Scalable File Service

Creating a Readable and Writable Subdirectory on the File System for a Common User

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1 Creating a Readable and Writable Subdirectory on the File System for a Common User

1.1 Overview

Application Scenario

After a file system is created, only the **root** user has the read and write permissions on the file system by default. The **root** user can grant the access permission to multiple common users if needed. The **root** user can also create multiple subdirectories for each common user and mount them to the home directory of the file system, granting the read and write permissions to common users at the same time.

Procedure

Figure 1-1 illustrates the procedure of creating a readable and writable subdirectory on the file system for a common user.

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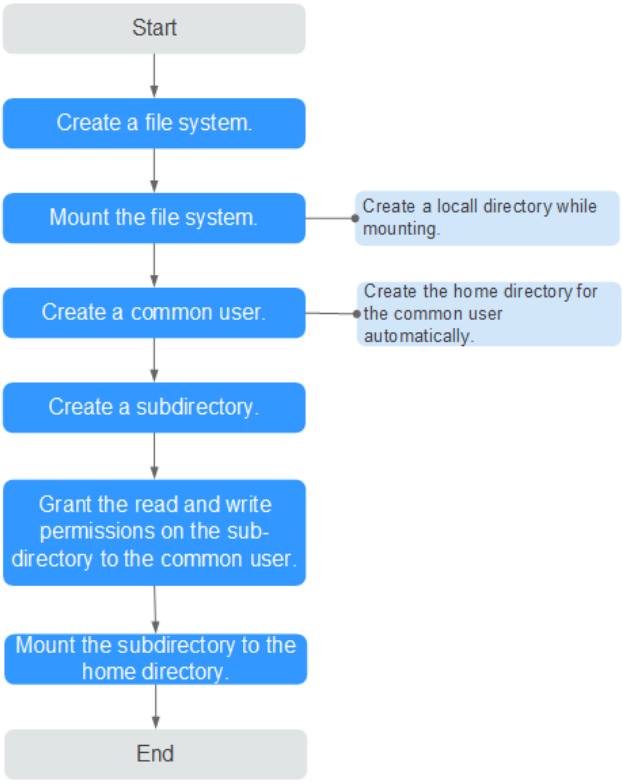
Figure 1-1 Flowchart



1.2 Creating a Local Directory for a File System

After creating a file system, you need to mount the file system to an ECS and create a local directory for the **root** user.

If the file system has been mounted, skip this section. Record the local directory in **Step 4** and perform steps in **Creating a Readable and Writable Subdirectory on the File System for Each User**.

Prerequisites

- You have checked the type of the ECS operating system. Different operating systems require different commands for NFS client installation.
- You have created a file system and have obtained the mount point of the file system.
- The ECS to which a file system is mounted belongs to the same VPC as the file system.
- The IP addresses of the DNS server used to resolve the file system domain name have been configured on the ECS.

Procedure

Step 1 An ECS running CentOS, for example, **ecs-whm**, is created in AZ2 of the CN North-Beijing1 region. See **Figure 1-2**.

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Figure 1-2 Creating an ECS



Step 2 Log in to the ECS as user **root**. Install the NFS client.

1. Run the following command to check whether the NFS software package is installed.
   - On CentOS, Red Hat, Oracle Enterprise Linux, SUSE, Euler OS, Fedora, or OpenSUSE:

     rpm -qa|grep nfs
   - On Debian or Ubuntu:

     dpkg -l nfs-common

   If a command output similar to the following is displayed, the NFS software package has been installed and you can go to **Step 3**. If no such command output is displayed, go to **Step 2.2**.
   - On CentOS, Red Hat, Euler OS, Fedora, or Oracle Enterprise Linux:
     ```
     libnfsidmap
     nfs-utils
     ```
   - On SUSE or OpenSUSE:
     ```
     nfsidmap
     nfs-client
     ```
   - On Debian or Ubuntu:
     ```
     nfs-common
     ```
2. Run the following command to install the NFS software package.

   NOTE

   The following commands require that the ECS be connected to the Internet. Otherwise, the installation will fail.
   - On CentOS, Red Hat, Euler OS, Fedora, or Oracle Enterprise Linux:

     sudo yum -y install nfs-utils
   - On Debian or Ubuntu:

     sudo apt-get install nfs-common
   - On SUSE or OpenSUSE:

     zypper install nfs-client

Step 3 Run the following command to check whether the domain name in the file system mount point can be resolved. See **Figure 1-3**.

nslookup *File system domain name*

```
nslookup sfs-nas1.cn-north-1b.myhuaweicloud.com
```

NOTE

- A file system domain name is just a part of the mount point, for example, **sfs-nas1.*xxxx*.com**. You can obtain a file system domain name from the mount point of a file system. In this step, you are not supposed to enter the entire mount point but only the domain name.
- If the **nslookup** command cannot be used, install the **bind-utils** software package by running the **yum install bind-utils** command.

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- If the resolution succeeds, go to **Step 4**.
- If it fails, configure the DNS server IP address and then mount the file system. For details, see **Configuring DNS**.

