

# Cloud Virtual Machine

## Getting Started

### Product Documentation



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# Getting Started

## Concepts

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### Instance

An instance is a Cloud Virtual Machine (CVM), which is a virtual computing resource containing CPU, memory, OS, network, disks, and other basic computing components.

CVM instances provide secure, reliable and elastic computing services in the cloud to meet computing requirements. As business demands change, computing resources can be scaled in real time to lower your software and hardware costs and simplify IT OPS work.

### Instance Type

Tencent Cloud provides various configurations of CPU, MEM, storage, and networking capacity for CVM instances. For more information, please see [Instance Types](#).

### Image

An image is a pre-configured template containing an operating system and applications that CVM instances run on. Tencent Cloud CVM provides pre-configured images for Windows, Linux, etc.

### Cloud Block Storage

Cloud Block Storage (CBS) is a highly available, highly reliable, low-cost, and customizable block storage device. It can be used as a standalone and expandable disk for CVM, providing efficient and reliable [storage](#) devices.

### VPC

A VPC is a logically isolated virtual network space in Tencent Cloud.

### IP Addresses

Tencent Cloud provides [private IP address](#) and [public IP address](#). Private IP address is for the interconnection of CVM instances within the same LAN, while public IP address is for public-facing services.

### Elastic IP

Elastic IP (EIP) is static public network IP addresses designed especially for dynamic networks to meet the demands for fast troubleshooting.

An EIP is a public IP address that can be applied for independently. It supports dynamic binding and unbinding. You can bind it to or unbind it from the CVM (or NAT Gateway instances) under your account. Its main uses are:

- To retain an IP. ICP domain name filing is required for Chinese mainland IP and DNS.

- To mask an instance failure. For example, a DNS name is mapped to an IP address through dynamic DNS mapping. It may take up to 24 hours to propagate this mapping to the entire Internet, while an elastic IP enables quick remapping of an IP from one CVM to another. When one CVM fails, you can just start and remap another instance to quickly respond to instance failures.

## Security Group

A security group is a virtual firewall that features stateful data packet filtering. It is used to configure the network access control of CVMs. You can add CVM instances with the same network security isolation requirements in the same region to the same security group, to filter the inbound and outbound traffic of the CVM through the network policies of the security group.

## Login Method

The password is a unique login credential for the CVM instance. To ensure instance security, Tencent Cloud provides the following two encrypted login methods:

- [SSH key pairs](#) are easier to use. You can log in to instances remotely with a few simple configuration steps on the console and your local client, and do not need to enter a password when you log in again.
- [Login password](#) allows anyone with the password to log in to the CVM instance remotely through a public network address allowed by the security group.

## Regions and Availability Zones

Physical locations where CVM instances and other resources reside and are launched.

- A region refers to a geographical location where data centers hosted by Tencent Cloud are located. Each region has multiple availability zones.
- An availability zone is a Tencent Cloud IDC with an independent power supply and network in the above region. It can ensure business stability, as failures in one AZ are isolated without affecting other AZs in the same region.

# Custom Configurations

## Choosing a Billing Mode

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Tencent Cloud provides the following billing methods for Cloud Virtual Machine (CVM) instances:

- **Pay as you go** is a flexible billing method for CVM instances. You can activate or terminate a CVM at any time, and you will be billed by the actual usage of the CVM. The billing granularity is accurate to 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 devices can fluctuate greatly.
- **Spot Instance** is a new way to use and pay for CVM instances. Similar to the pay-as-you-go method, you pay for spot instances in postpaid mode by the second, every hour. The price of spot instances fluctuates according to the market demand. You can receive a sizable discount for them when the demand is low (usually 10% to 20%). However, spot instances might be repossessed automatically by the system as the demand becomes high.

Both the pay-as-you-go and spot-instances billing methods can satisfy user requirements in different scenarios. For more information, see [Pricing Modes](#).

