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FAQs

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Document conventions

Style	Description	Example
 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.
 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.
 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.	 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 OK .
Courier font	Courier font is used for commands	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
<i>Italic</i>	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid</code> <i>Instance_ID</i>
[] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	<code>switch {active stand}</code>

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1.Common issues

1.1. What protocols does CSG support?

This topic introduces the protocols supported by file and block gateways.

Cloud Storage Gateway (CSG) provides two types of instances: file gateways and block gateways.

- File gateways support the NFS protocol, including NFSv3 and NFSv4, and the SMB protocol. You can connect files gateways to Object Storage Service (OSS) through these protocols. All the data stored in your local file system can be synchronized to OSS buckets.
- Block gateways support the iSCSI protocol and provide iSCSI volumes that support cloud storage.

1.2. What services does CSG provide?

This topic describes the services offered by Cloud Storage Gateway (CSG).

Cloud Storage Gateway is a storage service that helps you seamlessly integrate on-premises applications, infrastructure, and data storage with Alibaba Cloud. You can deploy virtual devices compatible with standard storage protocols in an on-premises data center and on Alibaba Cloud to connect your storage applications and workloads to Alibaba Cloud storage and computing services.

1.3. How do I deploy Cloud Storage Gateway instances in on-premises data centers?

This topic describes how to install a Cloud Storage Gateway (CSG) image in an on-premises data center to deploy virtual machines.

Prerequisites

You have downloaded the target image to your local host.

- For more information about how to deploy on-premises file gateways, see [Download an image](#).
- For more information about how to deploy on-premises block gateways, see [Step 1: Download the image](#).

Context

You can deploy CSG instances on Alibaba Cloud or in on-premises data centers. To deploy CSG instances in an on-premises data center, you must install the required image provided by Alibaba Cloud and deploy virtual machines in the on-premises data center first. Currently, the VMware ESXi, Hyper-V, KVM, and Xen hypervisors are supported. This topic describes how to install VMware OVA, KVM, and Hyper-V images.

Install a VMware OVA image

You can use the VMware vCenter system to install a VMware OVA image. This helps you deploy virtual machines.

 **Note** Note that version 1.0.30 and later of OVA images only support VMware vCenter 6.0 and later.

1. Log on to the VMware vCenter system.
2. Find and right-click the target host and select **Deploy OVF Template**.
3. Deploy an OVF template.
 - i. Select an OVF template and click **Next**.
 - ii. Enter the name of the OVF template, select the deployment location, and then click **Next**.
 - iii. Select a resource where you want to run the deployed VM template, and then click **Next**.
 - iv. Verify the OVF template details and click **Next**.
 - v. Click **Accept** to accept the end user license agreement, and then click **Next**.
 - vi. Define where to store the files for the deployed OVF template, and click **Next**.
 - vii. Select a source network, map the network to a destination network, and click **Next**.
 - viii. Specify the properties of the OVF template, and click **Next**.
 - ix. Click **Finish** to deploy the OVF template.

After the OVF template is deployed, you can log on to the gateway console. The default username is root, and the default password is Alibaba#sgw#1030.

Install a KVM image

You can use the virt-manager tool to install a KVM image. This helps you deploy virtual machines. virt-manager is an open-source desktop tool developed by Red Hat for managing virtual machines. You can install virt-manager in the Ubuntu operating system.

1. Run the following command to install virt-manager.

```
sudo apt-get install qemu-kvm libvirt-bin virt-manager bridge-utils
```

2. Run the following command to start virt-manager.

```
virt-manager
```

3. Create a virtual machine.
 - i. Click the  icon to create a virtual machine.
 - ii. Select **Import existing disk image** and click **Forward**.
 - iii. Select the CSG disk image and click **Forward**.

 **Note** The image file extension must be .qcow2.

- iv. Configure CPU and memory, and click **Forward**.

We recommend that you set the memory to no less than 8 GB, and the number of CPU cores to no less than 4.
- v. Enter the name of the virtual machine, select the **Customize configuration before install** check box, and then click **Finish** to create the virtual machine.
4. After the virtual machine is created, a new window that allows you to initiate the installation

appears.

- i. Click **IDE Disk 1** to configure disk settings.
 - Set **Disk bus** to **Virt IO**.
 - Set **Storage format** to **qcow2**.
 - ii. Click **NIC :d7:41:17**. Set **Device model** to **virtio** and click **Apply**.
5. Click **Begin Installation** to start the virtual machine.

