

# **TDSQL-C for MySQL**

## **Serverless Service**

### **Product Documentation**



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# Serverless Service

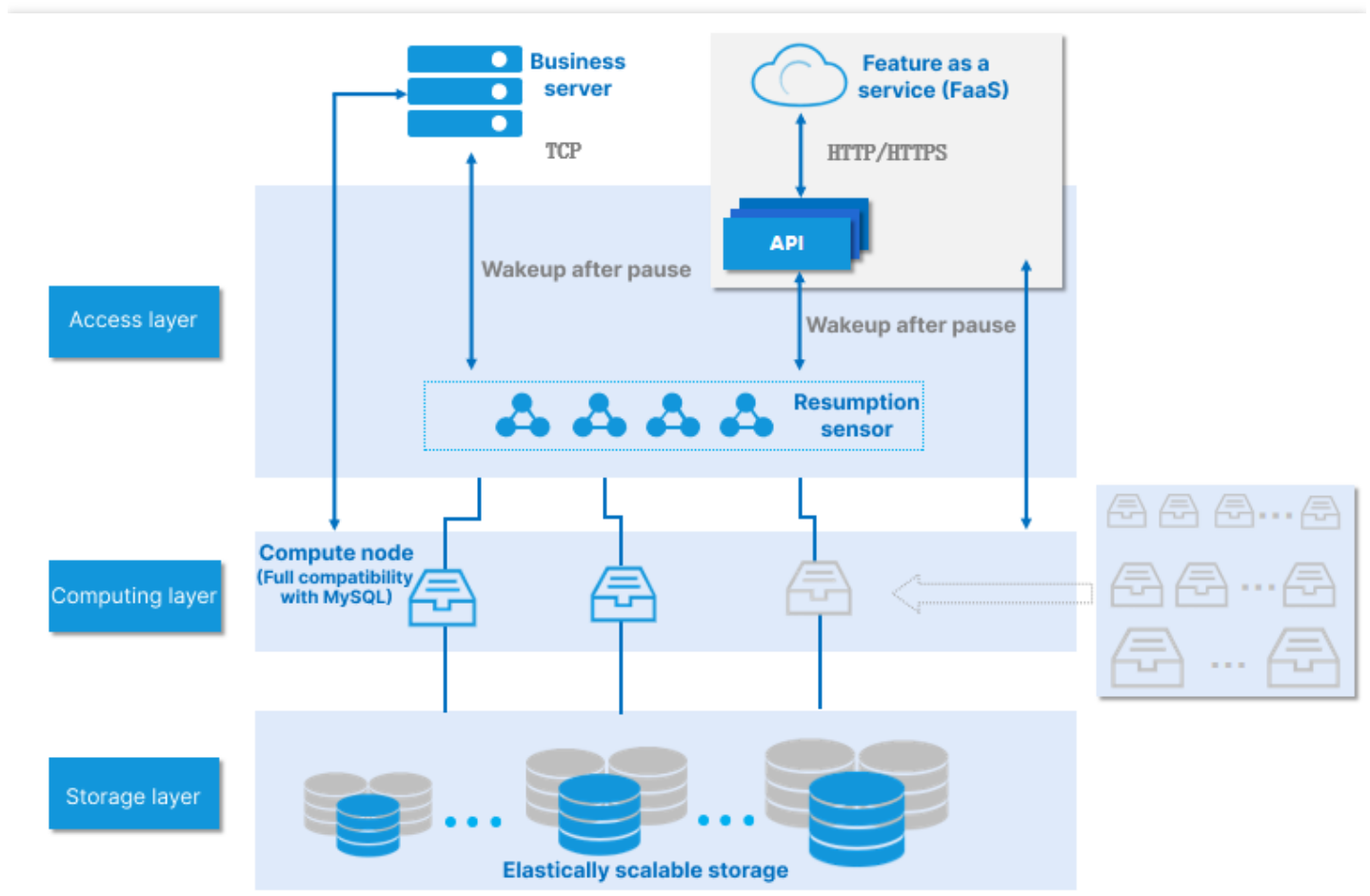
## Serverless Introduction

### Overview

Last updated : 2023-03-01 14:33:46

TDSQL-C for MySQL Serverless adopts Tencent Cloud's proprietary serverless architecture for next-gen cloud-native relational database services. It is billed based on the actual computing and storage resource usage, so you only need to pay for what you use while benefiting from Tencent Cloud native technologies.

### Serverless service architecture



- Startup and shutdown on demand.
- Automatic scaling.
- Application-independent scaling.

## Serverless service strengths

- Autopilot: The database can automatically start/stop according to the business load and scale in an imperceptible manner without causing disconnections.
- Utility pricing: The database is billed based on the actual computing and storage usage which is calculated by second and settled by hour.

## Use cases

- Low-frequency database usage scenarios such as development and test environments.
- Scenarios where the load is uncertain, such as IoT and edge computing.
- SaaS application scenarios such as Mini Program Cloud Base and SME website development.
- Education scenarios such as experiment and teaching environment.
- Fully managed and Ops-free scenarios.
- Business scenarios with uncertain and intermittent fluctuations.

## References

- [Service Features](#)
- [Billing Overview](#)
- [Compute Unit](#)
- [Creating Serverless Cluster](#)

# Service Features

Last updated : 2024-03-22 14:42:51

TDSQL-C for MySQL provides the serverless service to meet your database requirements in specific business scenarios, helping you reduce costs and increase efficiency. This document describes the major features of the serverless service.

Feature	Description
Resource scaling range (CCU)	You can adjust the range of elastic CCU scaling. The serverless cluster will automatically increase or decrease the number of CCUs within this range based on the actual business load.
Elastic policy	The serverless cluster will continuously monitor your CPU, memory, and other workloads and trigger automatic scaling policies according to certain rules.
Automatic start/stop	The serverless service allows you to customize the automatic pause time of the instance when there is no connection. When a task connection is established, the instance will be automatically started in seconds.

## Resource Scaling Range (CCU)

TDSQL-C Compute Unit (CCU) is the computing and billing unit for the Serverless Edition. A CCU is approximately equal to 1 CPU core and 2 GB memory. The number of CCUs used in each billing cycle is the greater of the number of CPU cores used by the database and 1/2 of the memory size.

You need to set the scaling range for the serverless service. For more information, see [Compute Unit](#).

We recommend that you set the minimum capacity to 0.25 CCUs and select a higher value for the maximum capacity when setting the scaling range for the first time. A small capacity allows your cluster to scale in to the maximum extent when it is completely idle, avoiding additional fees, while a large capacity allows your cluster to scale out to the maximum extent when the load gets too high, stably sustaining the business in peak hours.

### Note:

If your business requires fast scale-out to a very high capacity, consider increasing the value of the minimum capacity. To adjust the resource scaling range, log in to the console and make the change based on the actual view mode.

Tab view

List view

On the **Cluster Details** tab on the management page of the target cluster, click **Adjust Configurations** in the top right of the read-write instance, and change the compute unit configuration on the page redirected to. The change will take effect immediately, which is imperceptible to the business.

Cluster Details Monitoring and Alarms Account Management Database Management Database Pro

Source Beijing Zone 3

Read-Write Instance

Instance ID cynosdbmysql-ins-  
Instance Name cynosdbmysql-ins-  
Configuration Min 0.5/Max 2(Pause after a continuous period of inactivity: 0 days, 1 hours, 0 minutes) Ac  
Configurations  
Status ● Running   
Network   
Read/Write Address Private Host 172.20.0.1 Port 3306   
Public -- Enable

Adjust the configuration of the read-write instance in the **Instance List** on the management page of the target cluster. The change will take effect immediately, which is imperceptible to the business.