# Types of Instance

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Tencent Cloud provides the following recommendations for selecting an instance type for diverse customer use cases:

| Use Case                              | Recommended Instance Type   | Description  |
|---------------------------------------|---|--|
| Personal website                      | <b>Standard</b> instance  | Suitable for general workloads, such as small and medium Web applications and databases.   |
| Enterprise websites/E-commerce/App    | <b>Standard</b> instance  | Suitable for general workloads, such as small and medium Web applications and databases.   |
| Relational database/distributed cache | <b>MEM optimized</b> instance   | Suitable for use cases that require extensive memory operations, searches, and computing.  |
| NoSQL database                        | <b>High IO</b> instance   | Suitable for I/O-intensive use cases that require high disk read/write performance and low latency, such as TencentDB for MongoDB and clustered databases.                             |
| High performance computing            | <ul style="list-style-type: none"> <li>• <b>Computing</b> instance</li> <li>• <b>Computing network enhanced</b> instance</li> </ul> | Suitable for use cases that require a large number of computing resources, such as large PC games, high performance science and engineering applications, and video encoding/decoding. |
| High performance PC games             | <ul style="list-style-type: none"> <li>• <b>Computing</b> instance</li> <li>• <b>Computing network enhanced</b> instance</li> </ul> | Suitable for use cases that require a large number of computing resources, such as large PC games, high performance science and engineering applications, and video encoding/decoding. |
| Mobile/browser games                  | <ul style="list-style-type: none"> <li>• <b>Computing</b> instance</li> <li>• <b>Computing network enhanced</b> instance</li> </ul> | Suitable for use cases that require a large number of computing resources, such as large PC games, high performance science and engineering applications, and video encoding/decoding. |

| Use Case                    | Recommended Instance Type   | Description  |
|-----------------------------|---|--|
| Live streaming              | <ul style="list-style-type: none"> <li>• <b>Standard network enhanced</b> instance</li> <li>• <b>Computing network enhanced</b> instance</li> </ul> | Comes with a 25 GB ENI that is 2.5 times faster than that of regular ten-gigabit data centers, providing increased bandwidth and reduced latency.  |
| Finance                     | <b>CDH standard</b> instance  | Features exclusive physical servers and isolated resources. The CDH standard instances are secure, controllable, and fully compliant with the strict regulations in the finance industry. Custom specifications are also supported.                              |
| Scientific computing        | <b>GPU computing</b> instance   | Suitable for use cases that require 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            | <b>GPU computing</b> instance   | Suitable for use cases that require 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                   | <b>GPU rendering</b> instance   | Suitable for non-linear editing, video encoding/decoding, graphics acceleration visualization, and 3D design.  |
| Hadoop/Spark/Elastic Search | <b>Big data</b> instance  | Suitable for distributed computing services like Hadoop (HDFS/MapReduce/Spark/Hive), massive parallel processing (MPP) data warehouses, B8 logs, and data processing applications.   |

- For more use cases, see [Instance Types](#).



# Configuring Disk

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When configuring an instance, you can choose a local disk or a cloud disk as your system disk or data disk. Before you choose a storage media, please familiarize yourself with the characteristics and the use cases of [local disks](#) and [Cloud Block Storage](#).

- The types of system disks and data disks on the purchase page vary by the different instance specifications you select. For example, SSD local disks are only available for IO instances.
- You cannot upgrade the hardware (CPU, memory, or storage) of a CVM instance with local disks. You can only upgrade its bandwidth.
- The media type of system disks cannot be changed after purchase.

The following table lists the different strengths and use cases of different storage media such as the SATA HDD local disk, the NVME SSD disk, Premium Cloud Storage, and SSD.

| Storage Media  | Strengths   | Use Cases   |
|--|---|---|
| NVME SSD local disks (only available for IO instances such as IT3 and IT5) | Low latency: provides microsecond-level access latency. | <p><b>Acts as a temporary read cache:</b> NVME SSD has excellent random read performance (4 KB/8 KB/16 KB random read) and is suitable for read-only slave databases for relational databases such as MySQL and Oracle.</p> <p>Since the cost of using memories is still higher than the cost of using SSDs, NVME SSD local disks can also be used as the secondary cache of Redis, Memcache, and other cache business.</p> <p><b>Note:</b> NVME SSD carries the risk of a single point of failure. Therefore, we recommend that you implement data redundancy at the application layer to ensure reliability and use SSD cloud disks for your core business.</p> |

| Storage Media  | Strengths  | Use Cases   |
|--|--|---|
| SATA HDD local disk (only available for big data instances such as D2) | <ul style="list-style-type: none"> <li>Provides the same data persistence as that of SSD at a fraction of the cost. It can be used as the cold data backup and the archive for important business, with a maximum capacity of 16 TB for a single disk.</li> <li>High throughput: provides the same throughput as those of local HDDs.</li> </ul> | It is suitable for <b>scenarios that involve the sequential reading and writing of large files</b> , such as EMR and big data processing.   |
| Premium Cloud Storage  | It is the most cost-effective option that is suitable for 90% of I/O scenarios.  | It is suitable for <b>small and medium databases, web servers</b> , and other scenarios, and provides consistent and stable I/O performance. It meets the I/O demands for testing core business and developing joint testing environments.  |
| SSD  | High performance and high data reliability: SSD uses the best-in-class NVMe solid state storage as the disk media. It is suitable for I/O-intensive business and provides long-term and ultra-excellent single disk performance.   | <p>Applicable use cases:</p> <ul style="list-style-type: none"> <li><b>Medium and large databases:</b> supports medium and large relational database applications containing tables with millions of rows, such as MySQL, Oracle, and SQL Server.</li> <li><b>Core business systems:</b> supports I/O-intensive applications and other core business systems with high data reliability requirements.</li> <li><b>Big data analysis:</b> supports the distributed processing of TB- and PB-level data for data analysis, data mining, business intelligence, and other applications.</li> </ul> |

