

Alibaba Cloud Apsara File Storage NAS

Quick Start

Issue: 20190918

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Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information 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.
	This warning information 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 restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	 Notice: Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	 Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	It is used for buttons, menus, page names, and other UI elements.	Click OK .
Courier font	It is used for commands.	Run the <code>cd / d C :/ windows</code> command to enter the Windows system folder.
<i>Italics</i>	It is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[] or [a b]	It indicates that it is an optional value, and only one item can be selected.	<code>ipconfig [-all -t]</code>

Style	Description	Example
<code>{}</code> or <code>{a b}</code>	It indicates that it is a required value, and only one item can be selected.	<code>swich {stand slave}</code>

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1 NAS Capacity and NAS Performance

1.1 Mount a file system on an ECS instance running Linux

This topic describes how to create a file system and mount the file system on an ECS instance running Linux.

Prerequisites

1. You have created an Alibaba Cloud account and completed real-name verification.

If you do not have an Alibaba Cloud account, you need to create an account. For more information, see [Create an Alibaba Cloud account](#).

2. You have activated the Apsara File Storage NAS service.

When you log on to the [NAS console](#) for the first time, you need to follow the instructions to activate the NAS service.

3. You have an available ECS instance in the region where you need to create a file system.

If no ECS instance is available, you need to purchase an ECS instance. For more information, see [#unique_5](#).



Note:

- For more information about how to manage the NAS service by using a RAM user account, see [#unique_6](#).
- After you activate the NAS service, you are billed on the pay-as-you-go basis by default. If you want to use the NAS service with an extra discount, you can purchase a storage package. For more information, see [#unique_7](#).
- If you want to create a mount target in a VPC, you need to create a VPC in the region where the new file system resides. Then, you need to attach the ECS instance that hosts the file system to the VPC. For more information, see [Create a VPC and VSwitch](#).

Step 1: Create a file system

1. Log on to the [NAS console](#).
2. Choose NAS > File System List, and click Create File System.

3. In the Create File System dialog box, configure the required settings.

Parameter	Description
Region	<p>Select a region where you want to create a file system.</p> <p> Note:</p> <ul style="list-style-type: none"> When a file system and an ECS instance are located in different regions, you cannot mount the file system on the ECS instance. The supported storage types and protocol types of a file system vary depending on the region. For more information, see Regions and supported storage types and protocols. You can create up to 20 file systems in a region by using an Alibaba Cloud account.
Storage Type	<p>Valid values: SSD performance-type and Capacity-type.</p> <p> Note:</p> <p>The maximum capacity of an Apsara File Storage NAS Performance file system is 1 PB. The maximum capacity of an Apsara File Storage NAS Capacity file system is 10 PB. You are billed on the pay-as-you-go basis.</p>
Protocol Type	<p>Select NFS (including NFSv3 and NFSv4).</p> <p>NFS is used to share files stored on an ECS instance that runs Linux. SMB is used to share files stored on an ECS instance that runs Windows.</p>

Parameter	Description
Zone	<p>Each region has multiple isolated locations known as zones. The power supply and network of each zone are independent.</p> <p>Select a zone from the drop-down list. We recommend that you select the zone where the target ECS instance resides.</p> <div style="background-color: #f0f0f0; padding: 5px;">  Note: When a file system and an ECS instance are located in different zones in the same region, you can mount the file system on the ECS instance. </div>
Storage Package	<p>Storage packages are optional for a file system. If you buy a storage package, you can enjoy an extra discount over the fee charged by using the pay-as-you-go billing method. If you do not purchase a storage package, you are billed on the pay-as-you-go basis by default. For more information, see Pricing.</p>

4. Click OK to create the new file system.

Step 2: Add a mount target

You need to use a mount target to mount an Apsara File Storage NAS file system on an ECS instance. You can create a mount target in a VPC or classic network for the file system. To create each type of the mount target, perform the following steps as required.



Note:

You can add up to two mount targets for each file system.

1. Log on to the [NAS console](#).
2. Choose NAS > File System List.
3. Find the target file system, and click Add Mount Point.

4. In the Add Mount Point dialog box, configure the required settings.

Mount Point Type includes VPC and classic network.

