

# Alibaba Cloud Alibaba Cloud CDN

## Product Introduction

Issue: 20190717

## Legal disclaimer

---

Alibaba Cloud reminds you to carefully read and fully understand the terms and conditions of this legal disclaimer before you read or use this document. If you have read or used this document, it shall be deemed as your total acceptance of this legal disclaimer.

1. You shall download and obtain this document from the Alibaba Cloud website or other Alibaba Cloud-authorized channels, and use this document for your own legal business activities only. The content of this document is considered confidential information of Alibaba Cloud. You shall strictly abide by the confidentiality obligations. No part of this document shall be disclosed or provided to any third party for use without the prior written consent of Alibaba Cloud.
2. No part of this document shall be excerpted, translated, reproduced, transmitted, or disseminated by any organization, company, or individual in any form or by any means without the prior written consent of Alibaba Cloud.
3. The content of this document may be changed due to product version upgrades, adjustments, or other reasons. Alibaba Cloud reserves the right to modify the content of this document without notice and the updated versions of this document will be occasionally released through Alibaba Cloud-authorized channels. You shall pay attention to the version changes of this document as they occur and download and obtain the most up-to-date version of this document from Alibaba Cloud-authorized channels.
4. This document serves only as a reference guide for your use of Alibaba Cloud products and services. Alibaba Cloud provides the document in the context that Alibaba Cloud products and services are provided on an "as is", "with all faults" and "as available" basis. Alibaba Cloud makes every effort to provide relevant operational guidance based on existing technologies. However, Alibaba Cloud hereby makes a clear statement that it in no way guarantees the accuracy, integrity, applicability, and reliability of the content of this document, either explicitly or implicitly. Alibaba Cloud shall not bear any liability for any errors or financial losses incurred by any organizations, companies, or individuals arising from their download, use, or trust in this document. Alibaba Cloud shall not, under any circumstances, bear responsibility for any indirect, consequential, exemplary, incidental, special, or punitive damages, including lost profits arising from the use

or trust in this document, even if Alibaba Cloud has been notified of the possibility of such a loss.

5. By law, all the content of the Alibaba Cloud website, including but not limited to works, products, images, archives, information, materials, website architecture, website graphic layout, and webpage design, are intellectual property of Alibaba Cloud and/or its affiliates. This intellectual property includes, but is not limited to, trademark rights, patent rights, copyrights, and trade secrets. No part of the Alibaba Cloud website, product programs, or content shall be used, modified, reproduced, publicly transmitted, changed, disseminated, distributed, or published without the prior written consent of Alibaba Cloud and/or its affiliates. The names owned by Alibaba Cloud shall not be used, published, or reproduced for marketing, advertising, promotion, or other purposes without the prior written consent of Alibaba Cloud. The names owned by Alibaba Cloud include, but are not limited to, "Alibaba Cloud", "Aliyun", "HiChina", and other brands of Alibaba Cloud and/or its affiliates, which appear separately or in combination, as well as the auxiliary signs and patterns of the preceding brands, or anything similar to the company names, trade names, trademarks, product or service names, domain names, patterns, logos, marks, signs, or special descriptions that third parties identify as Alibaba Cloud and/or its affiliates).
6. Please contact Alibaba Cloud directly if you discover any errors in this document.



# 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.	 <b>Danger:</b> 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.	 <b>Warning:</b> 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.	 <b>Notice:</b> 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.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
<b>Bold</b>	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>switch {stand   slave}</code>



# Contents

---

Legal disclaimer.....	I
Generic conventions.....	I
1 What is Alibaba Cloud CDN?.....	1
2 Nodes.....	4
3 Benefits.....	5
4 Scenarios.....	6
4.1 CDN application overview.....	6
4.2 Image and Small File.....	7
5 Terms.....	8
6 Customer Cases.....	11
7 Limits.....	13