- For more information about the types and use cases of cloud disks, see [Cloud Disk Types](#).
- For more information about the prices of cloud disks, see [Pricing List](#).

# Network Planning

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A Tencent Cloud Virtual Private Cloud (VPC) instance is a user-defined logically isolated network space on Tencent Cloud. In this instance, users can customize IP ranges, IP addresses, and routing policies. Therefore, Tencent Cloud recommends that you use a VPC instance for your businesses.

To help you better use Tencent Cloud VPC instances, Tencent Cloud provides the following network planning recommendations.

## Determining the number of VPC instances

- Features:
  - VPC instances are region-specific. By default, CVMs in different regions cannot communicate with each other. If cross-region communication is required, establish a [peering connection](#).
  - By default, different VPC instances in the same region cannot communicate with each other. If cross-VPC communication is required, establish a [peering connection](#).
  - By default, different availability zones in the same VPC instance can communicate with each other.
- Recommendations:
  - If your business requires cross-region system deployment, multiple VPC instances are required. In this case, you can build a VPC instance that is close to the region where your customers are located to reduce access latency and improve the access speed.
  - If you have deployed multiple businesses in the current region and want to implement network isolation among different businesses, you can build a VPC instance for each business in the current region.
  - If you do not require cross-region business deployment or network isolation among businesses, you can use one VPC instance.

## Determining subnet division

- Features:
  - Subnets are IP address blocks in a VPC instance. All cloud resources in a VPC instance must be deployed in subnets.
  - In the same VPC instance, the IP ranges of subnets must not overlap.
  - Tencent Cloud automatically assigns initial private IP addresses from VPC IP ranges. The Tencent Cloud VPC CIDR block can be any of the following VPC IP ranges. For an IP address within these ranges, its mask ranges from 16 to 28, and the actual mask is determined by the private network where the instance resides.
    - **10.0.0.0-10.255.255.255**
    - **172.16.0.0-172.31.255.255**
    - **192.168.0.0-192.168.255.255**

- After a VPC instance is created, its IP range cannot be modified.
- Recommendations:
  - If only VPC subnets need to be divided and communication with the basic network or IDC is not involved, choose any of the preceding IP ranges to create a subnet.
  - If communication with the basic network is required, establish a VPC instance with the IP range of 10.[0-47].0.0/16 and its subsets as required.
  - If a VPN is required, the local IP range (of the VPC instance) and the peer IP range (of your IDC) cannot overlap. Therefore, do not use the peer IP range when creating a subnet.
  - During subnet division, you also need to consider the number of available IP addresses within an IP range.
  - We recommend that subnets be divided according to the business modules for businesses in the same VPC instance. For example, subnet A is used for the web layer, subnet B is used for the logic layer, and subnet C is used for the database layer. This facilitates access control and filtering by using the network ACL.

## Determining route policies

- Features:
  - A route table consists of a series of routing rules that control the traffic flow of subnets in a VPC instance.
  - Each subnet must be associated with only one route table.
  - A single route table can be associated with multiple subnets.
  - When a VPC instance is created, the system automatically generates a default route table for the instance, which defines that VPC instances can communicate with each other through the private network.
- Recommendations:
  - If you do not need to control the traffic flow of subnets and VPC instances are interconnected through the private network by default, you can use the default route table without needing to configure a custom routing policy.
  - If you need to control the traffic flow of subnets, see [Overview](#) on the official website.

For more information on VPC instances, see [VPC](#).

# Configuring Security Groups

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This document describes how to create and configure a security group for an instance. For more information, please see [Security Group](#).

## Configuring a Security Group

### 1. Select **New security group**.

Note

If you have available security groups, you can select **Existing Security Groups**.