- If you want to create a mount target in a VPC, configure the required settings.

Parameter	Description
VPC	<p>Select a VPC. If no VPC is available, create a VPC in the Virtual Private Cloud console.</p> <p> Note: The VPC and VSwitch you select must be the same as those of the ECS instance on which you mount a file system.</p>
VSwitch	Select a VSwitch that is created in the VPC.

Parameter	Description
Permission Group	<p>Select VPC default permission group (allow all) or an existing permission group.</p> <div style="background-color: #f0f0f0; padding: 10px;"><p> Note:</p><p>This VPC default permission group is generated for each Alibaba Cloud account, which allows access to the file system through the mount target from all IP addresses of the VPC. For more information about how to create a permission group, see #unique_10.</p></div>

- If you want to create a mount target in a classic network, configure the required settings.

Parameter	Description
Permission group	<p>Select a permission group. If no available permission group exists, create a permission group in the NAS console.</p> <p>.</p> <div style="background-color: #f0f0f0; padding: 10px;"> <p> Note:</p> <ul style="list-style-type: none"> - You can create a mount target in a classic network only in a region located in mainland China. - You can attach a mount target in a classic network only to an ECS instance. - For data security, no default permission group is available for a mount target in a classic network. You need to create a permission group for the mount target in the classic network and add required rules to the permission group. For more information about how to manage permission groups, see #unique_10. - When creating a mount target in a classic network for the first time, you are required to use RAM to authorize the NAS service to access ECS instances hosted by the logon Alibaba Cloud account. We recommend that you follow the instructions to complete the authorization before creating a mount target in a classic network. For more information, see #unique_11. </div>

5. Click OK to add the mount target.

Step 3: Install an NFS client

Before mounting an NFS file system on an ECS instance running Linux, you must install an NFS client.

1. Log on to the [ECS console](#).

2. Run the following command to install the NFS client.

- If your ECS instance runs CentOS, RHEL, or Aliyun Linux, run the following command.

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

- If your instance runs Ubuntu or Debian, run the following commands.

```
sudo apt-get update
```

```
sudo apt-get install nfs-common
```

3. Change the maximum number of concurrent NFS requests. For more information, see [#unique_12](#).

The maximum number of concurrent requests from an NFS client is limited to 2 by default, which reduces NFS performance.

Step 4: Mount a file system

You can use the domain name of a file system or the domain name of the mount target to mount the NFS file system on an ECS instance. The domain name of the file system is resolved to the IP address of the mount target in the zone where the ECS instance resides.

1. Log on to the [ECS console](#).

2. Mount the NFS file system.

- To mount an NFSv4 file system, run the following command.

```
sudo mount -t nfs -o vers=4,minorversion=0,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport file-system-id.region.nas.aliyuncs.com :/ /mnt
```

If you fail to mount the file system, run the following command.

```
sudo mount -t nfs4 -o rsize=1048576,wsiz=1048576,hard,timeo=600,retrans=2,noresvport file-system-id.region.nas.aliyuncs.com :/ /mnt
```

- To mount an NFSv3 file system, run the following command.

```
sudo mount -t nfs -o vers=3,noatime,proto=tcp,rsize=1048576,wsiz=1048576,hard,timeo=600,retrans
```

```
= 2 , noresvport file - system - id . region . nas . aliyuncs .
com :/ / mnt
```

For more information about how to troubleshoot the errors returned by the mount command, see [#unique_13](#).

The following table describes the parameters used in the mount commands.

Parameter	Description
Mount point	<p>Includes the domain name and mount directory of a mount target. You need to replace the value of this parameter based on your business requirements.</p> <ul style="list-style-type: none"> · The domain name of a mount target is generated when you create the mount target. You do not need to manually configure the name of a mount point. · The mount directory of a mount target can be the root directory (/) or a sub-directory such as /mnt in Linux.
vers	The version of the file system. Only NFSv3 and NFSv4 are applicable.
Mount parameters	When you mount a file system, multiple mount parameters are available. For more information, see the Mount parameters table in #unique_15 .

