

# Alibaba Cloud

CDN

Best Practices









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# Document conventions

Style	Description	Example
 <b>Danger</b>	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
 <b>Warning</b>	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
 <b>Notice</b>	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
 <b>Note</b>	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click <b>Settings</b> > <b>Network</b> > <b>Set network type</b> .
<b>Bold</b>	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 <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. Use Alibaba Cloud CDN to accelerate the delivery of resources from OSS buckets

## 1.1. Accelerate the retrieval of resources from an OSS bucket in the Alibaba Cloud CDN console

You can use Alibaba Cloud CDN to accelerate the retrieval of static resources from an Object Storage Service (OSS) bucket. This topic describes how to accelerate the retrieval of resources from an OSS bucket in the Alibaba Cloud CDN console and the use scenarios of Alibaba Cloud CDN.

### Benefits

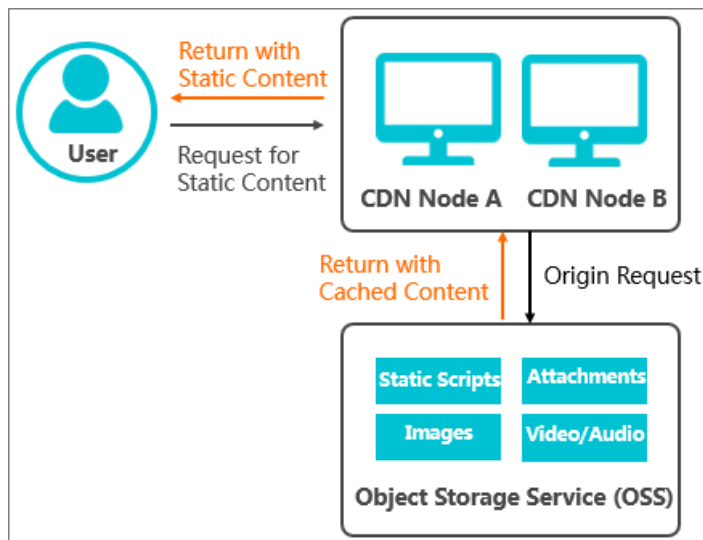
OSS is a cost-effective storage service. Alibaba Cloud CDN can accelerate the delivery of static resources. OSS buckets as origin servers provide the following benefits:

- All requests destined for the origin server are redirected to CDN edge nodes to reduce loads on the origin server.
- You are charged for outbound data transfer from Alibaba Cloud CDN instead of outbound data transfer over the Internet from OSS. Outbound data transfer from Alibaba Cloud CDN is billed at a lower price.
- Clients retrieve static resources from the nearest CDN edge nodes to minimize the network transmission distance and ensure the quality of data transmission.

### Architecture

If the origin server is an OSS bucket, Alibaba Cloud CDN caches the static resources, including scripts, images, audio files, and video files, from the bucket to CDN edge nodes. When users request the resources, the edge nodes return the requested resources to the users. This accelerates content delivery.

The following figure shows the architecture.



## Use scenarios

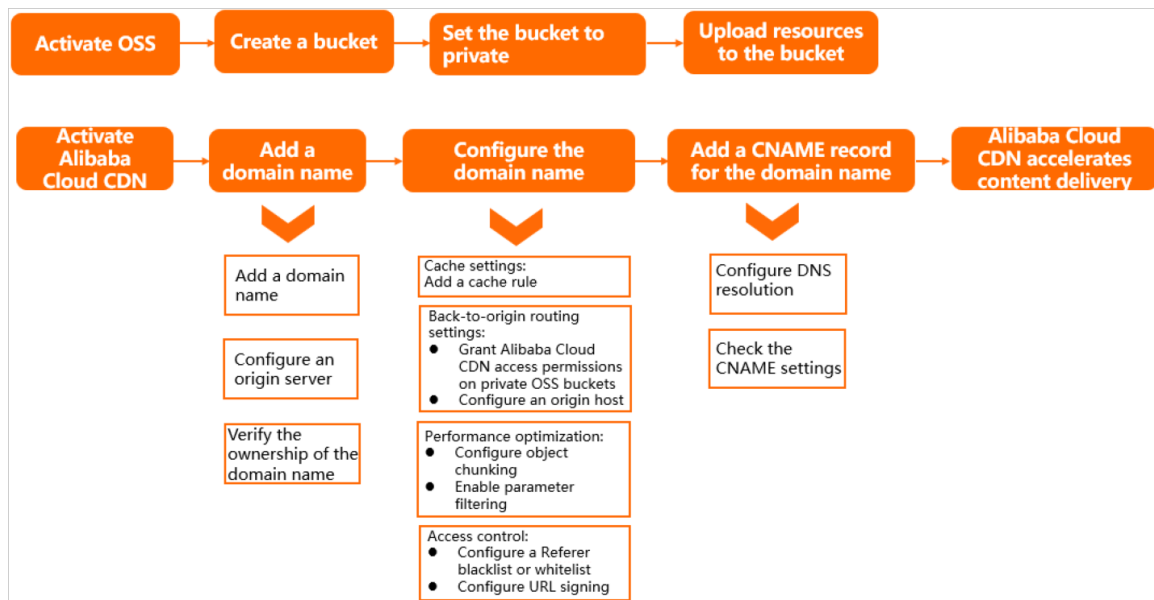
The website `image.example.com` requires acceleration for image retrieval from an OSS bucket. The following table describes the business information and requirements.

Item	Description	Scenario
Domain name	The domain name that is accelerated by Alibaba Cloud CDN.	<code>image.example.com</code>
Business type	Determine the business type based on the website content. If the website distributes images, set the business type to <b>Image and Small File</b> .	Image and Small File
Accelerated region	The region where the website visitors are located.	Mainland China Only
Origin server domain name	You can select an OSS bucket that belongs to the current Alibaba Cloud account, or enter the public endpoint of an OSS bucket.	<code>***.oss-cn-hangzhou.aliyuncs.com</code>

Item	Description	Scenario
Other features	Enable other features based on your business requirements.	<ul style="list-style-type: none"> <li>• Increase cache hit ratios by adding cache rules.</li> <li>• Specify domain names for back-to-origin routing by configuring origin hosts.</li> <li>• Protect OSS buckets from unauthorized access by enabling access control on private OSS buckets.</li> <li>• Accelerate delivery for specific resources by enabling object chunking.</li> <li>• Increase the cache hit ratio and accelerate file distribution by enabling parameter filtering.</li> <li>• Protect CDN edge nodes from hotlinking by configuring Referer whitelists or blacklists.</li> <li>• Protect websites from hotlinking issues and IP theft by enabling URL signing.</li> </ul>

## Procedure

The following procedure shows how to use Alibaba Cloud CDN to accelerate content delivery for a website. The preceding scenario is used as an example.



