and Process

This solution should focus on the following aspects:

1. Do not grant OBS access permissions to users created by a department administrator.
2. Configure a bucket policy that allows users of their own department to perform list and upload operations only in their own bucket.

Figure 6-8 shows the process.

Figure 6-8 Permission control process



Prerequisites

You have an enterprise account of the company.

Procedure

Step 1 Create administrators for department A and B, and then create their users.

You need to use the enterprise account of the company to create IAM users as administrators and common users. A department administrator can also create common users. In this example, each department has an administrator and several users.

Add the administrator to the **admin** user group, which has the permissions to create users and buckets and configure bucket policies. In this example, you do not need to log in to the IAM console and grant common users of the department with any OBS permissions. For details about permissions, see **Permissions Management**.

1. Create a department administrator and some IAM users. For details, see **Creating an IAM User**.
2. Add the administrator to the **admin** user group. Do not add other users to user groups with OBS access permissions. For details, see **Assigning Permissions to an IAM User**.

Step 2 Create a bucket.

The administrator of department A creates a bucket for its own department, so does the administrator of department B.

1. Log in to the Huawei Cloud management console as the administrator of department A and B, respectively.
2. On the homepage, choose **Service List** > **Storage** > **Object Storage Service** to access OBS Console.
3. In the navigation pane, choose **Object Storage**. On the displayed page, click **Create Bucket** in the upper right corner.
4. Configure relevant parameters, including **Region**, **Bucket Name**, **Default Storage Class**, and **Bucket Policy**. For details, see **Creating a Bucket**.

   NOTE

   To ensure data security, set **Bucket Policy** to **Private** and set other parameters as prompted.
5. Click **Create Now**. The bucket is created.

Step 3 Grant users the permission to list and upload objects.

The two administrators configure the permissions for their own department users in their own bucket separately.

1. Log in to the Huawei Cloud management console as the administrator of department A and B, respectively.
2. On the homepage, choose **Service List** > **Storage** > **Object Storage Service** to access OBS Console.
3. In the navigation pane, choose **Object Storage**. In the bucket list, click the department's bucket to go to the **Objects** page.
4. In the navigation pane, choose **Permissions** > **Bucket Policies**.
5. Click **Create**.
6. Choose a policy configuration method you like. **Visual Editor** is used here.
7. Configure parameters listed in the following table to grant users the permissions to list and upload objects.

Table 6-6 Parameters for granting permissions to list and upload objects

Parameter		Description
Policy Name		Enter a policy name.
Policy content	Effect	Select **Allow**.
	Principals	– Select **Current account**. – IAM users: Select the users who are allowed to view the bucket and upload data.
	Resources	– Method 1: ▪ Select **Entire bucket (including the objects in it)**. – Method 2: ▪ Select **Current bucket** and **Specified objects**. ▪ Set the resource path to ***** to indicate all objects in the bucket. **NOTE** If you want users only to upload objects to certain folders in the bucket, set the resource path to a folder name plus a wildcard character (for example, **example-folder/***). You can add multiple resource paths.
	Actions	– Choose **Customize**. – Select the following actions: ▪ ListBucket (to list objects in the bucket and obtain the bucket metadata) ▪ PutObject (to upload objects using PUT and POST, upload parts, initiate multipart uploads, and assemble parts)

8. Click **Create**.

Step 4 Verify the permission.

After the permission is configured, users of department A and department B can verify the permission through OBS Browser+.

NOTE

Users in the two departments have only the permission to access a specified bucket. Therefore, it is normal that these users are prompted that their access is restricted when logging in to OBS Console.

In this case, use OBS Browser+ to add the bucket of your own department to OBS Browser+ as an external bucket for permission verification and subsequent upload operations.