Figure 1-3 Domain name resolution



Step 4 Run the following command to create a local directory for mounting the file system. Record the local directory name, for example, **root001**.

mkdir *Local directory*

```
mkdir root001
```

Step 5 Run the following command to mount the file system to the ECS. SFS supports mounting only file systems complying with NFSv3 to ECSs running Linux. **Table 1-1** describes the variables.

mount -t nfs -o vers=3,timeo=600,nolock *Mount point Local directory*

NOTICE

After an ECS that has mounted file systems restarts, it loses the file system mount information. You can configure automatic mount in the **fstab** file to ensure that an ECS automatically mounts file systems when it restarts. For details, see **Mounting a File System Automatically**.

Table 1-1 Parameters

Parameter	Description
vers	File system version. Currently, only NFSv3 is supported, so the value is fixed to **3**.
timeo	Waiting time before the NFS client retransmits a request. The unit is 0.1 second. Recommended value: **600**
lock/nolock	Whether to lock files on the server using the NLM protocol. If **nolock** is selected, the lock is valid for applications on one host. For applications on another host, the lock is invalid. Recommended value: **nolock**

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Parameter	Description
Mount point	The format for an SFS file system is *File system domain name*:/*Path*, for example, **example.com:/share-***xxx*. The format for an SFS Turbo file system is *File system IP address*:/, for example, **192.168.0.0:/**. **NOTE** *x* can be a digit or letter. If the mount point is too long to display completely, expand the column to view the full mount point.
Local directory	Local directory on the ECS, used to mount the file system, for example, **/local_path**.

Figure 1-4 Mount point



Step 6 Run the following command to view the mounted file system:

mount -l

If the command output contains the following information, the file system is mounted successfully.

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

Step 7 After the mounting is successful, create a common user and subdirectory by referring to the next section.

If the mounting fails or times out, rectify the fault by referring to **Troubleshooting**.

NOTE

The supported maximum size of a file to be written is 240 TB.

----End

1.3 Creating a Readable and Writable Subdirectory on the File System for Each User

Prerequisites

- A file system has been created and can be mounted to the ECS by the **root** user. For details, see **Creating a Local Directory for a File System**.
- You have obtained the mount point of the file system.

Procedure

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

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Step 2 Run the following command to add a common user under the **root** account. User **Tom** is added as an example.

```
adduser Tom
passwd Tom
```

Change the password of common user **Tom** as prompted. After the user is created, the home directory **/home/Tom** is automatically created.

Step 3 Run the following command in the local directory of the **root** user to create a subdirectory.

According to **Step 4** in **Creating a Local Directory for a File System**, the local directory of the **root** user is **root001**. Run the following command to create subdirectory **Tom** for common user **Tom**. Replace **root001** with the actual local directory.

```
mkdir /root/root001/Tom
```

Step 4 Run the following command to assign the read and write permissions of subdirectory **Tom** to common user **Tom**. Replace **root001** with the actual local directory.

```
chown Tom:Tom /root/root001/Tom
```

After the subdirectory is created, run the following commands to check whether common user **Tom** has the read and write permissions on subdirectory **Tom**. See **Figure 1-5**.

```
cd /home
cd /root/root001
ll
```

Figure 1-5 Checking the permissions

```
[root@ecs-whm home]# cd /root/root001
[root@ecs-whm root001]# ll
total 4
drwxr-xr-x 2 Tom Tom 4096 May 13 14:31 Tom
```

The preceding command output indicates that user **Tom** has obtained the read and write permissions on subdirectory **Tom**.

Step 5 Run the **mount** command to mount subdirectory **root001/Tom** to the home directory of Tom, **/home/Tom**. In the following command, **cn-north-1b** needs to be replaced with the region where the file system is located, and **share-*xxxx*** needs to be replaced with the actual file system. The first **Tom** needs to be replaced with the actual subdirectory name. See **Figure 1-6**.

```
mount -t nfs sfs-nas1.cn-north-1b.myhuaweicloud.com:/share-xxxx/Tom /home/Tom
```

Figure 1-6 Mounting the subdirectory

```
[root@ecs-whm root001]# mount -t nfs sfs-nas1.cn-north-1b.myhuaweicloud.com:/share-[redacted]/Tom /home/Tom
[1202630.340708] Key type dns_resolver registered
[1202630.381991] NFS: Registering the id_resolver key type
[1202630.382851] Key type id_resolver registered
[1202630.383689] Key type id_legacy registered
```

Run the following command to check whether the subdirectory has been mounted to the home directory of **Tom**. See **Figure 1-7**.

```
df -h
```

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Figure 1-7 Checking the mounting result

```
[root@ecs-whm root001]# df -h
Filesystem                                                Size  Used Avail Use% Mounted on
/dev/vda1                                                  40G  1.9G   36G   5% /
devtmpfs                                                  486M     0  486M   0% /dev
tmpfs                                                     496M     0  496M   0% /dev/shm
tmpfs                                                     496M   26M  471M   6% /run
tmpfs                                                     496M     0  496M   0% /sys/fs/cgroup
tmpfs                                                     100M     0  100M   0% /run/user/0
sfs-nas1.cn-north-1b.myhuaweicloud.com:/share-[illegible]  100G     0  100G   0% /root/root001
sfs-nas1.cn-north-1b.myhuaweicloud.com:/share-[illegible]/Tom  100G     0  100G   0% /home/Tom
```

----End

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