# Database Audit

# Operation Guide

# Product Documentation

# Contents

# Operation Guide
# Viewing Audit Log

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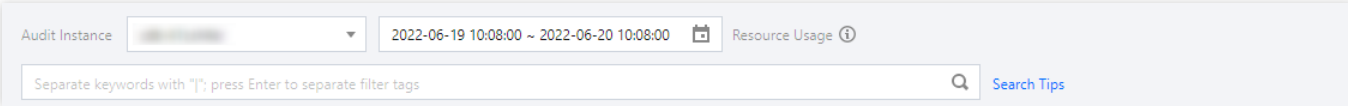
## Viewing Log

1. Log in to the TencentDB for MySQL, TDSQL-C for MySQL, or TencentDB for MongoDB console, select **Database Audit** on the left sidebar, select a region at the top, and click the **Audit Log** tab.
2. In the audit instance section on the **Audit Log** tab, select a database instance with audit enabled to view its SQL audit logs. Or, on the **Audit Instance** tab, click an instance ID to enter the **Audit Log** tab and view audit logs.

**Note:**
The audit log display time is down to milliseconds, facilitating more precise sorting and problem analysis of SQL commands.

### Tool list




In the **time box**, select a time period to view audit results in the selected time period.

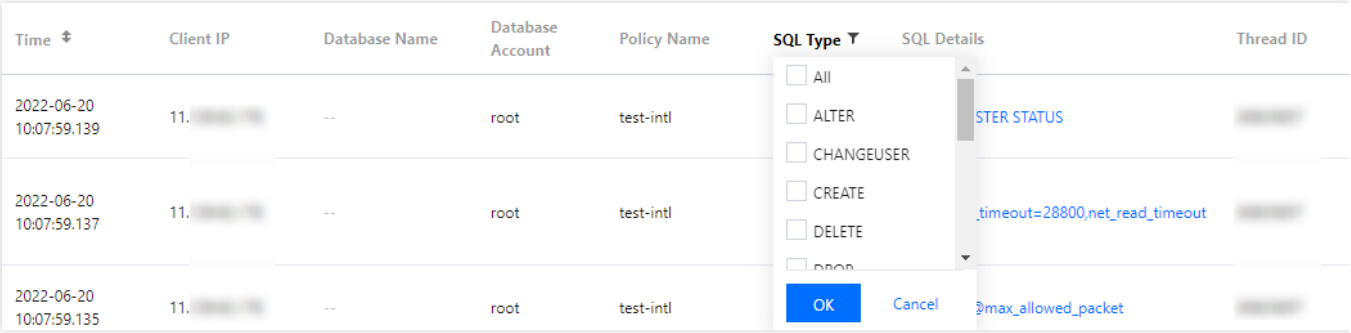
**Note:**
You can select any time period with data for search. Up to the first 60,000 eligible records can be displayed.
You can search by key tag to view related audit results. Common key tags include SQL command, client IP, database name, database account, SQL type, policy name, execution time, affected rows, and returned rows.
When entering multiple key tags for search, you can separate them by pressing "Enter".
You can filter IP addresses using the wildcard "*". For example, if you enter "client IP: 9.223.23.2*", IP addresses that start with "9.223.23.2" will be searched.
Combo search is supported. Selecting the key tag "SQL Command" allows you to separate filters using commas or spaces, and the logic relationship between them is AND. You may also use vertical bars ("|") to separate filters, and the logic relationship between them is OR.

**Note:**
When filtering by SQL command, the symbol `*` does not represent a fuzzy match. All SQL command searches are fuzzy searches.

### Log list

In the **SQL Type** drop-down list, you can select multiple SQL types for filtering.

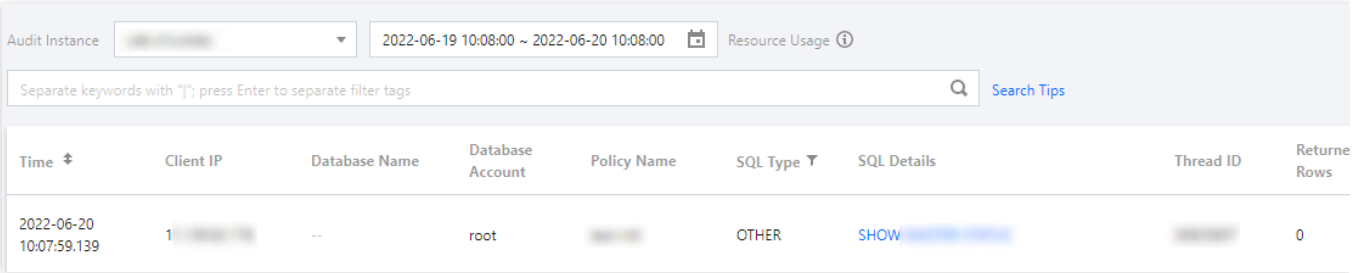
The **Returned Rows** field represents the specific number of rows returned by executing the SQL command, which is mainly used to determine the impact of `SELECT` commands.




# SQL Audit Fields

## TencentDB for MySQL and TDSQL-C for MySQL

The following fields are supported in TencentDB for MySQL and TDSQL-C for MySQL audit logs. You can click the following icon on the **Audit Log** tab in the TencentDB for MySQL or TDSQL-C for MySQL console to get and view the complete SQL audit logs.




| No. | Field Name | Description | Remarks |
| --- | --- | --- | --- |
| 1 | host | Client IP | - |
| 2 | dbname | Database name | - |
| 3 | user | Username | - |
| 4 | sql | SQL statement | - |
| 5 | sqlType | SQL statement type | - |
| 6 | errCode | Error code | 0 indicates success |

| | | | |
|---|---|---|---|
| 7 | affectRows | Number of affected rows | - |
| 8 | checkRows | Number of scanned rows | - |
| 9 | sentRows | Number of returned rows | - |
| 10 | threadId | Thread ID | - |
| 11 | ruleNum | Audit rule ID | - |
| 12 | policyName | Audit policy name | - |
| 13 | instanceName | Instance name | - |
| 14 | timestamp | Start time (s) | - |
| 15 | nsTime | Start Time (ns), which forms the start time accurate down to the nanosecond together with `timestamp` | Example: timestamp.nsTime 1577953020.887984015 |
| 16 | execTime | Execution time (ms) | - |
| 17 | cpuTime | CPU time (μs) | - |
| 18 | lockWaitTime | Lock wait time (μs) | - |
| 19 | ioWaitTime | IO wait time (μs) | - |
| 20 | trxLivingTime | Transaction execution time (μs) | - |

# Modifying Log Retention Period

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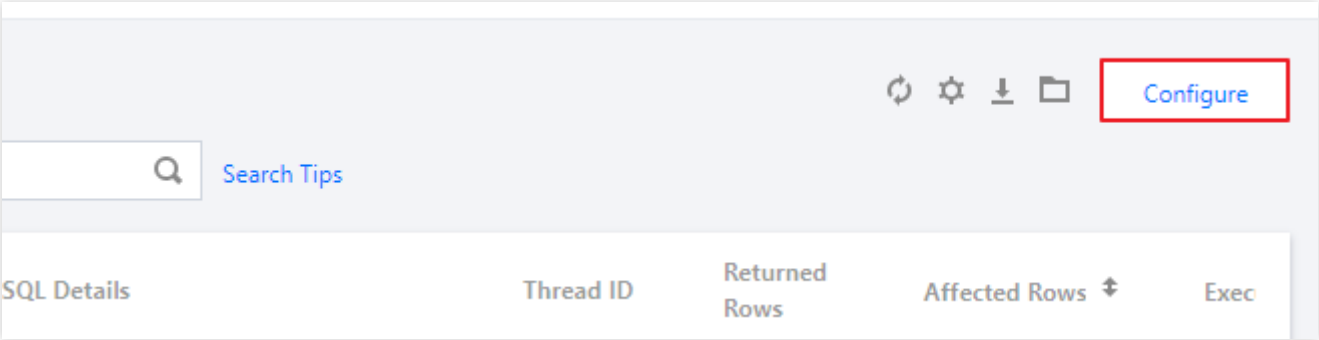
This document describes how to modify the log retention period after the database audit service is activated.

## Directions

1. Log in to the TencentDB for MySQL, TDSQL-C for MySQL, or TencentDB for MongoDB console, select **Database Audit** on the left sidebar, select a region at the top, and click the **Audit Log** tab.
2. In the top-right corner of the **Audit Log** tab, click **Configure**.




3. In the pop-up window, modify the log retention period and click **Submit**.

# Authorizing Sub-account to Use Database Audit

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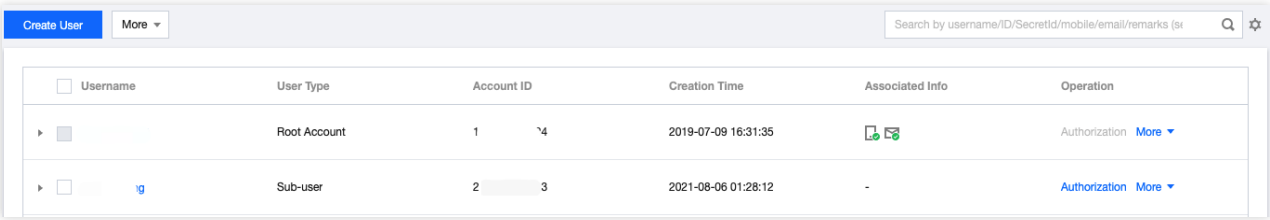
By default, sub-accounts have no permission to use TencentDB for MySQL Database Audit. Therefore, you need to create policies to allow sub-accounts to use it.
If you don't need to manage sub-accounts' access to resources related to TencentDB for MySQL Database Audit, you can ignore this document.
Cloud Access Management (CAM) is a web-based Tencent Cloud service that helps you securely manage and control access to your Tencent Cloud resources. By using CAM, you can create, manage, and terminate users and user groups. You can manage identities and policies to allow specific users to access your Tencent Cloud resources. 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, please see Syntax Logic.

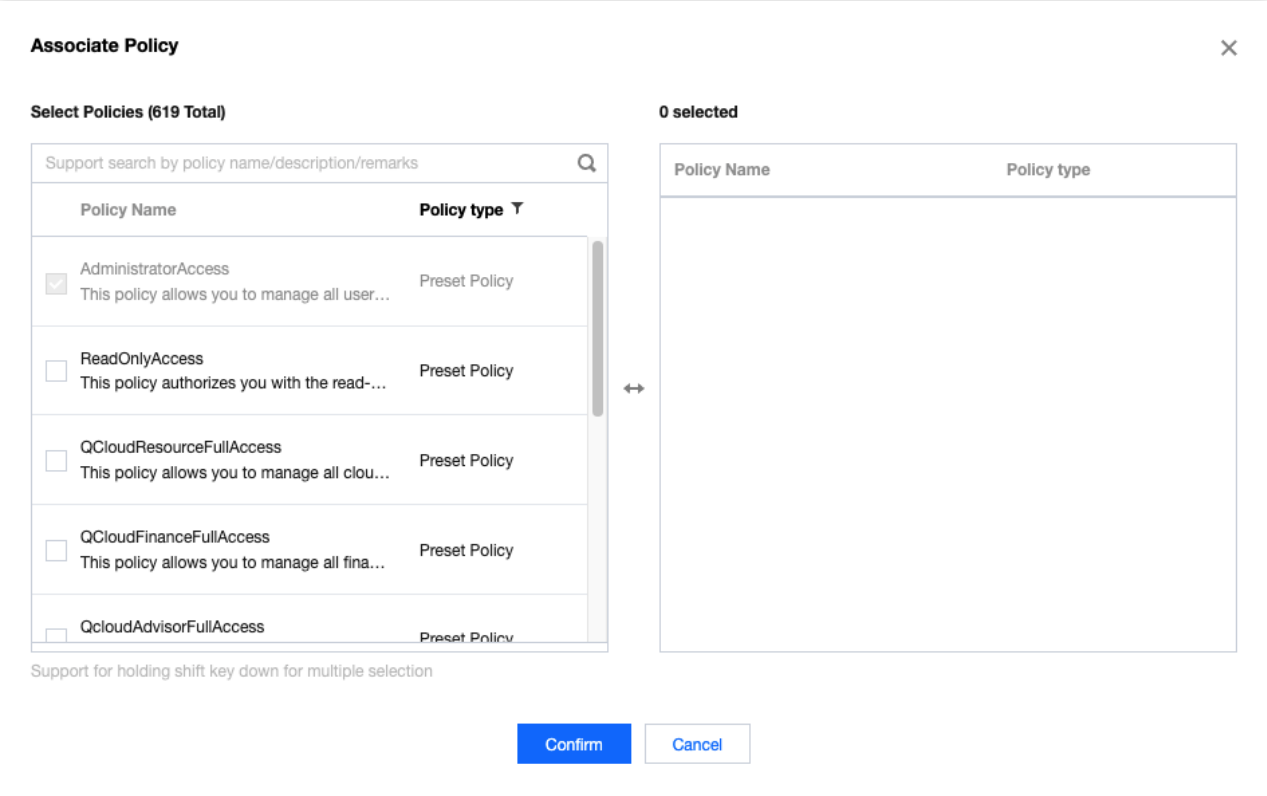
## Authorizing Sub-account

1. Log in to the CAM console as a root account, select the target sub-user in the user list, and click **Authorize**.



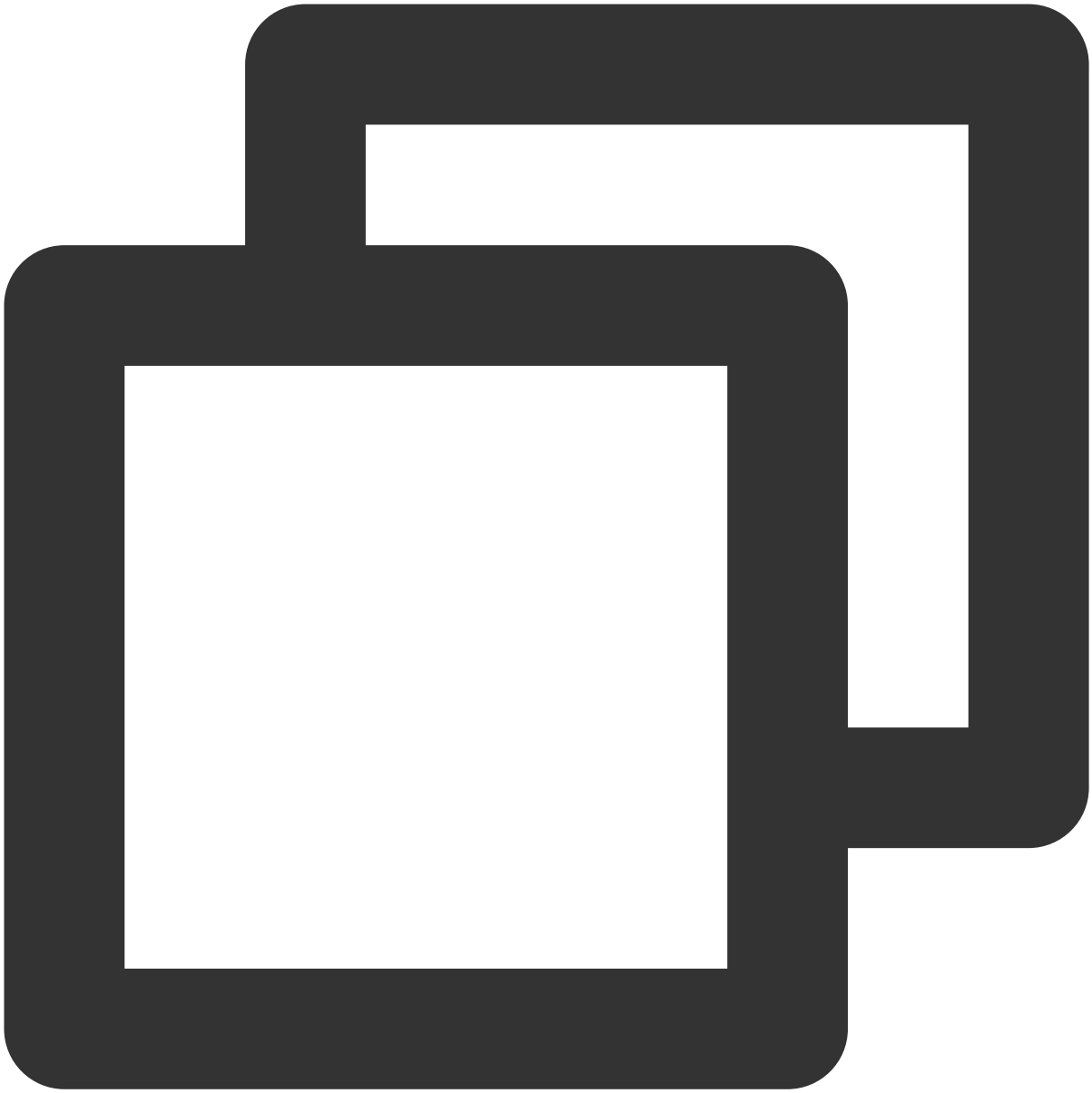

2. In the pop-up window, select the **QcloudCDBFullAccess** or **QcloudCDBInnerReadOnlyAccess** preset policy and click **OK** to complete the authorization.

**Note:**
MySQL Database Audit is a module in TencentDB for MySQL, so the above two preset policies of TencentDB for MySQL already cover the permission policies required by it. If the sub-user only needs the permission to use this module, please see Custom MySQL Database Audit Policy.




# Policy Syntax

The CAM policy for MySQL Database Audit is described as follows:



```
{
        "version":"2.0",
        "statement":
        [
            {
                "effect":"effect",
                "action":["action"],
                "resource":["resource"]
            }
        ]
}
```

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

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

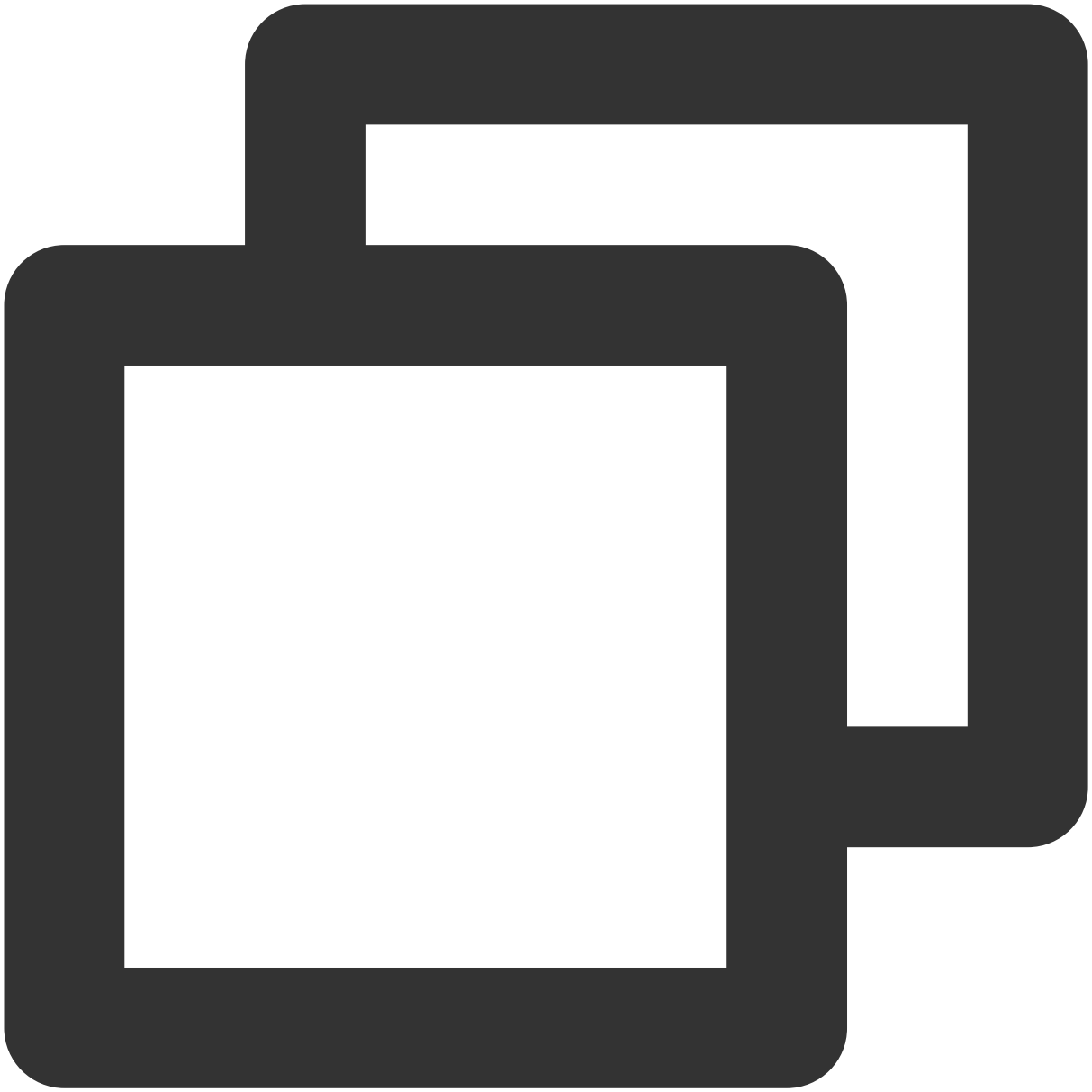
**effect** is required. It describes the result of a statement. The result can be "allow" or an "explicit deny".

**action** is required. It describes the allowed or denied action (operation). An operation can be an API (prefixed with "name") or a feature set (a set of specific APIs prefixed with "permid").

**resource** is required. It describes the details of authorization.

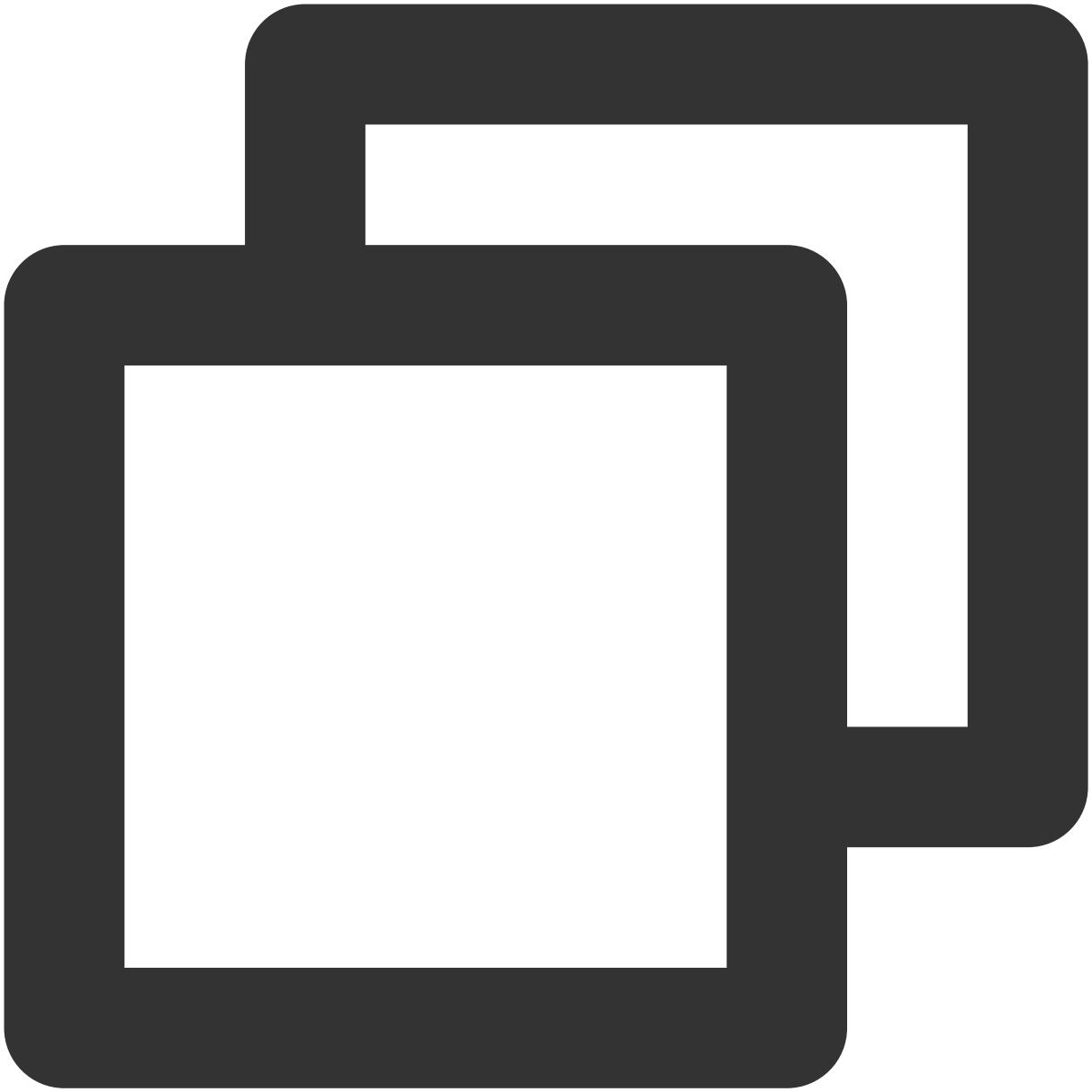
## API Operation

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



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

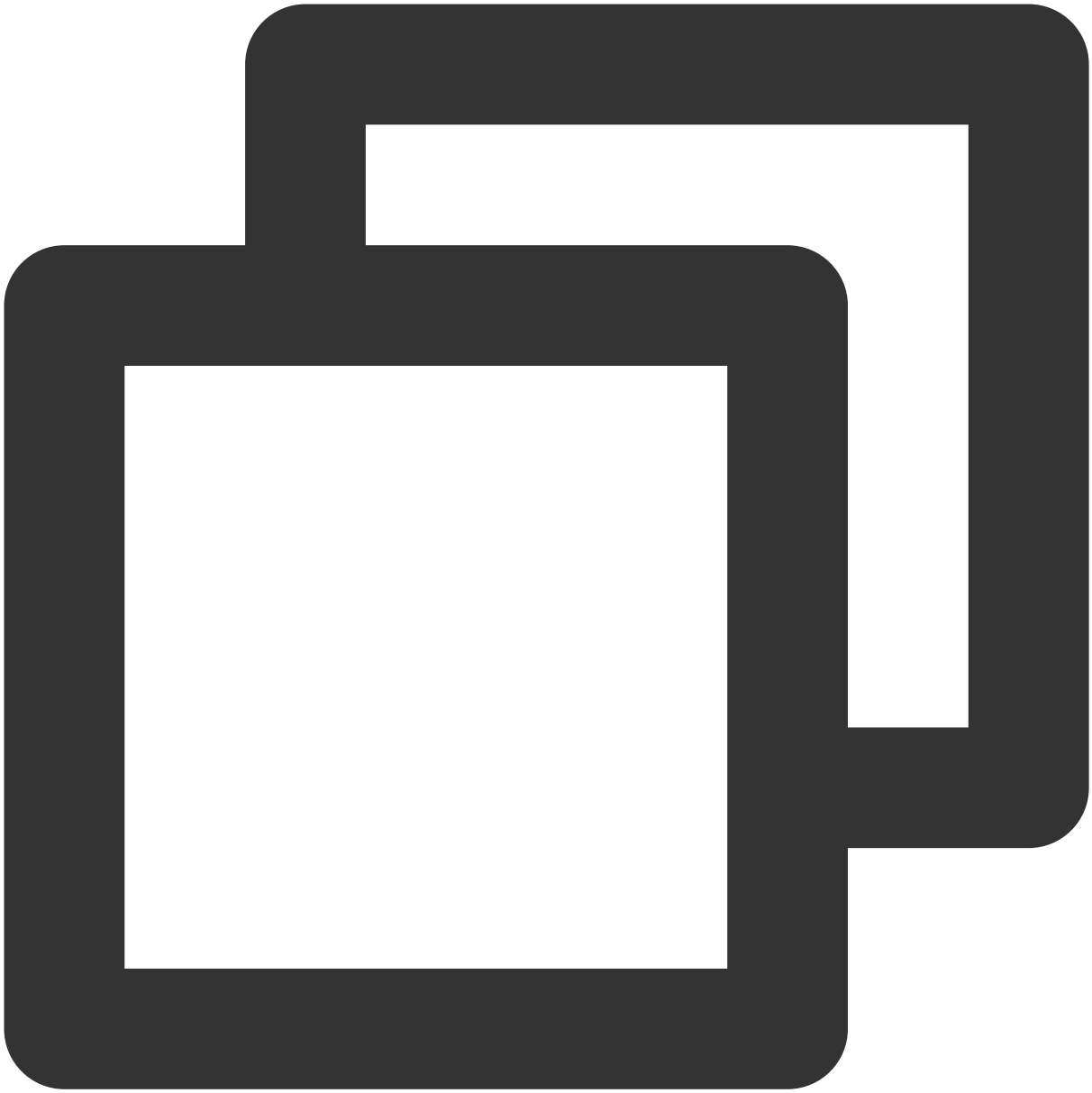
You can also specify multiple operations by using a wildcard. For example, you can specify all operations beginning with "Describe" in the name as shown below:



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

## Resource Path

Resource paths are generally in the following format:



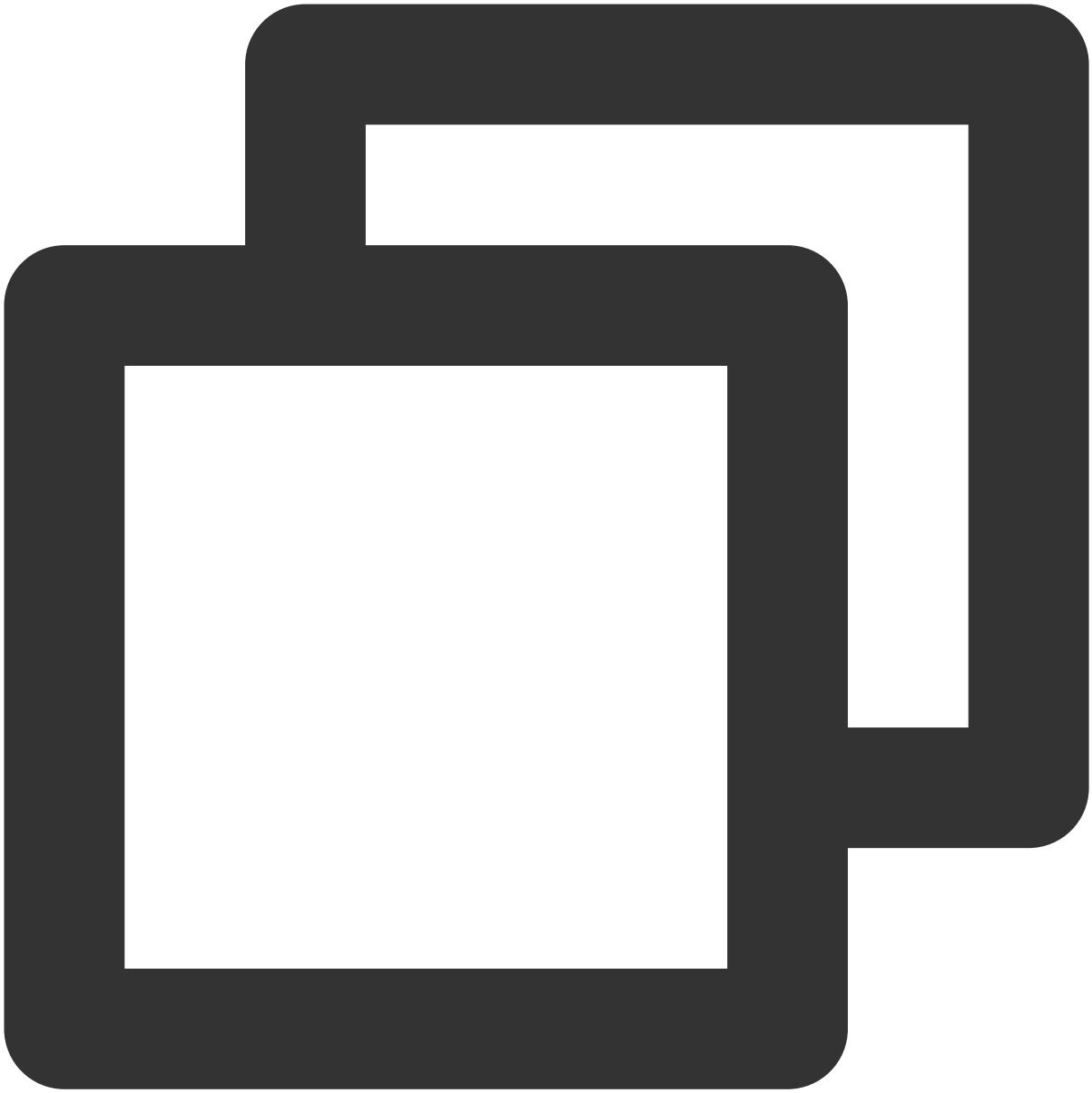
```
qcs::service_type::account:resource
```

service_type: describes the product abbreviation, such as `cdb` here.

account: describes the root account of the resource owner, such as `uin/326xxx46` .

resource: describes the detailed resource information of the specific service. Each TencentDB for MySQL instance (instanceId) is a resource.

Example:

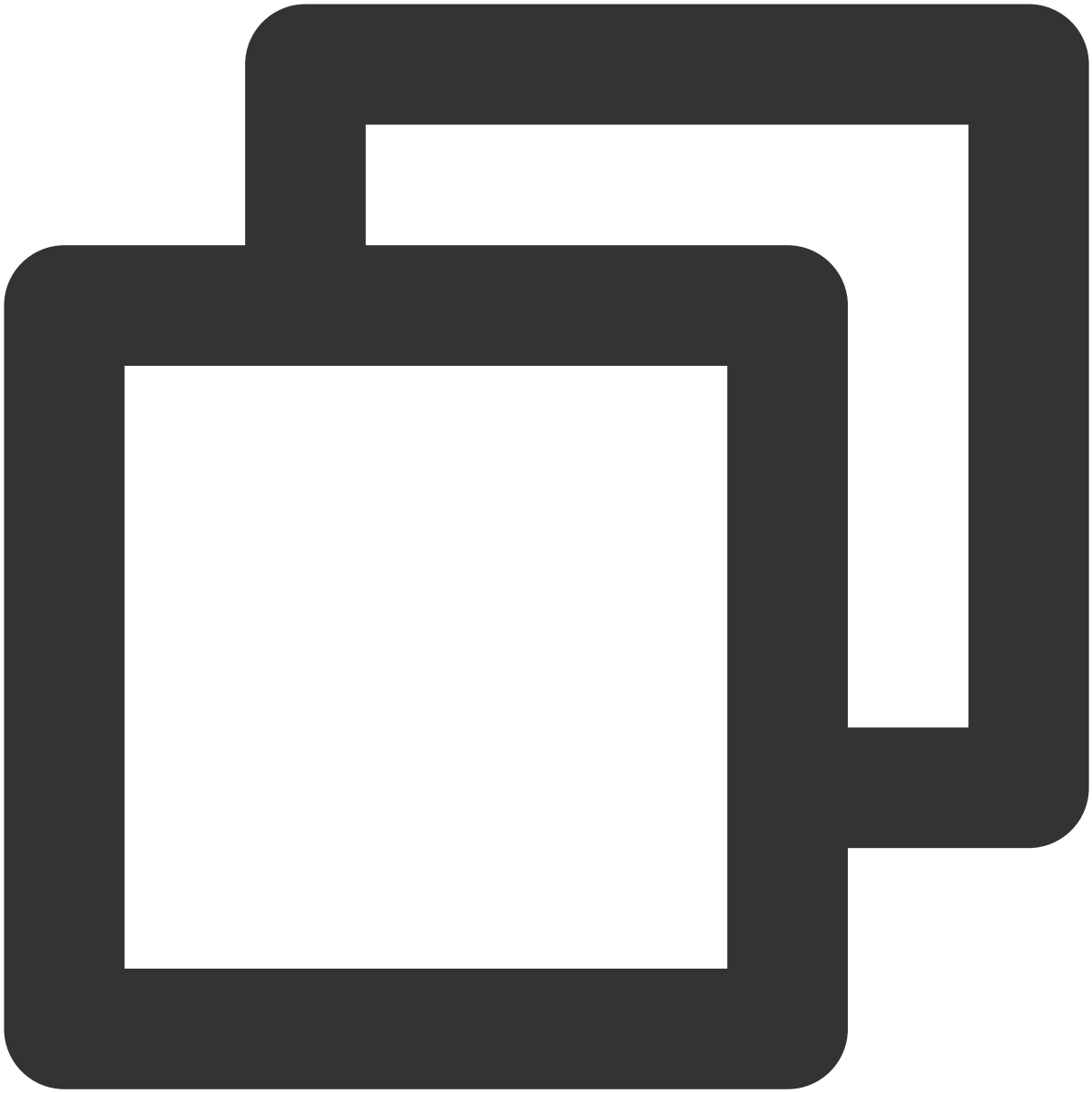


```
"resource": ["qcs::cdb::uin/326xxx46:instanceId/cdb-kf291vh3"]
```

Here, `cdb-kf291vh3` is the ID of the TencentDB for MySQL instance resource, i.e., the `resource` in the CAM policy statement.

## Example

The following example only shows the usage of CAM.



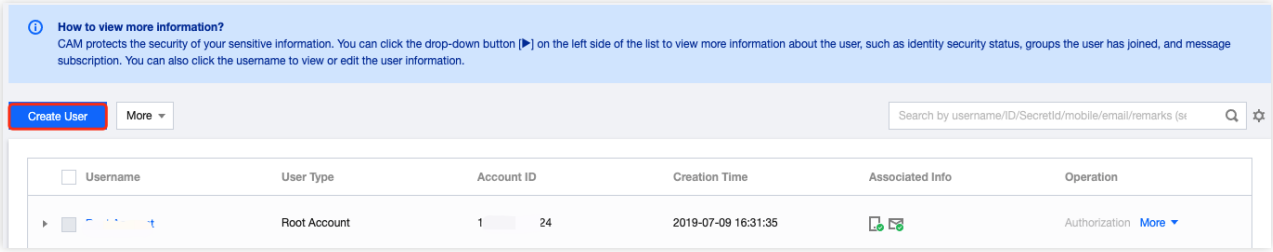
```
{
    "version": "2.0",
    "statement": [
        {
            "effect": "allow",
            "action": [
                "name/cdb: DescribeAuditRules"
            ],
            "resource": [
                "*"
            ]
```

```
        },
        {
            "effect": "allow",
            "action": [
                "name/cdb: CreateAuditPolicy"
            ],
            "resource": [
                "*"
            ]
        },

        {
            "effect": "allow",
            "action": [
                "name/cdb: DescribeAuditLogFiles"
            ],
            "resource": [
                "qcs::cdb::uin/326xxx46:instanceId/cdb-kf291vh3"
            ]
        }
    ]
}
```

## Custom MySQL Database Audit Policy

1. Log in to the CAM console as the root account and click **Create Custom Policy** in the policy list.

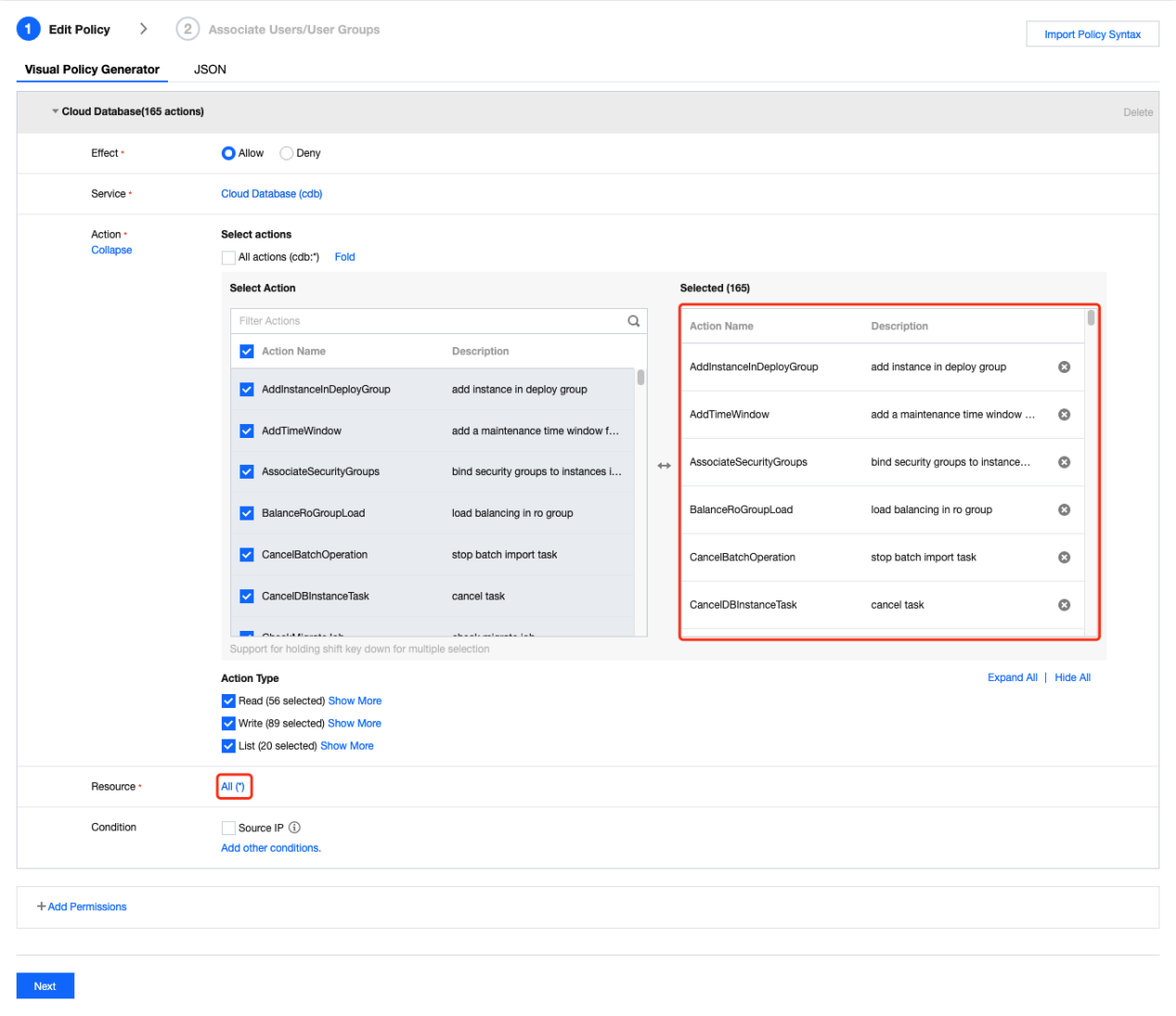



2. In the pop-up window, select **Create by Policy Generator**.
3. On the **Select Service and Action** page, select configuration items, click **Add Statement**, and click **Next**.

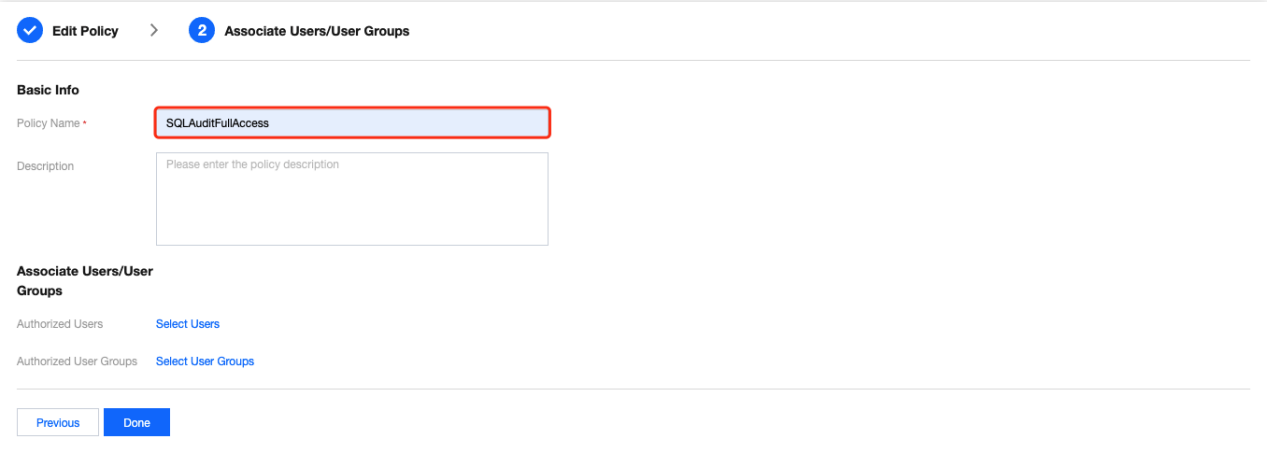
Service: select **TencentDB for MySQL**.

Action: select all APIs of MySQL Database Audit.

Resource: for more information, please see Resource Description Method. You can enter `*` to indicate that the audit logs of all TencentDB for MySQL instances can be manipulated.




4. On the **Edit Policy** page, enter the **Policy Name** (such as `SQLAuditFullAccess`) as required and **Description** and click **Done**.



5. Return to the policy list and you can view the custom policy just created.