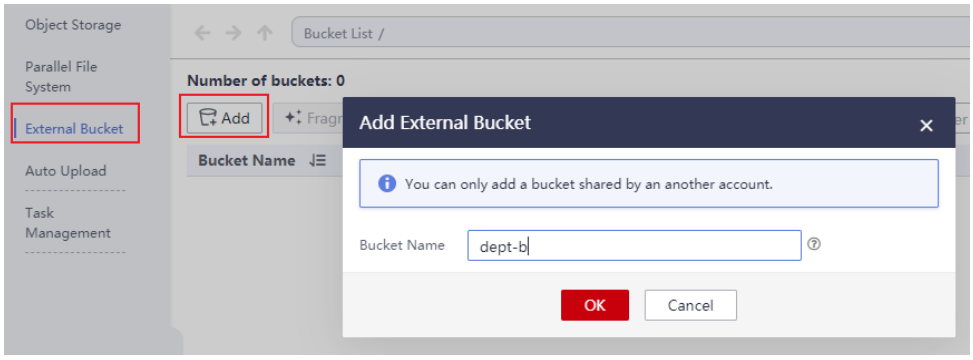
To verify the permission on OBS Browser+, perform the following steps:

1. **Download OBS Browser+.**
2. Log in to OBS Browser+ as a department user.

   NOTE

   Due to the preceding permission configuration, it is normal that the system displays a message indicating that the access is restricted after a department user logs in to OBS Browser+.
3. In the navigation pane on the left, choose **External Bucket**.
4. Click **Add**. The dialog box for adding an external bucket is displayed. Enter the name of the authorized bucket.

   Figure 6-9 Adding an external bucket



5. Click **OK**. The external bucket is displayed in the bucket list.
6. Upload a file to the bucket and verify the upload permission.

The permission verification should focus on the following aspects (taking department A for an example):

1. When users in department A log in to OBS Browser+ for the first time, a message is displayed indicating that the access is restricted and no bucket is displayed.
2. Users of department A can successfully add the bucket of department A on OBS Browser+.
3. Users of department A fail to add the bucket of department B.
4. Users of department A can successfully upload objects to the bucket of department A.

   If users are allowed to upload objects to only the specified folder, ensure that:

   a. Objects can be successfully uploaded to the specified folder.
   b. Upload of objects to folders other than the specified one will fail.
5. Users of department A fail to download or delete any object from the bucket of department A.

If the preceding requirements are met, the permission configuration is successful.

----End

7 FAQs

A Appendix

A.1 Bucket Policy Parameters

A policy in JSON format is described as follows:

```
{
"Statement" : [{
    statement1
 },
 {
    statement2
 },
  ......
 ]
}
```

Example:

```
{
"Statement" : [{
    "Sid": "ExampleStatementID1",
    "Principal": "*",
    "Effect": "Allow",
    "Action": "ListBucket",
    "Resource": "examplebucket",
    "Condition": "some conditions"
 },
 {
    "Sid": "ExampleStatementID2",
    "Principal": "*",
    "Effect": "Allow",
    "Action": "PutObject",
    "Resource": "examplebucket",
    "Condition": "some conditions"
 },
......
]
}
```

A policy is comprised of one or more statements. Each statement contains the following elements:

Table A-1 Statement elements

Element	Description	Mandatory/ Optional
Sid	ID of a statement. The value is a string that describes the statement.	Optional
Principal	Domains and users to which a statement applies. The wildcard (*) is supported, indicating all users. When permissions are authorized to all users under a domain, the format of **Principal** is **domain/***domainid***:user/***. When permissions are authorized to a specific user under a domain, the format of **Principal** is **domain/***domainid***:user/***userId* or **domain/***domainid***:user/***userName*. If you configure a bucket inventory on OBS Console, a policy is automatically generated for the destination bucket. In the generated bucket policy, the value of **Principal** is **{"Service": "obs"}**. For details about bucket inventories, see **Bucket Inventories**.	Optional. Select either **Principal** or **NotPrincipal**.
NotPrincipal	An exception to a list of principals in the statement. You can deny access to all principals except the ones named in the **NotPrincipal** element. This parameter has the same value format as **Principal**.	Optional. Select either **NotPrincipal** or **Principal**.
Action	Actions which a statement applies to. This parameter specifies a set of all the operations supported by OBS. Its values are case insensitive. The value supports a wildcard character (*) that indicates all actions, for example, **"Action": ["List*", "Get*"]**.	Optional. Select either **Action** or **NotAction**.
NotAction	An exception to a list of actions in the statement. All actions are performed except the ones specified in **NotAction**. This parameter has the same value format as **Action**.	Optional. Select either **Action** or **NotAction**.
Effect	Whether the permission in a statement is allowed or denied. The value is **Allow** or **Deny**.	Mandatory
Resource	Resources on which the statement takes effect. The wildcard (*) is supported, indicating all resources.	Optional. Select either **Resource** or **NotResource**.
NotResource	An exception to a list of resources in a statement. A policy is not applied to the resources specified in **NotResource**. This parameter has the same value format as **Resource**.	Optional. Select either **Resource** or **NotResource**.

