

Scalable File Service

Getting Started

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1 Mounting and Using a General-Purpose File System on Linux ECSs

Scenarios

To use a general-purpose file system for file sharing, you need to create a general-purpose file system and mount it on multiple servers.

This section describes how to create an NFS general-purpose file system on the SFS console and mount it to Linux ECSs for file upload and download.

Operation Process

Procedure	Description
Preparations	Sign up for a Huawei Cloud account, complete real-name authentication, and top up your account. Then, create a VPC endpoint, VPC, and ECS.
Step 1: Creating a General-Purpose File System	Create a general-purpose file system.
Step 2: Mounting the General-Purpose File System	Mount the general-purpose file system to the ECSs.
Step 3: Using the General-Purpose File System	Use the general-purpose file system for file upload and download.

Preparations

1. Sign up for an account and complete real-name authentication.
Before purchasing SFS, [sign up for a Huawei Cloud account](#), and [complete real-name authentication](#).

If you have enabled Huawei Cloud services and completed real-name authentication, skip this step.

2. Add a credit card to your account.

Ensure that your account has sufficient balance or has a valid payment method configured. For details, see [Top-Up and Payment](#).

3. Create a VPC endpoint.

Before mounting a general-purpose file system, create a VPC endpoint by referring to [Creating a VPC Endpoint](#). Alternatively, when creating the general-purpose file system, select **Automatically Create a VPC Endpoint** to let the system create one for you. For details, see [Creating a General-Purpose File System](#).

4. Create a VPC and ECSs.

Before creating a general-purpose file system, check whether a VPC and ECSs are available, and whether the ECSs are in this VPC. If they are in different VPCs, you can establish communication between SFS and the ECSs using VPC peering connections. For details, see [VPC Peering Connection](#).

- Create a VPC.

Create a VPC by referring to [Creating a VPC with a Subnet](#).

- Create ECSs.

Buy ECSs in CN-Hong Kong in the created VPC by referring to [Purchasing and Using a Linux ECS](#).

Step 1: Creating a General-Purpose File System

File systems are containers that store files in SFS. You need to create a general-purpose file system before storing data in SFS.

This example covers only some key parameter settings. Retain the default values for other parameters. For more information, see [Creating a General-Purpose File System](#).

Step 1 [Log in to the SFS console](#).

Step 2 In the upper right corner of the page, click **Create File System**.

Step 3 Configure the parameters based on [Table 1-1](#).

General Purpose File System / Create General Purpose File System

< **Create General Purpose File System**

Basic Settings

Replicate Existing File System Settings

Select Source File System

Region ⓘ

☐ CN-Hong Kong (1) **Recommended** CN-Hong Kong (1)

Regions are geographic areas isolated from each other. Select the region that is the same as the purchased VPC endpoint region. [Learn how to select a region.](#)

AZ ⓘ

AZ1

File systems and ECSs in different AZs in the same region can communicate with each other. Different AZs correspond to VPC endpoints. Use the VPC endpoint in the corresponding AZ. [Learn more](#)

File System Settings

Name

Enter a file system name

Cannot be the same as that of the current user's existing file systems. Cannot be the same as that of any other user's existing file systems. Cannot be changed after creation.

Protocol Type

NFS

NFS is a major file sharing protocol widely used in network-attached storage (NAS) file systems. It allows ECSs to share files stored in the same file system.

Authorization

By VPC By replication

VPC

☐ Create VPC [Create VPC](#)

Select the VPC that your ECSs are deployed. ECSs and their file system to be accessed have to be in the same VPC. If you create a new VPC, you must create a VPC endpoint before the file system can be used. [Create a VPC endpoint](#)

Create file system: **Create Free**

Create Now

Table 1-1 Parameters for creating a general-purpose file system

Parameter	Example	Description
Replicate Existing File System Settings	-	Optional. Click Select Source File System . On the displayed page, select a source general-purpose file system from the list. After you click OK , the system automatically copies the region, AZ, protocol, authorization, and tags of the source file system. You can change some or all of the replicated settings, if needed.
Region	CN-Hong Kong	The region where the tenant belongs. Select the region where the ECSs and VPC endpoint reside.
AZ	AZ1	An AZ is a physical location that uses independent power supply and networks. AZs in the same region can communicate with each other over an intranet. For low network latency, you are advised to select the same AZ where the ECSs reside.