Compute Unit

Min  Max

## Elastic Policy

The elastic policy of the serverless service is implemented by monitoring the computing layer. By monitoring the business load, the system automatically scales computing resources and bills the resources consumed at that moment. When there is no database request, the monitoring service will repossess computing resources and notify the access layer. When you access the cluster again, the access layer will wake up the cluster to make it accessible. Initially, the elastic policy of the serverless service will limit the CPU and memory resources to the maximum specifications based on the capacity range you selected during purchase, greatly reducing the time impact and usage restrictions caused by CPU and memory scaling. When the cluster triggers the automatic scaling load threshold, the

buffer pool will be adjusted within minutes in advance based on the monitoring data. Under this scheme, the CPU can be scaled in an imperceptible manner when you use the database, and no instance OOM events will occur due to the connection surge.

**Note:**

Currently, only vertical scaling is allowed for read-only nodes, with no support for horizontal scaling.

## Automatic Pause/Start

### Pausing the service

You can enable/disable the auto-pause feature in the [console](#) based on your business needs.


**Note:**

To enable or disable the auto-pause feature, proceed based on the actual view mode.

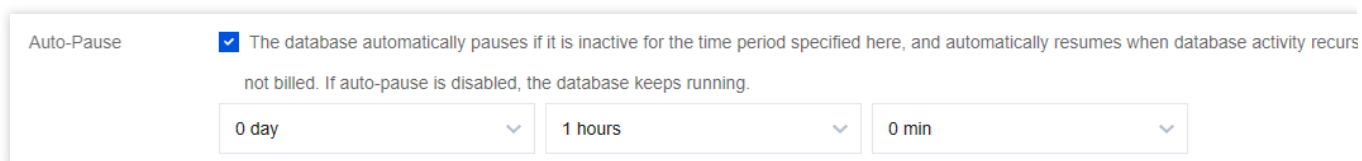
Tab view

List view

On the **Cluster Details** tab on the management page of the target cluster, click **Adjust Configurations** in the top right of the read-write instance, and enable or disable the auto-pause feature on the page redirected to.



Click **More > Adjust Configurations** in the **Operation** column in **Instance List > Read-Write Instance** on the target cluster management page.



After this feature is enabled, you need to set the auto-pause time, which is one hour by default. The database will be automatically paused if it has no active connections and CPU usage during this time. After the pause, the computing resources will not be billed, and the storage resources will be billed by the actual usage.


If this feature is disabled, the database will keep running. When there are no active connections and CPU usage, the database will be billed based on the minimum CCU you configure. This is suitable for scenarios where your business has a heartbeat connection.

You can also manually pause specified databases in the console based on the actual view mode.

Tab view

List view





## cynosdbmysql-~~xxxxx~~

ID cynosdbmysql-~~xxxxx~~ Running

Database Version 2.1.9 [Upgrade](#)

Project Default Project [Adjust](#)

Transfer Linkage Standard

Tag

Billing Mode Compute: Serverless/Storage: Pay

Deployment Mode Single-AZ [✎](#)

<input type="checkbox"/>	Cluster ID/Name	Cluster ...	Compatible Data... <span>▼</span>	AZ	Read-Write Address	Read-Only Address
<input type="checkbox"/>	cynosdbmysql- <del>xxxxx</del> og <a href="#">S</a> cynosdbmysql- <del>xxxxx</del> log <a href="#">✎</a>	Running	MySQL 5.7	Beijing Z...	(Private) <del>xxxxx</del> <a href="#">✎</a> (Public) Disabled	--
<input type="checkbox"/>	cynosdbmysql- <del>xxxxx</del> hq <span style="background-color: orange; padding: 2px;">Renew</span> cynosdbmysql- <del>xxxxx</del> hq	Running	MySQL 8.0	Beijing Z...	(Private) <del>xxxxx</del> <a href="#">✎</a> (Public) Disabled	(Private) <del>xxxxx</del> <a href="#">✎</a> (Public) Disabled

**Note :**


The serverless service will be automatically paused when there is no user connection. If your business needs to use `event_scheduler` to trigger SQL regularly, we recommend you not enable the auto-pause feature.

**Starting the service**

You cannot use the features in the [console](#) for a paused serverless database until it is automatically started or its serverless data is manually started based on the actual view mode.

Tab view

List view



## cynosdbmysql-~~xxxxx~~

ID cynosdbmysql-~~xxxxx~~ Paused

Database Version 2.1.9 [Upgrade](#)

Project Default Project [Adjust](#)

Transfer Linkage Standard

Tag

Billing Mode Compute: Serverless/Storage

Deployment Mode Single-AZ [✎](#)

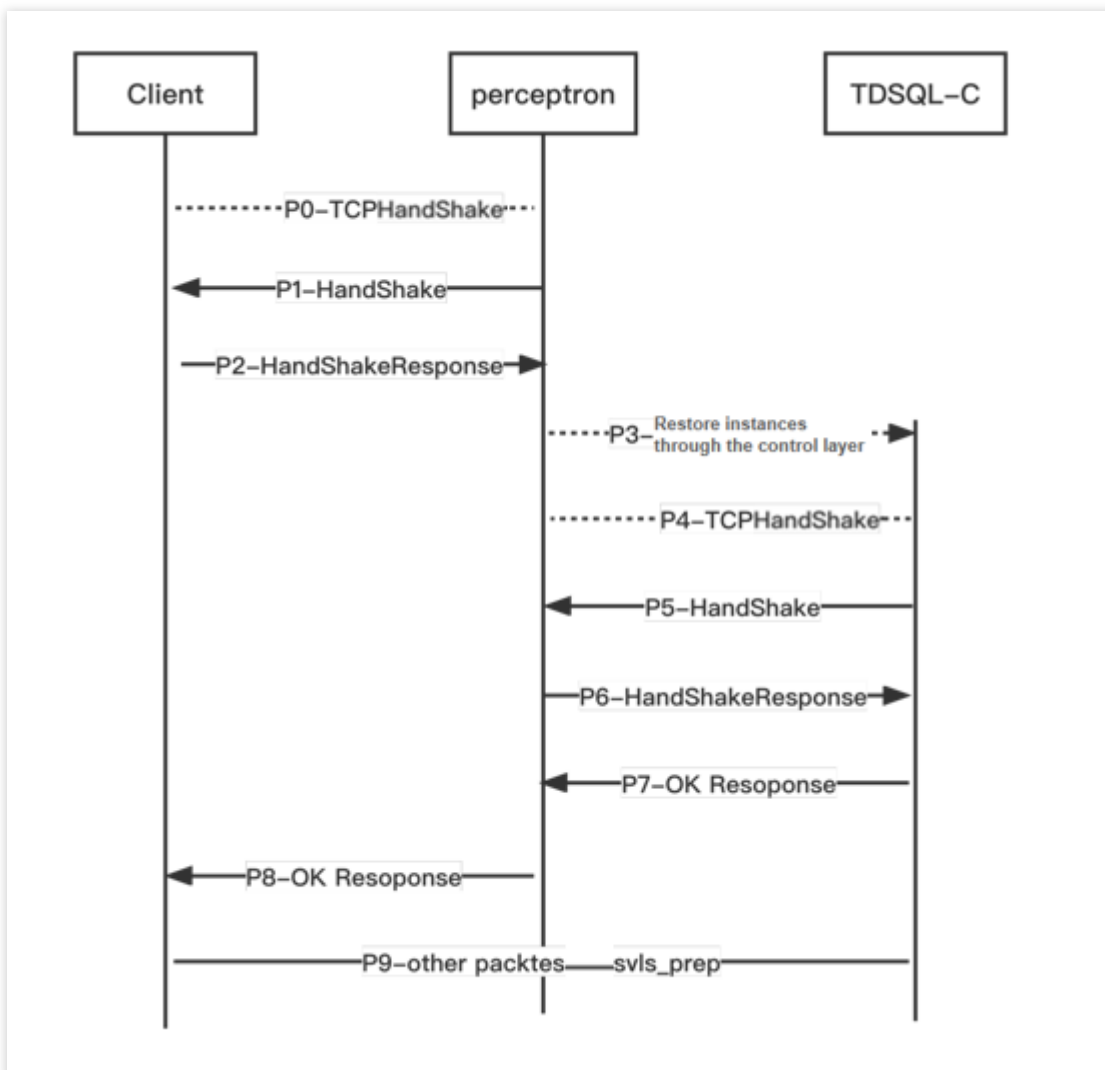
Cluster ID/Name	Cluster ...	Compatible Data...	AZ	Read-Write Address	Read-Only Address
<input type="checkbox"/> cynosdbmysql-c... cynosdbmysql-c...log	Paused	MySQL 5.7	Beijing Z...	(Private) ... (Public) Disabled	--

### Forwarding requests without interrupting the connection

When a paused database is accessed, the system will automatically start it in seconds, so you don't need to configure a reconnection mechanism.