Element	Description	Mandatory/ Optional
Condition	Conditions for a statement to take effect.	Optional

NOTE

A statement must contain either **Action** or **NotAction**, either **Resource** or **NotResource**, and either **Principal** or **NotPrincipal**.

Principal/NotPrincipal

Principal or **NotPrincipal** supported by OBS includes all accounts, specific tenants, specific users, federated users, and agencies.

- All (all accounts)

  ```
  "Principal": {"ID": "*"}
  ```

  In the example, the wildcard (*) is used as a placeholder for Everyone/ Anonymous. We strongly recommend that you do not use wildcards in the **Principal** element of the role's trust policy unless you have restricted access by using the **Condition** element in the policy.

- Specific tenants

  If the tenant identifier is used as the authorizer in the policy, permissions in the policy statement can be granted to all roles, including all the users, contained in this tenant. The following example demonstrates how to specify a tenant as an authorizer.

  ```
  "Principal": { "ID": " domain/domainIdxxxx:user/*" }
  ```

  You can grant permissions to multiple tenants, as described in the following example:

  ```
  "Principal": {
    "ID": [
      "domain/domainIDxx1:user/useridxxxx",
      "domain/domainIDxx2:user/*"
    ]
  }
  ```

- Specific users

  In the **Principal** element, user names are case sensitive.

  ```
  "Principal": {"ID": "domain/domainIDxxx:user/user-name" }
  "Principal": {
    "ID": [
      "domain/domainIDxxx:user/UserID1",
      "domain/domainIDxxx:user/UserID2"
    ]
  }
  ```

- Federated users (using SAML identity provider)

  ```
  "Principal": { "Federated": "domain/domainIDxxx:identity-provider/provider-name" }
  "Principal": { "Federated": "domain/domainIDxxx:group/groupname" }
  ```

- Agencies

  * indicates all agencies of a tenant.

  ```
  "Principal": { "ID": "domain/domainIDxxx:agency/agencyname" }
  "Principal": { "ID": "domain/domainIDxxx:agency/*" }
  ```


If you configure a bucket inventory on OBS Console, a policy is automatically generated for the destination bucket. In the generated bucket policy, the **Principal** is configured as follows:

```
"Principal":{"Service": "obs"}
```

For details about bucket inventories, see **Bucket Inventories**.

The principals on OBS Console refer to the users which the bucket policies apply to. These users can be accounts and IAM users. The **Exclude** settings can determine whether a bucket policy applies to the specified principals:

Specified principals: By selecting this option (optional), the bucket policy applies to users except the specified ones.

NOTE

- **Exclude** not selected: The bucket policy applies to the specified users.
- **Exclude** selected: The bucket policy applies to users except the specified ones.

Specifying IAM users under the current account

With **Principal** set to **Current account**, you can select one or more users for **IAM user**, so the bucket policy applies to the selected IAM users under this account.

Specifying another account

With **Principals** set to **Other accounts**, you can enter one or more account IDs. If you want to apply the bucket policy to only the IAM users under that account, enter one or more IAM user IDs.

NOTE

To obtain the account ID and IAM user ID, log in to the console as an IAM user and go to the **My Credentials** page.

Specifying a delegated account

With **Principals** set to **Delegated accounts**, you can specify one or more delegated accounts. After the bucket policy is created, the accounts you delegate your resource operation permissions to can perform O&M on your behalf.

NOTE

Delegated accounts can be added only after **Other accounts** is selected.

Specifying all accounts

To grant the bucket access to anyone, set **Principals** to **All accounts**.

NOTICE

Exercise caution when granting bucket access permissions to all accounts. If you grant the access permissions to all accounts, anyone can access your bucket. You are advised to set restrictions on access requests. For example, you can allow the access requests from only one IP address.

Action/NotAction

If a policy applies to a bucket, configure bucket-related actions; if the policy applies to the objects in a bucket, configure object-related actions.

