Scalable File Service

FAQs

Issue 02

Date 2020-01-09



HUAWEI TECHNOLOGIES CO., LTD.

Copyright © Huawei Technologies Co., Ltd. 2021. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions


and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.
All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Contents

1 Concepts 1
1.1 What Is SFS? 1
1.2 What Is SFS Turbo? 1
1.3 What Are the Differences Between SFS, OBS, and EVS? 2
2 Specifications 4
2.1 What Is the Maximum Size of a File That Can Be Stored in a File System? 4
2.2 What Access Protocols Are Supported by SFS? 4
2.3 How Many File Systems Can Be Created by Each Account? 4
2.4 How Many ECSs Can a File System Be Mounted To? 4
3 Restrictions 5
3.1 Can the Capacity of a File System Be Expanded? 5
3.2 Can I Migrate My File System Data to Another Region? 5
3.3 Can a File System Be Mounted to Multiple Accounts? 5
4 Networks 6
4.1 Can a File System Be Accessed Across VPCs? 6
4.2 Does SFS Support Cross-Region Mounting? 6
4.3 Does the Security Group of a VPC Affect SFS? 6
4.4 What Can I Do If the Data of the File System That Is Mounted to Two Servers Is Not Synchronized? 8
5 Billing 9
5.1 How Do I Purchase SFS? 9
5.2 How Do I Renew the Service? 11
5.3 How Do I Check Whether the Subscriber Is in Arrears? 11
5.4 Can I Purchase SFS Capacity-Oriented Resource Packages When I Still Have Valid Ones in Use? 12
5.5 How Do I Check the Usage of an SFS Capacity-Oriented Resource Package? 12
5.6 How Do I Adjust the Size of an SFS Capacity-Oriented Resource Package? 14
5.7 Do SFS Capacity-Oriented and SFS Turbo Share One Resource Package? 14
6 Others 15
6.1 How Do I Access a File System from an ECS? 15
6.2 How Do I Check Whether a File System on an ECS Running Linux Is Available? 15
6.3 What Resources Does SFS Occupy? 15

 Copyright © Huawei Technologies Co., Ltd.

6.4 Why Is the Capacity Displayed as 10P After the File System Is Mounted?..... 16
6.5 How Can I Migrate Data Between SFS and OBS?..... 16
6.6 Can a File System Be Accessed Across Multiple AZs?..... 17
6.7 Can I Upgrade an SFS Capacity-Oriented File System to an SFS Turbo File System?..... 17
6.8 Can I Upgrade an SFS Turbo File System from Standard to Standard-Enhanced?..... 18
6.9 How Can I Migrate Data Between SFS and EVS?..... 18
6.10 Can I Directly Access SFS from On-premises Devices?..... 18
6.11 How Do I Delete .nfs Files?..... 18

 Copyright © Huawei Technologies Co., Ltd.

1 Concepts

1.1 What Is SFS?

Scalable File Service (SFS) provides high-performance file storage that can be expanded and shrunk on demand. With SFS, you can enjoy shared file access spanning multiple ECSs. SFS supports the Network File System (NFS) protocol. You can seamlessly integrate existing applications and tools with the service.

SFS provides an easy-to-use graphical user interface (GUI). On the GUI, users can create and configure file systems, saving effort in deploying, resizing, and optimizing file systems.

In addition, SFS features high reliability and availability. It can be elastically expanded, and it performs better as its capacity grows. The service is suitable for a wide range of scenarios, including media processing, file sharing, content management and web services, big data, and analytic applications.

1.2 What Is SFS Turbo?

SFS Turbo enables high-performance file storage that can be expanded and shrunk on demand. It provides file sharing services for Elastic Cloud Servers (ECSs). SFS Turbo supports the Network File System (NFS) protocol (only NFSv3). You can seamlessly integrate existing applications and tools with the service.

