Cloud Backup and Recovery

User Guide

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Contents

1 Permissions Management

1.1 Creating a User and Granting CBR Permissions

This section describes how to use IAM to implement fine-grained permissions control for your CBR resources. With IAM, you can:

- Create IAM users for personnel based on your enterprise's organizational structure. Each IAM user has their own identity credentials for accessing CBR resources.
- Grant users only the permissions required to perform a given task based on their job responsibilities.
- Entrust a Huawei Cloud account or cloud service to perform efficient O&M on your CBR resources.

If your Huawei Cloud account does not require individual IAM users, skip this section.

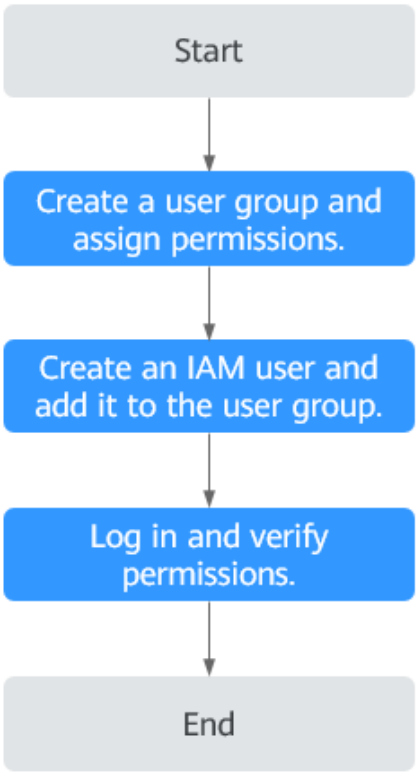
Figure **Figure 1-1** illustrates the procedure for granting permissions.

Prerequisites

Learn about the permissions (see **CBR Permissions**) supported by CBR and choose policies or roles according to your requirements. For the system policies of other services, see **System Permissions**.

Process Flow

Figure 1-1 Process for granting CBR permissions



1. **Create a user group and assign permissions**.

   Create a user group on the IAM console, and assign the **CBR ReadOnlyAccess** policy to the group.

2. **Create an IAM user and add it to the user group**.

   Create a user on the IAM console and add the user to the group created in **1**.

3. **Log in** and verify permissions.

   Log in to the CBR console as the created user and verify that the user has read-only permissions for CBR.

   - Choose **Service List** > **Cloud Backup and Recovery**. Then click **Buy Server Backup Vault** on the CBR console. If a message appears indicating that you do not have the permissions to perform the operation, the **CBR ReadOnlyAccess** policy has already taken effect.
   - Choose any other service in **Service List**. If a message appears indicating that you do not have the permissions to access the service, the **CBR ReadOnlyAccess** policy has already taken effect.

1.2 Creating a Custom Policy

You can create custom policies to supplement the system-defined policies of CBR. For the actions supported for custom policies, see **Permissions Policies and Supported Actions**.

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Edit JSON policies from scratch or based on an existing policy.

For details about how to create custom policies, see **Creating a Custom Policy**.

This section provides examples of common CBR custom policies.

Example Custom Policies

- Example 1: Allowing users to create, modify, and delete vaults

```
{
    "Version": "1.1",
    "Statement": [
        {
            "Effect": "Allow",
            "Action": [
                "cbr:*:get*",
                "cbr:*:list*",
                "cbr:vaults:update",
                "cbr:vaults:delete",
                "cbr:vaults:create"
            ]
        }
    ]
}
```

- Example 2: Denying users to delete vaults and backups

  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.

  If you need to assign permissions of the **CBR FullAccess** policy to a user but want to prevent the user from deleting vaults and backups, create a custom policy for denying vault and backup deletion, and attach both policies to the group to which the user belongs. In this way, the user can perform all operations on CBR except deleting vaults or backups. The following is an example deny policy:

```
{
  "Version": "1.1",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": [
        "cbr:backups:delete",
        "cbr:vaults:delete"
      ]
    }
  ]
}
```

- Example 3: Defining permissions for multiple services in a policy

  A custom policy can contain the actions of multiple services that are of the global or project-level type. The following is an example policy containing actions of multiple services:

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



```
            "Action": [
                "cbr:vaults:create",
                "cbr:vaults:update",
                "cbr:vaults:delete"
            ]
        },
        {
            "Effect": "Allow",
            "Action": [
                "sfs:shares:createShare"
            ]
        }
    ]
}
```

1.3 Configuring Forcible Backup Policies

Forcible backup policies allow IAM users to forcibly back up data to ensure user data accuracy and security and service security.

You can configure forcible backup policies to grant permissions to IAM users to force backup, specifically:

1. **Grant permission to always enable a backup policy when it is created.**
2. **Grant permission to prohibit disabling of backup policies when they are modified.**
3. **Grant permission to force backup policy application during vault creation.**

NOTICE

To ensure forcible backup, you are advised to configure all the three preceding policies.

NOTE

You can create custom policies in either of the following ways:

- Visual editor: Select cloud services, actions, resources, and request conditions. This does not require knowledge of policy syntax.
- JSON: Create a JSON policy or edit an existing one.

For details about how to create custom policies, see **Creating a Custom Policy**.

1. Grant permission to always enable a backup policy when it is created.

```
{
  "Version": "5.0",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": ["cbr:policies:create"],
      "Condition": {
          "Bool": {
              "cbr:EnabledPolicy": "false"
          }
      }
    }
  ]
}
```

2. Grant permission to prohibit disabling of backup policies when they are modified.


```
{
"Version": "5.0",
  "Statement": [
    {
      "Effect": "Deny",
      "Action": ["cbr:policies:update"],
      "Condition": {
          "Bool": {
              "cbr:EnabledPolicy": "false"
          }
      }
    }
 ]
}
```

3. Grant permission to force backup policy application during vault creation.

```
{
 "Version": "5.0",
    "Statement": [
        {
            "Effect": "Deny",
            "Action": [
                "cbr:vaults:create"
            ],
            "Condition": {
                "Null": {
                    "cbr:PolicyId": [
                        "true"
                    ]
                }
            }
        }
    ]
}
```


2 Vault Management

2.1 Querying a Vault

You can set search criteria for querying desired vaults in the vault list.

Prerequisites

A vault has been created.

Viewing Vault Details

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 On the **Vaults** tab, view basic information about all vaults. Related parameters are described in the following table.

Table 2-1 Basic information parameters

Parameter	Description
Name/ID	Name and ID of the vault. Click the vault name to view details about the vault.
Type	Vault type, which can be backup vault or replication vault • A backup vault stores backups of servers, file systems, and disks. • A replication vault stores replicas of backups.
Status	Vault status. **Table 2-2** describes the vault statuses.

Parameter	Description
Specifications	Vault specifications, which can be server backup or application-consistent backup • A server backup vault stores backups of non-database servers. • An application-consistent backup vault stores backups of database servers.
Backup Data Redundancy	Redundancy policy for the backup data storage • **Single-AZ**: Backup data is stored in a single AZ, with lower costs. • **Multi-AZ**: Backup data is stored in multiple AZs to achieve higher reliability.
Used/Total Vault Capacity (GB)	Capacity used by the backups in the vault. It shows the space used by backups and the total vault capacity. For example: If **20/100** is displayed, 20 GB has been used out of the 100 GB vault capacity.
Associated Servers/ File Systems/Disks	Number of servers, file systems, and disks associated with the vault. You can click the number to view details of associated resources. The associated capacity shown on the details page is the total capacity of all the resources that have been associated with this vault.
Billing Mode	Billing mode of the vault, which can be **Yearly/Monthly** or **Pay-per-use**. • Yearly/monthly is a prepaid billing mode. You are billed based on the subscription duration you specify. This mode is ideal when the resource use duration is predictable. A longer subscription often means a lower cost. • Pay-per-use is a postpaid billing mode. You are billed based on your resource usage and you can increase or delete resources any time. Fees are deducted from your account balance.

Step 3 On the **Vaults** tab page, set filter criteria to view specific vaults.

- Select a value from the status drop-down list to query vaults by status. **Table 2-2** describes the vault statuses.

  Table 2-2 Vault statuses

Status	Attribute	Description
All statuses	--	All vaults are displayed if this value is selected.

Status	Attribute	Description
Available	A stable state	A stable state after a vault task is complete. This state allows most of the operations.
Locked	An intermediate state	An intermediate state displayed when a capacity expansion, billing mode change, or specifications change is in progress. If a vault is in this state, you can perform operations, such as applying a policy and associating servers, file systems, or disks. However, the following operations are not allowed on such a vault: expanding the vault capacity, changing the billing mode, and changing the vault specifications. Once those operations are complete, the vault status will become **Available**.
Deleting	An intermediate state	An intermediate state displayed when a vault is being deleted. In this state, a progress bar is displayed indicating the deletion progress. If the progress bar remains unchanged for an extended time, an exception has occurred. Contact customer service.
Frozen	A stable state	If your resources enter a pending deletion period in the case that your subscription has expired or your account is in arrears, or if the resources do not meet security requirements, your vault is put in the **Frozen** state. If the resources are frozen due to arrears, the state will become **Available** after you pay off the outstanding balance, and the resources can then be used normally. If you do not pay off the outstanding balance in time, the system automatically deletes the frozen resources after the retention period expires. If the resources are frozen due to security reasons, contact customer service.
Error	A stable state	A vault enters the **Error** state when an exception occurs during task execution. You can click **Tasks** in the navigation pane on the left to view the error cause. If the error persists, contact customer service.

- Search a vault by its name or ID.
- Click **Search by Tag** in the upper right corner to search for vaults by tag.

- On the displayed **Search by Tag** page, enter an existing tag key and value and click + . The added tag search criteria are displayed under the text boxes. Click **Search** in the lower right corner.
- You can add a maximum of 10 tags by clicking + . They will be applied together for a combination search.
- You can click **Reset** in the lower right corner to reset the search criteria.

Step 4 Click the name of a specific vault to view vault details.

NOTE

The values of used capacity and backup space are rounded off to integers. CBR will display 0 GB for any backup space less than 1 GB. For example, there may be 200 MB backup space used, but it will be displayed as 0 GB on the console.

----End

2.2 Deleting a Pay-per-Use Vault

You can delete unwanted vaults to reduce storage space usage and costs.

Once you delete a vault, all backups stored in the vault will be deleted.

Only pay-per-use vaults can be deleted. Yearly/monthly vaults need to be unsubscribed by following instructions in **How Do I Unsubscribe from a Vault?**

Prerequisites

- There is at least one vault.
- The vault is in the **Available** or **Error** state.
- To delete a hybrid cloud backup vault, ensure that corresponding backups have been deleted from both on premises and the cloud.

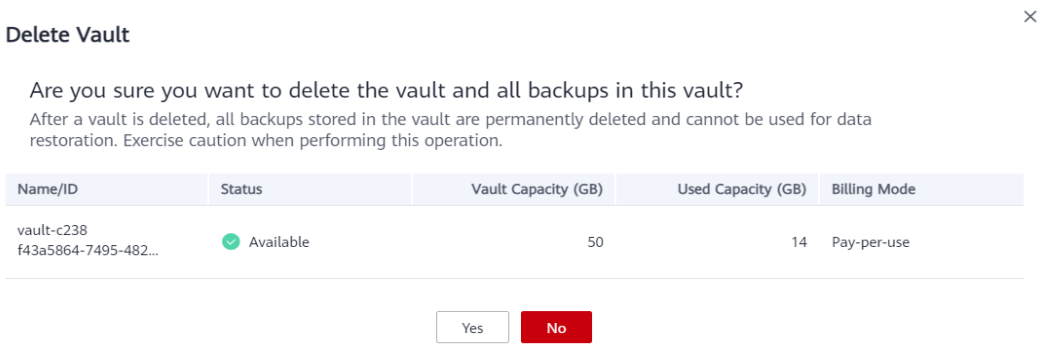
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and choose **More** > **Delete** in the **Operation** column. See **Figure 2-1**. All backups stored in the vault will be deleted once you delete a vault.

Figure 2-1 Deleting a vault



Step 3 Click **Yes**.

----End

2.3 Dissociating a Resource

If you no longer need to back up an associated resource, dissociate it from your vault.

After a resource is dissociated, the vault's backup or replication policy no longer applies to the resource. In addition, all manual and automatic backups of this resource will be deleted. Deleted backups cannot be used to restore data.

Dissociating a resource from a vault does not affect the performance of services on the resource.

Procedure

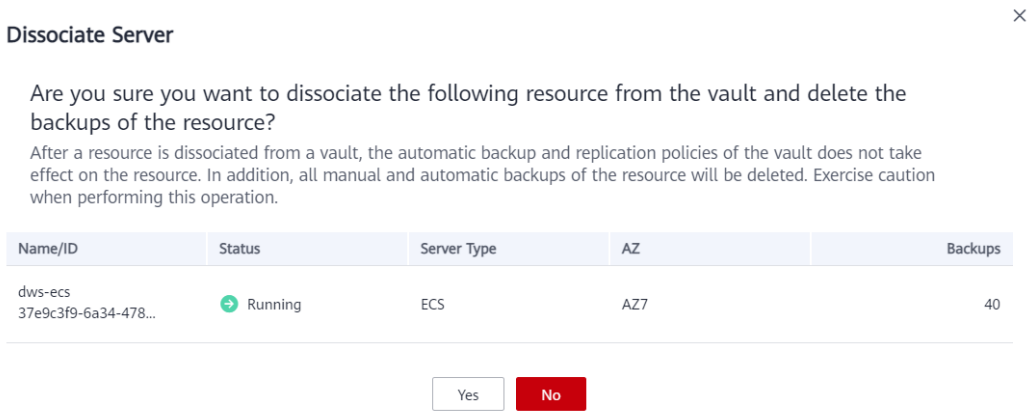
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and click its name.

Step 3 In this example, we will be using the **Cloud Server Backups** page to illustrate the process. Click the **Associated Servers** tab. Find the target server and click **Dissociate** in the **Operation** column. See **Figure 2-2**.

Figure 2-2 Dissociating a server



Step 4 Confirm the information and click **Yes**.

----End

2.4 Migrating a Resource

Migrating a resource means that you dissociate a resource from a vault and then associate it to another vault. All backups of the resource will be migrated to the destination vault.

Constraints

- Resources can be migrated only when the source and destination vaults are in the **Available** or **Locked** state.
- The source and destination vaults for resource migration must be of the same specifications.
- The remaining capacity of the destination vault must be greater than the size of resource backups to be migrated.
- Cross-account resource migration is currently not supported.
- The source and destination vaults must be in the same region.

Procedure

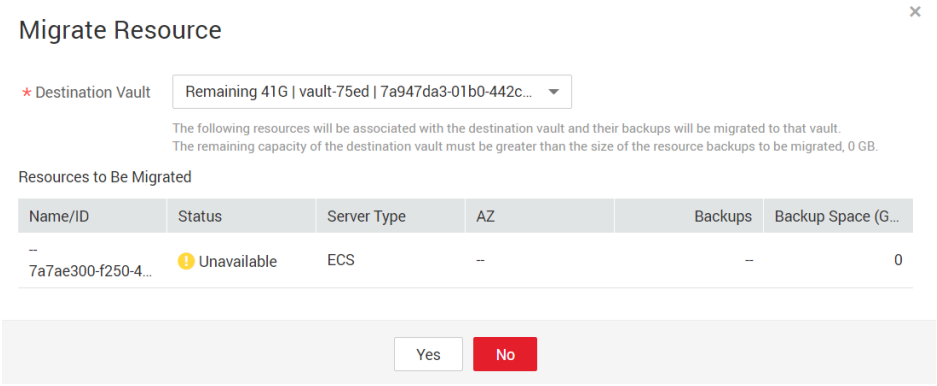
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and click its name. In this example, we will be using the **Cloud Server Backups** page to illustrate the process.

Step 3 Click the **Associated Servers** tab. Find the target server and click **Migrate** in the **Operation** column. See **Figure 2-3**.

Figure 2-3 Migrating a resource



Step 4 Select the destination vault and click **Yes**.

Step 5 View the migration progress on the **Tasks** page. If **Status** changes to **Successful**, the resource has been migrated.

Step 6 Go to the destination vault to confirm that the resource has been associated and all its backups have been migrated.

----End

2.5 Expanding Vault Capacity

You can expand the size of a vault if its total capacity is insufficient.

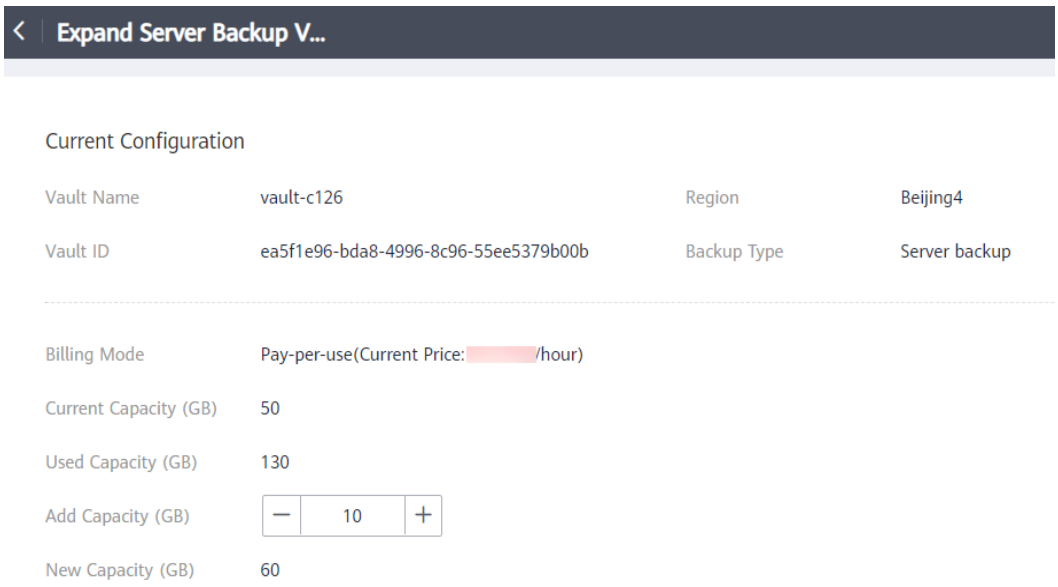
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and choose **More** > **Expand Capacity** in the **Operation** column. See **Figure 2-4**.

Figure 2-4 Expanding vault capacity



Step 3 Enter the capacity to be added. The minimum value is **1**.

Step 4 Click **Next**. Confirm the settings and click **Submit**.

Step 5 Return to the vault list and check that the capacity of the vault has been expanded.

----End

Auto Capacity Expansion

If you want a vault to be automatically expanded when its capacity is used up, enable auto capacity expansion.

If this function is enabled, the vault capacity will be automatically expanded to 1.25 times its current capacity when its capacity is used up.

Yearly/Monthly vaults do not support auto capacity expansion.

NOTE

Auto capacity expansion does not take effect if it is enabled after the vault is full.

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and click its name.

Step 3 On the vault details page, enable **Auto Capacity Expansion**.

Step 4 (Optional) Disable **Auto Capacity Expansion** if you no longer need this function.

----End

2.6 Changing from Pay-per-Use to Yearly/Monthly

- Yearly/monthly is a prepaid billing mode. You are billed based on the subscription duration you specify. This mode is ideal when the resource use duration is predictable. A longer subscription often means a lower cost.
- Pay-per-use is a postpaid billing mode. You are billed based on your resource usage and you can increase or delete resources any time. Fees are deducted from your account balance.

If you want to use a vault for a long time, you can change its billing mode from pay-per-use to yearly/monthly to reduce cost.

Prerequisites

The vault's billing mode is pay-per-use.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and choose **More** > **Change Billing Mode** in the **Operation** column.

Step 3 Select the required duration for the vault, confirm information, and click **Pay**.

Step 4 Return to the vault list. You can see that the vault's **Billing Mode** has changed to **Yearly/Monthly**.

----End

2.7 Changing Vault Specifications

Server backup vaults and server replication vaults both have two specifications: those for server backups/replicas and those for application-consistent backups/replicas.

- Server backups are backups of non-database servers.
- Application-consistent backups are backups of database servers.

If you need to back up database servers, change the specifications of the target vault from server backup to application-consistent backup.

You can only change the specifications of a vault from server backup to application-consistent backup, but not the other way around.

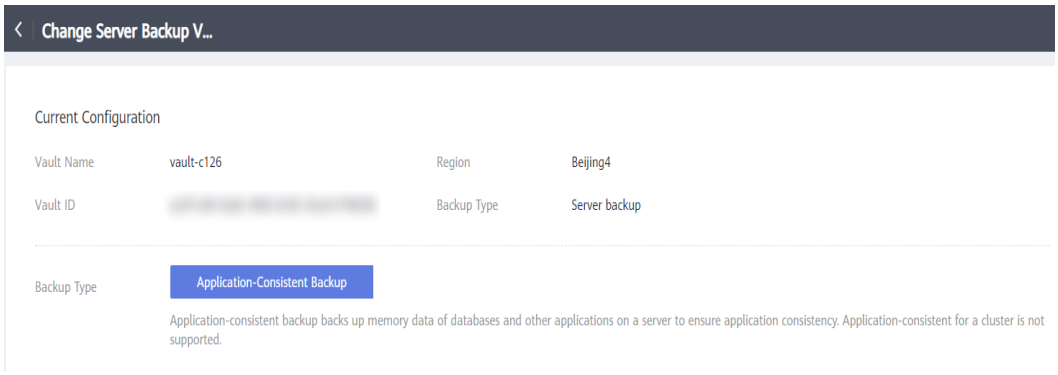
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 On the **Cloud Server Backups** page, find the target vault. Choose **More** > **Change Specifications** in the **Operation** column of the vault. See **Figure 2-5**.

Figure 2-5 Changing specifications



Step 3 **Application-Consistent Backup** is preset for **Backup Type**. Click **Next**.

Step 4 Click **Pay** and complete the payment. The system automatically changes the vault specifications.

----End

2.8 Replicating a Vault

CBR allows you to replicate server backup vaults, SFS Turbo backup vaults, and hybrid cloud backup vaults entirely to replication vaults in a different region. Replicas of server backups in the destination region can be used to create images and provision servers. Replicas of SFS Turbo backups in the destination region can be used to create file systems.

There are two methods available for replicating a vault.

- Manual replication: Select a backup vault and manually replicate it.

- Policy-based replication: Configure a replication policy to periodically replicate backups that have not been replicated or failed to be replicated to the destination region.

Constraints

- Disk backup vaults cannot be replicated to other regions.
- Replication is currently available only in the following regions: CN North-Beijing1, CN North-Beijing4, CN South-Guangzhou, CN East-Shanghai1, CN East-Shanghai2, CN North-Ulanqab1, LA-Mexico City1, AP-Singapore, AP-Bangkok, LA-Lima1, and LA-Santiago.
- Backup data can be replicated to vaults in different regions, and backup replicas occupy the replication vault space.
- A server backup vault can be replicated only when it contains at least one backup that meets all the following conditions:
  a. The backup is an ECS backup.
  b. The backup contains system disk data.
  c. The backup is in the **Available** state.
- Only backup vaults can be replicated. Replicated vaults cannot be replicated again but their replicas can be used to create images or SFS Turbo file systems.
- A backup vault can be replicated to different destination regions. The replication rule varies with the replication method:
  - Manual replication: A backup can be manually replicated to the destination region as long as it has no replica in that region. A backup can be manually replicated again if its replica in the destination region has been deleted.
  - Policy-based replication: A backup can only be automatically replicated to a destination region once. It cannot be automatically replicated to that region again, even if its replica has been deleted.
- Only replication-supported regions can be selected as destination regions.

Procedure

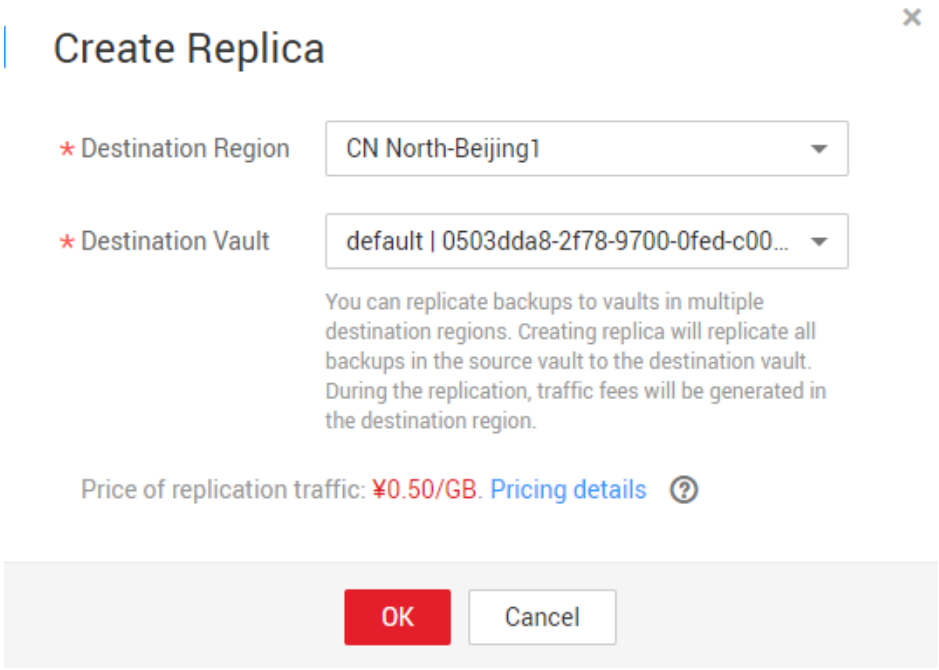
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 On the **Vaults** tab, find the target backup vault.

Step 3 Choose **More** > **Create Replica** in the **Operation** column of the vault. See **Figure 2-6**.

Figure 2-6 Creating a replica



Step 4 In the displayed dialog box, configure the parameters as described in **Table 2-3**.

Table 2-3 Parameter description

Parameter	Description
Destination Region	Region to which the vault is replicated Only the regions that support replication will be displayed. • If the selected region contains only one project, you can directly select the region name. • If the selected region has multiple projects, the default project of the region is selected. You can select another project if needed.
Destination Vault	A replication vault in the destination region

Step 5 Click **OK**.

Step 6 After the replication is complete, you can switch to the destination region to view generated replicas. For details, see **Querying a Vault**. You can then use replicas to create images.

----End

2.9 Managing Vault Tags

You can add, edit, or delete tags of a vault. Vault tags are used to filter and manage vaults only.

Constraints

If your organization has enabled the tag policy type for CBR and has a tag policy attached, you must comply with the tag policy rules when creating vaults, otherwise vaults may fail to be created. Contact the organization administrator to learn more about tag policies.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 On the **Vaults** tab, click the name of the target vault and then select the **Tags** tab.

- Adding a tag
  a. Click **Add Tag** in the upper left corner.
  b. In the displayed dialog box, enter the key and value of the new tag.

     Tags are key-value pairs, which are used to identify, classify, and search for vaults. You can add a maximum of tags for a vault, and vault tags are only used for vault search and management.

     Table 2-4 describes the parameters of a tag.

Table 2-4 Tag parameter description

Parameter	Description	Example Value
Key	Tag key. Each tag of a vault has a unique key. You can customize a key. A tag key: ■ Can contain 1 to 36 Unicode characters. ■ Can contain only letters, digits, hyphens (-), and underscores (_).	Key_0001

Parameter	Description	Example Value
Value	A tag value can be repetitive or left blank. A tag value: ■ Can contain 0 to 43 Unicode characters. ■ Can contain only letters, digits, hyphens (-), and underscores (_).	Value_0001

c. Click **OK**.

- Editing a tag
  a. In the **Operation** column of the tag that you want to edit, click **Edit**.
  b. In the displayed **Edit Tag** dialog box, enter a new tag value. **Table 2-4** describes the parameters.
  c. Click **OK**.
- Deleting a tag
  a. In the **Operation** column of the tag that you want to delete, click **Delete**.
  b. In the displayed dialog box, confirm the deletion information.
  c. Click **Yes**.

----End

2.10 Managing the Enterprise Projects of Vaults

If you need to modify the enterprise project of a vault, go to the **Enterprise Management** page to move the vault from the original enterprise project to a new one.