The access layer of TDSQL-C for MySQL has a resumption perceptron module to implement request forwarding. After the perceptron shakes hands with the client, the TDSQL-C for MySQL cluster will be resumed, without interrupting the user connection. Then, it will shake hands with the cluster and forward layer-4 packets.

The overall process uses two random challenge numbers for authentication, so that the perceptron can verify the username and password without storing them. This ensures the security of the user password and eliminates the inconsistency issue of stored passwords.



When the instance is paused, if a connection is initiated to it, the MySQL client will first perform a TCP handshake (P0) with the perceptron. After the TCP handshake is completed, the perceptron will send "random number A" to the

client for challenge (P1). The MySQL client will use its own account and password and "random number A" to calculate and reply with its own "login response A" (P2). As the perceptron does not store the user's account and password, it cannot verify whether "login response A" is correct, but it can tell whether the client is a MySQL client or not (it is a classifier in the machine learning field, and distinguishing between different types of clients is one of the reasons why it is named perceptron). The verification of "login response A" will be completed by the computing layer of TDSQL-C for MySQL. After the perceptron wakes up TDSQL-C through control (P3), the next step of the login verification process will begin.

After handshaking with perceptron TCP (P4), TDSQL-C will regard the perceptron as a general MySQL client, so it will send "random number B" (P5) to the perceptron for challenge. The perceptron's reply is a special MySQL packet (P6). First, it uses "random number B" and its own authentication mechanism to calculate "login response B" and puts it into the packet; then, it adds "random number A" and "login response A" to the packet. TDSQL-C will perform two checks after receiving the special response packet: it will first check the correctness of "random number B" and "login response B" and the authenticity of the perceptron, and if the check is passed, it will check the correctness of "random number A" and "login response A", and if the check is also passed, it will log in as the user and reply to the perceptron that the login is successful (P7). Then, the perceptron will reply to the user that the login is successful (P8).

When the cluster is paused, only the route of the perceptron will be retained. After the cluster is resumed, the system will retain the routes of both the perceptron and TDSQL-C and set the route weight of the perceptron to 0, so that new connections can be directly made to TDSQL-C, while existing connections to the perceptron can still communicate.

# Billing Overview

Last updated : 2023-08-22 14:56:37

This document describes the pricing of TDSQL-C for MySQL Serverless.

## Billing Mode

In the serverless mode, computing and storage are billed separately: computing is billed by the number of CCUs, while storage is billed by the usage in GB. The billing system calculates the usage by second and settles fees by hour.

## Billing Formula

**Total serverless fees = compute node fees + storage space fees = serverless computing power price**  
*number of CCUs + storage space price storage space*

## Serverless Computing Power Pricing

Billable Unit	CCU Price (USD/Unit/Second)	
	Supported regions: Guangzhou, Shanghai, Beijing, Nanjing. Upcoming regions: Shenzhen, Chengdu, Chongqing.	Supported regions: Hong Kong (China), Singapore, Silicon Valley, Virginia. Upcoming regions: Seoul, Tokyo, Frankfurt.
Serverless instance	0.00001397	0.00001529

### Note

TDSQL-C Compute Unit (CCU) is the computing and billing unit for the Serverless Edition. A CCU is approximately equal to 1 CPU core and 2 GB memory. The number of CCUs used in each billing cycle is the greater of the number of CPU cores used by the database and 1/2 of the memory size.

You can refer to [Compute Unit](#) to select the corresponding maximum and minimum CCU values. The storage space upper limit is the same as the maximum storage space corresponding to the common compute node specifications as described in [Product Specifications](#).

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## Storage Space Pricing

The serverless cluster storage space is pay-as-you-go at the price of 0.0000002 USD/GB/second.

# Compute Unit

Last updated : 2023-01-06 11:35:30

This document describes the computing power specification of TDSQL-C for MySQL Serverless to help you understand the historical and latest compute unit information.

## Note:

The current specification list may contain some deactivated specifications. Available specifications are listed on the purchase page.

If you need a higher specification to meet your storage needs, [submit a ticket](#) for assistance.

## Serverless compute unit

Min Compute Unit	Max Compute Unit	Supported Max Storage Space (GB)
0.25	0.5	1000
0.25	1	1000
0.25	2	5000
0.25	4	10000
0.25	8	10000
0.25	16	20000
0.25	32	30000
0.5	1	1000
0.5	2	5000
0.5	4	10000
0.5	8	10000
0.5	16	20000
0.5	32	30000
1	2	5000
1	4	10000

1	8	10000
1	16	20000
1	32	30000
2	4	10000
2	8	10000
2	16	20000
2	32	30000
4	8	10000
4	16	20000
4	32	30000
8	16	20000
8	32	30000
8	64	40000
16	32	30000
16	64	40000
32	64	40000

# Creating Serverless Cluster

Last updated : 2023-11-09 14:27:04

This document describes how to create a serverless cluster in the TDSQL-C for MySQL console.

## Prerequisite

To make a purchase, you need to complete identity verification first. For more information, see [Identity Verification Guide](#).

## Directions

1. Log in to the [purchase page](#) and complete the **Database Configuration** settings.

Parameter	Description
Instance Mode	Select <b>Serverless</b> .
Database Engine	Select <b>MySQL</b> .
Region	Select a region for database deployment. Currently, the serverless billing mode is supported only in Guangzhou, Shanghai, Beijing, Nanjing, Hong Kong (China), Silicon Valley, Virginia, and Singapore regions. If you need to use it in other regions, <a href="#">submit a ticket</a> for assistance.
Source AZ	Select an AZ for deployment. Specific AZs in the selected region are shown on the actual purchase page.
Multi-AZ Deployment	Currently, serverless instances don't support multi-AZ deployment.
Transfer Linkage	It is "High IO" by default.
Network	For performance and security considerations, only VPC network is supported currently. CVM instances can communicate with TDSQL-C instances only in the same <a href="#">VPC</a> .
Database Version	MySQL 5.7 and 8.0 are supported.



Compute Unit	Select the upper and lower limits of the TDSQL-C compute unit (CCU), and the instance will be automatically and elastically scaled within the selected resource range. CCU is the computing and billing unit for the serverless mode. A CCU is approximately equal to 1 CPU core and 2 GB memory. The number of CCUs used in each billing cycle is the greater of the number of CPU cores used by the database and 1/2 of the memory size. For more information, see <a href="#">Compute Unit</a> .
Auto-Pause	Configure the automatic pause time of the instance. If there is no connection to access the database within the set time, the instance will be automatically paused, with billing stopped.

