

# Alibaba Cloud CloudMonitor

User Guide

Issue: 20200709

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## Document conventions

Style	Description	Example
	A danger notice indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	 <b>Danger:</b> Resetting will result in the loss of user configuration data.
	A warning notice indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	 <b>Warning:</b> Restarting will cause business interruption. About 10 minutes are required to restart an instance.
	A caution notice indicates warning information, supplementary instructions, and other content that the user must understand.	 <b>Notice:</b> If the weight is set to 0, the server no longer receives new requests.
	A note indicates supplemental instructions, best practices, tips, and other content.	 <b>Note:</b> You can use Ctrl + A to select all files.
>	Closing angle brackets are used to indicate a multi-level menu cascade.	Click <b>Settings &gt; Network &gt; Set network type.</b>
<b>Bold</b>	Bold formatting is used for buttons, menus, page names, and other UI elements.	Click <b>OK.</b>
Courier font	Courier font is used for commands.	Run the <code>cd /d C:/window</code> command to enter the Windows system folder.
Italic	Italic formatting is used for parameters and variables.	<code>bae log list --instanceid Instance_ID</code>
[ ] or [a b]	This format is used for an optional value, where only one item can be selected.	<code>ipconfig [-all -t]</code>

<b>Style</b>	<b>Description</b>	<b>Example</b>
{ } or {a b}	This format is used for a required value, where only one item can be selected.	switch {active stand}



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# 1 Visual reports

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## 1.1 Use dashboards

### 1.1.1 Dashboard overview

The CloudMonitor dashboard provides you with a real-time metric visualization solution for a comprehensive overview of your applications and services, enabling you to quickly troubleshoot problems and monitor resource usage.

#### Display metric trends for multiple instances

The dashboard provides detailed metrics and trends for multiple instances. For example, you can view the metrics of all the ECS instances on which your application is deployed all on one metric chart. This can help you see trends across multiple instances all in one area. Similarly, you can also view the CPU usage of multiple ECS instances over time in one chart.

#### Display multiple metrics per instance

With dashboards, you can also view several metrics of an ECS instance, such as CPU usage, memory usage, and disk usage all displayed on one metric chart. This visualization solution can help you find exceptions and monitor resource usage efficiently.

#### Display and sort instance resource usage

Instances can be sorted based on resource usage levels, allowing you to quickly gain insight into resource usage per instance and how usage levels differ between instances. With this information, you can make informed decisions and avoid unnecessary costs.

#### Display metrics distribution of multiple instances

The CPU usage distribution of an ECS instance group can be visualized with a heat map, allowing you to quickly and accurately discover the real time usage levels of different machines and compare them with each other. These heat maps are not only powerful visualization tools but are also interactive. You can click any one of the color blocks on the heat map to view the metrics and trends of the corresponding machine for a specified period of time.

## Display aggregated metrics of multiple instances

With dashboards, you can view the average aggregation value of a particular metric, such as CPU usage of multiple ECS instances, all in one chart. With this capability, you quickly estimate overall CPU usage capacity and check whether the resource usage of different instances is balanced.

### Provides full-screen visualization solution

The dashboard supports a full-screen mode that automatically refreshes. In this mode, you can easily add several application and product metrics to the full-screen display, allowing you to have a quick visual overview of all monitored data.

## 1.1.2 Manage dashboards

You can easily view, create, and delete dashboards. The procedure for these actions is as follows.

### View a dashboard

You can view a dashboard to view and monitor metrics from several different products and instances all within one area.



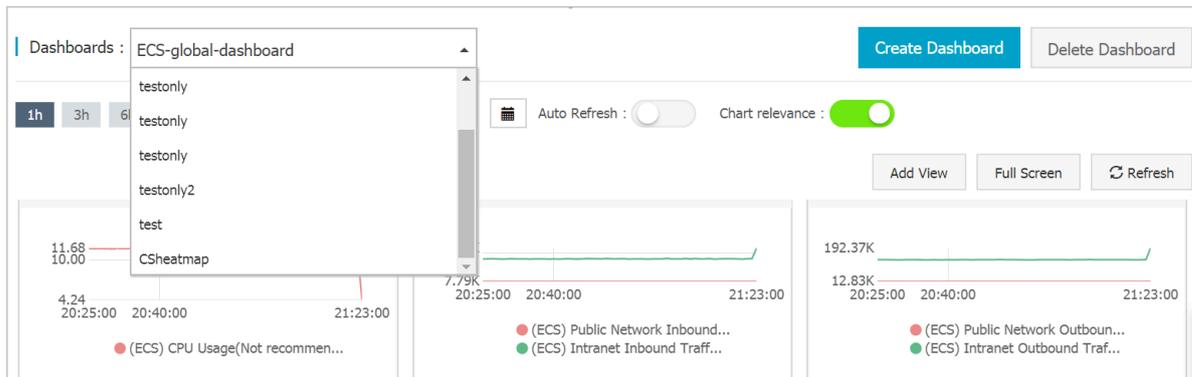
#### Note:

- CloudMonitor automatically initializes an ECS dashboard and displays ECS metrics.
- CloudMonitor refreshes data measured in one-hour, three-hour, and six-hour periods automatically. However, data measured for more than six hours cannot be refreshed automatically.

#### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Dashboard > Custom Dashboard**.

3. By default, **ECS-global-dashboard** is displayed. You can select another dashboard from the drop-down list.



4. To view the dashboard in full screen, click **Full Screen** in the upper-right corner of the page.
5. Select a time range. Click the time range button at the top of the page. From there, you can quickly select the time range shown in the charts of the dashboard. The time range you select apply to all the charts on the dashboard.
6. Automatic refresh. After you turn on the **Auto Refresh** switch, whenever you select a query time span of 1 hour, 3 hours, or 6 hours, automatic refresh is performed every minute.
7. The units of the metrics measured are displayed in parentheses for the chart name.
8. When you rest the pointer over some point on a chart, values at that time point are displayed across all charts.

### Create a dashboard

You can create a dashboard and customize the charts for when your business operations grow complex and the default ECS dashboard does not meet your monitoring requirements



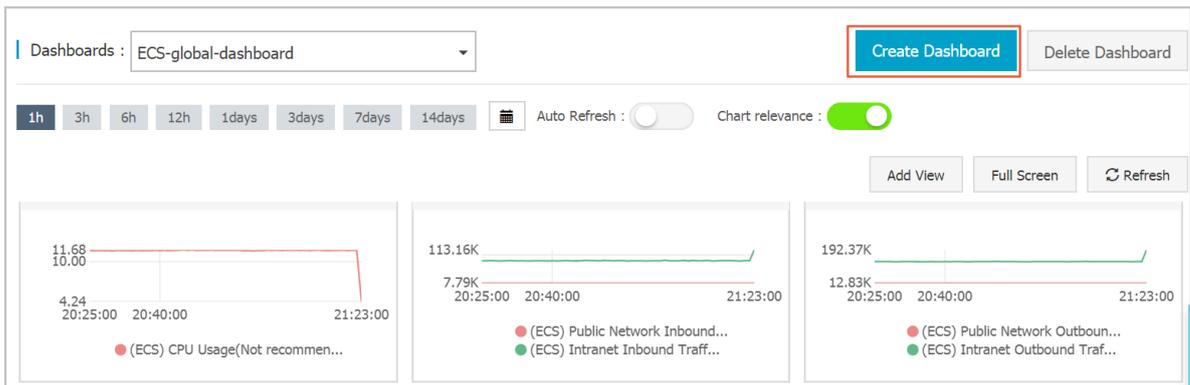
#### Note:

Up to 20 charts can be created on one dashboard.

#### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Dashboard > Custom Dashboard**.

3. In the upper-right corner of the page, click **Create Dashboard**.



4. Enter the name of the dashboard.

The screenshot shows a 'Create Dashboard' dialog box. It has a title bar with a close button (X). Inside the dialog, there is a text input field with the placeholder text 'Enter the dashboard name.'. At the bottom right of the dialog, there are two buttons: 'Create' and 'Close'.

5. Click **Create**. The page is automatically redirected to the new dashboard page where you can add various metric charts as needed.

6. When you rest the pointer over the dashboard name, the **Edit** option appears on the right hand side. To modify the dashboard name, click **Edit**.

## Delete a dashboard

You can delete a dashboard if you do not need it given changes in your business operations.



### Notice:

When you delete a dashboard, all charts that are added to the dashboards are also deleted.

### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Dashboard > Custom Dashboard**.
3. Select the target dashboard from the **Dashboards** drop-down list.
4. In the upper-right corner of the page, click **Delete Dashboard** to delete the dashboard.

### 1.1.3 Add charts

This topic describes several types of charts common in the CloudMonitor dashboard and how to add a chart.

#### Scenarios

By default, CloudMonitor creates an initialized ECS dashboard. You can add more charts and tables to the dashboard to view even more data related to your ECS instances.

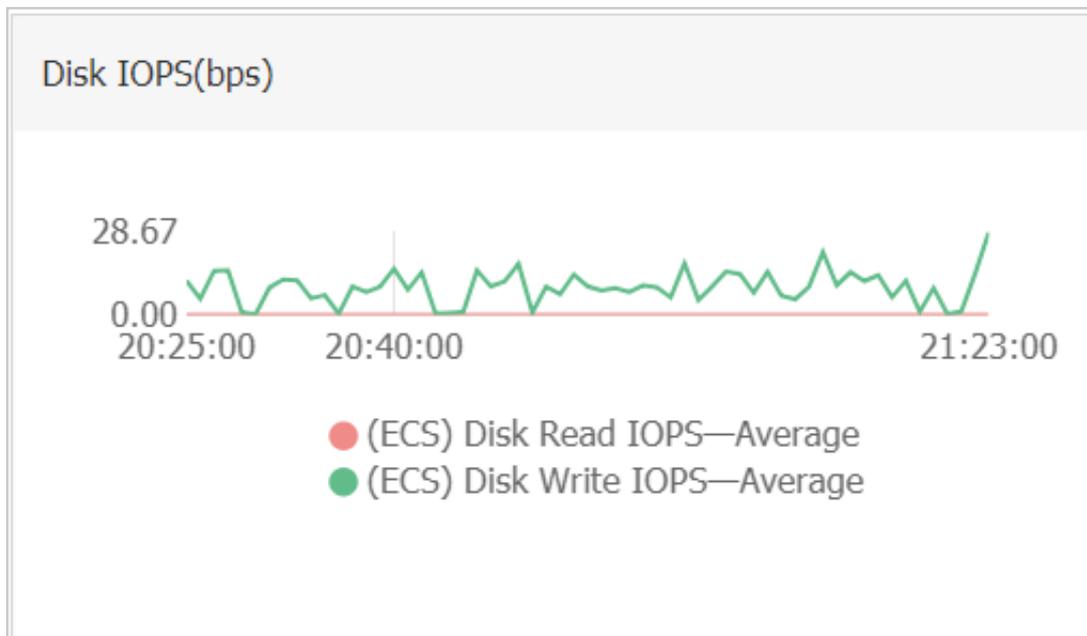
In the case that the ECS dashboard does not meet your monitoring needs, we recommend that you create an additional dashboard to which you can add charts to display custom monitoring data.

#### Before you begin

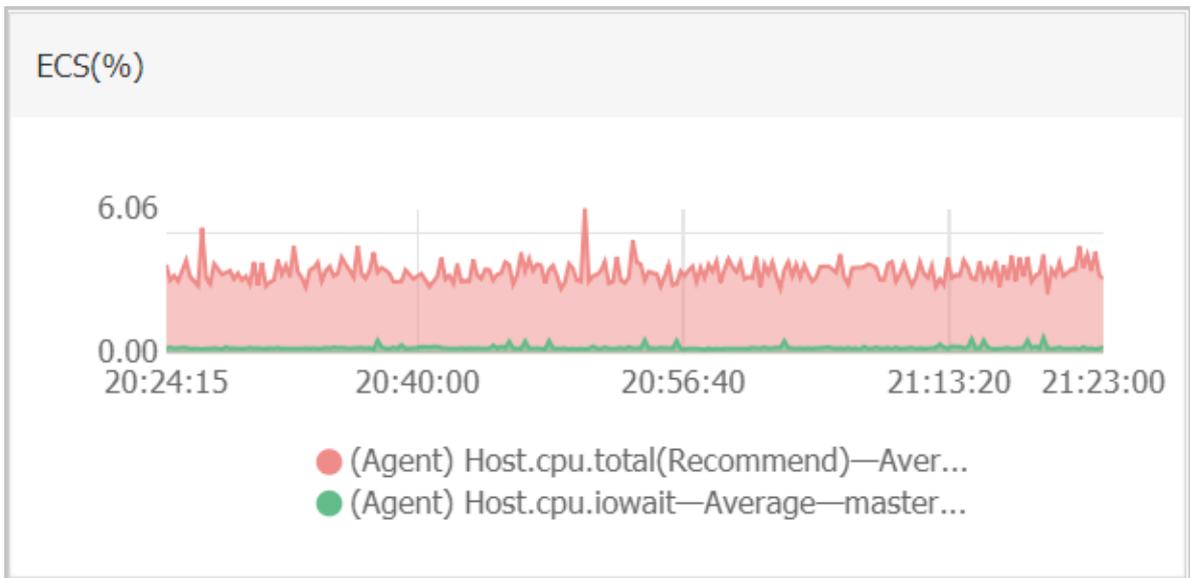
Before you can add a chart, you need to create a dashboard.

#### Chart types

- Line chart: Displays monitoring data on a basis of time series. Multiple metrics can be added.



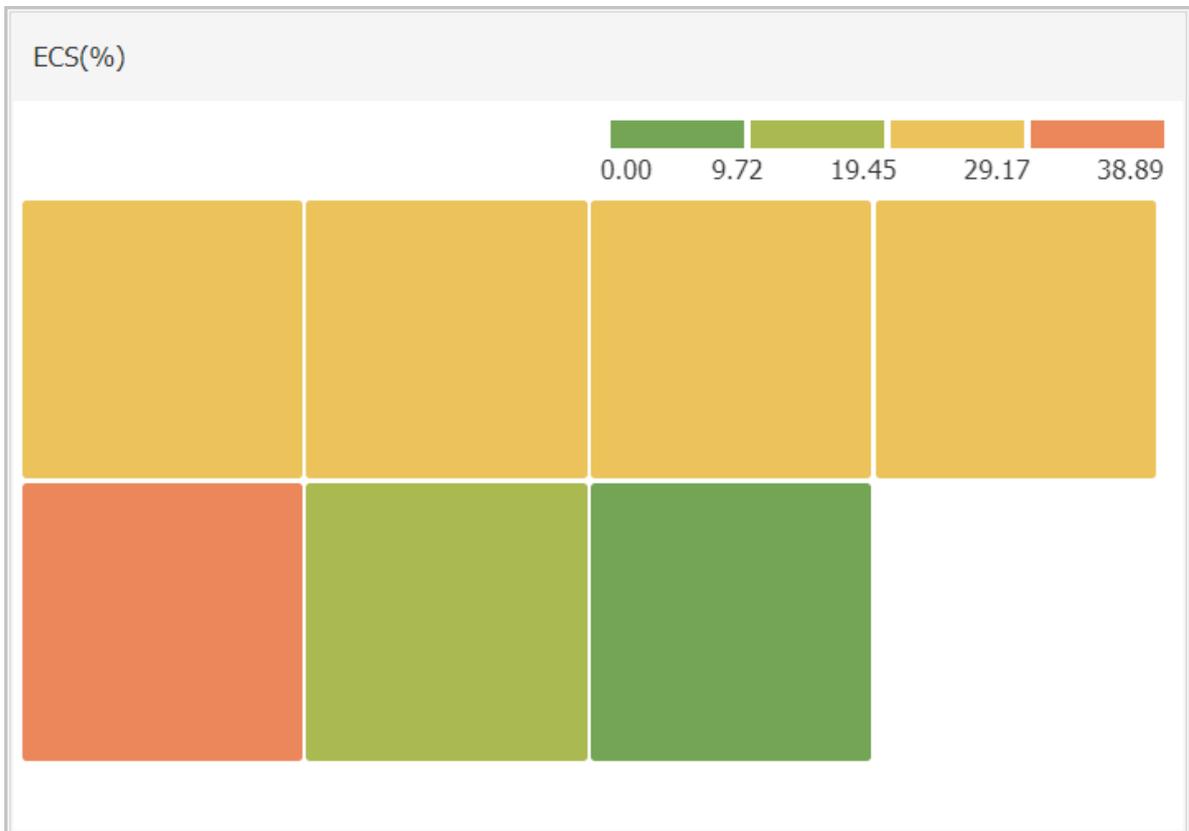
- Area chart: Displays monitoring data on a basis of time series. Multiple metrics can be added.



