

# Private DNS

## Product Introduction



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# Product Introduction

## Overview

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### Overview

Private DNS is a private DNS management service based on Tencent Cloud Virtual Private Cloud (VPC). It allows you to quickly build a DNS system in one or more custom VPCs and easily use private DNS records to manage Tencent Cloud resources associated with the VPCs that are externally inaccessible, such as CVM, CLB, CDN, and COS.

### Product Features

#### Private DNS

The private domain list contains the private domain name resource records that you need to manage. You can create multiple private domain names and add the following types of DNS records for them:

Record Type	Description
A	It is used to specify the IPv4 address (such as <code>8.8.8.8</code> ) of a domain. If you want to point a domain to an IP address, you need to add an A record.
AAAA	It is used to specify the IPv6 address (such as <code>ff06:0:0:0:0:0:c3</code> ) of a domain. If you want to point a domain to an IPv6 address, you need to add an AAAA record.
CNAME	Alias Record, points to another domain.
MX	If you want to set up your mailbox so that it can receive emails, you need to add an MX record.
TXT	You can enter anything in this record with a length limit of 255 characters. Most TXT records are used as SPF records (for anti-spam).
PTR	It reversely maps an IP address to a domain.
SRV	Used to identify a server that uses a certain service, commonly seen in Microsoft system directory management. The format is 'Service Name.Protocol

	Type', such as <code>_sip._tcp</code> .
SPF	Used to specify the email sending server, an effective anti-spam solution.
CAA	Used for authorization to specify a CA Organization to issue SSL Certificates for your domain to prevent misissuance of SSL Certificates

## Associated VPC

You can associate a private domain name with one or more VPCs that need to be configured so as to map it to IP addresses.

### Note

Private Domains with the same name cannot be associated with the same VPC. For example, when there are two `tencent.com` simultaneously, you cannot associate both `tencent.com` with the same VPC.

## Reverse Resolution

Reverse DNS refers to mapping an IP address to a domain name, that is, the private domain name pointed to by the IP address is obtained by querying the PTR record of the IP address.

## Subdomain recursive DNS

Through Private DNS without depending on Authoritative DNS, intranet hijacking in a VPC environment can be achieved. In some scenarios, it is necessary to unblock some domain names to access public network IPs in a private environment. Private DNS supports combining with Authoritative DNS for Single Domain Dual Resolution, facilitating Hybrid Cloud scenarios. This means you can use `cmd's nslookup` to resolve the same domain name and get different IP addresses.

## Custom private domain

Plan CVM hostname management to make the machine's purpose and information easier to understand and more user-friendly.

## Internal API call

API calls are managed internally to avoid the troubles caused by IP address changes to the API use, which makes OPS easier.

## Internal domain name security isolation

The core system privacy protection feature ensures that the domain names of internal core systems are not exposed to the internet and thus improves their security.

# Strengths

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## Security and reliability

- Tencent Cloud strategic product, based on DNSPod's more than 10 years of DNS technology development, provides more professional private domain name resolution capabilities.
- It provides Tencent Cloud VPC-dedicated private network DNS to directly respond to VPC domain name DNS requests, which is fast, efficient, and effective in preventing hijacking.

## Wide Range of Scenarios

The core network infrastructure component of Private DNS in VPC scenarios helps you easily deploy integrated VPC solutions.

## Ease of Use

You can customize IP mappings for private domain names and quickly tag them for easier OPS management.

## Flexible and Free

You can create custom public networks and register private domain names that comply with the IANA specifications, which makes the configuration of private domain names more flexible and elastic.

## Unified Management

One private domain name can be associated with multiple VPCs to facilitate unified management and deployment.

## Comprehensive Records

Supports multiple types of records such as A, CNAME, MX, AAAA, TXT, PTR, CAA, SRV, SPF, covering various DNS resolution scenarios.

## Reverse Resolution

You can set reverse DNS by creating a fixed private domain ending with `in-addr.arpa` and adding a PTR record.

## Subdomain recursive DNS

After subdomain recursive DNS is enabled, subdomains that have no DNS records configured will be automatically forwarded to the public authoritative DNS for resolution.

## CNAME acceleration

If you have configured a CNAME record, enabling CNAME acceleration will synchronously return the target IP of the CNAME record (it is recommended to enable **subdomain recursive DNS** when using this feature; otherwise, the final result cannot be returned when the target IP of the CNAME record requires an external DNS query).