2. Complete the **Specification Billing** configuration and click **Next**.

#### Note

**Total serverless cluster fees = compute node fees + storage space fees = serverless computing power price**  $\times$  *number of CCUs* + *storage space price*  $\times$  *storage space*

Parameter	Description
Compute Billing Mode	Resource pack (monthly subscription) and pay-as-you-go billing are supported. The compute resource pack will be used preferably for the deduction of actual usage of pay-as-you-go products. When the pack is used up, the resource usage will be pay-as-you-go. Compute resource packs are deducted based on the actual CCU used per second. The resource pack mode is more cost-effective and flexible than the pay-as-you-go option.
Compute resource pack (displayed when selecting <b>Resource Pack</b> in the compute billing mode)	You can bind all valid compute resource packs available in the selected region under the current account. If no resource pack is available, you can <a href="#">purchase a resource package</a> first.
Storage Billing Mode	Resource pack (monthly subscription) and pay-as-you-go billing are supported. The storage resource pack will be used preferably for the deduction of actual usage of pay-as-you-go products. When the pack is used up, the resource usage will be pay-as-you-go. Storage resource packs are deducted based on the actual storage used per hour. The resource pack mode is more cost-effective and flexible than the pay-as-you-go option.
Storage resource pack (displayed when selecting <b>Resource Pack</b> in the storage billing mode)	You can bind all valid storage resource packs available in the selected region under the current account. If no resource pack is available, you can <a href="#">purchase a resource package</a> first.

3. Select the number of clusters. You can batch purchase multiple clusters of the same specification. Then, click **Next**.
4. Complete the **Basic Info** and **Advanced Configuration** settings, confirm the fees, and click **Buy Now**.

### Basic Info

Parameter	Description
Cluster Name	Set a name for the cluster now or later. It must contain less than 60 letters, digits, or symbols (-_.).
Admin Username	It is <code>root</code> by default.
Password	The password can contain 8–64 characters in at least three of the following character types: uppercase letters, lowercase letters, digits, and symbols ~!@#\$%^&*_-+= \\(){}[];:'.?/.
Default Character Set	UTF8, GBK, LATIN1, and UTF8MB4 are supported.
Custom Port	It is 3306 by default and can be customized.

### Advanced Configuration

Parameter	Description
Security Group	Select or create a security group.
Parameter Template	Select or create a parameter template.
Table Name Case Sensitivity	Select <b>Case-Insensitive</b> or <b>Case-Sensitive</b> .
Project	Specify a project for the cluster to be created.
Alarm Policy	Select or create an alarm policy.
Tag	Add a tag to facilitate resource categorization and management.
Terms and Conditions	Read and indicate your consent to the terms and conditions.

5. After the purchase is completed, you will be redirected to the [cluster list](#). After the status of the cluster becomes **Running**, it can be used normally.

### Note

If only the compute resource pack is bound, the compute nodes of the serverless cluster will be deducted by using the bound compute resource pack, while the storage nodes will be billed on a pay-as-you-go basis.

If only the storage resource pack is bound, the storage nodes of the serverless cluster will be deducted by using the bound storage resource pack, while the compute nodes will be billed on a pay-as-you-go basis.

If both the compute and storage resource packs are bound, both the compute and storage nodes of the serverless cluster will be deducted by using the bound compute and storage resource packs.

# Managing Read-Only Instance

Last updated : 2023-11-01 17:59:40

Serverless clusters support mounting read-only instances to enhance read performance and concurrency while reducing the load on the read-write instance. This document describes how to create a read-only instance and modify its configuration for a serverless cluster.

## Billing Description

The read-only and read-write instances have the same billing logic. For more information, see [Billing Overview](#).

## Creating Read-Only Instance

### Note:

Read-only instance on the current version only supports vertical scaling but not horizontal scaling.

After purchasing a read-only instance group, you can adjust its compute unit and quantity.

The computing power of read-write instances or read-only instances has no impact on each other.

Read-only instances can only be automatically enabled and disabled, and a single instance can't be enabled or disabled manually.

### Creating a read-only instance when purchasing a cluster

1. Log in to the [TDSQL-C for MySQL console](#)
2. Click **RO Group** under **Read-Write Instance**.
3. You can only add up to 8 read-only nodes in a read-only group.

### Note

The number of read-only nodes can't be adjust automatically.

RO Group

Node    pcs (i)

Min   Max   CCU

The compute unit range takes effect for all nodes in the RO group.

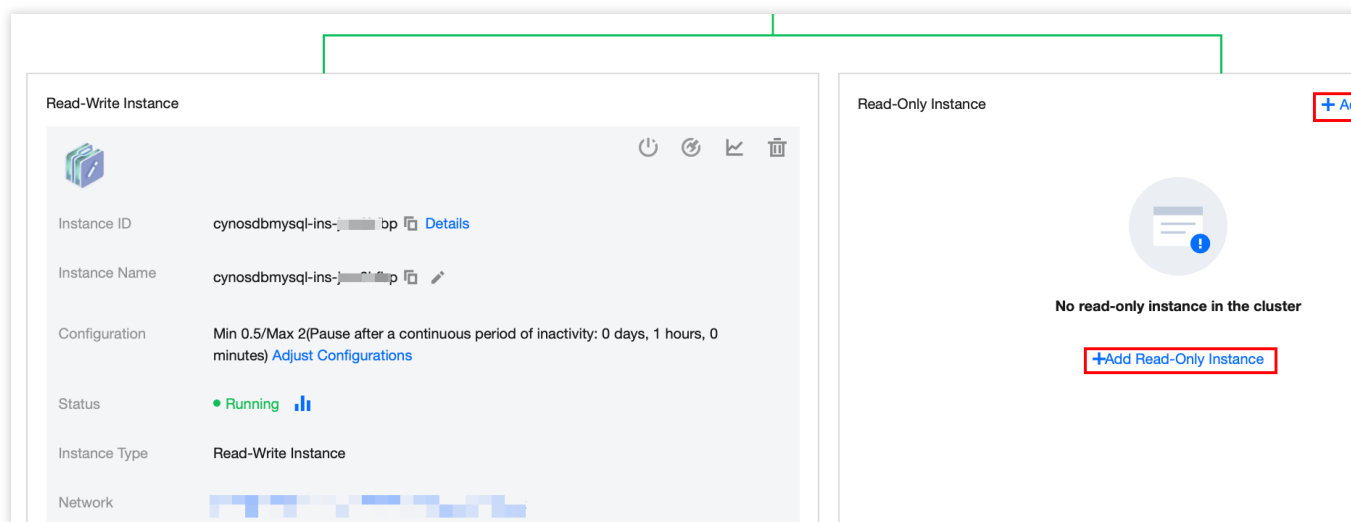
4. The configured compute unit range only takes effect for all the read-only nodes in the read-only group.
5. After configuring other configuration items for the serverless clusters, click **Buy Now**. For more information on the other configuration description of the serverless clusters, see [Creating Serverless Cluster](#).

## Creating a read-only instance for the existing serverless clusters

### Note

You can only perform the operations on the cluster in the running status.

1. Log in to the [TDSQL-C for MySQL console](#), and select a region at the top.
2. Click **Target Cluster** in the cluster list on the left to enter the cluster management page.
3. Find the read-only instance under **Cluster Management** page > **Cluster Details**, click **Add Read-Only Instance**.



4. On the page redirected to, click the read-only group, and you can add up to 8 read-only nodes for it.
5. The configured compute unit range only takes effect for all the read-only nodes in the read-only group.
6. Configure the automatic pause time of the instance. If there is no connection to access the database within the set time, the instance will be automatically paused, with billing stopped.
7. Click **Buy Now**, then the read-only instance is created.

## Modifying the configuration of the read-only instance

You can adjust the number of the read-only instances and the compute unit range of the read-only group.