After the virtual machine is started, you can log on to the gateway console. The default username is root, and the default password is Alibaba#sgw#1030.

Install a Hyper-V image

You can use Hyper-V Manager to install a Hyper-V image. This helps you deploy virtual machines.

1. Open Hyper-V Manager, right-click to choose **New > Virtual Machine**.
2. Review the **Before You Begin** content and click **Next**.
3. Specify a name for the virtual machine, choose a location to store virtual machine files, and then click **Next**.
4. Select **Generation 1** and click **Next**.
5. Set the memory size and click **Next**.
6. Select a vSwitch for the virtual machine and click **Next**.
7. Click **Finish**.

After the virtual machine is created, it is listed on the homepage of Hyper-V Manager.

After the virtual machine is started, you can log on to the gateway console. The default username is root, and the default password is Alibaba#sgw#1030.

1.4. How do I handle upgrade errors?

This topic describes how to troubleshoot upgrade errors that may occur when you upgrade a Cloud Storage Gateway (CSG) instance.

If your CSG instance is severely outdated, it may take a long time to upgrade the instance to the latest version. No other operations are required during the upgrade. Wait until the upgrade process is completed.

If the upgrade fails, the instance automatically rolls back to the original version before the upgrade and an error message appears. If the rollback fails, an error message appears in the CSG console. Submit a ticket that includes the error message.

2. CSG instances

2.1. How do I handle issues where no vSwitch is available when I create a gateway?

This topic describes how to handle issues where no vSwitch is available when you create a gateway.

When you create a gateway, you need to specify a VPC network and a vSwitch to provide gateway services. In some cases, no vSwitch is available under the selected VPC network. Zones in some regions may not have sufficient resources to create gateways. For example, top-ranking zones (Zone A, B, C, and D) in the China (Beijing), China (Shanghai), and China (Hangzhou) regions may not have sufficient resources.

In this case, you can select a low-ranking zone, for example, Zone G or H, to create a vSwitch. After the vSwitch is created, use it to create a gateway on the gateway creation page. You do not need to create the gateway in the zone where the ECS instance is deployed. However, you must deploy the gateway and ECS instance in the same VPC network to ensure that data communication can be established.

3. On-premises gateways

3.1. How can I check the network connectivity of a gateway?

Context

Before you deploy a cloud storage gateway on-premises, you must check the network connectivity. You must also ensure that the gateway network is connected when you use a cloud storage gateway. This topic describes how to check the network connectivity of a cloud storage gateway in the two cases.

Check the network connectivity before you activate the gateway

After the image of the cloud storage gateway is installed on an on-premises gateway, the gateway network must be connected. Otherwise, the gateway cannot be activated.

1. Install the image of the cloud storage gateway on an on-premises. Log on to the Cloud Storage Gateway console, and go to the Register page by using the IP address of the gateway.
2. Click **Network Detection** to check whether the network is connected.
3. Click **Refresh** to refresh the status of the network connection.

Check the network connectivity after you activate the gateway

After you activate the gateway, you can view the details of the network connection in the local console of the gateway.

1. Log on to the [local console of the gateway](#).
2. Choose **About > Network Information > Network Service Detection** to check whether the network is connected.
3. Click **Refresh** to refresh the status of the network connection.

 **Note** In the Network Detection Information section, you can view the status, name, endpoint, and time of inspection.

3.2. How do I download and install the CSG image?

This topic describes how to download and install the Cloud Storage Gateway (CSG) image.

- When you deploy a CSG instance on Alibaba Cloud, you do not need to download the image. The image is automatically installed after the CSG instance is created.
- When you deploy a CSG instance in an on-premises data center, you must download the CSG image from the CSG console and install the image on your virtual machine. Currently, the OVA, VHD, and QCOW2 image formats are supported. Choose an image according to your virtual machine. For more information, see [How do I deploy Cloud Storage Gateway instances in on-premises data centers?](#).

3.3. How do I log on to the on-premises gateway console?

This topic describes how to log on to the gateway console through a browser.

Procedure

1. In your firewall, open port 443.

 **Note** To ensure data security, the gateway console only supports the HTTPS protocol.

2. Open your browser, enter the IP address of the Cloud Storage Gateway (CSG) instance into the address bar.

`https: // <the IP address of the CSG instance>`

If it is the first time that you have logged on to the gateway console, you must set the username and password.