# Limits

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## Private DNS Limits

Currently, Private DNS has the following limits:

### Note

- The Financial District only supports visibility for Group Cloud and Financial Users.
- Tencent Cloud's default DNS are: 183.60.83.19 , 183.60.82.98 . If you do not use the default DNS, you will be unable to use the services provided by Private DNS. For modifications, please see [access Private IP Addresses and Setting DNS](#) .
- For more business scenario requirements, feedback can be given through business channels or [Online Consultation](#) .

Restriction	Threshold	Description
Number of DNS Records	100,000 Entries	Up to 100,000 DNS records can be added under each UIN account.
Number of domains	500	Up to 500 private domains can be created under each UIN account.
TTL	1 – 86400s	This is the retention time of a DNS record on the DNS server and can be customized. There is a cache TTL mechanism for DNS queries. The DNS queries in Private DNS are counted based on the actual origin-pull requests and billed. You need to set the local NSCD cache to reduce original pulls.
Available	Beijing, Shanghai, Guangzhou, Chengdu, Chongqing, Wuhan, Jinan,	An available region is a VPC region that can be associated

regions	Shijiazhuang, Nanjing, Hefei, Shenyang, Changsha, Zhengzhou, Xi'an, Fuzhou, Hangzhou, Hong Kong (China), Silicon Valley, Singapore , Frankfurt , Jakarta , Bangkok , Mumbai , Virginia , Tokyo , Seoul, Toronto, Beijing Finance District, Shanghai Finance District, Shenzhen Finance District	with a private domain.
Creates private domain	The system by default only supports the creation of TLDs that comply with the <a href="#">IANA</a> standards. For custom definitions, purchase can be made of <a href="#">Value-Added Services – Non-standard TLD</a> .	For more information, see <a href="#">Root Zone Database</a> .
DNS queries per second	Limit of 2000 QPS requests per second as per VPC	If the DNS query peak per second exceeds the threshold, there will be a risk of access limit, and the availability stated in SLA (99.99%) cannot be guaranteed.
Subdomain recursive DNS	–	After enabling recursive resolution for subdomains in Private DNS, records not configured will be queried via Public DNS. If this feature is not enabled, subdomains that are not configured would not resolve properly, please proceed with caution.
CNAME flattening	–	If you have set a CNAME record, enabling CNAME acceleration will simultaneously return the target IP of the CNAME record (using this feature suggests enabling "recursive resolution of subdomains"; otherwise, when the CNAME record's target IP requires a public network query, it cannot return the final result).

## Cloud Load Balancer Limits

### Note

- "Cloud Load Balancer" number of entries: the allowed number of entries for the same host and the same record type.
- Those out of the limit cannot be properly added. To increase the number of Cloud Load Balancer entries, you may purchase a [Value-Added Service Package](#).

Record Type	"Cloud Load Balancer" Number of Entries	Remarks
A	10	–
AAAA	10	–
TXT	20	TXT round-robin DNS doesn't support weight configuration.
CNAME	5	–
MX	50	–
PTR	PTR records do not support Cloud Load Balancer.	–
CAA	CAA records do not support Cloud Load Balancer	–

# Scenarios

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Here are some common application scenarios for Private DNS:

## Private Network Access Hijacking

You can use Private DNS to create a private domain name, associate it with a VPC, add a DNS record for it, and set resource mapping to implement the private network hijacking feature. Then, when you access the private domain in the VPC, the mapped resource that you set in advance will be returned.

## Tencent Cloud Service Resource Management

You can use private DNS records to manage Tencent Cloud resources such as CVM, CLB, CDN, and COS in VPCs. For example, you can plan the hosts of CVM instances according to the region, business scenario, server information, etc. and use the host information to add private domain names and DNS records for such instances. These private domain names are inaccessible outside the VPCs, which makes it easier for you to manage CVM resources.

## Mutual Access Between Tencent Cloud Service Resources

By building your own DNS on Tencent Cloud instances and forwarding the DNS server to the default DNS of Tencent Cloud VPC, you can enable data intercommunication between your private cloud services and Private DNS.

## Tencent Cloud Service Resource Switching

Generally, in order to ensure the stable operation of a high-concurrency business, the business is distributed on multiple CVM instances for them to share the pressure, and the same VPC can be established for such instances to enable mutual access between them at private IPs. However, when an instance is switched, its private IP will also change accordingly. Therefore, it is necessary to modify the business code and release the change, which is extremely inconvenient.

In this case, you can create a private domain name for each instance in your VPC through Private DNS and add DNS records pointing to the corresponding private IPs. The instances can access each other at the private domain names, and when an instance is switched, you do not need to modify the code. Instead, you can simply modify the DNS record of its domain name.