## Step 1: Make preparations

- An [Alibaba Cloud account](#) is created and the account has passed [real-name verification](#).
- Alibaba Cloud CDN and OSS are activated. For more information, see [Activate Alibaba Cloud CDN](#) and [Activate OSS](#).
- An OSS bucket is created and set to private. For more information, see [Create buckets](#) and [Modify the](#)

ACL of a bucket.

**Note** Private OSS buckets do not allow unauthorized access and prevent hotlinking issues.

- A domain name to be accelerated is prepared.

## Step 2: Add the domain name to be accelerated

1. Log on to the [Alibaba Cloud CDN console](#).
2. In the left-side navigation pane, click **Domain Names**, click **Add Domain Name**, and then set the following parameters. The scenario described in [Use scenarios](#) is used as an example.

### **Note**

- The first time a domain name is added to Alibaba Cloud CDN, Alibaba Cloud CDN must verify the ownership of the domain name. Alibaba Cloud CDN verifies the ownership only of the **root domain name**. For more information, see [Verify the ownership of a domain name](#). If the root domain name has already passed ownership verification, ignore this message.
- For more information about the parameters and usage notes, see [Step 1: Complete basic settings and specify business information](#).

- **Domain Name to Accelerate:** Enter `image.example.com`.
- **Business Type:** Select **Image and Small File**.
- **Region:** Select **Mainland China Only**.

3. Click **Add Origin Server** to add an origin server.

Set Origin Info to OSS Domain and select an OSS bucket that belongs to the current account from the **Domain Name** drop-down list. Keep the default values for other parameters. `***.oss-cn-hangzhou.aliyuncs.com` is used in this example.

### **Note**

- Internal endpoints of OSS buckets are not supported.
- You can check the public endpoint of an OSS bucket in the [OSS console](#).
- For more information about the parameters and usage notes, see [Set up origin servers](#).


4. After you set up origin servers, click **Next**.
5. Wait for manual verification.
6. When the value in the Status column changes to Enabled, the CNAME assigned to the domain name is displayed. The CNAME for the domain name used in this example is `image.example.com.w.kunlunsl.com`.


## Step 3: Configure the domain name

To improve acceleration performance, secure data transmission, and accelerate content delivery, you can enable relevant features based on your business requirements.



1. In the Alibaba Cloud CDN console, navigate to the **Domain Names** page, find the domain name that you want to manage, and then click **Manage**.
2. Enable the following features based on your business requirements.

Scenario	Description	Parameter
Increase the cache hit ratio	<p>Set a proper time-to-live (TTL) value for cached resources based on the following rules to increase the cache hit ratio:</p> <ul style="list-style-type: none"> <li>◦ Specify a TTL of one month or longer for static files that are infrequently updated, such as images and application packages.</li> <li>◦ Specify a TTL based on your business requirements for static files that are frequently updated, such as JavaScript and CSS files.</li> <li>◦ Specify a TTL of 0 seconds to disable caching for dynamic files, such as PHP, JSP, and ASP files.</li> </ul>	Add a cache rule
Specify a site to which edge nodes redirect requests	<p>By default, the address of the host is the endpoint of the OSS bucket. The endpoint of the OSS bucket in this example is <code>***.oss-cn-hangzhou.aliyuncs.com</code>.</p> <p>If the OSS bucket is associated with a custom domain name, such as <code>origin.developer.aliyundoc.com</code>, you must set the Domain Type to <b>Custom Domain</b>, and set the origin host to <code>origin.developer.aliyundoc.com</code>. For more information, see <a href="#">Configure an origin host</a>.</p>	Configure an origin host
Protect OSS buckets from unauthorized access	<p>By default, OSS buckets are accessible over the Internet. If you want to protect OSS buckets from unauthorized access, you can set the OSS buckets to private and enable access control. This way, Alibaba Cloud CDN has permissions to redirect requests only to OSS buckets that belong to the same account as Alibaba Cloud CDN.</p>	<p>Grant Alibaba Cloud CDN access permissions on private OSS buckets</p> <div>  <b>Note</b> Before you perform this operation, set the OSS buckets to private, which allows only authorized access. For more information, see <a href="#">Modify the ACL of a bucket</a>.         </div>

Scenario	Description	Parameter
Accelerate file distribution on CDN edge nodes	<p>After object chunking is enabled, the OSS bucket that functions as the origin server returns the chunk of file that is specified by the Range header to edge nodes. This reduces data transfer on the origin server and accelerates content delivery.</p> <div><p> <b>Note</b> Object chunking is suitable for large file distribution scenarios such as audio and video streaming. It is not suitable for small file distribution. You do not need to enable object chunking when you use Alibaba Cloud CDN to accelerate the delivery of images.</p></div>	Object chunking
<ul style="list-style-type: none"><li>◦ Increase the cache hit ratio</li><li>◦ Increase file distribution efficiency</li></ul>	After parameter filtering is enabled, CDN edge nodes remove parameters that follow the question ( ? ) from request URLs. This way, requests that carry different query strings but for the same resource can hit cache. This increases the cache hit ratio and reduces back-to-origin traffic.	Ignore parameters
Protect websites from hotlinking issues	After you configure a Referer whitelist or blacklist, Alibaba Cloud CDN allows or blocks requests based on user identities. If a request is authorized, Alibaba Cloud CDN returns the URL of the requested resource. If a request is not authorized, Alibaba Cloud CDN returns the HTTP 403 status code.	Configure a Referer whitelist or blacklist to enable hotlink protection
Protect a website from hotlinking and IP theft	URL signing cannot be performed without the origin server. The origin server generates signed URLs based on the URL signing settings on the CDN edge nodes. After URL signing is enabled, only requests that pass authentication can access resources on CDN edge nodes.	Configure URL signing

## Step 4: Add a CNAME record

You must add a CNAME record in the system of your DNS service provider to map the domain name to the CNAME before requests can be redirected to edge nodes. Otherwise, CDN acceleration cannot take effect.

In the following example, Alibaba Cloud DNS is used to show how to add a CNAME record.

 **Note** For more information, see [Add a CNAME record for a domain name](#).

1. Log on to the [Alibaba Cloud DNS console](#) with the **Alibaba Cloud** account to which the accelerated domain name belongs.