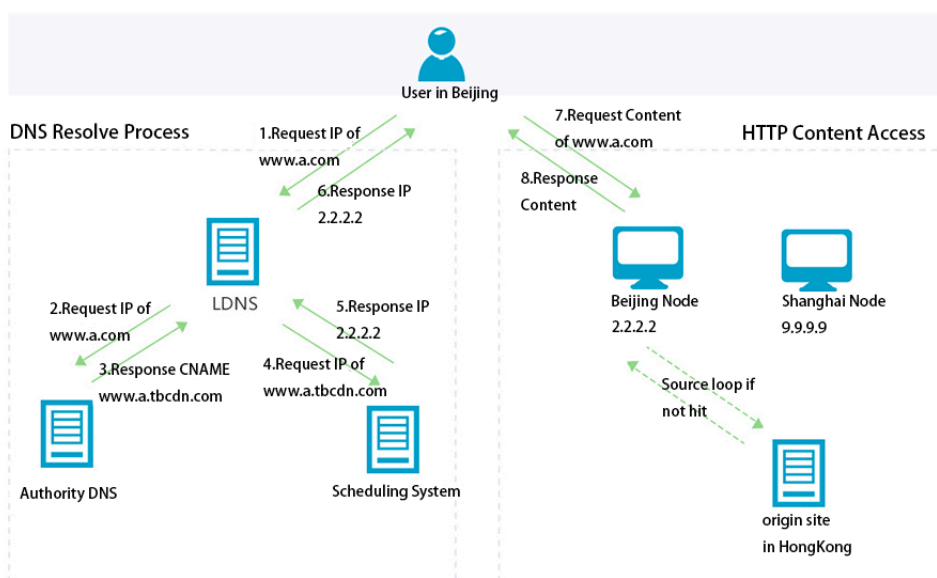
# 1 What is Alibaba Cloud CDN?

Alibaba Cloud Content Delivery Network (CDN) caches contents at physical nodes, then strategically delivers them to end users. It allows the users to efficiently acquire the resources they need, avoids the possible network congestion, and enhances the user experience.

## How it works

Suppose that your origin site is in Hong Kong, and the domain name `www.a.com` has access to the CDN service. The following steps take place when a user in Beijing requests contents from your site.

Now, IPv6 has been adopted on several Alibaba Cloud CDN edge nodes.



1. A user in Beijing requests content from your website or application (with the domain name of `www.a.com`).
2. The LDNS routes the request to the node that is the shortest geographical distance from the user (steps 2 to 6 in the figure above), which in this case is Beijing Node 2.2.2.2.
  - LDNS resolves the domain name `www.a.com`, then gets the response of the CNAME (`www.a.tbcdn.com`).
  - LDNS requests contents from Alibaba Scheduling System. The system then allocates and returns the most suitable node's IP.

3. The user requests content from the routed node, Beijing Node 2.2.2.2 (steps 7 to 10 in the figure above).

- If the content has been cached at the Beijing node, CDN directly delivers them to the user.
- If the files are not in the cache of the Beijing node, the node requests the content from the origin site. When the content is received, the Beijing node forwards to the user, in the light of his customized caching policy.

## Operations

Before your Alibaba CDN trip, refer to [basic concepts](#). It will help you understand CDN quickly.

To get started with CDN, go to Quick Start. You can also follow the [CDN Learning Path](#) to get a complete understanding of CDN.

You can log on [CDN Console](#) to enjoy all functions.

Moreover, you can check [API documentations](#) to flexibly realize your business targets.

## Price and billing

See [Pricing overview](#) to quickly know how Alibaba Cloud CDN charges. Basic services and value-added services are the main two parts. You can choose PayByTraffic or PayByBandwidth for basic services.

## Related services

[Dynamic Route for CDN](#): Distinguishes dynamic and static resources and accelerates both separately.

[Object Storage Service \(OSS\)](#): Improves website access speed and reduces the data charges that may be incurred on the external network.

[ApsaraVideo Live service](#): Delivers an integrated solution including media asset, slice transcoding, visiting authentication, and content delivery acceleration.

[Alibaba Cloud DNS](#): Provides powerful but stable resolutions and dispatches services, ensuring a smooth experience for visiting users.

[Elastic Compute Service \(ECS\)](#): Enhances website availability, protects the information on a server's source station, and lowers the cost of bandwidth use.

**Server Load Balancer:** Sets the server's IP address to the source site, which relieves the bandwidth pressure.

## 2 Nodes

This topic describes the benefits of Alibaba Cloud Content Delivery Network (CDN) nodes and how these nodes are distributed across the globe.

