

# **TencentDB for CTSDB**

## **Operation Guide**

### **Product Documentation**



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# Operation Guide

## System Limits

Last updated : 2021-07-15 15:54:47

CTSDB supports data write, query, and other operations over the HTTP protocol. Its HTTP APIs are RESTful, and the resource request method is to send standard HTTP requests to the corresponding URIs of resources. For example, `GET` is used to get resources, `POST` create (or update) resources, `PUT` update resources, and `DELETE` delete resources. You can perform almost all data operations through HTTP APIs. CTSDB ensures data security by providing VPC-based network isolation and access authentication with username and password. Data is exchanged through structures in JSON format. Each request will return a standard HTTP response status code and content. If an operation fails, you can get specific error information based on the response content.

## Naming Conventions

The names of metrics, tags, and fields in CTSDB should be concise and clear.

- Naming conventions for metrics: a name can contain 1–200 lowercase letters, digits, underscores, hyphens, and dots but cannot start with a dot, underscore, or hyphen.
- Naming conventions for tags and fields in metrics: a name can contain 1–255 letters, digits, underscores, hyphens, and dots but cannot start with a dot.

## System Limits

- Limits of tags and fields in metrics: the total number of fields in a metric cannot exceed 1,000.
- Limits of write points during bulk writing to metric: we recommend you limit the number of records in each `bulk` request between 1,000 and 5,000 and the physical size between 1 and 15 MB.

## System Default Rules

- **Processing of new fields during data write:** if there are undefined new fields when you write data to a metric, CTSDB will store the new fields as tags by default. You can also change this by modifying the `default_type` field in the `options` parameter of the metric. For more information on metric modification, please see [Updating Metric](#).
  - If a new field is an integer, CTSDB will store it in `long` type;

- If a new field is a decimal number, CTSDB will store it in `float` type;
- If a new field is a string, CTSDB will store it in `string` type subject to the value of `max_string_length` and discard the excessive part. `max_string_length` can be customized and is 256 characters by default.

For more information on modification, please see [Updating Metric](#).

- **Processing of date and time:** date and time are stored in UTC format in CTSDB. Therefore, for data queries involving time range, please specify the time zone with the `time_zone` parameter, which is in the format of ISO 8601 UTC offset (e.g., +01:00 or -08:00). The specific time zone needs to be determined according to the region where the instance resides. Generally, the time zone for the Chinese mainland is UTC+8. For more information, please see [Common Query Samples](#).

# Basic Operations

Last updated : 2021-07-15 15:54:47

## Viewing Instance Details

Log in to the [CTSDB console](#). In the instance list, click an instance ID or **Manage** in the **Operation** column to enter the instance details page, where you can view the details of the instance.

**Instance Details** Instance Monitoring Data Query Account Management

### Basic Info

Instance Name	
Instance ID	ctsdb-09km9vtx1
Status	Running
Region	Frankfurt - Frankfurt Zone 2
Private IPv4 Address	
Private IPv4 Port	9200
Network	
Project	DEFAULT PROJECT
Node Quantity	3 <a href="#">Add Node</a> <a href="#">Reduce Node</a>
Specs per Node	1-core CPU / 2 GB MEM / 100 GB disk

### Configuration

Used/Total	0 / 300 GB
Billing Mode	Pay as You Go
Creation Time	2021-07-15 14:28:33

## Querying Data

Select the **Data Query** tab and select the corresponding query conditions.

[←](#) **ctsdb-09km9vtx1 (AlvinTest)**

[Instance Details](#) [Instance Monitoring](#) [Data Query](#) [Account Management](#)

Select Time •

2021-07-15 14:46:18 ~ 2021-07-15 15:01:18

Last 15 minutes ▼

You have selected: 15 minutes

The longest time span you can select is 7 days up till now

Metric •

bookdb\_index ▼

Field •

score ▼

Select the correct type of field according to the aggregate function you selected below