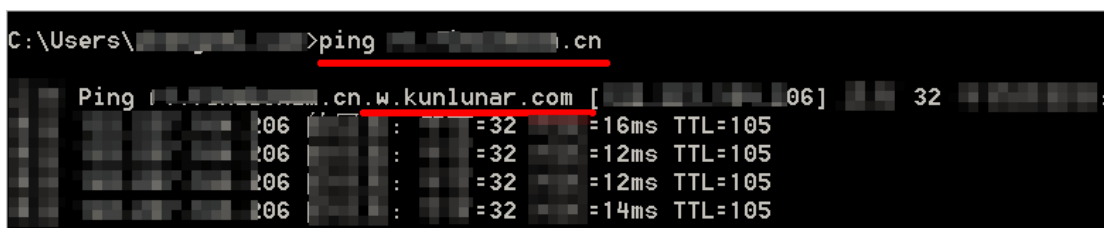
2. Navigate to the **Manage DNS** page, find the root domain name of the accelerated domain name that you want to manage, and then click **Configure** in the Actions column.
3. Click **Add Record** and add a CNAME record.
  - Type: Select **CNAME**.
  - Host: Enter `image`
  - Value: Enter the CNAME that is assigned to the accelerated domain name. `image.example.com.w.kunlunsl.com` is used in this example.
  - Keep the default values for other parameters.
4. (Optional) Check whether the CNAME record has taken effect.

## Method 1: Quick verification in the Alibaba Cloud CDN console

- i. Log on to the Alibaba Cloud CDN console and navigate to the **Domain Names** page.
- ii. Select the domain name and move the pointer over the CNAME Status column. The **CNAME Configuration Guide** tooltip appears.
- iii. Click **Open Configuration Guide** and then click **Search**.

## Method 2: Run the ping command to ping the domain name

- i. Open Command Prompt in Windows.
- ii. Run the **ping** command to ping the domain name. If the CNAME in the output is the same as the CNAME that is assigned to the domain name, it indicates that CDN acceleration is enabled for the domain name.



```
C:\Users\>ping image.kunlunsl.com

Ping image.kunlunsl.com [106] 32 :
    : =32 =16ms TTL=105
    : =32 =12ms TTL=105
    : =32 =12ms TTL=105
    : =32 =14ms TTL=105
```

## What to do next

After you set the OSS bucket to private, requests that are sent to the endpoint of the OSS bucket trigger the AccessDenied error. After the CNAME record takes effect, you can access resources in the OSS bucket by using the following methods:

- Concatenate the accelerated domain name and file path, and then enter the concatenated URL into a web browser. For example, if the accelerated domain name is `aliyundoc.com` and you want to access the file `image_01.jpg` under the root directory, you can send a request to `http://aliyundoc.com/image_01.jpg`.
- Set the domain name of the OSS bucket to the accelerated domain name in your client. Then, you can access resources in the OSS bucket through the accelerated domain name from your client.

## References

[Use CDN to accelerate access to OSS](#)

## 1.2. Accelerate the retrieval of resources from an OSS bucket in the OSS console

You can use Object Storage Service (OSS) together with Alibaba Cloud CDN to cache objects stored in OSS to the edge nodes of Alibaba Cloud CDN. When a large number of users repeatedly access an object in your OSS bucket, the users can retrieve the object from CDN edge nodes. This reduces the response time.

### Benefits

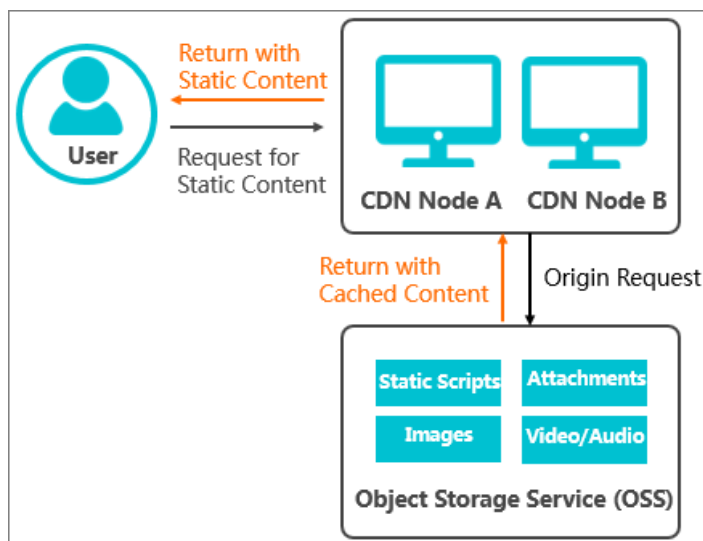
OSS is a cost-effective storage service. Alibaba Cloud CDN can accelerate the delivery of static resources. OSS buckets as origin servers provide the following benefits:

- All requests destined for the origin server are redirected to CDN edge nodes to reduce loads on the origin server.
- You are charged for outbound data transfer from Alibaba Cloud CDN instead of outbound data transfer over the Internet from OSS. Outbound data transfer from Alibaba Cloud CDN is billed at a lower price.
- Clients retrieve static resources from the nearest CDN edge nodes to minimize the network transmission distance and ensure the quality of data transmission.

### Architecture

If the origin server is an OSS bucket, Alibaba Cloud CDN caches the static resources, including scripts, images, audio files, and video files, from the bucket to CDN edge nodes. When users request the resources, the edge nodes return the requested resources to the users. This accelerates content delivery.


The following figure shows the architecture.



### Preparations

- An [Alibaba Cloud account](#) is created and the account has passed [real-name verification](#).

- Alibaba Cloud CDN and OSS are activated. For more information, see [Activate Alibaba Cloud CDN](#) and [Activate OSS](#).
- An OSS bucket is created and set to private. For more information, see [Create buckets](#) and [Modify the ACL of a bucket](#).

 **Note** Private OSS buckets do not allow unauthorized access and prevent hotlinking issues.

- A domain name to be accelerated is prepared.

## Procedure

For more information about how to add an accelerated domain name to OSS, see [Map accelerated domain names](#).

## 2. Use Alibaba Cloud CDN to accelerate the retrieval of resources from an ECS instance

You can use Alibaba Cloud CDN to accelerate the retrieval of resources from an ECS instance. This topic describes how Alibaba Cloud CDN accelerates content delivery and how to use Alibaba Cloud CDN to accelerate the retrieval of resources from an ECS instance.