Security Group Rule Bind with Instance

Inbound rule Outbound rule

Add a Rule Import rule Sort Delete How to Set [?](#)

| <input type="checkbox"/> | Source     | Protocol port | Policy | Note                    | Operation   |
|--------------------------|------------|---------------|--------|-------------------------|---|
| <input type="checkbox"/> | 123.45.6.7 | TCP:80        | Allow  | Allow the Access from > | <input type="button" value="Save"/> <input type="button" value="Cancel"/> |

### 2. Select IP addresses or ports to open based on your actual requirements.

Rules for a new security group are as follows:

- **ICMP**: opens to the ICMP protocol and allows the pinging of the server over the public network.
- **TCP:80**: opens port 80 and allows access to Web services over HTTP.
- **TCP:22**: opens port 22 and allows a remote connection to Linux CVMs over SSH.
- **TCP:443**: opens port 443 and allows access to Web services over HTTPS.
- **TCP:3389**: opens port 3389 and allows a remote connection to Windows CVMs over RDP.
- **Private network**: opens to the private network and allows private network access among different cloud resources (IPv4).

**Note:**

- After you select the IP addresses or ports to be opened, the detailed inbound and outbound rules appear on the **Security Group Rule** tab page.
- To open other ports for your business, refer to [Security Group Use Cases](#) to [create security groups](#). For security reasons, we recommend that you only open ports when absolutely necessary to avoid unnecessary security risks.

3. Configure other information as prompted.

## Security Group Rules

**Inbound rules:** allows traffic to CVMs associated with a security group.

**Outbound rules:** indicates outbound traffic from the CVMs.

- Rules in a security group are **prioritized from top to bottom**.
- When a CVM is bound to a security group without rules, all inbound and outbound traffic is rejected by default. If a rule is available, the rule prevails.
- When a CVM is bound to multiple security groups, the security groups with **smaller numbers have higher priority**.
- When a CVM is bound to multiple security groups, the rejection rule takes effect for the security group with the lowest priority by default.

## Security Group Limits

For more information, please see [Security Group Limits](#).

# Estimating 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 affects the price you pay. More CVMs means a higher price.



# Customizing Linux CVM Configurations

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Compared with using quick configuration to create a Tencent Cloud Virtual Machine (CVM), custom configuration provides more image platforms and advanced configurations for storage, bandwidth, and security group. You can select the configuration method as needed. This document uses custom configuration as an example.

## Registration and verification

Before using a CVM instance, you need to perform the following operations:

1. Sign up for a Tencent Cloud account and complete identity verification.

A new user needs to [sign up](#) for an account on the Tencent Cloud website. For detailed directions, see [Signing Up](#).

2. Visit the [Tencent Cloud CVM introduction page](#) and click **Buy Now**.

## Selecting basic configuration

### Note

For accounts that are making purchases for the first time, the **Quick Configuration** page appears by default. For accounts that have made purchases before, the **Custom Configuration** page appears by default. If you have never purchased a CVM instance, select **Custom Configuration**.

1. Configure the following information as prompted by the page:

| Type                         | Required | Configuration Description   |
|------------------------------|----------|---|
| <a href="#">Billing Mode</a> | Yes      | Select one as needed: <ul style="list-style-type: none"> <li>◦ <b>Pay-as-you-go</b>: It is an elastic billing method of CVM applicable to scenarios such as e-commerce flash sales, where demand will fluctuate significantly in an instant.</li> <li>◦ <b>Spot instance</b>: It is a new instance operation mode applicable to scenarios such as big data computing and online website service using load balancing. Its general price range is 10%–20% of a pay-as-you-go instance.<br/>- 20%。</li> </ul> |
| Region                       | Yes      | Select the region closest to your users to minimize the access latency and  |

|                             |     |   |
|-----------------------------|-----|---|
|                             |     | improve the access speed  |
| AZ                          | Yes | Select one as needed.<br>If you want to purchase multiple CVM instances, we recommend you select different AZs to implement disaster recovery. For more information, see <a href="#">Regions and AZs</a> .  |
| Instance                    | Yes | Tencent Cloud provides different instance types based on the underlying hardware. For optimal performance, we recommend you use instance types of the latest generation.<br>For more information on instances, see <a href="#">Instance Types</a> . |
| Image                       | Yes | Tencent Cloud provides public images, custom images, and shared images. For more information on images, see <a href="#">Image Types</a> .<br>We recommend new Tencent Cloud users select a public image.  |
| <a href="#">System disk</a> | Yes | It is used for OS installation and defaults to 50 GB.<br>Available cloud disk types vary by region. Select one as instructed on the page.<br>For more information on cloud disks, see <a href="#">Cloud Disk Types</a> .                            |
| <a href="#">Data disk</a>   | No  | It is used to scale up the storage capacity of the CVM instance to ensure high efficiency and reliability. It is not added by default.<br>For more information on cloud disks, see <a href="#">Cloud Disk Types</a> .                               |
| Scheduled Snapshot          | No  | A scheduled snapshot policy can be set for the system disk or data disk.<br>For more information, see <a href="#">Scheduled Snapshots</a> .   |
| Quantity                    | Yes | It indicates the quantity of CVM instances to be purchased.   |