SFS Turbo provides an easy-to-use graphical user interface (GUI). On the GUI, users can create and configure file systems, saving effort in deploying, resizing, and optimizing file systems.

In addition, SFS Turbo features high reliability and availability. It can be elastically expanded, and it performs better as its capacity grows. The service is suitable for a wide range of scenarios, including enterprise office, high-performance websites, and software development. For details about the file system types, see **File System Types**.

 Copyright © Huawei Technologies Co., Ltd.

1.3 What Are the Differences Between SFS, OBS, and EVS?

Table 1-1 shows the comparison between SFS, OBS, and EVS.

Table 1-1 Comparison between SFS, OBS, and EVS

Dimension	SFS	OBS	EVS
Concept	SFS provides on-demand high-performance file storage, which can be shared by multiple ECSs. SFS is similar to a remote directory for Windows or Linux OSs.	OBS provides massive, secure, reliable, and cost-effective data storage for users to store data of any type and size.	EVS provides scalable block storage that features high reliability and high performance to meet various service requirements. An EVS disk is similar to a hard disk on a PC.
Data storage logic	Stores files. Data is sorted and displayed in files and folders.	Stores objects. Files can be stored directly to OBS. The files automatically generate corresponding system metadata. You can also customize the metadata if needed.	Stores binary data and cannot directly store files. To store files, you need to format the file system first.
Access method	SFS file systems can be accessed only after being mounted to ECSs or BMSs through NFS or CIFS. A network address must be specified or mapped to a local directory for access.	OBS buckets can be accessed through the Internet or Direct Connect. The bucket address must be specified for access, and transmission protocols HTTP and HTTPS are used.	EVS disks can be used and accessed from applications only after being attached to ECSs or BMSs and initialized.
Application Scenario	Gene sequencing, image rendering, media processing, file sharing, content management, and web services	Big data analysis, static website hosting, online video on demand (VoD), gene sequencing, and intelligent video surveillance	Industrial design, energy exploration, critical clustered applications, enterprise application systems, and development and testing

Copyright © Huawei Technologies Co., Ltd.

Dimension	SFS	OBS	EVS
Capacity	PB-scale	EB-scale	TB-scale
Latency	3–10 ms	10 ms	Sub-millisecond level
IOPS/TPS	10,000 for a single file system	Tens of millions	128,000 for a single disk
Bandwidth	GB/s	TB/s	MB/s
Data sharing	Supported	Supported	Supported
Remote access	Supported	Supported	Not supported
Online editing	Supported	Not supported	Supported
Used independently	Supported	Supported	Not supported

 Copyright © Huawei Technologies Co., Ltd.

2 Specifications

2.1 What Is the Maximum Size of a File That Can Be Stored in a File System?

For SFS Capacity-Oriented file systems, the maximum supported size of a file is 240 TB.

For SFS Turbo file systems, the maximum supported size of a file is 16 TB.

2.2 What Access Protocols Are Supported by SFS?

SFS Capacity-Oriented supports standard NFSv3 and CIFS protocols. SFS Turbo supports standard NFSv3 protocol.

2.3 How Many File Systems Can Be Created by Each Account?

Currently, a maximum of 10 SFS Capacity-Oriented file systems and 10 SFS Turbo file systems can be created by each cloud account.

- SFS Capacity-Oriented file systems can be created in batches. To create more than 10 SFS Capacity-Oriented file systems, click **Increase quota** on the page for creating a file system.
- Only one SFS Turbo file system can be created at a time. To create more than 10 SFS Turbo file systems, click **here** to submit a service ticket to increase the quota.

2.4 How Many ECSs Can a File System Be Mounted To?

You can mount an SFS Capacity-Oriented file system to a maximum of 10,000 ECSs.

You can mount an SFS Turbo file system to a maximum of 500 ECSs.

 Copyright © Huawei Technologies Co., Ltd.

3 Restrictions

3.1 Can the Capacity of a File System Be Expanded?

SFS Capacity-Oriented file systems: support online capacity resizing. For details, see **File System Resizing**.