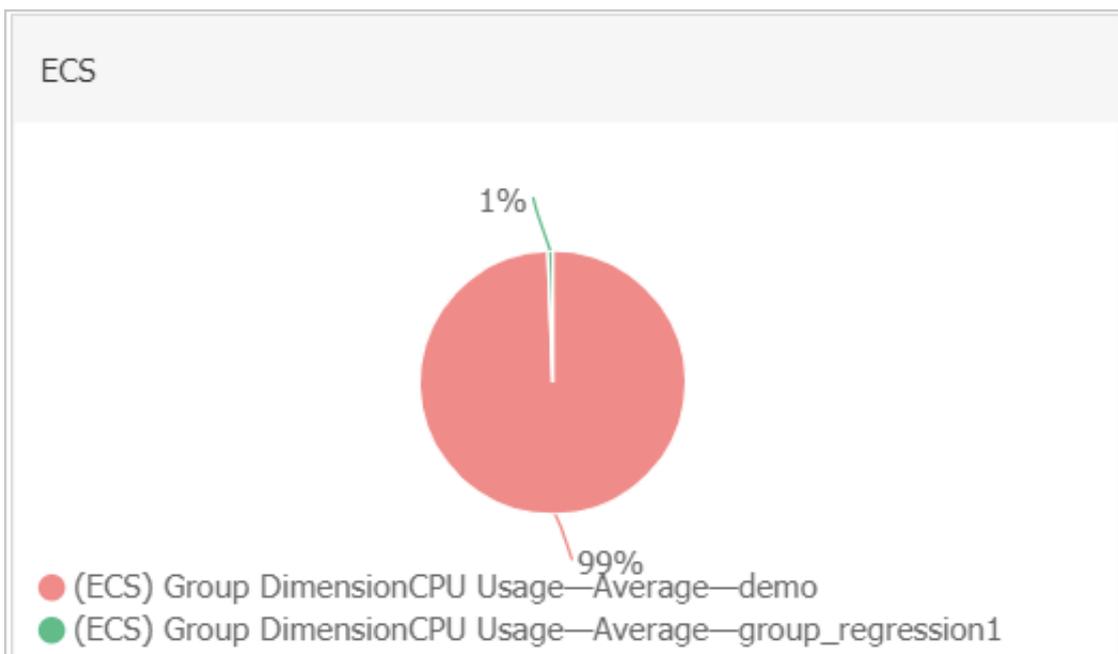
- Table: Displays real-time metric data in descending order. Each table displays up to 1,000 data records, which are either the first 1,000 records or the last 1,000 records. Only one metric can be added.

ECS(%)		
Time	Dimensions	Maximum Value
2018-12-06 21:25:00	ESS-asg-yinna_test	100
2018-12-06 21:20:00	node-0003-k8s-for-cs-c9ebd45a41dd645a498a5c...	55.56
2018-12-06 21:25:00	master-02-k8s-for-cs-c9ebd45a41dd645a498a5c...	38.89
2018-12-06 21:25:00	master-03-k8s-for-cs-c9ebd45a41dd645a498a5c...	38.1
2018-12-06 21:00:00	master-01-k8s-for-cs-c9ebd45a41dd645a498a5c...	37.5
2018-12-06 21:00:00	node-0001-k8s-for-cs-c9ebd45a41dd645a498a5c...	35.29
2018-12-06 21:20:00	node-0002-k8s-for-cs-c9ebd45a41dd645a498a5c...	29.41

- Heat map: Displays real-time metric data. Heat maps show the distribution and comparison of real-time data of a specific metric for multiple instances. Only one metric can be added.



- Pie chart: Displays real-time metric data and can be used for data comparisons. Only one metric can be added.



## Add a chart



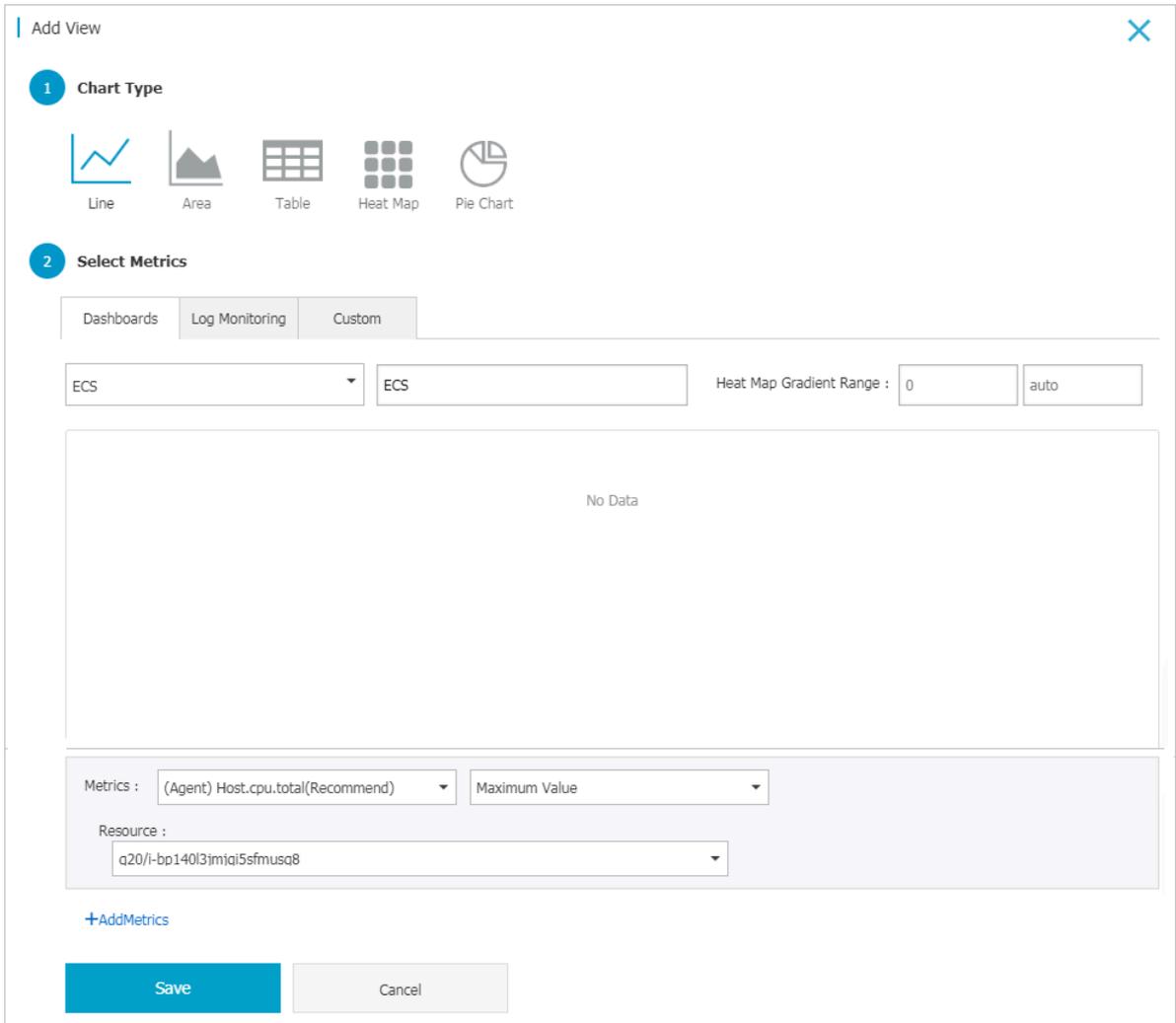
### Note:

- The default ECS dashboard provides the following seven charts: **CPU Usage**, **Network Inbound Bandwidth**, **Network Outbound Bandwidth**, **Disk BPS**, **Disk IOPS**, **Network Inbound Traffic**, and **Network Outbound Traffic**.
- Up to 20 charts can be added in a dashboard.
- Each line chart can display up to 10 lines.
- Each area chart can display up to 10 areas.
- Each table can display up to 1,000 sorted data records.
- A heat map can display up to 1,000 color blocks.

### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Dashboard > Custom Dashboard**.

3. In the upper-right corner of the displayed page, click **Add View**.



4. Select a chart type.

5. Choose from **Dashboards**, **Log Monitoring**, and **Custom** tab pages. In this example, click the **Dashboards** tab.

6. Select the target Alibaba Cloud product and enter a name for the chart.

7. Select the metric, the statistical method, and the resources.

- Select the metric you want to view.
- Select the statistical method by which the metric data is aggregated. You can choose maximum, minimum, or average.
- Select the resources that you want to monitor.

8. To add a metric, click **AddMetrics** and repeat the preceding steps.

9. Click **Save**. The chart is displayed on the dashboard.

10. If you want to resize the chart, drag the right border, lower border, or lower-right corner of the chart.

## Metrics

- **Dashboards:** Displays the monitoring data of Alibaba Cloud products.
- **Log monitoring:** metrics added through log monitoring.
- **Custom:** metrics added through custom monitoring.
- **Metrics:** monitoring indicators, such as CPU usage and memory usage.
- **Statistical method:** means by which metric values are aggregated during a statistical period. Some common statistical methods are maximum, minimum, and average.
- **Resource:** You can use an application group or instance to filter resources and view the monitoring data of these resources.

## 1.2 Use Grafana

This topic describes how to use Grafana to view monitoring data from CloudMonitor.

### Background

CloudMonitor provides monitoring data of the core services of Alibaba Cloud. It can also display your custom monitoring data. In addition to viewing the monitoring data in the CloudMonitor console, you can use the popular data visualization tool Grafana to display the data.

### Preparations

#### 1. Download and install Grafana.

This topic takes the CentOS operating system as an example. You can install Grafana on CentOS in either of the following ways:

Method 1:

```
yum install https://dl.grafana.com/oss/release/grafana-5.3.4-1.x86_64.rpm
```

Method 2:

```
wget https://dl.grafana.com/oss/release/grafana-5.3.4-1.x86_64.rpm  
sudo yum localinstall grafana-5.3.4-1.x86_64.rpm
```

For more information about how to install Grafana, see [Grafana official documentation](#).

#### 2. Start Grafana.

After Grafana is downloaded and installed, run the **service grafana-server start** command to start it.

## Procedure

### 1. Install the CloudMonitor data source plug-in.

Confirm the plug-in directory of Grafana. For example, the plug-in directory is `/var/lib/grafana/plugins/` on CentOS. Install the CloudMonitor data source plug-in in this directory, and restart the grafana-server service.

Run the following commands to install the plug-in on CentOS:

```
cd /var/lib/grafana/plugins/
git clone https://github.com/aliyun/aliyun-cms-grafana.git
service grafana-server restart
```

You can also download `aliyun-cms-grafana.zip` from GitHub, decompress it, and upload the plug-in to the `/grafana/plugins/` directory. Then, restart the grafana-server service.



#### Note:

The current version of the CloudMonitor data source plug-in does not support setting alert rules for the monitoring data.

### 2. Configure the CloudMonitor data source plug-in.

Log on to Grafana after it is installed. The default port number is 3000, and the default username and password are both admin.

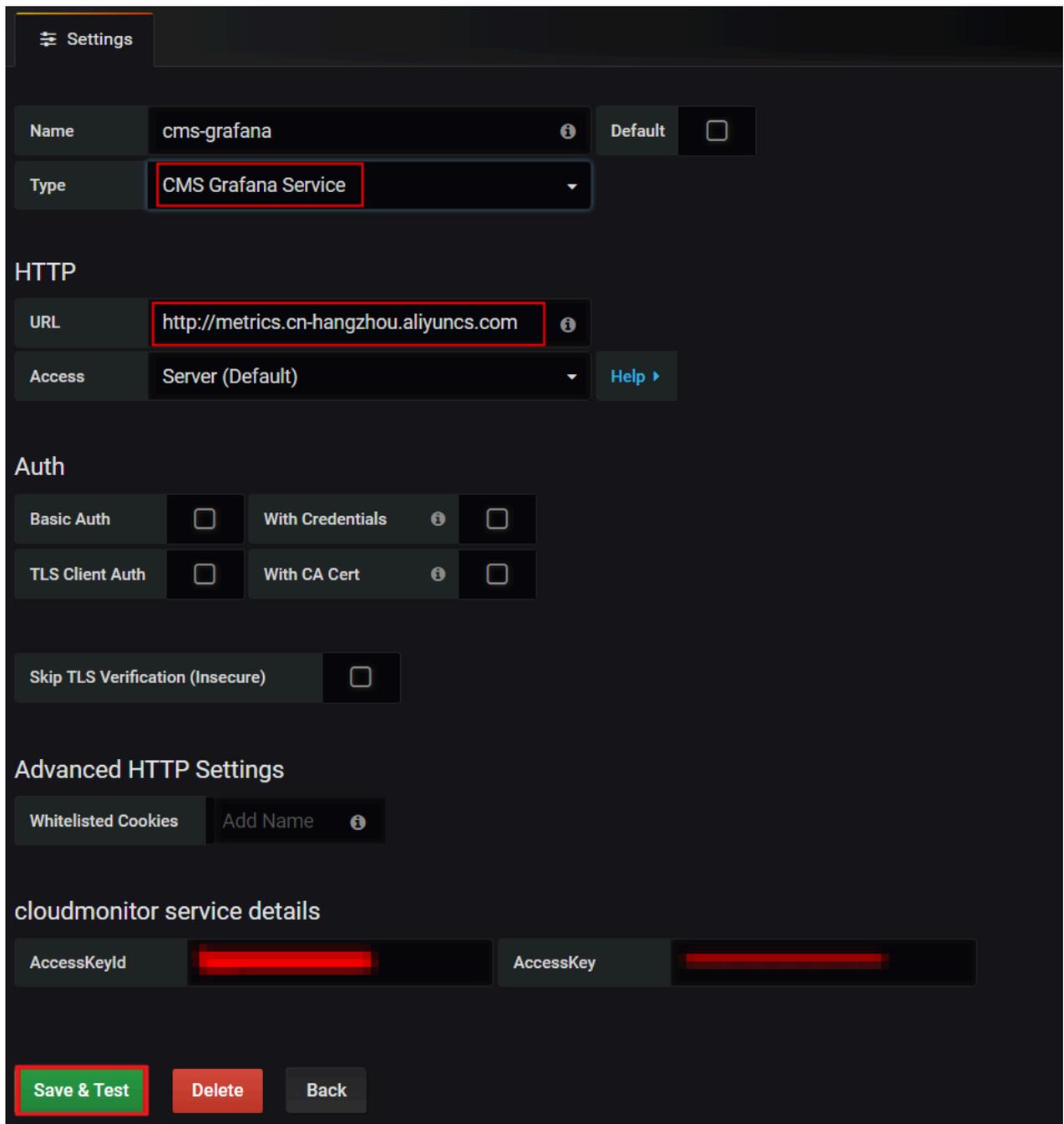
- a. On the Grafana homepage, choose **Configuration > Data Sources**.
- b. On the **Data Sources** page, click **Add data source** in the upper-right corner.
- c. Set parameters for the CloudMonitor data source.

Parameter	Description
Data source	Name: the name of the data source. Type: the type of the data source. Select <b>CMS Grafana Service</b> .
HTTP	URL: the endpoint of the data source, for example, <code>http://metrics.cn-shanghai.aliyuncs.com</code> . For more information, see <a href="#">#unique_9/unique_9_Connect_42_section_xf3_lbv_zdb</a> .  Access: the access method of the data source. Retain the default setting.

<b>Parameter</b>	<b>Description</b>
Auth	The authentication configuration. Retain the default setting.

Parameter	Description
cloudmonitor service details	Enter the AccessKey ID and AccessKey secret of an account that has the required read and write permissions. We recommend that you use the AccessKey ID and AccessKey secret of a Resource Access Management (RAM) user.