2. Click **Next: Set Network and CVM** to enter the instance settings page.

## Setting the network and CVM

1. Configure the following information as prompted by the page:

| Type    | Required | Configuration Description   |
|---------|----------|---|
| Network | Yes      | It is a logically isolated network space built in Tencent Cloud. A VPC includes at least one subnet. The system provides a default VPC and subnet for each region.<br>If the existing VPC or subnet does not meet your requirements, you can create a VPC or subnet in the VPC console.<br><b>Note:</b> |

|                        |     |   |
|------------------------|-----|---|
|                        |     | <ul style="list-style-type: none"> <li>By default, resources in the same VPC are interconnected over the private network.</li> <li>When purchasing a CVM instance, make sure that the CVM instance and its subnet are in the same AZ.</li> </ul>  |
| Public IP              | No  | If your CVM instance needs to access the public network, you need to assign a public IP for it. You can assign the public IP when creating the CVM instance or configure an <a href="#">EIP</a> after the creation.   |
| Bill-by-bandwidth mode | No  | <p>Tencent Cloud provides two network billing modes. You can select one as needed.</p> <ul style="list-style-type: none"> <li><b>Bill-by-traffic:</b> Billing is based on traffic that is actually used. You can specify a peak bandwidth to prevent charges incurred by unexpected traffic. Packet loss will occur when the instantaneous bandwidth exceeds this value. This is applicable to scenarios where the network connection fluctuates significantly.</li> <li><b>Bill-by-bandwidth package:</b> Select this aggregated billing mode when your public network instances have traffic peaks at different times. It is applicable to large-scale businesses where traffic can be staggered between different instances using the public network. BWP is currently in beta test. To try it out, <a href="#">submit a ticket</a> for application.</li> </ul> <p>For more information, see <a href="#">Public Network Billing</a>.</p> |
| Bandwidth value        | No  | You can set the maximum public network bandwidth of the CVM instance as needed. For more information, see <a href="#">Public Network Bandwidth Cap</a> .  |
| Security group         | Yes | <p>Used to configure the network access policies for one or more CVM instances.</p> <p><b>Make sure that login port 22 is open.</b> For more information, see <a href="#">Security Group</a>.</p>   |
| Tag                    | No  | You can add tags for the CVM instance as needed, which can be used to categorize, search for, and aggregate cloud resources. For more information, see <a href="#">Overview</a> .   |
| Instance name          | No  | <p>The name of the CVM to be created.</p> <p>It is user-defined. We recommend <b>CVM-01</b>.</p>  |
| Login Methods          | Yes | <p>Configure the method to log in to the CVM as needed.</p> <ul style="list-style-type: none"> <li><b>Set Password:</b> Customize the password for logging in to the instance.</li> <li><b>SSH Key Pair:</b> Associate the instance with an SSH key to ensure secure login to the CVM.</li> </ul> <p>If no key is available or existing keys are inappropriate, click <b>Create Now</b> to create a key. For more information on SSH keys, see <a href="#">SSH Keys</a>.</p>  |