Nodes form a network of cloud servers that are deployed in multiple locations around the world. When content is accessed, it is cached in the node that is closest in proximity to the end user for faster retrieval.

### Geographical distribution

Alibaba Cloud CDN has more than 500 nodes spread out over 70 countries. Within China, Alibaba Cloud has more extensive coverage than any other cloud provider, with over 2,000 nodes strategically distributed to serve end users in highly-populated areas. See the following figures.



### High-performance capabilities

Each node in Alibaba Cloud CDN supports 10 Gbit/s optical NICs, 40 TB to 1.5 PB storage, 40 Gbit/s to 200 Gbit/s operational bandwidth, and 120 Tbit/s reservable bandwidth.

## 3 Benefits

---

You can be abreast of Alibaba Cloud CDN's benefits in this document.

### Stable and fast

- Advanced distributed system architecture: 2500+ globally.
- Adequate bandwidth and storage resources: a single node provides a bandwidth of more than 40 Gbps and a storage capacity of 40 TB to 1.5 PB.
- Stable and efficient performance indicators: greater than 95% hit rate and video fluency rate, and millisecond-level response time.
- Mature monitoring and service systems: 24/7 network-wide monitoring, smart monitoring and scheduling based on service quality.

### Cost-effective

- With scalable resources, you are charged only for resources you use, and can achieve cross-carrier, cross-region network-wide coverage.
- Two billing methods are provided, PayByTraffic, and PayByBandwidth, to satisfy different business needs.
- The service automatically responds to site traffic spikes and makes adjustments without user intervention, reducing pressure on the origin site.

### Easy to use

- You can add, delete, modify, and query domain names on your own by using a wide range of simple custom configuration options. CDN supports customizing anti-leech measures, cache policies, HTTP request headers, and other functions.
- The open API interfaces provide functions such as service activation, content refreshing, monitoring data retrieval, and distribution log downloads.

For more information on Alibaba Cloud CDN's functions, refer to [Alibaba Cloud CDN Function List](#).

## 4 Scenarios

---

### 4.1 CDN application overview

This topic describes the application scenarios of Alibaba Cloud CDN.

Alibaba Cloud CDN is designed to accelerate the distribution of static content. If you want to accelerate the distribution of dynamic content, you can use the Dynamic Route for CDN service. For more information, see [What is Dynamic Route for CDN?](#) If you want to accelerate content distribution while ensuring a higher level of security, you can use the Secure Content Delivery Network (SCDN) service.

Table 4-1: Application scenarios of Alibaba Cloud CDN

Service	Scenario
<a href="#">Image and Small File</a>	Your websites or applications mostly host images and small files up to 20 MB and in such formats as HTML, CSS, and JavaScript.
<a href="#">Acceleration for large static files</a>	Your websites or applications mostly host large files greater than 20 MB, which may be gaming apps and clients or app stores.
<a href="#">VOD</a>	Your websites or applications mostly host VOD or short videos in such formats as MP4 and FLV.
HTTPS secure acceleration	You require higher security for CDN.
<a href="#">Live Streaming</a>	Your websites or applications mostly host live streams.
<a href="#">Dynamic Route for CDN</a>	Your Dynamic Route for CDN is an independent Alibaba Cloud product, which is mainly used to accelerate the distribution of dynamic content. In addition, it supports separate acceleration for the distribution of dynamic and static content.

## 4.2 Image and Small File

This topic describes the Image and Small File function of Alibaba Cloud CDN. This function accelerates the distribution of images and small files (up to 20 MB and in such formats as HTML, Flash, CSS, and JavaScript).

This function is suitable for:

- Web portals
- E-commerce websites
- News websites and apps
- Official websites for government and enterprise entities
- Gaming and other entertainment websites and apps

What it can do

This function helps to resolve the following issues:

- Websites respond slowly because they contain a large number of small files.
- The access speeds and output quality of media files on websites differ across regions.
- During service operation and promotion, origin servers are more likely to break down due to heavy traffic with services becoming unavailable.
- Images cannot be compressed or optimized based on specific terminal conditions.