3.4. How do I configure the gateway IP address when I install an OVA image?

This topic describes how to configure the IP address of a gateway by deploying an OVF template.

Procedure

Download the OVA image from the Cloud Storage Gateway (CSG) console. You can deploy a gateway by **deploying an OVF template** in the local VMware virtual machine. For more information, see [Install a VMware OVA image](#).

On the **Custom Template** tab, configure an IP address and DNS servers for the gateway. After the deployment is complete, you can log on to the gateway console through an SSH tunnel or a browser.

4. File gateways

4.1. What character sets are supported by file gateways?

This topic describes the character sets that are supported by file gateways.

OSS file commands only support the UTF-8 character set. Files that do not use the UTF-8 character set cannot be uploaded to OSS. Therefore, file gateways only support uploading files that are named by using the UTF-8 character set to OSS.

Uploads of files that are not named by using the UTF-8 character set will fail, and occupy upload sessions. You need to manually clear the sessions. If you find files that are not named by using the UTF-8 character set on file gateways, submit a ticket.

4.2. What does file gateway cache do?

This topic describes the functions of file gateway cache.

When a local client uploads a file to OSS through a file gateway, file data is written to the file gateway cache first. After the complete file is written to the cache, the file gateway starts uploading the file to OSS. If new files are written to the cache while the file gateway is uploading the current file to OSS, the upload is interrupted. The upload is resumed only after the new files are completely written to the cache. OSS requires atomic data updates. Therefore, files can be uploaded to OSS only after they are completely written to the file gateway cache. This ensures data consistency between the local client and OSS.

After the cached file is uploaded to OSS, the file gateway replaces the cached data depending on how frequently the data is accessed to maintain the cache capacity. The cache replacement policies only apply to file data that has already been uploaded to OSS. The metadata, such as the file name, directory hierarchy, and permissions, of the file will not be replaced.

When you add a cache disk, you can use a cache calculator to calculate the appropriate amount of cache capacity.

4.3. What are the cache replacement policies of file gateways?

This topic describes the cache replacement policies of file gateways.

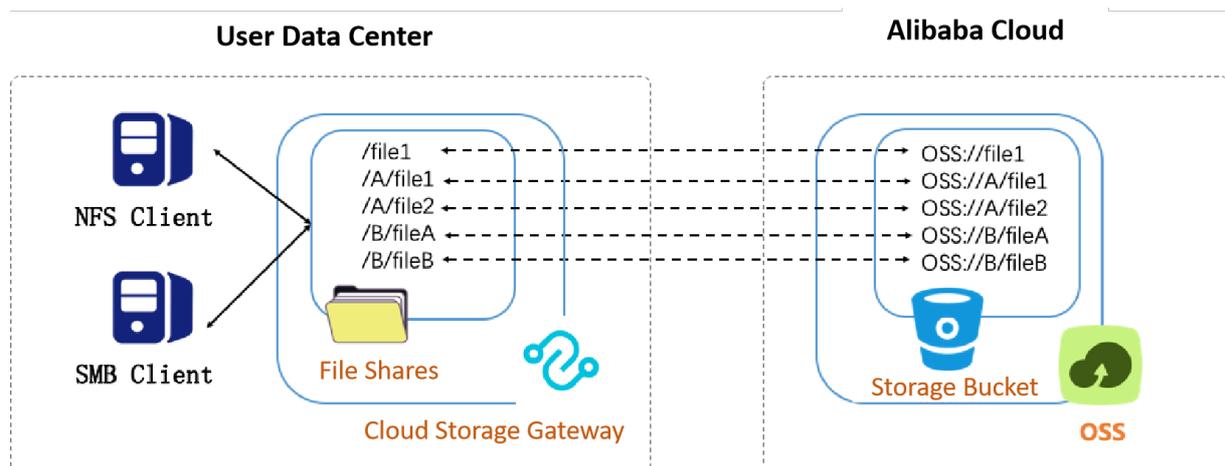
A file gateway determines whether to replace the cached data depending on the cache usage, as described in the following rules.

- When the cache usage is lower than 60%, no cache replacement policy is triggered.
- When the cache usage is between 60% and 80%, cache replacement policies are triggered. Cached data will be replaced until the cache usage drops below 60%.
- When the cache usage exceeds 80%, the file gateway quickly replaces cached data, and restricts the amount of data written from the frontend to reserve cache capacity.