SFS Turbo file systems: support online capacity expansion. During the capacity expansion, the file system will be unavailable for two to three minutes. Online capacity expansion may not be available for some instances of earlier versions. If capacity expansion is required, click **here** to submit a service ticket.

3.2 Can I Migrate My File System Data to Another Region?

Cross-region migration of file system data is currently not supported. It is recommended that you select an appropriate region when purchasing a file system. Alternatively, you can copy the data to a local device and transfer it to another region. If you are using SFS Turbo file systems, you can back up your file system data and replicate the backups to another region using the CBR service. Then, create new SFS Turbo file systems from the backups. This way, your file system data has been migrated to another region.

3.3 Can a File System Be Mounted to Multiple Accounts?

Cross-account mounting is available in the CN North-Beijing4 region. For details, see **Configuring Cross-Account Access**.

 Copyright © Huawei Technologies Co., Ltd.

4 Networks

4.1 Can a File System Be Accessed Across VPCs?

Yes.

- Multiple VPCs can be configured for an SFS Capacity-Oriented file system so that ECSs in different VPCs can share the same file system, as long as the VPCs that the ECSs belong to are added to the VPC list of the file system or the ECS IP addresses are added as authorized IP addresses of the VPCs. For details, see **Configuring VPCs**.
- An SFS Turbo file system allows two or more VPCs in the same region to interconnect with each other through VPC peering connection. In this case, different VPCs are in the same network, and ECSs in these VPCs can share the same file system. For details about VPC peering connection, see **VPC Peering Connection**.

4.2 Does SFS Support Cross-Region Mounting?

Currently, SFS does not support cross-region mounting. A file system can be mounted only to ECSs in the same region.

For example, the file systems in CN North-Beijing4 can be mounted to the ECSs in CN North-Beijing4 only.

4.3 Does the Security Group of a VPC Affect SFS?

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. Users can also create custom security groups by themselves.

 Copyright © Huawei Technologies Co., Ltd.

After an SFS Turbo file system is created, the system automatically enables the security group port required by the NFS protocol in the SFS Turbo file system. This ensures that the SFS Turbo file system can be accessed by your ECS and prevents file system mounting failures. The inbound ports required by the NFS protocol are ports 111, 2049, 2051, 2052, and 20048. If you need to change the enabled ports, choose **Access Control** > **Security Groups** of the VPC console and locate the target security group.

You are advised to use an independent security group for an SFS Turbo instance to isolate it from service nodes.

You need to add inbound and outbound rules for the security group of an SFS Capacity-Oriented file system. For details, see **Adding a Security Group Rule**. In an SFS Capacity-Oriented file system, the inbound ports required by the NFS protocol are ports 111, 2049, 2051, and 2052. The inbound port required by the DNS server is port 53 and that required by the CIFS protocol is port 445.

Example Value

- Inbound rule

Direction	Protocol	Port Range	Source IP Address		Description
Inbound	TCP and UDP	111	IP Address	0.0.0.0/0 (configurable)	One port corresponds to one access rule. You need to add information to the ports one by one.

- Outbound rule

Direction	Protocol	Port Range	Source IP Address		Description
Outbound	TCP and UDP	111	IP Address	0.0.0.0/0 (configurable)	One port corresponds to one access rule. You need to add information to the ports one by one.

NOTE

The bidirectional access rule must be configured for port **111**. The inbound rule can be set to the front-end service IP range of SFS. You can obtain it by running the following command: **ping** *File system domain name or IP address* or **dig** *File system domain name or IP address*.

For ports **445**, **2049**, **2050**, **2051**, and **2052**, only the outbound rule needs to be added, which is the same as the outbound rule of port **111**.

 Copyright © Huawei Technologies Co., Ltd.

