

Scalable File Service Turbo

FAQs

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1 SFS Turbo Concepts

1.1 What Is SFS Turbo?

Scalable File Service Turbo (SFS Turbo) provides scalable, high-performance file storage. With SFS Turbo, you can enjoy shared file access spanning multiple ECSs. SFS Turbo supports NFSv3 and SMB. You can seamlessly integrate existing applications and tools with SFS Turbo.

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, expanding, and optimizing file systems.

In addition, SFS Turbo provides high reliability and availability. SFS Turbo file systems can be elastically expanded, and perform better as their capacities grow. It is suitable for a wide range of scenarios, including enterprise office, high-performance websites, and software development.

1.2 What Access Protocols Does SFS Turbo Support?

SFS Turbo supports the standard NFSv3 protocol. To use the SMB protocol, [submit a service ticket](#) to apply for it.

2 SFS Turbo Specifications

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

For SFS Turbo 20 MB/s/TiB, 40 MB/s/TiB, 125 MB/s/TiB, 250 MB/s/TiB, 500 MB/s/TiB, and 1,000 MB/s/TiB file systems, the maximum supported size of a file is 320 TB. For SFS Turbo Standard-Enhanced (discontinued), Standard, Performance-Enhanced (discontinued), and Performance file systems, the maximum supported size of a file is 16 TB.

2.2 How Many SFS Turbo File Systems Can I Create with One Account?

You can create a maximum of 20 SFS Turbo file systems with one account.

Only one SFS Turbo file system can be created at a time. To create more than 20 SFS Turbo file systems, increase the quota by clicking [Service Tickets](#) in the upper right corner of the console to submit a service ticket.

3 SFS Turbo Billing

3.1 How Do I Purchase SFS Turbo?

SFS Turbo uses pay-per-use billing by default, which means that you are billed by the storage capacity you select during purchase and the duration of use. You can also buy a yearly or monthly package based on how much space you require and for how long you will use the resources. In case of arrears, you need to renew the resources within 15 days, or data in your file systems will be cleared.

Pay-per-use

Step 1 Sign up for an account.

1. Visit the [Huawei Cloud website](#).
2. In the upper right corner of the page, click **Sign Up**.
3. Complete the registration as instructed.

Step 2 Top up your account.

1. Log in to the 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 console homepage.

Step 3 Use SFS Turbo.

1. Access the SFS Turbo console.
2. Click **Create File System**.

NOTE

SFS Turbo file systems are billed by the storage capacity you select during purchase and the duration of use.

----End

Yearly/Monthly Subscription

You can create a yearly/monthly SFS Turbo file system or change the file system billing mode from pay-per-use to yearly/monthly after creation.

Method 1: Buy a yearly/monthly 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 a pay-per-use file system, click **Change to Yearly/Monthly** to change the billing mode to yearly/monthly.

3.2 How Do I Renew the Service?

Your account may be frozen or order be canceled if outstanding bills are not paid in time.

Procedure

Step 1 Log in to the console.

Step 2 On the top menu bar, choose **Billing > Renewal**.

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

3.3 How Do I Check If My Account 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 Turbo according to the retention period rules. For more information, see [Resource Suspension and Release](#). To prevent service suspension and resource release, repay arrears or top up in time.

Procedure

Step 1 Log in to the console.

Step 2 On the top menu bar, click **Billing** to go to the Billing Center.

Step 3 On the **Overview** page, 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 [Making Repayments](#).
- For more information about orders, unsubscription, coupons, and consumption details, see the [Billing Center User Guide](#).

4 SFS Turbo Mount

4.1 What Can I Do If Data of My SFS Turbo File System Is Not the Same When Accessed from Two Client Servers?

Symptom

A file system was mounted to two servers. There was a delay in synchronizing files from one server to another. However, there was no delay when files were uploaded to a server.

Fault Diagnosis

Add **noac**, **lookupcache=none** to the mount command.

The **noac** option disables file attribute caching and forces write synchronization. By default, an NFS client's file attribute information is cached using the **ac** option to improve performance, and the client checks file attribute information periodically and updates it if there are any changes. Within the cache validity period, the client does not check whether file attribute information on the server is changed. By default, the value of this option is **ac**. Set it to **noac**.