Procedure

Step 1 Click **Enterprise** on the upper right of console page. By default, the **Overview** page of Enterprise Management is displayed.

Step 2 In the navigation pane of the **Enterprise Management** page, choose **Project Management**.

Step 3 Locate the enterprise project from which the vault will be removed. Click **View Resources** in the **Operation** column. On the **Resources** tab page, view resources in the current enterprise project.

Step 4 Select the resources to be removed and click **Remove**. On the displayed page, select **Independent resources** for **Mode**.

Step 5 Select the destination enterprise project to which the vault is to be added and click **OK**.

After the vault is removed from the enterprise project, you can view it in the resource list of the destination enterprise project.

----End

3 Backup Management

3.1 Viewing a Backup

In the backup list, you can set search criteria to filter backups and view their details. The results contain backup tasks that are running or have completed.

Prerequisites

At least one backup task has been created.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab and set filter criteria to view the backups.

The last active time displayed in the backup client list shows the last time the Agent was detected normal.

- You can search for backups by selecting a status from the **All statuses** drop-down list in the upper right corner of the backup list. **Table 3-1** describes the backup statuses.

Table 3-1 Backup statuses

Status	Status Attribute	Description
All statuses	--	All backups are displayed if this value is selected.

Status	Status Attribute	Description
Available	A stable state	A stable state of a backup after the backup is created, indicating that the backup is currently not being used. This state allows most of the operations.
Creating	An intermediate state	An intermediate state of a backup from the start of a backup job to the completion of this job. In the **Tasks** list, a progress bar is displayed for a backup task in this state. If the progress bar remains unchanged for an extended time, an exception has occurred. Contact customer service.
Restoring	An intermediate state	An intermediate state when using the backup to restore data. In the **Tasks** list, a progress bar is displayed for a restoration task in this state. If the progress bar remains unchanged for an extended time, an exception has occurred. Contact customer service.
Deleting	An intermediate state	An intermediate state from the start of deleting the backup to the completion of deleting the backup. In the **Tasks** list, a progress bar is displayed for a deletion task in this state. If the progress bar remains unchanged for an extended time, an exception has occurred. Contact customer service.
Error	A stable state	A backup enters the **Error** state when an exception occurs. A backup in this state cannot be used for restoration, and must be deleted manually. If manual deletion fails, contact customer service.

- You can search for backups by clicking **Advanced Search** in the upper right corner of the backup list.

  You can search by specifying a backup status, backup name, backup ID, vault ID, server name, server ID, server type, whether the backup is a replica, or the creation date.
- You can search for backups by selecting a project from the **All projects** drop-down list in the upper right corner of the backup list.
- You can export the backup list by clicking  in the list's upper right corner.

Step 3 Click the backup name to view details about the backup.

----End

3.2 Sharing a Backup

You can share a server or disk backup with other accounts. Shared backups can be used to create servers or disks.

Context

Sharer

- Backups can only be shared among accounts in the same region. They cannot be shared across regions.
- Encrypted backups cannot be shared.
- When a sharer deletes a shared backup, the backup will also be deleted from the recipient's account, but the disks or servers previously created using the backup will be retained.

Recipient

- A recipient must have at least one backup vault to store the accepted shared backup, and the vault's remaining space must be greater than the size of the backup to be accepted.
- A recipient can choose to accept or reject a backup. After accepting a backup, the recipient can use the backup to create new servers or disks.
- When a sharer deletes a shared backup, the backup will also be deleted from the recipient's account, but the disks or servers previously created using the backup will be retained.

Procedure for the Sharer

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

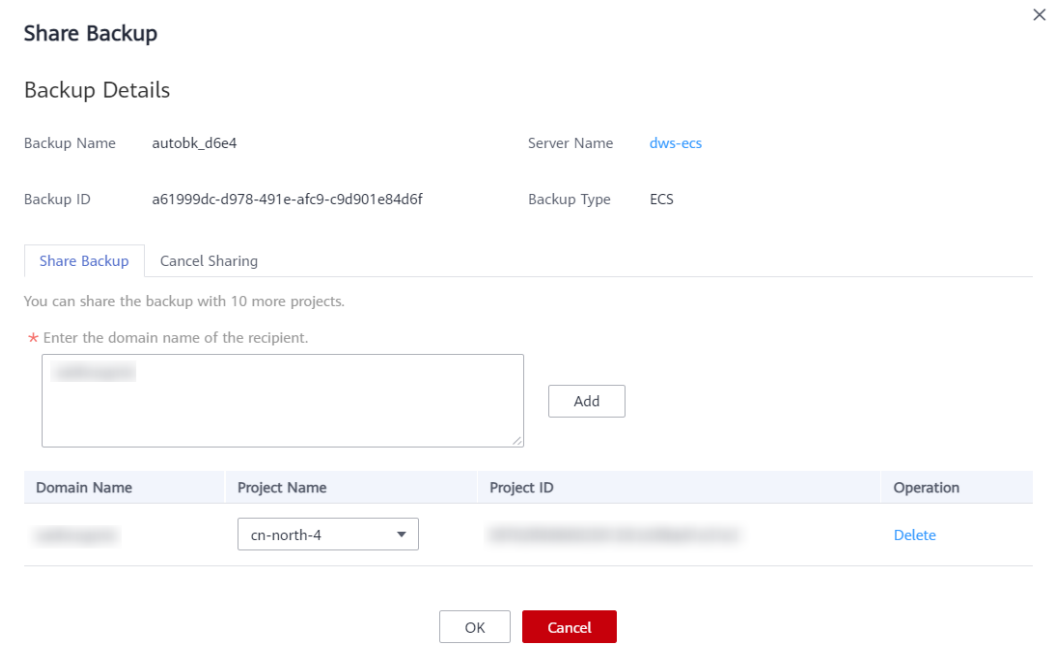
Step 2 Click the **Backups** tab and set filter criteria to view the backups.

Step 3 Locate the target backup and choose **More** > **Share Backup** in the **Operation** column.

The backup name, server or disk name, backup ID, and backup type are displayed.

- Sharing a backup

Figure 3-1 Share Backup



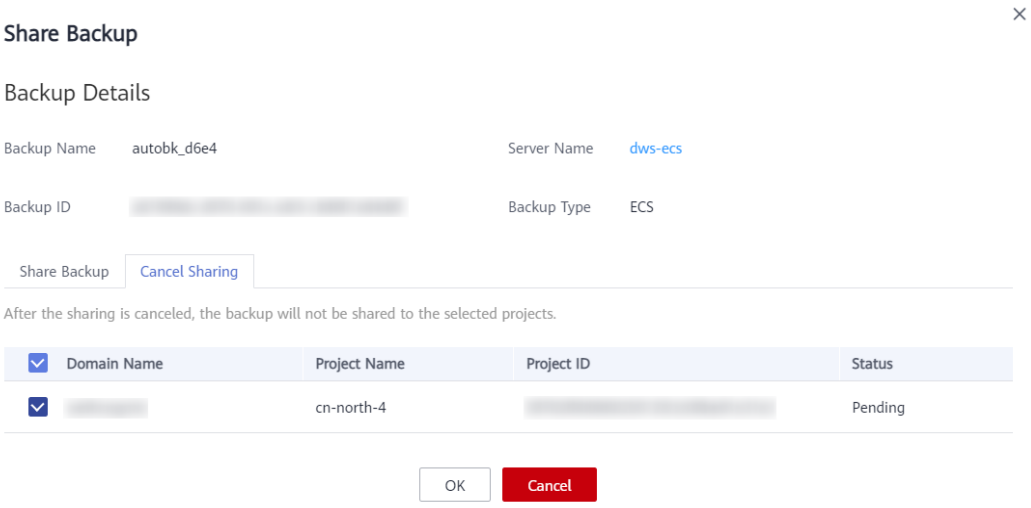
1. Click the **Share Backup** tab.
2. Enter the account name of the recipient.
3. Click **Add**.

   The account and project to be added will be displayed in the list. You can add multiple account names. A backup can be shared to a maximum of 10 projects.
4. Click **OK**.

- Canceling sharing

1. Click the **Cancel Sharing** tab, select the projects you want to cancel sharing, and click **OK**. See **Figure 3-2**.

Figure 3-2 Cancel Sharing



----End

Procedure for the Recipient

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

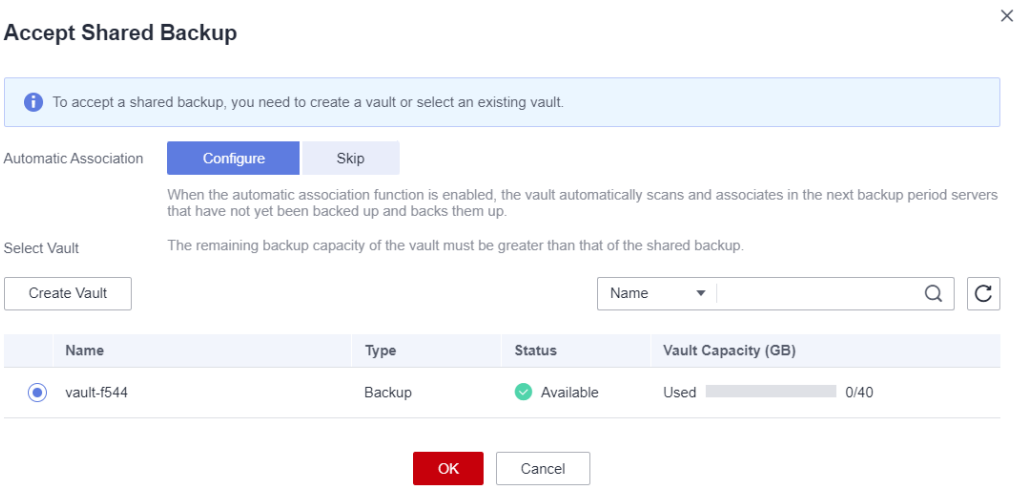
Step 2 Click the **Backups** tab and then click **Backups Shared with Me**.

Step 3 Ensure that the recipient has at least one backup vault before accepting the shared backup. For how to purchase a backup vault, see **Purchase a Vault**.

Step 4 Click **Accept**. On the displayed page, select the vault used to store the shared backup. Ensure that the vault's remaining capacity is greater than the backup size. See **Figure 3-3**.

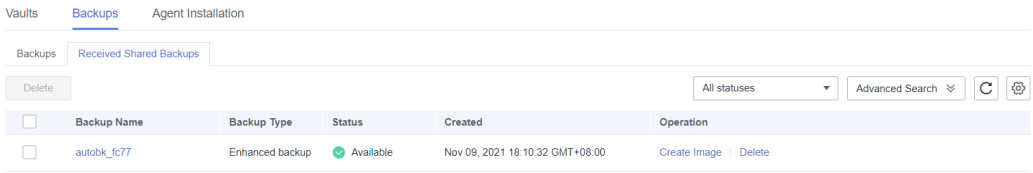
Automatic Association: Determine whether to enable automatic association for the vault. If you select **Configure**, the vault automatically scans and associates in the next backup period servers that have not been backed up and performs backup.

Figure 3-3 Accepting a shared backup



Step 5 View the shared backup you accepted in the backup list. See **Figure 3-4**.

Figure 3-4 Shared backup accepted



----End

3.3 Deleting a Backup

You can delete unwanted backups to reduce space usage and costs.

Deleting a backup from a hybrid cloud backup vault does not affect the corresponding backup on-premises, and vice versa.

If a backup has been used to create an image, the backup cannot be deleted. In this case, delete the image first based on the instructions in **Deleting Images**.

CBR supports manual deletion of backups and automatic deletion of expired backups. The latter is executed based on the backup retention rule in the backup policy. For details, see **Creating a Backup Policy**.

Prerequisites

- There is at least one backup.
- The backup to be deleted is in the **Available** or **Error** state.

Procedure

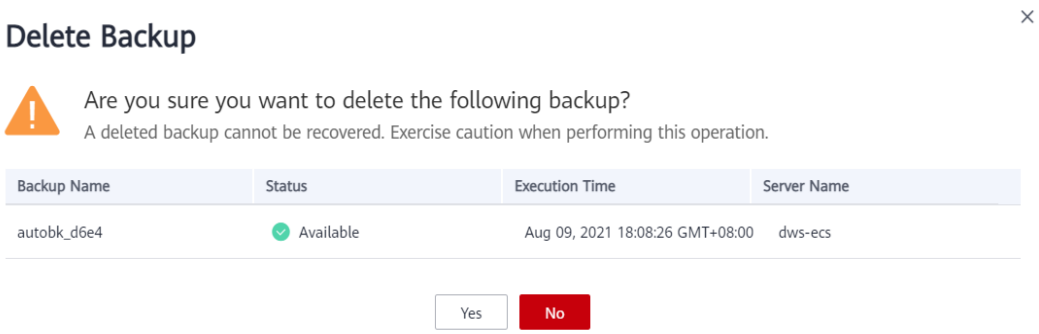
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab and locate the desired backup. For details, see **Viewing a Backup**.

Step 3 Choose **More** > **Delete** from the **Operation** column. See **Figure 3-5**. Alternatively, select the backups you want to delete in a batch and click **Delete** in the upper left corner to delete them.

Figure 3-5 Deleting a backup



Step 4 Click **Yes**.

----End

Follow-up Procedure

When you use CBR to back up a disk, all disk data including any invisible data will be backed up. If you frequently add, delete, or modify data on the disk before each backup task, a large amount of vault space will still be occupied even after some backups are deleted. For how to reduce occupied vault space, see **How Do I Reduce the Vault Space Occupied by Backups?**

3.4 Replicating a Backup Across Regions

CBR enables you to replicate backups of server backup vaults, SFS Turbo backup vaults, and hybrid cloud backup vaults from one region to another.

Replicas of server backups can be used to create images and provision servers.

Replicas of SFS Turbo backups can be used to create file systems.

With cross-region replication, you can quickly deploy services in a different region. Data on the new resource in the destination region is the same as that on the original resource when you took the backup.

You can replicate backups in either of the following methods on the CBR console:

- Select a backup from the backup list and manually perform a replication.
- Select a backup vault and manually replicate it. Alternatively, you can configure a replication policy to periodically replicate backups that have not been replicated or failed to be replicated to the destination region.

This section uses the first method to describe how to replicate a backup. For details about the second method, see **Replicating a Vault**.

NOTE

The replication constraints apply to both replication methods.

Constraints

- Replication is currently available only in the LA-Mexico City1, AP-Singapore, and AP-Bangkok regions.
- A server backup can be replicated only when it meets all the following conditions:
  a. It is an ECS backup.
  b. It contains system disk data.
  c. It is in the **Available** state.
- Only backups or backup vaults can be replicated. Replicated backups and vaults cannot be replicated again but their replicas can be used to create images or SFS Turbo file systems.
- A backup can be replicated to multiple regions but can have only one replica in each destination region. The replication rule varies with the replication method:
  - Manual replication: A backup can be manually replicated to the destination region as long as it has no replica in that region. A backup can be manually replicated again if its replica in the destination region has been deleted.
  - Policy-based replication: A backup can only be automatically replicated to a destination region once. It cannot be automatically replicated to that region again, even if its replica has been deleted.
- Only replication-supported regions can be selected as destination regions.

Procedure

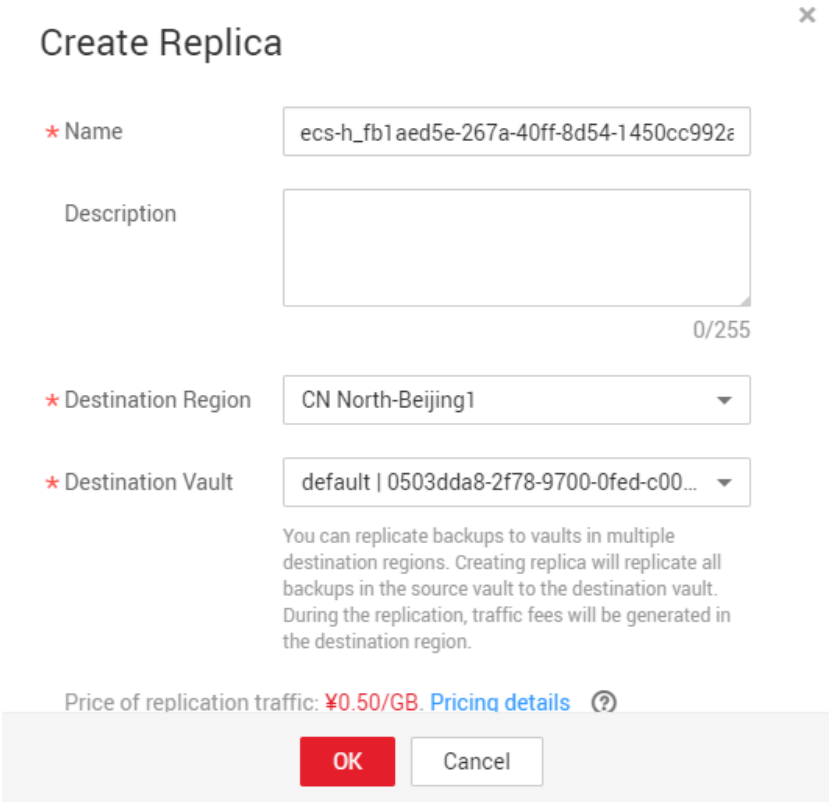
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab and locate the desired backup. For details, see **Viewing a Backup**.

Step 3 Choose **More** > **Create Replica** in the **Operation** column of the backup. See **Figure 3-6**.

Figure 3-6 Creating a replica



Step 4 In the displayed dialog box, configure the parameters as described in **Table 3-2**.

Table 3-2 Parameter description

Parameter	Description
Name	Replica name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).
Description	Replica description It cannot exceed 255 characters.
Destination Region	Region to which the backup is replicated Only the regions that support replication will be displayed. • If the selected region contains only one project, you can directly select the region name. • If the selected region has multiple projects, the default project of the region is selected. You can select another project if needed.
Destination Vault	A replication vault in the destination region You can replicate backups to vaults in multiple destination regions. Creating replica will replicate all backups in the source vault to the destination vault.

NOTE

The traffic for cross-region replication is the size of the replicated backup.

Step 5 Click **OK**.

Step 6 After the replication is complete, you can switch to the destination region to view generated replicas. For details, see **Viewing a Backup**. You can then use replicas to create images.

----End

4 Policy Management

4.1 Creating a Backup Policy

A backup policy allows CBR to automatically back up vaults at specified times or intervals. Periodic backups can be used to restore data quickly against data corruption or loss.

To implement periodic backups, you need a backup policy first. You can use the default backup policy or create one as needed.

Constraints

- Backup policies can be applied to the following types of vaults: server backup vaults, disk backup vaults, SFS Turbo backup vaults
- A backup policy must be enabled before it can be used for periodic backups.
- A maximum of 32 backup policies can be created in each account.
- When a backup time and a replication time are both configured, ensure that replication starts after backup is complete. Or, replication may fail.
- When expired backups are deleted, automatic backups will be deleted, but manual backups will not.
- Only servers in the **Running** or **Stopped** state and disks in the **Available** or **In-use** state can be backed up.
- CBR by default performs a full backup for a resource in the initial backup and incremental backups in all subsequent backups.
- The minimum interval between two full backups is 1 day.

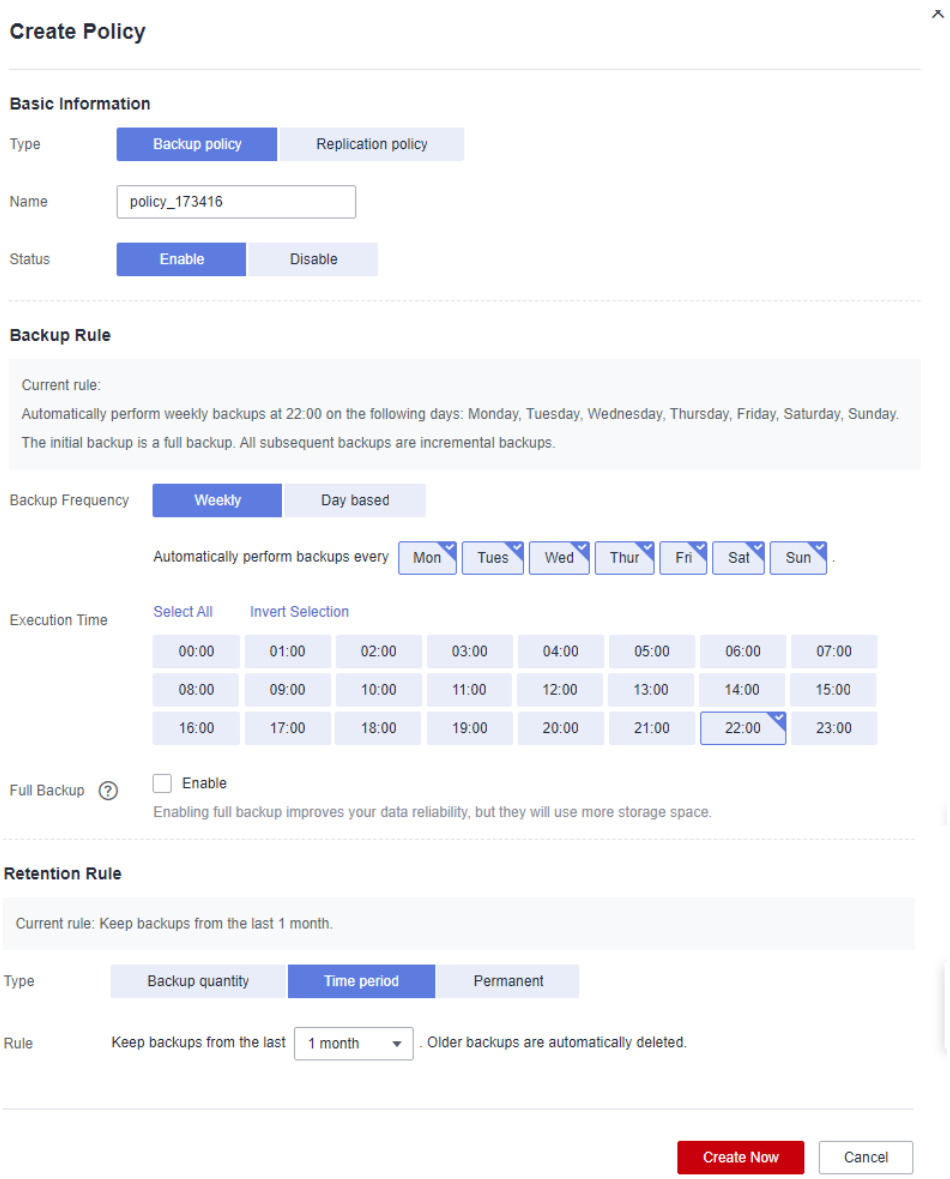
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**.

Step 2 Choose **Policies** in the left navigation pane and click the **Backup Policies** tab. In the upper right corner, click **Create Policy**. See **Figure 4-1**.

Figure 4-1 Creating a backup policy



Step 3 Set the backup policy parameters. **Table 4-1** describes the parameters.

Table 4-1 Backup policy parameters

Parameter	Description	Example Value
Type	Select a policy type. In this section, we select the backup policy.	Backup policy

Parameter	Description	Example Value
Name	Backup policy name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).	backup_policy
Status	Whether to enable the backup policy.	Only after a backup policy is enabled and applied will CBR automatically backs up the vault resources and deletes expired backups.
Backup Frequency	Select a backup frequency. • **Weekly** Specifies on which days of each week the backup task will be executed. You can select multiple days. • **Day based** Specifies the interval (every 1 to 30 days) for executing the backup task.	Every day If you select day-based backup, the first backup is supposed to be executed on the day when the backup policy is created. If the execution time on the day you create the backup policy has passed, the first backup will be executed in the next backup cycle. It is recommended that backups be performed during off-peak hours or when no services are running.

Parameter	Description	Example Value
Execution Time	Execution time Backups can be scheduled at the beginning of each hour, and you can select multiple hours. **NOTICE** • There may be a time difference between the scheduled backup time and the actual backup time. • If a large amount of data needs to be backed up, you are advised to make backup less frequent to prevent the system from skipping any execution time. For example, a disk is scheduled to be backed up at 00:00, 01:00, and 02:00. A backup task starts at 00:00. Because a large amount of incremental data needs to be backed up or a heap of backup tasks are executed at the same time, this backup task takes 90 minutes and completes at 01:30. CBR performs the next backup at 02:00. In this case, only two backups are generated in total, one at 00:00, and the other at 02:00. • The execution times refer to the local times of clients, not the time zone and times of the region.	00:00, 02:00 • It is recommended that backups be performed during off-peak hours or when no services are running. • Peak hours of the backup service are from 00:00 to 06:00, during which there may be scheduling delays. So you are advised to evaluate your service types and schedule backups outside of the backup peak hours.

Parameter	Description	Example Value
Full Backup	Whether to perform periodic full backups. • Enable Enabling full backup improves your data reliability, but full backups will use more storage space. Configure a full backup frequency. The value ranges from **0** to **100**. Value **0** means that a full backup will be performed in every backup task. • Do not enable Periodic full backup will not be performed. Instead, CBR will always perform incremental backups after the first backup. **NOTICE** – A full backup usually takes a long period of time. If a full backup of a resource is in progress, other backups of this resource will not be performed. For example, any policy-based backups planned to be executed during a full backup will be skipped. – When backups are kept by quantity, full backups can be performed only when the full backup frequency configured is less than the number of retained backups.	7

Parameter	Description	Example Value
Retention Rule	Rule that specifies how backups will be retained • **Time period** You can choose to retain backups for one month, three months, six months, one year, or for any desired number (2 to 99999) of days. • **Backup quantity** You can set the maximum number of backups to retain for each resource. The value ranges from 2 to 99999. • **Advanced Options** You can also set long-term retention rules with advanced options. Long-term retention rules and quantity-based retention rules will be both applied. – **Day-based**: 0–100 – **Weekly**: 0–100 – **Monthly**: 0–100 – **Yearly**: 0–100 A resource may be backed up multiple times in a day. If day-based backup is configured, only the most recent backup of that day is retained. If you set **Day-based** to **5**, the most recent backup of each of the last five days that have backups generated will be retained and the earliest backups will be deleted automatically. If day-based, weekly, monthly, and yearly retention rules are all configured, all the rules will apply and the union set of backups will be retained. For example, if **Day-based** is set to **5** and **Weekly** to **1**, five backups will be retained. The long-term retention rule and the quantity-based retention rule both apply. • **Permanent**	6 months

Parameter	Description	Example Value
	NOTE – The system automatically deletes the earliest and expired backups every other day to avoid exceeding the maximum number of backups to retain or retaining any backup longer than the maximum retention period. – Expired backups are not deleted right after they are expired. They will be deleted from 12:00 to 00:00 in batches. – The retention rules apply only to auto-generated backups, but not manual backups. Manual backups need to be deleted manually. – If a backup is used to create an image, the backup will not be deleted by the retention rule. – A maximum of 10 backups are retained for failed periodic backup tasks. They are retained for one month and can be deleted manually.	

NOTE

More frequent backups create more backups or retain backups for a longer time, protecting data to a greater extent but occupying more storage space. Set an appropriate backup frequency as needed.

Step 4 Click **OK**.

NOTE

You can locate the desired vault and choose **More** > **Apply Backup Policy** to apply the policy to the vault. Then you can view the applied policy on the vault details page. After the policy is applied, data will be periodically backed up to the vault based on the policy.

----End

Example

At 10:00 a.m. on Monday, a user sets a backup policy for their vault to instruct CBR to execute a backup task at 02:00 a.m. every day and retain a maximum of three backups. As of 11:00 a.m. on Saturday, three backups will be retained, which are generated on Thursday, Friday, and Saturday. The backups generated at 02:00 a.m. on Tuesday and Wednesday have been automatically deleted.

4.2 Creating a Replication Policy

A replication policy allows CBR to periodically replicate backups that have not been replicated or failed to be replicated to the destination region.

When a backup time and a replication time are both configured, ensure that replication starts after backup is complete. Or, replication may fail.

Constraints

- You can only apply replication policies to server backup vaults, SFS Turbo backup vaults, and hybrid cloud backup vaults.