4.4 What Can I Do If the Data of the File System That Is Mounted to Two Servers Is Not Synchronized?

Symptom

When file system C is mounted to both server A and server B, there is a delay in synchronizing the file to server B after it is uploaded to server A. However, there is no delay when the file is uploaded to server B separately.

Fault Diagnosis

Add **noac** to the mount parameters of the two servers. **noac** indicates that cache is disabled and synchronous write is forcibly performed. To improve performance, the NFS client caches file properties (the default value is **ac**), and then checks the file properties periodically and updates them if the properties are changed. Within the cache validity period, the client does not check whether the file properties on the server are changed. The default value is **ac**. Set this parameter to **noac**.

Solution

Step 1 If the file system has been mounted, unmount it by referring to **Unmounting a File System**.

Step 2 Prepare for the mount by referring to **Mounting an NFS File System to ECSs**

Step 3 Run the following command to mount the file system:

```
mount -t nfs -o vers=3,timeo=600,noac,noresvport,nolock Shared path Local path
```

----End

Copyright © Huawei Technologies Co., Ltd.

5 Billing

5.1 How Do I Purchase SFS?

By default, SFS is billed in pay-per-use mode. That is, the service is billed by the storage capacity you select during purchase and the duration of use. You can purchase a yearly or monthly package based on your resource usage and duration plan. In case of arrears, you need to renew the service within 15 days. Otherwise, your file system resources will be cleaned up.

NOTE

The size of a resource package is irrelevant to the computing throughput of the file system.

Pay-per-use

Step 1 Register an account.

1. Visit the HUAWEI CLOUD website at **www.huaweicloud.com/en-us/**.
2. In the upper right corner of the page, click **Register**.
3. Complete the registration as instructed.

Step 2 Top up your account.

1. Log in to the management console.
2. Click **Top Up** and the top-up page is displayed.
3. Top up the account as prompted.
4. After the top-up is complete, close the dialog box and go back to the management console homepage.

Step 3 Use SFS.

1. Choose **Storage** > **Scalable File Service** to go to SFS Console.
2. Click **Create File System**. Select the pay-per-use billing mode for the SFS Turbo file system. You do not need to select a billing mode for the SFS Capacity-Oriented file system. The resource use starts once the file system is created.

 Copyright © Huawei Technologies Co., Ltd.

NOTE

- The SFS Capacity-Oriented file system is billed by the used storage capacity and duration of use.
- The SFS Turbo file system is billed by the storage capacity you select during purchase and the duration of use.

----End

Yearly/Monthly Subscription

You can purchase the resource package of an SFS Capacity-Oriented file system by clicking **Buy Storage Package**. Resource packages cannot be used across regions. Check your region before purchasing a resource package.

For an SFS Turbo file system, you can purchase a resource package when creating the file system and change the billing mode from pay-per-use to yearly/monthly.

Procedure for SFS Capacity-Oriented

Step 1 Purchase resource packages.

1. On SFS Console, click **Buy Storage Package**.
2. On the page that is displayed, set the parameters as instructed.

   You can click **Product Pricing Details** to view the detailed prices.
3. Click **Next**.
4. Confirm the order information and click **Submit**.

   If the order information is incorrect, click **Previous** to modify it and then continue purchasing.
5. Complete the payment as instructed.
6. Return to SFS Console to use SFS.

   The purchased SFS resource packages cannot be viewed on SFS Console. For details about how to view the resource packages, see **How Do I Check the Usage of a Resource Package?**

NOTE

The SFS Capacity-Oriented resource package takes effect immediately after being purchased. If the capacity of the resource package is greater than the file system usage, the pay-per-use billing mode stops immediately. The capacity of the resource packages is preferentially used when you use the file systems.