The **Exclude** setting can be used to determine whether the bucket policy applies to the specified actions.

Specified actions: By selecting this option (optional), the bucket policy applies to actions except the specified ones.

NOTE

- **Exclude** not selected: The bucket policy applies to the specified actions.
- **Exclude** selected: The bucket policy applies to actions except the specified ones.
- By default, **Specified actions** is selected for **Exclude** in the bucket read/write template only. The action exclusion setting in bucket policy templates cannot be modified.

Bucket Actions

Table A-2 Description of bucket-related actions

Type	Value	Description
General	*	Indicates that all operations can be performed on a resource.
	Get*	Indicates that all GET operations can be performed on a resource.
	Put*	Indicates that all PUT operations can be performed on a resource.
	List*	Indicates that all LIST operations can be performed on a resource.
Bucket	HeadBucket	Checks whether a bucket exists and obtains the bucket metadata.
	CreateBucket	Creates a bucket.
	DeleteBucket	Deletes a bucket.
	ListBucket	Lists objects in a bucket, and obtains the bucket metadata.
	ListBucketVersions	Lists versioned objects in a bucket.
	ListBucketMultipar-tUploads	Lists multipart upload tasks.
	GetBucketAcl	Gets the bucket ACL information.
	PutBucketAcl	Configures a bucket ACL.
	GetBucketCORS	Gets the CORS configuration of a bucket.
	PutBucketCORS	Configures CORS for a bucket.

Type	Value	Description
	GetBucketVersioning	Gets the bucket versioning information.
	PutBucketVersioning	Configures versioning for a bucket.
	GetBucketLocation	Gets the bucket location.
	GetBucketLogging	Gets the bucket logging information.
	PutBucketLogging	Configures logging for a bucket.
	GetBucketWebsite	Obtains the static website configuration information of a bucket.
	PutBucketWebsite	Configures static website hosting for a bucket.
	DeleteBucketWebsite	Cancels the static website hosting of a bucket.
	GetLifecycleConfiguration	Obtains the lifecycle rules of a bucket.
	PutLifecycleConfiguration	Configures a lifecycle rule for a bucket.
	GetBucketInventoryConfiguration	Gets the inventory configuration of a bucket.
	PutBucketInventoryConfiguration	Configures inventories for a bucket.
	DeleteBucketInventoryConfiguration	Deletes the inventory configuration of a bucket.
	PutBucketPolicy	Configures a bucket policy. **NOTE** Granting this permission is risky. Users with the PutBucketPolicy permission can modify bucket policies and can use this permission to further obtain other permissions, including deleting bucket policies.
	GetBucketPolicy	Gets a bucket policy.
	DeleteBucketPolicy	Deletes a bucket policy.
	PutBucketStoragePolicy	Configures the default storage class for a bucket.
	GetBucketStoragePolicy	Gets the default storage class of a bucket.
	PutReplicationConfiguration	Configures cross-region replication for a bucket.

Type	Value	Description
	GetReplicationConfiguration	Gets the cross-region replication configuration of a bucket.
	DeleteReplicationConfiguration	Deletes the cross-region replication configuration of a bucket.
	PutBucketTagging	Configures tags for a bucket.
	GetBucketTagging	Gets bucket tags.
	DeleteBucketTagging	Deletes bucket tags.
	PutBucketQuota	Configures bucket storage quota.
	GetBucketQuota	Gets bucket storage quota.
	PutBucketCustomDomainConfiguration	Binds a user-defined domain name to a bucket.
	GetBucketCustomDomainConfiguration	Gets the custom domain name of a bucket.
	DeleteBucketCustomDomainConfiguration	Unbinds a user-defined domain name from a bucket.
	PutDirectColdAccessConfiguration	Configures direct reading for a bucket.
	GetDirectColdAccessConfiguration	Gets the direct reading configuration of a bucket.
	DeleteDirectColdAccessConfiguration	Deletes the direct reading configuration of a bucket.
	GetEncryptionConfiguration	Gets the default encryption configuration of a bucket.
	PutEncryptionConfiguration	Configures default encryption for a bucket.
	PutBucketObjectLockConfiguration	Configures a default retention policy for a bucket.
	GetBucketObjectLockConfiguration	Obtains the default retention settings of a bucket.