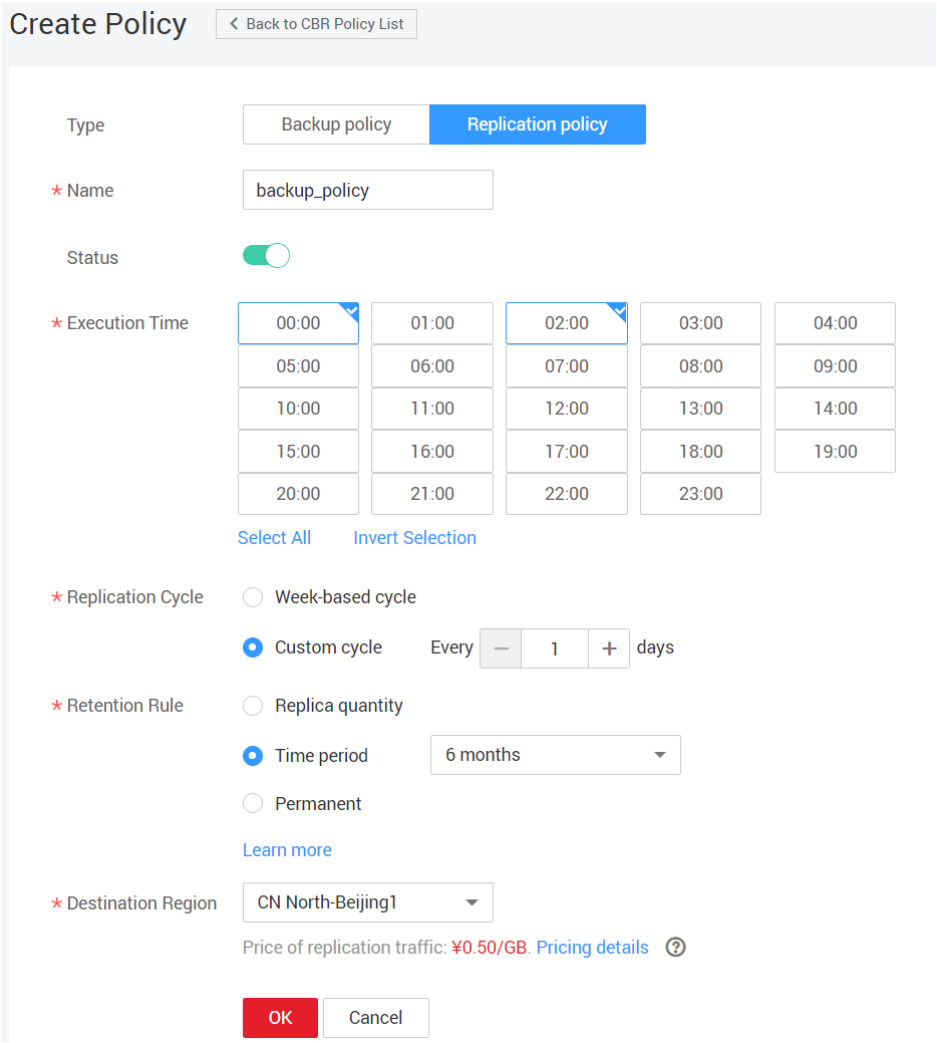
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**.

Step 2 Choose **Policies** in the left navigation pane and click the **Replication Policies** tab. In the upper right corner, click **Create Policy**. See **Figure 4-2**.

Figure 4-2 Creating a replication policy



Step 3 Set the replication policy parameters. **Table 4-2** describes the parameters.

Table 4-2 Replication policy parameters

Parameter	Description	Example Value
Type	Select a policy type. In this section, we select the replication policy.	Replication policy
Name	Replication policy name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).	replication_policy
Status	Whether to enable the replication policy	Only after a replication policy is enabled and applied will CBR automatically replicates the backups in the vaults and deletes expired backup replicas.
Execution Time	Execution times of the replication policy in a day Replication tasks can be scheduled at the beginning of each hour, and you can select multiple hours.	00:00, 02:00 It is recommended that replication be performed during off-peak hours or when no services are running.
Replication Frequency	Select a replication frequency. • **Weekly** Specifies on which days of each week the replication task will be executed. You can select multiple days. • **Day based** Specifies the interval (every 1 to 30 days) for executing the replication task.	Every day If you select day-based replication, the first replication is supposed to be executed on the day when the replication policy is created. If the execution time on the day you create the replication policy has passed, the first replication will be performed in the next replication cycle.

Parameter	Description	Example Value
Retention Rule	Rule that specifies how backup replicas will be retained in the destination region • **Replica quantity** You can set the maximum number of backup replicas to retain for each resource. The value ranges from 2 to 99999. You can also set long-term retention rules with advanced options. Long-term retention rules and quantity-based retention rules will be both applied. – **Day-based**: 0–100 – **Weekly**: 0–100 – **Monthly**: 0–100 – **Yearly**: 0–100 A resource may be replicated multiple times in a day. If day-based replication is configured, only the most recent backup replica of that day is retained. If you set **Day-based** to **5**, the most recent backup replica of each of the last five days that have backup replicas generated will be retained and the earliest backup replicas will be deleted automatically. If day-based, weekly, monthly, and yearly retention rules are all configured, all the rules will apply and the union set of backup replicas will be retained. For example, if **Day-based** is set to **5** and **Weekly** to **1**, five backup replicas will be retained. The long-term retention rule and the quantity-based retention rule both apply. • **Time period** You can choose to retain backup replicas for one month, three months, six months, one year, or for any desired number (2 to 99999) of days. • **Permanent**	6 months

Parameter	Description	Example Value
	NOTE – The system automatically deletes the earliest and expired backup replicas every other day to avoid exceeding the maximum number of backup replicas to retain or retaining any backup replica longer than the maximum retention period. – There will be delays for CBR to delete expired backup replicas, but normally these delays will not be over 24 hours. – The retention rules apply only to auto-generated backup replicas, but not manual ones. Manual backup replicas need to be deleted manually. – After a backup replica is used to create an image, the replica will not be deleted by the retention rule.	
Destination Region	Region to which backups are replicated Only the regions that support replication will be displayed. ● If the selected region contains only one project, you can directly select the region name. ● If the selected region has multiple projects, the default project of the region is preselected. You can select another project if needed.	AP-Bangkok

Step 4 Click **Create Now**.

Step 5 Locate the desired vault and choose **More** > **Apply Replication Policy** to apply the replication policy to the vault. Then you can view the applied policy on the vault details page.

After the policy is applied, backups will be periodically replicated to the destination vault based on the policy.

----End

Example

A user applies a replication policy to a vault in a given region at 11:00 a.m. on Thursday. According to this policy, backups will be replicated to the destination region on 02:00 a.m. everyday, and only two backup replicas will be retained. According to this vault's backup policy, two backups are automatically generated at 00:00 everyday. At 12:00 p.m. on Saturday, the replication vault will contain two backup replicas, which are replicated on Saturday. Backup replicas generated at

02:00 a.m. on Friday have been automatically deleted according to the replication policy.

4.3 Modifying a Policy

You can modify a policy to better suit your services.

Prerequisites

At least one policy has been created.

Procedure

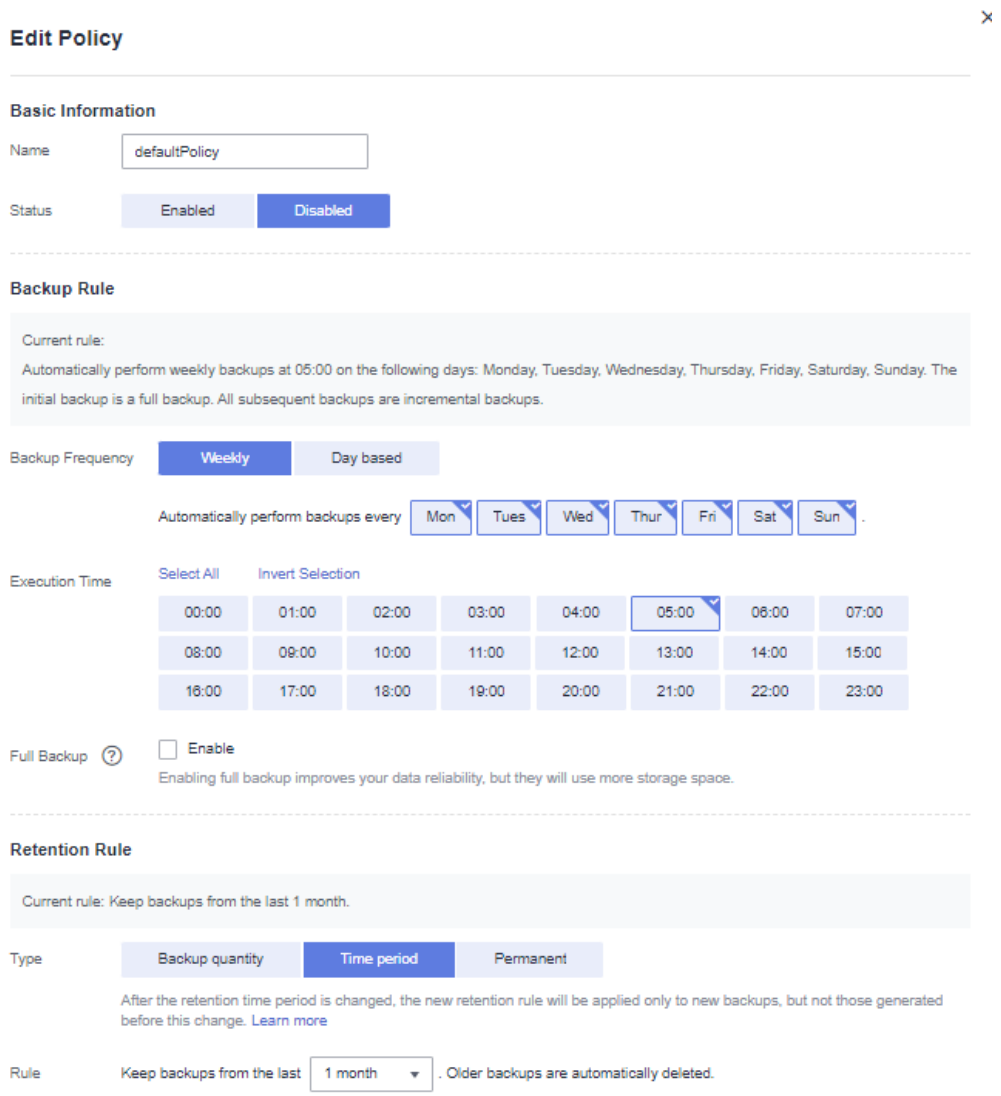
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and click the vault name to view its details.

Step 3 In the **Policies** area, click **Edit** in the row of the policy to be edited. See **Figure 4-3**.

Figure 4-3 Editing a backup policy



Related parameters are described in **Table 4-1** and **Table 4-2**.

Step 4 Click **OK**.

If the retention rule is modified, the new rule does not necessarily apply to existing backups. For details, see **Why Does the Retention Rule Not Take Effect After Being Changed?**

Step 5 Alternatively, select **Policies** from the navigation pane on the left and edit the desired policy.

----End

4.4 Deleting a Policy

You can delete policies if they are no longer needed.

Prerequisites

At least one policy has been created.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**.

Step 2 Click the **Backup Policies** tab, locate the row that contains the policy you want to delete, and click **Delete**.

NOTE

Deleting a policy will not delete the backups generated based on the policy. You can manually delete unwanted backups.

Step 3 Confirm the information and click **Yes**.

----End

4.5 Applying a Policy to a Vault

You can apply a backup or replication policy to a vault to execute backup or replication tasks at specified times or intervals.

Constraints

A vault can only be associated with one backup policy.

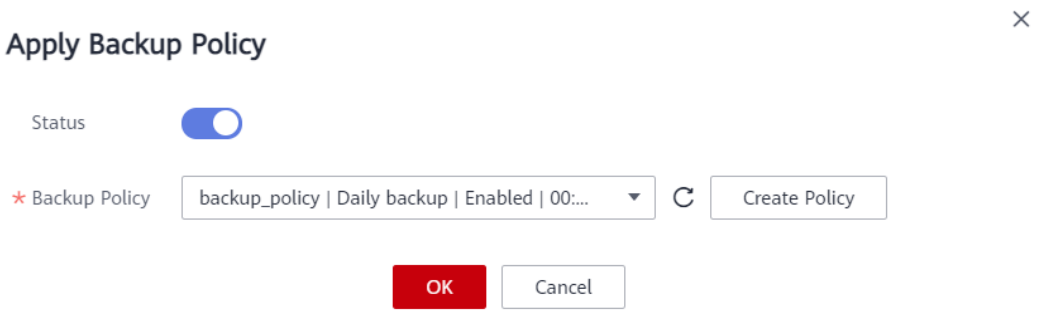
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and choose **More** > **Apply Backup Policy** or **More** > **Apply Replication Policy**. See **Figure 4-4**.

Figure 4-4 Setting a backup policy



Step 3 Select an existing backup policy from the drop-down list or create a new one. For how to create a policy, see **Creating a Backup Policy** and **Creating a Replication Policy**.

Step 4 After the policy is successfully applied, view details in the **Policies** area of the vault details page.

----End

4.6 Removing a Policy from a Vault

If you no longer need automatic backup or replication for a vault, remove the policy from the vault.

Prerequisites

A policy has been applied to the vault.

Procedure

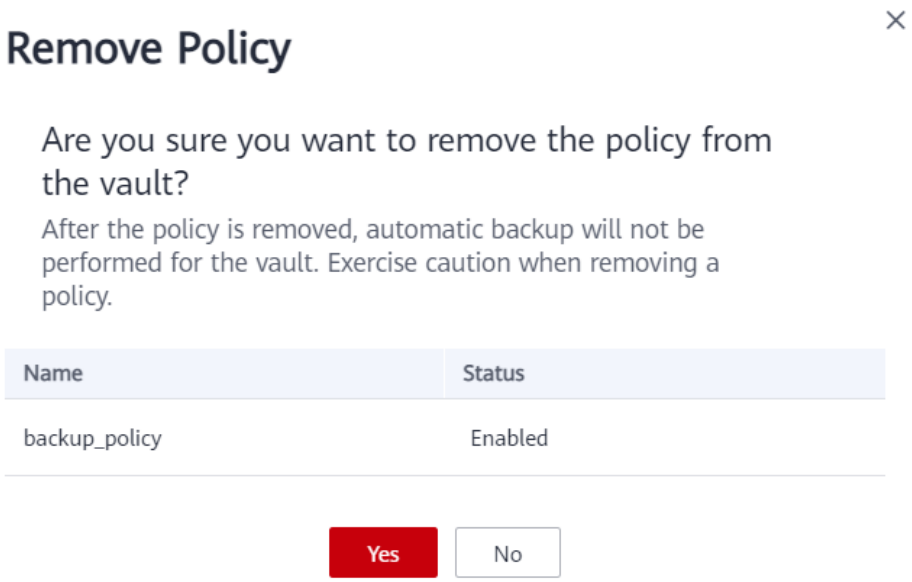
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Find the target vault and click the vault name to view its details.

Step 3 In the **Policies** area, click **Remove Policy**. See **Figure 4-5**.

Figure 4-5 Removing a policy



NOTE

- If a policy is removed when a backup task is being executed for a resource in the vault, the backup task will continue and backups will be generated.
- After a policy is removed, backups retained by **Time period** will expire based on the retention rule, but backups retained by **Backup quantity** will not. You need manually delete unwanted backups.

Step 4 Click **Yes**.

Tasks will no longer be executed based on this policy for the vault.

----End

5 Organizational Policy Management

5.1 Creating an Organizational Backup Policy

After CBR is enabled as a trusted service for Organizations, CBR can obtain information about OUs and member accounts to provide backup services for the entire organization. For example, an enterprise can use an organization's management account to configure organizational backup policies for all the member accounts in the organization.

This section describes how to create an organizational backup policy.

NOTE

- Organizational policies are supported in the following regions: RU-Moscow2, AF-Johannesburg, CN North-Beijing4, CN North-Beijing1, CN East-Shanghai2, CN East-Shanghai1, CN South-Guangzhou, LA-Mexico City2, LA-Mexico City1, AP-Bangkok, AP-Singapore, AP-Jakarta, ME-Riyadh, CN-Hong Kong, CN East-Qingdao, CN Southwest-Guiyang, CN North-Ulanqab, and LA-Santiago.

Constraints

- Backup policies can be applied to the following types of vaults: server backup vaults, disk backup vaults, SFS Turbo backup vaults
- A backup policy must be enabled before it can be used for periodic backups.
- A maximum of 32 backup policies can be created in each account.
- When a backup time and a replication time are both configured, ensure that replication starts after backup is complete. Or, replication may fail.
- When expired backups are deleted, automatic backups will be deleted, but manual backups will not.
- Only servers in the **Running** or **Stopped** state and disks in the **Available** or **In-use** state can be backed up.
- CBR by default performs a full backup for a resource in the initial backup and incremental backups in all subsequent backups.
- The minimum interval between two full backups is 1 day.

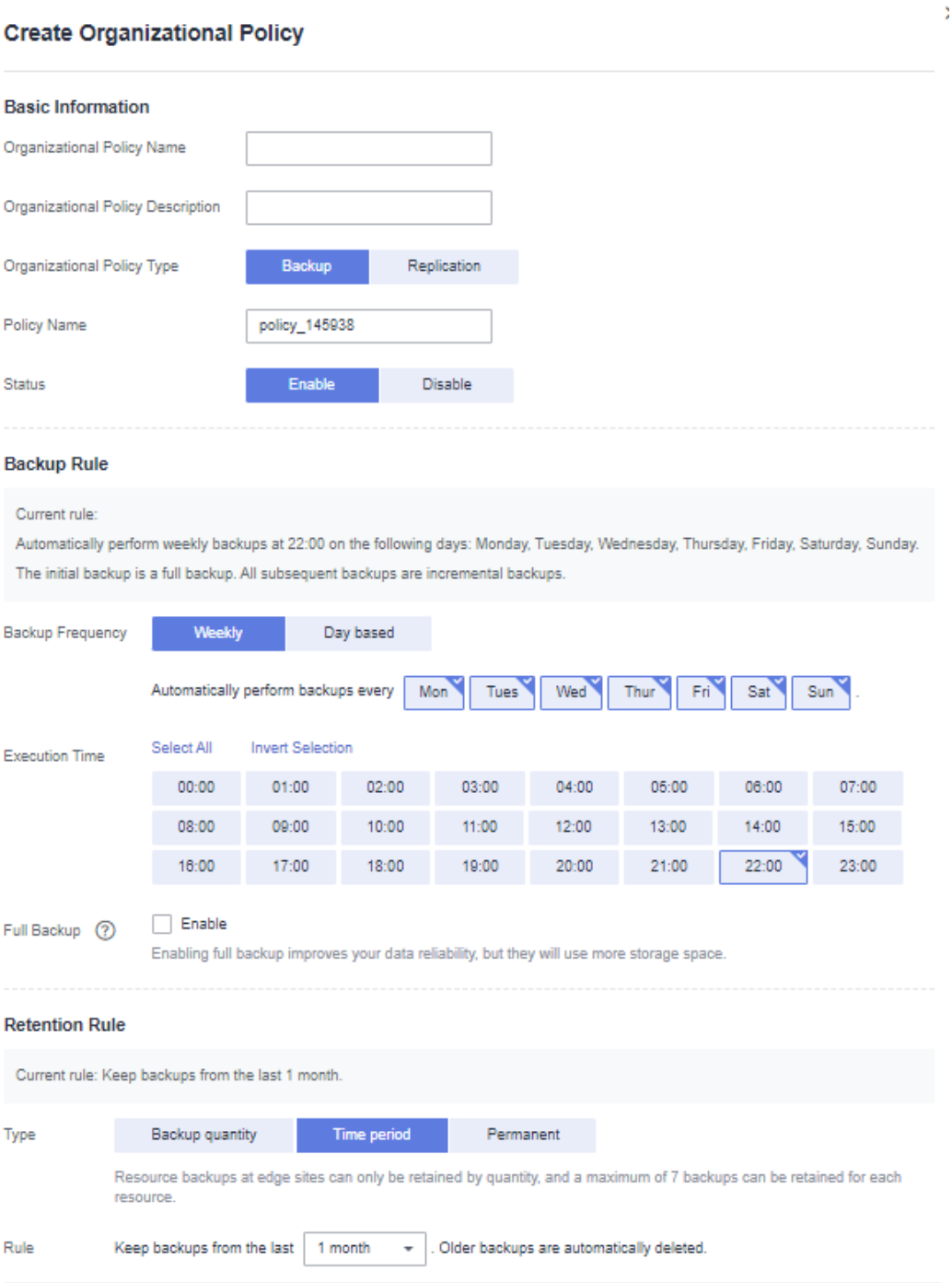
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Choose **Organizational Policies** in the left navigation pane and click the **Organizational Backup Policies** tab. In the upper right corner, click **Create Organizational Policy**. See **Figure 5-1**.

Figure 5-1 Create Organizational Policy



Step 3 Set the backup policy parameters. **Table 5-1** describes the parameters.

Table 5-1 Backup policy parameters

Parameter	Description	Example Value
Organizational Policy Name	Organizational policy name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).	org_policy
Organizational Policy Description	Description that can help the organization members to understand the usage of the policy.	/
Organizational Policy Type	Select a policy type. In this section, we select the backup policy.	Backup policy
Policy Name	Backup policy name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).	backup_policy
Status	Whether to enable the backup policy.	Only after a backup policy is enabled and applied will CBR automatically backs up the vault resources and deletes expired backups.
Backup Frequency	Select a backup frequency. • **Weekly** Specifies on which days of each week the backup task will be executed. You can select multiple days. • **Day based** Specifies the interval (every 1 to 30 days) for executing the backup task.	Every day If you select day-based backup, the first backup is supposed to be executed on the day when the backup policy is created. If the execution time on the day you create the backup policy has passed, the first backup will be executed in the next backup cycle. It is recommended that backups be performed during service off-peak hours or when no services are running.

Parameter	Description	Example Value
Execution Time	Execution times of the backup policy in a day Backups can be scheduled at the beginning of each hour, and you can select multiple hours. **NOTICE** • There may be a time difference between the scheduled backup time and the actual backup time. • If a large amount of data needs to be backed up, you are advised to make backup less frequent to prevent the system from skipping any execution time. For example, a disk is scheduled to be backed up at 00:00, 01:00, and 02:00. A backup task starts at 00:00. Because a large amount of incremental data needs to be backed up or a heap of backup tasks are executed at the same time, this backup task takes 90 minutes and completes at 01:30. CBR performs the next backup at 02:00. In this case, only two backups are generated in total, one at 00:00, and the other at 02:00. • The execution times refer to the local times of clients, not the time zone and times of the region.	00:00, 02:00 • It is recommended that backups be performed during service off-peak hours or when no services are running. • Peak hours of the backup service are from 00:00 to 06:00, during which there may be scheduling delays. So you are advised to evaluate your service types and schedule backups outside of the backup peak hours.

Parameter	Description	Example Value
Full Backup	Whether to perform periodic full backups. • Enable Enabling full backup improves your data reliability, but full backups will use more storage space. Configure a full backup frequency. The value ranges from **0** to **100**. Value **0** means that a full backup will be performed in every backup task. • Do not enable Periodic full backup will not be performed. Instead, CBR will always perform incremental backups after the first backup. **NOTICE** – A full backup usually takes a long period of time. If a full backup of a resource is in progress, other backups of this resource will not be performed. For example, any policy-based backups planned to be executed during a full backup will be skipped. – When backups are kept by quantity, full backups can be performed only when the full backup frequency configured is less than the number of retained backups.	7

Parameter	Description	Example Value
Retention Rule	Rule that specifies how backups will be retained • **Time period** You can choose to retain backups for one month, three months, six months, one year, or for any desired number (2 to 99999) of days. • **Backup quantity** You can set the maximum number of backups to retain for each resource. The value ranges from 2 to 99999. • **Advanced Options** You can also set long-term retention rules with advanced options. Long-term retention rules and quantity-based retention rules will be both applied. – **Day-based**: 0–100 – **Weekly**: 0–100 – **Monthly**: 0–100 – **Yearly**: 0–100 A resource may be backed up multiple times in a day. If day-based backup is configured, only the most recent backup of that day is retained. If you set **Day-based** to **5**, the most recent backup of each of the last five days that have backups generated will be retained and the earliest backups will be deleted automatically. If day-based, weekly, monthly, and yearly retention rules are all configured, all the rules will apply and the union set of backups will be retained. For example, if **Day-based** is set to **5** and **Weekly** to **1**, five backups will be retained. The long-term retention rule and the quantity-based retention rule both apply. • **Permanent**	6 months

Parameter	Description	Example Value
	NOTE – The system automatically deletes the earliest and expired backups every other day to avoid exceeding the maximum number of backups to retain or retaining any backup longer than the maximum retention period. – Expired backups are not deleted right after they are expired. They will be deleted from 12:00 to 00:00 in batches. – The retention rules apply only to auto-generated backups, but not manual backups. Manual backups need to be deleted manually. – If a backup is used to create an image, the backup will not be deleted by the retention rule. – A maximum of 10 backups are retained for failed periodic backup tasks. They are retained for one month and can be deleted manually.	

NOTE

More frequent backups create more backups or retain backups for a longer time, protecting data to a greater extent but occupying more storage space. Set an appropriate backup frequency as needed.

Step 4 Click **Create Now**.

NOTE

After the backup policy is created, it will automatically appear in each member account's policy list.

----End

Follow-Up Operations

- **Modifying a Policy**
- **Deleting a Policy**

5.2 Creating an Organizational Replication Policy

An enterprise can use an organization's management account to configure organizational replication policies for all the member accounts in the organization.

This section describes how to create an organizational replication policy.

Constraints

- You can only apply replication policies to server backup vaults, SFS Turbo backup vaults, and hybrid cloud backup vaults.

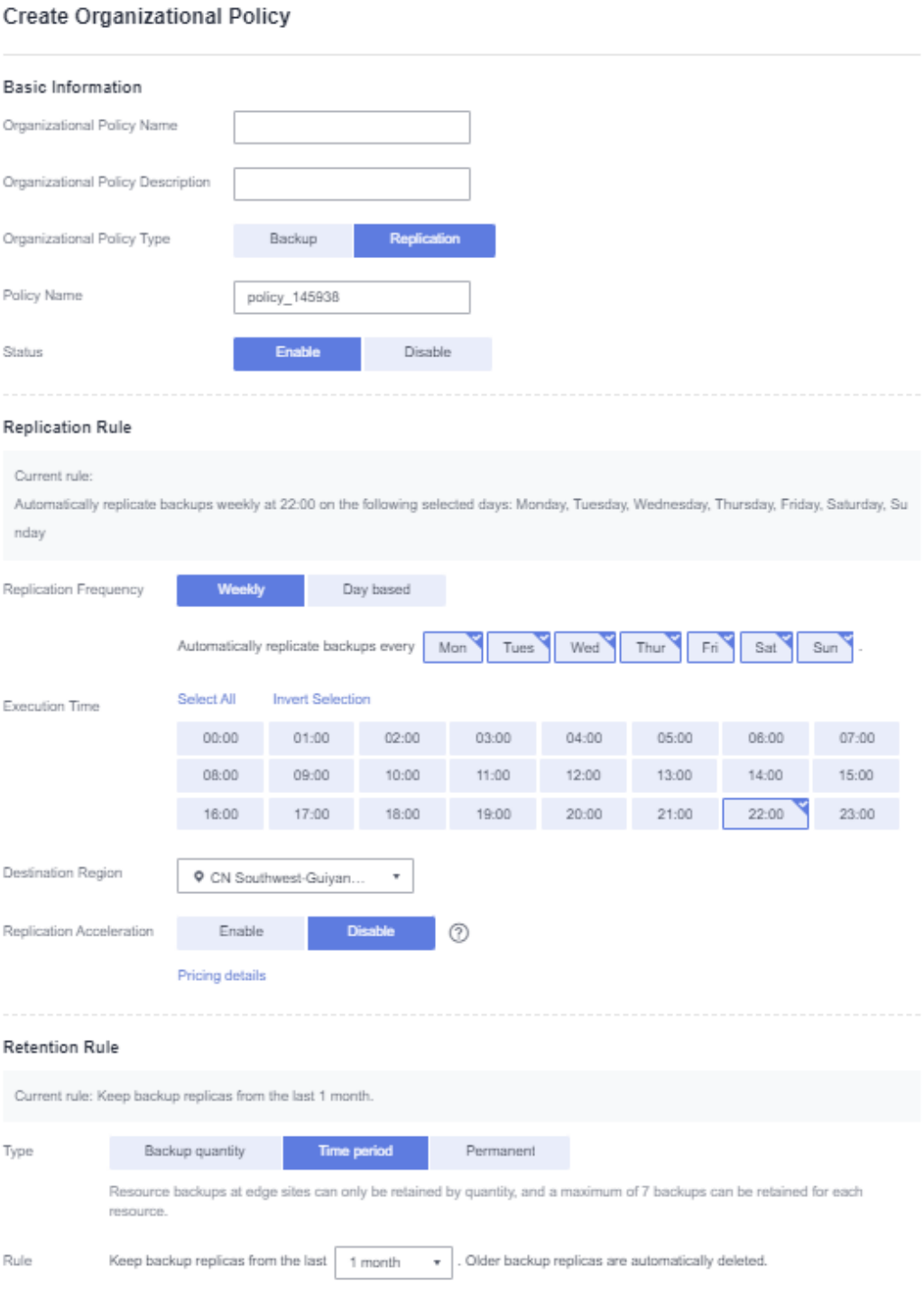
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Choose **Organizational Policies** in the left navigation pane and click the **Organizational Replication Policies** tab. In the upper right corner, click **Create Organizational Policy**. See **Figure 5-2**.

