## Alibaba Cloud

## Apsara File Storage NAS FAQ

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C-J Alibaba Cloud

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### **Document conventions**

Style	Description	Example
<u>↑</u> Danger	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	Danger: Resetting will result in the loss of user configuration data.
O Warning	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	Warning: Restarting will cause business interruption. About 10 minutes are required to restart an instance.
C) Notice	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	Notice: If the weight is set to 0, the server no longer receives new requests.
? Note	A note indicates supplemental instructions, best practices, tips, and other content.	⑦ Note: You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click Settings> Network> Set network type.
Bold	Bold formatting is used for buttons , menus, page names, and other UI elements.	Click <b>OK</b> .
Courier font	Courier font is used for commands	Run the cd /d C:/window command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	bae log listinstanceid Instance_ID
[] or [a b]	This format is used for an optional value, where only one item can be selected.	ipconfig [-all -t]
{} or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}

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### 1.FAQs

### 1.1. Is there a NAS terminology

Alibaba Cloud NAS (Network Attached Storage) provides an infinitely scalable file system to store data for ECS servers, and primarily involves the following concepts:

- File system: The file system is a NAS instance. You can mount the file system on an ECS server, E-HPC, or Container Service, and then use it like a local file system.
- Mount point: A mount point is the entry through which a computing node accesses NAS. It defines what type of network computing node can access NAS, and what permissions are required to access NAS.
- Permission group: A permission group defines NAS access permissions, including authorized IP addresses, read/write permissions, and user permissions.

# 1.2. What is a mount point and where can I use it

A mount point is the interface for computing nodes (such as ECS instance, E-HPC, or Container Service) to access a NAS file system.

Mount points define the network type of the computing nodes and the permissions required to access NAS.

One mount point can be simultaneously mounted by multiple computing nodes, enabling shared access.

## 1.3. What is a permission group and where can I use it

A permission group defines NAS access permissions, including authorized IP addresses, read/write permissions, and user permissions.

### 1.4. How can I obtain an AccessKey pair?

You can create an AccessKey pair for an Alibaba Cloud account or Resource Access Management (RAM) user. When you call API operations, an AccessKey pair is required to complete identity verification.

#### Context

An AccessKey pair includes an AccessKey ID and AccessKey secret.

- An AccessKey ID is used to identify a user.
- An AccessKey secret corresponds to an AccessKey ID. You must keep the AccessKey secret confidential.

**Notice** We recommend you use a RAM user to perform operations. This prevents against the leakage of the AccessKey pair for an Alibaba Cloud account. The leakage of the AccessKey pair for an Alibaba Cloud account to security risks.

#### Procedure

- 1. Log on to the Alibaba Cloud console.
- 2. Move the pointer over your account profile picture in the upper-right corner of the page, and click **AccessKey**.
- 3. In the **Security Tips** dialog box, select Continue to Manage AccessKey or Get Started with RAM AccessKey.

Notice We recommend you use a RAM user to perform operations. This prevents against the leakage of the AccessKey pair for an Alibaba Cloud account.

- Obtain the AccessKey pair of an Alibaba Cloud account.
  - a. Click Continue to Manage AccessKey.
  - b. On the Security Management page, click Create AccessKey.
  - c. On the **Mobile Phone Verification** page, obtain a verification code, complete the verification process, and then click **OK**.
  - d. In the **Create User AccessKey** dialog box, view the AccessKey ID and AccessKey secret in the AccessKey Details section.

You can click Save AccessKey Information to download the AccessKey pair.

- Obtain the AccessKey pair of a RAM user
  - a. Click Get started with RAM AccessKey.
  - b. On the Users page of the RAM console, click **Create User** to create a user.

If you obtain an AccessKey pair for an existing RAM user, skip this step.

- c. In the left-side navigation pane, choose Identities > Users and find the target user.
- d. Click the logon name of the user to go to the User Details page. Select the Authentication tab, and click Create AccessKey in the User AccessKeys section.
  - ? Note
    - You can create a maximum of two AccessKey pairs or each RAM user.
    - After you create an AccessKey pair, you cannot view the AccessKey secret of the AccessKey pair by using the console. We recommend that copy the AccessKey pair when creating it and keep the AccessKey secret confidential to prevent against information leakage.
- e. On the **Mobile Phone Verification** page, obtain a verification code, complete the verification process, and then click **OK**.
- f. In the **Create User AccessKey** dialog box that appears, view the AccessKey ID and AccessKey secret in the AccessKey Details section.

You can also click **Download CSV File** or **Copy** to save the AccessKey pair.

# 1.5. How can I view a list of clients on which a file system is mounted?

Apsara File Storage NAS allows you to mount a file system on multiple clients. You can view a list of clients on which a General-purpose NAS file system is mounted in the NAS console.