3. Run the `mount -l` command to view the mount result.

The following figure shows an example of a successful mount.

```
debugfs on /sys/kernel/debug type debugfs (rw,relatime)
mqueue on /dev/mqueue type mqueue (rw,relatime)
hugetlbfs on /dev/hugepages type hugetlbfs (rw,relatime)
sunrpc on /var/lib/nfs/rpc_pipefs type rpc_pipefs (rw,relatime)
0 .cn-hangzhou.nas.aliyuncs.com:/ on /mnt type nfs4 (rw,relatime,vers=4.0,rsize=1048576,wsz=1048576,namlen=255,hard,noresvport,proto=tcp,timeo=600,retrans=2,sec=sys,clientaddr=10.10.10.1,local_lock=none,addr=10.10.10.1,_netdev)
tmpfs on /run/user/0 type tmpfs (rw,nosuid,nodev,relatime,size=800916k,mode=700)
[root@izbp19_je62it618xd1t876Z ~]#
```

After a file system is mounted, you can use the `df -h` command to view the capacity of the file system.

4. After mounting an Apsara File Storage NAS file system, you can read data from and write data to the file system on an ECS instance.

You can access the file system by using the method you access a normal directory. An example is shown as follows.

```
[root@iZm5e6owiqa421d4p9f16qz ~]# mkdir /mnt/dir1
[root@iZm5e6owiqa421d4p9f16qz ~]# mkdir /mnt/dir2
[root@iZm5e6owiqa421d4p9f16qz ~]# touch /mnt/file1
[root@iZm5e6owiqa421d4p9f16qz ~]# echo 'some file content' > /mnt/file2
[root@iZm5e6owiqa421d4p9f16qz ~]# ls /mnt
dir1  dir2  file1  file2  tmp
```

1.2 Mount a file system on an ECS instance running Windows

This topic describes how to create a file system and mount the file system on an ECS instance that runs Windows.

Prerequisites

1. You have created an Alibaba Cloud account and completed real-name verification.

If you do not have an Alibaba Cloud account, you need to create an account. For more information, see [Create an Alibaba Cloud account](#).

2. You have activated the Apsara File Storage NAS service.

When you log on to the [NAS console](#) for the first time, you need to follow the instructions to activate the NAS service.

3. You have an available ECS instance in the region where you need to create a file system.

If no available ECS instance exists, you need to purchase an ECS instance. For more information, see [#unique_5](#).

4. The Workstation and TCP/IP NetBIOS Helper services must be launched on the Windows system. For more information, see [#unique_17](#).



Note:

- For more information about how to manage the NAS service by using a RAM user account, see [#unique_6](#).
- After you activate the NAS service, you are billed on the pay-as-you-go basis by default. If you want to use the NAS service with an extra discount, you can purchase a storage package. For more information, see [#unique_7](#).

- If you want to create a mount target in a VPC, you need to create a VPC in the region where the new file system resides. Then, you need to attach the ECS instance that hosts the file system to the VPC. For more information, see [Create a VPC and VSwitch](#).

Step 1: Create a file system

1. Log on to the [NAS console](#).
2. Choose NAS > File System List, and click Create File System.
3. In the Create File System dialog box, configure the required settings.

Parameter	Description
Region	<p>Select a region where you want to create a file system.</p> <div style="background-color: #f0f0f0; padding: 5px;">  Note: <ul style="list-style-type: none"> · When a file system and an ECS instance are located in different regions, you cannot mount the file system on the ECS instance. · The supported storage types and protocol types of a file system vary depending on the region. For more information, see Regions and supported storage types and protocols. · You can create up to 20 file systems in a region by using an Alibaba Cloud account. </div>
Storage Type	<p>Valid values: SSD performance-type and Capacity-type.</p> <div style="background-color: #f0f0f0; padding: 5px;">  Note: <p>The maximum capacity of an Apsara File Storage NAS Performance file system is 1 PB. The maximum capacity of an Apsara File Storage NAS Capacity file system is 10 PB. You are billed on the pay-as-you-go basis.</p> </div>

Parameter	Description
Protocol Type	Select SMB (2.1 and later). NFS is used to share files stored on an ECS instance that runs Linux. SMB is used to share files stored on an ECS instance that runs Windows.
Zone	Each region has multiple isolated locations known as zones. The power supply and network of each zone are independent. Select a zone from the drop-down list. We recommend that you select the zone where the target ECS instance resides.  Note: When a file system and an ECS instance are located in different zones in the same region, you can mount the file system on the ECS instance.
Storage Package	Storage packages are optional for a file system. If you buy a storage package, you can enjoy an extra discount over the fee charged by using the pay-as-you-go billing method. If you do not purchase a storage package, you are billed on the pay-as-you-go basis by default. For more information, see Pricing .

4. After you complete the configuration, click OK.

Step 2: Add a mount target

You need to use a mount target to mount an Apsara File Storage NAS file system on an ECS instance. You can create a mount target in a VPC or classic network for the file system. To create each type of the mount target, perform the following steps as required.



Note:

You can add up to two mount targets for each file system.

1. Log on to the [NAS console](#).
2. Choose NAS > File System List.

3. Find the target file system, and click Add Mount Point.
4. In the Add Mount Point dialog box, configure the required settings.

Mount Point Type includes VPC and classic network.

- If you want to create a mount target in a VPC, configure the required settings.

Parameter	Description
VPC	<p>Select a VPC. If no VPC is available, create a VPC in the Virtual Private Cloud console.</p> <p> Note: The VPC and VSwitch you select must be the same as those of the ECS instance on which you mount a file system.</p>
VSwitch	Select a VSwitch that is created in the VPC.

Parameter	Description
Permission Group	<p>Select VPC default permission group (allow all) or an existing permission group.</p> <div style="background-color: #f0f0f0; padding: 10px;"><p> Note:</p><p>This VPC default permission group is generated for each Alibaba Cloud account, which allows access to the file system through the mount target from all IP addresses of the VPC. For more information about how to create a permission group, see #unique_10.</p></div>

- If you want to create a mount target in a classic network, configure the required settings.

Parameter	Description
Permission group	<p>Select a permission group. If no available permission group exists, create a permission group in the NAS console.</p> <p>.</p> <div style="background-color: #f0f0f0; padding: 10px;"> <p> Note:</p> <ul style="list-style-type: none"> - You can create a mount target in a classic network only in a region located in mainland China. - You can attach a mount target in a classic network only to an ECS instance. - For data security, no default permission group is available for a mount target in a classic network. You need to create a permission group for the mount target in the classic network and add required rules to the permission group. For more information about how to manage permission groups, see #unique_10. - When creating a mount target in a classic network for the first time, you are required to use RAM to authorize the NAS service to access ECS instances hosted by the logon Alibaba Cloud account. We recommend that you follow the instructions to complete the authorization before creating a mount target in a classic network. For more information, see #unique_11. </div>

5. Click OK to add the mount target.

Step 3: Mount a file system

Perform the following steps to mount an SMB file system on an ECS instance.

1. Log on to the [ECS console](#).

2. Open the command prompt and run the following command to mount the file system.

```
net use D : \\ file - system - id . region . nas . aliyuncs .  
com \ myshare
```

The format of the command used to mount the file system is `net use < the drive of the mount point > \\< the domain name of the mount target > \ myshare .`

- The drive of the mount point: The target drive on which you need to mount a file system. You can select the target drive based on your business requirements.
- The domain name of the mount target: When you create a mount target for a file system, the domain name of the mount target is automatically generated. You can replace the domain name based on your business requirements. For more information, see [#unique_18](#).
- myshare: The name of an SMB share. You cannot change the name.



Note:

The name of the target mount drive must be unique on the target ECS instance.

For more information about how to troubleshoot the errors returned by the mount command, see [#unique_13](#).

3. Run the `net use` command to view the mount result.

The following figure shows an example of a successful mount.

```
C:\Users\Administrator>net use  
New connections will be remembered.  


| Status | Local | Remote                                                   | Network                   |
|--------|-------|----------------------------------------------------------|---------------------------|
| OK     | D:    | \\6778-8242-4471-4471-4471-4471.nas.aliyuncs.com\myshare | Microsoft Windows Network |

  
The command completed successfully.
```

4. After mounting an Apsara File Storage NAS file system, you can read data from and write data to the file system on an ECS instance.