### Benefits

Elastic Compute Service (ECS) is an infrastructure as a service (IaaS) that provides stable, reliable, and elastic cloud computing services with excellent performance. Alibaba Cloud CDN can accelerate static content delivery. ECS instances as origin servers provide the following benefits:

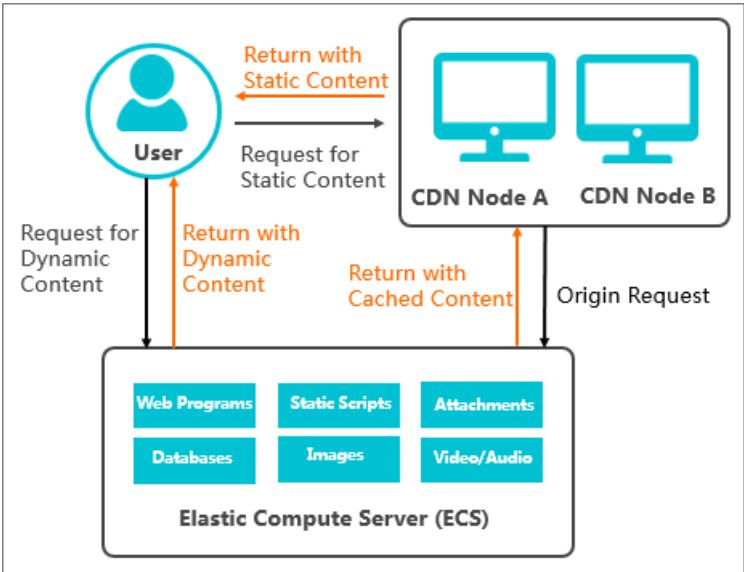
- All requests destined for the origin server are redirected to CDN edge nodes. This reduces loads on the origin server.
- You are charged for outbound data transfer from Alibaba Cloud CDN instead of outbound data transfer over the Internet. Outbound data transfer from Alibaba Cloud CDN is billed at a lower price.
- Clients retrieve static resources from the nearest CDN edge nodes. This minimizes the network transmission distance and ensures the quality of data transmission.

### How it works

If the origin server is an ECS instance, Alibaba Cloud CDN caches static resources, including scripts, images, audio files, and video files, on CDN edge nodes. Clients can retrieve the cached resources from the nearest edge nodes. Dynamic resources, such as data from web programs and databases, are returned from the ECS instance to clients.

 **Note** If you want to accelerate the retrieval of dynamic resources from an ECS instance, use Dynamic Route for CDN (DCDN). For more information, see [What is DCDN?](#)

The following figure shows how Alibaba Cloud CDN accelerates the retrieval of resources from an ECS instance.



Scenarios

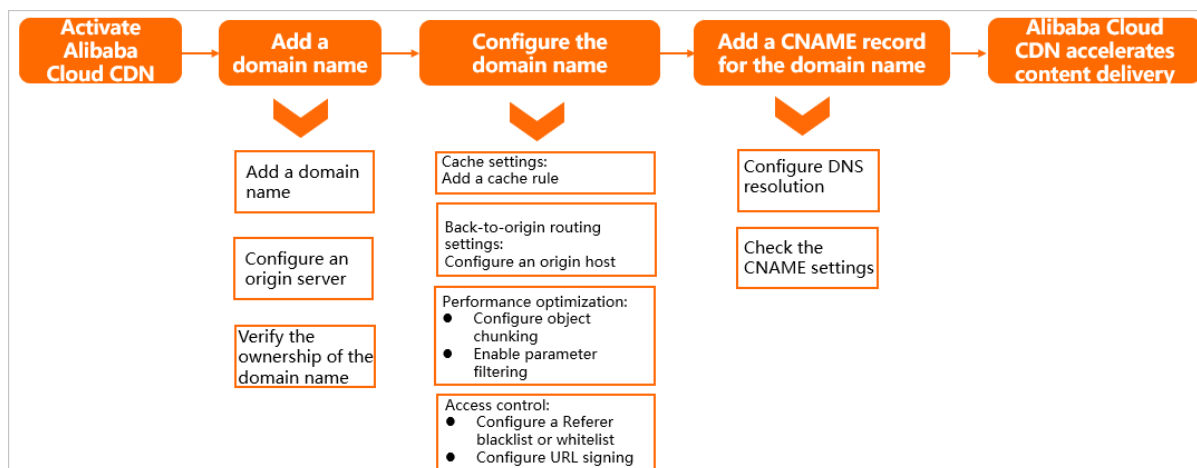
The website image.example.com requires acceleration for image retrieval from an ECS instance. The following table describes the business information and requirements.

Item	Description	Scenario
Domain name	The domain name accelerated by Alibaba Cloud CDN.	image.example.com
Business type	Determine the business type based on the website content. If the website distributes images, set the business type to <b>Image and Small File</b> .	Image and Small File
Accelerated region	The region where the website visitors are located.	Mainland China Only
Origin server domain name	You can select Site Domain or IP <ul style="list-style-type: none"><li>Site Domain: Enter the domain name of the origin server. The domain name is resolved to the IP address of the ECS instance.</li><li>IP: Enter the pubic IP address of the ECS instance.</li></ul>	ecs.example.com <div><p><b>Note</b> The domain name of the origin server is used in this example.</p></div>

Item	Description	Scenario
Other services	Enable other features based on your business requirements.	<ul style="list-style-type: none"> <li>• Increase cache hit ratios by adding cache rules.</li> <li>• Specify domain names for back-to-origin routing by configuring origin hosts.</li> <li>• Accelerate delivery for specific resources by enabling object chunking.</li> <li>• Increase the cache hit ratio and accelerate file distribution by enabling parameter filtering.</li> <li>• Protect CDN edge nodes from hotlinking by configuring Referer whitelists or blacklists.</li> <li>• Protect websites from hotlinking issues and IP theft by enabling URL signing.</li> </ul>

## Procedure

The following procedure shows how to use Alibaba Cloud CDN to accelerate the retrieval of resources from an ECS instance. The preceding scenario is used as an example.



## Step 1: Make preparations

- An [Alibaba Cloud account](#) is created, and the account has passed [real-name verification](#).
- Alibaba Cloud CDN is activated. For more information, see [Activate Alibaba Cloud CDN](#).
- An ECS instance is created. For more information, see [Create an instance](#).
- A domain name to be accelerated is prepared.

## Step 2: Add the domain name to be accelerated

1. Log on to the [Alibaba Cloud CDN console](#).
2. In the left-side navigation pane, click **Domain Names**, click **Add Domain Name**, and then set the following parameters. The scenario described in [Scenarios](#) is used as an example.



? **Note**

- The first time a domain name is added to Alibaba Cloud CDN, Alibaba Cloud CDN must verify the ownership of the domain name. Alibaba Cloud CDN verifies the ownership only of the **root domain name**. For more information, see [Verify the ownership of a domain name](#). If the root domain name has already passed ownership verification, ignore this message.
- For more information about the parameters and usage notes, see [Step 1: Complete basic settings and specify business information](#).

- **Domain Name to Accelerate:** Enter `image.example.com`.
- **Business Type:** Select **Image and Small File**.
- **Region:** Select **Mainland China Only**.

3. Click **Add Origin Server** to add an origin server.

Set Origin Info to Site Domain or IP, and enter the domain name of the origin server or the public IP address of the ECS instance that is used as the origin server. The domain name `ecs.example.com` of the origin server is used in this example. Keep the default values for other parameters.

? **Note** For more information about the parameters and usage notes, see [Set up origin servers](#).


4. After you set up origin servers, click **Next**.
5. Wait for manual verification.
6. When the value in the Status column changes to Enabled, the CNAME assigned to the domain name is displayed. The CNAME for the domain name used in this example is `image.example.com.w.kunlunsl.com`.