SFS resource packages cannot be expanded, but can be purchased multiple times. For details, see **Can I Purchase SFS Capacity-Oriented Resource Packages When I Still Have Valid Ones in Use?**

For example, if a user purchases a 1 TB SFS Capacity-Oriented resource package for one year and creates a 500 GB SFS Capacity-Oriented file system (file system A) on SFS Console, the used capacity of the resource package is 500 GB. For details about how to view the usage of the resource package, see **How Do I Check the Usage of a Resource Package?** One month later, the user creates another 600 GB SFS Capacity-Oriented file system (file system B). Now the purchased 1 TB capacity is used up, and 100 GB beyond the capacity is billed in pay-per-use mode. If you do not want to be billed in pay-per-use mode, you can purchase more resource packages. For details, see **Yearly/Monthly Subscription**.

Step 2 Use SFS.

 Copyright © Huawei Technologies Co., Ltd.

1. Choose **Storage** > **Scalable File Service** to go to SFS Console.
2. Click **Create File System** to start using resources.

----End

Procedure for SFS Turbo

Method 1: Purchase a yearly/monthly file system. Create a file system by following the instructions in **Creating a File System** and set the billing mode to **Yearly/Monthly**.

Method 2: In the **Operation** column of the pay-per-use file system, click **Change to Yearly/Monthly** to change the billing mode to yearly/monthly.

5.2 How Do I Renew the Service?

If the arrears are not paid in time, your account may be frozen and your order may be canceled.

Procedure

Step 1 Log in to the management console.

Step 2 In the upper right corner of the page, choose **Billing** > **Renewals**. The renewal management page is displayed.

Step 3 On the **Renewals** page, click **Renew** in the **Operation** column for the desired resource.

Step 4 Pay for the order as prompted.

NOTE

- After the payment, the system automatically pays the arrears.
- For more information about renewal, including auto-renewal, exporting the renewal list, and changing subscriptions, see **Renewal Management**.
- For more information about orders, unsubscription, coupons, and consumption details, see the **Billing Center User Guide**.

----End

5.3 How Do I Check Whether the Subscriber Is in Arrears?

You can view the outstanding amount on the **Billing Center** page. If your account is in arrears, the system processes resources and fees in SFS according to the retention period rules. For more information, see **Grace Period and Retention Period**. To prevent service suspension and resource release, repay arrears or top up in time.

Procedure

Step 1 Log in to the management console.

 Copyright © Huawei Technologies Co., Ltd.

Step 2 Click **Billing** in the upper right corner of the page to switch to the **Billing Center** page.

Step 3 On the **Overview** page, you can view the outstanding amount of the current account.

Step 4 Top up your account to pay arrears if any.

----End

NOTE

- For details about how to repay the outstanding amount, see **Repaying Arrears**.
- For more information about orders, unsubscription, coupons, and consumption details, see the **Billing Center User Guide**.

5.4 Can I Purchase SFS Capacity-Oriented Resource Packages When I Still Have Valid Ones in Use?

You can still purchase resource packages on top of the valid packages. The capacity of the resource package purchased first is used up first.

For example: A subscriber has file data of 1.2 TB. The subscriber purchases the resource package A with the capacity of 1 TB on August 15 and the resource package B with the capacity of 1 TB on August 20. Then, from August 20 to September 15, the capacity of the resource package A (1 TB) is used up, and the capacity used in the resource package B is 0.2 TB. The resource package A expires on September 15. If the resource package A is not renewed, the capacity of the resource package B (1 TB) is used up from September 15 to September 20.

5.5 How Do I Check the Usage of an SFS Capacity-Oriented Resource Package?

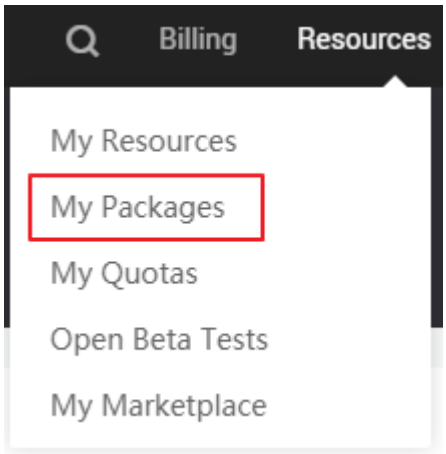
Procedure

Step 1 Log in to SFS Console.