Figure 5-2 Create Organizational Policy



Step 3 Set the replication policy parameters. **Table 5-2** describes the parameters.

Table 5-2 Replication policy parameters

Parameter	Description	Example Value
Organizational Policy Name	Organizational policy name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).	org_policy
Organizational Policy Description	Description that can help the organization members to understand the usage of the policy.	/
Organizational Policy Type	Select a policy type. In this section, we select the replication policy.	Replication policy
Policy Name	Replication policy name A name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-).	replication_policy
Status	Whether to enable the replication policy	Only after a replication policy is enabled and applied will CBR automatically replicates the backups in the vaults and deletes expired backup replicas.
Execution Time	Execution times of the replication policy in a day Replication tasks can be scheduled at the beginning of each hour, and you can select multiple hours.	00:00, 02:00 It is recommended that replication be performed during off-peak hours or when no services are running.
Replication Frequency	Select a replication frequency. • **Weekly** Specifies on which days of each week the replication task will be executed. You can select multiple days. • **Day based** Specifies the interval (every 1 to 30 days) for executing the replication task.	Every day If you select day-based replication, the first replication is supposed to be executed on the day when the replication policy is created. If the execution time on the day you create the replication policy has passed, the first replication will be performed in the next replication cycle.

Parameter	Description	Example Value
Retention Rule	Rule that specifies how backup replicas will be retained in the destination region • **Backup quantity** You can set the maximum number of backup replicas to retain for each resource. The value ranges from 2 to 99999. You can also set long-term retention rules with advanced options. Long-term retention rules and quantity-based retention rules will be both applied. – **Day-based**: 0–100 – **Weekly**: 0–100 – **Monthly**: 0–100 – **Yearly**: 0–100 A resource may be replicated multiple times in a day. If day-based replication is configured, only the most recent backup replica of that day is retained. If you set **Day-based** to **5**, the most recent backup replica of each of the last five days that have backups generated will be retained and the earliest backup replicas will be deleted automatically. If day-based, weekly, monthly, and yearly retention rules are all configured, all the rules will apply and the union set of backup replicas will be retained. For example, if **Day-based** is set to **5** and **Weekly** to **1**, five backup replicas will be retained. The long-term retention rule and the quantity-based retention rule both apply. • **Time period** You can choose to retain backup replicas for one month, three months, six months, one year, or for any desired number (2 to 99999) of days. • **Permanent**	6 months

Parameter	Description	Example Value
	NOTE – The system automatically deletes the earliest and expired backup replicas every other day to avoid exceeding the maximum number of backup replicas to retain or retaining any backup replica longer than the maximum retention period. – There will be delays for CBR to delete expired backup replicas, but normally these delays will not be over 24 hours. – The retention rules apply only to auto-generated backup replicas, but not manual ones. Manual backup replicas need to be deleted manually. – After a backup replica is used to create an image, the replica will not be deleted by the retention rule.	
Destination Region	Region to which backups are replicated Only the regions that support replication will be displayed. • If the selected region contains only one project, you can directly select the region name. • If the selected region has multiple projects, the default project of the region is preselected. You can select another project if needed.	AP-Bangkok

Step 4 Click **Create Now**.

NOTE

After the replication policy is created, it will automatically appear in each member account's policy list.

----End

Follow-Up Operations

- **Modifying a Policy**
- **Deleting a Policy**

6 Restoring Data

6.1 Restoring from a Cloud Server Backup

When disks on a server are faulty or their data is lost, you can use a backup to restore the server to its state when the backup was created.

You can also restore the backup to another server. For details, see **How Do I Restore Data on the Original Server to a New Server?**

Constraints

- When restoring from a cloud server backup, backup of a data disk cannot be restored to the system disk.
- Data cannot be restored to servers in the **Faulty** state.
- Concurrent data restoration is not supported.

Prerequisites

- Disks are running properly on the server whose data needs to be restored.
- The server has at least one **Available** backup.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

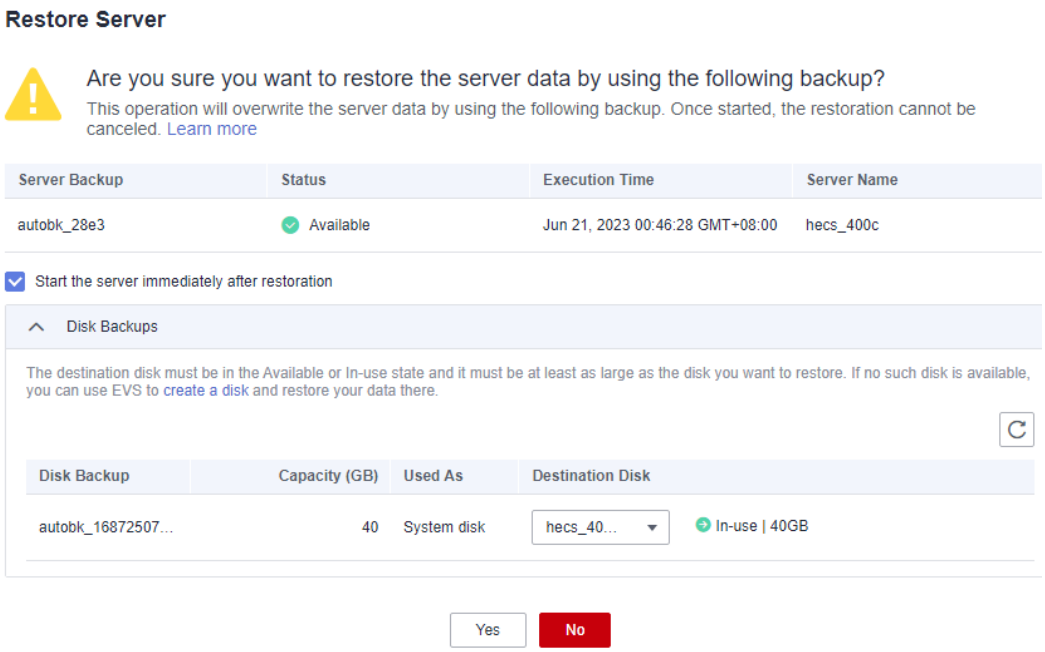
Step 2 Click the **Backups** tab. Locate the desired backup. For details, see **Viewing a Backup**.

Step 3 In the row of the backup, click **Restore Server**. See **Figure 6-1**.

NOTICE

The current server data will be overwritten by the data captured at the time of backup. The restoration cannot be undone.

Figure 6-1 Restoring a server



Step 4 (Optional) Deselect **Start the server immediately after restoration**.

If you do so, manually start the server after the restoration is complete.

NOTICE

Servers will be shut down during restoration, so you are advised to perform a restoration during off-peak hours.

Step 5 In the **Destination Disk** drop-down list, select the target disk to which the backup will be restored.

NOTE

- If the server has only one disk, the backup is restored to that disk by default.
- If the server has multiple disks, the backup is restored to the original disks by default. You can also restore the backup to a different disk of at least the same size as the original disk.
- When restoring from a cloud server backup, backup of a data disk cannot be restored to the system disk.

NOTICE

If the number of disks to be restored is greater than the number of disks that were backed up, restoration may cause data inconsistency.

For example, if the Oracle data is scattered across multiple disks and only some of them are restored, data inconsistency may occur and the application may fail to start.

Step 6 Click **Yes** and confirm that the restoration is successful.

You can view the restoration status in the backup list. When the backup enters the **Available** state and no new restoration tasks failed, the restoration is successful. The resource is restored to the state when that backup was created.

For details about how to view failed restoration tasks, see **Managing Tasks**.

NOTICE

If you use a cloud server backup to restore a logical volume group, you need to attach the logical volume group again.

Due to Window limitations, data disks may fail to be displayed after a Windows server is restored. If this happens, manually bring these data disks online. For details, see **Data Disks Are Not Displayed After a Windows Server Is Restored**.

----End

6.2 Creating an Image from a Cloud Server Backup

CBR allows you to create images using ECS backups. You can use the images to provision ECSs to rapidly restore service running environments.

You can also use server backups to create images and then provision servers to restore data if your servers were accidentally deleted.

Prerequisites

- The following operations have been performed:
  - You have optimized the Linux ECS (referring to **Optimizing a Linux Private Image**) and installed Cloud-Init (referring to **Installing Cloud-Init**).
  - You have optimized the Windows ECS (referring to **Optimizing a Windows Private Image**) and installed Cloudbase-Init (referring to **Installing and Configuring Cloudbase-Init**).
- The backup is in the **Available** state, or the backup is in the **Creating** state that is marked with "Image can be created."

NOTE

Once a backup creation starts, the backup enters the **Creating** state. After a period of time, a message stating "Image can be created" is displayed under **Creating**. In this case, the backup can be used for creating an image, even though it is still being created and cannot be used for restoration.

- The backup contains the system disk data.
- Only ECS backups can be used to create images.

Notes

- Images created using a backup are the same, so CBR allows you to use a backup to create only one full-ECS image that contains the whole data of the system disk and data disks of an ECS, in order to save the image quota. After an image is created, you can use the image to provision multiple ECSs in a batch.
- A backup with an image created cannot be deleted directly. To delete such a backup, delete its image first. If a backup is automatically generated based on a backup policy and the backup has been used to create an image, the backup will not be counted as a retained backup and will not be deleted automatically.
- A backup is compressed when it is used to create an image, so the size of the generated image may be smaller than the backup size.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab. Locate the desired backup. For details, see **Viewing a Backup**.

Step 3 In the row of the backup, choose **More** > **Create Image**.

Step 4 Create an image by referring to **Creating a Full-ECS Image from a CBR Backup** in the *Image Management Service User Guide*.

Step 5 Use the image to provision ECSs when needed. For details, see **Creating an ECS from an Image** in the *Image Management Service User Guide*.

----End

6.3 Restoring from a Cloud Disk Backup

You can use a disk backup to restore the disk to its state when the backup was created.

Prerequisites

- The disk to be restored is **Available**.
- Before restoring the disk data, stop the server to which the disk is attached and detach the disk from the server. After the disk data is restored, attach the disk to the server and start the server.

Constraints

- If the server OS is changed after the system disk is backed up, the system disk backup cannot be restored to the original system disk due to reasons such as disk UUID change. You can use the system disk backup to create a new disk and copy data to the original system disk.
- Backups can only be restored to original disks. If you want to restore a backup to a different disk, use the backup to create a new disk.
- When restoring from a cloud disk backup, the backup can only be restored to the original disk. To restore backup of a data disk to a system disk, see **How Do I Restore a Data Disk Backup to a System Disk?**
- Concurrent data restoration is not supported.

Procedure

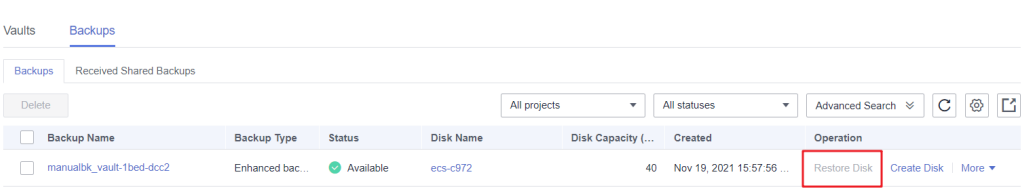
Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab. Locate the desired backup. For details, see **Viewing a Backup**.

Step 3 In the row of the backup, click **Restore Disk**. The **Restore Disk** dialog box is displayed. See **Figure 6-3**.

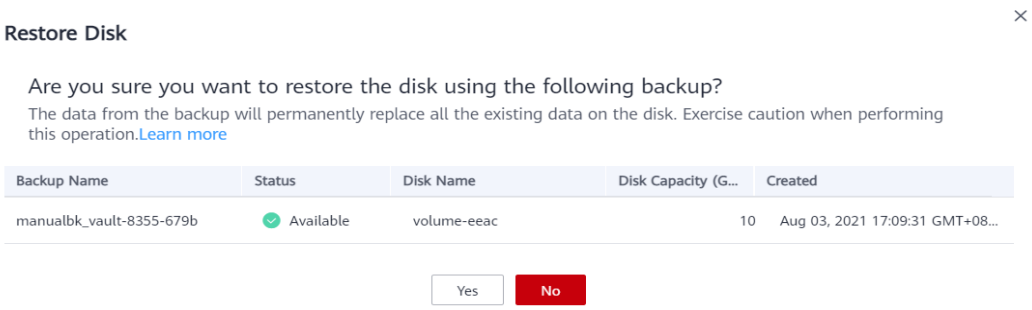
Figure 6-2 Locating the target backup



NOTICE

- The backup data will overwrite the current disk data, and the restoration cannot be undone.
- If the restore button is grayed out, stop the server, detach the disk, and then try again. After the disk data is restored, attach the disk to the server and start the server.

Figure 6-3 Restore Disk



Step 4 Click **Yes**. You can check whether data is successfully restored on the **Backups** tab page of **Cloud Disk Backups** or on the EVS console.

When the status of the backup changes to **Available**, the restoration is successful. The resource is restored to the state when that backup was created.

Step 5 After the restoration is complete, re-attach the disk to the server. For details, see **Attaching an Existing Non-Shared Disk**.

----End

6.4 Creating a Disk from a Cloud Disk Backup

You can use a disk backup to create a disk that contains the same data as the backup.

Disks created using system disk backups can only be used as data disks on servers. They cannot be used as system disks.

Disk backups can only be used to create EVS disks, not servers.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.

3. Click ☰ and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab. Locate the desired backup. For details, see **Viewing a Backup**.

Step 3 Click **Create Disk** in the **Operation** column of the backup. The button is available only when the backup status is **Available**.

Step 4 Configure the disk parameters.

NOTE

See the parameter description table in section "Purchase an EVS Disk" of the *Elastic Volume Service User Guide* for more information.

Pay attention to the following:

- You can choose the AZ to which the backup source disk belongs, or a different AZ.
- The new disk must be at least as large as the backup's source disk.

  If the capacity of the new disk is greater than that of the backup's source disk, format the additional space by following the steps provided in section "Extending Disk Partitions and File Systems" of the *Elastic Volume Service User Guide*.
- You can create a disk of any type regardless of the backup's source disk type.

Step 5 Click **Next**.

NOTE

You can choose **Pay-per-use** or **Yearly/Monthly** as your **Billing Mode**. The following steps use the **Yearly/Monthly** billing as an example.

Step 6 Confirm the disk information and click **Submit**.

Step 7 Make the payment and click **OK**.

Step 8 Go back to the disk list. Check whether the disk is successfully created.

You will see the disk status change as follows: **Creating**, **Available**, **Restoring**, **Available**. You may not notice the **Restoring** status because Instant Restore is supported and the restoration speed is very fast. After the disk status has changed from **Creating** to **Available**, the disk is successfully created. After the status has changed from **Restoring** to **Available**, backup data has been successfully restored to the created disk.

----End

6.5 Creating a File System from an SFS Turbo Backup

In case of a virus attack, accidental deletion, or software or hardware fault, you can use an SFS Turbo file system backup to create a new file system. Once created, data on the new file system is the same as that in the backup.

Procedure

Step 1 Log in to the CBR console.

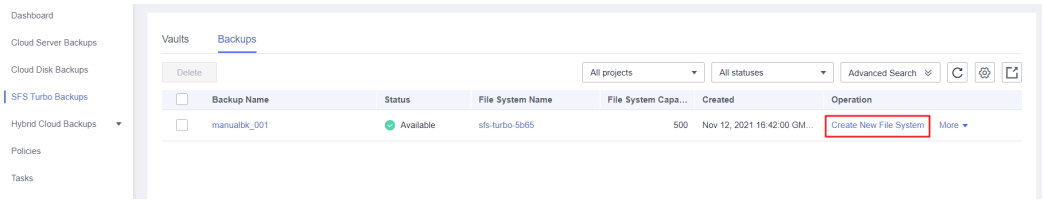
1. **Log in to the management console**.

2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab and locate the desired backup. For details, see **Viewing a Backup**.

Step 3 Click in the **Operation** column of the backup. The button is available only when the backup status is **Available**.

Figure 6-4 Viewing a backup



NOTE

For how to create backups, see **Purchasing an SFS Turbo Backup Vault** and **Creating an SFS Turbo Backup**.

Step 4 Configure the file system parameters.

NOTE

- You can learn about the parameter descriptions in table "Parameter description" under "Creating an SFS Turbo File System" in **Create a File System**.
- You can change the storage class of the file system within a certain range. For example, you can change a file system from Standard to Performance, but not from Standard to Standard - Enhanced.
- The billing mode of the new file system can only be pay-per-use.

Step 5 Click **Create Now**.

Step 6 Confirm the file system information and click **Submit**.

Step 7 Make the payment and click **OK**.

Step 8 Go back to the file system list and check whether the file system is successfully created.

You will see the file system status change as follows: **Creating**, **Available**, **Restoring**, **Available**. You may not notice the **Restoring** status because Instant Restore is supported and the restoration speed is very fast. After the file system status has changed from **Creating** to **Available**, the file system is successfully created. After the status has changed from **Restoring** to **Available**, backup data has been successfully restored to the created file system.

----End

6.6 Restoring from a Desktop Backup

You can use a desktop backup to restore the desktop to its state when the backup was created.

Prerequisites

The desktop to be restored is **Available**.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Backups** tab. Locate the desired backup. For details, see **Viewing a Backup**.

Step 3 In the row of the backup, click **Restore Data**. See **Figure 6-5**.

NOTICE

- The current desktop data will be overwritten by the data captured at the time of backup. The restoration cannot be undone.

Figure 6-5 Restoring a desktop

Step 4 (Optional) Deselect **Start the desktop immediately after restoration**.

If you do so, manually start the desktop after the restoration is complete.

NOTICE

Desktops will be shut down during restoration, so you are advised to perform a restoration during off-peak hours.

Step 5 Click **Yes**. You can check whether data is successfully restored on the **Backups** tab page of **Desktop Backups** or on the Workspace console.

When the status of the desktop changes to **Available**, the restoration is successful.

----End

6.7 Restoring from a Hybrid Cloud Backup

You can synchronize on-premises server backups to hybrid cloud backup vaults and restore the backup data to cloud servers for disaster recovery, service migration, development, or testing.

Restoring from a Storage Backup

You can synchronize the backups of on-premises OceanStor Dorado storage systems to the cloud and then restore the backups to cloud servers. For details, see **Restoring Data Using a Storage Backup**.

Restoring Data Using a VMware Backup

You can synchronize the backups of on-premises VMware VMs to the cloud and restore the backups to cloud servers. You need to configure security groups before the restoration, or the restoration may fail. For details, see **Restoring to Cloud Servers Using VMware Backups**.

6.8 Restoring from a File Backup

You can use a file backup to restore individual files of a server to its state when the backup was created.

Constraints

- The Agent on the server must be **Normal**.
- You are advised not to restore file backups when applications are running. Stop the applications and then restore files.

Method 1

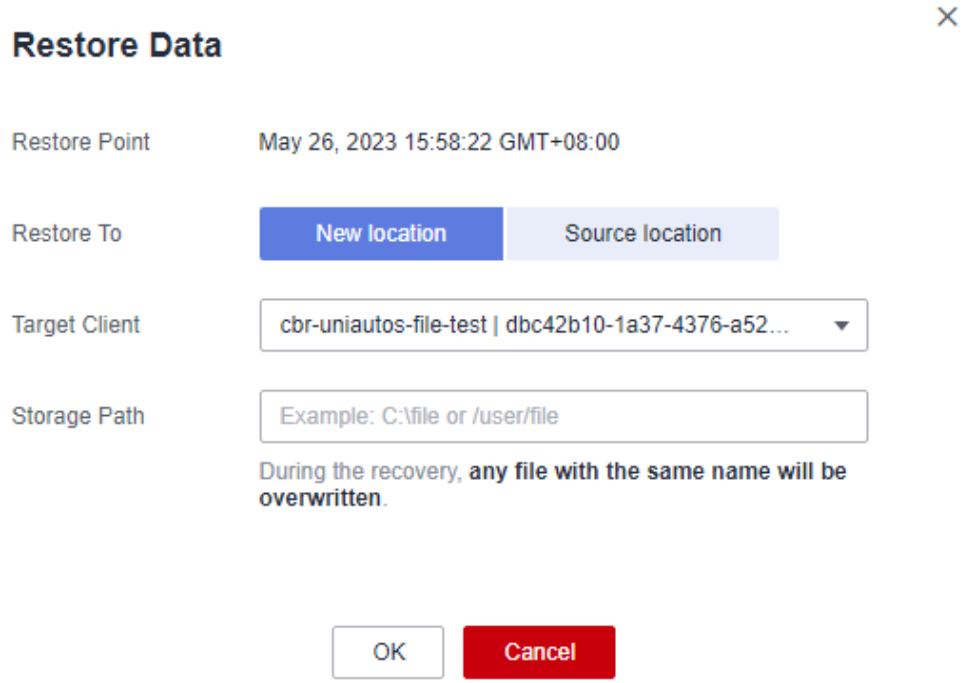
Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click  in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 On the **Backup Clients** tab page, click the name of the target backup client.

Step 3 Find the desired backup and click **Restore Data**. See **Figure 6-6**.

Figure 6-6 Restoring files



Step 4 Select a restore location.

- **Source location**: Data will be restored to the original file path, and any file with the same name will be overwritten. This option is available only for Linux backup clients.
- **New location**: Data will be restored to a different server you select.

  You can only choose from the backup clients whose Agent status is **Normal**. If your target server is not on the list, install the Agent on the server and try again.

  NOTE

  The storage path cannot contain spaces.

Step 5 Click **OK**. You can check whether data is successfully restored in the **Backup Details** area of the client details page or on the local host.

When the status of the backup changes to **Available**, the restoration is successful.

----End

Method 2

Step 1 Log in to the CBR console.

1. Log in to the management console.

2. Click in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

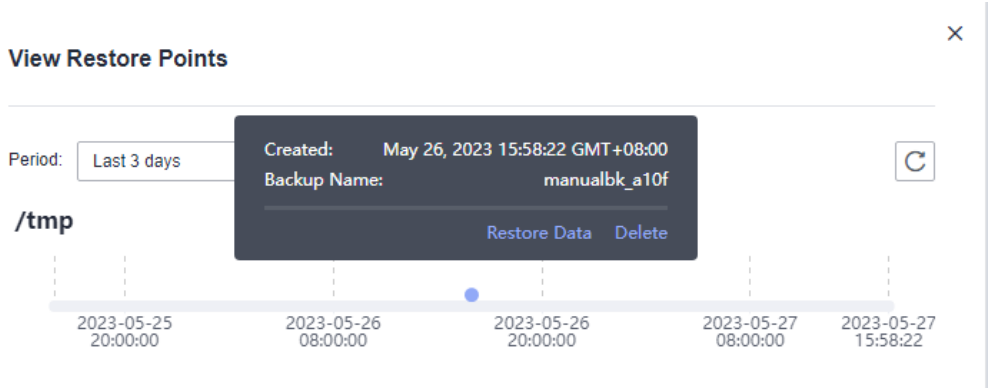
Step 2 On the **Backup Clients** tab page, click the name of the target backup client.

Step 3 Click **Restore Points** in the **Operation** column.

Step 4 Select a restore point and click **Restore Data**. See **Figure 6-7**.

Backup data will be restored to the state at the selected time.

Figure 6-7 Restore Points



Step 5 Select a restore location.

- **Source location**: Data will be restored to the original file path, and any file with the same name will be overwritten. This option is available only for Linux backup clients.
- **New location**: Data will be restored to a different server you select.

  You can only choose from the backup clients whose Agent status is **Normal**. If your target server is not on the list, install the Agent on the server and try again.

Step 6 Click **OK**. You can check whether data is successfully restored in the **Backup Details** area of the client details page or on the local host.

When the status of the backup changes to **Available**, the restoration is successful.

----End

7 Application-Consistent Backup

7.1 What Is Application-Consistent Backup?

Overview

There are three types of backups in terms of backup consistency:

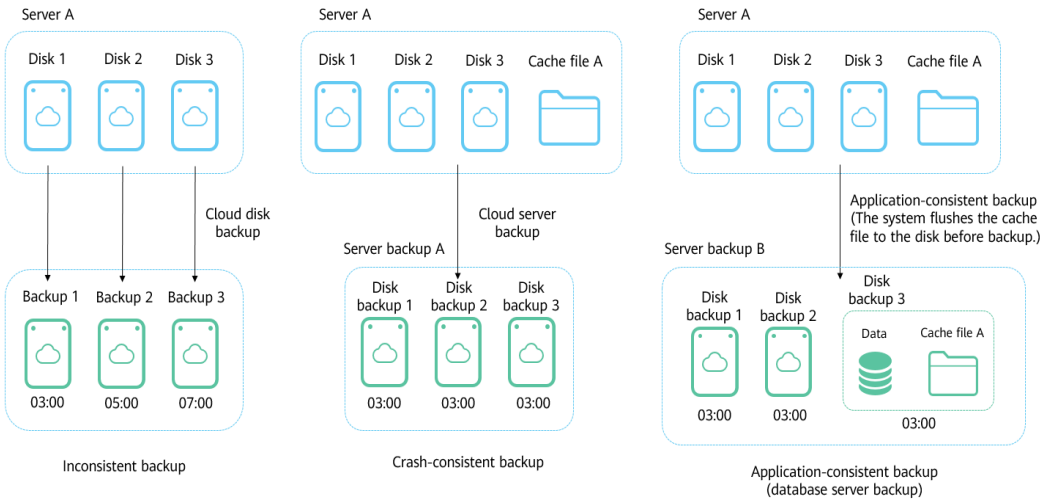
- Inconsistent backup: An inconsistent backup contains data taken from different points in time. This typically occurs if changes are made to your files or disks during the backup. CBR cloud server backup uses the consistency snapshot technology for disks to protect data of ECSs and BMSs. If you back up multiple EVS disks separately, the backup time points of the EVS disks are different. As a result, the backup data of the EVS disks is inconsistent.
- Crash-consistent backup: A crash-consistent backup captures all data on disks at the time of the backup and does not capture data in memory or any pending I/O operations. Although it cannot ensure application consistency, disks are checked by **chkdsk** upon operating system restart to restore damaged data and undo logs are used by databases to keep data consistent.
- Application-consistent backup: An application-consistent backup captures data in memory or any pending I/O operations and allows applications to achieve a quiescent and consistent state.

Figure 7-1 compares these backup types in detail.

CBR supports both crash-consistent backup (also called cloud server backup) and application-consistent backup.

Crash-consistent backup does not back up data in memory or pending I/O operations and cannot be used to restore applications. If your server is running a MySQL or SAP HANA database, you can use application-consistent backup. An application-consistent backup capture application information both in memory and in pending I/O operations and can be used to quickly restore applications.

