Cloud Virtual Machine
Getting Started
Product Documentation
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Getting Started
Custom Configurations
Select Billing Mode

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


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.
Select Cloud Disk

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

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
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](#).
This document uses security group creation as an example to describe how to configure security groups for the first time based on security group rules provided by Tencent Cloud when you customize instances. For other security-group-related operations, see the Security Group page in the CVM console. For more details on security groups, see Security Groups.

Configuring Security Groups

1. Select Create Security Group, as shown in the following figure.

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

2. Select IP addresses or ports to be opened based on your actual requirements.

Rules for a new security group are as follows:

- **ICMP**: enable ICMP and allow the public network to ping the server.
- **TCP:80**: open port 80 and allow web service access through HTTP.
- **TCP:22**: open port 22 and allow SSH remote connection to the Linux CVM.
- **TCP:443**: open port 443 and allow web service access through HTTPS.
- **TCP:3389**: open port 3389 and allow RDP connection to the Windows CVM.
- **Private network**: open the private network and allow intercommunication (IPv4-based) between different cloud resources through the private network.
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 purposes, Tencent Cloud recommends that you only open required ports to prevent potential security risks.

3. Configure other information as prompted.

Security Group Rules

Inbound rule: allows traffic to CVMs associated with a security group.
Outbound rule: indicates outbound traffic from the CVMs.

- Rules in a security group are prioritized from the top down.
- 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 Restrictions

For details, see Use Limits.
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.
Customizing Linux CVM Configurations

Last updated: 2020-06-09 14:31:16

Custom configuration provides more image platforms and advanced configurations for storage, bandwidth, and security group. You can select the configuration mode as needed. This document uses custom configuration as an example.

Registration and Verification

Before using a CVM, 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 details, see Signing up for a Tencent Cloud Account.
2. Visit the Tencent CVM Introduction page, and click Get Started.

Selecting a Device Model
1. Configure the following information as prompted by the page:

<table>
<thead>
<tr>
<th>Category</th>
<th>Required/Optional</th>
<th>Configuration Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Billing Mode</td>
<td>Required</td>
<td>- <strong>Pay as you go</strong>: an elastic billing mode for the CVM.</td>
</tr>
<tr>
<td>Region</td>
<td>Required</td>
<td>We recommend you select a region closest to your customer to reduce access latency and increase access speed.</td>
</tr>
<tr>
<td>Availability Zone</td>
<td>Required</td>
<td>Select an availability zone as needed. If you want to purchase multiple CVMs, we recommend you select different availability zones to implement disaster recovery.</td>
</tr>
</tbody>
</table>
| Network              | Required | A logically isolated network space built in Tencent Cloud. A virtual private cloud (VPC) includes at least one subnet. The system provides a default VPC and subnet for each region. If the existing VPC or subnet does not meet your requirements, you can create a VPC or subnet on the VPC Console. **Note:**  
- resources in the same VPC can be shared within the private network.  
- When purchasing the CVM, ensure that the CVM and the subnet where the CVM is created have the same availability zones. |
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Instance</td>
<td>Required</td>
<td>Tencent Cloud provides different instance types based on the underlying hardware. For optimal performance, we recommend you use the instance types of the latest generation. For more information on instances, see <a href="#">Instance Types</a>.</td>
</tr>
<tr>
<td>Image</td>
<td>Required</td>
<td>Tencent Cloud provides public images, custom images, and shared images. For more information on images, see <a href="#">Image Types Overview</a>. If you have just started using Tencent Cloud, we recommend you choose public images.</td>
</tr>
<tr>
<td>System Disk</td>
<td>Required</td>
<td>Used to install the operating system. Its default capacity is 50 GB. Available Cloud Block Storage (CBS) types vary with regions. Please select a value as instructed by the page. For more information on CBS, see <a href="#">CBS Types</a>.</td>
</tr>
<tr>
<td>Data Disk</td>
<td>Optional</td>
<td>Used to scale up the storage capacity of the CVM to ensure high efficiency and reliability. CBS data disks are not added by default. For more information on CBS, see <a href="#">CBS Types</a>.</td>
</tr>
</tbody>
</table>
| Public Network Bandwidth | Required | Tencent Cloud provides two network billing modes. Set a value as needed.  
- **Bill-by-bandwidth**: select a fixed bandwidth. Packet loss will occur when the bandwidth exceeds this value. This is applicable to scenarios where the network connection fluctuates slightly. |
Bill-by-traffic: 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.

| Public Gateway | Optional | As a network interface between the VPC and the public network, the public gateway can forward requests of CVMs that are within different subnets of the VPC and have no public IP addresses. **Note:** Tencent Cloud discontinued configuring the public gateway on the CVM purchase page after December 6, 2019. To configure the public gateway, see [Configuring a Public Gateway](#).

| Quantity | Required | Number of CVMs to be purchased.