#### Procedure

- 1. Log on to the NAS console.
- 2. Choose File System > File System List.
- 3. Find the target file system and click Management in the Operations column.
- 4. In the left-side navigation pane, choose **Mounting Use > Mount Target**. On the page that appears, click **Client mounted** in the Operations column to view a list of clients on which the file system is mounted. The IP address of each client is displayed in the list.

**?** Note In the list, the clients on which you use the file system within the last minute are displayed. Other clients on which you mount the file system may be excluded from the list.

# 1.6. Can I switch the type of Apsara File Storage NAS file systems?

This topic describes how to switch the type of an Apsara File Storage NAS file system.

You cannot switch the type of the file system after it is created.

You can create a new file system if you no longer want to use the original file system.

- If the file system does not store any data
  - i. Create a new file system and mount it on an ECS instance. For more information, see Create a General-purpose NAS file system and Precautions.
  - ii. Delete the original file system.
- If the file system stores data
  - i. Create a new file system and mount it on an ECS instance. For more information, see Create a General-purpose NAS file system and Precautions.
  - ii. Migrate the data in the original file system to the new system. For more information, see Migrate data between Apsara File Storage NAS file systems.
  - iii. Delete the original file system.

# 1.7. Can I switch the type of a mount target?

This topic describes how to switch the type of a mount target.

If you have added a mount target for a file system, you cannot switch the type of the mount target. You can create a new mount target and mount the file system on the instance again.

For example, you have created an Apsara File Storage NAS Capacity file system and have mounted the file system on an instance through a mount target in a classic network. If you want to switch the mount target in a virtual private cloud (VPC), perform the following steps:

**Note** You can add two mount targets for an Apsara File Storage NAS Capacity file system or an Apsara File Storage NAS Performance file system. However, you can only add one mount target in a VPC for an Apsara File Storage NAS Extreme file system.

- 1. Add a mount target in a VPC. For more information, see Create a mount target.
- 2. Unmount the file system which is mounted on the instance through the mount target in a classic network. For more information, see Unmount a file system.
- 3. Use the mount target in the VPC to mount the file system on the same target path of the instance. For more information, see Mount a file system.
- 4. Make sure that no client is mounted on the instance in the NAS console.

You can click the **The client is mounted** button in the mount point section of the file system details page to view the mounted clients.

- 5. Disable the mount target in the classic network.
- 6. After you make sure that your business is not adversely affected, delete the mount target in the classic network.

# 1.8. Which file system protocol can I select to create a file system, NFS or SMB?

Apsara File Storage NAS is compatible with standard file system protocols, including the Network File System (NFS) and Server Message Block (SMB) protocols. This topic describes how to select NFS or SMB file systems based on different operating systems.

We recommend that you select the required file system protocol based on your business requirements.

- If you want to share files between Linux clients, we recommend that you create an NFS file system.
- If you want to share files between Windows clients, we recommend that you create an SMB file system.
- If you want to share files between Linux clients and Windows clients, we recommend that you create an SMB file system.

### 2.Scale and Performance 2.1. What impacts the I/O performance of Windows service SMB protocol

#### Symptom

By default, the large mtu option is disabled on a Windows SMB client, which affects the increase in I/O performance.

#### Solution

You can modify the following registry key to enable the large mtu option:

HKLM\System\CurrentControlSet\Services\LanmanWorkstation\Parameters

Create a **DWORD** at this location with the key named DisableLargeMtu and value set to **0**. Restart the file system to apply the change.

### 2.2. SMB basic operation FAQ

## Why is the disconnected state displayed when I use the net use command to view the status of a mount point?

If no operation is performed on a file system within 15 minutes, the connection is disconnected. The connection is established whenever an operation starts.

### What is the maximum capacity and performance of a CIFS or SMB file system?

Currently, when an SMB file system is deployed on a NAS Capacity cluster, the maximum capacity and bandwidth for a single file system are subject to NAS Capacity. Other features, such as supports for a unique namespace, VPCs, and classic networks are the same as those of an NFS file system.

For more information, see Network Attached Storage.

#### Supported protocols and operating systems for an SMB file system

For more information, see Limits of product specifications.

For more information about unsupported features for an SMB file system, see Unsupported SMB features.

#### Restrictions when accessing an SMB file system

Similar to accessing an NFS file system, you cannot access an SMB file system from an ECS instance that is located in another region or from the Internet. You must connect to a VPC by using a dedicated leased line to access the file system.