|                                 |    |   |
|---------------------------------|----|---|
|                                 |    | <ul style="list-style-type: none"> <li>◦ <b>Random Password:</b> A password will be automatically generated and sent to you in <a href="#">Message Center</a>.</li> </ul>   |
| Instance Termination Protection | No | It is not enabled by default. You can enable it as needed. Then, you cannot terminate an instance in the console or via the API. For more information, see <a href="#">Enabling Instance Termination Protection</a> .   |
| Security enhancement            | No | By default, security service is enabled for free to help you build a CVM security system to prevent data leakage.   |
| Cloud Monitoring                | No | CM is activated by default. It provides comprehensive CVM data monitoring, smart data analysis, real-time fault alarms, and custom data reports to precisely monitor Tencent Cloud services and the health conditions of CVM instances.   |
| Automation Assistant            | No | It is enabled free of charge by default. As the native Ops and deployment tool of CVM, it can automatically run shell commands in batches and complete various tasks such as running automated Ops scripts, polling processes, installing/uninstalling software, updating applications, and installing patches, without the need to connect to the instance remotely.   |
| Advanced settings               | No | <p>Configure additional settings for the instance as needed.</p> <ul style="list-style-type: none"> <li>◦ <b>Hostname:</b> You can customize the name of the computer in the CVM operating system. After a CVM instance is created, you can log in to it to view the hostname.</li> <li>◦ <b>Project:</b> The default project is selected. You can select an existing project as needed to manage different CVM instances.</li> <li>◦ <b>CAM Role:</b> You can set a role and use it to grant role entity the permissions to access CVM services and resources and perform operations in Tencent Cloud. For detailed directions, see <a href="#">Managing Roles</a>.</li> <li>◦ <b>Placement Group:</b> You can add the instances to placement groups to improve your business availability. For detailed directions, see <a href="#">Placement Group</a>.</li> <li>◦ <b>Custom Data:</b> You can configure an instance by specifying custom data, and the configured scripts will run when an instance is launched. If multiple CVM instances are purchased together, the custom data will run on all CVM instances. The Linux operating system supports the Shell format and a maximum of 16 KB of raw data. For more information, see <a href="#">Configuring Custom Data (Linux CVM)</a>.</li> </ul> <p><b>Note:</b> Custom data configuration only supports certain public images with the Cloud-Init service. For more information, see <a href="#">Cloud-Init</a>.</p> |

2. Click **Next: Confirm Configuration** to enter the configuration information confirmation page.

## Confirming the configuration information

1. Check the configuration items and billing details of the CVM instance to be purchased.
2. Read and indicate your consent to the **Tencent Cloud Terms of Service**.
3. You can perform the following operations as needed:
  - Select **Save as Launch Template** to save the configuration of this instance as a launch template, based on which you can quickly create instances. For more information, see [Managing Instance Startup Template](#).
  - Select **Generate API Explorer Reusable Script** to generate the OpenAPI reusable script code for instance creation corresponding to the selected configuration. You can save the code for purchasing CVM instances with the same configuration. For more information, see [Generating API Explorer Reusable Scripts to Create Instances](#).
4. Click **Buy Now** or **Activate** and make the payment.

After making the payment, you can log in to the [CVM console](#) to check your CVM instance.

Information such as the instance name, public IP address, private IP address, login username, and initial login password of the CVM will be sent to your account through the [Message Center](#). You can use this information to log in to and manage your instances. To ensure the security of your CVM, please change your CVM login password as soon as possible.

## Logging in to and connecting the instance

After completing CVM operations, you can log in to your CVM on the Tencent Cloud console and perform operations such as building a site as needed.

Select a method for logging in to the CVM on the Tencent Cloud console as needed:

- [Logging in to Linux Instance Using Standard Login Method](#)
- [Logging In to Linux Instances \(Remote Login\)](#)
- [Log in to a Linux Instance via an SSH Key](#)

## Partitioning and formatting the data disk

If you added a data disk when [selecting the instance type](#), you need to format and partition the data disk after logging in to the CVM instance. **If you have not added any data disks, skip this step.**

Select the appropriate operations guide according to the disk capacity and the CVM operating system.

- For a disk smaller than 2 TB:  
[Initializing a Cloud Disk \(Linux\)](#)

- For a disk equal to or larger than 2 TB:

[Initializing a Cloud Disk \(Linux\)](#)

For more operations, see [Initialization Scenarios](#).

# Customizing Windows CVM Configurations

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Compared with using quick configuration to create a Tencent Cloud Virtual Machine (CVM), custom configuration provides more image platforms and advanced configurations for storage, bandwidth, and security group. You can select the configuration method as needed. This document uses custom configuration as an example.

## Registration and verification

Before using a CVM instance, you need to perform the following operations:

1. Sign up for a Tencent Cloud account and complete identity verification.

A new user needs to [sign up](#) for an account on the Tencent Cloud website. For detailed directions, see [Signing Up](#).

2. Visit the [Tencent Cloud CVM introduction page](#) and click **Buy Now**.

## Selecting basic configuration

### Note

For accounts that are making purchases for the first time, the **Quick Configuration** page appears by default. For accounts that have made purchases before, the **Custom Configuration** page appears by default. If you have never purchased a CVM instance, select **Custom Configuration**.