Object Actions

Table A-3 Action description

Type	Value	Description
General	*	Indicates that all operations can be performed on a resource.
	Get*	Indicates that all GET operations can be performed on a resource.
	Put*	Indicates that all PUT operations can be performed on a resource.
	List*	Indicates that all LIST operations can be performed on a resource.
Object	GetObject	Gets the content and metadata of an object. GetObject is applicable to GET Object and HEAD Object.
	GetObjectVersion	Gets the content and metadata of a specified object version.
	PutObject	Performs PUT upload, POST upload, multipart upload, initialization of uploaded parts, and merging of parts. PutObject is applicable to PUT Object, POST Object, Initiate Multipart Upload, Upload Part, and Complete Multipart Upload.
	GetObjectAcl	Gets the object ACL information.
	GetObjectVersionAcl	Gets the ACL information of a specified object version.
	PutObjectAcl	Configures the ACL for an object.
	PutObjectVersionAcl	Configures the ACL for a specified object version.
	DeleteObject	Deletes an object.
	DeleteObjectVersion	Deletes a specified object version.
	ListMultipartUpload-Parts	Lists uploaded parts.
	AbortMultipartUpload	Cancels a multipart upload.
	ModifyObjectMetada-ta	Modifies object metadata.
	RestoreObject	Restores an object from Archive storage class.
	PutObjectRetention	Configures a retention policy for an object.

Resource/NotResource

The resources supported by OBS are as follows:

- *bucketname* (bucket operation): The **Action** drop-down list box contains the list of supported bucket actions. If you want to perform the listed operations on the bucket, set **Resource** to the bucket name.
- *bucketname/objectname* (object operation): The **Action** drop-down list box contains the list of supported object actions. If you want to respond to an object in a bucket, set **Resource** to *bucketname/objectname*. **objectname** supports wildcards. For example, if you have permissions on the directory object in a bucket, set **Resource** to *"bucketname/directory/*"*. If you have permissions on all the objects in a bucket, set **Resource** to *"bucketname/*"*. If permissions for both a bucket and its objects need to be granted, set **Resource** to **["examplebucket/*","examplebucket"]**.

The following example policy grants all operation permissions on **examplebucket** (including the bucket and its objects) to user1 whose user ID is **71f3901173514e6988115ea2c26d1999** under account **b4bf1b36d9ca43d984fbcb9491b6fce9** (account ID).

```
{
   "Statement":[
   {
     "Sid":"test",
     "Effect":"Allow",
     "Principal": {"ID": ["domain/b4bf1b36d9ca43d984fbcb9491b6fce9:user/
71f3901173514e6988115ea2c26d1999"]},
     "Action":["*"],
     "Resource":["examplebucket/*","examplebucket"]
   }
  ]
}
```

On OBS Console, you can apply a bucket policy to the following resources: an entire bucket (including the objects in it), the current bucket, and specified objects in a bucket.

The **Exclude** setting can be used to determine whether the bucket policy applies to the specified resources.

Specified resources: By selecting this option (optional), the bucket policy applies to resources except the specified ones.

NOTE

- **Exclude** not selected: The bucket policy applies to the specified OBS resources.
- **Exclude** selected: The bucket policy applies to OBS resources except the specified ones.

Applying a bucket policy to the entire bucket (including the objects in it)

If you apply the bucket policy to the entire bucket (including the objects in it), actions related to the bucket and objects must be configured in the policy.

Applying a bucket policy to a bucket

To apply a bucket policy to the current bucket, select **Current bucket**. When configuring actions for the policy, select bucket related actions.

Applying a bucket policy to specified objects

To apply the bucket policy to specified objects in a bucket, object-related actions must be configured in the policy. Specifically, select **Specified objects** for **Resources**. The configuration format is as follows:

- For an object, enter the object name (including its folder name if any). For example, if the specified resource is the **example.jpg** file in the **imgs-folder** folder in the bucket, enter the following content in the resource text box:

  imgs-folder/example.jpg
- For an object set, the wildcard asterisk (*) should be used. The asterisk (*) indicates an empty string or any combination of multiple characters. The format rules are as follows:
  - Use only one asterisk (*) to indicate all objects in a bucket.
  - Use *Object name prefix** to indicate objects starting with this prefix in a bucket. Example:

    imgs*
  - Use **Object name suffix* to indicate objects ending with this suffix in a bucket. Example:

    *.jpg

Condition

In addition to the effect, principals, resources, and actions, you can also specify the conditions under which a bucket policy takes effect. The bucket policy takes effect only when its condition expressions match values contained in the request. Conditions are optional. You can choose whether to configure them.