How it works

This function is available on all nodes (for more information, see [Nodes](#)). It is compatible with the following services:

- **Intelligent scheduling:** An advanced distributed system schedules traffic in all regions and responds to requests within milliseconds.
- **Elastic capacity expansion:** Each node responds to and adjusts traffic to prevent origin servers from overloading. Using the Pay-As-You-Go billing method helps to increase cost-effectiveness of services in the cloud.
- **Intelligent compression:** Images in various formats and resolutions are compressed to adapt to a wide range of terminals, improving overall performance, while also maintaining the image quality. For more information, see [Intelligent compression](#).

## 5 Terms

---

### Acceleration domain name

An acceleration domain name, specified by you, can be a website, an email address, or an FTP server. In Alibaba Cloud CDN documentation, acceleration domain name refers to domain name.

### Origin site

The origin site is the server where your actual business and service is. Origin sites can be one of three types: OSS back-to-origin domain, IP, or custom.

### CNAME record

A Canonical Name (CNAME), another domain name, can be used to resolve one domain name to another.

For example, a large amount of information is stored on your server, which can be accessed through `docs . example . com` . Now, you want to be able to access the same information through `documents . example . com` too. You can add a CNAME record at your DNS service provider, pointing `documents . example . com` to `docs . example . com` . Then, all requests to access `documents . example . com` are transferred to `docs . example . com` , giving access to the required information.

### CNAME domain name

After you open CDN and add your domain name on Alibaba Cloud Console, you will receive a CNAME domain name, in the format `*.* kunlun *. com` . Then, you can add a CNAME record on your DNS provider, directing your acceleration domain name to the domain name `*.* kunlun *. com` . When the CNAME record is activated, DNS, all requests to access the acceleration name can be transferred to CDN nodes.

### SSL/TLS

SSL (Secure Sockets Layer) is a TCP-based secure communication protocol. It efficiently helps applications and software guarantee the completeness and security of data transfers over the Internet. TLS (Transport Layer Security) evolved to the SSL after standardization. As a result, SSL and TLS are collectively known as SSL/TLS.



## DNS

DNS stands for Domain Name System. It provides a domain name resolution service, converting a domain name to an IP address, so that it can be recognized by the network. People tend to remember domain names, while machines remember IP addresses. In fact, domain names and IP addresses are synonymous with each other. Domain name resolution requires a dedicated domain name resolution server, and runs automatically. For example, the domain name `www . baidu . com` is automatically converted to the IP address `220 . 181 . 112 . 143`. You can use Alibaba Cloud DNS or other DNS products.

## Edge nodes

In this document, the terms edge node, CDN node, cache node, acceleration node, and Alibaba Cloud node indicates Alibaba Cloud edge node, sometimes shortened to node. Edge nodes form a network of servers, and are located in areas across the globe. When a user requests content, the content is cached in the nearest edge node to the user, and then distributed to the user. In this way, edge nodes allow users to more efficiently acquire resources.

## Back-to-origin Host

The origin site determines the IP address to which a back-to-origin request is sent. The Back-to-origin Host determines the specific site of the IP address to which a back-to-origin request is sent.

Example 1: The origin site is a domain name. If the origin site is `www . a . com` and the back-to-origin host is `www . b . com`, the actual back-to-origin request is sent to the IP address resolved from `www . a . com` corresponding to the site `www . b . com` on the host.

Example 2: The origin site is an IP address. If the origin site is `1.1.1.1`, and the back-to-origin host is `www . b . com`. Then, the actual origin retrieval request is sent to `www . b . com` on the host corresponding to `1.1.1.1`.

## Back-to-Origin Protocol

The protocol used during a back-to-origin request is consistent with the protocol used when the user accesses the resource.

- When an end user requests the resource by using HTTPS, CDN nodes will access the uncached resources from the origin site by also using HTTPS.

- When an end user requests the resource by using HTTP, CDN nodes will access the uncached resources from the origin site by also using HTTP.

#### Filter parameters

With Filter Parameter, you can control whether to filter out the section of a URL after the "?" (question mark) when caching contents to nodes based on your business needs

- 
- If you enable this function, CDN nodes will filter out the part of the URL after the "?", then cache only one copy of each URL if the part of the URL before the "?" is the same.
- If you disable the function, CDN nodes will cache a copy of each URL.

We recommend that you enable the Filter Parameter function if different parameters in your URL indicate the same content, which will efficiently improve the caching hit rate.