## Step 3: Configure the domain name

To improve acceleration performance, secure data transmission, and accelerate content delivery, you can enable relevant features based on your business requirements.

1. In the Alibaba Cloud CDN console, navigate to the **Domain Names** page, find the domain name that you want to manage, and then click **Manage**.
2. Enable the following features based on your business requirements.

Scenario	Description	Parameter
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Scenario	Description	Parameter
Increase the cache hit ratio	<p>Set a proper time-to-live (TTL) value for cached resources based on the following rules to increase the cache hit ratio:</p> <ul style="list-style-type: none"> <li>Specify a TTL of one month or longer for static files that are infrequently updated, such as images and application packages.</li> <li>Specify a TTL based on your business requirements for static files that are frequently updated, such as JavaScript and CSS files.</li> <li>Specify a TTL of 0 seconds to disable caching for dynamic files, such as PHP, JSP, and ASP files.</li> </ul>	Add a cache rule
Specify a site to which edge nodes redirect requests	If multiple sites are hosted on your origin server, and the site for which back-to-origin routing is enabled is different from the one to which the accelerated domain name points, you must configure an origin host. An origin host specifies the site to which Alibaba Cloud CDN redirects requests.	Configure an origin host
Accelerate file distribution on CDN edge nodes	<p>After object chunking is enabled, the OSS bucket that functions as the origin server returns the chunk of file that is specified by the Range header to edge nodes. This reduces data transfer on the origin server and accelerates content delivery.</p> <div>  <b>Note</b> Object chunking is suitable for large file distribution scenarios such as audio and video streaming. It is not suitable for small file distribution. You do not need to enable object chunking when you use Alibaba Cloud CDN to accelerate the delivery of images.         </div>	Object chunking
<ul style="list-style-type: none"> <li>Increase the cache hit ratio</li> <li>Increase file distribution efficiency</li> </ul>	After parameter filtering is enabled, CDN edge nodes remove parameters that follow the question mark (?) from request URLs. This way, requests that carry different query strings but for the same resource can hit the cache. This increases the cache hit ratio and reduces back-to-origin traffic.	Ignore parameters

Scenario	Description	Parameter
Protect websites from hotlinking issues	After you configure a Referer whitelist or blacklist, Alibaba Cloud CDN allows or blocks requests based on user identities. If a request is authorized, Alibaba Cloud CDN returns the URL of the requested resource. If a request is not authorized, Alibaba Cloud CDN returns the HTTP 403 status code.	Configure a Referer whitelist or blacklist to enable hotlink protection
Protect a website from hotlinking and IP theft	URL signing cannot be performed without the origin server. The origin server generates signed URLs based on the URL signing settings on the CDN edge nodes. After URL signing is enabled, only requests that pass authentication can access resources on CDN edge nodes.	Configure URL signing

## Step 4: Add a CNAME record

You must add a CNAME record in the system of your DNS service provider to map the domain name to the CNAME before requests can be redirected to edge nodes. Otherwise, CDN acceleration cannot take effect.

In the following example, Alibaba Cloud DNS is used to show how to add a CNAME record.

 **Note** For more information, see [Add a CNAME record for a domain name](#).

1. Log on to the [Alibaba Cloud DNS console](#) with the Alibaba Cloud account to which the accelerated domain name belongs.
2. Navigate to the **Manage DNS** page, find the root domain name of the accelerated domain name that you want to manage, and then click **Configure** in the Actions column.
3. Click **Add Record** and add a CNAME record.
  - Type: Select **CNAME**.
  - Host: Enter `image`.
  - Value: Enter the CNAME that is assigned to the accelerated domain name. `image.example.com.www.kunlunsl.com` is used in this example.
  - Keep the default values for other parameters.
4. Check whether the CNAME record has taken effect.

### Method 1: Quick verification in the Alibaba Cloud CDN console

- i. Log on to the Alibaba Cloud CDN console and navigate to the [Domain Names](#) page.
- ii. Select the domain name and move the pointer over the CNAME Status column. The **CNAME Configuration Guide** tooltip appears.
- iii. Click **Open Configuration Guide** and then click **Search**.

### Method 2: Run the ping command to ping the domain name

- i. Open Command Prompt in Windows.

- ii. Run the **ping** command to ping the domain name. If the CNAME in the output is the same as the CNAME that is assigned to the domain name, it indicates that CDN acceleration is enabled for the domain name.

```
C:\Users\>ping .cn
Ping .cn.w.kunlunar.com [ 06] 32 :
: =32 =16ms TTL=105
: =32 =12ms TTL=105
: =32 =12ms TTL=105
: =32 =14ms TTL=105
```

# 3. Accelerate content delivery for infographic and video websites

If your website provides images, text, and on-demand videos, you can use Alibaba Cloud CDN to accelerate content delivery. This topic describes how to accelerate content delivery for infographic and video websites.

## Prerequisites

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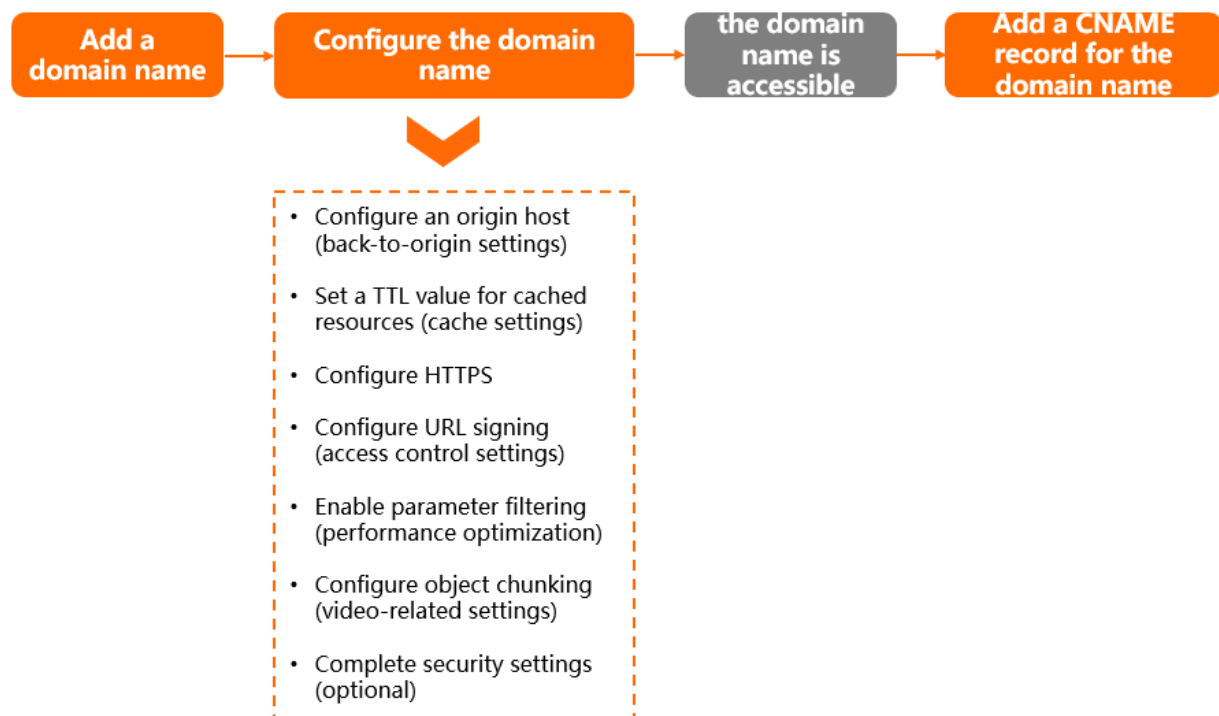
## Scenarios