Figure 7-1 Backup consistency



Differences Between Application-Consistent Backup and Cloud Server Backup

Item	Application-Consistent Backup	Cloud Server Backup
Object	Cloud servers with MySQL or SAP HANA database deployed	Cloud servers without databases
Granularity	Cloud server	Cloud server
Vault	Server backup vault	Server backup vault
Recommended scenario	Data of cloud servers and their databases such as MySQL or SAP HANA database needs to be backed up. All data and application configurations need to be restored in case of an error.	Only data of cloud servers needs to be backed up. Such data needs to be restored in case of an error. If cloud server backup is used to back up database servers, some database configurations may fail to be restored from the backups and issues may occur when the database is restarted.

NOTICE

There are two types of vaults to store server backups. Those store backups of non-database servers are server backup vaults, and those store backups of database servers are database server backup vaults.

Application Scope

Table 7-1 lists the OSs that support the installation of Agent.

Table 7-1 OSs that support installation of the Agent

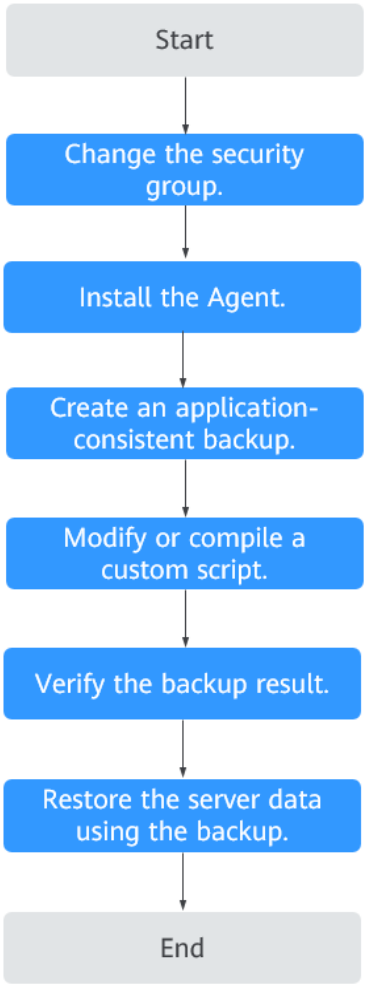
Database	OS	Version
SQL Server 2008/2012/2019	Windows	Windows Server 2008, 2008 R2, 2012, 2012 R2, and 2019 for x86_64
SQL Server 2014/2016/ Enterprise Edition	Windows	Windows Server 2014, 2014 R2, and 2016 Datacenter for x86_64
MySQL 5.5/5.6/5.7	Red Hat	Red Hat Enterprise Linux 6 and 7 for x86_64
	SUSE	SUSE Linux Enterprise Server 11, 12, 15 SP1, 15 SP2 for x86_64
	CentOS	CentOS 6 and 7 for x86_64
	EulerOS	EulerOS 2.2 and 2.3 for x86_64
HANA 1.0/2.0	SUSE	SUSE Linux Enterprise Server 12 for x86_64

For the databases not included in this list, you can customize a script to perform application-consistent backup by referring to section "Using a Custom Script to Implement Application-Consistent Backup" in the *Cloud Backup and Recovery Best Practices*.

Process

Figure 7-2 shows the application-consistent backup process.

Figure 7-2 Application-consistent backup process



Step 1 Change the security group: Before performing an application-consistent backup task, change the security group of the server you want to back up. For details, see **Changing a Security Group**.

Step 2 Install the agent: Change the security group and install the agent in any sequence. Ensure that the two operations are completed before backing up the desired server. For details, see **Installing the Agent**.

Step 3 Create an application-consistent backup: After creating a server backup vault for storing application-consistent backups, associate it with the desired database server and then create an application-consistent backup. For details, see **Creating an Application-Consistent Backup**.

Step 4 Modify or compile a custom script: After backing up a database server on the CBR console, modify or compile a custom script on the database of the server. For details, see **Using a Custom Script to Implement Application-Consistent Backup**.

Step 5 Verify the backup result: After the backup is performed, verify that the backup succeeds. For details, see **Verifying the Application-Consistent Backup Result**.

Step 6 Use the backup to restore server data: Use the application-consistent backup to restore server data. The restored database applications and data are the same as those at the backup point in time. For details, see **Restoring from a Cloud Server Backup**.

----End

7.2 Changing a Security Group

Context

A security group is a collection of access control rules for ECSs that have the same security protection requirements and are mutually trusted in a VPC. After a security group is created, you can create different access rules for the security group to protect the ECSs that are added to this security group. The default security group rule allows all outgoing data packets. ECSs in a security group can access each other without the need to add rules. The system creates a security group for each cloud account by default. You can also create custom security groups by yourself.

When creating a security group, you must add the inbound and outbound access rules and enable the ports required for application-consistent backup to prevent application-consistent backup failures.

Operation Instructions

Before using the application-consistent backup function, you need to change the security group. To ensure network security, CBR has not set the inbound direction of a security group, so you need to manually configure it.

In the outbound direction of the security group, ports 1 to 65535 on the 100.125.0.0/16 network segment must be configured. In the inbound direction, ports 59526 to 59528 on the 100.125.0.0/16 network segment must be configured. The default outbound rule is 0.0.0.0/0, that is, all data packets are permitted. If the default rule in the outbound direction is not modified, you do not need to configure the outbound direction.

Procedure

Step 1 Log in to the ECS console.

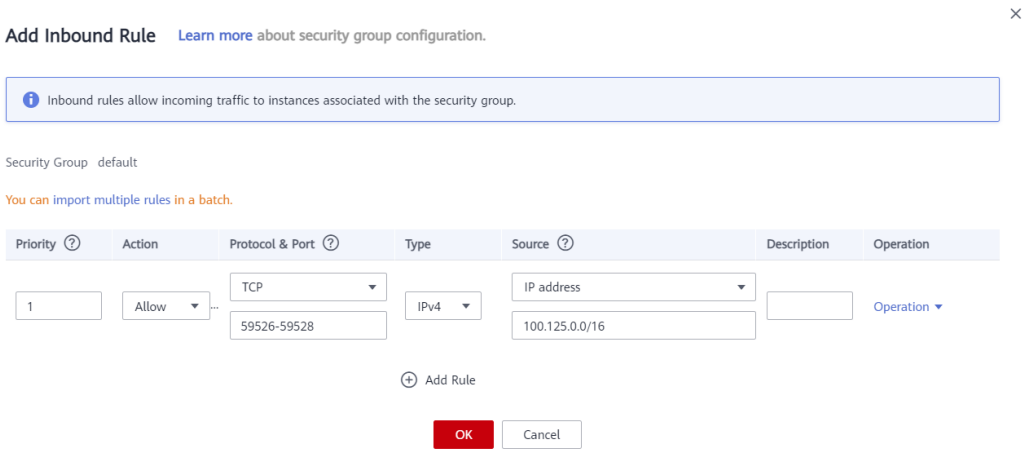
1. Log in to the management console.
2. Click  in the upper left corner and select a region.
3. Under **Computing**, click **Elastic Cloud Server**.

Step 2 In the navigation pane on the left, choose **Elastic Cloud Server** or **Bare Metal Server**. On the page displayed, select the target server. Go to the server details page.

Step 3 Click the **Security Groups** tab and select the target security group. On the right of the ECS page, click **Modify Security Group Rule** for an ECS. Click **Change Security Group** for a BMS. In the displayed dialog box, click **Manage Security Group**.

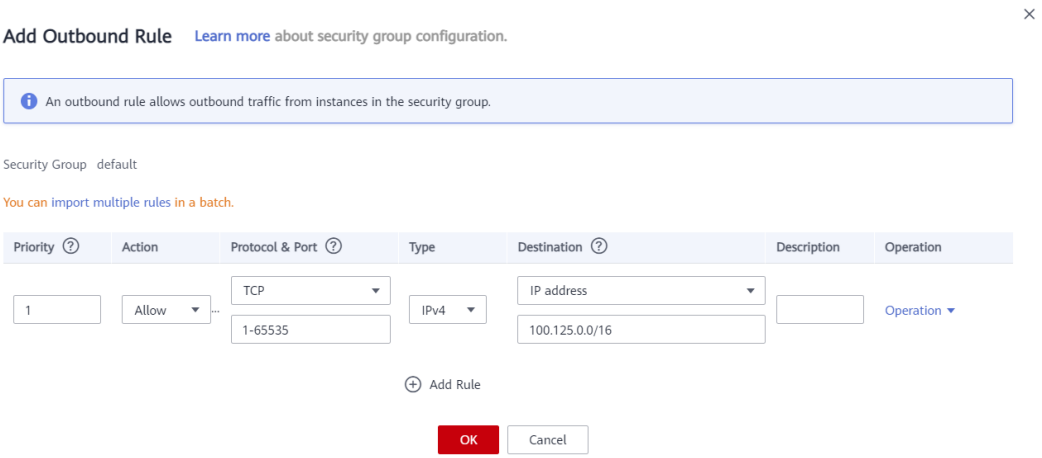
Step 4 On the **Security Groups** page, click the **Inbound Rules** tab, and then click **Add Rule**. The **Add Inbound Rule** dialog box is displayed, as shown in **Figure 7-3**. Select **TCP** for **Protocol/Application**, enter **59526-59528** in **Port & Source**, select **IP address** for **Source** and enter **100.125.0.0/16**. After supplementing the description, click **OK** to complete the setting of the inbound rule.

Figure 7-3 Adding an inbound rule



Step 5 Click the **Outbound Rules** tab, and then click **Add Rule**. The **Add Outbound Rule** dialog box is displayed, as shown in **Figure 7-4**. Select **TCP** for **Protocol/Application**, enter **1-65535** in **Port & Source**, select **IP address** for **Destination** and enter **100.125.0.0/16**. After supplementing the description, click **OK** to complete the setting of the outbound rule.

Figure 7-4 Adding an outbound rule



----End

7.3 Installing the Agent

Before enabling application-consistent backup, change the security group and successfully install the Agent on your ECSs.

If application-consistent backup is enabled but Agent is not installed on servers, application-consistent backup will fail, and a common server backup will be performed instead. To ensure that application-consistent backup is properly executed, download and install the Agent first.

Operation Instructions

- Application-consistent backup supports only x86-based ECSs, not Kunpeng-based ECSs.
- During the Agent installation, the system requires the **rdadmin** user's permissions to run the installation program. To improve O&M security, change the user **rdadmin**'s password of the Agent OS regularly and disable this user's remote login permission. For details, see **Changing the Password of User rdadmin**.
- **Table 7-2** lists OSs that support installation of the Agent.

  Table 7-2 OSs that support installation of the Agent

Database	OS	Version
SQL Server 2008/2012/2019	Windows	Windows Server 2008, 2008 R2, 2012, 2012 R2, and 2019 for x86_64
SQL Server 2014/2016/Enterprise Edition	Windows	Windows Server 2014, 2014 R2, and 2016 Datacenter for x86_64
MySQL 5.5/5.6/5.7	Red Hat	Red Hat Enterprise Linux 6 and 7 for x86_64
	SUSE	SUSE Linux Enterprise Server 11, 12, 15 SP1, 15 SP2 for x86_64
	CentOS	CentOS 6 and 7 for x86_64
	EulerOS	EulerOS 2.2 and 2.3 for x86_64
HANA 1.0/2.0	SUSE	SUSE Linux Enterprise Server 12 for x86_64

- **Table 7-3** lists the supported SHA256 values.

Table 7-3 SHA256 values

Package Name	SHA256 Value
Cloud Server Backup Agent-CentOS6-x86_64.tar.gz	f0c59ccb4443bcb6e874bf6e3c574914f9f8b27f3f7379e2d81956a9972802f3
Cloud Server Backup Agent-CentOS7-x86_64.tar.gz	2d3028cb794e1699bae9f65746a60ae99be17d5c4c5e7ebe6b45ff261db9c3c7
Cloud Server Backup Agent-EulerOS2-x86_64.tar.gz	4fb4cf9cb6f5b0e6c13d8ad8bf928754cb95332ee645a97fd0bb3fcbeb53d003
Cloud Server Backup Agent-RedHat6-x86_64.tar.gz	6ae3838fb5644f0f47282c211fe20c6b57a7c5c1d683cd5a1f55860d259b2054
Cloud Server Backup Agent-RedHat7-x86_64.tar.gz	40fa68a808d9da04672678b2773e3345ea6c9dee3c17d598acb66a023cc5cacc
Cloud Server Backup Agent-SuSE11-x86_64.tar.gz	346cc9f1fc0a41a817abb2db61e657a4d615449e13bc46f1c1cfbadc0b281f47
Cloud Server Backup Agent-SuSE12-x86_64.tar.gz	625279b9c9d17ddcc4210b78242efebacdad73f808b86754659d243ece85a400
Cloud Server Backup Agent-WIN64.zip	b7b2067ac89f1fec635d82e3fe2ea794ce6482f9880838f34924b383be44ac4e

NOTICE

To install the Agent, the system will open the firewall of a port from 59526 to 59528 of the ECS. When port 59526 is occupied, the firewall of port 59527 is enabled, and so on.

Prerequisites

- The username and password for logging in to the console have been obtained.
- The security group has been configured.
- The **Agent Status** of the ECS is **Not installed**.
- If you use Internet Explorer, you need to add the websites you will use to trusted sites.

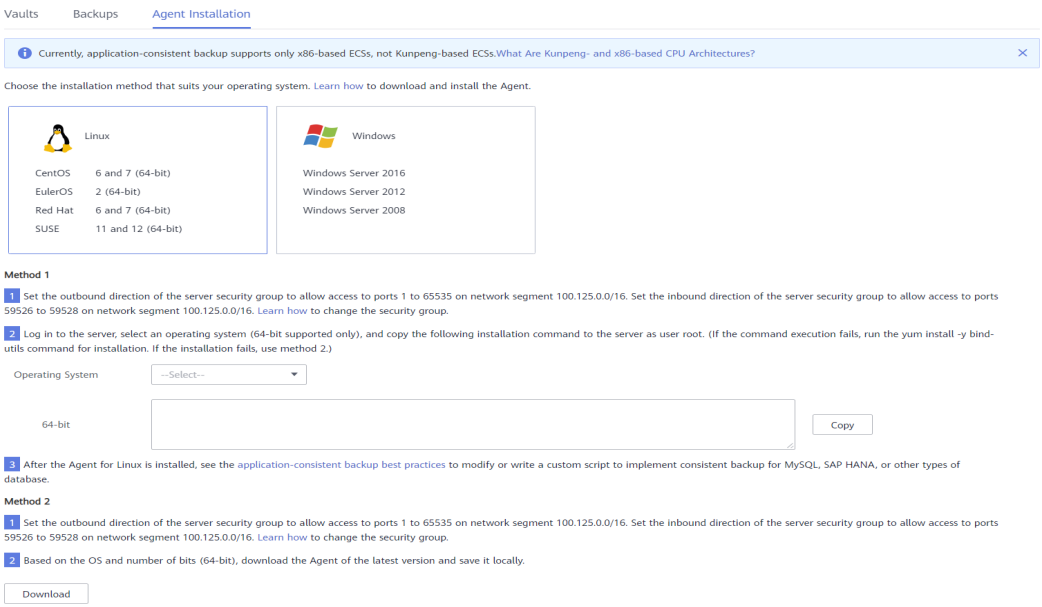
Installing the Agent for a Linux OS (Method 1)

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Agent Installation** tab.

Figure 7-5 Installation page for Linux



Step 3 In method 1, select the corresponding Agent version as required, and copy the installation command in step 2.

Step 4 On the ECS page, select the target server and click **Remote Login** in the **Operation** column to log in to the ECS.

NOTE

Ensure that the package's SHA256 value is the same as that listed in **Table 7-3**.

For how to obtain the software package, go to method 2. Specifically, click **Download**, and then on the displayed page, select a version based on the target ECS OS and click **OK**.

Step 5 Paste the installation command in step 2 to the ECS and run the command as user **root**.

If the execution fails, run the **yum install -y bind-utils** command to install the dig module. If the installation still fails, use method 2 to install the Agent for a Linux OS.

Step 6 After the installation is complete, Agent is running properly. To implement application-consistent backup for MySQL, SAP HANA, or other types of databases,

modify or compile a custom script by referring to the *Cloud Backup and Recovery Best Practices*.

----End

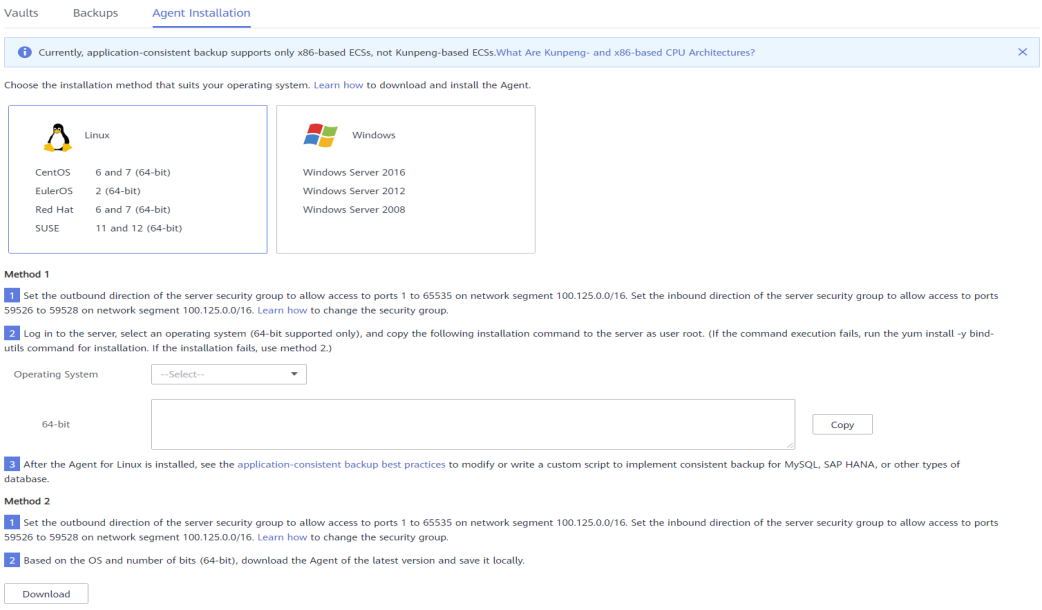
Installing the Agent for a Linux OS (Method 2)

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

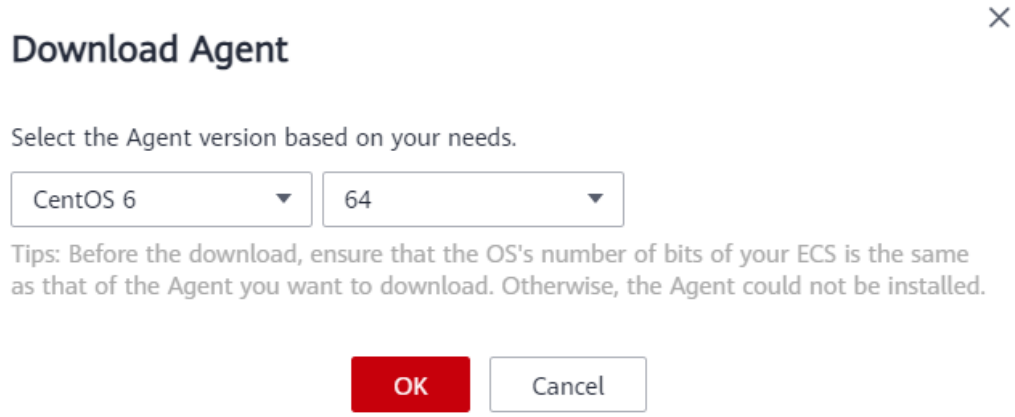
Step 2 Click the **Agent Installation** tab.

Figure 7-6 Installation page for Linux



Step 3 In method 2, click **Download**. On the displayed download page, select the version to be downloaded based on the OS of the target ECS, and click **OK**. See **Figure 7-7**.

Figure 7-7 Downloading the Agent



Step 4 After downloading the Agent to a local directory, check that the package's SHA256 value is the same as that listed in **Table 7-3**.

Step 5 Use a file transfer tool, such as Xftp, SecureFX, or WinSCP, to upload the Agent installation package to your ECS.

Step 6 After the upload, go to the ECS page. Select the target server and click **Remote Login** in the **Operation** column to log in to the ECS.

Step 7 Run the **tar -zxvf** command to decompress the Agent installation package to any directory and run the following command to go to the **bin** directory:

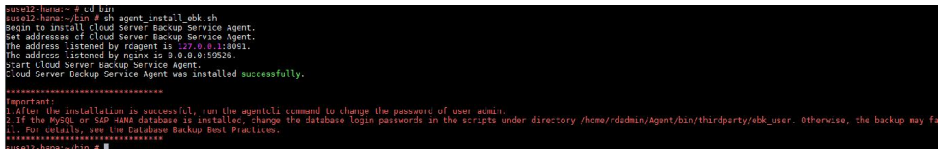
cd bin

Step 8 Run the following command to run the installation script:

sh agent_install_ebk.sh

Step 9 The system displays a message indicating that the client is installed successfully. See **Figure 7-8**.

Figure 7-8 Successful client installation for Linux



Step 10 If the MySQL or SAP HANA database has been installed on the ECS, run the following command to encrypt the password for logging in to the MySQL or SAP HANA database:

/home/rdadmin/Agent/bin/agentcli encpwd

Step 11 Use the encrypted password in **previous step** to replace the database login password in the script in **/home/rdadmin/Agent/bin/thirdparty/ebk_user/**.

Step 12 After the installation is complete, Agent is running properly. To implement application-consistent backup for MySQL, SAP HANA, or other types of databases,

modify or compile a custom script by referring to the *Cloud Backup and Recovery Best Practices*.

----End

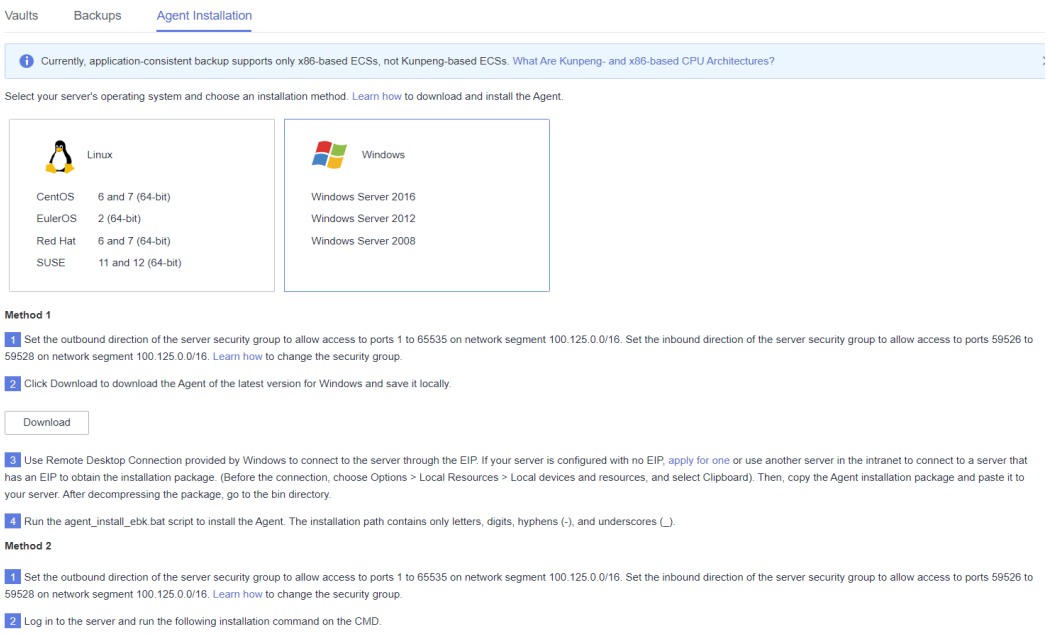
Installing the Agent for a Windows OS (Method 1)

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Agent Installation** tab.

Figure 7-9 Installation page for Windows



Step 3 In method 1, click **Download**. Save the downloaded installation package to a local directory.

Step 4 After downloading the Agent to a local directory, check that the package's SHA256 value is the same as that listed in **Table 7-3**.

Step 5 Use a file transfer tool, such as Xftp, SecureFX, or WinSCP, to upload the Agent installation package to your ECS.

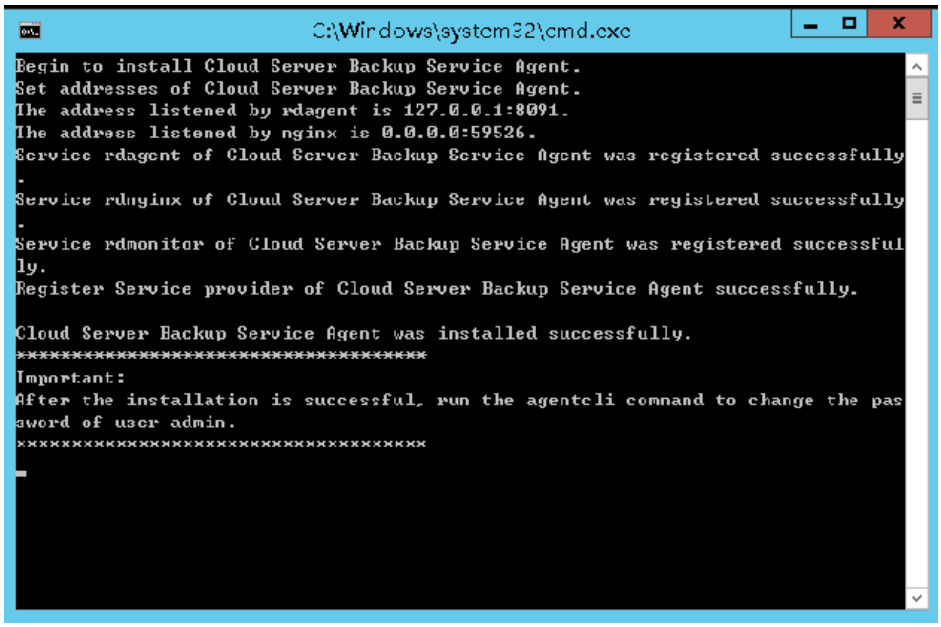
Step 6 Log in to the console and then log in to the ECS as the administrator.

Step 7 Decompress the installation package to any directory and go to the *Installation path***bin** directory.

Step 8 Double-click the **agent_install_ebk.bat** script to start the installation.

Step 9 The system displays a message indicating that the client is installed successfully. See **Figure 7-10**.

Figure 7-10 Successful client installation for Windows



----End

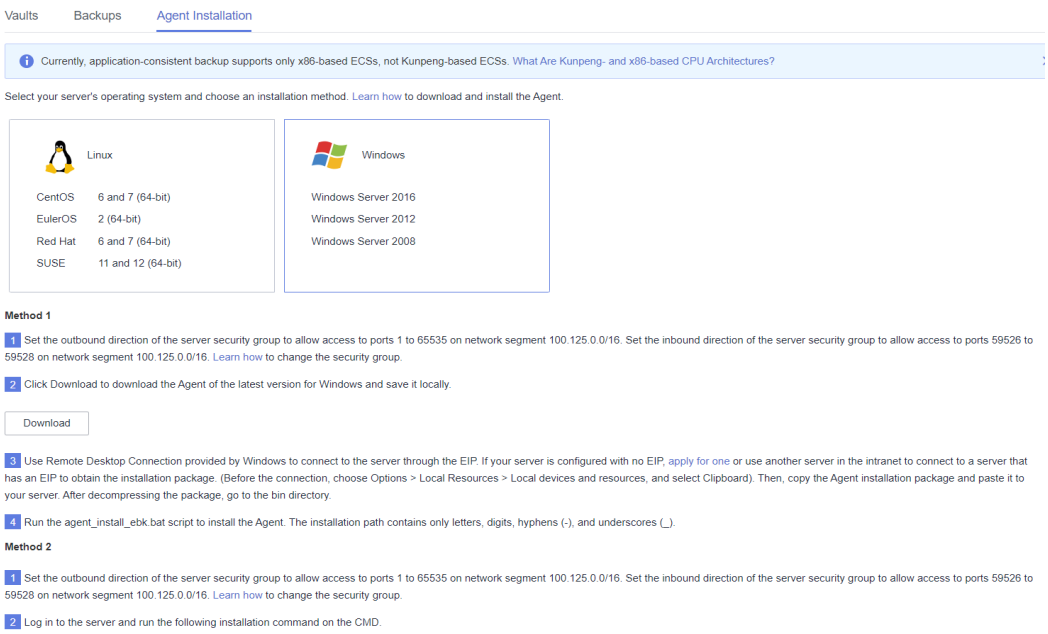
Installing the Agent for a Windows OS (Method 2)

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click the **Agent Installation** tab.