### Note

After adjusting the number of read-only instances, you can manually trigger a load balancing to balance traffic.

You can adjust the number of the read-only instances on the configuration modification page. But you can't add or delete a read-only instance manually.

After the downgrade, the read-only instance will be removed to the recycle bin for isolation and cannot be restored manually there. It can only be restored on the configuration modification page. Isolated read-only instances will still count toward the maximum number (i.e., 8) of read-only instances allowed in a serverless cluster.

When the database proxy is enabled, the business will not be interrupted during the configuration modification.

1. Log in to the [TDSQL-C for MySQL console](#), and select a region at the top.
2. Click the target cluster in the cluster list on the left to enter the cluster management page.
3. Find a read-only instance in the read-only group under **Cluster Management** page > **Cluster Details**, click **Adjust Configurations** after **Configuration**.

Configuration

Min 0.5/Max 2(Pause after a continuous period of inactivity: 0 da  
minutes) [Adjust Configurations](#)

4. You will be redirected to the configuration modification page, select the desired number of read-only nodes and compute unit range to complete the modification.

## Compute Unit

 Read-Write Instance

Min 0.5 Max 4

The compute unit range takes effect for read-write nodes.

 RO Group

Node - 3 + pcs ⓘ

Min 0.5 Max 2

The compute unit range takes effect for all nodes in the RO group.

# Serverless Resource Pack

## Resource Pack Overview

Last updated : 2023-06-14 16:25:40

In TDSQL-C for MySQL, there are two different types of prepaid resource packs: compute resource packs and storage resource packs, which can be used to deduct the storage and compute resources used by the serverless cluster. By purchasing resource packs, you can reserve resources in advance. Compared to the pay-as-you-go option, the resource packs can help you save more costs. It is more cost-effective to purchase larger capacity and longer validity period.

## Resource Pack Description

Prepaid Resource Pack	Compute Resource Pack	Storage Resource Pack
Deduction object	The compute resource pack will be used preferably for the deduction of actual compute resources used by its bound severless cluster. When the pack is used up, the resource usage will be pay-as-you-go.	The storage resource pack will be used preferably for the deduction of actual storage resources used by its bound severless cluster. When the pack is used up, the resource usage will be pay-as-you-go.
Deduction rules	The compute resource pack will be deducted based on the actual CCU usage per second, which is more cost-effective and flexible than the pay-as-you-go option. Before the deduction of the serverless cluster, you must first bind a resource pack. The cluster will not be terminated when the resource pack is unbound, used up, or expires. It will instead be billed on a pay-as-you-go basis.	The storage resource pack will be deducted based on the actual storage used per hour, which is more cost-effective and flexible than the pay-as-you-go option. Before the deduction of the serverless cluster, you must first bind a resource pack. The cluster will not be terminated when the resource pack is unbound, used up, or expires. It will instead be billed on a pay-as-you-go basis.
Renewal	Not supported	
Deduction period	The compute resource pack will be deducted based on the actual accumulated usage per second.	The storage resource pack will be deducted based on the actual average usage per hour.
Validity	It is valid for 6 months (180 days) or 1 year	It is valid for 6 months (180 days) or 1 year (365



period	(365 days) and can't be used any longer once expired.	days) and can't be used any longer once expired.
Region	It is available in or out of the Chinese mainland.	It is available in or out of the Chinese mainland.
Use Instructions	<a href="#">Purchasing Resource Pack</a> <a href="#">Binding and Unbinding Resource Pack</a>	<a href="#">Purchasing Resource Pack</a> <a href="#">Binding and Unbinding Resource Pack</a>

## Available Region

In Chinese Mainland	Outside Chinese Mainland
Guangzhou, Nanjing, Shanghai, Beijing, Chengdu, Chongqing, Beijing Finance, Shanghai Finance	Hong Kong (China), Singapore, Seoul, Tokyo, Silicon Valley, Virginia, Toronto, Frankfurt

## Billing Mode

Serverless clusters offer the following four billing modes for you to choose flexibly. If you choose the fourth mode of **resource pack for both compute and storage**, you can enjoy a more favorable price than the monthly subscription option.

Pay-as-you-go for compute + resource pack for storage

Resource pack for compute + pay-as-you-go for storage

Pay-as-you-go for both compute and storage

Resource pack for both compute and storage

For more information, see [Compute Resource Pack](#) and [Storage Resource Pack](#).

# Purchasing Resource Pack

Last updated : 2023-06-14 16:28:21

This document describes how to purchase a resource pack.

## Prerequisites

You have registered a Tencent Cloud account and completed identity verification.

Register a [Tencent Cloud account](#).

Complete [identity verification](#).

## Purchasing Resource Pack

1. Log in to the [TDSQL-C for MySQL console](#).
2. On the left sidebar, select **Resource Pack** and click **Purchase Resource Pack**.

### Note:

You can also directly purchase one on the [resource pack purchase page](#).

3. Select various configuration items based on your actual needs, confirm that everything is correct, and click **Buy**

### Now.

Parameter	Description
Resource Pack Type	Select a resource pack type as needed, which can be compute resource pack or storage resource pack.
Region	Set the pack deduction region same as the region where your cluster is deployed. The region can be in or out of the Chinese mainland.
Resource Pack Specifications	Select one of the three specifications: Basic Edition, General Edition, and Enterprise Edition.
Name Resource Pack	Select one of the options: <b>**Name It Later**</b> (default) or <b>**Name It Now**</b> . If the latter is selected, you can customize the a name, which can contain up to 60 letters, digits, or symbols (-_).
Terms and Conditions	Read and indicate your consent to the terms and conditions.
Quantity	Select the quantity of resource packs. You can purchase multiple resource packs of the same

specifications in batches.

## Relevant Documents

[Resource Pack Overview](#)

[Compute Resource Pack](#)

[Storage Resource Pack](#)

[Binding and Unbinding Resource Pack](#)

# Compute Resource Pack

Last updated : 2023-11-01 17:31:30

The compute resource pack is a prepaid resource type in TDSQL-C for MySQL, which can be used to deduct the compute resources used by the serverless cluster. This document describes the specification types and prices of compute resource packs.

## Specification Types and Prices

Specification Type	Applicable Scope of CCU	Reference Usage Period	Unit Price in Chinese Mainland (USD/Thousand CCU)	Unit Price Outside Chinese Mainland (USD/Thousand CCU)
Basic Edition	400–10,000 thousand CCU (10,000 exclusive)	For a 2-core-4 GB MEM database, full load usage lasts about 60 days and non-full load usage lasts up to 300 days.	6-month validity period: 0.0119 1-year validity period: 0.0126	6-month validity period: 0.013 1-year validity period: 0.0138
General Edition	10,000–40,000 thousand CCU (40,000 exclusive)	For a 8-core-16 GB MEM database, full load usage lasts about 60 days and non-full load usage lasts up to 300 days.	6-month validity period: 0.0112 1-year validity period: 0.0119	6-month validity period: 0.0122 1-year validity period: 0.013
Enterprise Edition	40,000–200,000 thousand CCU (200,000 exclusive)	For a 32-core-64 GB MEM database, full load usage lasts about 60 days and non-full load usage lasts up to 300 days.	6-month validity period: 0.0105 1-year validity period: 0.0112	6-month validity period: 0.0115 1-year validity period: 0.0122

## Note

The compute resource pack will be deducted based on the actual CCU usage per second, which is more cost-effective and flexible than the pay-as-you-go option. Before the deduction of the serverless cluster, you must first bind a compute resource pack. The cluster will not be terminated when the resource pack is unbound, used up, or expires. It will instead be billed on a pay-as-you-go basis. It is important to note the following points:

Compute resource packs are classified into two types: those for the Chinese mainland and those for regions outside the Chinese mainland. Each type is specified to be shared by all serverless clusters in the region, that is, one compute resource pack can be shared by multiple serverless clusters.