1. Configure the following information as prompted by the page:

| Type                         | Required | Configuration Description  |
|------------------------------|----------|--|
| <a href="#">Billing Mode</a> | Yes      | Select one as needed: <ul style="list-style-type: none"><li>◦ <b>Pay-as-you-go</b>: It is an elastic billing method of CVM applicable to scenarios such as e-commerce flash sales, where demand will fluctuate significantly in an instant.</li><li>◦ <b>Spot instance</b>: It is a new instance operation mode applicable to scenarios such as big data computing and online website service using load balancing. Its general price range is 10%–20% of a pay-as-you-go instance.<br/>- 20%。</li></ul> |
| Region                       | Yes      | Select the region closest to your users to minimize the access latency and   |

|                             |     |   |
|-----------------------------|-----|---|
|                             |     | improve the access speed  |
| AZ                          | Yes | Select one as needed.<br>If you want to purchase multiple CVM instances, we recommend you select different AZs to implement disaster recovery. For more information, see <a href="#">Regions and AZs</a> .  |
| Instance                    | Yes | Tencent Cloud provides different instance types based on the underlying hardware. For optimal performance, we recommend you use instance types of the latest generation.<br>For more information on instances, see <a href="#">Instance Types</a> . |
| Image                       | Yes | Tencent Cloud provides public images, custom images, and shared images. For more information on images, see <a href="#">Image Types</a> .<br>We recommend new Tencent Cloud users select a public image.  |
| <a href="#">System disk</a> | Yes | It is used for OS installation and defaults to 50 GB.<br>Available cloud disk types vary by region. Select one as instructed on the page.<br>For more information on cloud disks, see <a href="#">Cloud Disk Types</a> .                            |
| <a href="#">Data disk</a>   | No  | It is used to scale up the storage capacity of the CVM instance to ensure high efficiency and reliability. It is not added by default.<br>For more information on cloud disks, see <a href="#">Cloud Disk Types</a> .                               |
| Scheduled Snapshot          | No  | A scheduled snapshot policy can be set for the system disk or data disk.<br>For more information, see <a href="#">Scheduled Snapshots</a> .   |
| Quantity                    | Yes | It indicates the quantity of CVM instances to be purchased.   |

2. Click **Next: Set Network and CVM** to enter the instance settings page.

## Setting the network and CVM

1. Configure the following information as prompted by the page:

| Type    | Required | Configuration Description   |
|---------|----------|---|
| Network | Yes      | It is a logically isolated network space built in Tencent Cloud. A VPC includes at least one subnet. The system provides a default VPC and subnet for each region.<br>If the existing VPC or subnet does not meet your requirements, you can create a VPC or subnet in the VPC console.<br><b>Note:</b> |



|                                 |     |   |
|---------------------------------|-----|---|
|                                 |     | <ul style="list-style-type: none"> <li>By default, resources in the same VPC are interconnected over the private network.</li> <li>When purchasing a CVM instance, make sure that the CVM instance and its subnet are in the same AZ.</li> </ul>  |
| Public IP                       | No  | If your CVM instance needs to access the public network, you need to assign a public IP for it. You can assign the public IP when creating the CVM instance or configure an <a href="#">EIP</a> after the creation.   |
| Bill-by-bandwidth mode          | No  | <p>Tencent Cloud provides two network billing modes. You can select one as needed.</p> <ul style="list-style-type: none"> <li><b>Bill-by-traffic:</b> Billing is based on traffic that is actually used. You can specify a peak bandwidth to prevent charges incurred by unexpected traffic. Packet loss will occur when the instantaneous bandwidth exceeds this value. This is applicable to scenarios where the network connection fluctuates significantly.</li> <li><b>Bill-by-bandwidth package:</b> Select this aggregated billing mode when your public network instances have traffic peaks at different times. It is applicable to large-scale businesses where traffic can be staggered between different instances using the public network. BWP is currently in beta test. To try it out, <a href="#">submit a ticket</a> for application.</li> </ul> <p>For more information, see <a href="#">Public Network Billing</a>.</p> |
| Bandwidth value                 | No  | You can set the maximum public network bandwidth of the CVM instance as needed. For more information, see <a href="#">Public Network Bandwidth Cap</a> .  |
| Security group                  | Yes | <p>Used to configure the network access policies for one or more CVM instances.</p> <p><b>Make sure that login port 3389 is open.</b> For more information, see <a href="#">Security Group</a>.</p>   |
| Tag                             | No  | You can add tags for the CVM instance as needed, which can be used to categorize, search for, and aggregate cloud resources. For more information, see <a href="#">Overview</a> .   |
| Instance name                   | No  | <p>The name of the CVM to be created.</p> <p>It is user-defined. We recommend <b>CVM-01</b>.</p>  |
| Login Methods                   | Yes | <p>Configure the method to log in to the CVM as needed.</p> <ul style="list-style-type: none"> <li><b>Set Password:</b> Customize the password for logging in to the instance.</li> <li><b>Random Password:</b> A password will be automatically generated and sent to you in <a href="#">Message Center</a>.</li> </ul>  |
| Instance Termination Protection | No  | It is not enabled by default. You can enable it as needed. Then, you cannot terminate an instance in the console or via the API. For more information, see <a href="#">Enabling Instance Termination Protection</a> .   |