Alice wants to accelerate content delivery for a small-sized community website. The information about the website is:

- Website domain name: developer.aliyundoc.com.
- Website content: images, text, and on-demand videos.
- Accelerated region: mainland China. Visitors to the website are mostly located in mainland China.
- Other services: Image and video files are stored in an **Object Storage Service (OSS)** bucket. **HTTPS secure acceleration** is used to encrypt data transmission.

## Procedure

The following procedure shows how to use Alibaba Cloud CDN to accelerate content delivery for a website. The preceding scenario is used as an example.




## Step 1: Add the domain name to Alibaba Cloud CDN

The images and videos provided by the website are of different workload types. Therefore, you must use different domain names to accelerate the delivery of images and videos.

- Domain name for images: image.developer.aliyundoc.com
- Domain name for videos: video.developer.aliyundoc.com

- 1.
- 2.
3. On the **Domain Names** page, click **Add Domain Name**.
4. Add the domain name to Alibaba Cloud CDN.

On the **Add Domain Name** page, set the parameters, as described in the following table. image.developer.aliyundoc.com is used in this example.

 **Note** The first time a domain name is added to Alibaba Cloud CDN, Alibaba Cloud CDN must verify the ownership of the domain name. Alibaba Cloud CDN verifies the ownership only of the **root domain name**. For more information, see [Verify the ownership of a domain name](#). If the root domain name has already passed ownership verification, ignore this message.

Workload type	Domain Name to Accelerate	Business Type	Region
Image	image.developer.aliyundoc.com	Image and Small File	Mainland China Only
Video	video.developer.aliyundoc.com	VOD	Mainland China Only

5. Configure an origin server.

In this example, an OSS bucket is used as the origin server. Requests for resources that are not cached or have expired on edge nodes are redirected to the OSS bucket. Then, the retrieved resources are cached on edge nodes.

- i. In the **Add Origin Server** dialog box, set the following parameters.

×

Add Origin Server

\* Origin Info

☐ OSS Domain
 ☒ IP
 ☐ Site Domain
 ☐ Function Compute Domain

IP

Enter a single IPv4 address

\* Priority

☒ Primary
 ☐ Secondary

The primary origin server has a higher than a secondary origin server. If the primary origin server fails, requests are redirected to a secondary origin server.

\* Weight

10

Valid values are 1 to 100. Alibaba Cloud CDN redirects requests to the origin servers based on their weights.

\* Port

80

Port 1 to port 65535 support HTTP. Port 443 support 443. If you want a custom port to support HTTPS, [submit a ticket](#).

OK

Cancel

Parameter	Description
Origin Info	Select <b>OSS Domain</b> and then select the OSS bucket where the resources are stored from the <b>Domain Name</b> drop-down list. OSS buckets that belong to the current Alibaba Cloud account are displayed. Alternatively, you can enter the public endpoint of the OSS bucket, for example, xxx.oss-cn-hangzhou.aliyuncs.com. Internal endpoints of OSS buckets are not supported. You can check the public endpoint of an OSS bucket in the <a href="#">OSS console</a> .
Priority	If only one origin server is specified, you do not need to specify primary or second origin servers. You can keep the default setting.
Weight	
Port	

ii. In the message that appears, click **OK**.

6. Click **Next**.

7. Wait for manual review.
8. Repeat this step to add video.developer.aliyundoc.com to Alibaba Cloud CDN.



## Step 2: Configure the domain name

To improve acceleration performance, secure data transmission, and accelerate content delivery, you can enable relevant features based on your business requirements.

- 1.
- 2.
- 3.
4. Enable the following features as needed.

Scenario	Description	Configuration
Specify a site to which edge nodes redirect requests	<p>If you set the origin server type to <b>OSS Domain</b>, <b>Origin Host</b> is automatically set to <b>Origin Domain</b>. In this case, you do not need to modify the origin host settings. Keep the default settings.</p> <p>If the origin server is an OSS bucket that is associated with a custom domain name, such as origin.developer.aliyundoc.com, you must configure an origin host. Set <b>Domain Type</b> to <b>Custom Domain</b>, and set the origin host to origin.developer.aliyundoc.com. For more information, see <a href="#">Configure an origin host</a>. In other cases, you do not need to modify the origin host settings.</p>	<a href="#">Configure an origin host</a>
Retrieve resources from a private OSS bucket	If the OSS bucket is set to private, you must grant Alibaba Cloud CDN access permissions on the private OSS bucket.	<a href="#">Enable access to a private OSS bucket</a>
Increase the cache hit ratio	<p>Set a proper time-to-live (TTL) value for cached resources based on the following rules to increase the cache hit ratio:</p> <ul style="list-style-type: none"><li>◦ Specify a TTL of one month or longer for static files that are infrequently updated, such as images and application packages.</li><li>◦ Specify a TTL based on your business requirements for static files that are frequently updated, such as JavaScript and CSS files.</li><li>◦ We recommend that you specify a TTL of 0 seconds to disable caching for dynamic files, such as PHP, JSP, and ASP files.</li></ul>	<a href="#">Add a cache rule</a>