A serverless cluster can only be bound to one compute resource pack.

A compute resource pack is deducted based on the accumulated usage per second.

A compute resource pack doesn't support downgrade once purchased.

## Management

[Binding and Unbinding Resource Pack](#)

[Viewing Resource Pack Usage](#)

[Modifying Resource Pack Name](#)

## Refund

After purchasing compute resource packs, each Tencent Cloud root account can make up to 20 refund requests for the compute resource packs. For more information, see [Requesting Refund for Resource Pack](#).

## Relevant Documents

[Storage Resource Pack](#)

[Purchasing Resource Pack](#)

# Resource Pack Reminder Policy

Last updated : 2024-03-25 15:36:20

This document describes the reminder policies regarding the usage and validity of a resource pack.

## Reminder Policy for Resource Pack Usage

### Scenario: Resource pack is about to run out

Reminder messages will be sent when the remaining resource pack usage reaches 30%, 20%, or 10%.

Channels: [Message Center](#), email, and SMS.

Sample message:

Dear user,

You have already used 280,000 CCUs of your TDSQL-C: cynosdbmysql resource pack (ID: package-, **name: to--1**) **under your account (ID: 100028, nickname: ce\*\*\*)**, and the remaining 120,000 CCUs is less than 30% of the total capacity. Please [purchase the resource pack](#) promptly to avoid interruptions.

Reminder messages will be sent when the resource pack runs out.

Channels: [Message Center](#), email, and SMS.

Sample message:

Dear user,

You have used up 400,000 CCUs of your TDSQL-C: cynosdbmysql resource pack (ID: package-, **name: to--1**) **under your account (ID: 100028, nickname: ce\*\*\*)** at 11:43:43 on 2023-05-31. Please [purchase the resource pack](#) promptly to avoid interruptions.

## Reminder Policy for Resource Pack Validity

### Scenario: Resource pack is about to expire

Reminder messages will be sent when the resource pack is 30 days, 7 days, 5 days, 3 days, or 1 day from expiration.

Channels: [Message Center](#), email, and SMS.

Sample message:

Dear user,

Your TDSQL-C: cynosdbmysql resource package (ID: package-, **name: to--1**) **under your account (ID: 100028, nickname: ce\*\*\*)** will expire at 11:43:43 on November 10, 2023. Once the resource pack has expired, it cannot be refunded. Please [purchase the resource pack](#) promptly to avoid interruptions.

Reminder messages will be sent when the resource pack expires.

Channels: [Message Center](#), email, and SMS.

Sample message:

Dear user,

The TDSQL-C resource pack cynosdbmysql- (**resource pack ID: package-**, **resource package name: to--1**) you **purchased for your account (account ID: 100028**, nickname: ce\*\*) has expired at 11:43:43 on November 10, 2023. Please [purchase the resource pack](#) promptly to avoid interruptions.

# Storage Resource Pack

Last updated : 2023-06-14 17:01:50

The storage resource pack is a prepaid resource type in TDSQL-C for MySQL, which can be used to deduct the storage resources used by the serverless cluster. This document describes the specification types and prices of storage resource packs.

## Specification Types and Prices

Specification Type	Applicable Scope of Storage Capacity	Reference Usage Period	Unit Price in Chinese Mainland (USD/TB)	Unit Price Outside Chinese Mainland (USD/TB)
Basic Edition	2–200TB (200 exclusive)	90 days for a database with 1–100 GB storage	6-month validity period: 0.2568 1-year validity period: 0.271	6-month validity period: 0.2806 1-year validity period: 0.2962
General Edition	200–2000 TB (2000 exclusive)	90 days for a database with 100 GB–1 TB storage	6-month validity period: 0.2425 1-year validity period: 0.2568	6-month validity period: 0.265 1-year validity period: 0.2806
Enterprise Edition	2000–20,000 TB (20,000 exclusive)	90 days for a database with 1 TB–10 TB storage	6-month validity period: 0.2282 1-year validity period: 0.2425	6-month validity period: 0.2494 1-year validity period: 0.265

## Note

The storage resource pack will be deducted based on the actual storage used per hour, which is more cost-effective and flexible than the pay-as-you-go option. Before the deduction of the serverless cluster, you must first bind a storage resource pack. The cluster will not be terminated when the resource pack is unbound, used up, or expires. It will instead be billed on a pay-as-you-go basis. It is important to note the following points:

Storage resource packs are classified into two types: those for the Chinese mainland and those for regions outside the Chinese mainland. Each type is specified to be shared by all serverless clusters in the region, that is, one storage resource pack can be shared by multiple serverless clusters.



A serverless cluster can only be bound to one storage resource pack.

A storage resource pack is deducted based on the actual usage per hour.

A storage resource pack doesn't support downgrade once purchased.

## Management

[Binding and Unbinding Resource Pack](#)

[Viewing Resource Pack Usage](#)

[Modifying Resource Pack Name](#)

## Refund

After purchasing compute resource packs, each Tencent Cloud root account can make up to 20 refund requests for the compute resource packs. For more information, see [Requesting Refund for Resource Pack](#).

## Relevant Documents

[Storage Resource Pack](#)

[Purchasing Resource Pack](#)

# Binding and Unbinding Resource Pack

Last updated : 2023-11-09 14:35:01

If you want to use a resource pack, you need to bind the resource pack after purchasing it. You can also unbind a resource pack that has been bound to clusters. This document describes how to bind or unbind a resource pack.

## Note:

A resource pack can be bound to multiple serverless clusters, but a serverless cluster can only be bound to up to one compute resource pack and one storage resource pack.

## Prerequisites

You have created a serverless cluster. For more information, see [Creating Serverless Cluster](#).

You have purchased a resource pack. For more information, see [Purchasing Resource Pack](#).

## Binding a resource pack

### Scenario 1: Binding a resource pack when creating a serverless cluster

1. Go to the [purchase page](#) and complete the **Database Configuration** settings.

Parameter	Description
Instance Mode	Select <b>Serverless</b> .
Database Engine	Select <b>MySQL</b> .
Region	Select a region for database deployment. Currently, the serverless mode is supported only in Guangzhou, Shanghai, Beijing, Nanjing, Hong Kong (China), Silicon Valley, Singapore, and Virginia regions. If you need to use it in other regions, <a href="#">submit a ticket</a> for assistance.
Source AZ	Select an AZ for deployment. Specific AZs in the selected region are shown on the actual purchase page.
Multi-AZ Deployment	Currently, serverless instances don't support multi-AZ deployment.
Transfer Linkage	It is "High IO" by default.

Network	For performance and security considerations, only VPC network is supported currently. CVM instances can communicate with TDSQL-C for MySQL instances only in the same <a href="#">VPC</a> .
Database Version	MySQL 5.7 and 8.0 are supported.
Compute Unit	Select the upper and lower limits of the TDSQL-C compute unit (CCU), and the instance will be automatically and elastically scaled within the selected resource range. CCU is the computing and billing unit for the serverless mode. A CCU is approximately equal to 1 CPU core and 2 GB memory. The number of CCUs used in each billing cycle is the greater of the number of CPU cores used by the database and 1/2 of the memory size. For more information, see <a href="#">Compute Unit</a> .
Auto-Pause	Configure the automatic pause time of the instance. If there is no connection to access the database within the set time, the instance will be automatically paused, with billing stopped.

2. Complete the **Specification Billing** configuration and click **Next**.

**Note:**

**Total serverless cluster fees = compute node fees + storage space fees = serverless computing power price  $\times$  number of CCUs + storage space price  $\times$  storage space**

### Billing Mode

Compute Billing Mode

**Pay as You Go**

Only pay for what you actually used

**Resource Pack** NEW

Save up to 60% over pay-as-you-go options.