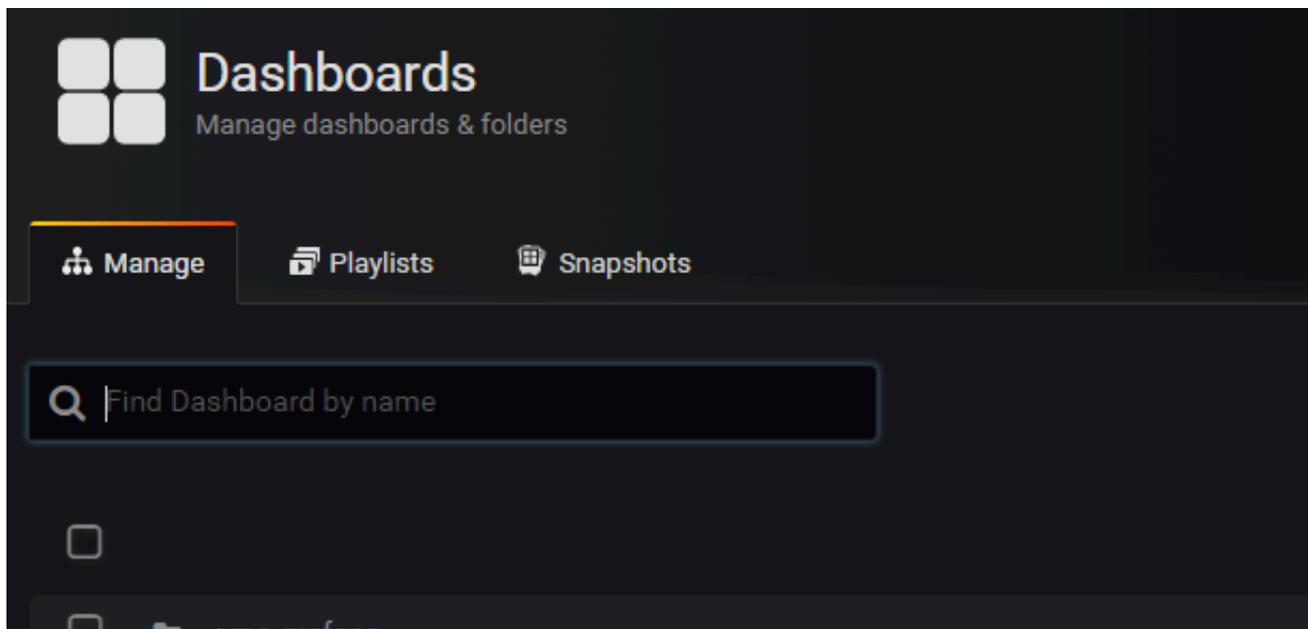
The following figure shows the configuration items.



d. After the parameters are set, click **Save & Test** to add the data source.

### 3. Create a dashboard.

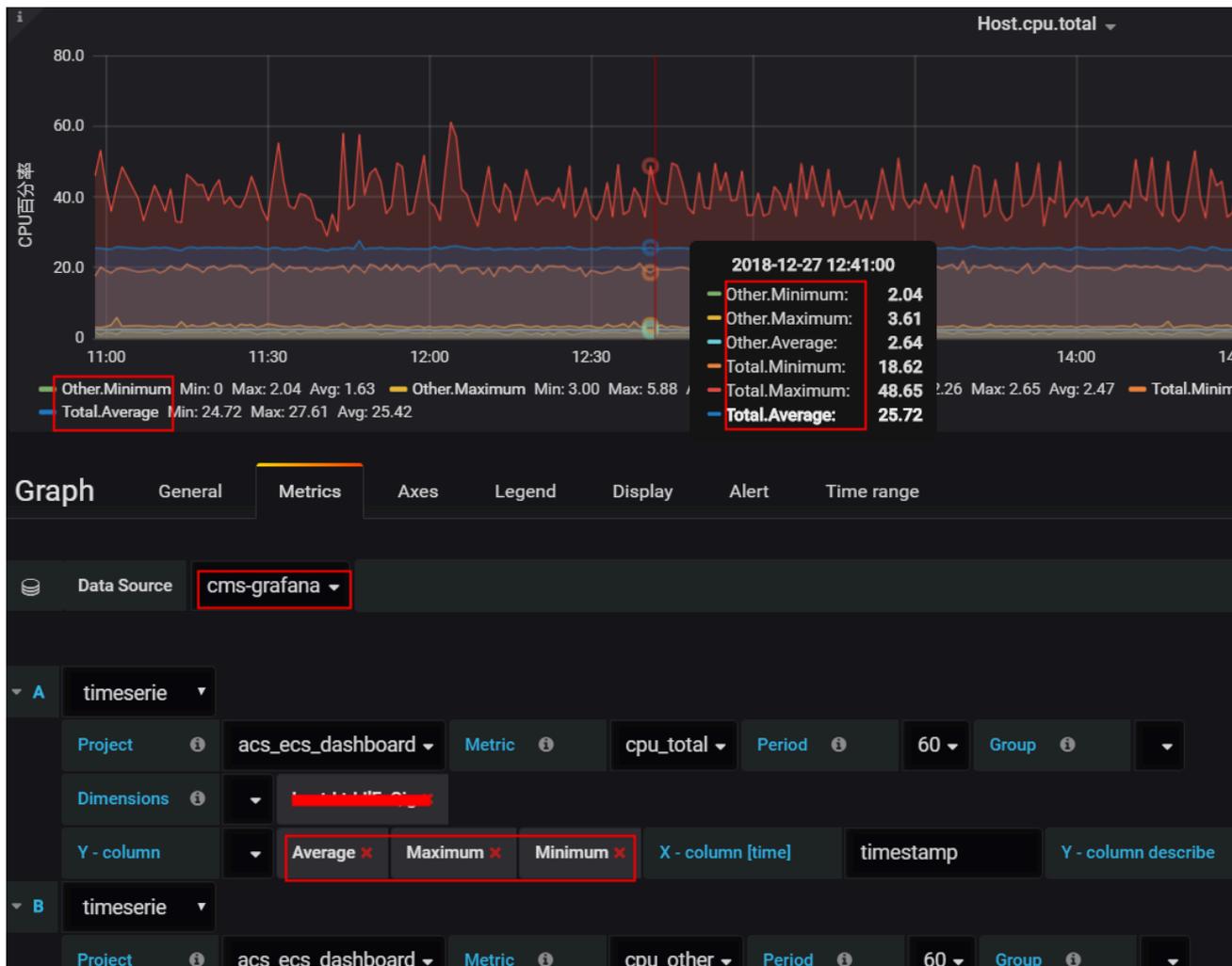
- a. On the Grafana homepage, choose **Dashboards > Manage**. The **Manage** page appears.



- b. Click **+Dashboard** to create a dashboard. You can also click **+Folder** to create a folder and then click **+Dashboard**. Alternatively, you can click **+Import** to import a dashboard.

#### 4. Configure a graph.

- a. After a dashboard is created, choose **New Panel** > **Add** > **Graph** and click **Panel Title**. In the dialog box that appears, click **Edit**.
- b. On the **Metrics** tab, set **Data Source** to **cms-grafana**.
- c. Set other parameters such as Project, Metric, Period, Dimensions, Y - column, and X - column [time].



For more information about how to set **Project**, **Metric**, and **Period**, see [#unique\\_10](#).

The other parameters are described as follows:

**Group**: the application group created under your Alibaba Cloud account in CloudMonitor.

**Dimensions**: the instances from which latest monitoring data is collected for the specified project and metric. If you set this parameter to Group, monitoring data is collected from all instances in the specified application group.

**Y - column:** the monitoring data to be displayed in the Y-axis. You can select more than one option.

**X - column:** Set it to timestamp.

**Y - column describe:** Enter the description of each option selected in Y - column.

For more information about the graph, click [here](#).

**Note:**

- You can manually enter values for all the parameters by following the instructions in [#unique\\_10](#).
- You can enter null to invalidate any of the parameters.
- If the value of the Dimensions parameter is incomplete, refresh the page or manually enter the instance IDs in the required format.

Custom monitoring data:

For custom monitoring data, you need to manually set the following parameters:

- Project: Enter `acs_customMetric_ID` of your Alibaba Cloud account.
- Metric: Enter the name of the metric for reporting the custom monitoring data.
- Period: Enter the time period for reporting the custom monitoring data.
- Group: Enter the ID of the application group for which the custom monitoring data is reported.
- Dimensions: Enter the dimension for reporting the custom monitoring data. Currently, you must manually enter the parameter value. Only one dimension is supported. If you enter multiple dimensions, only the first one is valid.

**Note:**

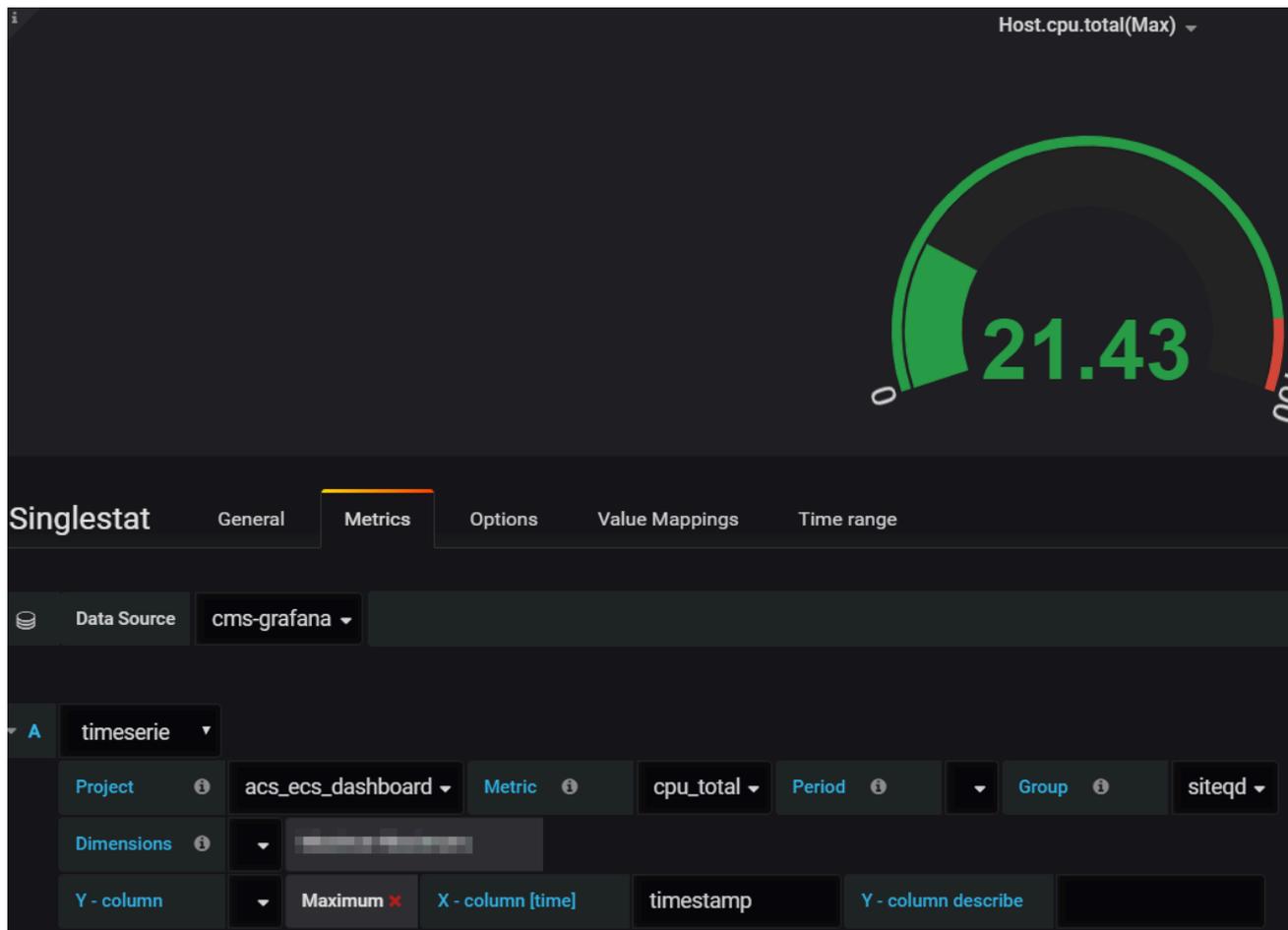
If the dimensions are in the format of `env: public, step: 5-ReadFromAlertOnline` in the CloudMonitor console, you need to replace the commas (,) with ampersands (&).

- Y - column: Enter options for aggregating the monitoring data, including Average, Maximum, Minimum, Sum, SampleCount, P10, P20, and P99.
- X - column: Set it to timestamp.

5. Configure the Singlestat panel.

- a. Choose **New Panel > Add > Singlestat** and click **Panel Title**. In the dialog box that appears, click **Edit**.
- b. On the **Metrics** tab, set the parameters by following the instructions provided in step 4.

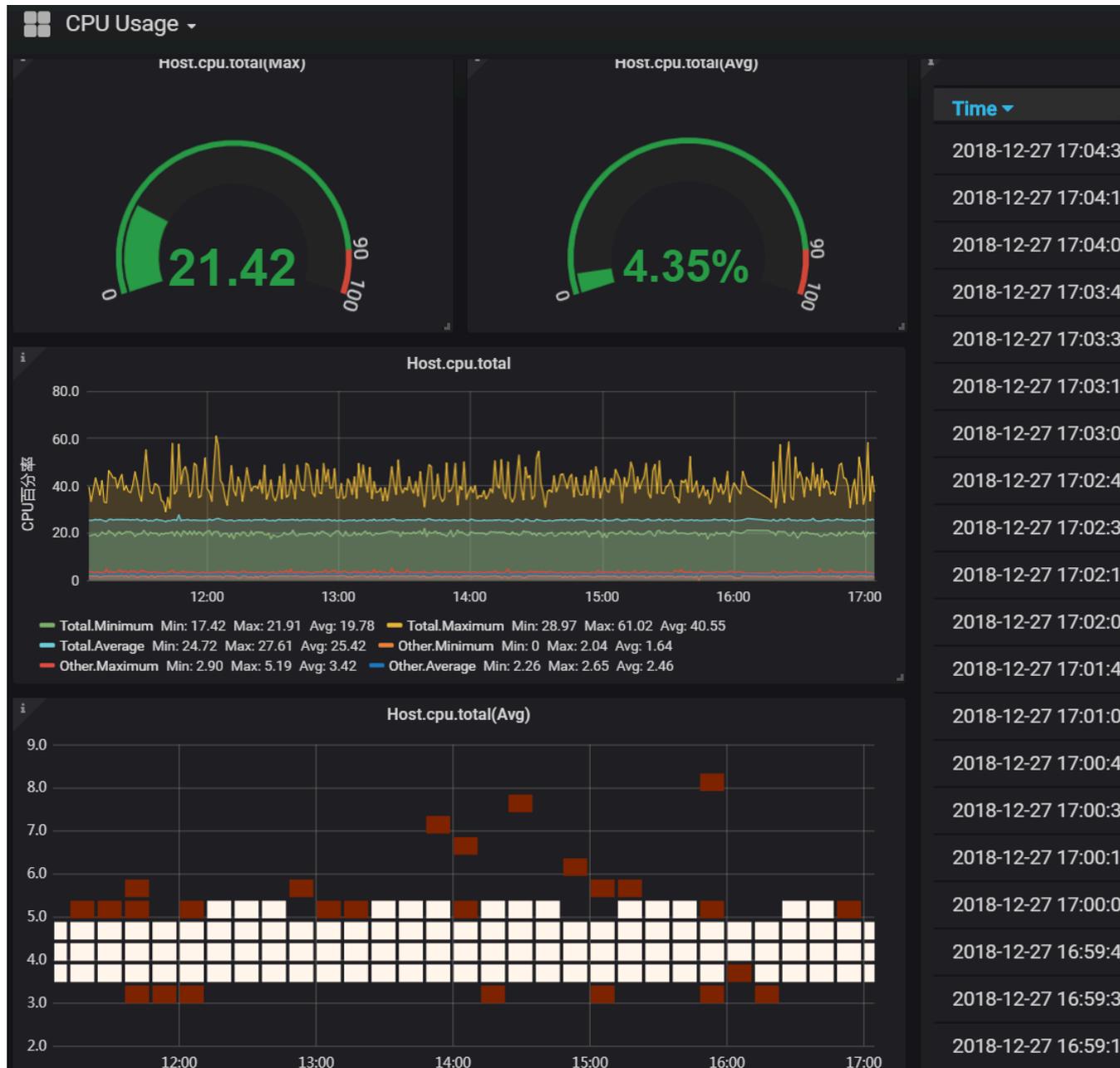
The following figure shows an example of a configured Singlestat panel.