Step 2 Choose **Resources** > **My Packages** in the upper right corner. See **Figure 5-1**.

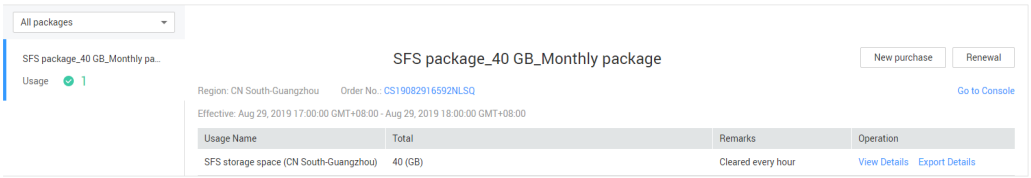
Copyright © Huawei Technologies Co., Ltd.

Figure 5-1 Selecting My Packages



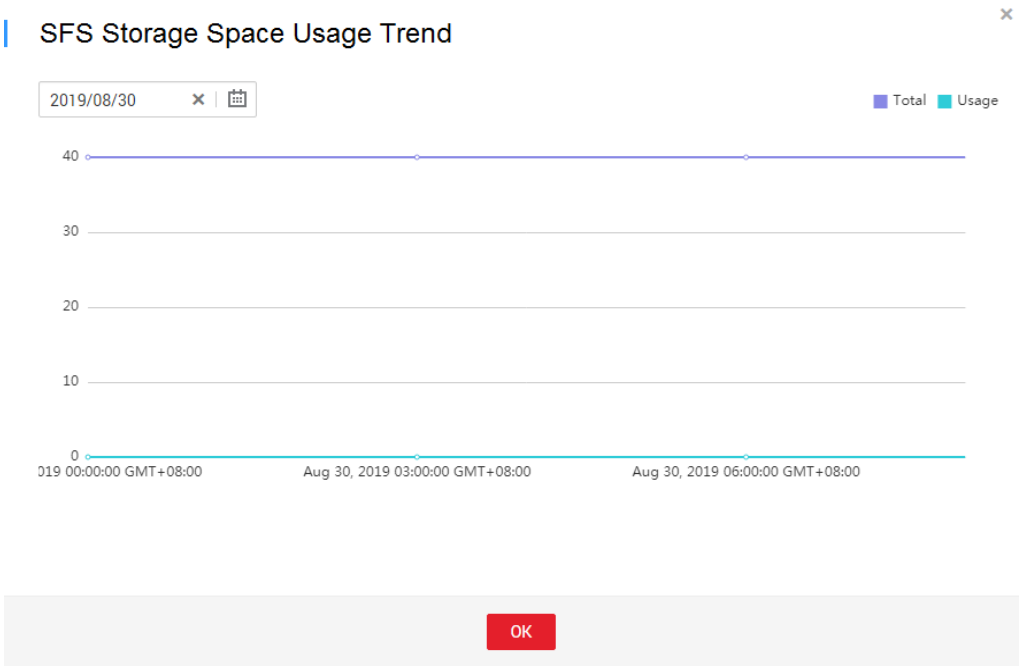
Step 3 Information of the purchased resource packages is displayed in the list. Click the target resource package. Then click **View Details** in the **Operation** column to view the usage of the resource package. See **Figure 5-2**.

Figure 5-2 Viewing resource package usage



Step 4 View the resource package usage. See **Figure 5-3**.

Figure 5-3 Usage of a resource package



----End

 Copyright © Huawei Technologies Co., Ltd.

5.6 How Do I Adjust the Size of an SFS Capacity-Oriented Resource Package?

If your package capacity is not enough, purchase a new package. The capacity in the old package is preferentially used.