For example, if account A needs to have full control over an object uploaded by account B to bucket **example** of account A, the **x-obs-acl** key must be specified in the upload request and the policy effect must be set to **Allow** for account A. The complete condition expression is as follows:

Condition Operator	Key	Value
StringEquals	x-obs-acl	bucket-owner-full-control

A condition consists of three parts: condition operator, key, and value. If there are multiple identical keys in the same condition operator, only the last key is retained. Condition operators and keys are mutually restricted. If you select a condition operator of the string type, for example, **StringEquals**, the key can only be of the string type, for example, **UserAgent**. Likewise, if a key of the date type is selected, for example, **CurrentTime**, the condition operator can only be of the date type, for example, **DateEquals**.

- **Condition operators**

  A condition operator, a condition key, and a condition value together constitute a complete condition statement. A policy can be applied only when its request conditions are met. **Table A-4** lists the condition operators

available for statements. String condition operators are not case-sensitive unless otherwise specified.

Table A-4 Condition operators

Type	Element	Description
String	StringEquals	Strict matching. Short version: streq
	StringNotEquals	Strict negated matching. Short version: strneq
	StringEqualsIgnoreCase	Strict matching, ignoring case. Short version: streqi
	StringNotEqualsIgnoreCase	Strict negated matching, ignoring case. Short version: strneqi
	StringLike	Loose case-sensitive matching. The values can include a multi-character match wildcard (*) or a single-character match wildcard (?) anywhere in the string. Short version: strl
	StringNotLike	Negated loose case-sensitive matching. The values can include a multi-character match wildcard (*) or a single-character match wildcard (?) anywhere in the string. Short version: strnl
Numeric	NumericEquals	Strict matching. Short version: numeq **Numeric** indicates a data type expressed in numbers.
	NumericNotEquals	Strict negated matching. Short version: numneq
	NumericLessThan	"Less than" matching. Short version: numlt
	NumericLessThanEquals	"Less than or equals" matching. Short version: numlteq
	NumericGreaterThan	"Greater than" matching. Short version: numgt
	NumericGreaterThanEquals	"Greater than or equals" matching. Short version: numgteq
Date	DateEquals	Strict matching. Short version: dateeq
	DateNotEquals	Strict negated matching. Short version: dateneq

Type	Element	Description
	DateLessThan	The date is earlier than a specific date. Short version: datelt
	DateLessThanEquals	The date is earlier than or equal to a specific date. Short version: datelteq
	DateGreaterThan	The date is later than a specific date. Short version: dategt
	DateGreaterThanEquals	The date is later than or equal to a specific date. Short version: dategteq
Boolean	Bool	Strict Boolean matching
IP address	IpAddress	Specified IP address or IP address range
	NotIpAddress	All IP addresses excluding the specified IP address or IP address range

NOTE

Elements in a condition are case sensitive. The date format complies with the ISO 8601 standard, for example, **2015-07-01T12:00:00Z**.

Each condition can contain multiple key-value pairs. The **Condition** combination in the following figure indicates that the request time ranges from **2015-07-01T12:00:00Z** to **2018-04-16T15:00:00Z** and the request IP address range is **192.168.176.0/24** or **192.168.143.0/24**.

```
"Condition" : {
  "DateGreaterThan" : {
  "CurrentTime" : "2015-07-01T12:00:00Z"
  },
  "DateLessThan": {
  "CurrentTime" : "2018-04-16T15:00:00Z"
  },
  "IpAddress" : {
  "SourceIp" : ["192.168.176.0/24","192.168.143.0/24"]
  }
}
```

- **Condition keys**

Keys in a condition can be classified into three types: general keys, keys related to bucket actions, and keys related to object actions.

The following table lists the keys that are not related to actions.