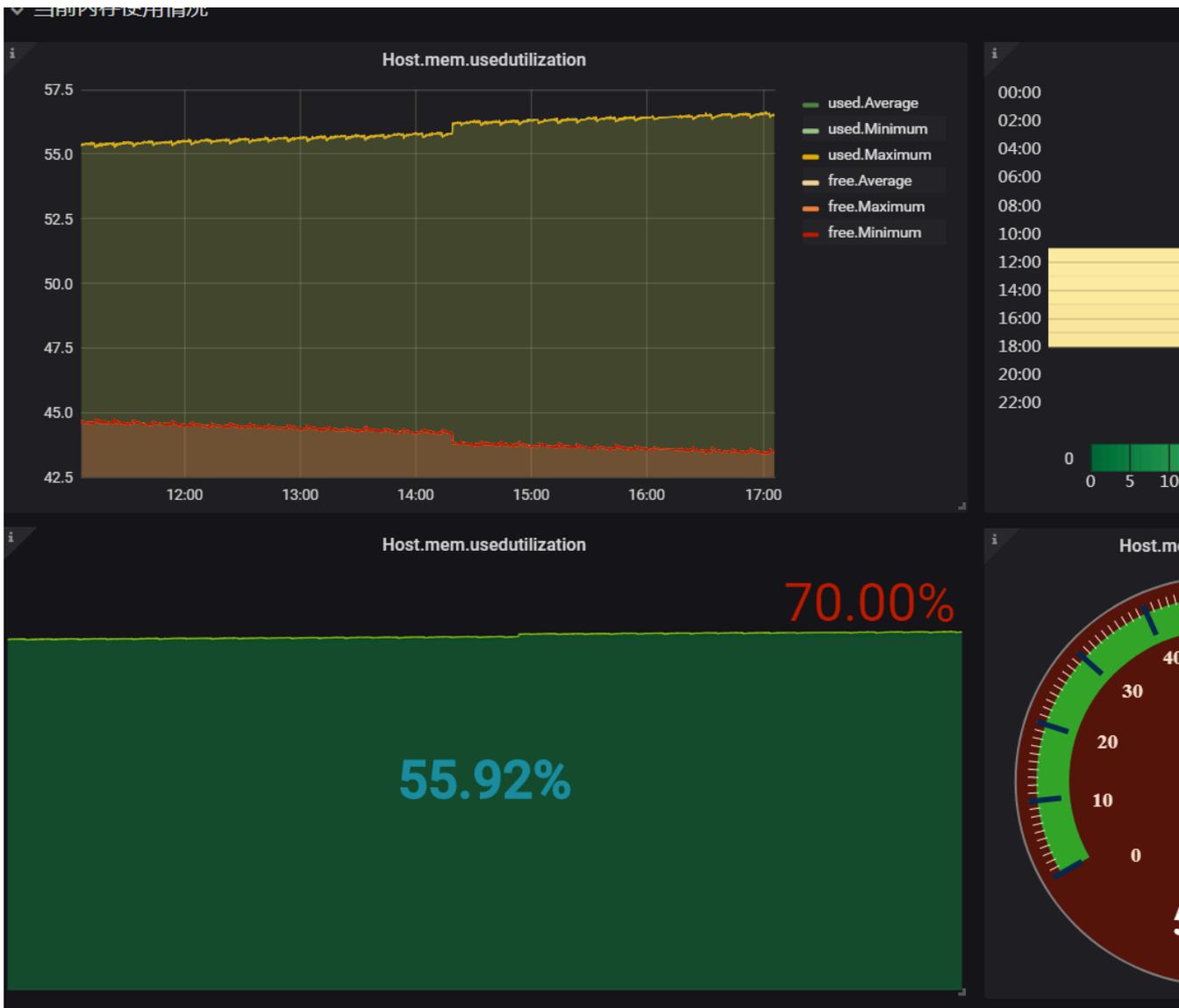


For more information about [Singlestat](#), click [here](#).

### 6. View the monitoring data.

After the preceding steps are completed, you can view the monitoring data in the created dashboard.





## 2 Host monitoring

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### 2.1 Host monitoring overview

The host monitoring service of CloudMonitor allows you to monitor your servers in a systematic manner by installing an agent on the servers. Host monitoring currently supports Linux and Windows Operating Systems (OSs).

#### Scenarios

Host monitoring is available for both Alibaba Cloud ECS servers, and virtual and physical machines provided by other vendors.

Host monitoring collects statistics of a diverse range of OS-related metrics by using the agent, allowing you to retrieve the server resource usage and obtain metrics for troubleshooting.

#### Hybrid cloud monitoring solution

Host monitoring uses the agent to collect server metrics. You can install the agent on an ECS server or a non-ECS server for monitoring on and off the cloud.

#### Enterprise-level monitoring solution

Host monitoring also provides an application group function, which allows you to allocate servers from different regions of Alibaba Cloud to the same group for more efficient server management from a business operations perspective. Host monitoring supports group-based alarm management, meaning that you only need to configure one alarm rule for the entire group, which can improve O&M efficiency and the overall management experience.

**Note:**

- Host monitoring supports Linux and Windows, but does not support Unix.
- Root permissions are required for the agent installation on a Linux OS and administrator permissions are required for that on a Windows OS.

- The TCP status statistics function is similar to the Linux **netstat -anp** command. This function is disabled by default because a large portion of CPU time is consumed when many TCP connections exist.
  - To enable this function in Linux, set `netstat.tcp.disable` in the `cloudmonitor/config/conf.properties` configuration file to `false`. Restart the agent after you modify the configuration.
  - To enable this function in Windows, set `netstat.tcp.disable` in the `C:\Program Files\Alibaba\cloudmonitor\config` configuration file to `false`. Restart the agent after you modify the configuration.

### Monitoring capability

Host monitoring provides more than 30 metrics covering CPU, memory, disk, and network to meet your monitoring and O&M requirements. Click [here](#) to view the full list of the metrics.

### Alarm capability

Host monitoring provides an alarm service for all metrics, allowing you to set alarm rules for instances, application groups, and all resources. You can use the alarm service according to your business requirements.

You can use the alarm service directly in the host monitoring list or apply the alarm rules to your application groups after you add servers into the groups.

## 2.2 Process monitoring

By default, process monitoring allows you to collect information about CPU usage, memory usage, and the number of files recently opened by active processes during some period of time. If you add a process keyword, the number of processes containing the keyword is collected.

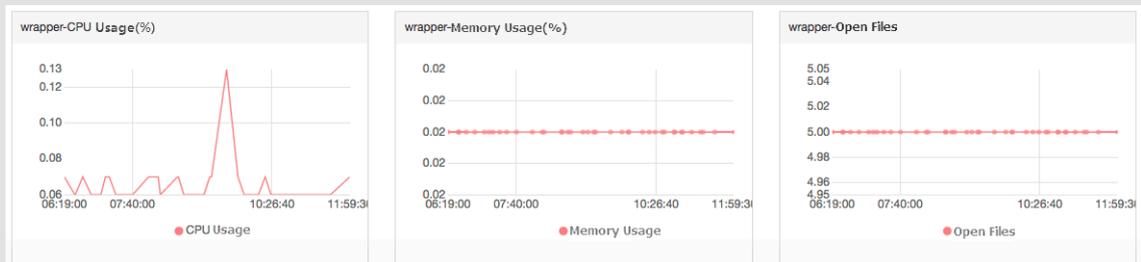
### View the resource consumption of active processes

- The CloudMonitor agent filters out the top five processes with the most CPU usage every minute, and records the respective CPU usage, memory usage, and number of files opened by these processes.
- For the CPU and memory usage of a process, see the Linux **top** command.
- For the number of files opened by an active process, see the Linux **lsdf** command.

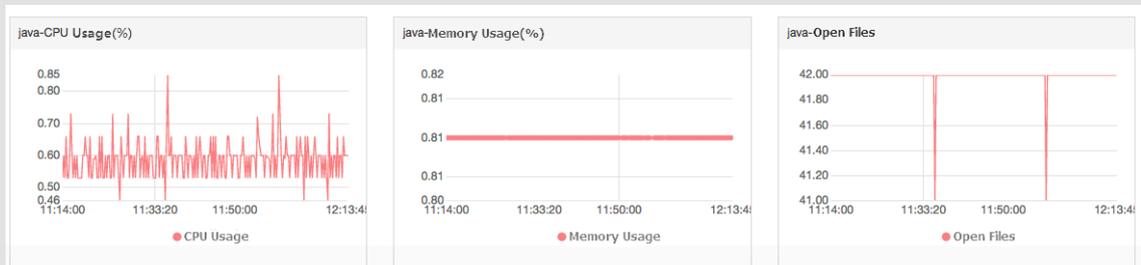


#### Note:

- If your process occupies multiple CPU cores, the percentage shown for CPU usage may exceed 100% because the collected result indicates the total usage of the multiple CPU cores.
- If, during the time period specified for your query, the top five processes have changed, the process list will display all processes that have ever ranked as top five over the specified time period. The times in the list indicate when the processes last ranked in the top five.
- The CPU usage and memory usage, and the number of opened files are collected only for the top five processes. Therefore, if a process has not ranked top five continuously over the time period specified for your query, its data points will appear discontinuous in the charts. The density of the data points for a process indicates its degree of activity on the server.
  - As shown in the following figure, the wrapper process has not continuously ranked in the top five processes each time measured. Therefore, the data points in the charts are sparse and discontinuous. The data points in the following charts mean that the process has ranked top five for the particular time measured.



- The following figure shows the charts of the java process. The data points in the charts are dense and continuous. This means that the process continuously ranks in the top five processes with the most CPU usage.



### Monitor the number of specified processes

You can learn the number and viability status of key processes by monitoring the number of processes. Specifically, you can add process keywords to the **Number of Processes(Count)** chart to monitor the number of related processes.

- Add processes for monitoring

For example, assume the following processes run on your server: `/usr/bin/java -Xmx2300m -Xms2300m org.apache.catalina.startup.Bootstrap`, `/usr/bin/ruby`, and `nginx -c /ect/nginx/nginx.conf`. You then add the following six keywords (the keywords can be process names, file paths, parameter names, or other related words), and the corresponding number of processes for each target keyword is output as follows:

- Keyword: `ruby`, number of processes collected: 1
- Keyword: `nginx`, number of processes collected: 1
- Keyword: `/usr/bin`, number of processes collected: 2
- Keyword: `apache.catalina`, number of processes collected: 1
- Keyword: `nginx.conf`, number of processes collected: 1
- Keyword: `-c`, number of processes collected: 1

#### Procedure

1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, click **Host Monitoring**.
  3. Click the name of the target host, or click **Monitoring Charts** in the **Actions** column to access the host monitoring details page.
  4. On the displayed page, click the **Process Monitoring** tab.
  5. Rest the pointer over the **Number of Processes(Count)** chart, and then click **Add Process**.
  6. On the displayed **Add Process Monitor** page, add the name or keyword of the process you want to monitor and click **Add**.
- Delete a monitored process
    1. Log on to the [CloudMonitor console](#).
    2. In the left-side navigation pane, click **Host Monitoring**.
    3. Click the name of the target host, or click **Monitoring Charts** in the **Actions** column to access the host monitoring details page.
    4. On the displayed page, click the **Process Monitoring** tab.
    5. Rest the pointer over the **Number of Processes(Count)** chart, and then click **Add Process**.
    6. On the displayed page, find the target process name or keyword and click **Delete**.

- Set alarm rules

After you configure monitoring for the specified process, you can configure alarm rules for the process. After that, you can receive an alarm notification when the number of the processes changes.

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.
3. Find the host for which you want to set process monitoring alarm rules, and then click **Alarm Rules** in the **actions** column.
4. Click **Create Alarm Rule** in the upper-right corner of the page.
5. In the **Set Alarm Rules** area, select **(Agent)Host.process.number** from the **Rule Describe** drop-down list, set an appropriate alarm threshold, and then select the process you want to monitor from the **processName** drop-down list. If multiple processes are configured on the host, the number of processes varies. You can click **Add Alarm Rule** to configure alarm rules for multiple processes at a time.

The screenshot displays the 'Set Alarm Rules' configuration page. It features two rows of rule configuration:

- Row 1:** Alarm Type: Threshold Value Alarm; Rule Describe: (Agent) Host.process.number; processName: java; Threshold: 1; Operator: <.
- Row 2:** Alarm Type: Threshold Value Alarm; Rule Describe: (Agent) Host.process.number; processName: dfasidf; Threshold: 6; Operator: >.

On the right, a line chart shows the process count over time. The y-axis ranges from 0.00 to 6.00. A red horizontal line is drawn at 6.00, representing the alarm threshold. The x-axis shows time intervals from 15:47:15 to 16:47:41. The chart title is '(Agent) Host.process.number—Average—emr\_C-7AF9E7BFD87B0EDF\_2\_RWJW—dfasidf'.

## 2.3 GPU monitoring

You can query GPU monitoring data either by using the CloudMonitor console or by calling APIs.

### Metrics

The metrics for GPU monitoring are based on three dimensions: GPU, instance, and application group.

- **GPU-dimension metrics**

GPU-dimension metrics measure monitoring data on a per GPU basis. The following table lists GPU-dimension metrics.

<b>Metric</b>	<b>Unit</b>	<b>Description</b>	<b>Dimensions</b>
gpu_memory_freespace	Byte	The free memory of a GPU	instanceld, gpuld
gpu_memory_totalspace	Byte	The total memory of a GPU	instanceld, gpuld
gpu_memory_usedspace	Byte	The memory in use of a CPU	instanceld, gpuld
gpu_gpu_utilization	%	The usage of a GPU	instanceld, gpuld
gpu_encoder_utilization	%	The usage of an encoder with GPU support	instanceld, gpuld
gpu_decoder_utilization	%	The usage of an decoder with GPU support	instanceld, gpuld
gpu_gpu_temperature	°C	The temperature of a GPU	instanceld, gpuld
gpu_power_readings_power_draw	W	The power of a GPU	instanceld, gpuld
gpu_memory_freeutilization	%	The percentage of the free memory of a GPU	instanceld, gpuld
gpu_memory_useutilization	%	The percentage of the memory in use of a GPU	instanceld, gpuld

- **Instance-dimension metrics**

Instance-dimension metrics measure the maximum, minimum, or average value of multiple GPUs on a per instance basis, so that you can query the overall resource usage at the instance level.

Metric	Unit	Description	Dimension
instance_gpu_decoder_utilization	%	GPU decoder usage at the instance level	instanceld
instance_gpu_encoder_utilization	%	GPU encoder usage at the instance level	instanceld
instance_gpu_gpu_temperature	°C	GPU temperature at the instance level	instanceld
instance_gpu_gpu_utilization	%	GPU usage at the instance level	instanceld
instance_gpu_memory_freespace	Byte	Free GPU memory at the instance level	instanceld
instance_gpu_memory_freeutilization	%	The percentage of free GPU memory at the instance level	instanceld
instance_gpu_memory_totalspace	Byte	GPU memory at the instance level	instanceld
instance_gpu_memory_usedspace	Byte	GPU memory in use at the instance level	instanceld
instance_gpu_memory_utilization	%	GPU memory usage at the instance level	instanceld
instance_gpu_power_readings_power_draw	W	GPU power at the instance level	instanceld

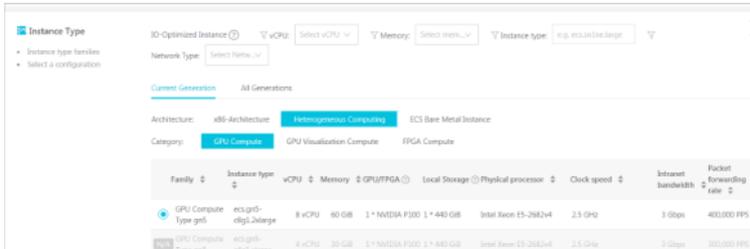
- **Group-dimension metrics**

Group-dimension metrics measure the maximum, minimum, or average value of multiple instances on a per group basis, so that you can query the overall resource usage at the group level.

Metric	Unit	Description	Dimension
group_gpu_decoder_utilization	%	GPU decoder usage at the application group level	groupId
group_gpu_encoder_utilization	%	GPU encoder usage at the application group level	groupId
group_gpu_gpu_temperature	°C	GPU temperature at the application group level	groupId
group_gpu_gpu_utilization	%	GPU usage at the application group level	groupId
group_gpu_memory_freespace	Byte	Free GPU memory at the application group level	groupId
group_gpu_memory_freeutilization	%	The percentage of free GPU memory at the application group level	groupId
group_gpu_memory_totalspace	Byte	GPU memory at the application group level	groupId
group_gpu_memory_usedspace	Byte	GPU memory in use at the application group level	groupId
group_gpu_memory_useutilization	%	GPU memory usage at the application group level	groupId
group_gpu_power_readings_power_draw	W	GPU power at the application group level	groupId

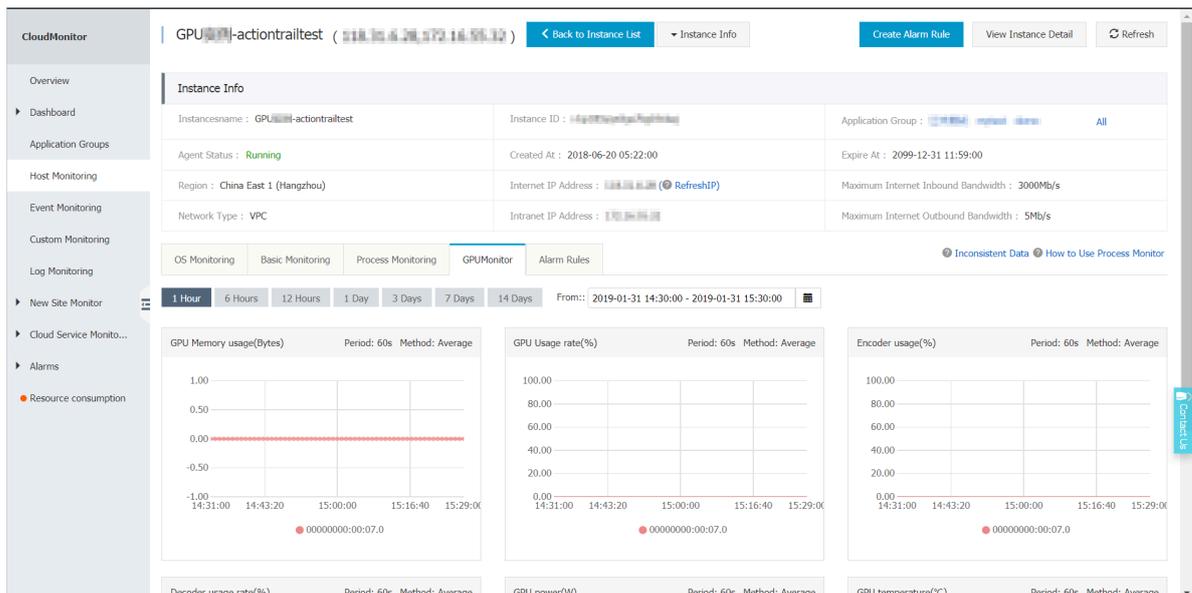
## Query GPU monitoring data in the console

After you have purchased an ECS instance of the GPU Compute type, you need to install the [GPU driver](#) and a CloudMonitor agent to be able to view and configure GPU monitoring charts and set alarm rules.



## View monitoring charts

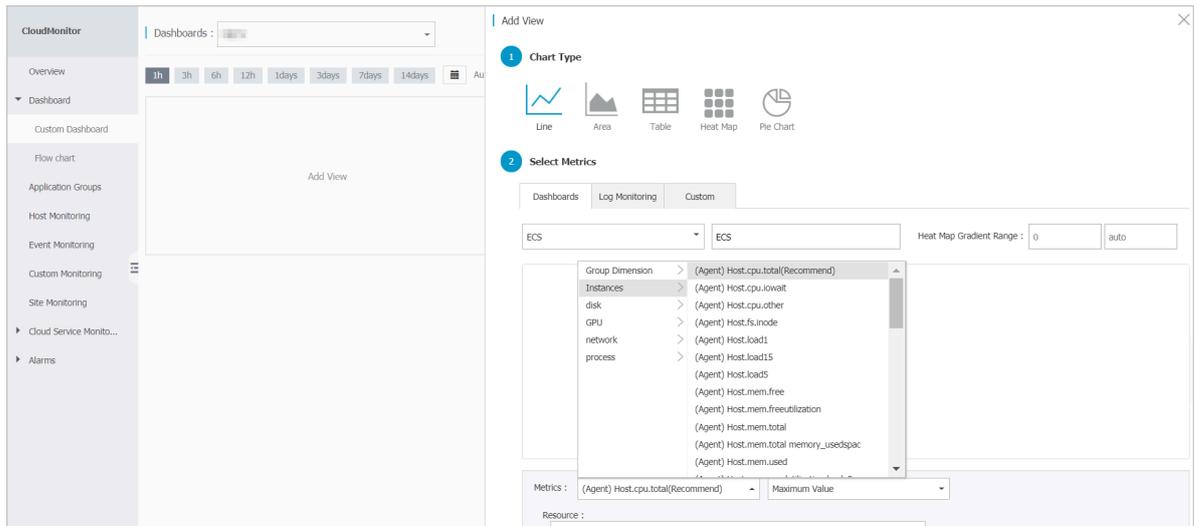
1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.
3. On the **Instances** tab page, find the target instance and click the instance name.
4. Click the **GPUMonitor** tab to view the GPU monitoring charts.



## Configure monitoring charts

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Dashboard > Custom Dashboard**.
3. In the upper-right corner, click **Create Dashboard**.
4. In the displayed dialog box, enter a name for the dashboard and click **Create**.
5. On the displayed page of the created dashboard, click **Add View**.

6. On the **Add View** page, select the chart type, and then select the metrics.



7. Click **Save**.

### Set alarm rules

We recommended that you use alarm templates to set alarm rules for new GPU metrics in batches. You can create alarm templates for the GPU metrics and then apply the templates to related application groups. For more information, see [Create an alarm template](#).

### Query GPU monitoring data through APIs

- For more information about how to call APIs to query GUP monitoring data, see [#unique\\_10](#).
- Parameter description: The `Project` parameter should be set to `acs_ecs_dashboard`. For the values of `Metric` and `Dimensions`, see the GPU metrics in the preceding tables.

## 2.4 Metrics

Host monitoring metrics include the metrics that a CloudMonitor agent monitors and the ECS basic metrics. The CloudMonitor agent collects monitoring data at a 15-second interval. CloudMonitor also collects monitoring data of ECS basic metrics at a 1-minute interval.



**Note:**

The ECS basic monitoring data may be different from the monitoring data that the CloudMonitor agent collects due to the following reasons:

- **Different monitoring frequencies:** the monitoring data displayed on monitoring charts is the average value of the data collected during one statistical period. The statistical period for ECS basic monitoring data is one minute. The statistical period for monitoring

data that the agent collects is 15 seconds. In the case of large monitoring data fluctuations, the value of ECS basic monitoring data is smaller than that of monitoring data that the agent collects due to load shifting.

- Different monitoring targets: the network traffic data collected by means of ECS basic metrics monitoring is used for billing. The data does not include the free traffic between ECS instances and Server Load Balancer (SLB) instances. However, the network traffic data collected by the agent indicates the actual network traffic of each network interface card (NIC). Therefore, the network traffic data collected by the agent is greater than that collected by means of ECS basic metrics monitoring. In this case, the data that the agent collects is greater than the actually purchased bandwidth or traffic quota.

**Metrics collected by the CloudMonitor agent**

- **CPU metrics**

You can run the top command in Linux to understand the metrics listed in the following table.

Metric	Description	Unit	Remarks
Host.cpu.idle	The percentage of CPU currently not utilized.	%	Indicates the percentage of CPU currently in the idle status.
Host.cpu.system	The percentage of CPU currently occupied by the kernel.	%	Measures the CPU occupied by a system context switch. A high value indicates that many processes or threads are running on the host.
Host.cpu.user	The percentage of CPU currently occupied by user processes.	%	Measures the CPU occupied by user processes.
Host.cpu.iowait	The percentage of CPU currently waiting for I/O operations.	%	A high value indicates frequent I/O operations.

Metric	Description	Unit	Remarks
Host.cpu.other	The percentage of CPU occupied by other operations.	%	Calculation method : CPU usage of Nice + CPU usage of SoftIrq + CPU usage of Irq + CPU usage of Stolen.
Host.cpu.totalUsed	The percentage of CPU currently occupied.	%	The sum of the preceding CPU consumption. This metric is usually used for alarm purposes.

- **Memory metrics**

You can run the free command in Linux to understand the metrics listed in the following table. Data source: /proc/meminfo. CloudMonitor uses the GlobalMemoryStatusExAPI function to collect Windows system data.

Metric	Description	Unit	Remarks
Host.mem.total	Total memory.	Byte	The total memory of the host.  Data source: MemTotal in the /proc/meminfo directory.
Host.mem.free	The amount of unused memory.	Byte	The amount of available memory in the system.  Data source: MemFree in the /proc/meminfo directory.

Metric	Description	Unit	Remarks
Host.mem.used	The amount of memory in use.	Byte	<p>The amount of used memory in the system.</p> <p>Calculation method : total - free.</p>
Host.mem.actualused	The memory actually used by the user.	Byte	<p>Calculation method:</p> <ul style="list-style-type: none"> <li>- When MemAvailable exists in the /proc/meminfo directory: total - MemAvailable.</li> <li>- When MemAvailable does not exist in the /proc/meminfo directory: used - buffers - cached.</li> </ul> <p>CentOS 7.2, Ubuntu 16.04, and later versions use the new Linux kernel. These versions provide more accurate memory estimation. For more information about the description of the MemAvailable column about the kernel, see <a href="#">commit</a>.</p>

Metric	Description	Unit	Remarks
Host.mem.freeutilization	The percentage of available memory.	%	Calculation method: - When MemAvailable exists in the /proc/meminfo directory: $\text{MemAvailable} / \text{total} \times 100\%$ . - When MemAvailable does not exist in the /proc/meminfo directory: $(\text{total} - \text{actualused}) / \text{total} \times 100\%$ .
Host.mem.usedutilization	The memory usage.	%	Calculation method: - When MemAvailable exists in the /proc/meminfo directory: $(\text{total} - \text{MemAvailable}) / \text{total} \times 100\%$ . - When MemAvailable does not exist in the /proc/meminfo directory: $(\text{total} - \text{free} - \text{buffers} - \text{cached}) / \text{total} \times 100\%$ .

- **Metrics of average system loads**

You can run the top command in Linux to understand the metrics listed in the following table. A higher value of a metric indicates a busier system.

Metric	Description	Unit
Host.load1	The average system loads over the past one minute. This metric is not available for Windows operating systems.	None.
Host.load5	The average system loads over the past five minutes. This metric is not available for Windows operating systems.	None.
Host.load15	The average system loads over the past 15 minutes. This metric is not available for Windows operating systems.	None.

- **Disk metrics**

- You can run the df command in Linux to understand the disk usage and inode usage metrics.
- You can run the iostat command in Linux to understand the disk read/write metrics.

Metric	Description	Unit
Host.diskusage.used	The space of the disk in use.	Byte
Host. disk. utilization	The disk usage.	%
Host.diskusage.free	The remaining storage space of the disk.	Byte
Host.diskusage.total	The total disk storage.	Byte
Host.disk.readbytes	The number of bytes per second read from the disk.	Byte/s
Host.disk.writebytes	The number of bytes per second written to the disk.	Byte/s

Metric	Description	Unit
Host.disk.readiops	The number of read requests per second received by the disk.	Request/s
Host.disk.writeiops	The number of write requests per second received by the disk.	Request/s

- **File system metrics**

Metric	Description	Unit	Remarks
Host.fs.inode	Inode usage.	%	This metric is not available for Windows operating systems. Linux and UNIX systems use inode numbers , instead of file names, to identify files. When you have used up inode numbers, you cannot create new files even if some disk space is available. Therefore , CloudMonitor must monitor the inode usage. The number of inodes indicates the number of files . A large number of small files can cause a high inode usage.

- **Network metrics**

- You can run the `iftop` command in Linux to understand the network metrics. You can run the `ss` command in Linux to understand the metrics of TCP connection data.
- The system collects the following TCP connection data by default: `TCP_TOTAL` (the total number of connections), `ESTABLISHED` (the number of established connections),

and NON\_ESTABLISHED (the number of connections not in established status). To obtain such data, follow these steps:

■ Linux

Change the value of `netstat.tcp.disable` in the `cloudmonitor/config/conf` properties configuration file to `false` to collect the data. Afterward, restart the CloudMonitor agent.

■ Windows

Change the value of `netstat.tcp.disable` in the `C:\Program Files\Alibaba\cloudmonitor\config` configuration file to `false` to collect the data. Afterward, restart the CloudMonitor agent.

Metric	Description	Unit
Host.netin.rate	The number of bits per second received by the NIC. This is the upstream bandwidth of the NIC.	Bit/s
Host.netout.rate	The number of bits per second sent by the NIC. This is the downstream bandwidth of the NIC.	Bit/s
Host.netin.packages	The number of packets per second received by the NIC.	Packet/s
Host.netout.packages	The number of packets per second sent by the NIC.	Packet/s
Host.netin.errorpackage	The number of incoming error packets detected by the drive.	Packet/s
Host.netout.errorpackages	The number of outgoing error packets detected by the drive.	Packet/s
Host.tcpconnection	The number of TCP connections in various statuses, including LISTEN, SYN_SENT, ESTABLISHED, SYN_RECV, FIN_WAIT1, CLOSE_WAIT, FIN_WAIT2, LAST_ACK, TIME_WAIT, CLOSING, and CLOSED.	

- **Process metrics**

- You can run the top command in Linux to understand the CPU usage and memory usage of processes. The CPU usage indicates the consumption of multi-core CPUs.
- You can run the lsof command in Linux to understand Host.process.openfile.
- You can run the ps aux |grep 'Keyword' command to understand Host.process.number

Metric	Description	Unit	Remarks
Host.process.cpu	The CPU usage of a process.	%	You cannot specify alarms for this metric.
Host.process.memory	The memory usage of a process.	%	You cannot specify alarms for this metric.
Host.process.openfile	The number of files opened by the current process.	File	You cannot specify alarms for this metric.
Host.process.number	The number of processes that match the specified keyword.	Process	You cannot specify alarms for this metric.

### ECS basic metrics

If your host is an ECS instance, CloudMonitor automatically monitors the metrics listed in the following table after you purchase the ECS instance. You do not need to install the CloudMonitor agent to monitor these metrics. CloudMonitor collects ECS basic metrics at a 1-minute interval.

Metric	Description	Unit
ECS.CPUUtilization	CPU usage.	%
ECS.InternetInRate	The average rate of inbound Internet traffic.	Bit/s
ECS.IntranetInRate	The average rate of inbound intranet traffic.	Bit/s
ECS.InternetOutRate	The average rate of outbound Internet traffic.	Bit/s

Metric	Description	Unit
ECS.IntranetOutRate	The average rate of outbound intranet traffic.	Bit/s
ECS.SystemDiskReadbps	The number of bytes per second read from the system disk.	Byte/s
ECS.SystemDiskWritebps	The number of bytes per second written to the system disk.	Byte/s
ECS.SystemDiskReadOps	The number of reads per second from the system disk.	Time/s
ECS.SystemDiskWriteOps	The number of writes per second to the system disk.	Time/s
ECS.InternetIn	Inbound Internet traffic.	Byte
ECS.InternetOut	Outbound Internet traffic.	Byte
ECS.IntranetIn	Inbound intranet traffic.	Byte
ECS.IntranetOut	Outbound intranet traffic.	Byte

## 2.5 Alarm service

Host monitoring provides the alarm service so that you can set alarm rules for a target server, or add servers to an application group and then set alarm rules at the group level. For more information about setting alarm rules for an application group, see [#unique\\_19](#).

### Create an alarm rule

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.
3. Click the **Alarm Rules** tab.
4. Click **Create Alarm Rule** in the upper-right corner.
5. In the displayed dialog box, set the parameters. For more information, see [Manage alarm rules](#).
6. Click **Confirm** to save your alarm rule settings.

### Delete an alarm rule

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.

3. Click the **Alarm Rules** tab.
4. Find the target alarm rule and click **Delete** in the **Actions** column. If you want to delete multiple rules at a time, select the target rules and click **Delete** under the alarm rule list.

### Modify an alarm rule

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.
3. Click the **Alarm Rules** tab.
4. Find the target alarm rule and click **Modify**.

### View alarm rules

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.
3. Click the **Instances** tab. Then, find the target host and click **Alarm Rules** in the **Actions** column to view the alarm rules of the host.
4. To view all the alarm rules, go to the **Alarm Rules** tab page.

## 2.6 CloudMonitor Java agent introduction

CloudMonitor provides you with a powerful host monitoring agent that allows you to monitor your servers systematically. The following is a brief introduction to this service, including its installation and resource usage.

### Installation path

- Linux: /usr/local/cloudmonitor
- Windows: C:\Program Files\Alibaba\cloudmonitor

### Process information

After an agent is installed, the following two processes run on your server:

- /usr/local/cloudmonitor/jre/bin/java
- /usr/local/cloudmonitor/wrapper/bin/wrapper

### Port description

- TCP port 32000 of the local host is accessed and listened to for daemons.
- TCP port 3128, 8080, or 443 of remote servers is accessed for heartbeat monitoring and monitoring data reporting. Port 3128 or 8080 is used for Alibaba Cloud hosts, and port 443 is used for other hosts.

- HTTP port 80 of remote servers is accessed for CloudMonitor agent upgrades.

### Agent logs

- Logs of monitoring data are located at `/usr/local/cloudmonitor/logs`.
- Logs of startup, shutdown, and daemons are located at `/usr/local/cloudmonitor/wrapper/logs`.
- You can modify `/usr/local/cloudmonitor/config/log4j.properties` to adjust the log level.

### Resource usage

- The process `/usr/local/cloudmonitor/wrapper/bin/wrapper` occupies about 1 MB of memory with little to no CPU usage.
- The process `/usr/local/cloudmonitor/jre/bin/java` occupies about 70 MB of memory and 1% to 2% of one core's CPU usage.
- The installation package is 70 MB and occupies about 200 MB of disk space after the installation is complete.
- Logs use a maximum space of 40 MB and are cleared if they use more than 40 MB.
- Monitoring data is sent every 15 seconds, occupying about 10 KB intranet bandwidth.
- Heartbeat data is sent every three minutes, occupying about 2 KB intranet bandwidth.

### External dependencies

- The Java agent of CloudMonitor is built in with JRE 1.8.
- Java service wrapper is used for daemons, start up at boot, and Windows service registration.
- The `ss -s` command is used to capture a TCP connection, and if you do not have this command in the current system, you must install `iproute` yourself.

### Installation instructions

See [Install CloudMonitor Java agent](#).

#### Install an agent on a host not provided by Alibaba Cloud

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Host Monitoring**.
3. At the top of the displayed page, click **Not Aliyun ecs install**. In the **Monitor Install Guide** dialog box that is displayed, select the agent type and host type to view the corresponding installation method.

## 2.7 Install CloudMonitor Java agent

### Install a CloudMonitor Java agent on Linux

#### Frequently used commands

```
# Running status
/usr/local/cloudmonitor/wrapper/bin/cloudmonitor.sh status

# Start
/usr/local/cloudmonitor/wrapper/bin/cloudmonitor.sh start

# Stop
/usr/local/cloudmonitor/wrapper/bin/cloudmonitor.sh stop

# Restart
/usr/local/cloudmonitor/wrapper/bin/cloudmonitor.sh restart

# Uninstall
/usr/local/cloudmonitor/wrapper/bin/cloudmonitor.sh remove && \
rm -rf /usr/local/cloudmonitor
```

#### Installation command

This command varies by region. Copy the corresponding command and then run it on your server as a root user.

#### China North 1 (Qingdao) cn-qingdao

```
REGION_ID=cn-qingdao VERSION=1.3.7 \
bash -c "$(curl https://cms-agent-cn-qingdao.oss-cn-qingdao-internal.aliyuncs.com/
release/cms_install_for_linux.sh)"
```

#### China North 2 (Beijing) cn-beijing

```
REGION_ID=cn-beijing VERSION=1.3.7 \
bash -c "$(curl https://cms-agent-cn-beijing.oss-cn-beijing-internal.aliyuncs.com/
release/cms_install_for_linux.sh)"
```

#### China North 3 (Zhangjiakou) cn-zhangjiakou

```
REGION_ID=cn-zhangjiakou VERSION=1.3.7 \
```

```
bash -c "$(curl https://cms-agent-cn-zhangjiakou.oss-cn-zhangjiakou-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China North 5 (Hohhot) cn-huhehaote

```
REGION_ID=cn-huhehaote VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-huhehaote.oss-cn-huhehaote-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China East 1 (Hangzhou) cn-hangzhou

```
REGION_ID=cn-hangzhou VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-hangzhou.oss-cn-hangzhou-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China East 2 (Shanghai) cn-shanghai

```
REGION_ID=cn-shanghai VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-shanghai.oss-cn-shanghai-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China South 1 (Shenzhen) cn-shenzhen

```
REGION_ID=cn-shenzhen VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-shenzhen.oss-cn-shenzhen-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China (Hong Kong) (Hong Kong) cn-hongkong

```
REGION_ID=cn-hongkong VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-hongkong.oss-cn-hongkong-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### US West 1 (Silicon Valley) us-west-1

```
REGION_ID=us-west-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-us-west-1.oss-us-west-1-internal.aliyuncs.com/  
release/cms_install_for_linux.sh)"
```

### **US East 1 (Virginia) us-east-1**

```
REGION_ID=us-east-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-us-east-1.oss-us-east-1-internal.aliyuncs.com/  
release/cms_install_for_linux.sh)"
```

### **Asia Pacific SE 1 (Singapore) ap-southeast-1**

```
REGION_ID=ap-southeast-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-ap-southeast-1.oss-ap-southeast-1-internal.aliyuncs.  
com/release/cms_install_for_linux.sh)"
```

### **Asia Pacific SE 2 (Sydney) ap-southeast-2**

```
REGION_ID=ap-southeast-2 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-ap-southeast-2.oss-ap-southeast-2-internal.aliyuncs.  
com/release/cms_install_for_linux.sh)"
```

### **Asia Pacific SE 3 (Kuala Lumpur) ap-southeast-3**

```
REGION_ID=ap-southeast-3 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-ap-southeast-3.oss-ap-southeast-3-internal.aliyuncs.  
com/release/cms_install_for_linux.sh)"
```

### **Asia Pacific SE 5 (Jakarta) ap-southeast-5**

```
REGION_ID=ap-southeast-5 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-ap-southeast-5.oss-ap-southeast-5-internal.aliyuncs.  
com/release/cms_install_for_linux.sh)"
```

### **Asia Pacific NE 1 (Tokyo) ap-northeast-1**

```
REGION_ID=ap-northeast-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-ap-northeast-1.oss-ap-northeast-1-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

#### **Asia Pacific SOU 1 (Mumbai) ap-south-1**

```
REGION_ID=ap-south-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-ap-south-1.oss-ap-south-1-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

#### **EU Central 1 (Frankfurt) eu-central-1**

```
REGION_ID=eu-central-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-eu-central-1.oss-eu-central-1-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

#### **UK (London) eu-west-1**

```
REGION_ID=eu-west-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-eu-west-1.oss-eu-west-1-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

#### **Middle East 1 (Dubai) me-east-1**

```
REGION_ID=me-east-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-me-east-1.oss-me-east-1-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

#### **China East 1 Finance Cloud (Hangzhou) cn-hangzhou**

```
REGION_ID=cn-hangzhou VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-hangzhou.oss-cn-hangzhou-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

```
bash -c "$(curl https://cms-agent-cn-hangzhou.oss-cn-hangzhou-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China East 2 Finance Cloud (Shanghai) cn-shanghai-finance-1

```
REGION_ID=cn-shanghai-finance-1 VERSION=1.3.7 \  
bash -c "$(curl https://cms-agent-cn-shanghai-finance-1.oss-cn-shanghai-finance-1-pub-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

### China South 1 Finance Cloud (Shenzhen) cn-shenzhen-finance-1

```
REGION_ID=cn-shenzhen-finance-1 VERSION=1.3.7 \  
bash -c "$(curl http://cms-agent-cn-shenzhen-finance-1.oss-cn-shenzhen-finance-1-internal.aliyuncs.com/release/cms_install_for_linux.sh)"
```

## Install a CloudMonitor Java agent on Windows

### Installation procedure

1. Download [64-bit agent version](#) or [32-bit agent version](#) based on your operating system version.
2. Create a folder in the path C:/Program Files/Alibaba and name it cloudmonitor.
3. Decompress the installation package to C:/Program Files/Alibaba/cloudmonitor.
4. Double-click C:/Program Files/Alibaba/cloudmonitor/wrapper/bin/InstallApp-NT.bat as an administrator to install CloudMonitor.
5. Double-click C:/Program Files/Alibaba/cloudmonitor/wrapper/bin/StartApp-NT.bat as an administrator to start CloudMonitor.
6. After the installation is complete, you can view, start, and stop CloudMonitor through the service panel of Windows.

### Uninstall procedure

1. Stop CloudMonitor through the service panel of Windows.
2. Run C:/Program Files/Alibaba/cloudmonitor/wrapper/bin/UninstallApp-NT.bat as an administrator to delete CloudMonitor.
3. In the installation directory, delete the entire directory C:/Program Files/Alibaba/cloudmonitor.

### Download the agent with no Internet connection

If you do not have an Internet connection, you can download the installation package from the intranet. For example, if the region of your host is Qingdao and the host uses a 64-bit system, then the intranet download address is as follows: <http://cms-agent-cn-qingdao.oss-cn-qingdao.aliyuncs.com/release/1.3.7/windows64/agent-windows64-1.3.7-package.zip>.

- For a host in another region, change `cn-qingdao` to the corresponding region ID.
- For a host that uses a 32-bit system, change `windows64` to `windows32`.
- For another version, change `1.3.7` to the corresponding version number.

### Security configuration instructions

The following table lists the ports that the CloudMonitor agent uses to interact with your server. If the security software disables these ports, monitoring data may fail to be collected. If your ECS server requires a high level of security, you can add one of the following IP addresses to the whitelist.



#### Note:

Future version updates and maintenance of CloudMonitor may cause changes to the following IP addresses. To simplify the configuration of your firewall rules, we recommend that you directly allow the 100.100 network segment in the egress direction. This network segment is reserved for the intranet of Alibaba Cloud with no security issues.

Region	IP	Direction	Description
China East 1 (Hangzhou) cn-hangzhou	100.100.19.43:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.45.73:80	Egress	Used to collect monitoring data to CloudMonitor
China North 2 (Beijing) cn-beijing	100.100.18.22:3128	Egress	Used for monitoring configuration management, and other management and control operations

Region	IP	Direction	Description
	100.100.18.50:80	Egress	Used to collect monitoring data to CloudMonitor
China North 1 (Qingdao) cn-qingdao	100.100.36.102:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.15.23:80	Egress	Used to collect monitoring data to CloudMonitor
China South 1 (Shenzhen) cn-shenzhen	100.100.0.13:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.0.31:80	Egress	Used to collect monitoring data to CloudMonitor
China (Hong Kong) (Hong Kong) cn-hongkong	100.103.0.47:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.103.0.45:80	Egress	Used to collect monitoring data to CloudMonitor
China North 5 (Hohhot) cn-huhehaote	100.100.80.135:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.12:80	Egress	Used to collect monitoring data to CloudMonitor

Region	IP	Direction	Description
China North 3 (Zhangjiakou) cn-zhangjiakou	100.100.80.92:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.0.19:80	Egress	Used to collect monitoring data to CloudMonitor
China East 2 (Shanghai) cn-shanghai	100.100.36.11:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.36.6:80	Egress	Used to collect monitoring data to CloudMonitor
China SW 1 (Chengdu) cn-chengdu	100.100.80.229:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.14:80	Egress	Used to collect monitoring data to CloudMonitor
US East 1 (Virginia) us-east-1	100.103.0.95:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.103.0.94:80	Egress	Used to collect monitoring data to CloudMonitor

Region	IP	Direction	Description
US West 1 (Silicon Valley) us-west-1	100.103.0.95:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.29.7:80	Egress	Used to collect monitoring data to CloudMonitor
EU Central 1 (Frankfurt) eu-central-1	100.100.80.241:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.72:80	Egress	Used to collect monitoring data to CloudMonitor
UK (London) eu-west-1	100.100.0.3:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.0.2:80	Egress	Used to collect monitoring data to CloudMonitor
Asia Pacific SE 1 (Singapore) ap-southeast-1	100.100.30.20:3128	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.103.7:80	Egress	Used to collect monitoring data to CloudMonitor

Region	IP	Direction	Description
Asia Pacific SE 2 (Sydney) ap-southeast-2	100.100.80.92:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.13:80 [47.91.39.6:443]	Egress	Used to collect monitoring data to CloudMonitor
Asia Pacific SE 3 (Kuala Lumpur) ap-southeast-3	100.100.80.153:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.140:80	Egress	Used to collect monitoring data to CloudMonitor
Asia Pacific SE 5 (Jakarta) ap-southeast-5	100.100.80.160:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.180:80	Egress	Used to collect monitoring data to CloudMonitor
Middle East 1 (Dubai) me-east-1	100.100.80.142:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.151:80 [47.91.99.5:443]	Egress	Used to collect monitoring data to CloudMonitor

Region	IP	Direction	Description
Asia Pacific NE 1 (Tokyo) ap-northeast-1	100.100.80.184:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.137:80 [47.91.8.7:443]	Egress	Used to collect monitoring data to CloudMonitor
Asia Pacific SOU 1 (Mumbai) ap-south-1	100.100.80.152:8080	Egress	Used for monitoring configuration management, and other management and control operations
	100.100.80.66:80	Egress	Used to collect monitoring data to CloudMonitor

### Resource consumption

- Installation package size: 75 MB
- Space occupied after installation: 200 MB
- Memory: 64 MB
- CPU: less than 1%
- Network: intranet, with no Internet bandwidth consumption

### FAQ

- Where are CloudMonitor logs saved?
  - Linux: /usr/local/cloudmonitor/logs
  - Windows: C:/Program Files/Alibaba/cloudmonitor/logs

- What should I do if there is a conflict between the port occupied by the agent and the port used by my service?
  1. Change the port range by modifying the CloudMonitor configuration, with the file location: /usr/local/cloudmonitor/wrapper/conf/wrapper.conf.
  2. Restart CloudMonitor.

```
wrapper.port.min=40000
wrapper.port.max=41000
wrapper.jvm.port.min=41001
wrapper.jvm.port.max=42000
```

## 2.8 Introduction to the CloudMonitor GoLang agent

This topic provides a brief introduction to the CloudMonitor GoLang agent and its installation and resource usage. The GoLang agent can enable you to monitor your servers in a centralized and systematic manner.

### Installation path

- Linux: /usr/local/cloudmonitor
- Windows: C:\Program Files\Alibaba\cloudmonitor

### Process information

After the agent is installed, the following two processes run on your server:

- Linux 32-bit: CmsGoAgent.linux-386
- Linux 64-bit: CmsGoAgent.linux-amd64
- Windows 32-bit: CmsGoAgent.windows-386.exe
- Windows 64-bit: CmsGoAgent.windows-amd64.exe

### Port description

- TCP port 3128, 8080, or 443 of remote servers is accessed for heartbeat monitoring and the reporting of monitoring data. Port 3128 or 8080 is used for Alibaba Cloud hosts, and port 443 is used for other hosts.
- HTTP port 80 of remote servers is accessed for CloudMonitor agent upgrades.

### Agent logs

- Logs of monitoring data are stored in the log directory.

- You can adjust the level of a log by modifying the `cms.log.level` field in the `config/conf.properties` file. If the field does not exist, you can manually create it. The level of a log can be `DEBUG`, `INFO`, `WARNING`, `ERROR`, or `FATAL`.

### Resource usage

- The agent process occupies a memory of 10 to 20 MB and 1% to 2% of a single core CPU.
- The size of the agent installation package is 10 to 15 MB.
- Logs use up to 40 MB and are cleared if they use more than 40 MB.
- Monitoring data is sent every 15 seconds, occupying about 10 KB of intranet bandwidth.
- Heartbeat data is sent every 3 minutes, occupying about 2 KB of intranet bandwidth.

### Installation instructions

For details, see [Install the CloudMonitor GoLang agent](#).

#### Install the agent on a host not provided by Alibaba Cloud

- Log on to the [CloudMonitor console](#).
- In the left-side navigation pane, click **Host Monitoring**.
- At the top of the displayed page, click **Not Aliyun ecs install**. In the **Monitor Install Guide** dialog box that is displayed, select the agent type and host type to view the corresponding installation method.

## 2.9 Install the CloudMonitor GoLang agent

This topic describes how to install the GoLang agent of CloudMonitor.

### System requirements

Operating system	Hardware architecture	Remarks
Windows 7, Windows Server 2008 R2, or a later version	AMD64 or 386	N/A
Linux 2.6.23 or a later version with the glibc library.	AMD64 or 386	CentOS 5.x and RHEL 5.x are not supported.

The following resources are required:

- Installation package size: 10-15 MB.
- Memory: 10-15 MB. If the shared space is counted, the memory size is 20 MB, which depends on the system memory size.
- CPU: 1-2%.

- Network: internal network. No public network bandwidth is used.

