Cloud Virtual Machine

Getting Started

Product Documentation
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Contents

Getting Started
  Custom Configuration
    Types of Instance
    Select Cloud Disk
    Network Planning
    Configure Security Group
  Estimate Costs
    Custom Configuration for Linux CVM
    Custom Configuration for Windows CVM
  Getting Started to CVM
  Account Registration
To meet the needs of different customers in various application scenarios, Tencent Cloud provides the following recommendations for selecting an instance type:

- **Personal Website**

  **Standard** instances are recommended for general workloads, such as medium- and small-sized Web applications and databases.

- **Enterprise Website/E-commerce/App**

  **Standard** instances are recommended for general workloads, such as medium- and small-sized Web applications and databases.

- **Relational Database/Distributed Cache**

  **MEM Optimized** instances are recommended for scenarios that require extensive memory operations, searches, and computing.

- **NoSQL Database**

  **High IO** instances are recommended for I/O-intensive scenarios that require high disk read/write performance and low latency, such as NoSQL databases (e.g. MongoDB) and clustered databases.

- **High Performance Compute**

  **Computing** or **Computing Network Enhanced** instances are recommended for scenarios that require a large number of computing resources, such as large client games, high performance science and engineering applications, and video encoding/decoding.

- **High-Performance Client Games**
**Computing** or **Computing Network Enhanced** instances are recommended for scenarios that require a large number of computing resources, such as large client games, high performance science and engineering applications, and video encoding/decoding.

- **Mobile/Browser Games**

  **Computing** or **Computing Network Enhanced** instances are recommended for scenarios that require a large number of computing resources, such as large client games, high performance science and engineering applications, and video encoding/decoding.

- **LVB**

  **Standard Network Enhanced** or **Computing Network Enhanced** instances are recommended, which come with a 25 GB ENI that is 2.5 times faster than that of regular ten-gigabit data centers, providing a larger bandwidth and a lower latency.

- **Finance**

  **CDH Standard** instances are recommended. Compared with standard instances, these instances provide exclusive physical servers, which ensures the isolation of resources. They are secure, controllable, and in full compliance with the strict regulations in the finance industry. Custom specifications are also supported.

- **Scientific Computing**

  **GPU Computing** instances are recommended for deep learning, and scientific computing including computational fluid dynamics, computational finance, genomics research, environmental analysis, high-performance computing, and other server-side GPU computing workloads.

- **Machine Learning**

  **GPU Computing** instances are recommended for deep learning, and scientific computing including computational fluid dynamics, computational finance, genomics research, environmental analysis, high-performance computing, and other server-side GPU computing workloads.

- **Rendering**
**GPU Rendering** instances are recommended for non-linear editing, video encoding/decoding, graphics acceleration visualization, and 3D design.

- **Hadoop/Spark/Elastic Search**

  **Big Data** instances are recommended for distributed computing services like Hadoop (HDFS/MapReduce/Spark/Hive), massive parallel processing (MPP) data warehouses, B8 logs, data processing applications.
To meet the needs of different customers in different application scenarios, Tencent Cloud provides the following recommendations for selecting a cloud disk:

**Local SSD Application Scenario**

- **Low latency:** Access latency within microseconds.
- **Logs for large online applications:** Large online applications produce a large amount of log data, which require high-performance storage with less demand on storage reliability.
- **Acts as temporary read cache:** Local SSD has excellent random read performance (4 KB/8 KB/16 KB random read) and is suitable for read-only slaves for relational databases such as MySQL and Oracle. Since the cost for using memories is still higher than using SSDs, a local SSD can also be used as the secondary cache of cache services such as Redis and Memcache.
- **Single point of failure (SPOF) risk:** If SPOF risk exists, it is recommended to implement data redundancy at the application layer to ensure data availability. It is recommended to use SSD cloud storage for core business.

**HDD Cloud Storage Application Scenario**

- **HDD cloud storage** has low storage cost, and the same level of data persistency as SSD cloud storage. It can be used as cold data backup and archive, with a maximum capacity of 16 TB for a single disk.
- **It is suitable** for scenarios that involve sequential reading and writing of large files, such as journal log, stream media service and data storage. It can satisfy the demands for offline analysis of massive data calculated in TBs under Hadoop framework.
- **It is not suitable** for OLTP core business.

**Premium Cloud Storage Application Scenario**

- **It is applicable to 90% of the I/O scenarios with the highest possible quality under the lowest possible prices**
- **It is suitable for medium to small sized databases, web servers and so on, and provides consistent I/O performance**
• It meets the I/O demands for testing core businesses and developing integrated testing environments.