The **lookupcache** option is related to directory entry caching, and the value can be **all**, **none**, **pos**, or **positive**. With **lookupcache=none**, the client neither trust the positive nor negative lookup results. In this way, lookup caching is disabled.

Solution

- Step 1** Unmount the file system if it has been mounted. For details, see [Unmounting an SFS Turbo File System](#).
- Step 2** Prepare for the mount. For details, see [Mounting an SFS Turbo File System to Linux ECSs](#).
- Step 3** Mount the file system.

```
mount -t nfs -o vers=3,timeo=600,noac,lookupcache=none,noresvport,nolock,tcp <shared-path> <local-path>
```

----End

4.2 Can I Mount an SFS Turbo File System Across Regions?

For a general SFS Turbo file system, cross-region access is supported if the file system is mounted by IP address and communication between VPCs is established using Cloud Connect connections.

4.3 Can I Mount an SFS Turbo File System Across Accounts?

Yes, but not recommended.

In scenarios that have moderate reliability and latency requirements, you can mount an SFS Turbo file system across accounts based on VPC peering connections. For details about VPC peering connection and usage instructions, see [VPC Peering Connection](#).

4.4 How Many Cloud Servers Can I Mount an SFS Turbo File System To?

You can mount an SFS Turbo 20 MB/s/TiB, 40 MB/s/TiB, 125 MB/s/TiB, 250 MB/s/TiB, 500 MB/s/TiB, or 1,000 MB/s/TiB file system to a maximum of 3,000 cloud servers.

You can mount an SFS Turbo Standard, Standard-Enhanced (discontinued), Performance, or Performance-Enhanced (discontinued) file system to a maximum of 500 cloud servers.

4.5 How Do I Mount a File System to a Linux ECS as a Non-root User?

Scenarios

By default, a Linux ECS only allows user **root** to use the **mount** command to mount file systems, but you can grant the permissions of **root** to other users. Then, such users can use the **mount** command to mount file systems.

The following describes how to grant a non-root user the root permissions and how to mount a file system to a Linux ECS using that non-root user. EulerOS is used in this example.

Mounting a File System as a Non-root User

Step 1 Log in to the ECS as user **root**.

Step 2 Assign the root permissions to a non-root user.

1. Run **chmod 777 /etc/sudoers** to make the **sudoers** file editable.
2. Use the **which** command to view the **mount** and **umount** command paths.

Figure 4-1 Viewing command paths

```
[root@ecs-os-45df ~]#  
[root@ecs-os-45df ~]#  
[root@ecs-os-45df ~]#  
[root@ecs-os-45df ~]#  
[root@ecs-os-45df ~]# which mount  
/usr/bin/mount  
[root@ecs-os-45df ~]# which umount  
/usr/bin/umount  
[root@ecs-os-45df ~]#
```

3. Run **vi /etc/sudoers** to edit the **sudoers** file.
4. Add a user under **root**. In this example, user **mike** is added.

Figure 4-2 Adding a user

```
# Defaults    env_keep += "HOME"  
  
Defaults     secure_path = /usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin  
  
## Next comes the main part: which users can run what software on  
## which machines (the sudoers file can be shared between multiple  
## systems).  
## Syntax:  
##  
##    user    MACHINE=COMMANDS  
##  
## The COMMANDS section may have other options added to it.  
##  
## Allow root to run any commands anywhere  
root    ALL=(ALL)    ALL  
mike    ALL=(ALL)    NOPASSWD: /usr/bin/mount  
mike    ALL=(ALL)    NOPASSWD: /usr/bin/umount  
  
## Allows members of the 'sys' group to run networking, software,  
## service management apps and more.  
# %sys ALL = NETWORKING, SOFTWARE, SERVICES, STORAGE, DELEGATING, PROCESSES, LOCATE, DRIVERS  
  
## Allows people in group wheel to run all commands  
%wheel  ALL=(ALL)    ALL  
  
## Same thing without a password  
# %wheel    ALL=(ALL)    NOPASSWD: ALL  
  
## Allows members of the users group to mount and unmount the  
## cdrom as root  
# %users    ALL=/sbin/mount /mnt/cdrom, /sbin/umount /mnt/cdrom  
  
## Allows members of the users group to shutdown this system  
# %users    localhost=/sbin/shutdown -h now  
  
## Read drop-in files from /etc/sudoers.d (the # here does not mean a comment)
```

5. Press **Esc**, enter **:wq**, and press **Enter** to save and exit.
6. Run **chmod 440 /etc/sudoers** to make the **sudoers** file read-only.