Compute Resource Pack **Bind Resource Pack**

Resource Pack ID	Resource Pack Name	Resource Pack Type	Used/Total
package- <span style="background-color: #ccc; padding: 2px 5px;">XXXXXXXXXX</span>	package- <span style="background-color: #ccc; padding: 2px 5px;">XXXXXXXXXX</span>	Compute Resource Pack	<div style="width: 0%; height: 10px; background-color: #ccc;"></div> 0 thousand CCU/400 thousand

[Purchase Resource Pack](#)

Storage Billing Mode

**Pay as You Go**

Only pay for what you actually used

**Resource Pack** NEW

Save up to 60% over pay-as-you-go options.

Storage Resource Pack **Bind Resource Pack**

Parameter	Description
Compute Billing Mode	Select <b>Resource Pack</b> . The compute resource pack will be used preferably for the deduction of actual usage of pay-as-you-go products. When the pack is used up, the resource usage will be pay-as-you-go. Compute

	resource packs are deducted based on the actual CCU used per second. The resource pack mode is more cost-effective and flexible than the pay-as-you-go option.
Compute Resource Pack	You can bind all valid compute resource packs available in the selected region under the current account. If no resource pack is available, you can <a href="#">purchase a resource package</a> first.
Storage Billing Mode	<b>Select Resource Pack.</b> The storage resource pack will be used preferably for the deduction of actual usage of pay-as-you-go products. When the pack is used up, the resource usage will be pay-as-you-go. Storage resource packs are deducted based on the actual storage used per hour. The resource pack mode is more cost-effective and flexible than the pay-as-you-go option.
Storage Resource Pack	You can bind all valid storage resource packs available in the selected region under the current account. If no resource pack is available, you can <a href="#">purchase a resource package</a> first.

3. Select the number of clusters. You can batch purchase multiple clusters of the same specification. Then, click **Next**.

4. Complete the **Basic Info** and **Advanced Configuration** settings, confirm the fees, and click **Buy Now**.

#### Basic Info

Parameter	Description
Cluster Name	Name the instance now or later. It must contain less than 60 letters, digits, or symbols (-_).
Admin Username	It is <code>root</code> by default.
Password	The password can contain 8–64 characters in at least three of the following character types: uppercase letters, lowercase letters, digits, and symbols <code>~!@#\$\$%^&amp;* _-+= \\(){}[];:'&lt;&gt;,.?/</code> .
Default Character Set	UTF8, GBK, LATIN1, and UTF8MB4 are supported.
Custom Port	It is 3306 by default and can be customized.

#### Advanced Configuration

Parameter	Description
Security Group	Select or create a security group.
Parameter Template	Select or create a parameter template.
Table Name Case Sensitivity	Select <b>Case-Insensitive</b> or <b>Case-Sensitive</b> .

Project	Specify a project for the cluster to be created.
Alarm Policy	Select or create an alarm policy.
Tag	Add a tag to facilitate resource categorization and management.
Terms and Conditions	Read and indicate your consent to the terms and conditions.

5. After the purchase is completed, you will be redirected to the [cluster list](#). After the status of the cluster becomes **Running**, it can be used normally.

**Note:**

If only the compute resource pack is bound, the compute nodes of the serverless cluster will be deducted by using the bound compute resource pack, while the storage nodes will be billed on a pay-as-you-go basis.

If only the storage resource pack is bound, the storage nodes of the serverless cluster will be deducted by using the bound storage resource pack, while the compute nodes will be billed on a pay-as-you-go basis.

If both the compute and storage resource packs are bound, both the compute and storage nodes of the serverless cluster will be deducted by using the bound compute and storage resource packs.

## Scenario 2: Binding a resource pack to an existing serverless cluster

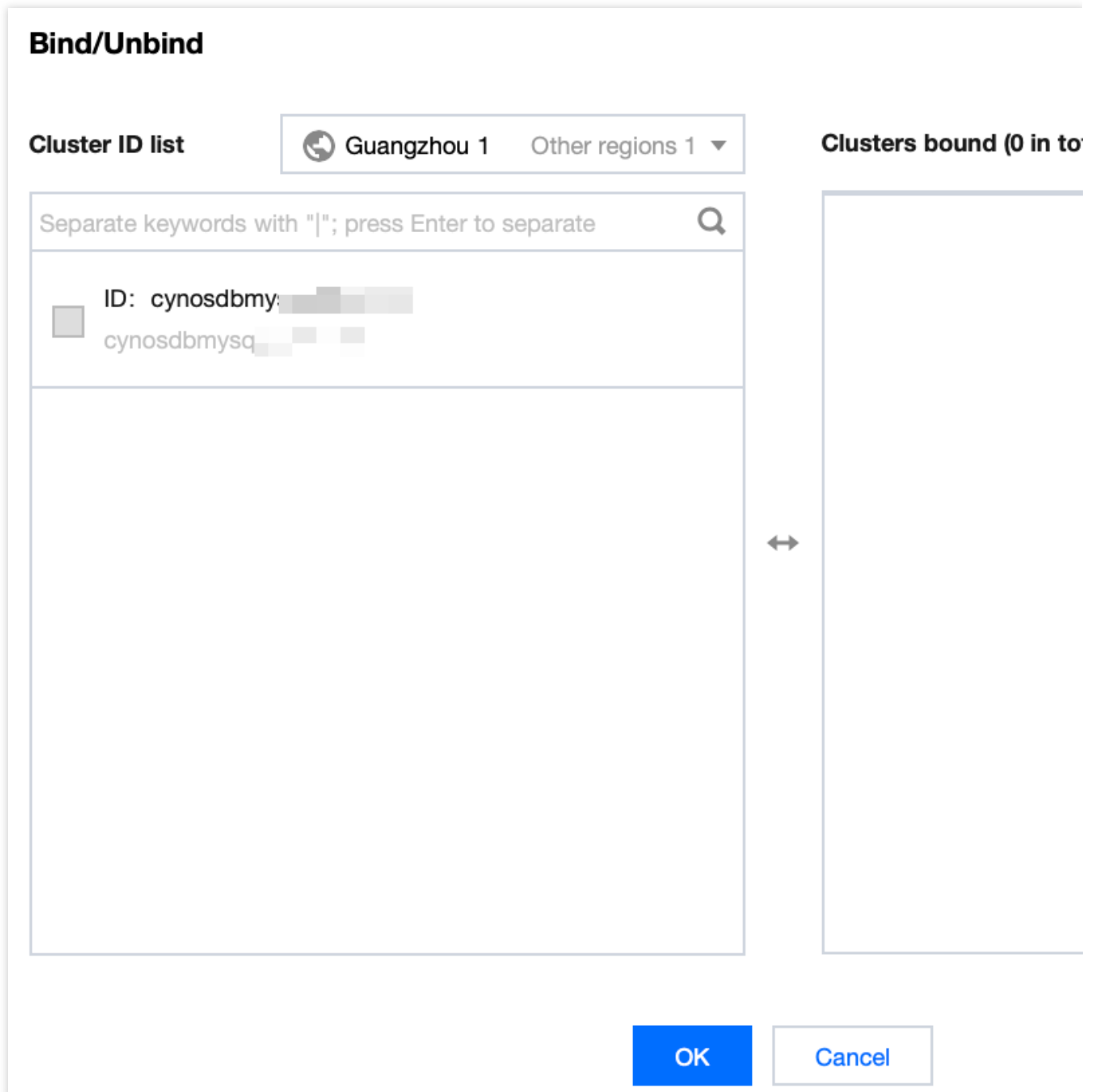
### Binding a resource pack to an existing serverless cluster in the resource pack list

After purchasing a resource pack, you can bind it to an existing serverless cluster in the resource pack list.