Filter by Tag

Select a metric ▼

Select an operator ▼

Value

+ Clear

Aggregate

☐ avg ☒ count ☐ sum ☐ max ☐ min ☐ percentile

Granularity

1 minute ▼

Group by Tag

publisher ▼

Max Results Returned ☒ Supports an integer from 1 to 10,000

–

1000

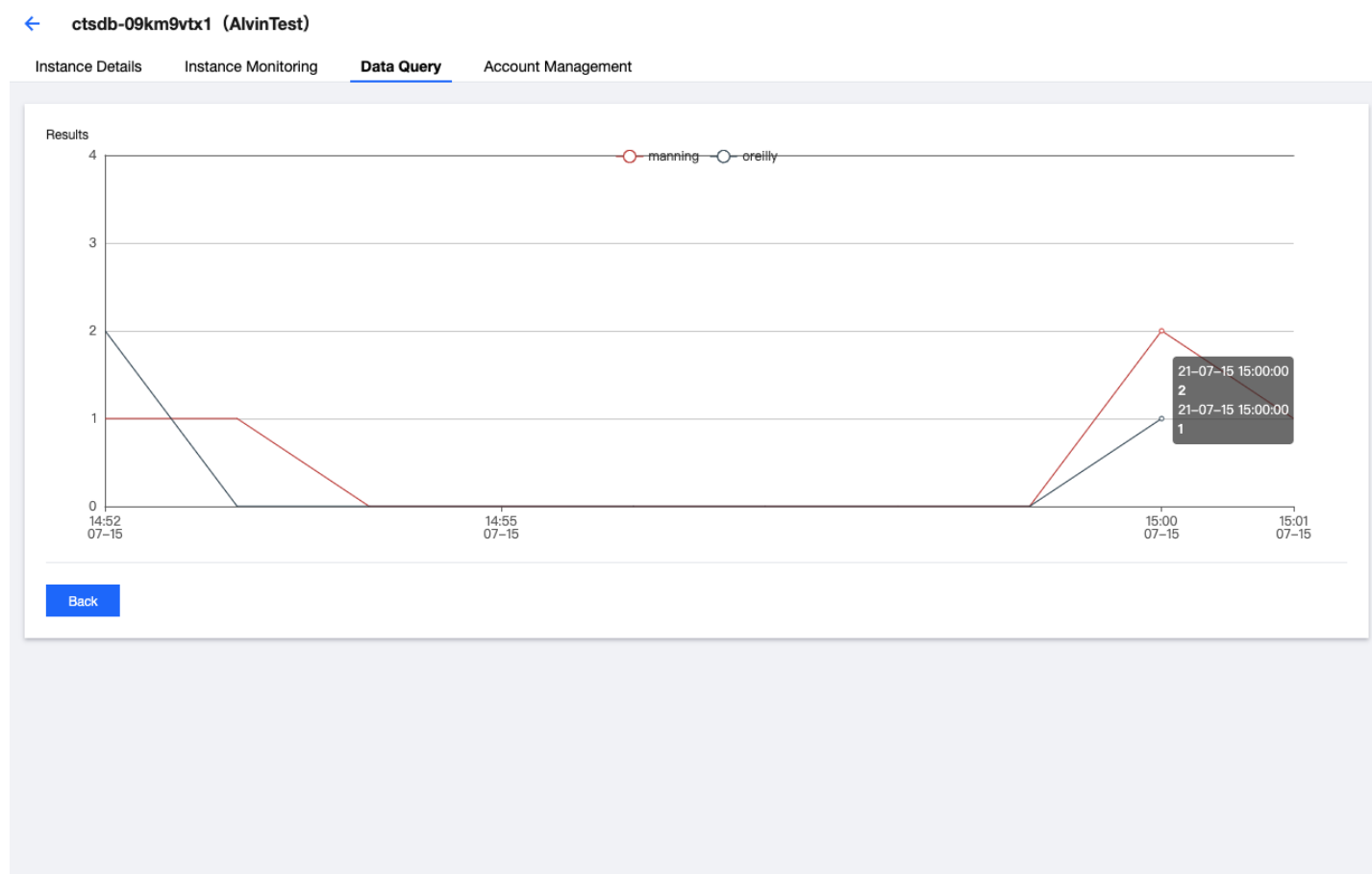
+

Query

Reset



Click **Query** to generate a graph.



## Viewing Monitoring Data

Select the **Instance Monitoring** tab to view the monitoring data of each metric of the instance.

# Assigning Instance to Project

Last updated : 2021-07-15 15:54:47


CTSDB supports assigning instances to different projects for management.

Notes:

- Assigning and reassigning TencentDB instances will not affect the services provided by the instances.
- You need to specify a project to which a new instance belongs when purchasing it. The **Default Project** will be used if you don't specify one.
- Assigned instances can be reassigned to other projects on the instance details page in the [console](#).

**Instance Details** Instance Monitoring Data Query Account Management

**Basic Info**

Instance Name	
Instance ID	
Status	Running
Region	Frankfurt - Frankfurt Zone 2
Private IPv4 Address	
Private IPv4 Port	
Network	
Project	DEFAULT PROJECT 
Node Quantity	3 <a href="#">Add Node</a> <a href="#">Reduce Node</a>
Specs per Node	1-core CPU / 2 GB MEM / 100 GB disk

# Adjusting Instance Node

Last updated : 2021-07-15 15:54:47

CTSDB supports flexible instance node adjustments. You can elastically adjust the number of instance nodes according to your actual business conditions (at the initial stage, at the rapid development stage, during peak hours, or during off-peak hours), so as to better meet your needs such as full utilization of resources and real-time cost optimization.

## Node Adjustment Rules

- You can adjust the nodes of a CTSDB instance only when it is in normal status (Running) and is not executing any tasks.
- You cannot cancel a node adjustment operation in progress.
- The name, access IP, and access port of the instance remain unchanged after node adjustment.
- During node adjustment, the instance can be accessed normally, and the business will not be affected.
- Instance switch may be needed after node adjustment is completed. We recommend you configure an automatic reconnection feature for your application.
- During node adjustment, please refrain from performing certain operations such as changing the user password.

## Node Adjustment Method

1. Log in to the [CTSDB console](#) and select the target region. In the instance list, click an instance ID or **Manage** in the **Operation** column to enter the instance details page.

2. In the **Node Quantity** \*\* section on the instance details page, click **Add Node**.

The screenshot displays the 'Instance Details' page for a TencentDB for CTSDB instance. The page has four tabs: 'Instance Details' (selected), 'Instance Monitoring', 'Data Query', and 'Account Management'. Under the 'Instance Details' tab, the 'Basic Info' section lists the following details:

Field	Value
Instance Name	[Redacted]
Instance ID	[Redacted]
Status	Running
Region	Frankfurt - Frankfurt Zone 2
Private IPv4 Address	[Redacted]
Private IPv4 Port	[Redacted]
Network	Default-VPC - sb2
Project	DEFAULT PROJECT
Node Quantity	3 <b>Add Node</b> Reduce Node
Specs per Node	1-core CPU / 2 GB MEM / 100 GB disk

3. Select the number of nodes to be added in the pop-up window and click **Upgrade**.

## Fees Calculation

2. After upgrade, pay-as-you-go instances will be billed based on the new instance specifications starting from the next billing cycle.

# Adjusting Instance Specification

Last updated : 2021-07-15 15:54:47

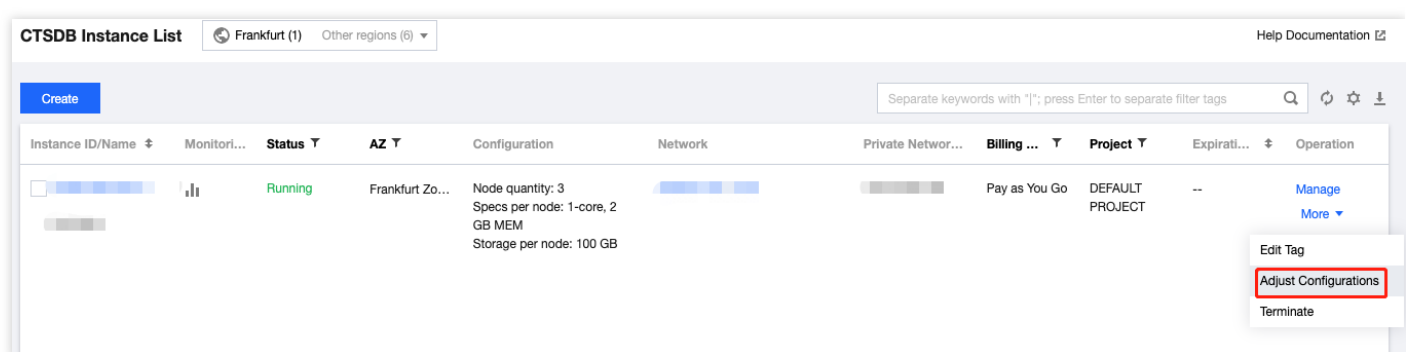
CTSDB supports flexible instance node specifications. You can elastically adjust the specifications of instance nodes according to your actual business conditions (at the initial stage, at the rapid development stage, during peak hours, or during off-peak hours), so as to better meet your needs such as full utilization of resources and real-time cost optimization.

## Configuration Adjustment Rules

1. You can adjust the configuration of a CTSDB instance only when it is in normal status (Running) and is not executing any tasks.
2. You cannot cancel a configuration adjustment operation in progress.
3. The name, access IP, and access port of the instance remain unchanged after configuration adjustment.
4. Configuration adjustment may cause data migration. During data migration, the instance can be accessed normally, and the business will not be affected.
5. Instance switch may be needed after configuration adjustment is completed. We recommend you configure an automatic reconnection feature for your application.
6. During configuration adjustment, please refrain from performing certain operations such as changing the user password.

## Configuration Adjustment Method

1. Log in to the [CTSDB console](#) and select the target region. In the instance list, select **More > Adjust Configurations** in the **Operation** column.



2. Select the specification to be upgraded to in the pop-up window and click **Submit**.

3. You will be redirected to the instance list. After the status of the instance becomes **Running**, it can be used normally.

## Fees Calculation

2. After upgrade, pay-as-you-go instances will be billed based on the new instance specifications starting from the next billing cycle.

# Resetting Password

Last updated : 2021-09-30 15:58:06

## Overview

This document describes how to reset the database password in the CTSDB console.

Note :

- We recommend you reset the database password periodically at least once every three months.
- The password should be a combination of 8–64 characters containing three types: letters, digits, and special symbols (~!@#\$%^&\*()\_+~|{}[];:<>,.?/).

## Directions

1. Log in to the [CTSDB console](#), select the target region, and click an instance ID in the instance list to enter the database management page.
2. On the database management page, select the **Account Management** tab, find the account for which to reset the password, and click **Reset Password**.

Instance Details

Instance Monitoring

Data Query

Account Management

Create Database Account

Account Name	Global Permission	Object-Level Permission	Remarks	Operation
root	Super Admin Permission	None	--	<a href="#">Reset Password</a>

3. In the pop-up window, enter the new password and confirm password and click **OK**.

# Terminating Instance

Last updated : 2021-07-15 15:54:48

## Overview

Based on your business needs, you can manually terminate pay-as-you-go instances in the console.

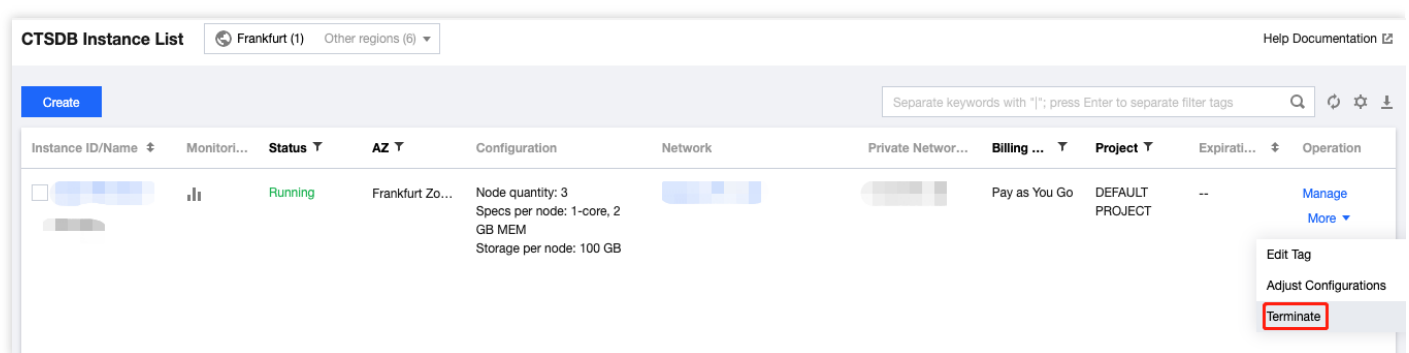
- In the pay-as-you-go billing mode, you can apply for resources for on-demand use and will be charged based on the actual usage upon settlement. If you need to return an instance, you can terminate it, and after that, it will no longer incur fees.

Note :

To prevent misoperations, a manually terminated pay-as-you-go instance will be kept for 24 hours after termination, during which it will be billed normally. If you need to terminate an instance immediately, please submit a ticket for assistance.

## Directions

- Log in to the [CTSDB console](#), select the instance to be terminated in the instance list, and select **More > Terminate** in the **Operation** column.



- In the pop-up window, indicate your consent and click **Terminate Now**.



# Data Query

Last updated : 2021-07-15 15:54:48

CTSDB provides the following two data query methods:

## Query in the console

For more information, please see "Querying Data" in [Basic Operations](#).

## Query through API

For more information, please see "Querying Data" in [HTTP API References](#).

# Monitoring Metrics

Last updated : 2021-07-15 15:54:48

Metric	Parameter	Unit
Write Speed	index_speed	Counts/s
Avg Disk Utilization	disk_usage_avg	%
Total Writes	index_total	-
Avg JVM Memory Utilization	jvm_mem_usage_avg	%
Max JVM Memory Utilization	jvm_mem_usage_max	%
Avg CPU Utilization	cpu_usage_avg	%
Max CPU Utilization	cpu_usage_max	%
Rejection Rate of Queries	search_rejected_completed_percent	%
Rejection Rate of Writes	bulk_rejected_completed_percent	%

# Network Connection

Last updated : 2021-07-15 15:54:48

CTSDB currently supports only one network mode for instance access: [VPC](#). It ensures data security by providing VPC-based network isolation and access authentication with username and password.

After creation, each CTSDB instance has a private network address and port. When you initialize an instance, you can access the instance through the RESTful API after setting the password of the root account.

# Access Management

## Overview

Last updated : 2023-03-02 14:45:51

## Known Issues

If you have multiple users managing different Tencent Cloud services such as CVM, VPC, and TencentDB, and they all share your Tencent Cloud account access key, you may face the following problems:

Your key will be easily compromised because it is shared by several users.

You cannot restrict the access from other users and your service will be vulnerable to the security risks caused by their maloperations.

## Solution

You can avoid the problems above by allowing different users to manage different services through sub-accounts. By default, a sub-account does not have permissions to use Tencent Cloud services or resources. Therefore, you need to create a policy to grant different permissions to the sub-accounts.

[Cloud Access Management \(CAM\)](#) is a Tencent Cloud web service that helps you securely manage and control access to your Tencent Cloud resources. CAM allows you to create, manage or terminate users (groups), and control who have access to which Tencent Cloud resources based on identity and policy management.

When using CAM, you can associate a policy with a user or user group to allow or forbid them to use specified resources to complete specified tasks. For more information on CAM policies, see [Element Reference](#). For detailed directions, see [Concepts](#).

You can skip this section if you do not need to manage permissions to TencentDB resources for sub-accounts. This will not affect your understanding and use of the other sections of the document.

## Getting started

A CAM policy must authorize or deny the use of one or more CTSDB operations. At the same time, it must specify the resources that can be used for the operations (which can be all resources or partial resources for certain operations). A policy can also include the conditions set for the manipulated resources.

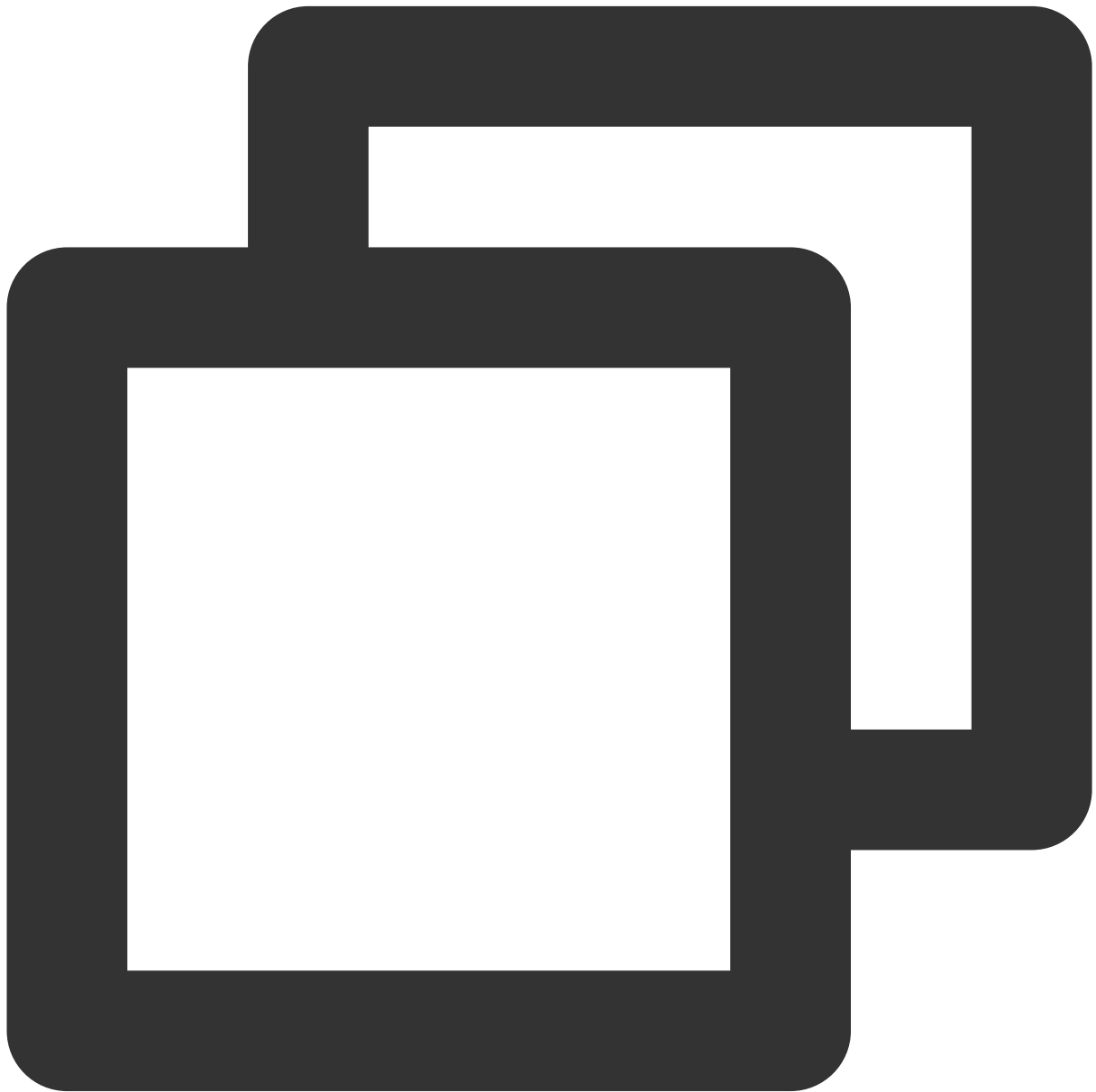
## Notes

CAM policies are preferred over projects for managing resources and authorizing operations of CTSDB, even though the user experience for current users with project-based permissions remains unaffected.