Step 3 Log in to the ECS as user **mike**.

Step 4 Mount the file system. For details about the mount parameters, see [Table 4-1](#).

```
sudo mount -t nfs -o vers=3,timeo=600,noresvport,nolock <shared-path>  
<local-path>
```

Table 4-1 Parameters required for mounting file systems

Parameter	Description
<i><shared-path></i>	The format is <i><file-system-IP-address>:/</i> , for example, 192.168.0.0:/ . NOTE Variable <i>x</i> is a digit or letter. If the shared path is too long to display completely, you can adjust the column width.
<i><local-path></i>	A local directory on the ECS used to mount the file system, for example, /local_path .

Step 5 View the mounted file system.

mount -l

If the command output contains the following information, the file system has been mounted:

```
example.com:/share-xxx on /local_path type nfs (rw,vers=3,timeo=600,nolock,addr=)
```

----End

4.6 What Can I Do If Mounting a Subdirectory of a File System Failed?

Symptom

If a subdirectory is not created before mounting, the mount will fail. In [Figure 4-3](#), the root directory did not have the **subdir** subdirectory, so the mount failed. In this case, error message "Permission denied" was reported.

Figure 4-3 Mounting without a subdirectory

```
[root@ecs-eos-0891 workstation]# mount -t nfs -o nolock,vers=3 -vvv
mount.nfs: timeout set for Sun Oct 24 20:44:13 2021
mount.nfs: trying text-based options 'nolock,vers=3,addr=...'
mount.nfs: prog 100003, trying vers=3, prot=6
mount.nfs: trying prog 100003 vers 3 prot TCP port 2049
mount.nfs: prog 100005, trying vers=3, prot=17
mount.nfs: trying prog 100005 vers 3 prot UDP port 20048
mount.nfs: mount(2): Permission denied
mount.nfs: access denied by server while mounting :/subdir
```

Solution

To troubleshoot this issue, mount the root directory, create a subdirectory, and then mount the subdirectory.

Figure 4-4 Mounting a subdirectory

```
[root@ecs-eos-0891 workstation]# mount -t nfs -o nolock,vers=3 [redacted].82:/mnt/sfsturbo -vvv
mount.nfs: timeout set for Sun Oct 24 20:47:26 2021
mount.nfs: trying text-based options 'nolock,vers=3,addr=[redacted].82' Mount the root directory.
mount.nfs: prog 100003, trying vers=3, prot=6
mount.nfs: trying [redacted].82 prog 100003 vers 3 prot TCP port 2049
mount.nfs: prog 100005, trying vers=3, prot=17
mount.nfs: trying [redacted].82 prog 100005 vers 3 prot UDP port 20048
[root@ecs-eos-0891 workstation]# mkdir /mnt/sfsturbo/subdir Create a subdirectory.
[root@ecs-eos-0891 workstation]# umount /mnt/sfsturbo
[root@ecs-eos-0891 workstation]# mount -t nfs -o nolock,vers=3 [redacted].82:/subdir /mnt/sfsturbo -vvv
mount.nfs: timeout set for Sun Oct 24 20:47:50 2021
mount.nfs: trying text-based options 'nolock,vers=3,addr=[redacted].82' Mount the subdirectory.
mount.nfs: trying [redacted].82 prog 100003 vers 3 prot TCP port 2049
mount.nfs: prog 100005, trying vers=3, prot=17
mount.nfs: trying [redacted].82 prog 100005 vers 3 prot UDP port 20048
[root@ecs-eos-0891 workstation]#
```

5 SFS Turbo Access

5.1 Can I Mount an SFS Turbo File System Across VPCs?

Yes, but not recommended. Cross-VPC access may deteriorate the file system performance by more than 50%. So you are advised to plan your file system and services in the same VPC.