Figure 7-11 Installation page for Windows



Step 3 On the ECS page, select the target server and click **Remote Login** in the **Operation** column to log in to the ECS as the administrator.

Step 4 Copy the installation commands in step 2 of method 2 to the server and run the command in the Command Prompt.

Step 5 Copy the installation command in step 3 of method 2 to the browser. The following uses ***ap-southeast-1*** as the example region. Then press **Enter** to download the installation package.

https://csbs-agent-*ap-southeast-1*.obs.*ap-southeast-1*.myhwclouds.com/Cloud Server Backup Agent-WIN64.zip

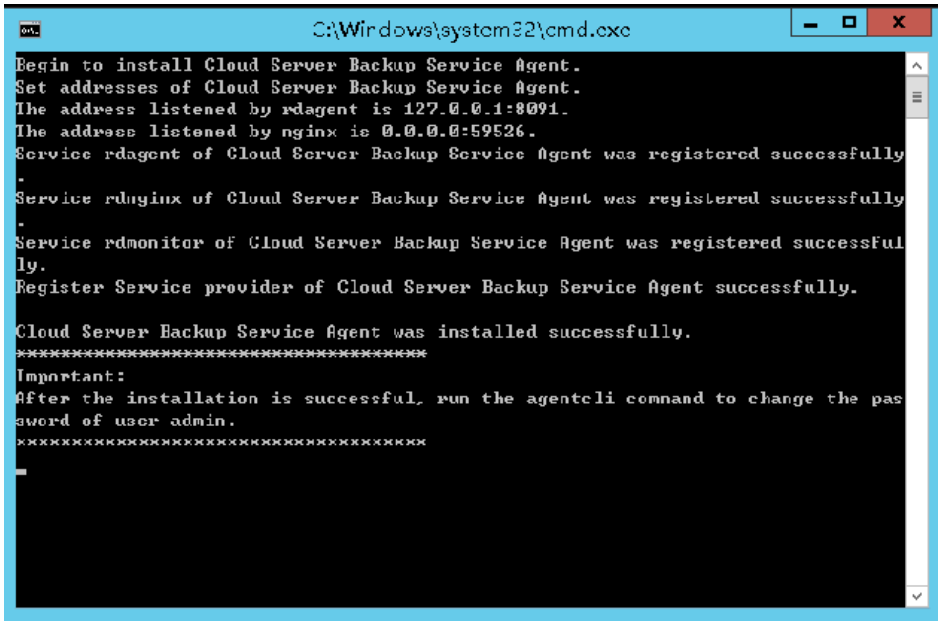
Step 6 After downloading the Agent to a local directory, check that the package's SHA256 value is the same as that listed in **Table 7-3**.

Step 7 Decompress the file to obtain the installation file. Decompress the installation package to any directory and go to the *Installation path***bin** directory.

Step 8 Double-click the **agent_install_ebk.bat** script to start the installation.

Step 9 The system displays a message indicating that the client is installed successfully. See **Figure 7-12**.

Figure 7-12 Successful client installation for Windows



----End

7.4 Creating an Application-Consistent Backup

Cloud server backup supports application-consistent backup in addition to crash-consistent backup. You can use cloud server backup to back up ECSs running MySQL or SAP HANA databases, because application-consistent backup ensures that the backed-up data is transactionally consistent.

Constraints

- Application-consistent backup is currently not supported for cluster applications, such as, MySQL Cluster. It is supported only for applications on standalone servers.
- You are advised to perform application-consistent backup in off-peak hours.

Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

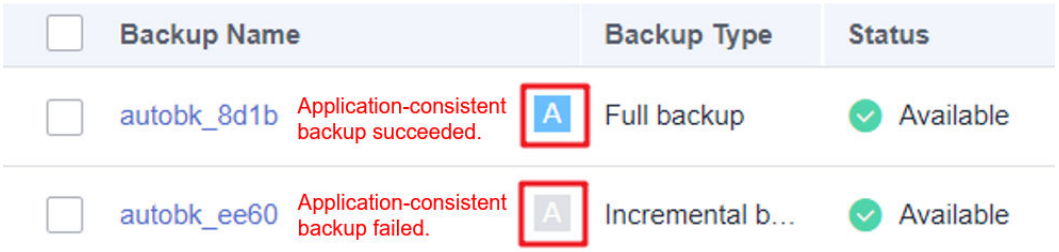
Step 2 Create a vault for application-consistent backups by referring to **Purchasing a Server Backup Vault**. Select **Enable** for **Application-Consistent Backup**.

Step 3 Associate the cloud servers with the created vault. Ensure that the Agent has been installed on the servers.

Step 4 Create a cloud server backup by referring to **Creating a Cloud Server Backup**.

- If an application-consistent backup is created successfully, a blue letter "A" is displayed next to the backup name in the backup list.
- If an application-consistent backup fails to be created, the system automatically creates a cloud server backup instead and stores the backup in the vault, and a gray letter "A" is displayed next to the backup name in the backup list. You can view the failure cause in the **Management Information** area on the backup details page. See **Figure 7-13**.

Figure 7-13 Application-consistent backup status



Step 5 Return to the cloud server backup page as prompted. If the backup execution fails, rectify the fault based on the failure details shown on the page.

----End

Follow-up Procedure

If data is lost due to virus attacks or database faults, you can restore the data by following instructions in **Restoring Data Using a Cloud Server Backup** and **Using a Backup to Create an Image**.

7.5 Uninstalling the Agent

Scenarios

This section describes how to uninstall the Agent when application-consistent backup is no longer needed.

Prerequisites

The username and password for logging in to an ECS have been obtained.

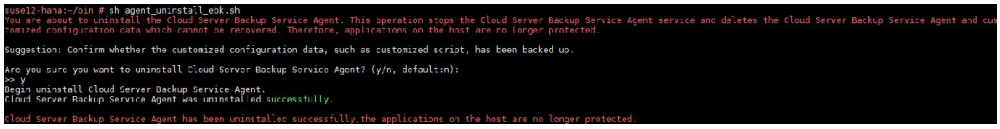
Uninstalling the Agent for Linux

Step 1 Log in to the ECS and run the **su -root** command to switch to user **root**.

Step 2 In the **home/rdadmin/Agent/bin** directory, run the following command to uninstall the Agent. **Figure 7-14** displays an example. If the word **successfully** in green is displayed, the Agent is uninstalled successfully.

sh agent_uninstall_ebk.sh

Figure 7-14 Agent uninstalled successfully from Linux



----End

Uninstalling the Agent for Windows

Step 1 Log in to the ECS.

Step 2 In the *Installation path***bin** directory, double-click **agent_uninstall_ebk.bat**. The window for uninstalling the Agent is displayed.

After the uninstallation is complete and successful, the window will be automatically closed. See **Figure 7-15**.

Figure 7-15 Agent uninstalled successfully from Windows

----End

8 File Backup

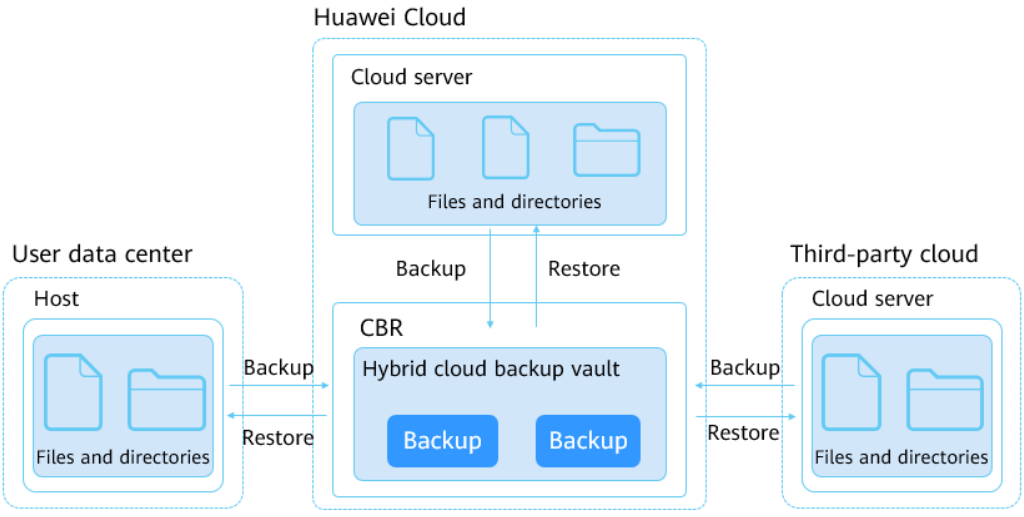
8.1 What Is File Backup?

File Backup Overview

CBR provides file backup which allows you to back up files and directories on your cloud servers and on-premises hosts, so you do not have to back up your entire servers or disks. Cloud servers that file backup supports can be servers on Huawei Cloud or a third-party cloud. If an accidental deletion or error occurred on your file, you can restore data to any time in the past when a backup was created.

Figure 8-1 shows the file backup architecture.

Figure 8-1 File backup architecture



File Backup Scope

Table 8-1 lists the supported OSs for on-premises hosts.

Table 8-1 OSs that support file backup

OS	Supported Version
Windows Server	Windows Server 2019 for x86_64 Windows Server 2016 for x86_64 Windows Server 2012 for x86_64
Windows	Windows 10 Windows 7
CentOS	CentOS 7
EulerOS	EulerOS 2.5

NOTE

If you install the Agent in Windows Server 2019, Windows Server 2012, or Windows 7, a message indicating that MSVCR100.dll is missing will be returned. You can rectify the issue by referring to **MFC security update** and then re-install the Agent.

Differences Between SFS Turbo Backup and File Backup

Item	SFS Turbo Backup	File Backup
Backup and restore object	SFS Turbo file systems	One or more files on cloud servers and on-premises hosts
Backup unit	SFS Turbo file system	File
Vault type	SFS Turbo backup vault	Hybrid cloud backup vault
Recommended scenario	Data in the SFS Turbo file systems needs to be protected. The backup data is not stored in the file system and can be used to create new file systems when needed.	One or more files on cloud servers and on-premises hosts need to be protected, and data can be quickly backed up and restored on the cloud.

File Backup Constraints

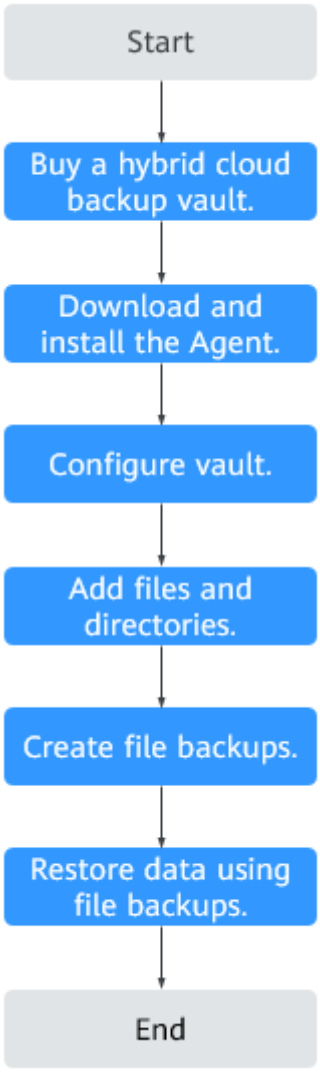
- Before backing up a file, ensure that the file is not being used or changed by an application, and the backup client has the read permissions on this file. Otherwise, the backed-up data will be incomplete.
- Before backing up a file, ensure that the file is not being used or changed by a process, and the backup client has the read permissions on this file. Otherwise, the backed-up data will be incomplete.
- You are advised not to restore file backups when applications are running. Stop the applications and then restore files.

- One backup client can have a maximum of 8 files and directories added.
- Each resource can only have one Agent installed.
- The number of resources where the Agent can be installed is not limited.
- A single directory can contain a maximum of 500,000 files, and you are advised to reserve at least 4 GB of memory on each backup client to perform file backups.
- One path can contain a maximum of 200 characters.
- The maximum bandwidth allowed for file backup data transmission is 16 Gbit/s. If the maximum bandwidth is reached, flow control will be triggered.
- File backup cannot back up the files stored in SFS file systems that are mounted to cloud servers.
- Backup may fail on directories with frequent file writes in Windows.
- At least 50 Mbit/s network bandwidth is required in cross-cloud or cross-region scenarios.

8.2 File Backup Process

Figure 8-2 shows the file backup process.

Figure 8-2 File backup process



1. Create a hybrid cloud backup vault.

   Before installing the file backup Agent, create a vault by referring to **Creating a Hybrid Cloud Backup Vault**. The created vault will be used to store generated file backups.

2. Download and install the Agent.

   Install the Agent on target servers by referring to **Downloading and Installing the Agent**. After the Agent is successfully installed, the servers automatically appear as backup clients in the backup client list.

3. Configure a vault.

   Configure a vault for the backup clients by referring to **Configuring a Vault**. Generated file backups will be stored in this vault.

4. Add files and directories.

   Add the files and directories you want to back up by referring to **Adding Directories**.

5. Create file backups.

   Manually perform backups by referring to **Creating File Backups** or have the system automatically create backups. Generated backups will be stored in the vault.

6. Restore data from file backups.

   Restore data by referring to **Restoring from a File Backup**. You can restore data to source servers or different servers.

8.3 Creating a Hybrid Cloud Backup Vault

This section describes how to purchase a hybrid cloud backup vault for storing file backups.

Procedure

Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click  in the upper left corner and select a region.
3. Click  and choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 In the upper right corner of the page, click **Buy Hybrid Cloud Backup Vault**.

Step 3 Select a billing mode.

- Yearly/monthly is a prepaid billing mode. You are billed based on the subscription duration you specify. This mode is ideal when the resource use duration is predictable. A longer subscription often means a lower cost.
- Pay-per-use is a postpaid billing mode. You are billed based on your resource usage and you can increase or delete resources any time.

Step 4 Specify a vault capacity ranging from 1 to 10,240 TB.

Properly plan the vault capacity, which must be at least the same as the size of the files you want to back up. Check the file size on your local hosts. As the vault's used space grows, you can expand the vault capacity if it becomes insufficient.

Step 5 Configure auto backup.

- If you select **Configure**, you must then select an existing backup policy or create a new policy. After the vault is created, CBR will apply the policy to this vault, and all files associated with this vault will be automatically backed up based on this policy.
- If you select **Skip**, files associated with this vault will not be automatically backed up until you apply a backup policy to the vault.

Step 6 (Optional) Add tags to the vault.

Tags are key-value pairs, which are used to identify, classify, and search for vaults. You can add a maximum of 10 tags for a vault, and vault tags are only used for vault search and management.

Table 8-2 describes the parameters of a tag.

Table 8-2 Tag parameter description

Parameter	Description	Example Value
Key	Each tag has a unique key. You can customize a key or select the key of an existing tag created in TMS. A tag key: ● Can contain 1 to 36 Unicode characters. ● Can contain only letters, digits, hyphens (-), and underscores (_).	Key_0001
Value	A tag value can be repetitive or left blank. A tag value: ● Can contain 0 to 43 Unicode characters. ● Can contain only letters, digits, hyphens (-), and underscores (_).	Value_0001

Step 7 Specify a name for the vault.

The name must contain 1 to 64 characters including digits, letters, underscores (_), or hyphens (-), for example, **vault-f61e**.

NOTE

You can also use the default name **vault**_*xxxx*.

Step 8 Specify the required duration if you select yearly/monthly billing. The validity period ranges from 1 month to 5 years.

Determine whether to enable auto renewal. If you select **Auto Renewal**:

- Your subscription will be renewed each month for monthly billing.
- Your subscription will be renewed each year for yearly billing.

Step 9 Complete the payment as prompted.

Step 10 Go back to the **File Backups** page and view the created vault in the vault list.

----End

8.4 Downloading and Installing the Agent

Scenarios

Before backing up files, you need to change the security group of the target servers or VMs, and install the Agent on them. This section describes how to download and install the Agent.

Currently, only hosts running 64-bit OSs are supported.

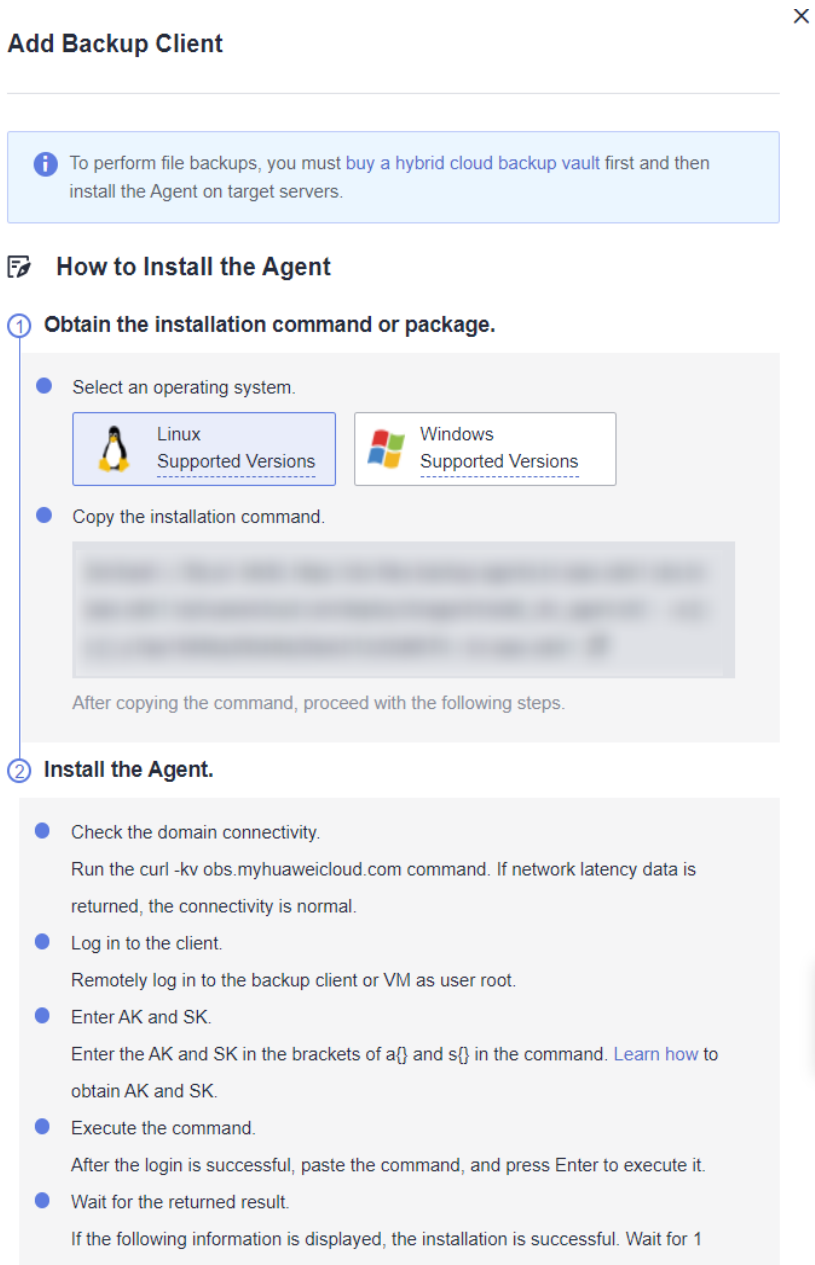
Installing the Agent on a Linux Server

Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Click the **Backup Clients** tab and locate the target backup client. Click **Add Backup Client**. On the displayed page, select Linux.

Figure 8-3 Linux



Step 3 Log in to the target host as user **root**.

Step 4 On the host, run **curl -kv obs.*Region ID*.myhuaweicloud.com** to check that the network is connected. Replace *Region ID* with the ID of the region you select. For example, if you select CN North-Beijing4, replace it with **cn-north-4**.

Step 5 Complete the **wget https://obs.*region1*.myhuaweicloud.com/cbr/deploy/cbragent/install_cbr_agent.sh** command and run the command on the server to download the sh script. Then check that the script's SHA256 value is the same as that listed in **Table 8-3**.

Table 8-3 SHA256 values

Package/Script Name	SHA256 Value	OS
cbragent_1.0.4_WIN64.zip	4db23085da5252b841f0c4ce518b8cbb3e68998f099a74e8e0c9c27c81a78eeb	Windows
install_cbr_agent.sh	a8238c9cf14ca6f5e82b23291ed0d6f49d68a2d49603983bda4dbe2e3a1014c7	Linux

Step 6 Complete the installation command provided on the CBR console.

```
/bin/bash -c '$(curl -kfsSL https://obs.region1.myhuaweicloud.com/cbr/deploy/cbragent/
install_cbr_agent.sh)' -- -a {} -s {} -p 0605767aecxxxxxxxxxxxx -r region1
```

- Copy the region ID from the installation page to replace variable *region id*.
- Enter the AK and SK in the brackets of **a {}** and **s {}** in the command. **How to obtain an AK/SK?**

  NOTE

  Delete the brackets after entering the AK and SK.

Step 7 Run the obtained command on the host to install the Agent.

Step 8 If information similar to the following is displayed, the Agent is successfully installed.

Figure 8-4 Executing the installation command

Step 9 Wait for about 1 minute, and view the backup client in the backup client list. If the Agent status is **Normal**, the system successfully detects the client, and the Agent is running properly.

----End

Installing the Agent on a Windows Server

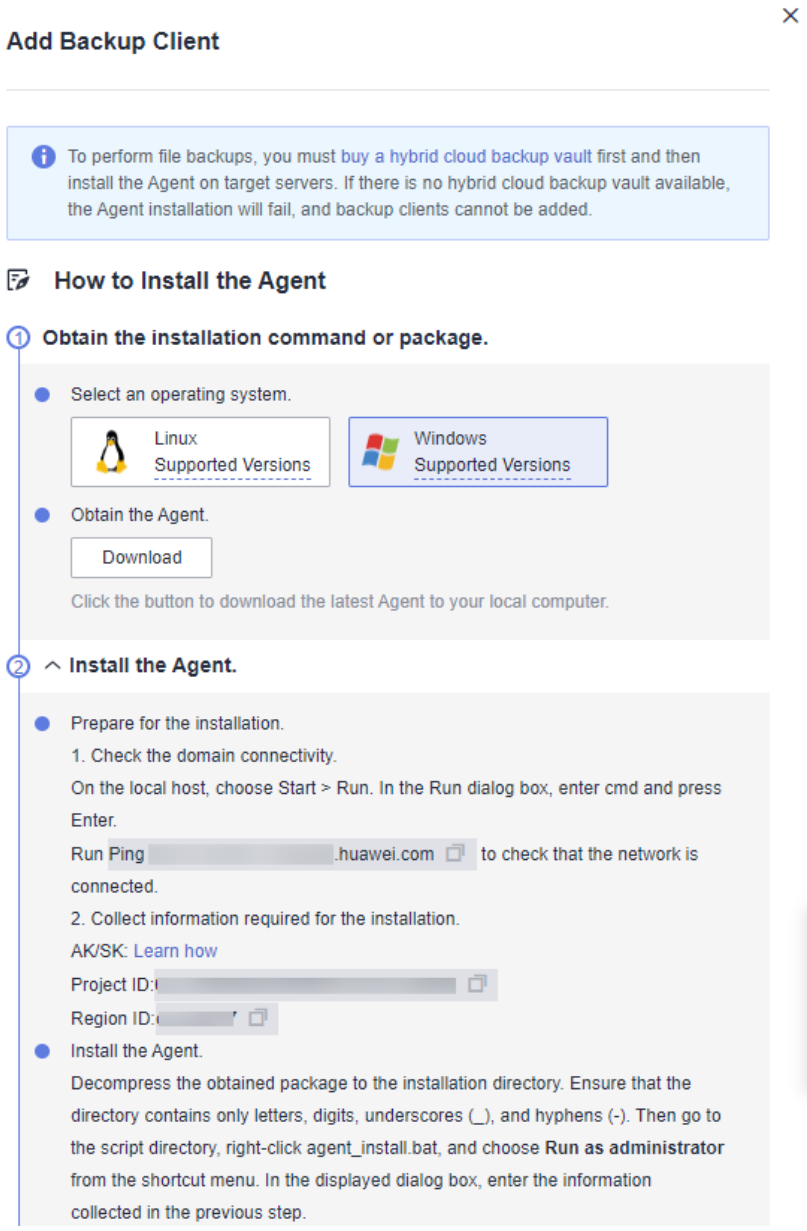
Step 1 Log in to the CBR console.

1. Log in to the management console.

2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Click the **Backup Clients** tab and locate the target backup client. Click **Add Backup Client**. On the displayed page, select Windows.

Figure 8-5 Windows



Step 3 Click **Download** to download the latest Agent installation package to the local computer. Ensure that the package's SHA256 value is the same as that listed in **Table 8-3**.

Step 4 On the local host, choose **Start** > **Run**. In the **Run** dialog box, enter **cmd** and press **Enter**.

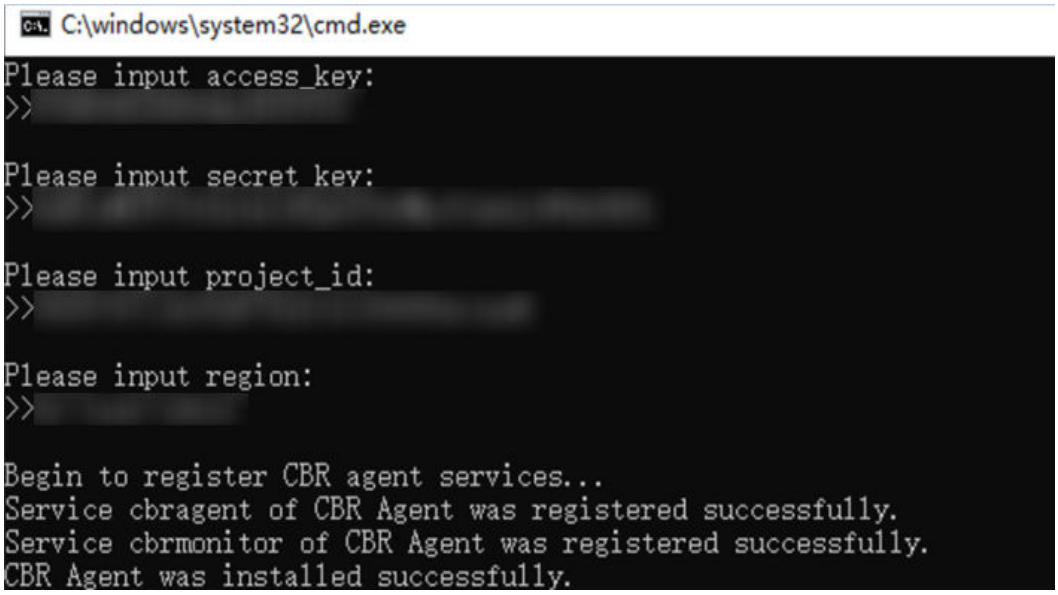
On the host, run **ping obs.*Region ID*.myhuaweicloud.com** to check that the network is connected. Replace *Region ID* with the ID of the region you select. For example, if you select CN North-Beijing4, replace it with **cn-north-4**.

Step 5 Decompress the obtained package to the installation directory. Then go to the **script** directory, right-click **agent_install.bat**, and choose **Run as administrator** from the shortcut menu. In the displayed dialog box, enter the following information.

Step 6 Ensure that the installation path contains only letters, digits, underscores (_), or hyphens (-). See **Figure 8-6**.

- **access_key**: Enter your AK. **How to obtain an AK/SK?**
- **secret_key**: Enter your SK. **How to obtain an AK/SK?**
- **project_id**: Copy the project ID from the installation page.
- **region**: Copy the region ID from the installation page.