Table A-5 General keys

Key	Type	Description
CurrentTime	Date	Date when the request is received by the server. The date format must comply with ISO 8601.
EpochTime	Numeric	Time when the request is received by the server, which is expressed as seconds since 1970.01.01 00:00:00 UTC, regardless of the leap seconds
SecureTransport	Bool	Whether requests are encrypted using SSL **NOTE** The value can be either **true** or **false**. Any other values you enter will become **false** by default.
SourceIp	IP address	Source (client) IP address of the request
UserAgent	String	Requested client software agent
Referer	String	Link from which the request is sent
SourceVpce	String	ID of the VPC endpoint that initiates the request **NOTE** Supported only in the CN South-Guangzhou and CN East-Shanghai1 regions.
SourceVpc	String	ID of the VPC that initiates the request. **NOTE** Supported only in the CN South-Guangzhou and CN East-Shanghai1 regions.

Keys in a condition must be used in certain actions. The following table lists the mapping between actions and the keys in a condition.

Table A-6 Keys related to bucket actions

Action	Optional Key	Description	Remarks
ListBucket	prefix	Type: String. Lists objects that begin with the specified prefix.	If **prefix**, **delimiter**, and **max-keys** are configured, the key-value pair meeting the conditions must be specified in the List operation for the bucket policy to take effect. For example, if a bucket policy (with the condition operator set to **NumericEquals**, the key to **max-keys**, and the value to **100**) that allows all accounts to read data is configured for a bucket, all accounts must add **?max-keys=100** to the end of the bucket domain name for listing objects. The listed objects are the first 100 objects in alphabetic order.
	delimiter	Type: String. Groups objects in a bucket.	
	max-keys	Type: Numeric. Sets the maximum number of objects. Returned objects are listed in alphabetic order.	
ListBucketVersions	prefix	Type: String. Lists multi-version objects whose name starts with the specified prefix.	
	delimiter	Type: String. Groups objects of different versions in a bucket.	
	max-keys	Type: Numeric. Sets the maximum number of objects. Returned objects are listed in alphabetic order.	

Action	Optional Key	Description	Remarks
PutBucketAcl	x-obs-acl	Type: String. Configures the bucket ACL. When modifying a bucket ACL, you can use the request that contains a canned ACL setting in its header. Value options of a canned ACL setting: **private|public-read|public-read-write|bucketowner-read|log-delivery-write**.	None

Table A-7 Keys related to object actions

Action	Optional Key	Description
PutObject	x-obs-acl	Type: String. Configures the object ACL. When uploading an object, you can use the request that contains a canned ACL setting in its header. Value options of a canned ACL setting: **private|public-read|public-read-write|bucketowner-read|bucket-owner-full-control|log-delivery-write**.
	x-obs-copy-source	Type: String. Specifies names of the source bucket and the source object. Format: **/***bucketname***/***keyname*
	x-obs-metadata-directive	Type: String. Specifies whether to copy the metadata from the source object or replace with the metadata in the request. The value can be **COPY** or **REPLACE**.
	x-obs-server-side-encryption	Type: String. Specifies that objects in a bucket are encrypted using SSE-KMS before they are stored. The value is **kms**.
PutObjectAcl	x-obs-acl	Type: String. Configures the object ACL. When uploading an object, you can use the request that contains a canned ACL setting in its header. Value options of a canned ACL setting: **private|public-read|public-read-write|bucketowner-read|bucket-owner-full-control|log-delivery-write**.

Action	Optional Key	Description
GetObjectVersion	versionId	Type: String. Obtains the object with the specified version ID.
GetObjectVersionAcl	versionId	Type: String. Obtains the ACL of the object with the specified version ID.
PutObjectVersionAcl	versionId	Type: String. Specifies a version ID.
	x-obs-acl	Type: String. Configures the ACL of the object with the specified version ID. When uploading an object, you can use the request that contains a canned ACL setting in its header. Value options of a canned ACL setting: **private|public-read|public-read-write|bucketowner-read|bucket-owner-full-control|log-delivery-write**.
DeleteObjectVersion	versionId	Type: String. Deletes the object with the specified version ID.