Parameter	Example	Description
Name	sfs-name-001	The user-defined name of the general-purpose file system. This name must be globally unique and cannot be the same as the name of any existing general-purpose file system, including one created by the current user or any other user. And it cannot be changed after the file system is created. If a general-purpose file system is deleted, you can create a new file system with the same name after at least 12 hours. The name can be 3 to 63 characters long and can contain only lowercase letters, digits, hyphens (-), and periods (.). It cannot start or end with a period (.) or hyphen (-), cannot contain IP addresses, and cannot contain two consecutive periods (..) or a period (.) and a hyphen (-) adjacent to each other.
Authorization	By VPC	You can select By VPC or By replication. By VPC: Select the VPC where the ECSs and VPC endpoint reside. An ECS cannot access a file system in a different VPC. Select the VPC where your ECSs reside. You can add VPCs later on the file system details page. By replication: This option is available after you select to replicate settings from a source file system.
VPC	-	If you select authorization by VPC, you need to manually select a VPC. Select the IAM project to which the target VPC belongs and then select the target VPC. For details about IAM projects, see Project Management. Select the VPC where the ECSs and VPC endpoint reside. An ECS cannot access a general-purpose file system in a different VPC. Select the VPC where your ECSs reside. You can add VPCs later on the file system details page.

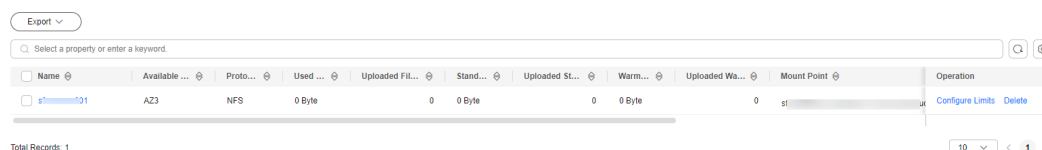
Parameter	Example	Description
VPC Endpoints	-	After selecting a VPC, check whether there are VPC endpoints available for the general-purpose file system. • If there are, the list displays the VPC endpoint IDs, route tables, and creation times. You can click a VPC endpoint ID and its route table to go to their basic information pages. The Automatically Create a VPC Endpoint option is disabled by default. • If there are not, create a VPC endpoint manually or automatically. – To manually create a VPC endpoint, click Create VPC Endpoint under the selected VPC. – To automatically create a VPC endpoint, enable Automatically Create a VPC Endpoint. Once enabled, the VPC endpoint service name will be displayed. Select route tables. If no route tables are available, click Create Route Table to create one. CAUTION • Automatically creating a VPC endpoint is only supported when you choose authorization by VPC. • Creating VPC endpoints for general-purpose file systems is free of charge. • If communication over the public network is abnormal, check whether the VPC endpoint is correctly created and whether your ECSs are in the same subnet as the one associated with the VPC endpoint's route table.

Step 4 Click **Create Now**.

Step 5 Confirm the file system information and click **Submit**.

Step 6 Go back to the general-purpose file system list.

If you can see the general-purpose file system in the list, it is created successfully. If not, the creation fails. [Submit a service ticket](#) for technical consultation.



The screenshot shows a web interface for managing file systems. At the top, there is a search bar and an 'Export' button. Below is a table with columns: Name, Available, Proto, Used, Uploaded File, Standby, Uploaded St, Warm, Uploaded Wa, Mount Point, and Operation. A single row is visible with the following values: s1-00000001, AZ3, NFS, 0 Byte, 0, 0 Byte, 0, 0 Byte, 0, s1-00000001. Below the table, it says 'Total Records: 1'. On the right side of the table, there are links for 'Configure Limits' and 'Delete'.

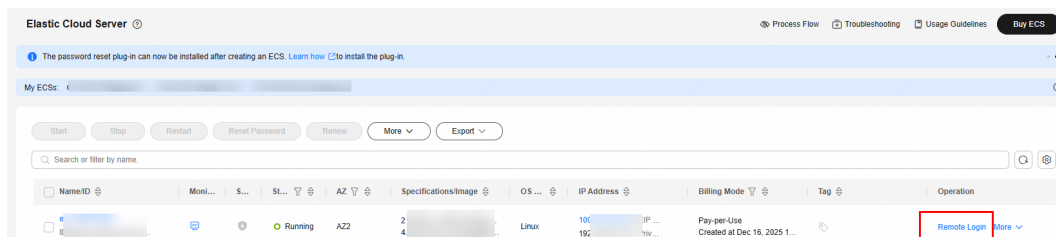
Name	Available	Proto	Used	Uploaded File	Standby	Uploaded St	Warm	Uploaded Wa	Mount Point	Operation
s1-00000001	AZ3	NFS	0 Byte	0	0 Byte	0	0 Byte	0	s1-00000001	Configure Limits Delete

----End

Step 2: Mounting the General-Purpose File System

After a general-purpose file system is created, you need to mount it to ECSs so that they can share the file system.