Figure 8-6 Executing the installation command



NOTE

If you install the Agent in Windows Server 2019, Windows Server 2012, or Windows 7, a message indicating that MSVCR100.dll is missing will be returned. You can rectify the issue by referring to **MFC security update** and then re-install the Agent.

Step 7 After "CBR Agent was installed successfully" is returned, wait for about 1 minute, go back to the backup client list, and find the backup client. If its Agent status is **Normal**, the Agent has been installed successfully.

----End

Removing a Client

If a backup client is no longer needed, you can remove it.

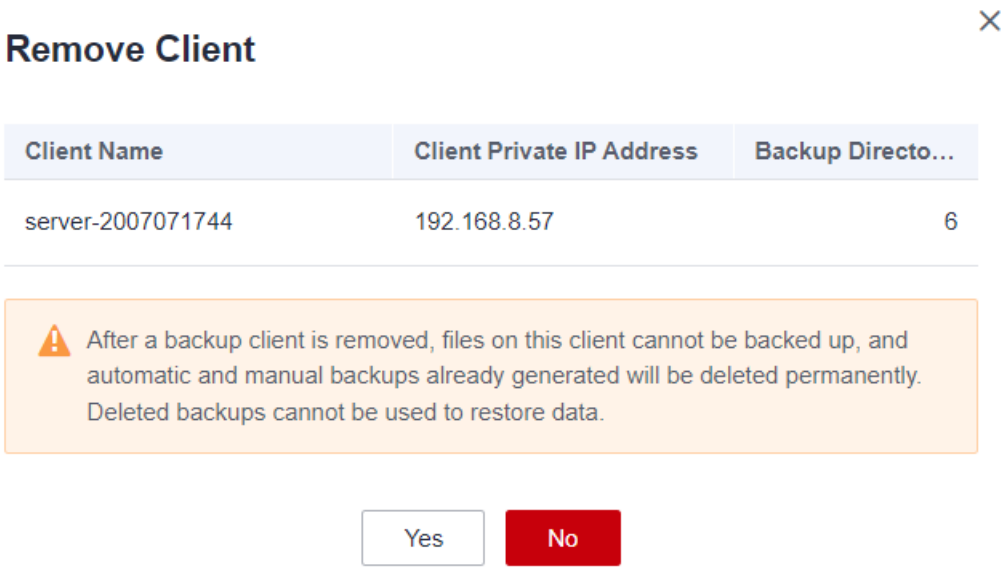
Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Click the **Backup Clients** tab and locate the target backup client. Locate the row that contains the target backup client, click **More** in the **Operation** column, and choose **Remove Client**. See **Figure 8-7**.

After a backup client is removed, files on this client cannot be backed up, and automatic and manual backups already generated will be deleted permanently. Deleted backups cannot be used to restore data.

Figure 8-7 Remove Client



Step 3 Click **Yes**.

----End

8.5 Configuring a Vault

Scenarios

After the system discovers backup clients, configure a vault for each client to have the backups automatically stored to the vault.

Procedure

Step 1 Log in to the CBR console.

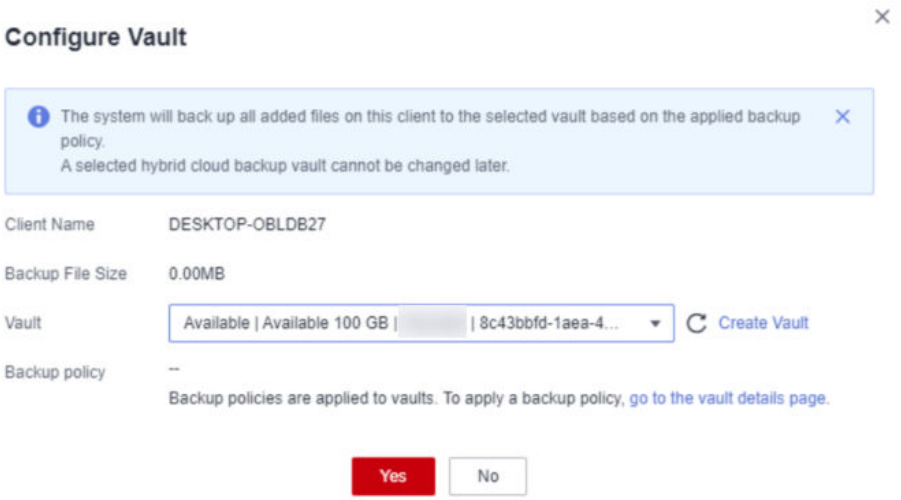
1. Log in to the management console.

2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Click the **Backup Clients** tab and locate the target backup client. Then, click **Configure Vault** in the **Backup Configuration** column.

Step 3 On the displayed page, select a vault. See **Figure 8-8**.

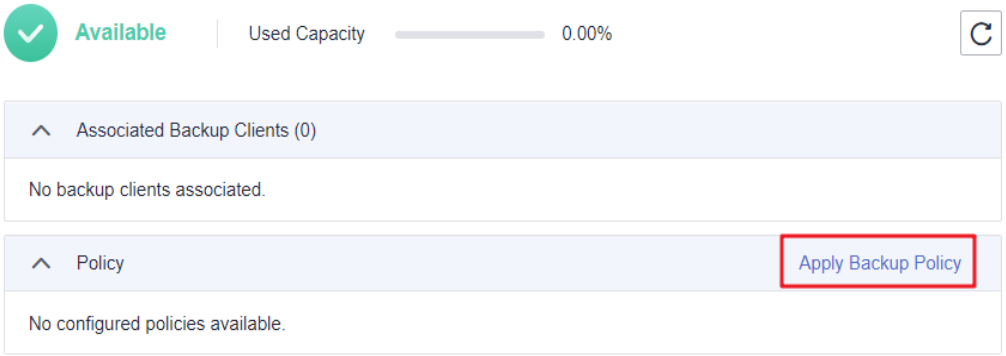
Figure 8-8 Configure Vault



Step 4 Click **Yes**. View the configured vault in the **Backup Configuration** column of the backup client list.

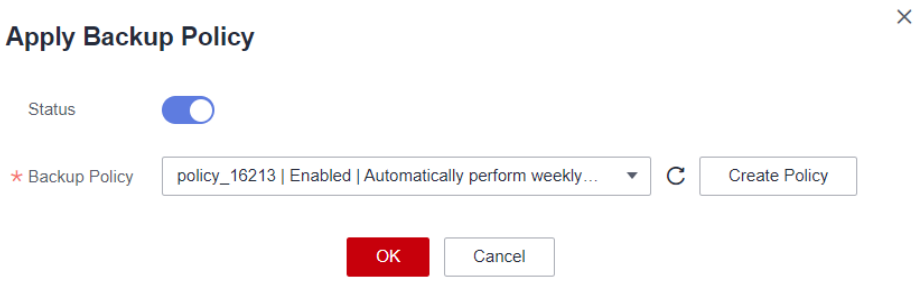
Step 5 (Optional) If a backup policy is not applied when you create the hybrid cloud backup vault and now you want to configure auto backup for backup clients, click the vault name in the **Backup Configuration** column and apply a backup policy to the vault. See **Figure 8-9**.

Figure 8-9 Apply Policy



Step 6 (Optional) Click **Apply Backup Policy**. Select an existing backup policy or create a new one. See **Figure 8-10**.

Figure 8-10 Apply Policy



Step 7 (Optional) Click **OK**. The policy is successfully applied to the hybrid cloud backup vault.

----End

8.6 Adding Directories

Scenarios

After the Agent is installed on target servers, CBR will automatically detect and show the servers as backup clients in the backup client list under **Cloud Backup and Recovery** > **File Backups** > **Backup Clients**. You need to add the paths of the files and directories you want to back up.

Constraints

- A backup client can have a maximum of 8 directories added.
- A single directory can contain a maximum of 500,000 files, and you are advised to reserve at least 4 GB of memory on each backup client to perform file backups.
- The size of a directory cannot exceed 500 GB.
- A path must be an absolute path, for example, a path starting with /, C:\, or D:\.

Adding Directories

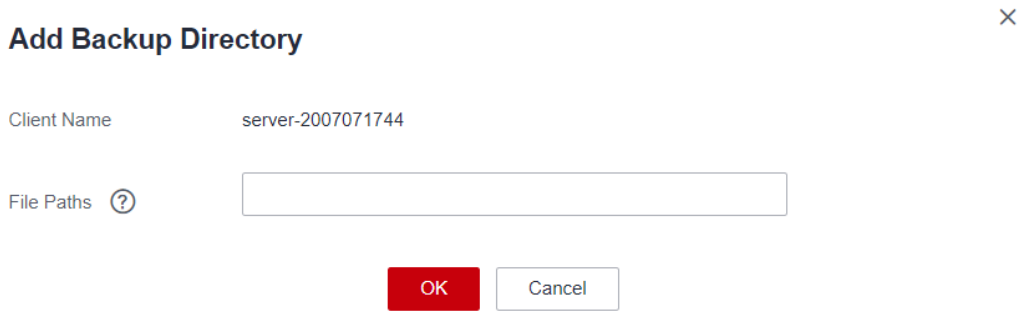
Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Locate the target backup client and click its name to go to the details page.

Step 3 Click **Add Backup Directory**. See **Figure 8-11**.

Figure 8-11 Add Backup Directory



Step 4 Paste the paths to the text box and click **OK**.

Step 5 The file paths will be displayed in the lower part of the page.

----End

Removing Directories

If backup is no longer required for a directory or the maximum number of directories allowed has been reached, you can remove directories.

Step 1 Log in to the ECS console.

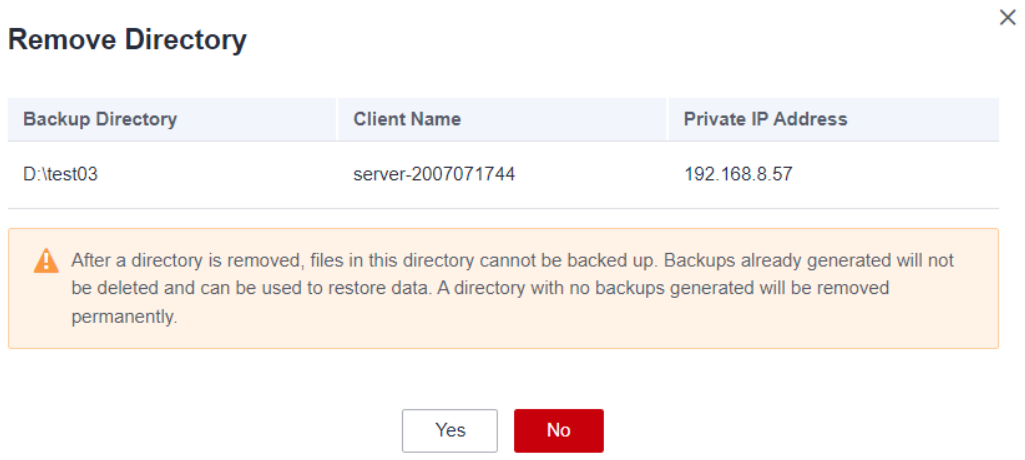
1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Locate the target backup client and click its name to go to the details page.

Step 3 Locate the target directory and click **Remove Directory**. See **Figure 8-12**.

After a directory is removed, files in this directory cannot be backed up. Backups already generated will not be deleted and can be used to restore data. A directory with no backups generated will be removed permanently.

Figure 8-12 Remove Directory



Step 4 Click **Yes**.

----End

8.7 Creating File Backups

Scenarios

This section describes how to manually create file backups.

To implement automatic backup, create a policy and apply it to a vault by referring to **Creating a Backup Policy**. Then, CBR will automatically perform backups at the time points specified in the policy.

Constraints

Only backup clients whose Agent status is **Normal** can be backed up.

Procedure

Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click  in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 Click the **Backup Clients** tab and locate the target backup client.

Step 3 Click **Perform Backup** in the **Operation** column. CBR automatically creates backups for the files.

Step 4 On the **Backup Clients** tab page, click the name of the target backup client. In the **Backup Details** area of the displayed page, if the statuses of all generated backups are **Available**, the backup task is successful.

NOTE

If you delete data from the files during the backup, the deleted files may fail to be backed up. Therefore, to ensure data integrity, delete the target data after the backup is complete, and then perform the backup.

After the backup task is complete, you can restore file data by referring to **Restoring from a File Backup** as needed.

----End

8.8 Restoring from a File Backup

You can use a file backup to restore individual files of a server to its state when the backup was created.

Constraints

- The Agent on the server must be **Normal**.
- You are advised not to restore file backups when applications are running. Stop the applications and then restore files.

Method 1

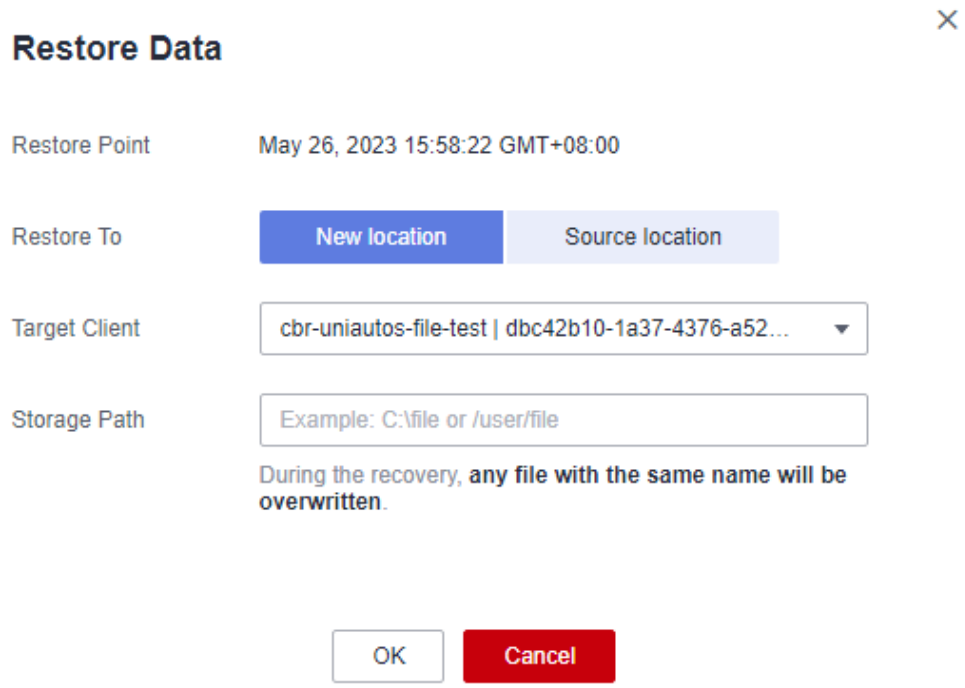
Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

Step 2 On the **Backup Clients** tab page, click the name of the target backup client.

Step 3 Find the desired backup and click **Restore Data**. See **Figure 8-13**.

Figure 8-13 Restoring files



Step 4 Select a restore location.

- **Source location**: Data will be restored to the original file path, and any file with the same name will be overwritten. This option is available only for Linux backup clients.
- **New location**: Data will be restored to a different server you select.

  You can only choose from the backup clients whose Agent status is **Normal**. If your target server is not on the list, install the Agent on the server and try again.

NOTE

The storage path cannot contain spaces.

Step 5 Click **OK**. You can check whether data is successfully restored in the **Backup Details** area of the client details page or on the local host.

When the status of the backup changes to **Available**, the restoration is successful.

----End

Method 2

Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **File Backups**.

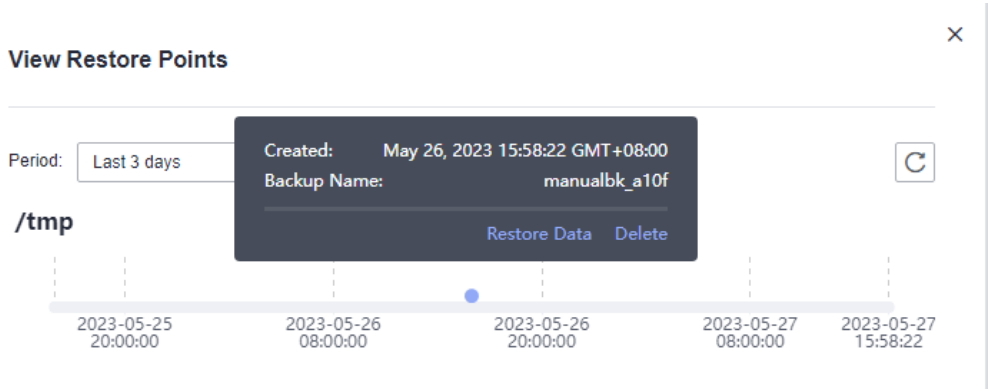
Step 2 On the **Backup Clients** tab page, click the name of the target backup client.

Step 3 Click **Restore Points** in the **Operation** column.

Step 4 Select a restore point and click **Restore Data**. See **Figure 8-14**.

Backup data will be restored to the state at the selected time.

Figure 8-14 Restore Points



Step 5 Select a restore location.

- **Source location**: Data will be restored to the original file path, and any file with the same name will be overwritten. This option is available only for Linux backup clients.
- **New location**: Data will be restored to a different server you select.

  You can only choose from the backup clients whose Agent status is **Normal**. If your target server is not on the list, install the Agent on the server and try again.

Step 6 Click **OK**. You can check whether data is successfully restored in the **Backup Details** area of the client details page or on the local host.

When the status of the backup changes to **Available**, the restoration is successful.

----End

8.9 Uninstalling the Agent

Scenarios

Uninstall the Agent from a backup client if file backup is no longer needed.

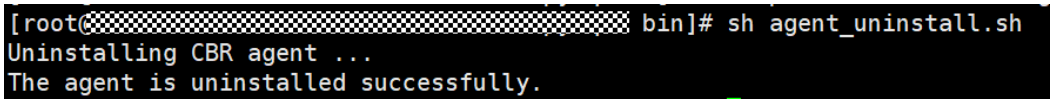
Uninstalling the Agent from Linux

Step 1 Log in to the server whose Agent needs to be uninstalled and run **su - root** to switch to user **root**.

Step 2 In the **/opt/huaweicloud/cbragent/bin** directory, run the following command to uninstall the Agent. If information similar to **Figure 8-15** is displayed, the Agent has been uninstalled.

```
sh agent_uninstall.sh
```

Figure 8-15 Agent uninstalled from Linux



----End

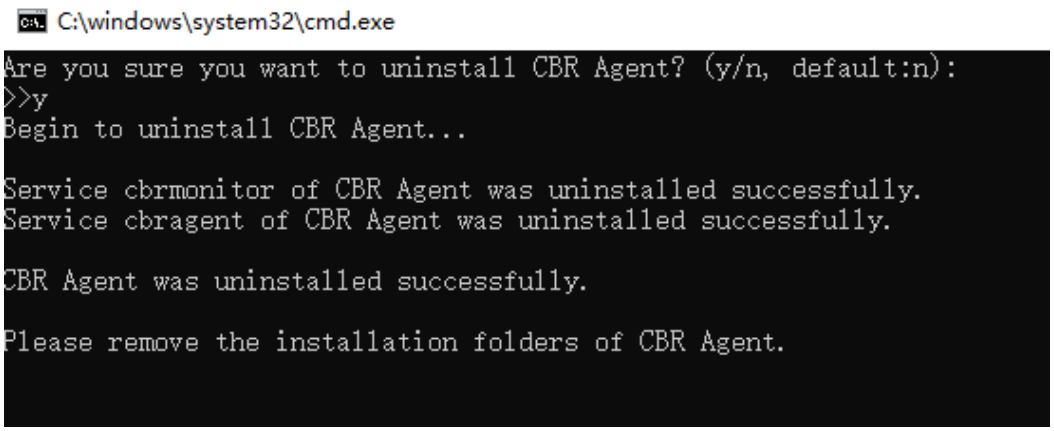
Uninstalling the Agent from Windows

Step 1 Log in to the server whose Agent needs to be uninstalled.

Step 2 Go to the **bin** directory in the installation path and double-click **agent_uninstall.bat**. Enter **y** to uninstall the Agent.

If information similar to **Figure 8-16** is displayed, the Agent has been uninstalled.

Figure 8-16 Agent uninstalled from Windows



----End

8.10 Troubleshooting Cases

Context

You may encounter an Agent installation failure or exception after the Agent is installed. This section describes some common troubleshooting cases to help you quickly locate the problem.

Abnormal Agent Status

Symptom:

After the Agent has been installed, the Agent status was displayed as Abnormal in the client list.

Possible cause:

The Agent status is abnormal.

Solution:

1. Check whether the Agent process is running properly. If the process has exited, start the process again.

   In Windows, double-click the **agent_start.bat** file. In Linux, run the **service cbragent start** command.
2. Re-install the Agent.
3. Check the time zone and date on the backup client. If the time difference between the client and server is greater than 15 minutes, adjust your local time based on the UTC time. If the Agent status remains abnormal after the client time is adjusted, wait for about half an hour until the system updates the latest Agent status.

Agent Installation Failed with Message "BackupService.7403, Invalid Agent" Returned

Symptom:

The Agent installation failed, and the message "BackupService.7403, Invalid Client" was returned.

Possible cause:

No hybrid cloud backup vault is available before you install the Agent.

Solution:

1. Purchase a hybrid cloud backup vault on the CBR console.
2. Re-install the Agent.

Agent Installation Failed with Message "Could not resolve host" Returned

Symptom:

The Agent installation failed, and the message "Could not resolve host" was returned.

Figure 8-17 "Could not resolve host" message

Possible cause:

The local DNS server cannot resolve the public domain name of Huawei Cloud.

Solution:

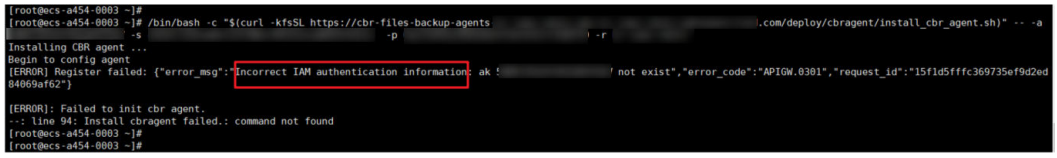
1. Edit the **resolv.conf** file on the local host and check whether the DNS server is configured. If you access Huawei Cloud over the Internet, set the DNS server to **8.8.8.8**.
2. Re-install the Agent.

Agent Installation Failed with Message "Incorrect IAM authentication information" Returned

Symptom:

The Agent installation failed, and the message "Incorrect IAM authentication information" was returned.

Figure 8-18 "Incorrect IAM authentication information" message



Possible cause:

Wrong AK and SK were entered during installation.

Solution:

1. Obtain the correct AK and SK and enter them again.
2. Re-install the Agent.

Agent Installation in Windows Failed with "OpenSCManager failed" Recorded in the Log

Symptom:

The Agent installation in Windows failed, and "OpenSCManager failed" was recorded in the log.

Possible cause:

The installation script is not run as administrator.

Solution:

Run the installation script as administrator to re-install the Agent.

Backup Failed After the Agent of a Windows Client Was Re-installed, and the Agent Status Was Displayed as Abnormal on the Console

Symptom:

After the Agent of a Windows backup client was uninstalled and then re-installed, backups failed and the Agent status was displayed as Abnormal on the console.

Possible causes:

- The Agent fails to send heartbeat messages, or the domain name is incorrect.
- Writes to the Agent's configuration file fail or encounter an error.

Solution:

Uninstall the Agent and then re-install it.

Windows Client Was Offline and Failed to Be Restarted

Symptom:

The Agent installation in Windows failed, and "OpenSCManager failed" was recorded in the log.

Possible cause:

There are a large number of .tmp files (generated due to log compression exceptions) in the log directory.

Solution:

1. Delete all log files in the log directory and uninstall the Agent.

2. Re-install the Agent.

9 (Optional) Migrating Resources from CSBS/VBS

Context

Huawei Cloud has launched the next-generation backup service, CBR. If you have backups in CSBS or VBS but want to switch to CBR to manage these historical backups, you can migrate them to CBR in a few clicks.

If you have never used CSBS or VBS, or do not need the historical backups anymore, skip this section.

Migration Rules

During migration, CBR will automatically create vaults based on the types of your historical resources.

Table 9-1 Migration rules

Before Migration	After Migration
Servers or disks are associated with a backup policy.	If backups have been generated, CBR will create a vault with the same name (up to 64 characters) as the policy name (regardless of whether the policy is enabled) and apply the policy to the vault after the vault is created.
	If no backup is generated, CBR will create a vault only when the policy is enabled. The policy applying rule and vault naming rule are the same as above.
Servers or disks are associated with a backup or replication policy.	If no backup is generated and the policy is disabled, only the policy will be migrated.
Backup or replication policies are not associated with any resource.	The policies will be migrated.

Before Migration	After Migration
Application-consistent backup is enabled.	CBR will create a database server backup vault and name the vault with the policy name.
Backup replicas are generated.	CBR will create a replication vault named **default** to store generated backup replicas.
An image is created using a backup and a tag is added to the image.	The backup will fail to be migrated. Go to the IMS console, delete the tag and then migrate the backup again. After the backup is migrated, add the tag if needed.

Other backups, including manual backups, will be stored in a server backup vault named **default**. Different vaults will be created based on different types of resources. For example, CBR will create a disk backup vault to store the migrated disk backups.

If backups are migrated from any of the following regions, all backups in these regions will be migrated: CN East-Shanghai1, CN North-Beijing4, CN South-Guangzhou, CN-Hong Kong, AP-Singapore, and AP-Bangkok. To migrate backups in a region not listed here, switch to that region and proceed with the migration.

After the migration, backups created using CBR will also be displayed on the VBS console, but you will be billed only once.

NOTE

To delete backups from the VBS console, find these backups in CBR and delete them. Then, the backups will also be deleted from the VBS console.

Base on the preceding rules, the capacity of each vault created by the system is predefined as 1.2 times of the total backup size.

For example, a user has a 100 GB ECS and a 50 GB ECS. The used storage capacity of the two ECSs is 20 GB and 10 GB, respectively. The user manually has backed up the two entire ECSs using cloud server backup. During migration, the capacity of the vault automatically created will be 1.2 times of the total backup size. In this example, the total backup size multiplied by 1.2 is 36 GB. So the system will automatically create a 36 GB vault.

Constraints

- By default, a system-created vault is billed on a pay-per-use basis. If you want to switch to yearly/monthly billing, refer to instructions in **Changing from Pay-per-Use to Yearly/Monthly**.
- After resources are migrated, VBS and CSBS will be unavailable. CBR uses new billing standards. For more information, see **CBR Pricing Details**.
- The vaults you have purchased cannot be used for migration. Resources will automatically migrated to system-created vaults.
- Backup resources of one account only need to be migrated once.
- After resources are migrated, disk backups and server backups will be automatically stored in CBR vaults. No further operations are required.

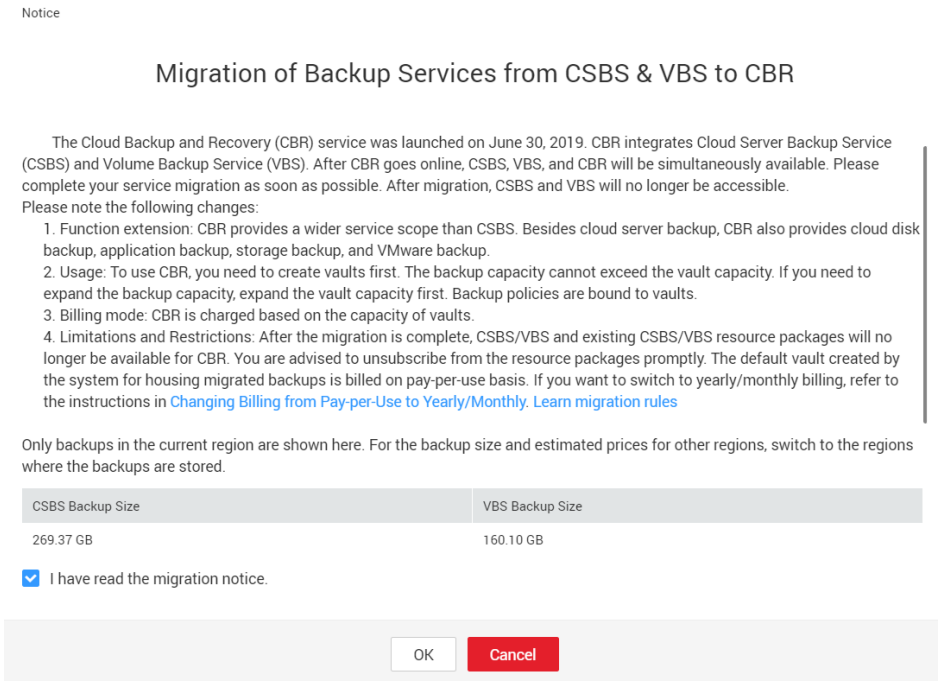
Procedure

Step 1 Log in to the CBR console.