Scenario	Description	Configuration
Improve data transmission security	<p>You must acquire an SSL certificate before you can enable HTTPS. You can use SSL Certificates Service to apply for and purchase SSL certificates.</p> <div>  <b>Note</b> HTTPS is a value-added service. After you enable HTTPS, you are charged based on the number of HTTPS requests. You cannot use CDN data transfer plans to offset the fees. For more information about the pricing of HTTPS, see <a href="#">Billing of value-added services</a>.         </div>	<ol style="list-style-type: none"> <li>For more information about how to purchase SSL certificates, see <a href="#">选择购买方式Purchase an SSL certificate instance</a>.</li> <li>For more information about how to apply for SSL certificates, see <a href="#">Submit a certificate application</a>.</li> <li><b>Configure an SSL certificate:</b> Set <b>Certificate Source</b> to <b>SSL Certificates Service</b>.</li> </ol>
Protect a website from hotlinking and click farming	URL signing must work with the origin server because the origin server is required to generate signed URLs based on the authentication algorithm set for the signing type specified in Alibaba Cloud CDN.	<a href="#">Configure URL signing</a>
<ul style="list-style-type: none"> <li>Increase the cache hit ratio</li> <li>Increase file distribution efficiency</li> </ul>	After parameter filtering is enabled, edge nodes generate hash keys while removing the parameters that follow the question mark ( ? ) in URLs.	<a href="#">Ignore parameters</a>
Accelerate resource retrieval	<p>After object chunking is enabled, the OSS bucket that functions as the origin server returns the chunk of file that is specified by the Range header to edge nodes. This reduces data transfer on the origin server and accelerates content delivery.</p> <div>  <b>Note</b> Object chunking is suitable for large file distribution scenarios such as audio and video streaming. It is not suitable for small file distribution. You do not need to enable object chunking when you use Alibaba Cloud CDN to accelerate the delivery of images.         </div>	<a href="#">Object chunking</a>

Scenario	Description	Configuration
Improve website security	We recommend that you enable security features based on your business requirements to reinforce protection for your website.	<ul style="list-style-type: none"> <li>◦ <b>Set a bandwidth cap</b> You can set a bandwidth cap to prevent unexpected high bills caused by attacks.</li> <li>◦ <b>Integrate Alibaba Cloud CDN with Anti-DDoS</b> You can enable this feature to mitigate DDoS attacks.</li> <li>◦ <b>Configure rate limiting</b> You can enable this feature to block malicious requests and reinforce security for your website.</li> </ul>

#### 5. Copy the settings.

Copy the settings of `image.developer.aliyundoc.com` to `video.developer.aliyundoc.com`.

 **Note** Skip this step when you configure the first domain name `image.developer.aliyundoc.com`. You can copy settings when you configure `video.developer.aliyundoc.com`.

- i. On the **Domain Names** page, find `image.developer.aliyundoc.com` and click **Copy Configurations** in the Actions column.
- ii. Select the settings that you want to copy and click **Next**.
- iii. Select `video.developer.aliyundoc.com` and click **Next**.
- iv. In the **Copy Configurations** message, click **OK**.

### Step 3: Test whether the domain name is accessible

After you add the domain name to Alibaba Cloud CDN, we recommend that you test whether the domain name is accessible before you update the CNAME record of the domain name. This ensures that DNS updates do not affect the services of the domain name. For more information, see [Test whether a domain name is accessible \(optional\)](#).

### Step 4: Add a CNAME record

After you add a domain name to Alibaba Cloud CDN, the system assigns a CNAME to the domain name. You must add a CNAME record in the system of your DNS service provider to map the domain name to the CNAME before requests can be redirected to edge nodes. Otherwise, CDN acceleration cannot take effect.

Each domain name is assigned a unique CNAME. In the following example, Alibaba Cloud DNS is used to demonstrate how to add a CNAME record. For more information, see [Add a CNAME record for a domain name](#).

Domain name	Type	Host	ISP Line	Value	TTL
image.developer.aliyundoc.com	CNAME	image	Default	image.developer.aliyundoc.com.w.kunlunsl.com	Keep the default setting.
video.developer.aliyundoc.com	CNAME	video	Default	video.developer.aliyundoc.com.a.lahuanbx.com	Keep the default setting.

## 4. Increase the cache hit ratios of Alibaba Cloud CDN


A low cache hit ratio of Alibaba Cloud CDN increases the loads on origin servers and slows the retrieval of static resources. You can select a solution to improve cache hit ratios of Alibaba Cloud CDN based on the causes.

### Background information

Alibaba Cloud CDN caches static resources on edge nodes to accelerate content delivery. When a client requests a resource that is cached on edge nodes, the edge nodes return the requested resource to the client. This simplifies the delivery process, accelerates content delivery, and reduces loads on the origin server. A low cache hit ratio increases loads on the origin server and degrades user experience.

The cache hit ratios of Alibaba Cloud CDN are classified into byte hit ratios and request hit ratios.

- Byte hit ratio = Number of bytes returned for cache hits / Number of bytes returned for all requests

 **Note** A lower cache hit ratio indicates a higher amount of back-to-origin network traffic. A higher amount of outbound traffic from the origin server indicates a higher bandwidth value and more loads on the origin server. Therefore, back-to-origin network traffic represents the amount of loads on the origin server, and the byte hit ratio is the major concern in actual business scenarios.

- Request hit ratio = Number of cache hits / Number of all requests

### View cache hit ratios

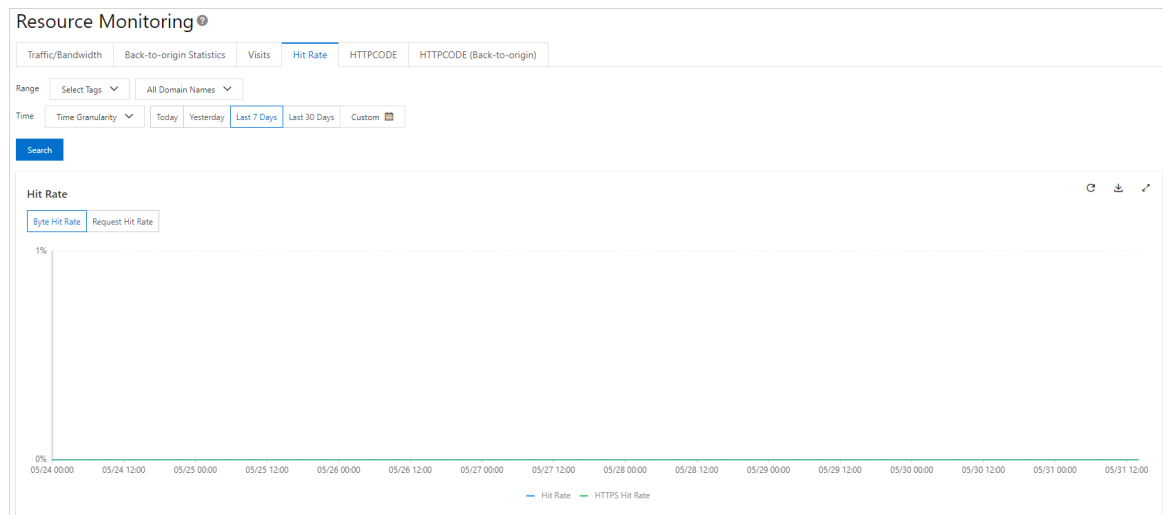
You can view cache hit ratios by using one of the following methods:

- Method 1: Use the Alibaba Cloud CDN console

The Alibaba Cloud CDN console displays cache hit ratios in the following manners:

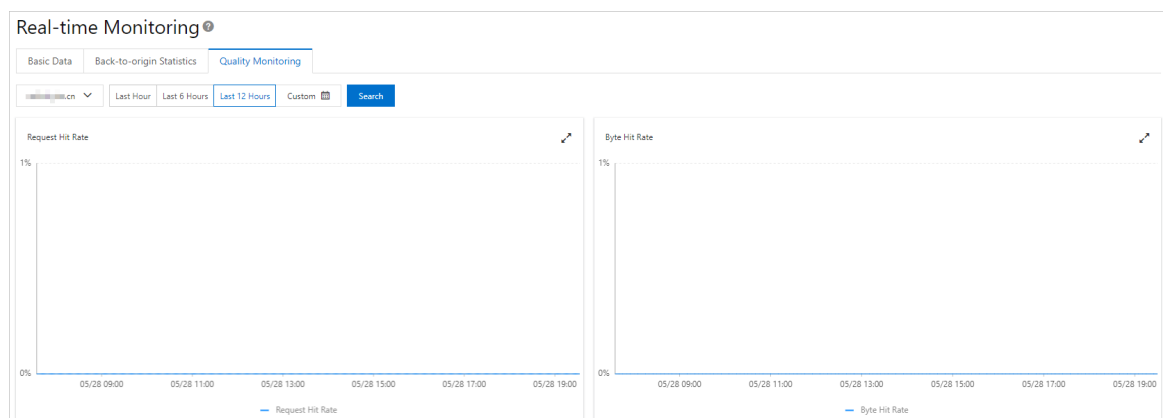
- Resource monitoring

Compared with real-time monitoring, resource monitoring allows you to query cache hit ratios within a longer period of time, for example, the last 30 days. Monitoring data is collected every 5 minutes, and is delayed by approximately 15 minutes. For more information, see [Resource monitoring](#).



- Real-time monitoring

Compared with resource monitoring, real-time monitoring allows you to query cache hit ratios within a shorter period of time, for example, the last hour. Monitoring data is collected every minute, and is delayed by approximately 3 minutes. For more information, see [Real-time monitoring](#).



- Method 2: Call API operations

- API operations of resource monitoring

Operation	Description
<a href="#">DescribeDomainHitRateData</a>	Queries the byte hit ratios of one or more accelerated domain names. You can query data collected within the last 90 days.
<a href="#">DescribeDomainReqHitRateData</a>	Queries the request hit ratios of one or more accelerated domain names. You can query data collected within the last 90 days.

- API operations of real-time monitoring

Operation	Description
<code>DescribeDomainRealTimeByteHitRateData</code>	Queries the byte hit ratios of one or more accelerated domain names. Data is collected every minute. You can query data collected within the last seven days.
<code>DescribeDomainRealTimeReqHitRateData</code>	Queries the request hit ratios of one or more accelerated domain names. Data is collected every minute. You can query data collected within the last seven days.

## Increase the cache hit ratios of Alibaba Cloud CDN

The following table describes the causes of low cache hit ratios and the solutions.

Solution	Cause and scenario	Configuration
Prefetch resources during off-peak hours	<p>Causes: Before a major event is launched or an installation package is released, required resources are not prefetched on edge nodes. The required resources must be retrieved from the origin server. This reduces the cache hit ratio.</p> <p>Scenarios:</p> <ul style="list-style-type: none"><li>• <b>Provide support for major events</b> If you want to hold a major event, you can push the static resources of the event page to the edge nodes. After the event starts, visitors can access the static resources, which are already cached on the edge nodes. This accelerates content delivery.</li><li>• <b>Release installation packages</b> Before you release an installation or upgrade package of a product, you can push the package to the edge nodes. After the product is launched, visitors can download the package from the edge nodes. This accelerates content delivery and reduces loads on origin servers when a large number of visitors want to access your resources.</li></ul>	<b>Prefetch resources</b>


Solution	Cause and scenario	Configuration
<p>Specify a proper time-to-live (TTL) value for cached resources</p> <ul style="list-style-type: none"> <li>Specify a TTL of one month or longer for static files that are infrequently updated, such as images and application packages.</li> <li>Specify a TTL based on your business requirements for static files that are frequently updated, such as JavaScript and CSS files.</li> <li>Specify a TTL of 0 seconds to disable caching for dynamic files, such as PHP, JSP, and ASP files.</li> </ul>	<p>Causes:</p> <ul style="list-style-type: none"> <li>No cache policy is configured in Alibaba Cloud CDN, and all requests are redirected to the origin server.</li> <li>The TTL value that is specified in Alibaba Cloud CDN is less than the required value. Cached resources frequently expire. This reduces the cache hit ratios.</li> </ul> <p>Scenarios: Static resources are deployed on the origin server but not cached on edge nodes. The resources cached on edge nodes frequently expire.</p>	<p>Add a cache rule</p>
<p>Ignore the parameters after the question mark (?) in URLs</p>	<p>Causes: If request URLs contain <i>queryString</i> or other variables, the URLs are considered different even if the URLs are used to access the same resource. In this case, the requests are redirected to the origin server. This reduces the cache hit ratio.</p> <p>Scenarios: Redirect URLs that contain different query strings to the same resource.</p>	<p>Ignore parameters</p>
<p>Configure a policy to retrieve chunks of the resource file from the origin server</p>	<p>Causes: Downloads of installation packages or video streaming may be paused due to various reasons. In some cases, users require only a chunk of a file, but edge nodes return the entire file. The size of the content returned to the users is larger than that of the content requested by the users. In this case, the cache hit ratios are lower than the expected ratios.</p> <p>Scenarios: Downloads of installation packages or video streaming.</p>	<p>Object chunking</p>
<p>Other policies to increase cache hit ratios</p>	<p>Alibaba Cloud CDN also provides other optimization solutions such as the 302 redirection by using the central or edge routing system, merge of back-to-origin requests, and shared cache based on various business requirements.</p>	<p>To configure one of the policies, <a href="#">submit a ticket</a>.</p>

## View log data of cache hit status

Alibaba Cloud CDN records the cache hit status of all requests. For more information about the log format, see [Download log data](#).

A request may be in one of the following states:

- HIT: indicates a cache hit.
- MISS: indicates a cache miss.

 **Note** The cache hit status indicates the cache hit status only of L1 edge nodes. For example, if the requested resource does not exist in the cache of L1 edge nodes but exists in the cache of L2 edge nodes, the cache hit status is still displayed as MISS.

Sample log entry:

```
26/Jun/2019:10:38:19 +0800] 192.168.53.146 - 1542 "-" "GET http://example.aliyundoc.com/index.html" 200 191 2830 MISS "Mozilla/5.0 (compatible; AhrefsBot/5.0; +http://example.com/robot/)" "text/html"
```

You can also call the [DescribeCdnDomainLogs](#) operation to query the log data of accelerated domain names.