|                      |    |   |
|----------------------|----|---|
| Security enhancement | No | By default, security service is enabled for free to help you build a CVM security system to prevent data leakage.   |
| Cloud Monitoring     | No | CM is activated by default. It provides comprehensive CVM data monitoring, smart data analysis, real-time fault alarms, and custom data reports to precisely monitor Tencent Cloud services and the health conditions of CVM instances.   |
| Automation Assistant | No | It is enabled free of charge by default. As the native Ops and deployment tool of CVM, it can automatically run shell commands in batches and complete various tasks such as running automated Ops scripts, polling processes, installing/uninstalling software, updating applications, and installing patches, without the need to connect to the instance remotely.   |
| Advanced settings    | No | <p>Configure additional settings for the instance as needed.</p> <ul style="list-style-type: none"> <li>◦ <b>Hostname:</b> You can customize the name of the computer in the CVM operating system. After a CVM instance is created, you can log in to it to view the hostname.</li> <li>◦ <b>Project:</b> The default project is selected. You can select an existing project as needed to manage different CVM instances.</li> <li>◦ <b>CAM Role:</b> You can set a role and use it to grant role entity the permissions to access CVM services and resources and perform operations in Tencent Cloud. For detailed directions, see <a href="#">Managing Roles</a>.</li> <li>◦ <b>Placement Group:</b> You can add the instances to placement groups to improve your business availability. For detailed directions, see <a href="#">Placement Group</a>.</li> <li>◦ <b>Custom Data:</b> You can configure an instance by specifying custom data, and the configured scripts will run when an instance is started. If multiple CVM instances are purchased at a time, the custom data will run on all of them. The Windows operating system supports the PowerShell format and a maximum of 16 KB of raw data. For more information, see <a href="#">Configuring Custom Data (Windows CVM)</a>.</li> </ul> <p><b>Note:</b> Custom data configuration applies only to certain Windows public images. For more information, see <a href="#">Configuring Custom Data (Windows CVM)</a>.</p> |

2. Click **Next: Confirm Configuration** to enter the configuration information confirmation page.

## Confirming the configuration information

1. Check the configuration items and billing details of the CVM instance to be purchased.
2. Read and indicate your consent to the **Tencent Cloud Terms of Service**.

3. You can perform the following operations as needed:

- Select **Save as Launch Template** to save the configuration of this instance as a launch template, based on which you can quickly create instances. For more information, see [Managing Instance Startup Template](#).
- Select **Generate API Explorer Reusable Script** to generate the OpenAPI reusable script code for instance creation corresponding to the selected configuration. You can save the code for purchasing CVM instances with the same configuration. For more information, see [Generating API Explorer Reusable Scripts to Create Instances](#).

4. Click **Buy Now** or **Activate** and make the payment.

After making the payment, you can log in to the [CVM console](#) to check your CVM instance.

Information such as the instance name, public IP address, private IP address, login username, and initial login password of the CVM will be sent to your account through the [Message Center](#). You can use this information to log in to and manage your instances. To ensure the security of your CVM, please change your CVM login password as soon as possible.

## Logging in to and connecting the instance

After completing CVM operations, you can log in to your CVM on the Tencent Cloud console and perform operations such as building a site as needed.

Select a method for logging in to the CVM on the Tencent Cloud console as needed:

- [Log in to a Windows instance using the standard method \(recommended\)](#)
- [Log in to a Linux instance using the RDP file](#)
- [Log in to a Windows instance using remote desktop](#)

## Formatting and partitioning the data disk

If you added a data disk when [selecting the instance type](#), you need to format and partition the data disk after logging in to the CVM instance. **If you have not added any data disks, skip this step.**

Select the appropriate operations guide according to the disk capacity and the CVM operating system.

- For a disk smaller than 2 TB:  
[Initializing a Cloud Disk \(Windows\)](#)
- For a disk equal to or larger than 2 TB:  
[Initializing a Cloud Disk \(Windows\)](#)

For more operations, see [Initialization Scenarios](#).