1. Log in to the [TDSQL-C for MySQL console](#).
2. On the left sidebar, click **Resource Pack** to enter the resource pack management page.
3. Find the target resource pack directly on the page or quickly filter it out in the search box on the right, and click **Bind/Unbind** in the **Operation** column.

Resource Pack ID/Name	Type	Status	Used/Total	Bind Cluster	Region
package-c package-c	Compute Resource Pack	Valid	0 thousand CCU/400 thousand CCU		Outside the Chinese Mainland

4. In the pop-up window, select a region, select one or more serverless clusters to which the resource pack is bound, and click **OK**.



### Binding a resource pack to an existing serverless cluster on the cluster management page

1. Log in to the [TDSQL-C for MySQL console](#).
2. Click the target cluster in the cluster list on the left to enter the cluster management page.
3. On the cluster management page, select **Resource Pack** and click **Bind Resource Pack**.

**cynosdbmysql-...** Running [Purchase Resource](#)

ID cynosdbmysql-... f

Database Version 2.1.10 [Upgrade](#)

Database Mode **Serverless**

Compute Billing Mode **Pay-as-You-Go**

Storage Billing Mode **Pay-as-You-Go**

Project [Adjust](#)

Deployment Mode **Single-AZ**

Transfer Linkage **High IO**

Serverless **Single-Node Edition**

Tag

Monitoring and Alarms Account Management Database Management Database Proxy Parameter Settings Security Group Backup

The cluster has no resource pack.

[Bind Now](#)

4. In the pop-up window, select the target resource pack and click **OK**.

#### Note:

You can select only one compute resource pack or one storage resource pack.

You can select up to one compute resource pack and one storage resource pack at the same time.

## Unbinding a resource pack

When a resource pack expires or is used up, the resource pack will be automatically unbound. You can also unbind it manually.

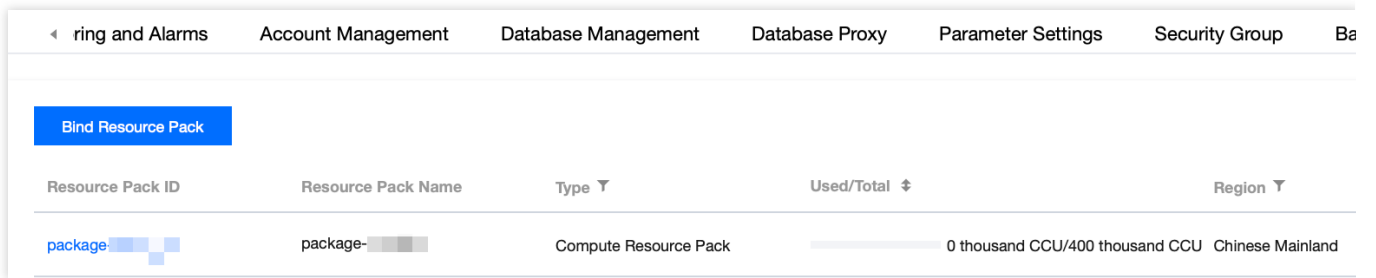
### Unbinding a resource pack from an existing serverless cluster in the resource pack list

1. Log in to the [TDSQL-C for MySQL console](#).
2. On the left sidebar, click **Resource Pack** to enter the resource pack management page.
3. Find the target resource pack directly on the page or quickly filter it out in the search box on the right, and click **Bind/Unbind** in the **Operation** column.
4. In the pop-up window, select a region, select the target bound serverless cluster, and click **OK**.

### Unbinding a resource pack from an existing serverless cluster on the cluster management page

1. Log in to the [TDSQL-C for MySQL console](#).
2. Click the target cluster in the cluster list on the left to enter the cluster management page.
3. On the cluster management page, select **Resource Pack**.

4. Find the target resource pack, and click **Unbind** in the **Operation** column.



The screenshot shows a navigation bar with the following items: Ring and Alarms, Account Management, Database Management, Database Proxy, Parameter Settings, Security Group, and Ba. Below the navigation bar is a blue button labeled 'Bind Resource Pack'. Underneath the button is a table with the following columns: Resource Pack ID, Resource Pack Name, Type, Used/Total, and Region. The table contains one row with the following data: Resource Pack ID: package- (with a blue selection box), Resource Pack Name: package- (with a grey selection box), Type: Compute Resource Pack, Used/Total: 0 thousand CCU/400 thousand CCU (with a progress bar), and Region: Chinese Mainland.

Resource Pack ID	Resource Pack Name	Type	Used/Total	Region
package-	package-	Compute Resource Pack	0 thousand CCU/400 thousand CCU	Chinese Mainland

5. In the pop-up window, click **OK**.



# Viewing Resource Pack Usage

Last updated : 2023-06-14 17:07:59

This document describes how to view the usage of a resource pack.

## Prerequisites

You have purchased a resource pack. For more information, see [Purchasing Resource Pack](#).

You have bound the resource pack. For more information, see [Binding and Unbinding Resource Pack](#).

## Directions

### Option 1:

1. Log in to the [TDSQL-C for MySQL console](#).
2. On the left sidebar, click **Resource Pack** to enter the resource pack management page.
3. Find the target resource pack directly on the page or quickly filter it out in the search box on the right, and click **Usage Details** in the **Operation** column.
4. On the **Usage Details** page, select the target cluster to be queried in the upper right corner, or select all clusters to view the resource pack usage.

### Note:

You can view the resource pack usage in the last 24 hours, last 48 hours, last 7 days, last 30 days, a custom time range, or all time ranges.

You can check the following usage details fields: Deduction Period (Hour), Resource Pack ID, Used/Total, and Cluster ID.

### Option 2:

1. Log in to the [TDSQL-C for MySQL console](#).
2. Click **Target Cluster** in the cluster list on the left to enter the cluster management page.
3. On the cluster management page, select **Resource Pack**.
4. Find the target resource pack, and click **Resource Pack ID** or **Details** in the **Operation** column.
5. On the **Usage Details** page, select the target cluster to be queried in the upper right corner, or select all clusters to view the resource pack usage.

# Modifying Resource Pack Name

Last updated : 2023-06-14 17:09:18

This document describes how to modify the name of a resource pack.

## Prerequisites

You have purchased a resource pack. For more information, see [Purchasing Resource Pack](#).

## Directions

1. Log in to the [TDSQL-C for MySQL console](#).
2. On the left sidebar, click **Resource Pack** to enter the resource pack management page.
3. Find the target resource pack directly on the page or quickly filter it out in the search box on the right, and click the edit icon under the **Resource Pack ID/Name**.
4. In the pop-up window for modifying the resource pack name, enter the new name of the resource pack and click **OK**.

Note :

The resource pack name can contain up to 60 letters, digits, or symbols (-\_.).

# Requesting Refund for Resource Pack

Last updated : 2023-06-14 17:10:38

This document describes how to request a refund for a resource pack.

## Prerequisites

You have purchased a resource pack. For more information, see [Purchasing Resource Pack](#).

## Refund Rule

You can request a refund for a valid resource pack in a self-service manner in the console.

Refund rule: Each Tencent Cloud root account can make up to 20 refund requests for resource packs.

## Refund Amount

Refund amount = paid amount - (consumed usage x unit price x discount applicable)

## Directions

1. Log in to the [TDSQL-C for MySQL console](#).
2. On the left sidebar, click **Resource Pack** to enter the resource pack management page.
3. Find the target resource pack directly on the page or quickly filter it out in the search box on the right, and click **More > Refund** in the **Operation** column.
4. In the pop-up window, confirm the requested refund and click **OK**.