Step 1 [Log in to the ECS](#) as user **root**. You can log in to an ECS using the console or a remote access tool (such as PuTTY).



Step 2 Install the NFS client.

1. Check whether the NFS software package is installed in the system (CentOS is used in this example).

```
rpm -qalgrep nfs
```

If information similar to the following is displayed, the NFS software package has been installed and you can [resolve the domain name](#). If no command output is displayed, [install the package](#).

```
libnfsidmap  
nfs-utils
```

```
[root@ecs-sfs-001 ~]# rpm -qalgrep nfs  
nfs-utils-2.3.3-46.el8.x86_64  
sssd-nfs-idmap-2.5.2-2.el8_5.3.x86_64  
libnfsidmap-2.3.3-46.el8.x86_64
```

2. Install the package.

```
sudo yum -y install nfs-utils
```

NOTE

The command requires that the ECS be connected to the Internet. Or, the installation will fail.

Step 3 Check whether the domain name of the general-purpose file system can be resolved.

```
nslookup <domain-name-of-the-general-purpose-file-system>
```

NOTE

- Obtain the domain name of a general-purpose file system from its shared path. For example, if the shared path is `xxx/sfs-name-001`, `xxx` is the file system domain name, and `sfs-name-001` is the file system name.
- If the **nslookup** command cannot be used, you can run **yum install bind-utils** to install the **bind-utils** software package.
- If the domain name can be resolved, [mount the NFS file system to the root directory](#).
- If the domain name cannot be resolved, configure the DNS server IP address before mounting the file system. For details, see [Configuring a DNS Server for Domain Name Resolution](#).

Step 4 Mount the NFS file system to the root directory.

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

 NOTE

If any other resources, such as a disk, have been mounted on the desired local path, create a new path. (NFS clients do not reject repeated mounts. If there are repeated mounts, information of the last successful mount is displayed.)

Parameter	Description
vers	Version of the general-purpose file system. Only NFSv3 is supported currently, so the value is fixed at 3 .
timeo	Waiting time before the NFS client retransmits a request. The unit is 0.1 seconds. The recommended value is 600 .
noresvport	Whether the NFS client uses a new TCP port when it re-establishes a network connection to the NFS server. It is strongly recommended that you specify noresvport , which ensures that your file system remains uninterrupted after a network reconnection or recovery.
nolock	Whether to use the NLM protocol to lock files on the server. If nolock is specified, the lock is valid only for applications on the same client. It is invalid for applications on any other clients.
tcp	Protocol used by the NFS client to send requests to the server. You can use either UDP or TCP. General-Purpose File System does not support UDP. Therefore, you need to set proto to tcp for general-purpose file systems.
<shared-path>	The format is <file-system-domain-name>:/<file-system-name> , for example, example.com:/sfs-name-001 .
<local-path>	A local path on the ECS used to mount the general-purpose file system, for example, /local_path .

Step 5 View the mounted general-purpose file system.

```
mount -l
```

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

```
<shared-path> on </local-path> type nfs (rw,vers=3,timeo=600,nolock,addr=)
```

Step 6 (Optional) Modify the **fstab** file to configure file system auto mount upon system startup.

After a client ECS is restarted, it loses the file system mount information. You can configure auto mount in the **fstab** file to ensure that the ECS automatically mounts the file system when it restarts.