**SSD Cloud Storage Application Scenario**

• High performance and high data reliability: SSD cloud storage utilizes best-in-class NVMe solid state storage as the disk media. It is suitable for I/O-intensive businesses and can provide long-term and ultra-excellent single disk performance.

• Medium and large databases: Supports medium and large relational database applications containing tables with millions of rows, such as MySQL, Oracle, SQL Server, and MongoDB.

• Core business systems: I/O-intensive applications and other core business systems with high data reliability requirements.

• Big data analysis: Supports distributed processing of TB/PB-level data for applications such as data analysis, data mining, and business intelligence.

For more application scenarios, please see [Cloud Storage Application Scenarios](#).
Network Planning

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Tencent Cloud Virtual Private Cloud (VPC) is a user-defined logically isolated network space on the Tencent Cloud, in which users can customize IP address range, IP address and routing policies. Therefore, you are recommended to use VPC.

To help you use Tencent Cloud VPC, Tencent Cloud provides the following suggestions on network planning:

Determining the Number of VPCs

- **Existing features:**
  - VPC is region related. By default, cloud service products in different regions cannot communicate with each other over private network. For cross-region communication, you need to establish a Peering Connection.
  - By default, VPCs in the same region cannot communicate with each other over private network. For cross-VPC communication, you need to establish a Peering Connection.
  - By default, availability zones in the same VPC are interconnected with each other via private network.

- **Suggestions:**
  - If you need to deploy the system in multiple regions for your business, multiple VPCs are required. You can build a VPC close to the region of your customers to reduce access latency and improve access speed.
  - If you have deployed multiple businesses in the current region, and want to achieve network isolation among different businesses, you can build a VPC for each of your businesses in the current region.
  - If you have no requirement for multi-region deployment and network isolation among businesses, you can use only one VPC.

Determining Subnet Division

- **Existing features:**
  - Subnet is an IP address block within a VPC, and all cloud resources in a VPC must be deployed in subnets.
In the same VPC, subnet IP address ranges must not overlap.

Tencent Cloud VPC supports private IPs within three IP address ranges: "10.a.0.0/8" (a is between 0 and 255), "172.b.0.0/16" (b is between 16 and 31), and "192.168.0.0/16".

When a VPC has been created, the IP address range cannot be modified.

Suggestions:
- If only VPC subnet division is required, and communication between VPC and basic network/IDC is not involved, you can choose one of the above IP address ranges to create a new subnet.
- If VPC needs to communicate with basic network, establish a VPC with the IP address range of 10.[0~47].0.0/16 and its subsets as required.
- If VPN needs to be established, local IP address range (VPC's IP address range) and peer IP address range (your IDC IP address range) cannot overlap. Therefore, avoid using peer IP address range when you create a subnet.
- During subnet division, the number of available IPs in the IP address range should also be taken into account.
- Finally, it is recommended that subnets can be divided according to the service modules within the same VPC business. For example, subnet A is used for WEB layer, subnet B is used for logic layer, and subnet C is used for DB layer. This helps facilitate access control and filtering using network ACL.

Determining Route Policies

Existing features:
A routing table consists of a series of routing policies that are used to control the outbound traffic direction of subnets within the VPC.
- Each subnet must be associated with one routing table only.
- Each routing table can be associated to multiple subnets.
- When a VPC is created, the system automatically generates a default routing table, which indicates that VPCs are interconnected with each other via private network.

Suggestions:
- If you do not need to control the traffic direction of subnets, and VPCs are interconnected with each other via private network by default, you can directly use the default routing table without the need to configure a custom routing policy.
- If you need to control the traffic direction of subnets, please see the detailed description of Routing Table on the official website.

For more information on VPC, please see VPC.
Configure Security Group

Security group, an instance-level firewall provided by Tencent Cloud, is used to control inbound/outbound traffic of CVMs.

1. Log in to the CVM console, and click Security Group in the left navigation pane.
2. Click the New button, enter the security group name (e.g. my-security-group), select Template or Custom, and then click OK after confirming inbound and outbound rules.
3. Click the Add an Instance button on the right of the security group list, and select the CVM to be associated with the security group to complete the process.

Or

You can also enter the CVM list page to view or modify the security group associated with a CVM. On the CVM list page, select the CVM for which you want to modify the security group, and click More -> Configure Security Group on the right side, and then select a security group for association. (For example, to allow your local computer (IP: 123.45.6.7) to send HTTP requests to the CVM, you can create a rule as shown in the figure below.)
Estimate Costs

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Other than your CVM model and VPC configuration, these factors also influence how much your service costs:

- Billing method
- Resource used
- Quantity

**Billing method**

- **Pay as you go** is a flexible billing method for CVM instances. You can launch/terminate a CVM at any time and are billed by the actual usage of the CVM. You pay by the second and no up-front payment is required. A bill is generated every hour on the dot. This billing method is suitable for use cases such as an e-commerce flash sale where the demand for resources can fluctuate greatly.