## 6 Customer Cases

Typical Customer	Descriptions
Tmall	Tmall' s use of our distributed system architecture has contributed to a significant reduction in their bandwidth usage and overhead. Users around the world can now access to the Tmall website more quickly, and the website is now able to cope with traffic spikes such as shopping festivals.
Taobao	Alibaba Cloud CDN supports Taobao' s content distribution to PCs and mobile devices, allowing Taobao to respond in milliseconds and load images in seconds while facing masses of image processing requests, providing users with superior experience.
Alipay	Alibaba Cloud CDN provides financial services for Alipay. The encrypted HTTPS access not only improves user experience but also keeps the security of users' personal and banking information from theft and tampering.
Sina Weibo	By virtue of Alibaba Cloud CDN, Sina Weibo enhances images downloading experience for their users. It optimizes underlying TCP protocol to accelerate image download speed by 20%. Alibaba Cloud CDN is now the main CDN provider for Sina Weibo.
Xiami.com	Alibaba Cloud CDN' s innovative approach and 99.9%+ availability play a significant role in improving the business stability of Xiami.com. Alibaba Cloud' s after-sales team also guarantees customers quick online response and solution to any problem.

Typical Customer	Descriptions
Zhihu	Zhihu uses Alibaba Cloud's multi-media solution. Response time has been reduced by one-third. Users' access experience is greatly improved. Response time has been reduced by one-third . Users' access experience is greatly improved.
Momo	With massive processing requests for images and short videos, Momo chose Alibaba Cloud CDN. With faster image loading and downloading speed, Momo's provides users with a superior experience.
UC	Alibaba Cloud CDN helps UC Web reduce its bandwidth consumption significantly across the whole business. By using the OSS storage service, UC has reduced required IT hardware investment, making development and O&M much easier.

## 7 Limits

---

### Restrictions on the use of CDN

1. Real-name registration must be performed for accounts on the Alibaba Cloud official website.
2. A CDN domain must have an [ICP license](#) and be connected to Alibaba Cloud.
3. The origin site content of a CDN domain must be stored on Elastic Compute Service (ECS) or Object Storage Service (OSS). If the origin site content is not stored on Alibaba Cloud, access must be reviewed.

### Domain Name reviewing standards

All domains attempting to access CDN must be reviewed. CDN access is not allowed in any of the following scenarios:

- The CDN domain cannot be accessed or the content does not include any substantive information.
- The CDN domain is for a private game server.
- The CDN domain is used for role playing games or card games.
- The CDN domain name is for website that has no download rights such as pirate software
- The CDN domain is for a P2P website.
- The CDN domain is for a lottery website.
- The CDN domain is for an illegal hospital or pharmaceutical website.
- The CDN domain is for a site involving porn, gambling, drugs, etc.



#### Note:

The losses incurred by attacks or malicious download because the CDN domain name does not comply with the previous rules will be born on you, and Alibaba Cloud CDN carries no responsibilities.

- Domains that have accessed Alibaba Cloud CDN will be reviewed regularly. If any of these violations are detected, the system immediately terminates the CDN acceleration of the domain name, and stops the CDN service for all your domain names at the same time.

- If your CDN domain name cannot be accessed normally or is denied due to reason which does not contain any substantive information, and your business is a compliance business, you can submit a ticket, and send the screenshots of the web site business content(which contains the domain name) through the ticket. After the ticket is reviewed separately, you will be informed of the results of the second audit.

### Restriction

Quantity	Limit quantity
Domain Name	The maximum number of CDN domains for each Alibaba Cloud account is 50 .
IP origin site	The maximum number of IP origin sites for each CDN domain is 10.
Cache refresh and push operations	refresh:2000items/day/account. Directory refresh:100 items/day/account.

If you have a large number of domain name acceleration needs, submit a ticket for special support.

### CDN domain name reclaiming rules

If your CDN domain name ...	The system will...	To continue using CDN acceleration, you must...
not access traffic for more than 90 days (including "normal operation")	Automatically deactivate the domain name to save the CDN domain name related records	Enable CDN domain names.
Is in the disabled state for more than 120 days (including auditing failed)	Automatically delete the domain name related records.	Re-add the domain name.