In scenarios that have moderate reliability and latency requirements, you can connect two or more VPCs in the same region using VPC peering connections as if they are in the same VPC. In this way, cloud servers in these VPCs can share the same file system. For details about VPC peering connection, see [VPC Peering Connection](#).

5.2 How Do I Access an SFS Turbo File System from a Client Server?

To access a file system from a Linux server, install the NFS client on the server and use the **mount** command to mount the file system. To access a file system from a Windows server, install the SMB client on the server, modify the SMB transfer protocol, and run command to mount the file system. Or, use the correct user and permissions and enter the SMB file system shared path to mount the SMB file system. Then, you can share the files and directories in the file system.

5.3 Can I Directly Access SFS Turbo from On Premises?

SFS Turbo supports on-premises access through IDC private lines or other methods. After network communication is established, you can access an SFS Turbo file system from on premises.

5.4 Why a File Is Not Found or Is Incomplete When Multiple Clients Operate the File at the Same Time?

Symptom

There are two clients (client A and client B). They mount the same SFS Turbo file system and operate the same file in the file system at the same time. The following typical scenarios may occur:

- Scenario 1: Client A adds or renames a file. Then, client B reads the file. The file cannot be found.
- Scenario 2: Both clients write the same file at the same time. The file is incomplete after the writes are complete.
- Scenario 3: Both clients write the same file at the same time. Then, an error is reported.

Fault Diagnosis

An SFS Turbo file system can provide shared access for multiple clients. Because there are client-side cache and server-side cache, SFS Turbo only ensures eventual consistency.

If the clients mount the file system using NFS, the NFS mechanism controls their caches, and the behaviors vary depending on the OS version. The SFS Turbo background is a distributed system and uses multiple NFS servers to provide services. When client mounts are distributed on different NFS servers, data synchronization may be slow.

- Scenario 1: After client A writes a new file, the cache is not updated. So, client B does not have the information about the new file in the directory entry cache, and the message indicating that the file was not found is returned.
- Scenario 2: Both clients append data to the same file and begin appending at the current file size. After client A writes data, the file size in the cache of client B is not updated. As a result, when client B writes data, some data is overwritten and lost.
- Scenario 3: Both clients overwrite the same file and truncate the file to zero before writing. When client A writes data, client B truncates the file size to zero. As a result, the write position of client A exceeds the file length, and an error is reported.

Solution

1. Avoid having multiple clients write the same file at the same time. Adjust the services if required. For example, adjust to have different clients to write different files and then combine the files. Or, have clients negotiate with each other and specify a primary client to perform the write operation.
2. After different clients write the same file, to avoid the cache from affecting the read results, you can disable the client cache by referring to [What Can I Do If Data of My SFS Turbo File System Is Not the Same When Accessed](#)

from Two Client Servers? or mount the clients to the same NFS server using the IP address.

 CAUTION

Note that disabling the client cache and mounting via the IP address will affect the SFS Turbo performance. Evaluate the impacts before doing so.

6 SFS Turbo Capacity Expansion

6.1 Can I Expand the SFS Turbo File System Capacity If I Start to Run Out of Space?

SFS Turbo file systems support online capacity expansion. During an expansion, mounting the file system may fail. This is because the connection used for mounting may experience an I/O delay about 30 seconds (max. 3 minutes).

7 SFS Turbo Deletion

7.1 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, an .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 an .nfs file, do as follows:

Figure 7-1 Deletion error

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

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

Figure 7-2 Viewing the process ID

```
$ lsuf .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.

7.2 How Can I Improve the Copy and Delete Efficiency with an SFS Turbo File System?

Common Linux commands, such as **cp**, **rm**, and **tar**, are executed sequentially. You can run commands concurrently to take the concurrency advantage of cloud file systems and improve efficiency.

7.3 How Do I Delete a Large Number of Files or Folders from a Linux OS?

When there are a large number of files or folders, you can use the following methods to delete them to improve the deletion speed and prevent file system freezing.

rm Command

Delete all files in the current directory. The asterisk (*) indicates all files in the current directory.