- **Spot Instance** is a new way to use and pay for CVM instances. Similar to Pay as you go, you pay for Spot Instances by the second, every hour. The price of Spot Instances fluctuates according to market demand. You get a sizable discount for them when the demand is low (usually 10 to 20%). However, they might be repossessed automatically by the system as the demand becomes high.

**Resources used**

- Region:
  - The price is the same for the same instance model in different regions in Mainland China.
  - The price might be the same for the same instance model in different regions outside Mainland China.
- Image:
  - Public images: all public images in Mainland China hosted by Tencent Cloud are free. Windows images outside Mainland China require licensing fees.
  - Custom image: creating custom images, importing custom images, and copying custom images across regions are free of charge.
  - Shared images: shared images from other Tencent Cloud users are free of charge.
- Network:
  - VPC, Subnet, Route Table, Network ACL, Security Group, Direct Connect Gateway, VPN Tunnel, and Customer Gateway are free of charge.
  - Bandwidth costs are not applicable to inter-instance communication within different subnets. Intra-region peering connections are free as well.
• Refer to this article for details on the public network billing method.
• For details on charges for NAT Gateway, VPN Gateway, and Cross-region Peering connection.

• Storage:
  For the prices of local disks and cloud disks, refer to this article

**Quantity**

The number of CVMs you purchase also affect the price you pay. More CVMs means a higher price.
This document introduces the custom configuration of a Linux CVM. Different from quick configuration, custom configuration provides full options, and you can choose the appropriate configuration based on your needs.

Prerequisites

1. Before starting the custom configuration, you need to complete Step 1 in Getting Started with Linux CVM.
2. Go to the Tencent Cloud official website, select Products -> Cloud Compute & Network -> Cloud Virtual Machine, and click Buy Now to enter the CVM purchase page.
3. Click Custom Configuration to go to the custom configuration page.

Selecting Region and Model
1. Select the Postpaid billing method (users who cannot purchase postpaid CVMs need to complete Identity Verification first).

2. Select a region and an availability zone. When you need more than one CVM, it is recommended that you choose different availability zones to implement disaster recovery.

3. Select a model and configuration.

   Based on different underlying hardware, Tencent Cloud offers two series of instances: **Series 1** and **Series 2** (also referred to as **last-generation instance** and **current-generation instance**). They respectively provide the following instance types:

   - Last-generation instance types: Standard S1, High IO I1, and MEM Optimized M1

   It is recommended that you create an instance using a current-generation instance type to achieve optimal performance. For more information, see **Instance Types**.
Note:
Series and models vary with different areas and availability zones.

Click Next Step: Select Image to enter the image selection page.

Selecting an Image

1. Select an image provider.
   Tencent Cloud supports public images, custom images, shared images, and service marketplace images. Select one by referring to Image Types.
   We recommend that users who have just started using Tencent Cloud select public images.
2. Select an operating system.
   Tencent Cloud provides various operating systems such as CentOS, CoreOS, Debian, FreeBSD, OpenSUSE, SUSE, and Ubuntu. You need to build a subsequent operating environment on your own.

3. Select a system version.
   Click Next Step: Select Storage and Network to enter the storage and network selection page.

Selecting Storage and Network

1. Select the type of disk and the size of data disk.
   Tencent Cloud provides cloud disk, local disk and SSD cloud disk (The system disk size is optional, which defaults to 50 GB).
Cloud disk: Deliver high data reliability with the distributed three-copy mechanism.

SSD cloud disk: Built upon the full NVMe SSD storage media and Tencent Cloud's CBS 3-copy distributed storage technology, an SSD cloud disk provides I/O capabilities featured by low latency, high random IOPS and high throughput, and high-performance storage with 99.9999999% data security. It is applicable to scenarios which require high IO performance.

Local disk: A storage located on the physical machine where the CVM resides, which allows low latency but may cause single point of failure risk. For the comparison, see Product Category.

2. Select a network type.
   Tencent Cloud provides two network types: basic network and VPC.
   - Basic network: Suitable for new users. CVMs of the same user are interconnected via a private network.
   - VPC: Suitable for advanced users. Different VPCs are logically isolated from each other.