To access a file system from external networks outside the VPC where the file system is located, see the following sections:

Access NAS from an on-premises IDC using a VPN network

- Access NAS from an on-premises IDC using NAT
- Mount NAS file systems on ECS instances that are located in multiple VPCs
- Mount NAS file systems on ECS instances that are owned by multiple accounts

# 2.3. How can I modify the maximum number of concurrent NFS requests?

The maximum number of concurrent requests from a Network File System (NFS) agent is 2 by default. This reduces the performance of NFS file systems. We recommend that you set the maximum number to 128. This topic describes how to modify the maximum number of concurrent NFS requests.

You can use one of the following methods to modify the maximum number of concurrent NFS requests.

**Note** After you use method 1 to modify the maximum number, you must restart the ECS instance. This may affect business continuity. You can use method 2 to modify the maximum number of concurrent NFS requests without restarting the ECS instance.

#### Method 1

- 1. Install an NFS agent. For more information, see Install an NFS agent.
- 2. Run the following commands to set the maximum number of concurrent NFS requests to 128.

echo "options sunrpc tcp\_slot\_table\_entries=128" >> /etc/modprobe.d/sunrpc.conf echo "options sunrpc tcp\_max\_slot\_table\_entries=128" >> /etc/modprobe.d/sunrpc.conf

**?** Note The first time you install an NFS agent, run the preceding commands once with root permissions. You do not need to run the commands again.

3. Use the following command to restart the ECS instance.

#### reboot

- 4. Mount a file system. For more information, see Mount an NFS file system.
- 5. Use the following command to verify the results.

If the returned value is 128, the maximum number is modified.

cat /proc/sys/sunrpc/tcp\_slot\_table\_entries

#### Method 2

- 1. Install an NFS client. For more information, see Install an NFS client.
- 2. Run the following command to set the maximum number of concurrent NFS requests to 128.

echo "options sunrpc tcp\_slot\_table\_entries=128" >> /etc/modprobe.d/sunrpc.conf

echo "options sunrpc tcp\_max\_slot\_table\_entries=128" >> /etc/modprobe.d/sunrpc.conf

**?** Note The first time you install an NFS agent, run the preceding commands once with root permissions. You do not need to run the commands again.

- 3. Mount a file system. For more information, see Mount an NFS file system.
- 4. Run the following command to set the maximum number of concurrent NFS requests to 128.

sysctl -w sunrpc.tcp\_slot\_table\_entries=128

- 5. Unmount a file system. For more information, see Unmount a file system from a Linux ECS instance.
- 6. Mount the file system again. For more information, see Mount an NFS file system.
- 7. Use the following command to verify the results.

If the value 128 is returned, it indicates that the maximum number is modified.

cat /proc/sys/sunrpc/tcp\_slot\_table\_entries

## 2.4. How do I resolve SMB performance issues?

#### I/O latency

When you use a mount target to access a Server Message Block (SMB) file system, you need to wait for several minutes before the I/O operation is started.

The following sections describe how to reduce the I/O latency of an SMB file system.

#### Solution

The I/O latency of an SMB file system may be caused by an NFS client or web client on the ECS instance.

- If an NFS client is installed but no longer required, delete the NFS client.
- Find the ProviderOrder key. The path to the ProviderOrder key is HKEY\_LOCAL\_MACHINE\System\Curren tControlSet\ControlNetworkProvider\Order\ProviderOrder .

For example, if the value of the ProviderOrder key is LanmanWorkstation,RDPNP,Nfsnp , delete ,Nfsn p and restart the ECS instance.

• If a web client is installed, delete it.

**Note** If a client accesses the SMB file system for the first time and the latency is higher than expected, ping the domain name of the mount target. You can then check whether the domain name is accessible and check the latency.

- If the domain name of the mount target is inaccessible, we recommend that you check the network settings.
- If the latency is high, ping the IP address of the mount target. If the latency of accessing the IP address is lower than that of accessing the domain name, check the configurations of the Domain Name System (DNS) server.

#### Procedure

- 1. Modify the value of the ProviderOrder key. If the latency is high the first time you access the file system, we recommend that you check this value.
- 2. Use the fio tool to conduct a performance test to check the issue.

fio.exe --name=./iotest1 --direct=1 --rwmixread=0 --rw=write --bs=4K --numjobs=1 --thread --iodepth=12 8 --runtime=300 --group\_reporting --size=5G --verify=md5 --randrepeat=0 --norandommap --refill\_buffe rs --filename=\\<mount point dns>\myshare\testfio1

```
fio.exe --name=./iotest1 --direct=1 --rwmixread=0 --rw=write --bs=4K --numjobs=1 --thread --iodepth=12
8 --runtime=300 --group_reporting --size=5G --verify=md5 --randrepeat=0 --norandommap --refill_buffe
rs --filename=\\<mount point dns>\myshare\testfio1
```

3. We recommend that you perform I/O operations based on large data blocks. The smaller the data blocks are, the more network resources are consumed. If the data block size cannot be modified, use BufferedOutputStream.