1. **Log in to the management console**.
2. Click in the upper left corner and select a region.
3. Click and choose **Storage** > **Cloud Backup and Recovery**. Select a backup type from the left navigation pane.

Step 2 Click **Migrate to CBR** in the upper right corner. Read the content in the displayed dialog box and click **OK**. See **Figure 9-1**.

Figure 9-1 Migrating resources to CBR



Step 3 The system will automatically migrate resources. After the migration, a vault named **default** will be created and a message will be displayed in the upper part of the page indicating that the migration is successful.

----End

FAQ

1. Why Are CBR Backups Displayed on VBS Console?

   If you have migrated data from CSBS and VBS to CBR, and created a backup on the CBR console, the same backup record will be generated on VBS Console. This is due to an underlying mechanism. VBS Console displays all backups generated by CBR, CSBS, and VBS. These backups will not be billed repeatedly.

2. How Do I Delete Backups from VBS Console?

After you have migrated data from CSBS and VBS to CBR, backups displayed in the VBS console cannot be deleted alone. Find these backups in CBR and delete them. Then, the backups will also be deleted from the VBS console.

3. What Are the Differences Between CBR, CSBS, and VBS?

   CBR integrates CSBS and VBS. In addition, CBR supports SFS Turbo backup and hybrid cloud backup. The usage and billing of CBR are also different from CSBS and VBS.

4. What Can I Do If a Message Is Displayed Indicating that a Resource Has Been Bound with CSBS or VBS?

   Choose **Cloud Server Backup Service** or **Volume Backup Service** from the service list. On the corresponding service console, check whether there are resources bound with policies on the **Policies** tab. If so, unbind the resources from the policy and go to the CBR console to associate the resources with a vault.

10 Managing Tasks

You can view tasks in the task list, which shows policy-driven tasks that have been executed over the past 30 days.

Prerequisites

At least one task exists.

Procedure

Step 1 Log in to the CBR console.

1. Log in to the management console.
2. Click in the upper left corner and select a region.
3. Choose **Storage** > **Cloud Backup and Recovery** > **Tasks**.

Step 2 Filter tasks by enterprise project, task type, task status, task ID, resource ID, resource name, vault ID, vault name, and time.

Step 3 Click in front of the task to view the task details.

If a task fails, you can view the failure cause in the task details.

----End

11 Monitoring

11.1 CBR Metrics

Scenarios

This section describes metrics reported by CBR as well as their namespaces and dimensions. You can use the console or **APIs** provided by Cloud Eye to query the metrics generated for CBR.

Namespace

SYS.CBR

Metrics

Table 11-1 CBR metrics

Metric ID	Metric Name	Description	Value Range	Monitored Object	Monitoring Period (Raw Data)
used_vault_size	Used Vault Size	Used capacity of the vault Unit: GB	≥ 0	Vault	15 min
vault_util	Vault Usage	Capacity usage of the vault	0~100 %	Vault	15 min

Dimensions

Key	Value
instance_id	Vault name/ID

Viewing Monitoring Statistics

Step 1 Log in to the management console.

Step 2 View the monitoring graphs using either of the following methods.

- Method 1: Choose **Storage** > **Cloud Backup and Recovery**. In the vault list, locate the vault whose monitoring data you want to view and choose **More** > **View Monitoring Data** in the **Operation** column.
- Method 2: Choose **Management & Governance** > **Cloud Eye** > **Cloud Service Monitoring** > **Cloud Backup and Recovery**. In the vault list, click **View Metric** in the **Operation** column of the vault whose monitoring data you want to view.

Step 3 View the vault monitoring data by metric or monitored duration.

Figure 11-1 shows the monitoring graphs. For more information, see the *Cloud Eye User Guide*.

Figure 11-1 Vault monitoring graphs

----End

11.2 Creating an Alarm Rule

You can create alarm rules for CBR.

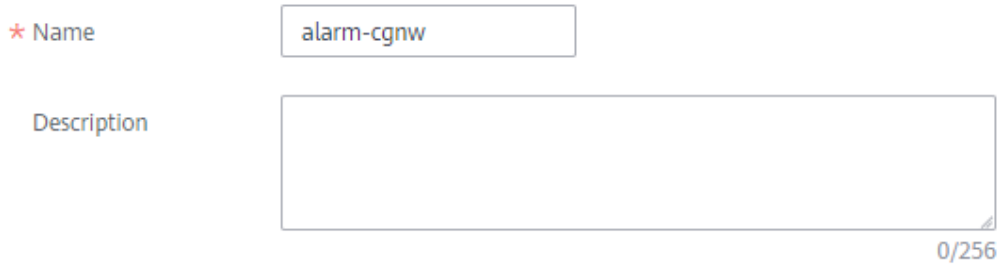
Hybrid cloud backup allows monitoring on vault capacity only. On-premises operations and events cannot be monitored.

Procedure

1. Log in to the management console.
2. Under **Management & Governance**, select **Cloud Eye**. In the navigation pane on the left, choose **Alarm Management** > **Alarm Rules**.

3. On the displayed page, click **Create Alarm Rule** in the upper right corner.
4. On the displayed **Create Alarm Rule** page, configure the parameters.
   a. Set **Name** and **Description**.

Figure 11-2 Configuring the alarm rule name and description



Parameters for configuring the rule name and description

Parameter	Description	Example Value
Name	Name of the alarm rule. The system generates a random name, which you can modify.	alarm-cgnw
Description	Alarm rule description. This parameter is optional.	-

   b. Configure alarm content parameters.

Figure 11-3 CBR vault-based alarm rule configuration

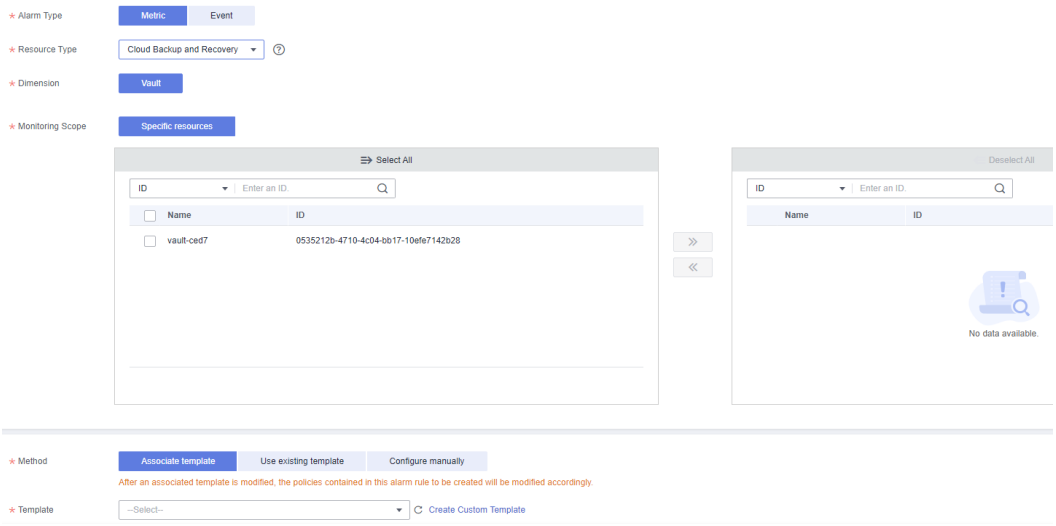
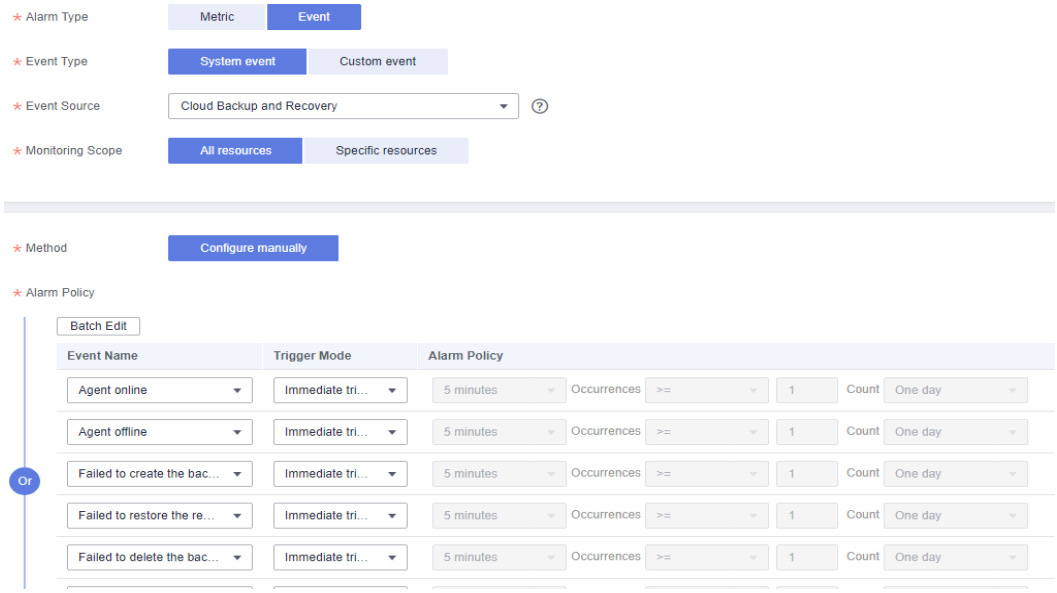


Figure 11-4 CBR event-based alarm rule configuration



c. Configure alarm notifications.

Figure 11-5 Configuring alarm notifications

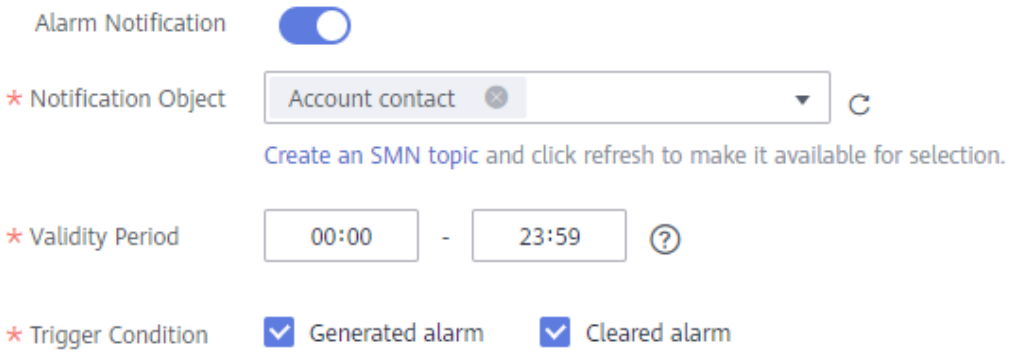


Table 11-2 Parameters for configuring alarm notifications

Parameter	Description	Example Value
Alarm Notification	Whether to notify users when alarms are triggered. Notifications can be sent by email or text message, or through HTTP/HTTPS request to servers. You can enable (recommended) or disable **Alarm Notification**.	-

Parameter	Description	Example Value
Notification Window	Cloud Eye sends notifications only within the notification window specified in the alarm rule. If **Notification Window** is set to **00:00-8:00**, Cloud Eye sends alarm notifications only within 00:00-8:00.	-
Notification Object	The name of the topic the alarm notification is to be sent to. If you enable alarm notification, you need to select a topic. If no desirable topics are available, create one and subscribe to it first. For details about how to create a topic, see the *Simple Message Notification User Guide*.	-
Trigger Condition	The condition for triggering the alarm notification. You can select **Generated alarm**, **Cleared alarm**, or both.	-

d. Click **Create**.

After the alarm rule is created, if the metric data reaches the specified threshold or a CBR event happens, Cloud Eye immediately informs you that an exception has occurred. For details, see the *Cloud Eye User Guide*.

12 Auditing

You can use Cloud Trace Service (CTS) to trace operations in CBR.

Prerequisites

CTS has been enabled.

Key Operations Recorded by CTS

Table 12-1 CBR operations that can be recorded by CTS

Operation	Resource Type	Trace Name
Creating a policy	policy	createPolicy
Updating a policy	policy	updatePolicy
Deleting a policy	policy	deletePolicy
Setting a vault policy	vault	associatePolicy
Removing a policy from a vault	vault	dissociatePolicy
Creating a vault	vault	createVault
Modifying a vault	vault	updateVault
Deleting a vault	vault	deleteVault
Removing resources	vault	removeResources
Adding resources	vault	addResources
Performing a replication	vault	replicateVaultBackup
Performing a backup	vault	createVaultBackup
Creating a backup	backup	createBackup
Deleting a backup	backup	deleteBackup

Operation	Resource Type	Trace Name
Synchronizing a backup	backup	syncBackup
Restoring a backup	backup	restoreBackup
Replicating a backup	backup	replicateBackup

Viewing Audit Logs

For how to view audit logs, see section "Querying Real-Time Traces" in the *Cloud Trace Service User Guide*.

Disabling or Enabling a Tracker

The following procedure illustrates how to disable an existing tracker on the CTS console. After the tracker is disabled, the system will stop recording operations, but you can still view existing operation records.

Step 1 Log in to the management console.

Step 2 In the upper left corner of the page, click and select a region.

Step 3 Click **Service List** and choose **Management & Governance** > **Cloud Trace Service**.

Step 4 Choose **Tracker List** in the left navigation pane.

Step 5 In the tracker list, click **Disable** in the **Operation** column.

Step 6 Click **Yes**.

Step 7 After the tracker is disabled, the available operation changes from **Disable** to **Enable**. To enable the tracker again, click **Enable** and then click **Yes**. The system will start recording operations again.

----End

13 Quotas

What Is Quota?

Quotas can limit the number or amount of resources available to users, such as the maximum number of ECSs or EVS disks that can be created.

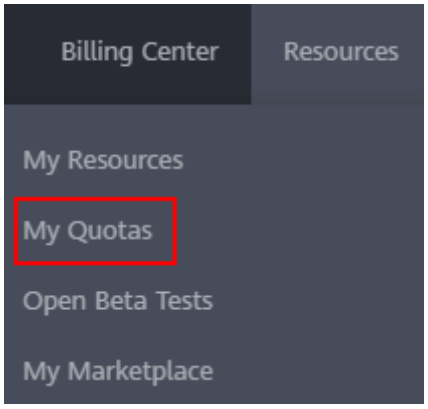
If the existing resource quota cannot meet your service requirements, you can apply for a higher quota.

How Do I View My Quotas?

1. Log in to the management console.
2. Click in the upper left corner and select the desired region and project.
3. In the upper right corner of the page, choose **Resources** > **My Quotas**.

   The **Service Quota** page is displayed.

   Figure 13-1 My Quotas

4. View the used and total quota of each type of resources on the displayed page.

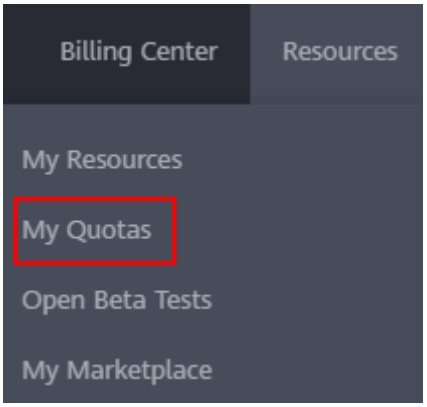
   If a quota cannot meet service requirements, apply for a higher quota.

How Do I Apply for a Higher Quota?

1. Log in to the management console.

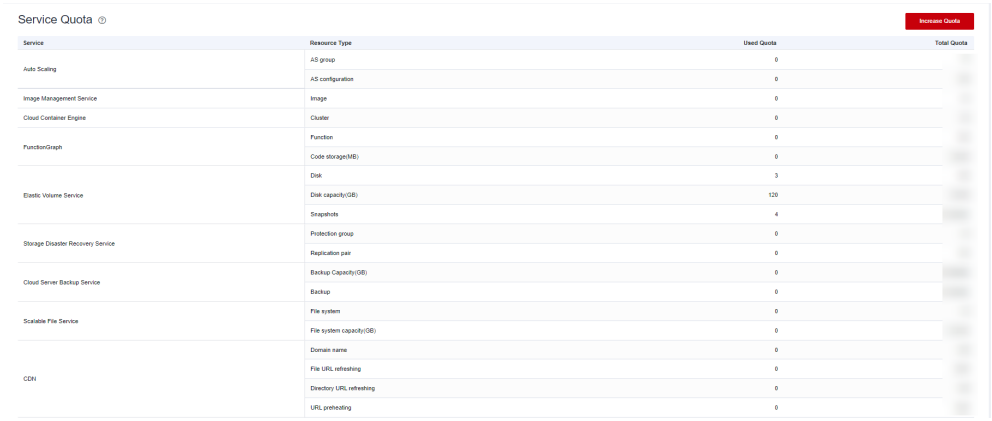
2. In the upper right corner of the page, choose **Resources** > **My Quotas**.
   The **Service Quota** page is displayed.

   Figure 13-2 My Quotas



3. Click **Increase Quota** in the upper right corner of the page.

   Figure 13-3 Increasing quota



4. On the **Create Service Ticket** page, configure parameters as required.
   In the **Problem Description** area, fill in the content and reason for adjustment.
5. After all necessary parameters are configured, select **I have read and agree to the Ticket Service Protocol and Privacy Statement** and click **Submit**.

A Appendix

A.1 Agent Security Maintenance

A.1.1 Changing the Password of User rdadmin

Scenarios

- To improve O&M security, you are advised to change the user **rdadmin**'s password of the client OS regularly and disable this user's remote login permission.
- In Linux, user **rdadmin** does not have a password.
- This section describes how to change the password of user **rdadmin** in Windows Server 2012. Change the password according to actual situation in other versions.

Prerequisites

- The username and password for logging in to the console have been obtained.
- The username and password for logging in to a Windows ECS have been obtained.

Procedure

Step 1 Go to the ECS console and log in to the Windows ECS.

Step 2 Choose **Start** > **Control Panel**. In the **Control Panel** window, click **User Accounts**.

Step 3 On the displayed **User Account Control** dialog box, select **rdadmin** and click **Reset Password**.

Step 4 Enter the new password and click **OK**.

Step 5 In **Task Manager**, click the **Services** tab and then click **Open Service**.

Step 6 Select RdMonitor and RdNginx respectively. In the displayed dialog box, select **Login**, change the password to the one entered in **Step 4**, and click **OK**.

----End

A.1.2 Changing the Password of the Account for Reporting Alarms (SNMP v3)

To enhance the system O&M security, you are advised to change the password of the account for reporting alarms.

Prerequisites

- The username and password for logging in to the console have been obtained.
- The username and password for logging in to a server have been obtained.

Context

This section introduces the procedures in Windows and Linux.

NOTICE

There may be security risks if you use the same password for SNMP v3 authentication and data encryption. To ensure system security, you are advised to set different passwords for SNMP v3 authentication and data encryption.

Obtain the initial authentication password from technical support.

NOTE

The password must meet the following complexity requirements:

- Contains 8 to 16 characters.
- Contains at least one of the following special characters: `~!@#$%^&*()-_=+\|[{}];:'",<.>/?
- Contains at least two of the following types of characters:
  - Uppercase letters
  - Lowercase letters
  - Numeric characters
- Cannot be the same as the username or the username in reverse order.
- Cannot be the same as the old passwords.
- Cannot contain spaces.

Procedure (Windows)

Step 1 Log in to the server where the Agent is installed.

Step 2 Open the CLI and go to the *Installation path***bin** directory.

Step 3 Run the **agentcli.exe chgsnmp** command, enter the server login password, and press **Enter**.


```
Please choose operation:
1: Change authentication password
2: Change private password
3: Change authentication protocol
4: Change private protocol
5: Change security name
6: Change security Level
7: Change security model
8: Change context engine ID
9: Change context name
Other: Quit
Please choose:
```

NOTE

admin is the username configured during the Agent installation.

Step 4 Select the SN of the authentication password or data encryption password that you want to change and press **Enter**.

Step 5 Type the old password and press **Enter**.

Step 6 Type a new password and press **Enter**.

Step 7 Type the new password again and press **Enter**.

The password is changed.

----End

Procedure (Linux)

Step 1 Log in to the Linux server using the server password.

Step 2 Run the **TMOUT=0** command to prevent PuTTY from exiting due to session timeout.

NOTE

After you run the preceding command, the system continues to run even when no operation is performed, which brings security risks. To ensure system security, run the **exit** command to exit the system after you finish the operations.

Step 3 Run the **su - rdadmin** command to switch to user **rdadmin**.

Step 4 Run the **/home/rdadmin/Agent/bin/agentcli chgsnmp** command, enter the server login password, and press **Enter**.

NOTE

The installation path of the Agent is **/home/rdadmin/Agent**.

```
Please choose operation:
1: Change authentication password
2: Change private password
3: Change authentication protocol
4: Change private protocol
5: Change security name
6: Change security Level
7: Change security model
8: Change context engine ID
9: Change context name
Other: Quit
Please choose:
```


Step 5 Select the SN of the authentication password or data encryption password that you want to change and press **Enter**.

Step 6 Type the old password and press **Enter**.

Step 7 Type a new password and press **Enter**.

Step 8 Type the new password again and press **Enter**.

The password is changed.

----End

A.1.3 Replacing the Server Certificate

For security purposes, you may want to use a Secure Socket Layer (SSL) certificate issued by a third-party certification authority. The Agent allows you to replace authentication certificates and private key files as long as you provide the authentication certificates and private-public key pairs. The update to the certificate can take effect only after the Agent is restarted, hence you are advised to update the certificate during off-peak hours.

Prerequisites

- The username and password for logging in to the console have been obtained.
- The username and password for logging in to a server have been obtained.
- New certificates in the X.509v3 format have been obtained.

Context

- The Agent is pre-deployed with the Agent CA certificate **bcmagentca**, private key file of the CA certificate **server.key** (), and authentication certificate **server.crt**. All these files are saved in **/home/rdadmin/Agent/bin/nginx/conf** (if you use Linux) or **\bin\nginx\conf** (if you use Windows).
- You need to restart the Agent after replacing a certificate to make the certificate effective.

Procedure (Linux)

Step 1 Log in the Linux server with the Agent installed.

Step 2 Run the **TMOUT=0** command to prevent PuTTY from exiting due to session timeout.

NOTE

After you run the preceding command, the system continues to run even when no operation is performed, which brings security risks. To ensure system security, run the **exit** command to exit the system after you finish the operations.

Step 3 Run the **su - rdadmin** command to switch to user **rdadmin**.

Step 4 Run the **cd /home/rdadmin/Agent/bin** command to go to the script path.

NOTE

The installation path of the Agent is **/home/rdadmin/Agent**.

Step 5 Run the **sh agent_stop.sh** command to stop the Agent running.

Step 6 Place the new certificates and private key files in the specified directory.

NOTE

Place new certificates in the **/home/rdadmin/Agent/bin/nginx/conf** directory.

Step 7 Run the **/home/rdadmin/Agent/bin/agentcli chgkey** command.

The following information is displayed:

```
Enter password of admin:
```

NOTE

admin is the username configured during the Agent installation.

Step 8 Type the login password of the Agent and press **Enter**.

The following information is displayed:

```
Change certificate file name:
```

Step 9 Enter a name for the new certificate and press **Enter**.

NOTE

If the private key and the certificate are the same file, names of the private key and the certificate are identical.

The following information is displayed:

```
Change certificate key file name:
```

Step 10 Enter a name for the new private key file and press **Enter**.

The following information is displayed:

```
Enter new password:
Enter the new password again:
```

Step 11 Enter the protection password of the private key file twice. The certificate is then successfully replaced.

Step 12 Run the **sh agent_start.sh** command to start the Agent.

----End

Procedure (Windows)

Step 1 Log in to the Windows server with the Agent installed.

Step 2 Open the CLI and go to the *Installation path***bin** directory.

Step 3 Run the **agent_stop.bat** command to stop the Agent running.

Step 4 Place the new certificates and private key files in the specified directory.

NOTE

Place new certificates in the *installation path***bin\nginx\conf** directory.

Step 5 Run the **agentcli.exe chgkey** command.

The following information is displayed:


```
Enter password of admin:
```

NOTE

admin is the username configured during the Agent installation.

Step 6 Enter a name for the new certificate and press **Enter**.

NOTE

If the private key and the certificate are the same file, names of the private key and the certificate are identical.

The following information is displayed:

```
Change certificate key file name:
```

Step 7 Enter a name for the new private key file and press **Enter**.

The following information is displayed:

```
Enter new password:
Enter the new password again:
```

Step 8 Enter the protection password of the private key file twice. The certificate is then successfully replaced.

Step 9 Run the **agent_start.bat** command to start the Agent.

----End

A.1.4 Replacing CA Certificates

Scenarios

A CA certificate is a digital file signed and issued by an authentication authority. It contains the public key, information about the owner of the public key, information about the issuer, validity period, and certain extension information. It is used to set up a secure information transfer channel between the Agent and the server.

If the CA certificate does not comply with the security requirements or has expired, replace it for security purposes.

Prerequisites

- The username and password for logging in to an ECS have been obtained.
- A new CA certificate is ready.

Procedure (Linux)

Step 1 Log in the Linux server with the Agent installed.

Step 2 Run the following command to prevent logout due to system timeout:

TMOUT=0

Step 3 Run the following command to switch to user **rdadmin**:

su - rdadmin

Step 4 Run the following command to go to the path to the Agent start/stop script:

cd /home/rdadmin/Agent/bin

Step 5 Run the following command to stop the Agent running:

sh agent_stop.sh

Step 6 Run the following command to go to the path to the CA certificate:

cd /home/rdadmin/Agent/bin/nginx/conf

Step 7 Run the following command to delete the existing CA certificate:

rm bcmagentca.crt

Step 8 Copy the new CA certificate file into the **/home/rdadmin/Agent/bin/nginx/conf** directory and rename the file **bcmagentca.crt**.

Step 9 Run the following command to change the owner of the CA certificate:

chown rdadmin:rdadmin bcmagentca.crt

Step 10 Run the following command to modify the permissions on the CA certificate:

chmod 400 bcmagentca.crt

Step 11 Run the following command to go to the path to the Agent start/stop script:

cd /home/rdadmin/Agent/bin

Step 12 Run the following command to start the Agent:

sh agent_start.sh

----End

Procedure (Windows)

Step 1 Log in to the ECS with the Agent installed.

Step 2 Go to the *Installation path***bin** directory.

Step 3 Run the **agent_stop.bat** script to stop the Agent.

Step 4 Go to the *Installation path***nginx\conf** directory.

Step 5 Delete the **bcmagentca.crt** certificate file.

Step 6 Copy the new CA certificate file into the *Installation path***nginx\conf** directory and rename the file **bcmagentca.crt**.

Step 7 Go to the *Installation path***bin** directory.

Step 8 Run the **agent_start.bat** script to start the Agent.

----End

A.2 Change History

Released On	Description
2023-09-01	This issue is the eighth official release. Updated the following content: Optimized some descriptions in "Billing."
2022-11-21	This issue is the seventh official release. Updated the following content: Added a constraint on file backup.
2022-07-20	This issue is the sixth official release. Updated the following content: Added support for file backup.
2021-10-27	This issue is the fifth official release. Updated the following content: Added the content of permissions management.
2020-04-08	This issue is the fourth official release. Updated the following content: Added the content of file system backup.
2020-02-25	This issue is the third official release. Updated the following content: Moved section "Hybrid Cloud Backup" into a new documentation titled *Hybrid Cloud Backup Feature Guide*.
2019-08-27	This issue is the second official release. Updated the following content: • Deleted description about cross-region replication and BMS backup.
2019-07-31	This issue is the first official release.