   **Note:**
   Public network gateway is an interface between a VPC and a public network, which can forward requests from CVMs without public IP in different subnets of the VPC. For more information, see Public Gateway.

3. Select public network bandwidth.
   Tencent Cloud provides two options: Bill-by-bandwidth or Bill-by-traffic.
   - Bill-by-bandwidth: Select a fixed bandwidth. Packet loss occurs if this bandwidth is exceeded. This is suitable for scenarios with minor network fluctuation.
   - Bill-by-traffic: The service is charged based on the actual traffic usage. You can set a limit for peak bandwidth to avoid extra fees caused by unplanned traffic. Packet loss occurs when the instantaneous bandwidth exceeds this limit. This is suitable for scenarios with large network fluctuations.

iv. Select quantity.

Click **Next Step: Set Information** to enter the information setting page.

**Setting Information**
1. Set a CVM name: You can choose **Name It after Creation** or **Name It Now**.

2. Set login information:
   - Set a password: Enter a CVM password.
   - Associate a key now: Associate an SSH key. If you do not have a key or have an invalid key, click **Create Now** to create one. For more information, see Creating Key. For more information on the SSK key, see SSH Key.
   - A system-generated password is sent to you via internal message.

3. Select a security group (**Make sure that the login port 22 is enabled**). For more information, see Security Group).

Click the Enable button to log in to the Console to check your CVM.

After the CVM is created, you will receive an internal message containing the instance name, public IP, private IP, login name, initial login password, and other information. You can use these
information to log in to and manage your instance. To ensure the security of your CVM, change your Linux login password as soon as possible.

Click here to complete subsequent configurations, including logging in to the Linux CVM, formatting and partitioning the data disk.
This document introduces the custom configuration of a Windows CVM. Different from quick configuration, custom configuration provides full options, and you can choose the appropriate configuration based on your needs.

Prerequisites

1. Before starting the custom configuration, you need to complete Step 1 in Getting Started with Windows CVM.
2. Go to the Tencent Cloud official website, select Products -> Cloud Compute & Network -> Cloud Virtual Machine, and click Buy Now to enter the CVM purchase page.
3. Click Custom Configuration to go to the custom configuration page.

Selecting Region and Model
1. Select the Postpaid billing method (users who cannot purchase postpaid CVMs need to complete Identity Verification first).

2. Select a region and an availability zone. When you need more than one CVM, it is recommended that you choose different availability zones to implement disaster recovery.

3. Select a model and configuration.

   Based on different underlying hardware, Tencent Cloud offers two series of instances: **Series 1** and **Series 2** (also referred to as **last-generation instance** and **current-generation instance**). They respectively provide the following instance types:

   - Last-generation instance types: Standard S1, High IO I1, and MEM Optimized M1
It is recommended that you create an instance using a current-generation instance type to achieve optimal performance. For more information, see Instance Types.

Note:
Series and models vary with different areas and availability zones.

Click **Next Step: Select Image** to enter the image selection page.

**Selecting an Image**

1. Select an image provider.
   Tencent Cloud supports public images, custom images, shared images, and service marketplace images. Select one by referring to Image Types.
We recommend that users who have just started using Tencent Cloud select public images, which contain the legitimate Windows operating system. You need to build a subsequent operating environment on your own.

2. Select an operating system: Windows.

3. Select a system version.
   - Suitable for running programs developed under Windows, such as .NET.
   - Support SQL Server and other more databases (you need to install it yourself).

Click **Next Step: Select Storage and Network** to enter the storage and network selection page.

**Selecting Storage and Network**
1. Select the type of disk and the size of data disk.

   Tencent Cloud provides cloud disk, local disk and SSD cloud disk (The system disk size is optional, which defaults to 50 GB).
   - Cloud disk: Deliver high data reliability with the distributed three-copy mechanism.
   - SSD cloud disk: Built upon the full NVMe SSD storage media and Tencent Cloud's CBS 3-copy distributed storage technology, an SSD cloud disk provides I/O capabilities featured by low latency, high random IOPS and high throughput, and high-performance storage with 99.9999999% data security. It is applicable to scenarios which require high IO performance.
   - Local disk: A storage located on the physical machine where the CVM resides, which allows low latency but may cause single point of failure risk. For the comparison, see Product Category.

2. Select a network type.

   Tencent Cloud provides two network types: basic network and VPC.
   - Basic network: Suitable for new users. CVMs of the same user are interconnected via a private network.
   - VPC: Suitable for advanced users. Different VPCs are logically isolated from each other.

   **Note:**
   A Windows CVM cannot be used as Public Gateway. Users who need a public gateway can refer to Getting Started with Linux CVM.