The capacity of a purchased resource package cannot be decreased, so if your package capacity is too much for you, unsubscribe from the package and then purchase a smaller one.

Alternatively, you can use the package until it expires and then purchase a smaller one.

5.7 Do SFS Capacity-Oriented and SFS Turbo Share One Resource Package?

No. You need to purchase and use SFS and SFS Turbo resource packages separately.

 Copyright © Huawei Technologies Co., Ltd.

6 Others

6.1 How Do I Access a File System from an ECS?

To access your file system, install the NFS client on an ECS running Linux and then mount the file system using the **mount** command. For an ECS running Windows, install the NFS client on the ECS, modify the NFS transfer protocol, and then mount the file system by running the **mount** command. Alternatively, directly enter the mount point of the CIFS file system as an authorized user to mount the CIFS file system. Then, you can share the files and directories of the file system.

6.2 How Do I Check Whether a File System on an ECS Running Linux Is Available?

Log in to the ECS as the **root** user. Run the following command, and the command output displays all available file systems with the same domain name or IP address.

showmount -e *File system domain name or IP address*

6.3 What Resources Does SFS Occupy?

To ensure that file systems can be used properly, the service occupies the following resources:

- For SFS Capacity-Oriented file systems:
  - When a file system is created, the inbound rules of ports 111, 445, 2049, 2051, and 2052 are enabled in the security group entered by the user. The default source IP address is 0.0.0.0/0. You can change the IP address as required.
  - If an encrypted SFS Capacity-Oriented file system is created, the KMS key entered by the user is used for encryption. Note that if the key is deleted, data in the file system cannot be used.
- For SFS Turbo file systems:

 Copyright © Huawei Technologies Co., Ltd.

- When an SFS Turbo file system is created, two private IP addresses and one virtual IP address are created in the subnet entered by the user.
- When an SFS Turbo file system is created, the inbound rules of ports 111, 445, 2049, 2051, 2052, and 20048 are enabled in the security group entered by the user. The default source IP address is 0.0.0.0/0. You can change the IP address as required.
- If an encrypted SFS Turbo file system is created, the KMS key entered by the user is used for encryption. Note that if the key is deleted, data in the file system cannot be used.

When data is written to the folders of a file system, the running memory of the server is occupied, but the storage space of the server disk is not occupied. The file system uses independent space.

6.4 Why Is the Capacity Displayed as 10P After the File System Is Mounted?

The size of an existing file system configured with automatic capacity expansion is unlimited. When you run the **df -h** command on the client, the system returns **10P** for display purposes.

6.5 How Can I Migrate Data Between SFS and OBS?

Background

HUAWEI CLOUD Object Storage Service (OBS) is a stable, secure, efficient, and easy-to-use cloud storage service. With the Representational State Transfer (REST) application programming interfaces (APIs), OBS is able to store any amount and form of unstructured data.

HUAWEI CLOUD Scalable File Service (SFS) is a network attached storage (NAS) service that provides scalable high-performance file storage. With SFS, shared access can be achieved among multiple Elastic Cloud Servers (ECSs), Bare Metal Servers (BMSs), and containers created on Cloud Container Engine (CCE) and Cloud Container Instance (CCI).

How to Migrate

SFS file systems need to be mounted to ECSs, containers, or BMSs. Data migration between SFS and OBS is actually the data migration between servers/containers and OBS. Data in servers or containers is stored in the mounted SFS file systems.

Therefore, after an SFS file system is mounted to a server or container, you can log in to the server or container and use OBS tools, APIs, or SDKs to migrate data. For example, if you want to migrate data from SFS to OBS, use the OBS upload function on the server or container to upload data to OBS. If you want to migrate data from OBS to SFS, use the OBS download function on the server or container to download data to the SFS file system mounted on the server or container. Read and write permissions are required.

 Copyright © Huawei Technologies Co., Ltd.

As listed in **Table 6-1**, OBS provides various methods for data migration. Select a suitable migration method according to your operating system and actual needs, and migrate data by referring to the upload and download sections in the guide manual.