4.4. How do file gateways map files between OSS and local clients?

This topic describes how file gateways map files between OSS and local clients.

A file gateway maps files in OSS buckets to local NFS and SMB clients through NFS and SMB shares, as shown in the following figure.



4.5. How do I view the synchronization list of gateway files in the Log Service console?

This topic describes how to view the reverse synchronization list and express synchronization list of gateway files in the Log Service console.

Prerequisites

A logging monitor is created for the file gateway. For more information, see [Configure the logging monitor or feature](#).

Procedure

1. Log on to the [Log Service console](#).
2. In the **Projects** section, click the project that is monitored.
3. On the **Logstores** tab in the left-side navigation pane, move the pointer over the target Logstore, click the  > **Search & Analysis**.
4. In the dialog box that appears, click **OK** to enable the index feature of the Logstore. Use the default settings when you enable this feature.
5. Enter a query statement in the format of `<Gateway ID> and <OSS bucket name> and rsync`. Click **Search & Analyze**. The synchronization list of gateway files appears on the **Raw Logs** tab.

 Note

- The default time range of a query in the Log Service console is 15 minutes. You can modify the time range based on your needs.
- You can customize your query statements based on your needs. For more information, see [Search syntax](#).

4.6. How do I configure and use sync delay?

File gateways support the sync delay feature. A file gateway must wait a specified period of time before it uploads a file to the associated Object Storage Service (OSS) bucket.

Scenarios

Every time you update a file that is being uploaded by a file gateway, the file gateway has to re-upload the file to OSS. Therefore, if you frequently update a large file, the bandwidth may be exhausted. If a file gateway has the sync delay feature configured, the file gateway waits until the whole file is uploaded to the gateway, and then uploads the file to OSS. This saves bandwidth and improves the upload efficiency.

Configure sync delay

Enable the sync delay feature when you create a share. For more information, see [Create a share](#).

4.7. Why is data on my CSG instance not uploaded to the OSS bucket?

This topic describes why data on a Cloud Storage Gateway (CSG) instance is not uploaded to the associated Object Storage Service (OSS) bucket.

The following reasons may cause upload failures:

- If you are using a CSG version earlier than 1.0.31, the upload fails when the total file size exceeds 120 GB. If you are using CSG 1.0.31 or later, the upload fails when the total file size exceeds 1.2 TB.
- If you are using a CSG version earlier than 1.0.31, when the file that you want to upload is a sparse file that contains holes, the upload fails and the system keeps trying to upload the file.

4.8. How do I configure NFSv4 shares?

This topic describes how to configure an NFSv4 share on a file gateway.

Procedure

1. Log on to your Linux-based host.
2. Run the following command to mount a file system.

```
mount -t nfs4 x.x.x.x:/shares local-directory
```

x.x.x.x:/shares represents the IP address of the file gateway and the share. local-directory represents the local directory of your client.

Note Specify any file directory that supports read and write operations. You cannot specify a directory that does not exist.

- 3. Run the `df -h` command to verify the result.

If the following or similar information appears, it indicates that the file system is mounted to the local directory.

```
[root@centos7cb ~]# df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/vda1        99G   1.6G   92G   2% /
devtmpfs         24G    0    24G   0% /dev
tmpfs            24G    0    24G   0% /dev/shm
tmpfs            24G   424K   24G   1% /run
tmpfs            24G    0    24G   0% /sys/fs/cgroup
tmpfs            4.8G    0   4.8G   0% /run/user/0
[redacted]:/[redacted] 256T    0  256T   0% /local-directory
[root@centos7cb ~]#
```

4.9. How do I configure and use ignore delete?

File gateways support the ignore delete feature to guarantee the integrity of data stored on Object Storage Service (OSS). When you delete a file stored on a file gateway, the same file in the associated OSS bucket is still retained.

Scenarios

When you need to delete data on a file gateway without changing the data in the associated OSS bucket, you can enable the ignore delete feature.

Note The ignore delete and remote sync features are mutually exclusive.

Configure ignore delete

You can enable the ignore delete feature when you create a file gateway. For more information, see [Create a share](#).

4.10. How do I configure and use remote sync?

File gateways support the remote sync feature, which synchronizes data in the associated Object Storage Service (OSS) bucket to the file gateway.

Scenarios

- When multiple Cloud Storage Gateway (CSG) instances use the same OSS bucket, data stored in the OSS bucket can be shared among these CSG instances.
- You can use the remote sync feature to restore data from the associated OSS bucket to a CSG instance.

 **Note** The default time delay of the remote sync feature is 36,000 seconds.

Configure remote sync

You can enable the remote sync feature when you create a CSG instance. For more information, see [Create a share](#).

4.11. How do I handle creation errors when I try to create shares in the console?

If you are using Cloud Storage Gateway 1.0.36 or later, check for the following causes and use the relevant solutions when you fail to create a share in the gateway console.

Causes

Version 1.0.36 and later allow you to use the SSE4 instruction set to improve the performance. Currently, major CPUs, such as Intel and AMD, all support the SSE4 instruction set. However, in a local virtual environment, you cannot pass the SSE4 instruction set through to virtual machines. As a result, you may fail to create a share in the gateway console. When this error occurs, the following error message appears: HFSMount Error on /xx/xxx/xx/xx.

Solutions

1. Check whether your host supports the SSE4 instruction set.

If your host runs the Linux operating system, run the following command to check whether it supports the SSE4 instruction set:

```
cat /proc/cpuinfo | grep sse4
```

If the result contains sse4, it indicates that the CPU supports the SSE4 instruction set.

2. Use KVM to pass the SSE4 instruction set through to the virtual machine.

 **Note** By default, VMware vSphere and Hyper-V can pass the CPU properties through to the virtual machine. You do not need to configure VMware vSphere or Hyper-V.

- i. Stop the CSG virtual machine.
- ii. Add the following configuration item to the configuration file of the virtual machine:

```
<cpu mode='host-passthrough'></cpu>
```

- iii. Restart the virtual machine to apply the configuration.

5. What can I do if I cannot mount an SMB share on Windows Server 2019?

This topic provides a solution for an error that may occur when you mount an SMB share on Windows Server 2019.

Issue

When you mount an SMB share on Windows Server 2019, an error occurs.

Solution

1. On an on-premises Windows client, press `Win+R` to open the Run dialog box. In the Run dialog box, enter `gpedit.msc` in the Open field, and then click **OK**.
2. In the left-side navigation pane of the **Local Group Policy Editor** dialog box, choose **Computer Configuration > Administrative templates > Network > Lanman Workstation**.
3. In the **Setting** section of the **Lanman Workstation** page, click **Enable insecure guest logons**.
4. In the **Enable insecure guest logons** dialog box, select **Enabled**. Click **Apply**.
5. Mount the SMB share.

6. Block gateways

6.1. What are the limits on mounting iSCSI volumes?

This topic describes the limits on mounting iSCSI volumes.

- Due to the limits of the iSCSI protocol, different file systems are used in iSCSI volumes to support Windows-based clients and Linux-based clients. Therefore, you have to choose between a Windows-based client and a Linux-based client when you need to use a client to access an iSCSI volume.
- Do not mount the same iSCSI volume to multiple clients as a share. Block gateways do not allow you to access the same iSCSI volume from different clients at the same time.

6.2. What considerations do I need to pay close attention when a block gateway transmits data?

This topic describes the considerations that you must pay close attention to when a block gateway transmits data.

Data is uploaded to block gateways in slices. You can customize the slice size. The default slice size is 32 KB. On-premises block gateways cache data based on how frequently the data is read. When an on-premise block gateway needs to read cold data (infrequently read data) but it cannot find the data on the client, it downloads the data from the associated Object Storage Service (OSS) bucket.

Downstream transmissions occur.

6.3. How do I use block gateways to create file systems and synchronize data to iSCSI volumes?

This topic describes how to use a block gateway to create a file system and synchronize the cached data to an iSCSI volume.

- Linux environment

If you have created a local file system, such as XFS or Ext4, on an iSCSI volume, you can run the `sync` command to synchronize data to the iSCSI volume. When you manually unmount the file system, the file system also synchronizes the cached data to the iSCSI volume.

- Windows environment

If you have created an NTFS local file system on an iSCSI volume, you can use the `sync.exe` or `sync64.exe` process provided by the Sysinternals utilities to synchronize cached data to the iSCSI volume.

[Download Sync v2.2.](#)

```
C:\Users\Administrator\Desktop>sync64.exe -r f:
Sync v2.2 - Flush cached data to disk.
Copyright (C) 2016 Mark Russinovich
Sysinternals - www.sysinternals.com

Flushing: F
C:\Users\Administrator\Desktop>
```