3. Select public network bandwidth.

   Tencent Cloud provides two options: Bill-by-bandwidth or Bill-by-traffic.
   - Bill-by-bandwidth: Select a fixed bandwidth. Packet loss occurs if this bandwidth is exceeded. This is suitable for scenarios with minor network fluctuation.
   - Bill-by-traffic: The service is charged based on the actual traffic usage. You can set a limit for peak bandwidth to avoid extra fees caused by unplanned traffic. Packet loss occurs when the instantaneous bandwidth exceeds this limit. This is suitable for scenarios with large network fluctuations.
   - Select quantity.

Click **Next Step: Set Information** to enter the information setting page.
### Setting Information

1. **Set a CVM name:** You can name it after creation or name it now.

2. **Set the login information:** You can set a password which can be modified after creation of the CVM, or use a system-generated password that is sent to you via the internal message.

3. **Select a security group** *(Make sure that the login port 3389 is enabled).* For more information, see [Security Group](#).

Click the **Enable** button to log in to the **Console** to check your CVM.

After the CVM is created, you will receive an internal message containing the instance name, public IP, private IP, login name, initial login password, and other information. You can use these
information to log in to and manage your instance. To ensure the security of your CVM, change your Windows login password as soon as possible.

Click here to complete subsequent configurations, including logging in to the Windows CVM, formatting and partitioning the data disk.
Getting Started to CVM

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To effectively use Tencent Cloud CVM, we provide this document to help you get started with CVM.

Introductory Guide

The Introductory Guide helps you understand the basic concept of the CVM, and is suitable for users without any foundation and those who use Tencent Cloud services for the first time. You need to learn the following points:

- CVM Overview
- CVM Features and Advantages
- CVM Guide

Advanced Guide

The Advanced Guide helps you choose the CVM that suits you better when making the purchase:

Before purchasing and using CVM, you first need to complete Registration and Verification.

- When you have no idea which model to choose among various options, CVM Model Selection can help you learn about the applicable scenarios and performance of different models so that you can choose the one that is suitable for your business scenarios.
- When you are not sure where to configure, Regions and Availability Zones can help you understand the optimum selection plan for regions and availability zones.

Practical Guide

This practical guide provides detailed operation instructions to guide you through account registration, purchase, login and management of CVMs. Refer to this document for a quick start for the basic use of Windows and Linux CVMs.

Common steps

1. Register an account
2. Confirm the region and CVM configurations
3. Create a CVM
4. Log in to the CVM
5. Format and partition data disk
6. Install and deploy the application environment

For more information on operation instructions, see Getting Started with Windows CVM and Getting Started with Linux CVM.

High-level Guide

The High-level Guide provides more detailed CVM management and operation instructions, and assists you in environment configuration and program installation. Refer to this document to complete the deployment of OPS of CVM under Window and Linux systems.

Windows CVM OPS manual
1. Logging in to Windows CVM
2. Data Disk Partitioning and Formatting
3. Environment Configuration
4. System Maintenance

Linux CVM OPS manual
1. Logging in to Linux CVM
2. Installing Software
3. Environment Configuration
4. Uploading Documents
5. Common Operations and Commands in Linux
6. Accessing Public Network

Others

- **Adjustment of instance configurations**: You may choose low hardware configuration in the initial stage of application where the volume of requests is low. However, as applications quickly expand and the request volume surges, you can use Changing Instance Configurations for quick hardware adjustment to improve service processing speed and better cater to your new requirements.
• **FAQ:** If you still encounter other [FAQ on CVM Management](#), we provide a set of frequently asked questions for your reference to help you quickly locate and solve problems.

• **Question feedback:** If you have any questions that are not resolved, give us feedback by [submitting a ticket](#). We will get back to you as soon as we can.
To facilitate your effective use of Tencent Cloud CVM, please complete the following steps to set up the CVM:

**Signing up for a Tencent Cloud Account**

If you already have a Tencent Cloud account, you can skip the sign-up step and make the following settings.

If you need to **Register** in the Tencent Cloud official website, see Signing up for Tencent Cloud for registration instructions.

**Qualification Verification**

After you have signed up as a Tencent Cloud user, you need to go through the qualification verification before using some products (such as the Postpaid CVM, COS, and CDN). When you have passed the qualification verification, you can use all Tencent Cloud services (except for some specific services that you need to apply for activation separately) by default.

1. After the sign-up, click the button on the top right corner of the page to enter **User Center**:
2. Click **Qualification Verification**, and complete the qualification verification by following the instructions on the page: