

# **Game Player Matchmaking Operation Guide Product Documentation**



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# Operation Guide

## Rule Management

Last updated : 2022-03-29 18:51:50

### Note :

Since the product logic no longer meets the technical development of game industry, Game Player Matching GPM will be deprecated on June 1st, 2022. Please complete service migration before May 31 , 2022.

This document describes how to manage rules through console.

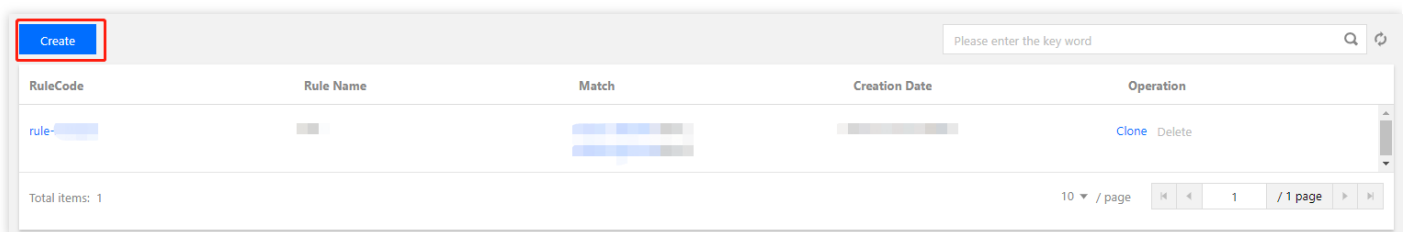
## Prerequisites

Your application for free trial has been approved in [GPM console](#). For more information, see [Getting Started](#).

## Directions

### Creating a rule

1. Log in to the [GPM console](#) and click **Rules** on the left sidebar.
2. On the **Rules** page, click **Create**.



3. Enter the rule name, description, and rule script. Click **Validate** to validate the rule.

The screenshot shows a form for creating a rule. It has three main sections: 'Name', 'Description (Optional)', and 'Rule Script'. The 'Name' section has a text input field with the placeholder 'Please enter the rule name'. The 'Description (Optional)' section has a larger text input field with the placeholder 'Please enter the rule description'. The 'Rule Script' section has four buttons: 'Add Distance Rule', 'Add Comparison Rule', 'Add Latency Rule', and 'Add Extension Policy'. Below these buttons is a large text area for the rule script, with a small '1' in the top left corner. At the bottom of the form, there is a 'Validate' button, a 'Tags (Optional)' section with a 'Tag key' dropdown, a 'Tag value' dropdown, and a '+ Add' button. At the very bottom is an 'OK' button.

- Name: enter the rule name (required). It can contain up to 128 bytes.
- Description: the description of the rule (optional). It can contain up to 1024 bytes.
- Rule Script: required. It can contain up to 65535 bytes. For the syntax of the rule script, please see [Rule Script Design Guide](#).

4. Click **OK**. After a rule is created, its corresponding RuleCode will be generated on the **Rules** page.

The screenshot shows the 'Rules' page with a 'Create' button at the top left. A search bar at the top right contains the placeholder text 'Please enter the key word'. Below the search bar is a table with the following columns: 'RuleCode', 'Rule Name', 'Match', 'Creation Date', and 'Operation'. The 'RuleCode' column has a red box around the first row. The 'Operation' column has 'Clone' and 'Delete' links for each row.

RuleCode	Rule Name	Match	Creation Date	Operation
				Clone Delete

## Viewing a rule

On the **Rules** page, click the RuleCode of a rule to view its details.

Create	Please enter the key word				Q	↺
RuleCode	Rule Name	Match	Creation Date	Operation		
rule-				Clone	Delete	

## Editing a rule

[←](#) rule-

**Basic Info**

Name

Description

Match

Creation Time

Rule

Rule Script

Clone

1

On the details page, you can edit the rule name and description. Once a rule is created, the rule script cannot be edited. You can clone the rule, and redesign the rule script in the new rule.

## Cloning a rule

On the **Rules** page, select a rule in the rule list and click **Clone** in the **Operation** column to create a rule.

Create	Please enter the key word				Q	↺
RuleCode	Rule Name	Match	Creation Date	Operation		
rule-				Clone	Delete	

## Deleting a rule

On the **Rules** page, select a rule in the rule list and click **Delete** in the **Operation** column to create a rule that has not associated with a match.

Note :

Once deleted, the rule cannot be restored. If you want to delete the rule that is being associated with a match, you can modify the matchmaking information first to disassociate the match from the rule.

<div>Create</div> <div>Please enter the key word</div> <div>Q</div> <div></div>				
RuleCode	Rule Name	Match	Creation Date	Operation
rule-				<div>Clone</div> <div>Delete</div>

# Match Management

Last updated : 2022-03-29 18:51:51

## Note :

Since the product logic no longer meets the technical development of game industry, Game Player Matching GPM will be deprecated on June 1st, 2022. Please complete service migration before May 31 , 2022.

This document describes how to manage a match through the console.

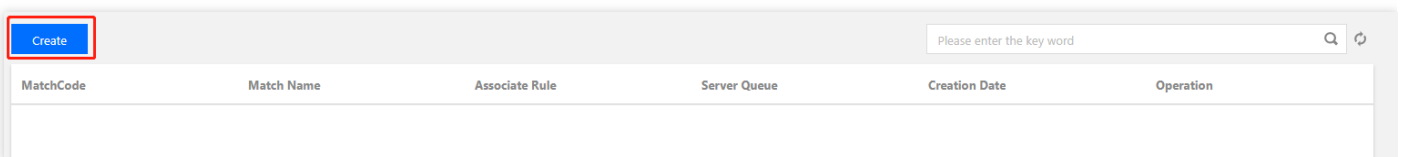
## Prerequisites

- You have [created a rule](#).
- If you need to create a match that needs to **request GSE resources**, you need to [create a game server queue](#).

## Directions

### Creating a match

1. Log in to the [GPM console](#) and click **Matches** on the left sidebar.
2. On the **Matches** page, click **Create**.



3. Set the related information, such as match name, description, the associated rule.  
GPM classifies matchmakings into two types based on whether to automatically request resources from your game server based on matchmaking results to start battles. The creation parameters of the two matchmaking types are as follows:

- **Matchmaking without automatically requesting GSE resources**



In this type, GPM will use the MatchTicket for matching, that is, searching for the eligible MatchTicket according to the configured rules to complete matchmaking. User needs to handle the matchmaking results and the battle connection after the matchmaking is completed. For detailed matchmaking process of this type, please see [Independent Match](#).

Name

Please enter the match name

Description (Optional)

Please enter the match description

Associate Rule

Please enter the rule name to associate.

Preview

If no rules can apply, please go to [Create Rule](#)

Timeout ⓘ

30

s

The value ranges from 1-600 in seconds.

Notification Address (Optional) ⓘ

Please enter the notification address

Test

Logging ⓘ

☒

Match logs will be reported to CLS, a Tencent Cloud product that has its own billing standard, under your account.

Request GSE Resources

☒ No ☐ Request GSE Resources

GPM will only search for matches and return matching results.

Tags (Optional) ⓘ

Tag key

Tag value

x

+ Add

OK

Cancel

- Name (required): enter a match name. It can contain up to 128 bytes.
- Description (optional): the description of the match. It can contain up to 1024 bytes.
- Associate Rule (required): the rule associated with the match.
- Timeout (required): the time that GPM performs a matching search for a MatchTicket. Value range: 1 - 600 seconds
- Notification Address (optional): only HTTP and HTTPS protocols are supported. When the matchmaking is completed based on the currently MatchTicket or the matchmaking status changes, GPM will push the event notification to the address you configured. We strongly

recommend that you use GPM's event notification feature and configure the receiving notification address to obtain the matchmaking results.

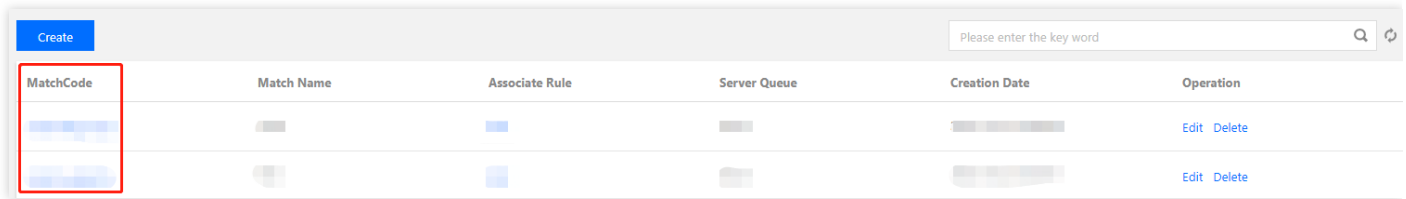
- Request GSE Resources (required): select **No**.

## • Request resources from the game server to start battles

GMP can automatically request [GSE](#) resources based on matchmaking results to start a game server session. Players who are successfully matched can connect to the resources allocated by GSE for game battles. To create this type of matchmaking, you need to create a queue in GSE first. For details, please see [Creating Game Server Queues](#). For details on this type of matchmaking process, please see [Battle Match](#) and enter the following information.

- Request GSE Resources (required): select **Request GSE Resources**.
- Game Server Queue Region (required): select the region of the GSE server queue.
- Game Server Queue (required): the GSE server queue name.
- Custom Push Data (optional): it can contain up to 1024 bytes. This parameter will be passed through to GSE and will be used to create a GSE game server session.
- Game Server Session Data (Optional): it can contain up to 1024 bytes. This parameter will be passed through to GSE and will be used to create a GSE game server session.
- Game Attributes (Optional): this parameter will be passed through to GSE and will be used to create a GSE game server session.
  - Key: attribute name. Up to 32 ASCII characters are allowed.
  - Value: attribute value. Up to 96 ASCII characters are allowed.

4. Click **OK**. After the matchmaking is created, the corresponding MatchCode will be generated on the **Matches** page.



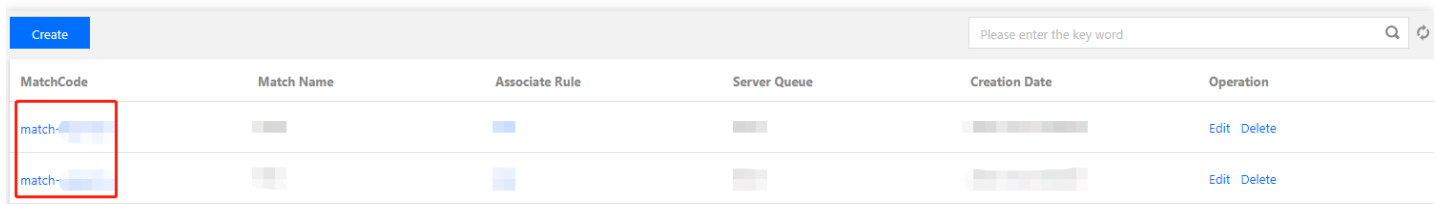
MatchCode	Match Name	Associate Rule	Server Queue	Creation Date	Operation
[blurred]	[blurred]	[blurred]	[blurred]	[blurred]	<a href="#">Edit</a> <a href="#">Delete</a>
[blurred]	[blurred]	[blurred]	[blurred]	[blurred]	<a href="#">Edit</a> <a href="#">Delete</a>

## Viewing a match

On the **Matches** page, click a MatchCode in the list to view its details.

Note :

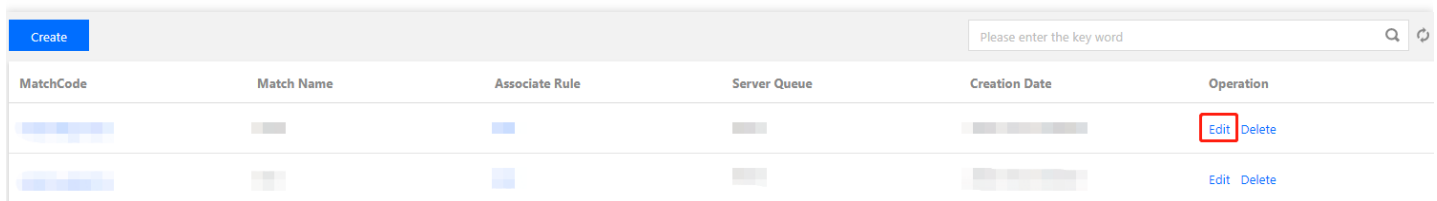
If the current match needs to request GSE resources, you can click the game server queue name and go to the [GSE console](#) to view the game server queue associated with the current match.



MatchCode	Match Name	Associate Rule	Server Queue	Creation Date	Operation
match-[blurred]	[blurred]	[blurred]	[blurred]	[blurred]	<a href="#">Edit</a> <a href="#">Delete</a>
match-[blurred]	[blurred]	[blurred]	[blurred]	[blurred]	<a href="#">Edit</a> <a href="#">Delete</a>

## Editing a match

On the **Matches** page, select a match in the list and click **Edit** in the **Operation** column. After the match is edited, the new configuration will take effect immediately.



MatchCode	Match Name	Associate Rule	Server Queue	Creation Date	Operation
[blurred]	[blurred]	[blurred]	[blurred]	[blurred]	<a href="#">Edit</a> <a href="#">Delete</a>
[blurred]	[blurred]	[blurred]	[blurred]	[blurred]	<a href="#">Edit</a> <a href="#">Delete</a>

## Deleting a match

On the **Matches** page, select a match to delete in the list and click **Delete** in the **Operation** column.

Note :

After the match is deleted, its MatchCode configuration will be invalidated, its matching configuration will be terminated, and the log topic and log data corresponding to the current MatchCode will be deleted.

Create

Please enter the key word

MatchCode	Match Name	Associate Rule	Server Queue	Creation Date	Operation
					<a>Edit</a> <a>Delete</a>
					<a>Edit</a> <a>Delete</a>

# Monitoring and Alarms

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## Note :

Since the product logic no longer meets the technical development of game industry, Game Player Matching GPM will be deprecated on June 1st, 2022. Please complete service migration before May 31 , 2022.

This document describes how to view GPM's metric monitoring and configure alarms.

## Prerequisites

- You have [created a match](#).
- Your account has full access permission to **Cloud Monitor (CM)**. For Cloud Monitor permission configurations, please see [Cloud Access Management](#).

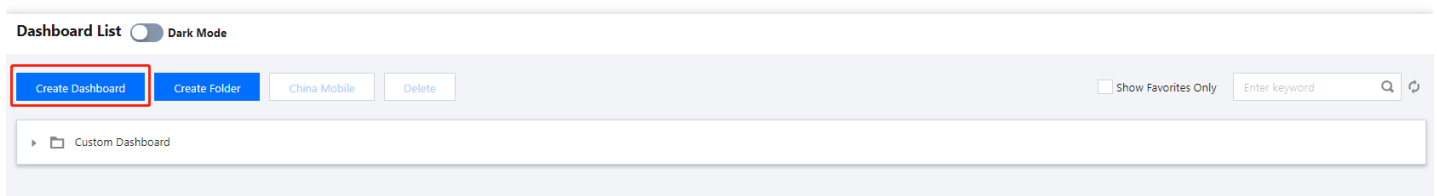
## Viewing Metric Monitoring

### Step 1: log in to the Cloud Monitor console.

GPM metric data will be reported to **Cloud Monitor**. You need to log in to [Cloud Monitor console](#) to view the metric data.

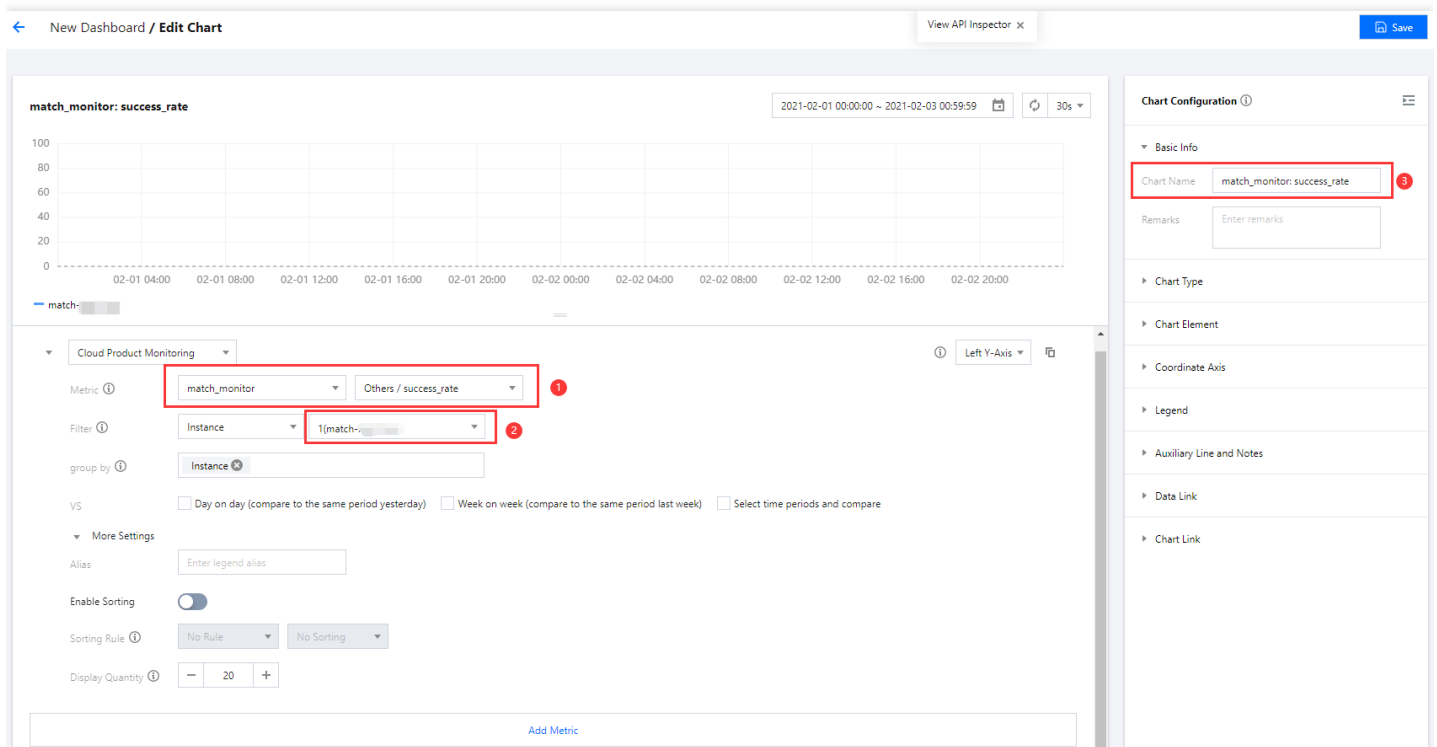
### Step 2: Creating a GPM dashboard

In Cloud Monitor console, click **Dashboard > Dashboard List** in the left sidebar to go to the **Dashboard List** page. Click **Create Dashboard**.



### Step 3: Create a GPM chart.

Click **Create Chart**, select the metrics to monitor, and complete the chart information configuration.

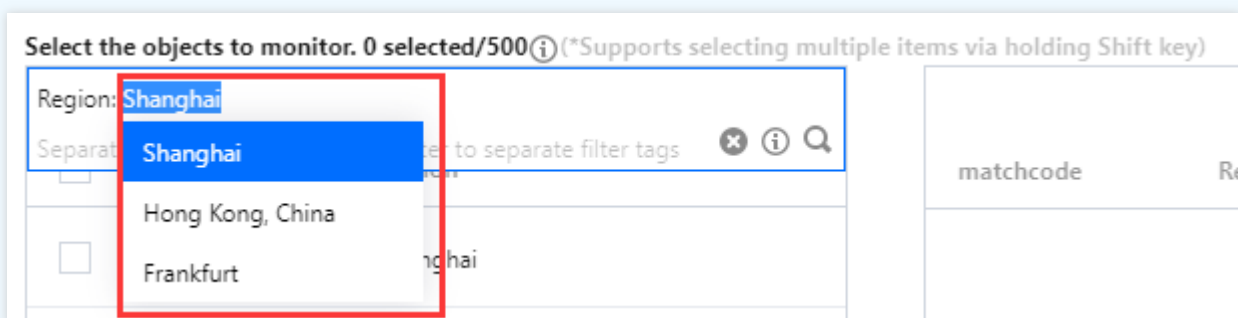


As shown in the figure below:

1. Select **Game Player Matchmaking** in the **Metric** drop-down box and select a monitoring metric (Here takes "Matching Success Rate (%)") as an example).
2. Select **Instance** in the **Filter** drop-down box and select the MatchCode to monitor.

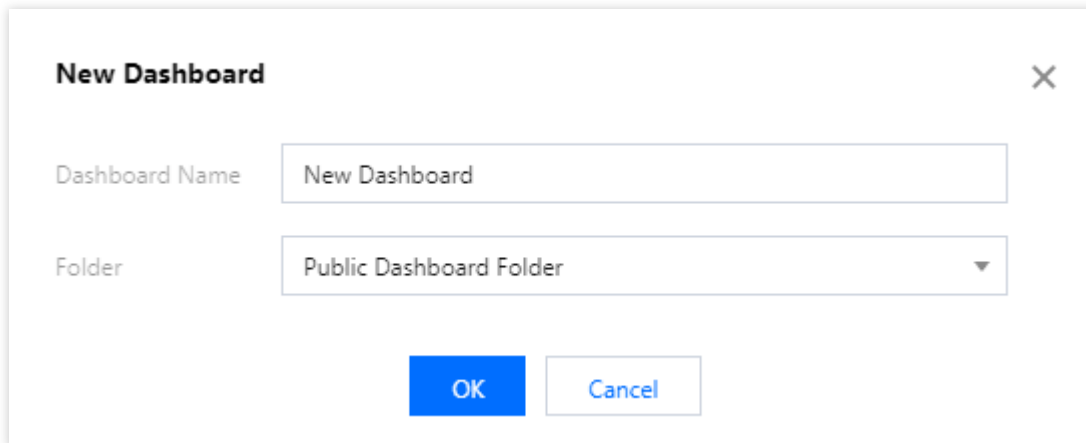
Note :

Before selecting the MatchCode to monitor, you need to make sure that the "region" you select is the same as the "region" where the MatchCode was created. You can only select the MatchCode to which the current account has access permission.



3. In **Chart Name**, enter the chart name.

- Click **Save** on the top-right corner. In the pop-up window, enter the **Dashboard Name**, and select the **Folder**.



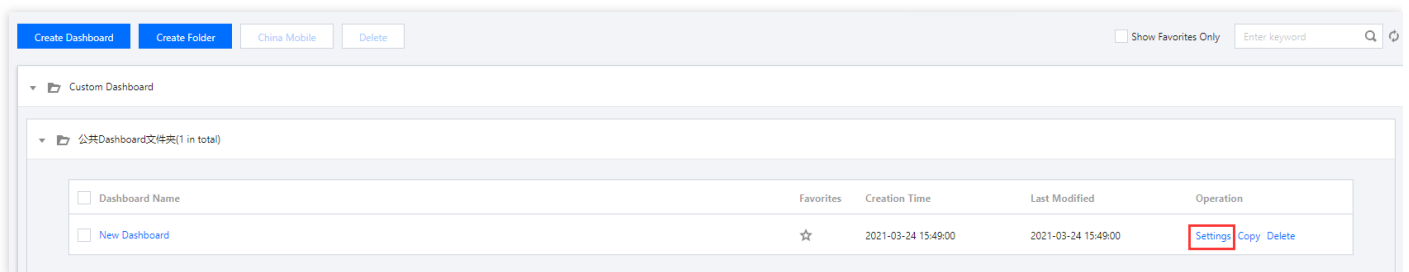
The image shows a 'New Dashboard' dialog box. It has a title bar with 'New Dashboard' and a close button (X). Inside, there are two input fields: 'Dashboard Name' with the text 'New Dashboard' and 'Folder' with a dropdown menu showing 'Public Dashboard Folder'. At the bottom, there are two buttons: 'OK' (blue) and 'Cancel' (white with blue text).

- Click **OK** to complete the creation of the metric monitoring chart.

#### Step 4: View the monitoring data through the created chart.

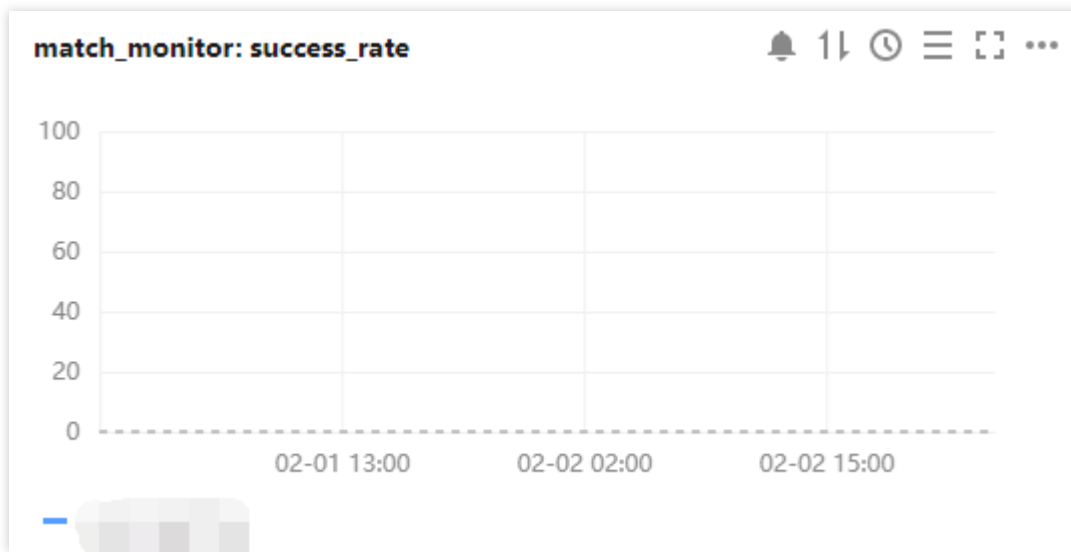
Go to the directory where the your **Dashboard** is located through the [Dashboard List](#).

- You can select a dashboard and click **Settings** in the **Operation** column to modify the dashboard name.



- You can click a dashboard name to view all charts configured under the current dashboard. When the MatchCode you are monitoring has request records, the chart will display the corresponding

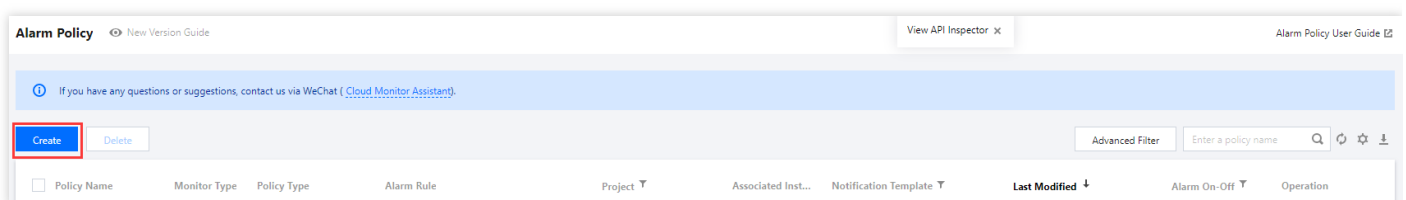
data.



## Configuring Metric Alarms

### Step 1: Enter the Alarm Policy page.

1. Log in to the [Cloud Monitor console](#) and select **Alarm Configuration** > **Alarm Policy** to go to the **Alarm Policy** page.
2. Click **Create** to go to the **Create Alarm Policy** page.



### Step 2: Create an alarm policy.



**Basic Information**

Policy Name:  1

Notes: Up to 100 characters. Only Chinese and English characters, numbers, underscores, and hyphens are allowed.

Monitor Type: ☒ Cloud Product Monitoring

Policy Type:  2

**Configure Alarm Policies**

Alarm Object:  3

Trigger condition: ☐ Select template ☒ Manual Configuration

**Metric Alarm**

If meets the following  metric conditions, alarm is triggered.

Threshold Type: ☒ Static ☐ Dynamic

If  Statistical Period:  % Last 1 period then  4

[Add Metric](#)

**Configure Alarm Notification** To add an alarm recipient (group), you need to select a notification template or create one below. You can click the template name to add API callbacks. [Learn More](#)

Notification Template:   5

Notification Template Name	Included Operations	Operation
Preset Notification Template	Alarm notifies the root account	<a href="#">Remove</a>

**Advanced Configuration (Optional)**

Auto Scaling: ☐ After enabling, the auto scaling policy can be triggered when reaching alarm condition.

As shown in the figure below:

1. Enter the alarm policy name in **Policy Name**.
2. Select **Game Play Matchmaking** in the drop-down list of **Policy Type**.
3. Select the MatchCode that needs alarms in the drop-down list of **Alarm Object**.
4. Select the alarm metric in **Metric Alarm**. You can select a single metric or multiple metrics to configure the alarm policy.
5. In **Configure Alarm Notification** section, you can select the existing template or create a template to configure the recipient and receiving channel for the alarm notification.
6. Click **Complete**, and the alarm policy will take effect. When the configured alarm condition is met, an alarm notification will be triggered automatically.

# Access Management

## Overview

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### Note :

Since the product logic no longer meets the technical development of game industry, Game Player Matching GPM will be deprecated on June 1st, 2022. Please complete service migration before May 31 , 2022.

Tencent Cloud CAM is a web service that helps customers securely manage and control access to their Tencent Cloud resources. CAM provides identity management and policy management for you to create, manage or terminate users (groups), and to control who is allowed to access and use 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, see [Syntax Logic](#). For more information on the use of CAM policies, see [Policy](#).

If you use multiple Tencent Cloud services such as GPM and GSE that are managed by different users sharing your cloud account key, the following problems may arise:

- The risk of your key being compromised is high since multiple users are sharing it.
- Your users might introduce security risks from misoperations due to the lack of user access control.

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 GPM service or related resources. Therefore, you need to create a policy to grant different permissions to the sub-accounts. You can skip this section if you do not need to manage permissions to GPM resources for sub-accounts. This will not affect your understanding and use of the other sections of the document.

## Notes

A CAM policy is used to allow or deny one or more GPM operations. When configuring a policy, you must specify the target resources of the operations, which can be all resources or specified resources. A policy can also include conditions where the resources can be used.

Some GPM APIs do not support resource-level permissions, which means that you cannot specify resources when using those APIs.

Task	Reference Documents
Basic policy structure	<a href="#">Policy Syntax</a>
Define operations in a policy	<a href="#">GPM Operations</a>
Define resources in a policy	<a href="#">GPM Resource Path</a>
Resource-level permissions for GPM	<a href="#">Authorizable Resource Types</a>
View console examples	<a href="#">Access Management Examples</a>

# Access Management Examples

Last updated : 2022-03-29 18:51:51

Note :

Since the product logic no longer meets the technical development of game industry, Game Player Matching GPM will be deprecated on June 1st, 2022. Please complete service migration before May 31, 2022.

## Overview

You can grant a user the permission to view and use specific resources in the [Game Player Matchmaking \(GPM\) console](#) by using CAM policies. The examples below show how to do so.

## Directions

### Full access policy for GPM

To grant a user the permission to create and manage GPM resources, you can include the following operation in your policy, and then associate the policy with the user.

The detailed steps are as follows:

1. Create a custom policy for viewing GPM statistics as instructed in [Policy](#). The example policy syntax is as follows:

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

2. Locate the created policy and click **Bind User/Group** in the "Operation" column.
3. In the pop-up window, select the user/group you want to authorize and click **OK**.

## Read-only policy for GPM

To grant a user permission to query any GPM resources, but not create, delete, or modify them, you can include the following operation in your policy, and then associate the policy with the user.

The detailed steps are as follows:

1. Create a custom policy for viewing GPM statistics as instructed in [Policy](#). The example policy syntax is as follows:

```
{
  "version": "2.0",
  "statement": [
    {
      "action": [
        "gpm:Describe*",
      ],
      "resource": "*",
      "effect": "allow"
    }
  ]
}
```

2. Locate the created policy and click **Bind User/Group** in the "Operation" column.
3. In the pop-up window, select the user/group you want to authorize and click **OK**.

## Rule operation policy in GPM console

To grant a user the permission for rule on GPM, you can include the following operation in your policy, and then associate it with the user.

API	Description
ModifyRule	Modifies a rule
DeleteRule	Deletes a rule
DescribeRule	Queries rule details

API	Description
DescribeRules	Queries the rule list and paginates the query results

The detailed steps are as follows:

1. Create a custom policy for matching on GPM as instructed in [Policy](#). The example policy syntax is as follows:

```
{
  "version": "2.0",
  "statement": [
    {
      "action": [
        "gpm:ModifyRule",
        "gpm:DeleteRule",
        "gpm:DescribeRule",
        "gpm:DescribeRules"
      ],
      "resource": "*",
      "effect": "allow"
    }
  ]
}
```

2. Locate the created policy and click **Bind User/Group** in the "Operation" column.
3. In the pop-up window, select the user/group you want to authorize and click **OK**.

## Matchmaking operation policy in GPM console

To grant a user the permission for creating, modifying, and deleting a match on GPM, you can include the following operation in your policy, and then associate it with the user.

API	Description
ModifyMatch	Modifies a match
DeleteMatch	Deletes a match
DescribeMatch	Queries matchmaking details
DescribeMatches	Queries the matchmaking list and paginates the query results

API	Description
DescribeRules	Queries the rule list and paginates the query results

The detailed steps are as follows:

1. Create a custom policy for matching on GPM as instructed in [Policy](#). The example policy syntax is as follows:

```
{
  "version": "2.0",
  "statement": [
    {
      "action": [
        "gpm:ModifyMatch",
        "gpm:DeleteMatch",
        "gpm:DescribeMatch",
        "gpm:DescribeMatches",
        "gpm:DescribeRules"
      ],
      "resource": "*",
      "effect": "allow"
    }
  ]
}
```

2. Locate the created policy and click **Bind User/Group** in the "Operation" column.
3. In the pop-up window, select the user/group you want to authorize and click **OK**.

## Statistics viewing policy in GPM console

To grant a user the permission to view all matchmaking statistics, you can include the following operations in your policy, and then associate the policy with the user.

API	Description
DescribeMatches	Queries the matchmaking list and paginates the query results
DescribeData	Queries statistics

The detailed steps are as follows:

1. Create a custom policy for matching on GPM as instructed in [Policy](#). The example policy syntax is as follows:

```
{
  "version": "2.0",
  "statement": [
    {
      "action": [
        "gpm:DescribeMatches",
        "gpm:DescribeData",
        "gpm:DescribeMatchCodes"
      ],
      "resource": "*",
      "effect": "allow"
    }
  ]
}
```

2. Locate the created policy and click **Bind User/Group** in the "Operation" column.
3. In the pop-up window, select the user/group you want to authorize and click **OK**.

## GPM matchmaking usage policy

To grant a user the permission to use the complete features of initiating a match, canceling a match, and querying matchmaking progress for all MatchCodes, you can include the following operations in your policy, and then associate the policy with the user.

API	Description
StartMatching	Initiates a match
CancelMatching	Cancels a match
DescribeMatchingProgress	Queries matchmaking progress

The detailed steps are as follows:

1. Create a custom policy for matching on GPM as instructed in [Policy](#). The example policy syntax is as follows:

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



```
"statement": [  
  {  
    "action": [  
      "gpm:StartMatching",  
      "gpm:CancelMatching",  
      "gpm:DescribeMatchingProgress"  
    ],  
    "resource": "*",  
    "effect": "allow"  
  }  
]
```

2. Locate the created policy and click **Bind User/Group** in the "Operation" column.
3. In the pop-up window, select the user/group you want to authorize and click **OK**.