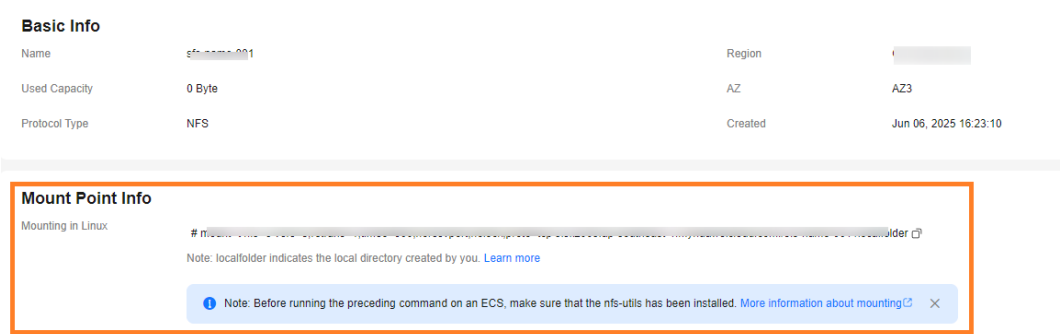
1. Open the **/etc/fstab** file.

```
vi /etc/fstab
```

At the end of the file, add information about the general-purpose file system, for example:

```
<shared-path> </local-path> nfs vers=3,timeo=600,noresvport,nolock,tcp 0 0
```

Replace *<shared-path>* and *</local-path>* with actual values. You can obtain the shared path from the **Mount Point** column of the file system. The fields are described as follows.



Parameter	Description
<i><shared-path></i>	The address or location of the general-purpose file system. Set it to the shared path used in the mount command for mounting the NFS file system to the root directory .
<i>/local_path</i>	A directory created on the ECS for mounting the general-purpose file system. Set it to the local path used in the mount command for mounting the NFS file system to the root directory .
nfs	The file system or partition mount type.
vers=3,timeo=600,nore svport,nolock,tcp	Use commas (,) to separate multiple options. • vers: The general-purpose file system version. Value 3 indicates NFSv3. • timeo: The waiting time before the NFS client retransmits a request. The unit is 0.1 seconds. The recommended value is 600. • noresvport: Whether the NFS client uses a new TCP port when it re-establishes a network connection to the NFS server. It is strongly recommended that you specify noresvport, which ensures that your file system remains uninterrupted after a network reconnection or recovery. • nolock: Whether to use the NLM protocol to lock files on the server. If nolock is specified, the lock is valid only for applications on the same client. It is invalid for applications on any other clients. • tcp: The TCP transmission protocol.

Parameter	Description
0	- An integer greater than zero means that dump backup is used. A general-purpose file system with a smaller integer is dumped earlier than one with a larger integer. 0 means not to back up the general-purpose file system.
0	- This field is set to 1 for the root directory by default. The values for other directories start from 2. A general-purpose file system with a smaller integer is checked earlier than one with a larger integer. 0 means not to check the general-purpose file system.

NOTICE

For optimal system performance, configure file system information based on the mount example provided. If needed, you can customize certain mount options. Note that the customization may affect system performance.

- Press **Esc**, enter **:wq**, and press **Enter** to save and exit.
- (Optional) View the content of the **/etc/fstab** file after the update.

```
cat /etc/fstab
```

----End

 NOTE

For the detailed mount procedure, see [Mounting a General-Purpose File System to Linux ECSs](#).

Step 3: Using the General-Purpose File System

After the file system is mounted, you can use it on the ECS as if using an ordinary directory, for example, read data from or write data to the file system.

- Step 1** Remotely connect to the ECS and run the following commands to write data to the general-purpose file system:

```
# /mnt/sfs is the local mount point (local path).  
mkdir /mnt/sfs/dir1  
touch /mnt/sfs/file1  
echo 'hello sfs' > /mnt/sfs/file2
```

- Step 2** Remotely connect to the ECS and run the following commands to read data from the general-purpose file system:

```
ls /mnt/sfs
```

If information similar to the following is displayed, the general-purpose file system can be accessed using NFS.

```
[root@ecs ~]# cd /mnt/sfs/
[root@ecs /mnt/sfs]# mkdir dir1
[root@ecs /mnt/sfs]# touch file1
[root@ecs /mnt/sfs]# echo 'hello sfs' > /mnt/sfs/file2
[root@ecs /mnt/sfs]# ls /mnt/sfs/
dir1  file1  file2
[root@ecs /mnt/sfs]#
```

----End

Related Information

After creating and mounting a general-purpose file system, you can use the following functions as needed:

- **Configuring a Lifecycle Rule:** To reduce storage costs, you can configure lifecycle rules to convert data in the general-purpose file system to infrequent access storage after a certain period.
- **Managing General-Purpose File System Limits:** General-purpose file systems support limits management. You can configure a capacity limit and the maximum number of files allowed for each general-purpose file system. This helps you properly allocate and manage resources.