# Authorization Policy Syntax

Last updated : 2023-03-02 14:46:08

## CAM policy syntax



```
{  
    "version": "2.0",
```

```
"statement":
[
  {
    "effect": "effect",
    "action": ["action"],
    "resource": ["resource"],
    "condition": {"key": {"value": {}}}
  }
]
```

**version** is required. Currently, only the value "2.0" is allowed.

**statement** describes the details of one or more permissions. This element contains a permission or permission set of other elements such as `effect` , `action` , `resource` , and `condition` . One policy has only one statement.

**effect** is required. It describes whether the declaration result is `allow` or explicit `deny` .

**action** is required. It specifies whether to allow or deny the operation, which can be an API or a feature set (a set of specific APIs prefixed with "permid").

**resource** is required. It describes the details of authorization. A resource is described in a six-segment format. Detailed resource definitions vary by product.

**condition** is required. It describes the condition for the policy to take effect. A condition consists of operator, action key, and action value. A condition value may contain information such as time and IP address. Some services allow you to specify additional values in a condition.

## CTSDB operations

In a CAM policy statement, you can specify any API operation from any service that supports CAM. APIs prefixed with `name/ctsdb:` should be used for CTSDB. To specify multiple operations in a single statement, separate them by comma as shown below:



```
"action":["name/ctsdb:action1","name/ctsdb:action2"]
```

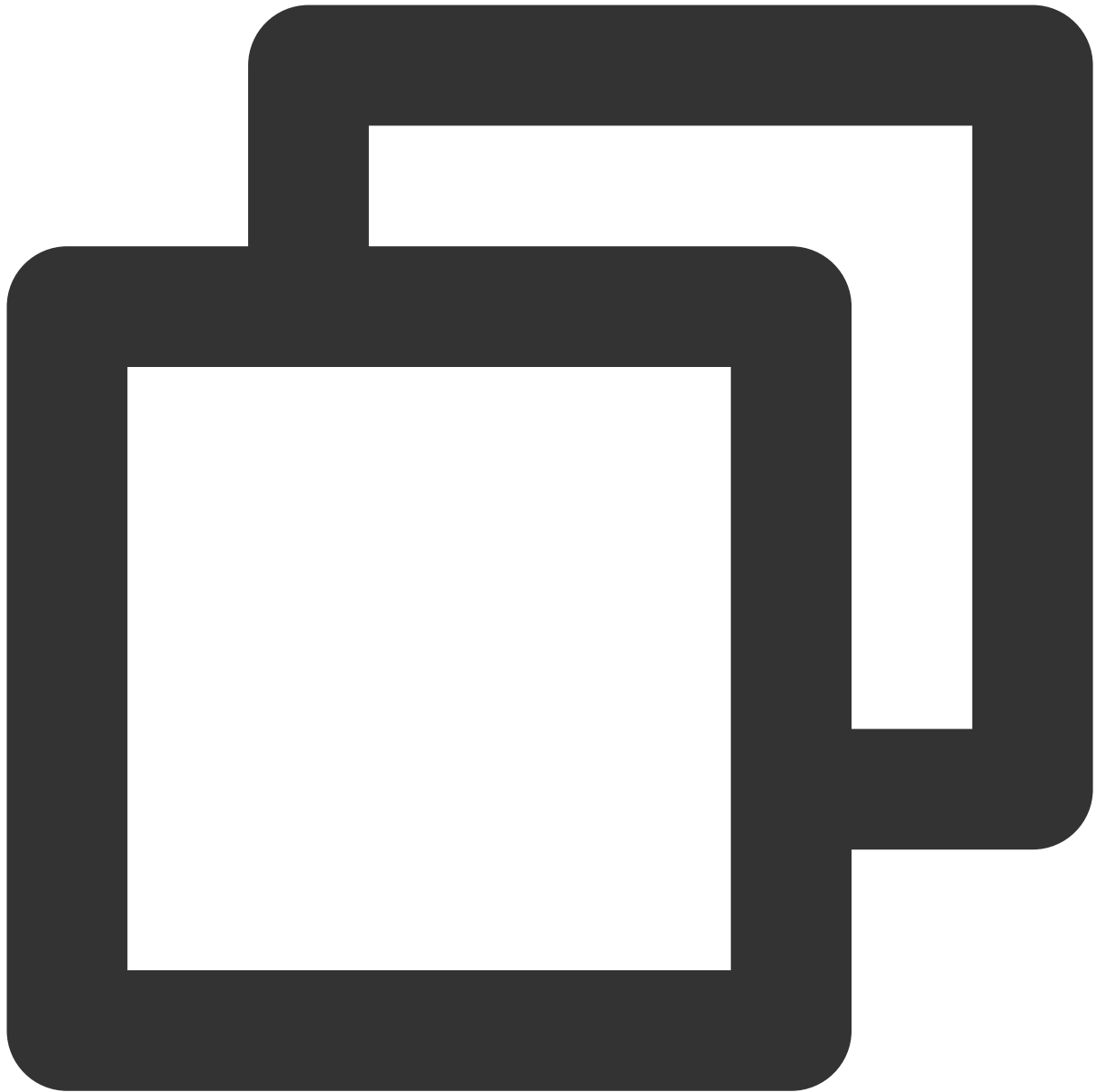
You can also specify multiple operations using a wildcard. For example, you can specify all operations whose names begin with "Describe" as shown below:



```
"action":["name/ctsdb:Describe*"]
```