```
rm -f *
```

find Command

- Delete empty folders in a batch. **-type d** is used to filter items whose file type is directory, and **-empty** is used to filter empty folders.

```
find . -type d -empty -delete
```
- Delete files in a batch. The asterisk (*) is used to specify the file name.

```
find . -name *.log -type f -delete
```
- Forcibly delete non-empty folders in a batch. The asterisk (*) is used to specify the folder name.

```
find . -type d -name * -exec rm -fr "{}" \;
```
- Delete non-empty folders in a batch. The asterisk (*) and question mark (?) indicate different folder names. Use **-o** to separate folder names and **-name**.

```
find . \( -name * -o -name ? \) -type d -exec rm -fr "{}" \;
```

rsync

1. Install rsync.
 - a. On Ubuntu or Debian, run the following command to install rsync:

```
sudo apt install rsync
```
 - b. On CentOS, RHEL, or Fedora, run the following command to install rsync:
#For CentOS 7, RHEL 7, or an earlier version

```
sudo yum install rsync
```


#For CentOS 8, RHEL 8, or Fedora

```
sudo dnf install rsync
```
2. Create an empty folder **dst_test** and run the following command to delete the large number of files. This command is used to quickly clear the entire **origin_test** folder instead of deleting files individually.

```
rsync -a --delete dst_test/ origin_test/
```

Python SDK

The following example code is used to delete all files in the **test** folder:

```
# test.py
import os
import time
stime=time.time()
for pathname,dirnames, filenames in os.walk('/home/username/test'):
    for filename in filenames:
        file=os.path. join(pathname, filename)
        os.remove(file)
ftime=time.time()
print ftime-stime
```

Run the following script:

```
python test.py
```

8 SFS Turbo Migration

8.1 How Can I Migrate Data Between SFS Turbo and OBS?

Background

Huawei Cloud OBS is a stable, secure, efficient, and easy-to-use cloud storage service. With REST APIs, OBS is able to store any amount and form of unstructured data.

Huawei Cloud SFS Turbo is a high-performance NAS file storage service that can provide shared access for multiple ECSs, containers created on CCE, and BMSs on the cloud.

How to Migrate

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

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

As listed in [Table 8-1](#), OBS provides various methods for data migration. Select a suitable migration method according to your OS and actual needs, and migrate data by referring to the upload and download sections in the manual.

 NOTE

The supported OSs, 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 8-1 Data migration tools provided by OBS

Tool	Supported OS (Refer to Each Tool Guide for Supported Versions)	Document
OBS Console	Windows	User Guide
OBS Browser+	Windows	OBS Browser+ Tool Guide
obsutil (Recommended)	Windows/Linux	obsutil Tool Guide
SDK	All	SDK Reference
API	All	API Reference

8.2 How Do I Deploy SFS Turbo on CCE?

Complete the deployment on the CCE console based on your services by referring to [Storage](#) or [Storage \(FlexVolume\)](#).

8.3 Can I Migrate Data in My SFS Turbo File System to Another Region?

Yes, you can migrate data in your file system across regions. For details, see [Data Migration](#).

8.4 How Can I Migrate Data Between SFS Turbo and EVS?

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

9 SFS Turbo Performance

9.1 How Do I Make the Most Out of My SFS Turbo File System?

An SFS Turbo file system provides multiple IP addresses for mounting. Each IP address can be used by multiple clients. For the specific IP addresses, see the **Alternative Shared Path** field on the file system details page on the console.

If NFS or SMB is used for file system access, each client can only establish the network connection with one server. If you mount the file system using domain name, a random domain name server IP address is assigned. This may result in uneven distribution of network connections between clients and servers, and the distributed cluster capability of the servers cannot be fully used.

When there are not too many clients and you want to maximize the file system performance, you can use different IP addresses when mounting the file system on different clients. In this way, the network connections between clients and servers are evenly distributed, server resources are used more efficiently, and the file system performance can be fully used.

10 Others

10.1 Does the Security Group of a VPC Affect the Use of SFS Turbo?

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 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.

For an SFS Turbo file system, the system automatically enables the security group ports required by NFS after the file system is created. This ensures that the SFS Turbo file system can be successfully mounted to your servers. The inbound ports required by NFS are ports 111, 2049, 2051, 2052, and 20048. The inbound port required by SMB is port 445. If you need to change the enabled ports, go to the VPC console, choose **Access Control > Security Groups**, locate the target security group, and change the ports. You are advised to use an independent security group for an SFS Turbo file system to isolate it from service nodes.

Example Configuration

- Inbound rule

Direction	Protocol	Port Range	Source IP Address		Description
Inbound	TCP and UDP	111	IP Addresses	0.0.0.0/0 (All IP addresses are allowed. It can be modified.)	One port corresponds to one access rule. You need to add rules for 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 (All IP addresses are allowed. It can be modified.)	One port corresponds to one access rule. You need to add rules for the ports one by one.

NOTE

Enter an IP address range using a mask. For example, enter **192.168.1.0/24**, and do not enter **192.168.1.0-192.168.1.255**. If the source IP address is 0.0.0.0/0, all IP addresses are allowed. For more information, see [Security Groups and Security Group Rules](#).

A bidirectional access rule must be configured for port 111. You can configure the IP address range of the SFS Turbo frontend service as the inbound rule. Run **ping <file-system-domain-name-or-IP-address>** or **dig <file-system-domain-name-or-IP-address>** to obtain the IP address range.

Add outbound rules for ports 445, 2049, 2051, 2052, and 20048 the same as the outbound rule for port 111.

If NFS is used, add inbound rules for the following ports: 111 (TCP and UDP), 2049 (TCP and UDP), 2051 (TCP), 2052 (TCP), 20048 (UDP and TCP). If UDP is not enabled on port 2049 and 20048, mounting the file system may take a long time. You can use the **-o tcp** option in the **mount** command to avoid this issue.

If SMB is used, add an inbound rule for port 445 (TCP).

10.2 What Resources Does SFS Turbo Occupy?

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

- When an SFS Turbo file system is created or expanded, multiple private IP addresses and virtual IP addresses are created in the subnet you specified.
- When an SFS Turbo file system is created, the inbound rules for ports 111, 2049, 2051, 2052, and 20048 are created in the security group you selected. The source IP address defaults to 0.0.0.0/0 in all rules. You can change the IP address as required.

Writing data to a file system consumes the running memory of the server, but does not occupy the server's disk space. The file system uses independent space.

10.3 How Do I Check Whether an SFS Turbo File System Is Available on a Linux Server?

Log in to the server as user **root** and run **showmount -e <file-system-domain-name-or-IP-address>**. If the following information is returned, the SFS Turbo file system is available.