2. Click **Next: Complete Configuration** to access the CVM configuration page.

### Configuring the CVM
1. Configure the following information as prompted by the page:

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<td>Required</td>
<td>The default project is selected. You can select an existing project as needed to manage different CVMs.</td>
</tr>
<tr>
<td>Security Group</td>
<td>Required</td>
<td>Used to configure the network access policies for one or more CVMs. <strong>Ensure that login port 22 is open.</strong> For more information, see Security Groups.</td>
</tr>
<tr>
<td>Instance Name</td>
<td>Optional</td>
<td>The name of the CVM to be created. It is defined by the user. We recommend <strong>CVM-01</strong>.</td>
</tr>
<tr>
<td>Table Title</td>
<td>Required/Optional</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
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<td>-------------</td>
</tr>
</tbody>
</table>
| Login Method | Required | Configure the method to log in to the CVM as needed.  
- **Custom Password**: customize the password for logging in to the instance.  
- **SSH Key Pair**: associate the instance with an SSH key to ensure a secure login to the CVM. If no key is available or existing keys are inappropriate, click **Create Now** to create a key. For more information on SSH keys, see [SSH Keys](#).  
- **Random Password**: an automatically generated password will be sent through the [Message Center](#). |
| Security Service | Optional | By default, security service is enabled for free to help you build a CVM security system to prevent data leakage. |
| Cloud Monitoring | Optional | By default, cloud monitoring is enabled for free. It provides comprehensive CVM data monitoring, intelligent data analysis, real-time fault alarms, and custom data reports to precisely monitor Tencent Cloud services and the health conditions of CVMs. |
| Advanced Settings | Optional | Configure additional settings for the instance as needed.  
- **Hostname**: you can customize the name of the computer in the CVM operating system. After a CVM is created, you can log in to the CVM to view the hostname.  
- **Placement Group**: you can add an instance to a placement group as needed to improve service availability. For more information, see [Placement Group](#).  
- **Tag**: you can specify a tag to manage CVM resources by category. For more information, see [User Guide on Tags](#).  
- **Custom Data**: you can configure an instance by specifying custom data, and the configured scripts will run when an instance is launched. If multiple CVMs are purchased together, the custom data will run on all CVMs. The Linux operating system supports the Shell format and a maximum of 16 KB of raw data. For details, see [Configuring Custom Data (Linux CVM)](#).  
**Note**: custom data configuration only supports |
2. Click **Next: Confirm Configuration** to access the configuration information confirmation page.

### Confirming the Configuration Information

1. Validate the information of the CVM to be purchased and the cost details of each configuration item.
2. Click **Purchase** and complete the payment. Then, you can log in to the CVM Console to see your CVM.

   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 Linux Instance Using Standard Login Mode (Recommended)
- Log in to a Linux Instance Using Remote Login Software.
- Log in to a Linux Instance Using SSH

### 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

Last updated: 2020-06-09 14:31:16

Custom configuration provides more image platforms and advanced configurations for storage, bandwidth, and security group. You can select the configuration mode as needed. This document uses custom configuration as an example.

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<td>System Disk</td>
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this value. This is applicable to scenarios where the network connection fluctuates slightly.

- **Bill-by-traffic**: 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.

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<tr>
<td>Instance Name</td>
<td>Optional</td>
<td>The name of the CVM to be created. It is defined by the user. We recommend <strong>CVM-</strong></td>
</tr>
</tbody>
</table>
| Login Method | Required | Configure the method to log in to the CVM as needed.  
|             |          | - **Custom Password**: customize the password for logging in to the instance.  
|             |          | - **Random Password**: an automatically generated password will be sent through the Message Center.  
| Security Service | Optional | By default, security service is enabled for free to help you build a CVM security system to prevent data leakage.  
| Cloud Monitoring | Optional | By default, cloud monitoring is enabled for free. It provides comprehensive CVM data monitoring, intelligent data analysis, real-time fault alarms, and custom data reports to precisely monitor Tencent Cloud services and the health conditions of CVMs.  
| Advanced Settings | Optional | Configure additional settings for the instance as needed.  
|             |          | - **Hostname**: you can customize the name of the computer in the CVM operating system. After a CVM is created, you can log in to the CVM to view the hostname.  
|             |          | - **Placement Group**: you can add an instance to a placement group as needed to improve service availability. For more information, see Placement Group.  
|             |          | - **Tag**: you can specify a tag to manage CVM resources by category. For more information, see User Guide on Tags.  
|             |          | - **Custom Data**: you can configure an instance by specifying custom data, and the configured scripts will run when an instance is launched. If multiple CVMs are purchased together, the custom data will run on all CVMs. The Windows operating system supports the PowerShell format and a maximum of 16 KB of raw data. For details, see Configuring Custom Data (Windows CVM).  
|             |          | **Note**: custom data configuration only supports public images on Windows. For more information, see Cloud-Init & Cloudbase-Init.  

2. Click **Next: Confirm Configuration** to access the configuration information confirmation page.
Confirming the Configuration Information

1. Validate the information of the CVM to be purchased and the cost details of each configuration item.
2. Click **Purchase** and complete the payment. Then, you can log in to the CVM Console to see your CVM.
   
   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 CVM Instance Using the RDP File (Recommended)
- Log in to a Windows CVM 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](#).