# Authorizable Resource Types

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Note :

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Resource-level permissions refer to the ability to specify which resources users are allowed to perform operations on. GPM supports resource-level permissions, which means that for certain GPM operations, you can control when users are allowed to perform them, or which specific resources that users are allowed to use. The following will describe the types of resources for which GPM allows permissions.

Note :

Resource-level permissions specify which resources users can operate on.

Cloud Access Management (CAM) allows you to grant access permissions to the following resources

Resource Type	Resource Description Method in Access Policies
<a href="#">Matchmaking</a>	<code>qcs::gpm:\$region:\$account:match/*</code>
<a href="#">Rule</a>	<code>qcs::gpm:\$region:\$account:rule/*</code>

[Matchmaking APIs](#) and [Rule APIs](#) sections in this document describe GPM API operations that currently support resource-level permissions. When configuring the resource path, you need to replace values of the parameters such as `$region` and `$account` with your actual values. You can also use the wildcard `/*` in the path. For more information, please see [Console Example](#).

Note :

GPM API operations not listed in the table do not support resource-level permissions. You can still authorize a user to perform these operations, but you must specify `/*` as the resource element in the policy statement.

## Matchmaking APIs

API	Resource Path	Description
<a href="#">StartMatching</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Initiates a match
<a href="#">CancelMatching</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Cancels a match
<a href="#">DescribeMatchingProgress</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Queries matchmaking progress
<a href="#">ModifyMatch</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Modifies a match
<a href="#">DeleteMatch</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Deletes a match
<a href="#">DescribeMatch</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Queries matchmaking details
<a href="#">DescribeMatches</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Queries the matchmaking list and paginates the results
<a href="#">DescribeData</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Viewing matchmaking statistics
<a href="#">DescribeMatchCodes</a>	<code>qcs::gpm:\$region:\$account:match/*</code> <code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>	Queries MatchCode and paginates the results

## Rule APIs

API	Resource Path	Description
<a href="#">ModifyRule</a>	<code>qcs::gpm:\$region:\$account:rule/*</code> <code>qcs::gpm:\$region:\$account:rule/\$RuleCode</code>	Modifies a rule
<a href="#">DeleteRule</a>	<code>qcs::gpm:\$region:\$account:rule/*</code> <code>qcs::gpm:\$region:\$account:rule/\$RuleCode</code>	Deletes a rule

API	Resource Path	Description
<a href="#">DescribeRule</a>	<code>qcs::gpm:\$region:\$account:rule/*</code> <code>qcs::gpm:\$region:\$account:rule/\$RuleCode</code>	Queries rule details
<a href="#">DescribeRules</a>	<code>qcs::gpm:\$region:\$account:rule/*</code> <code>qcs::gpm:\$region:\$account:rule/\$RuleCode</code>	Queries rule set list and paginates the results

# Access Policy Syntax

Last updated : 2022-03-29 18:51:51

## Note :

Since the product logic no longer meets the technical development of game industry, Game Player Matching GPM will be deprecated on June 1st, 2022. Please complete service migration before May 31 , 2022.

## Policy syntax

CAM policy:

```
{
  "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, and therefore contains the permission(s) of other elements such as `action` , `resource` , `condition` , and `effect` . 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 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. A resource is described in a six-segment format. Detailed resource definitions vary by product. For more information on how to specify a resource, see the documentation for the product whose resources you are writing a statement for.
  - **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.

## GPM operations

You can use CAM policy statements to authorize any API operations for any services that support CAM. To authorize GPM operations, please specify the APIs prefixed with "gpm:" such as

`gpm:DescribeMatch` or `gpm:DescribeRule` .

To specify multiple operations in a single statement, separate them with commas as shown below:

```
"action":["gpm:action1","gpm: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":["gpm:Describe*"]
```

To specify all GPM operations, use only the wildcard `*` as follows:

```
"action":["gpm:*"]
```

## GPM 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
```

- **project\_id**: describes the project information and is only used to enable compatibility with legacy CAM logic. It can be left empty.
- **service\_type**: describes the product's abbreviation, such as `gpm` .
- **region**: region information, for example `ap-shanghai` .
- **account**: the root account of the resource owner, for example, `uin/164256472` .
- **resource**: describes detailed resource information of each product, such as `rule/RuleCode1` or `match/*` .

For example, you can specify a rule (rule-rzj1xxx) to specify the resource path in the statement as shown below:

```
"resource":["qcs::gpm:ap-shanghai:uin/16425xxxx:rule/rule-rzj1xxx"]
```

You can also use the wildcard (\*) to specify all rules that belong to a specific account as shown below:

```
"resource": [ "qcs::gpm:ap-shanghai:uin/16425xxxx:rule/*"]
```

If you want to specify all resources or if a specific API operation does not support resource-level permission control, you can use the wildcard (\*) in the `resource` element as shown below:

```
"resource": ["*"]
```

To specify multiple resources in one policy, separate them with a comma. In the following example, two resources are specified:

```
"resource":["resource1","resource2"]
```

The table below describes the resources that can be used by GPM and the corresponding resource description methods. In the following table, the words prefixed with \$ are all alternative names.

Resource	Resource Description Method in Authorization Policy
Matchmaking	<code>qcs::gpm:\$region:\$account:rule/\$RuleCode</code>
Rule	<code>qcs::gpm:\$region:\$account:match/\$MatchCode</code>

- “project” refers to project ID.
- “region” refers to region.
- “account” refers to account ID.