```
Export list for <file-system-domain-name-or-IP-address>  
/*
```

Or

```
Export list for <file-system-domain-name-or-IP-address>  
/ <IP-addresses-of-all-the-clients-that-can-access-the-SFS-Turbo-file-system>
```

10.4 Can I Upgrade an SFS Turbo File System from the Standard Type to the Performance Type?

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 buy a new one with your desired type. If you still need data in your old file system, buy a new file system and migrate data to the new file system. After the data has been migrated, delete or unsubscribe from the old file system.

10.5 Does SFS Turbo File Systems Support Multi-AZ Deployment?

1. A single file system can only be created in one AZ, but can be mounted to and accessed from any AZ.
2. A file system does not support cross-AZ data redundancy. If the AZ is unavailable, the file system becomes unavailable accordingly.

10.6 What Will Happen If the Clocks on a Client and the SFS Turbo Service Side Are Inconsistent?

Symptom

When the clocks on a client and the SFS Turbo service side are inconsistent, the files' time-related metadata (access time, modification time, and status change time) in SFS Turbo file systems will be inconsistent with the operation times on the client. As a result, cmake compilation may fail.

Cause

SFS Turbo uses the Huawei Cloud NTP server to provide standard time, so file operation times in SFS Turbo are based on the NTP server time. This issue happens if the client's local time is inaccurate and the clock synchronization service is not configured on the client.

Solution

Adjust the client's local time based on the local UTC time, or configure the NTP service on the client before accessing file systems. For how to configure an NTP server for a Huawei Cloud ECS, see [Does Huawei Cloud Provide the NTP Server and How Can I Configure It?](#)