If you want to specify all operations in CTSDB, use the `*` wildcard as shown below:





```
"action":["name/ctsdb:*"]
```

## CTSDB resource path

Each CAM policy statement has its own applicable resources.

The general form of a resource path is as follows:



```
qcs:project_id:service_type:region:account:resource
```

**qcs** describes the abbreviation of `qcloud service` . It indicates that the resource is a Tencent Cloud resource, which is required.

**project\_id** describes the project information, which is only used to enable compatibility with legacy CAM logic and can be left empty.

**service\_type** describes the product abbreviation such as `ctsdb` .

**region** describes the region information, such as `bj` .

**account** describes the root account of the resource owner, such as `uin/12345678` .

---

**resource** describes the detailed resource information of each product, such as `instance/instance_id` or `instance/*` .

# Authorizable Resource Types

Last updated : 2023-03-02 14:46:25

CTSDB supports resource-level authorization. You can grant a specified sub-account the API permission of a specified resource.

APIs supporting resource-level authorization include:

## Notes

CTSDB API operations not listed here do not support resource-level permissions. You can still authorize a user to perform such an API operation, but you must specify `*` as the resource element of the policy statement.

API	Description	Six-Segment Example of Resource
ModifyDBInstanceUserPassword	Modifies the user password of a database instance	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>
DescribeDBInstances	Queries the list of instances	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>
InitDBInstance	Initializes a database instance	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>
ModifyDBInstanceName	Renames a database instance	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>
ModifyDBInstanceProject	Modifies the project of a database instance	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>
RecycleDBInstance	Repossession a database instance	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>
DescribeDBInstanceMetricInfo	Queries the metric information	<pre>qcs::ctsdb:\$region:\$account:instanceId/* qcs::ctsdb:\$region:\$account:instanceId/\$inst</pre>

	of a database instance	
DescribeDBInstanceMetricList	Queries the metric list of a database instance	<code>qcs::ctsdb:\$region:\$account:instanceId/*</code> <code>qcs::ctsdb:\$region:\$account:instanceId/\$inst</code>
DescribeDBInstanceMetricQuery	Queries the metric queries of a database instance	<code>qcs::ctsdb:\$region:\$account:instanceId/*</code> <code>qcs::ctsdb:\$region:\$account:instanceId/\$inst</code>