NOTE

The supported operating systems, data volume, and operation complexity vary according to the migration methods. obsutil is recommended.

To reduce costs, it is recommended that you configure the intranet DNS and migrate data over the HUAWEI CLOUD intranet. For details, see **Accessing OBS over Intranet**.

Table 6-1 Data migration tools provided by OBS

Tool	Supported OS (Refer to each tool guide for supported versions.)	Document
OBS Console	Windows	**Console Operation Guide**
OBS Browser+	Windows	**OBS Browser+ Tool Guide**
obsutil (Recommended)	Windows/Linux	**obsutil Tool Guide**
SDK	All	**SDK Reference**
API	All	**API Reference**

6.6 Can a File System Be Accessed Across Multiple AZs?

1. A single file system can be created only in one AZ, for example, **AZ 1**, but can be mounted to and accessed from any AZ.
2. A file system does not support data redundancy across AZs. If the AZ where a file system resides is unavailable, the file system is unavailable.

6.7 Can I Upgrade an SFS Capacity-Oriented File System to an SFS Turbo File System?

No. If data in the SFS Capacity-Oriented file system is no longer required, delete or unsubscribe from it and then purchase an SFS Turbo file system. If you still need the data in the SFS Capacity-Oriented file system, purchase an SFS Turbo file system and **migrate data to the SFS Turbo file system**. After data migration, delete or unsubscribe from the SFS Capacity-Oriented file system.

Copyright © Huawei Technologies Co., Ltd.

6.8 Can I Upgrade an SFS Turbo File System from Standard to Standard-Enhanced?

No. The type of an existing SFS Turbo file system cannot be changed.

If you want an SFS Turbo file system of another type, delete or unsubscribe from the current file system and purchase a new one with your desired type. If you still need the data in your old file system, purchase a new file system and **migrate data to the new file system**. After data migration, delete or unsubscribe from the old file system.

6.9 How Can I Migrate Data Between SFS and EVS?

Mount a file system and an EVS disk to the same ECS, and then manually replicate data between the file system and EVS disk.

6.10 Can I Directly Access SFS from On-premises Devices?

SFS Turbo supports on-premises access via Direct Connect or other methods. After network communication is established, you can access an SFS Turbo file system from your on-premises devices.

SFS Capacity-Oriented file systems currently do not support on-premises access, but you can **migrate your data to SFS** and then use the file system.

6.11 How Do I Delete .nfs Files?

NFS .nfs Files

The .nfs files are temporary files in NFS. If you try to delete a file, and the file is still open, a .nfs file will appear. The .nfs files are used by NFS clients to manage the deletion of open files in the file system. If one process deletes a file while another process still has it open, the client will rename the file to .nfsxxx. If the last open to this file is closed, the client will automatically delete the file. If the client crashes before the file is cleared, the file will be left in the file system.

Clearing .nfs Files

The .nfs files need to be cleared. You can run the **rm -f** command to delete them. The file system will not be affected by the deletion. If an error is reported when you delete a .nfs file, do as follows:

 Copyright © Huawei Technologies Co., Ltd.

Figure 6-1 Deletion error

```
$ rm -f .nfs0000000001f0df8c0000XXXX

rm: cannot remove `smkit/SM_DOMAIN/.nfs0000000001f0df8c0000XXXX': Device or resource
 busy
```

Run the **lsof** command to obtain the ID of the process that has the file open.

Figure 6-2

```
$ lsof .nfs0000000001f0df8c0000XXXX

COMMAND   PID    USER   FD   TYPE DEVICE SIZE/OFF     NODE NAME

java    25887 <UID> mem    REG   0,22    98117 32545366 .nfs0000000001f09a560000XXXX
```

If the process can be stopped, run the **kill -9** *Process ID* command to stop the process and then delete the file.

 Copyright © Huawei Technologies Co., Ltd.