Policy Permission Judgment Logic

A policy may pose any of the three results for each statement: **Explicit Deny**, **Allow**, and **Default Deny**. If a bucket policy contains multiple statements, the policy determines which statement prevails according to the following rules:

1. If conditions in any statement of a policy are not met, the policy poses a default deny result.

2. An explicit deny overrides an allow.

3. An allow overrides a default deny.

4. Statements can be in any order in a policy.

Table A-8 Statement results

Result	Description
explicit deny	A statement defines effect="deny". All requests for resources to which the statement applies are denied. No permission is returned.
allow	A statement defines effect="allow". All requests for resources to which the statement applies are allowed.
default deny	Conditions defined in a statement are not met. Requests are denied.

If an ACL and a bucket policy are applied together to an account, an explicit deny in the bucket policy overrides the allow in the ACL.

If a bucket policy and an IAM policy are applied together to an account, an explicit deny overrides the allow, and an allow overrides the default deny.

SSE-KMS server-side encrypted object does not support Bucket ACL/Policy for cross-tenant authorization.

A.2 Relationship Between Bucket Policies and Bucket ACLs

Mapping Between Bucket ACLs and Bucket Policies

Bucket ACLs are used to control basic read and write access to buckets. Custom settings of bucket policies support more actions that can be performed on buckets. Bucket ACLs supplement bucket policies, and in many cases, can be replaced by bucket policies to manage access to buckets, except when permissions are granted to a log delivery user group. **Table A-9** shows the mapping between bucket ACL access permissions and bucket policy actions.

Table A-9 Mapping Between Bucket ACLs and Bucket Policies

ACL Permission	Option	Mapped Action in a Custom Bucket Policy
Access to bucket	Read	• HeadBucket • ListBucket • ListBucketVersions • ListBucketMultipartUploads
	Write	• PutObject • DeleteObject • DeleteObjectVersion
Access to object	Read	• GetObject
Access to ACL	Read	• GetBucketAcl
	Write	• PutBucketAcl

Mapping Between Object ACLs and Bucket Policies

Object ACLs are used to control basic read and write access to objects. The custom settings of bucket policies allow you to specify more actions that can be performed on objects. **Table A-10** describes the mapping between object ACL access permissions and bucket policy actions.

Table A-10 Mapping between object ACLs and bucket policies

Object ACL Permission	Option	Mapped Action in a Custom Bucket Policy
Access to object	Read	• GetObject • GetObjectVersion
Access to ACL	Read	• GetObjectAcl • GetObjectVersionAcl
	Write	• PutObjectAcl • PutObjectVersionAcl

B Change History

Date	What's New
2024-02-28	This is the ninth official release. This issue incorporates the following change: • Added the content related to Deep Archive storage (under limited beta testing).
2023-10-25	This is the eighth official release. This issue incorporates the following changes: • Updated the content related to bucket policies. • Updated screenshots related to the object list. • Updated the table "Access permissions controlled by a bucket ACL" in 2.3 ACLs.
2023-05-05	This is the seventh official release. This issue incorporates the following change: • Updated the content related to folder sharing by URL.
2023-04-23	This is the sixth official release. This issue incorporates the following change: • Added the WORM-related content.
2023-01-19	This is the fifth official release. This issue incorporates the following change: • Removed the content related to event notifications.
2021-07-20	This is the fourth official release. This issue incorporates the following changes: • Added the section "Granting IAM User Groups the Specified Permissions for a Folder." • Added the best practices for enterprise data access control.

Date	What's New
2021-05-19	This is the third official release. This issue incorporates the following changes: ● Added "Bucket Policy Parameters" in the "Appendix" section. ● Added "Relationship Between Bucket ACLs and Bucket Policies" in the "Appendix" section.
2020-10-31	This is the second official release. This issue incorporates the following changes: ● Added "How to Select IAM Permissions, Bucket Policies, and ACLs" to section "Introduction to OBS Permission Control." ● Added the scenario description to section "Accessing OBS Using a Temporary URL." ● Added the scenario description to section "Temporarily Sharing Objects with Anonymous Users." ● Added section "Granting Other Accounts the Read Permission for Certain Objects." ● Added section "Granting Other Accounts the Specified Permissions for Certain Objects." ● Added section "Granting Anonymous Users Public Read Permissions on a Bucket." ● Added section "Granting Anonymous Users the Public Read Permission for a Directory." ● Added section "Granting Anonymous Users the Public Read Permission for Certain Objects."
2020-10-10	This is the first official release.