## Install the agent on Linux

### Commonly used commands

```
# Register the agent as a system service
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH}install
# Remove the agent from system services
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH} uninstall
# Start the agent
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH} start
# Stop the agent
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH} stop
# Restart the agent
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH} restart
# Uninstall the agent
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH} stop && \
/usr/local/cloudmonitor/CmsGoAgent.linux-${ARCH} uninstall && \
rm -rf /usr/local/cloudmonitor
```

### Installation command

Copy and paste one of the following region-specific commands to the Install shell field on the Monitor Install Guide page in the CloudMonitor console. Then run the command on the server by using root permissions.

- China (Qingdao). Region ID: cn-qingdao.

```
REGION_ID=cn-qingdao VERSION=2.1.55 \
bash -c "$(curl https://cms-agent-cn-qingdao.oss-cn-qingdao-internal.aliyuncs.com/
/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Beijing). Region ID: cn-beijing.

```
REGION_ID=cn-beijing VERSION=2.1.55 \
bash -c "$(curl https://cms-agent-cn-beijing.oss-cn-beijing-internal.aliyuncs.com/
/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Zhangjiakou-Beijing Winter Olympics). Region ID: cn-zhangjiakou.

```
REGION_ID=cn-zhangjiakou VERSION=2.1.55 \
bash -c "$(curl https://cms-agent-cn-zhangjiakou.oss-cn-zhangjiakou-internal.
aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Hohhot). Region ID: cn-huhehaote.

```
REGION_ID=cn-huhehaote VERSION=2.1.55 \
bash -c "$(curl https://cms-agent-cn-huhehaote.oss-cn-huhehaote-internal.aliyuncs.
com/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Hangzhou). Region ID: cn-hangzhou.

```
REGION_ID=cn-hangzhou VERSION=2.1.55 \
```

```
bash -c "$(curl https://cms-agent-cn-hangzhou.oss-cn-hangzhou-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Shanghai). Region ID: cn-shanghai.

```
REGION_ID=cn-shanghai VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-cn-shanghai.oss-cn-shanghai-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Shenzhen). Region ID: cn-shenzhen.

```
REGION_ID=cn-shenzhen VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-cn-shenzhen.oss-cn-shenzhen-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China (Hong Kong). Region ID: cn-hongkong.

```
REGION_ID=cn-hongkong VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-cn-hongkong.oss-cn-hongkong-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- US (Silicon Valley). Region ID: us-west-1.

```
REGION_ID=us-west-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-us-west-1.oss-us-west-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- US (Virginia). Region ID: us-east-1.

```
REGION_ID=us-east-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-us-east-1.oss-us-east-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- Singapore. Region ID: ap-southeast-1.

```
REGION_ID=ap-southeast-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-ap-southeast-1.oss-ap-southeast-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- Australia (Sydney). Region ID: ap-southeast-2.

```
REGION_ID=ap-southeast-2 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-ap-southeast-2.oss-ap-southeast-2-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- Malaysia (Kuala Lumpur). Region ID: ap-southeast-3.

```
REGION_ID=ap-southeast-3 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-ap-southeast-3.oss-ap-southeast-3-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- Indonesia (Jakarta). Region ID: ap-southeast-5.

```
REGION_ID=ap-southeast-5 VERSION=2.1.55 \  

```

```
bash -c "$(curl https://cms-agent-ap-southeast-5.oss-ap-southeast-5-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- Japan (Tokyo). Region ID: ap-northeast-1.

```
REGION_ID=ap-northeast-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-ap-northeast-1.oss-ap-northeast-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- India (Mumbai). Region ID: ap-south-1.

```
REGION_ID=ap-south-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-ap-south-1.oss-ap-south-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- Germany (Frankfurt). Region ID: eu-central-1.

```
REGION_ID=eu-central-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-eu-central-1.oss-eu-central-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- UK (London). Region ID: eu-west-1.

```
REGION_ID=eu-west-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-eu-west-1.oss-eu-west-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- UAE (Dubai). Region ID: me-east-1.

```
REGION_ID=me-east-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-me-east-1.oss-me-east-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China East 1 Finance. Region ID: cn-hangzhou-finance.

```
REGION_ID=cn-hangzhou VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-cn-hangzhou.oss-cn-hangzhou-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China East 2 Finance. Region ID: cn-shanghai-finance-1.

```
REGION_ID=cn-shanghai-finance-1 VERSION=2.1.55 \  
bash -c "$(curl https://cms-agent-cn-shanghai-finance-1.oss-cn-shanghai-finance-1-pub-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

- China South 1 Finance. Region ID: cn-shenzhen-finance-1.

```
REGION_ID=cn-shenzhen-finance-1 VERSION=2.1.55 \  
bash -c "$(curl http://cms-agent-cn-shenzhen-finance-1.oss-cn-shenzhen-finance-1-internal.aliyuncs.com/cms-go-agent/cms_go_agent_install.sh)"
```

**Note:**

- The format of the binary file name of the agent is CmsGoAgent.linux- $\{ARCH\}$ . The value of the ARCH parameter can be amd64 or 386 depending on the Linux system architecture.
- We recommend that you use the latest version of the agent. You can find the ID of the latest version on the Host Monitoring page in the CloudMonitor console.

## Install the agent on Windows

1. Select a region and host type. Download a [64-bit agent version](#) or [32-bit agent version](#) depending on your operating system, and save it in the directory C:\Program Files\Alibaba\cloudmonitor.



### Note:

You can also download the agent over the internet network from the following link: <http://cms-agent-cn-qingdao.oss-cn-qingdao-internal.aliyuncs.com/cms-go-agent/2.1.55/CmsGoAgent.windows-amd64.exe>. The link can be customized as follows:

- Replace the cn-qingdao value with the ID of the required region.
- Replace the amd64 value with 386 to switch to the 32-bit Linux.
- Change the 2.1.55 value to download the agent of another version.

2. Open a **command prompt** window as an administrator.
3. Run the following commands:

```
cd"C:\Program Files\Alibaba\cloudmonitor"  
CmsGoAgent.windows-amd64.exe install  
CmsGoAgent.windows-amd64.exe start
```

4. After installation is completed, you can use **Windows Services** to view, start, and stop the agent.

## Uninstall the agent on Windows

1. Open a command prompt window as an administrator.
2. Run the following commands:

```
cd"C:\Program Files\Alibaba\cloudmonitor"  
CmsGoAgent.windows-amd64.exe stop  
CmsGoAgent.windows-amd64.exe uninstall
```

3. Close the command prompt window.
4. Delete the directory C:\Program Files\Alibaba\cloudmonitor.

## Security configuration instructions

The following table lists the ports that the CloudMonitor agent uses to interact with servers . If the ports are disabled by security software, errors may occur when monitoring data is collected. We recommend that you add a corresponding CIDR block to security groups of the ECS instance that require a high level of security.



### Note:

- In later versions of CloudMonitor, the existing CIDR blocks may be modified, or new CIDR blocks may be added to the following CIDR blocks. To simplify the configuration of firewall rules, you can allow the outbound traffic to the 100.0.0.0/8 CIDR block. This CIDR block is reserved for the internal network of Alibaba Cloud.
- The CIDR blocks in square brackets [] are optional. They are used as backup CIDR blocks when the network is instable.

Region	CIDR block	Direction	Description
China (Hangzhou ). Region ID: cn-hangzhou.	100.100.19.43:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.45.73:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Beijing). Region ID: cn-beijing .	100.100.18.22:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.18.50:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Qingdao ). Region ID: cn-qingdao.	100.100.36.102:3128	Outbound	Used for control operations, such as management of monitoring configurations.

Region	CIDR block	Direction	Description
	100.100.15.23:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Shenzhen ). Region ID: cn-shenzhen.	100.100.0.13:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.0.31:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Hong Kong ). Region ID: cn-hongkong.	100.103.0.47:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.103.0.45:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Hohhot ). Region ID: cn-huhehaote.	100.100.80.135:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.12:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Zhangjiakou-Beijing Winter Olympics). Region ID : cn-zhangjiakou.	100.100.80.92:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.0.19:80	Outbound	Used to collect monitoring data to CloudMonitor.

Region	CIDR block	Direction	Description
China (Shanghai). Region ID: cn-shanghai.	100.100.36.11:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.36.6:80	Outbound	Used to collect monitoring data to CloudMonitor.
China (Chengdu). Region ID: cn-chengdu.	100.100.80.229:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.14:80	Outbound	Used to collect monitoring data to CloudMonitor.
US (Virginia). Region ID: us-east-1.	100.103.0.95:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.103.0.94:80	Outbound	Used to collect monitoring data to CloudMonitor.
US (Silicon Valley). Region ID: us-west-1.	100.103.0.95:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.29.7:80	Outbound	Used to collect monitoring data to CloudMonitor.
Germany (Frankfurt). Region ID: eu-central-1.	100.100.80.241:8080	Outbound	Used for control operations, such as management of monitoring configurations.

Region	CIDR block	Direction	Description
	100.100.80.72:80	Outbound	Used to collect monitoring data to CloudMonitor.
UK (London). Region ID: eu-west-1.	100.100.0.3:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.0.2:80	Outbound	Used to collect monitoring data to CloudMonitor.
Singapore. Region ID : ap-southeast-1.	100.100.30.20:3128	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.103.7:80	Outbound	Used to collect monitoring data to CloudMonitor.
Australia (Sydney ). Region ID: ap-southeast-2.	100.100.80.92:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.13:80 [47.91.39.6:443]	Outbound	Used to collect monitoring data to CloudMonitor.
Malaysia (Kuala Lumpur). Region ID: ap-southeast-3.	100.100.80.153:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.140:80	Outbound	Used to collect monitoring data to CloudMonitor.

Region	CIDR block	Direction	Description
Indonesia (Jakarta). Region ID: ap-southeast-5.	100.100.80.160:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.180:80	Outbound	Used to collect monitoring data to CloudMonitor.
UAE (Dubai). Region ID: me-east-1.	100.100.80.142:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.151:80 [47.91.99.5:443]	Outbound	Used to collect monitoring data to CloudMonitor.
Japan (Tokyo). Region ID: ap-northeast-1.	100.100.80.184:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.137:80 [47.91.8.7:443]	Outbound	Used to collect monitoring data to CloudMonitor.
India (Mumbai). Region ID: ap-south-1.	100.100.80.152:8080	Outbound	Used for control operations, such as management of monitoring configurations.
	100.100.80.66:80	Outbound	Used to collect monitoring data to CloudMonitor.

## FAQ

Where are logs stored?

- Linux: /usr/local/cloudmonitor/logs
- Windows: C:\Program Files\Alibaba\cloudmonitor\logs

## 2.10 Agent release notes

This topic describes the different versions of the host monitoring agent.

### 2.1.55

Release date: January 24, 2019

#### **Feature optimization and bug fixes:**

Fixed the bug that prevented the agent from collecting monitoring data after an ECS instance restarts.

#### **Upgrade recommendations:**

If your host runs a Go language agent of a version earlier than 2.1.55, we recommend that you upgrade the agent to this version.

### 2.1.54

Release date: January 3, 2019

#### **Feature optimization and bug fixes:**

Fixed the bug that prevented the agent from collecting monitoring data from graphics processing unit (GPU) servers running a Windows operating system.

#### **Upgrade recommendations:**

If your host runs a Go language agent of a version earlier than 2.1.54 on a Windows operating system, we recommend that you upgrade the agent to this version.

### 2.1.53

Release date: December 25, 2018

#### **Feature optimization and bug fixes:**

Fixed the bug that prevented the agent from collecting ECS monitoring data from classic networks.

#### **Upgrade recommendations:**

If your host runs a Go language agent of a version earlier than 2.1.53 in a classic network, we recommend that you upgrade the agent to this version.

### 2.1.51

Release date: December 4, 2018

**Feature optimization and bug fixes:**

- Fixed the bug that displayed the disk monitoring mount point as a hexadecimal string.
- Pre-check: Check the operating system version, system memory, remaining disk capacity, and connectivity to the CloudMonitor server before installing the agent, to determine whether the agent can be successfully installed.

**Upgrade recommendations:**

If your host runs a Go language agent of a version earlier than 2.1.50, we recommend that you upgrade the agent to this version.

**2.1.50**

Release date: November 29, 2018

**New features:**

The Go programming language version is officially released. Compared with the Java version, the Go programming language version significantly reduces host performance consumption and provides more stable monitoring services. For more information, see [Introduction to the CloudMonitor GoLang agent](#).

**Upgrade recommendations:**

If your host runs a Java agent of 1.X.X version, we recommend that you upgrade the agent to this version. On the **Host Monitoring** page, select a host from the instance list, and click **Install Plugins**.

**1.2.11****New features:**

Protocol-dependent local and remote detection through Telnet and HTTP

**Feature optimization and bug fixes:**

- Fixed the bug that may cause the privilege escalation loophole to occur when the tmp directory is used as the temporary download directory of the installation script.
- Fixed the bug that submitted identical device data when the same disk is attached more than once.
- Fixed the bug that prevented certain processes from obtaining the path and name.
- Optimized the file download method to prevent the download process from blocking the monitoring process.

## Upgrade recommendations

When using the local health check function, upgrade the agent to this version.

### 1.1.64

#### Feature optimization and bug fixes:

The memory usage collection logic is adjusted. For versions later than CentOS 7.2, the `/proc/meminfo MemAvailable` field is used for available memory estimation to improve the accuracy of memory usage calculation.

#### Upgrade recommendations:

If your host runs CentOS 7.2 or later, we recommend that you upgrade the agent to this version.

### 1.1.63

#### Feature optimization and bug fixes:

- Changed the default wrapper log to the info level.
- Added log information of the error level for easy failure location.
- Fixed the bug that may cause memory leakage for logs at the debug level.

### 1.1.62

#### Feature optimization and bug fixes:

- Optimized the HTTP Proxy selection logic to improve the agent installation success rate.
- Added key logs for easy failure location.

### 1.1.61

#### Feature optimization and bug fixes:

Fixed the bug that may cause exceptions to occur when certain systems collect process user names, thus causing incorrect topN process collection.

### 1.1.59

#### Feature optimization and bug fixes:

- Optimized the process count collection method to improve performance.
- Adjusted process monitoring so that two CloudMonitor agent processes are excluded from process count collection.

## 3 Site Monitoring

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### 3.1 Overview

This topic provides an overview of site monitoring and relevant application scenarios.

#### Scenarios

Site monitoring is a function that simulates user access requests to help you better analyze the behavior of users to your services. This function is available in all Alibaba Cloud regions . The typical application scenarios of site monitoring are as follows.

#### Analyze service performance

You can create a site monitoring task to obtain data, such as the time for the Domain Name Server (DNS) to resolve a domain name, the time when a connection is established, the time when an endpoint receives the first packet after sending a request, and the time when packets start to download. The data can be helpful for you to discover issues in your services, allowing you to achieve better performance.

#### Compare your service performance with that of your peers

You can add the sites you service and those of your peers in the CloudMonitor console as monitoring items, and specify the probe points to detect network quality and service performance at the sites that you service and those of your peers.

#### Get probe coverage

Site monitoring is available in all Alibaba Cloud regions. These regions can simulate user behavior and send access requests.

#### Detection protocol types

Detection type	Function
HTTP or HTTPS	Sends an HTTP or HTTPS request to a specific URL or IP address to obtain the availability metrics, response time, and status code. In advanced settings, you can select a request method (GET, POST, or HEAD), set cookie and header information, and determine whether the page content matches the specified content.

Detection type	Function
PING	Sends an ICMP request that carries the <b>ping</b> command to a specific URL or IP address. This allows you to obtain the availability metrics, response time, and packet loss rate.
TCP	Sends a TCP request to a specific port to obtain the availability metrics, response time, and status code. In advanced settings , you can set the TCP request content and the match response content.
UDP	Sends a UDP request to a specific port to obtain the availability metrics, response time, and status code. In advanced settings , you can set the UDP request content and the match response content.
DNS	Sends a DNS request to a specific domain to obtain the availability metrics, response time, and status code. In advanced settings, you can specify the type of record that you want to query: <b>A, MX, NS, CNAME, TXT, or ANY.</b>
POP3	Sends a POP3 request to a specific URL or IP address to obtain the availability metrics, response time, and status code. In advanced settings, you can set the port , username, password, and whether to establish a secured connection.
SMTP	Sends an SMTP request to a specific URL or IP address to obtain the availability metrics, response time, and status code. In advanced settings, you can set the port , username, password, and whether to establish a secured connection.
FTP	Sends an FTP request to a specific URL or IP address to obtain the availability metrics, response time, and status code. In advanced settings, you can set the port and whether to establish a secured connection.

## 3.2 Create a site monitoring task

This topic describes how to create a site monitoring task. It can be used to analyze network quality and service performance.

### Background information

Site monitoring is a function that simulates user access requests to help you better analyze the behavior of users to your services. This function is available in all Alibaba Cloud regions . By using site monitoring, you can perform the following actions:

- Create a site monitoring task to obtain data such as the time for the Domain Name Server (DNS) to resolve a domain name, the time when a connection is established, the time when an endpoint receives the first packet after sending a request, and the time when packets start to download. The data can be helpful for you to discover issues in your services, allowing you to achieve better performance.
- Add the sites you service and those of your peers on the CloudMonitor console as monitoring items, and specify the probe points to detect network quality and service performance at the sites that you service and those of your peers.
- Simulate user behavior and send access requests from all Alibaba Cloud regions.

### Before you begin

- If you want to set alarm rules when creating a site monitoring task, we recommend that you create contacts and contact groups first. You can select the contact groups when setting alarm rules, and the contact groups will receive notifications when alarms are reported. For information about how to create contacts and contact groups, see [Create an alert contact and an alert contact group](#).
- If you want to enable the alarm callback function when setting alarm rules, you need to provide a callback URL that is accessible via the Internet. In addition, enable the URL callback function in your O&M system or message system.

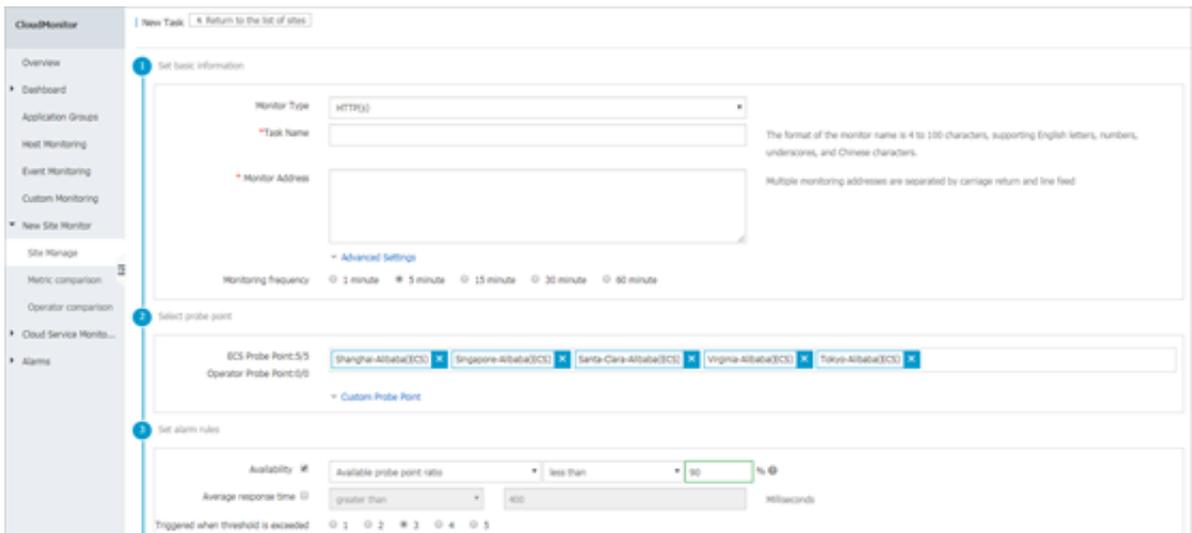
### Procedure

**Note:**

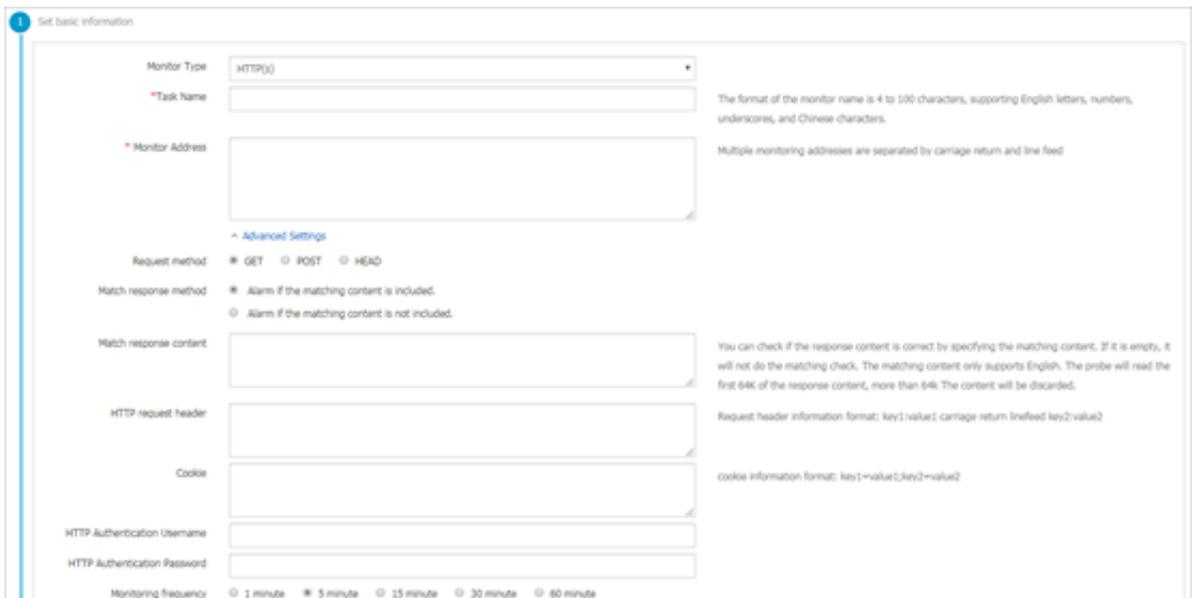
When creating a site monitoring task, you can choose to set alarm rules or not as needed.

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **New Site Monitor > Site Manage**.

3. On the **Site Monitoring** page, click **New Monitoring Task**.



4. On the **New Task** page, set basic information for the site monitoring task.

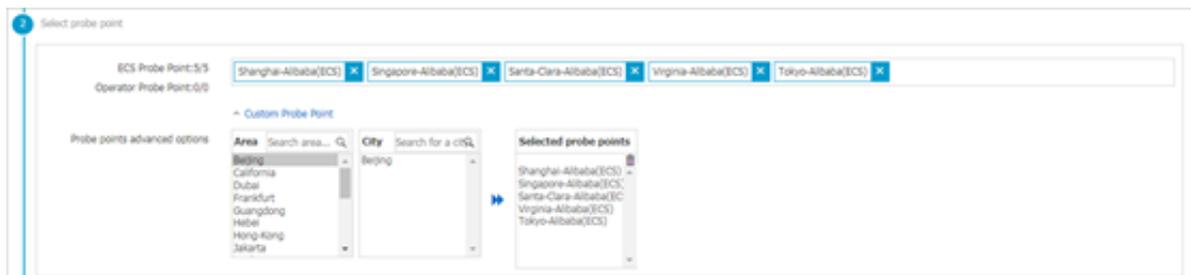


- **Monitor Type:** Select a monitoring protocol. Valid values: **HTTP(s) | PING | TCP | UDP | DNS | SMTP | POP3 | FTP.**
- **Task Name:** the name of the task. The task name contains 4 to 100 characters including letters, numbers, and underscores (\_).
- **Monitor Address:** the destination address that you want to monitor. Separate multiple addresses into new lines. When you save the task settings, each address is saved as a job.
- **Monitoring frequency:** the interval at which the destination address is monitored regularly. Valid values: **1 minute | 5 minute | 15 minute | 30 minute | 60 minute.** For

example, if you set **Monitoring frequency** to **1 minute**, each probe point monitors the destination addresses at 1-minute intervals.

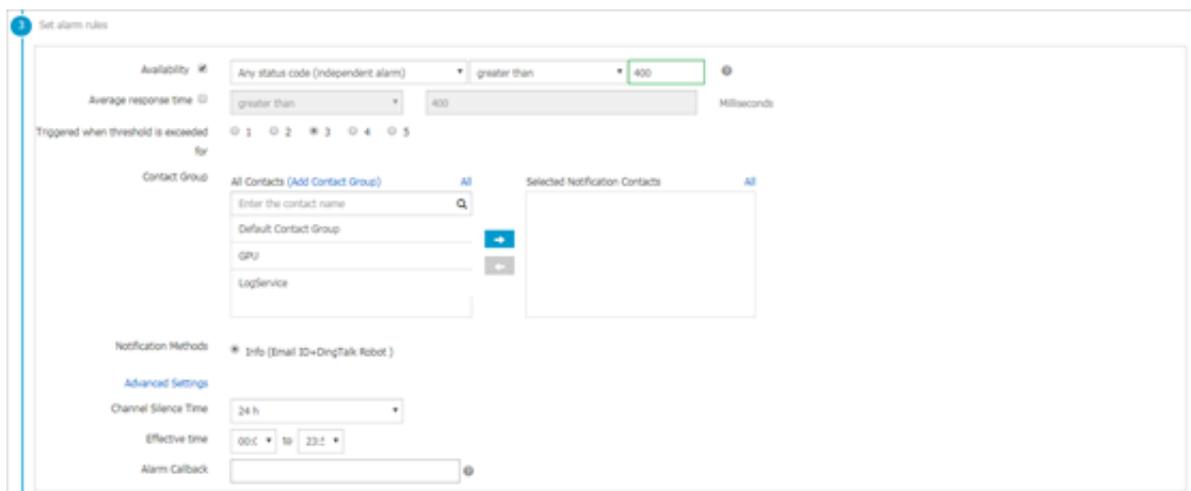
- **Advanced Settings:** The advanced settings available vary depending on the protocol specified by the **Monitor Type** parameter. For more information, see [Advanced settings in Monitoring Type](#).

## 5. Select or customize probe points.



- **ECS Probe Point:** Select probe points.
- **Probe points advanced options:** Customize probe points.

## 6. Optional. Set alarm rules.



- **Availability:** Includes four options: **Available probe point ratio**, **Number of probe points available**, **Any status code (independent alarm)**, and **All status code (independent alarm)**. If the status code for a destination address in the detection results is greater than 399, the destination address is inaccessible. The number of probe points available equals the number of detection results with a status code

less than 400 within a monitoring period. The proportion of probe points available is calculated as follows:

Proportion of probe points available = (Number of detection results with a status code less than 400 within a monitoring period/Total number of detection results within the same monitoring period) × 100

- **Average response time:** the time taken by all the selected probe points to respond on average within a monitoring period.
- **Triggered when threshold is exceeded for:** the number of consecutive times that a metric exceeds its threshold before an alarm is reported. This parameter is used to detect the occasional volatility of the monitoring data.
- **Contact Group:** the group of contacts to receive alarm notifications.
- **Notification Methods:** the method for receiving alarm notifications.
- **Advanced Settings:** Includes three options: **Channel Silence Time**, **Effective time**, and **Alarm Callback**.
  - **Channel Silence Time:** the interval at which a notification is sent regularly before the reported alarm is cleared.
  - **Effective time:** the period of time during which the alarm rule is effective. CloudMonitor sends alarm notifications only within the specified period. After the specified period elapses, CloudMonitor records each reported alarm but does not send notifications.
  - **Alarm Callback:** Enter a URL that is accessible via the Internet. CloudMonitor sends POST requests that carry alarm information to this URL. You must enter a URL based on the HTTP protocol.

**7. Click Create.**

## Advanced settings in Monitoring Type

- **Advanced settings for HTTP(s)**

Parameter	Value	Required	Description
Monitor Address	URL	Yes	<p>We recommend that you include a schema into every entered address, for example, <b>https://www.alibabacloud.com</b>.</p> <p>If you enter an address that does not contain a schema, CloudMonitor adds <b>http</b> as a schema to this address.</p>
Request content	Form data or JSON object	No	<p>If the request content is in the JSON format, ensure that the entered JSON objects are included in braces ({}). If you do not include JSON objects into braces ({}), CloudMonitor regards them to be form data.</p>
Request method	A selected option	Yes	<p>Valid values: <b>GET   POST   HEAD</b>.</p> <p>Default value: <b>GET</b>.</p>
Match response method	A selected option	Yes	<p>When the match response content is specified, CloudMonitor reads the first 64 KB in the body of the response message that is sent from the HTTP server to search for the specified content.</p>
Match response content	Text	No	<p>The result is one of the following:</p> <ol style="list-style-type: none"> <li>1. The response contains the specified content.</li> <li>2. The response does not contain the specified content.</li> </ol> <p>CloudMonitor determines whether to trigger an alarm based on the specified match response method.</p> <p>Alibaba Cloud probe points support match response content in English.</p>

Parameter	Value	Required	Description
HTTP request header	Lines of text	No	<p>The format of HTTP request header information is as follows: key1:value1 carriage return linefeed key2:value2. CloudMonitor presets the following item in the request header:</p> <p>Host: \$ {Domain name specified in Monitor Address}</p> <p>Pragma: no-cache</p> <p>Cache-Control: no-cache</p> <p>User-Agent: Chrome/57</p> <p>Accept: */*</p> <p>If the request content is a form, the request header may contain the following item:</p> <p>Content-Type: application/x-www-form-urlencoded;charset=UTF-8</p> <p>If your HTTP request header contains one or more of the preceding items, these items are overwritten by your settings.</p> <p>According to the HTTP protocol, CloudMonitor converts the keys in the request header into an MIME header in the canonical format:</p> <ol style="list-style-type: none"> <li>1. The first letter and the letter that follows a hyphen (-) in a key are capitalized. For example, accept-encoding is converted into Accept-Encoding.</li> <li>2. If a key contains spaces or other invalid characters, it remains unchanged.</li> </ol>
Cookie	N/A	No	Enter cookie text based on the HTTP protocol.
HTTP Authentication Username	Username	No	This authentication refers to the basic authentication by the HTTP protocol.

Parameter	Value	Required	Description
HTTP Authentication Password	Password	No	

- **Advanced settings for PING**

Parameter	Value	Required
Monitor Address	Domain name or IP address	Yes
Number of ping packets	Positive integer	Yes



**Note:**

The **Number of ping packets** parameter indicates the number of times that the **ping** command is initiated. Value range: 1 to 40. Default value: 20.

- **Advanced settings for TCP and UDP**

Parameter	Value	Required	Description
Monitor Address	Domain name or IP address	Yes	None
Request content format	A selected option	Yes	Valid when the request content is specified. Valid values: <b>Hexadecimal Format</b>   <b>Text</b> .

Parameter	Value	Required	Description
Request content	Text or hexadecimal text	No	<p><b>Text:</b> a string of visible text characters. The text format does not support escape characters. That is, <code>\n</code> is not converted into a new line entered, but rather the system regards it as two characters: a backward slash (<code>\</code>) and a letter <code>n</code>.</p> <p><b>Hexadecimal Format:</b> When the request content is a byte string that cannot be represented by a text string, you can convert the byte string into a hexadecimal string. The conversion rules are as follows: Each byte is converted into a 2-byte hexadecimal string. For example, <code>(byte)1</code> is converted into a hexadecimal string <code>01</code>, and <code>(byte)27</code> is converted into a hexadecimal string <code>1B</code>.</p> <p>According to the conversion rules, the binary array <code>"{(byte)1, (byte)27}"</code> in Java format is converted into the following hexadecimal string: <code>011b</code> or <code>011B</code>. CloudMonitor does not distinguish between uppercase and lowercase letters for hexadecimal strings. Enter the string <code>011B</code> in the <b>Request content</b> field and set <b>Request content format</b> to <b>Hexadecimal Format</b>.</p>
match response content format	A selected option	Yes	Valid when the match response content is specified. Valid values: <b>Hexadecimal Format</b>   <b>Text</b> .
Match response content	Text or hexadecimal text	No	For more information, see the <b>Request content</b> parameter.

- **Advanced settings for DNS**

Parameter	Value	Required	Description
Monitor Domain Name	Domain name	Yes	
DNS query type	A selected option	Yes	Valid values: <b>A</b>   <b>MX</b>   <b>NS</b>   <b>CNAME</b>   <b>TXT</b>   <b>ANY</b> .  Default value: <b>A</b> .
DNS server	DNS IP address	No	If this parameter is unspecified, CloudMonitor uses the default DNS IP address. You can enter a domain name or an IP address.
Expected to resolve IP	Lines of text	No	Enter a list of domain names or IP addresses that you want to resolve. Each line represents a domain name or an IP address.  The detection is successful only when the specified list is a subset of the DNS list.

- **Advanced settings for POP3**

Parameter	Value	Required	Description
Monitor Address	URL	Yes	If you select the POP3(s) protocol, every address that you enter must contain a schema, for example, <b>pop3s://pop3.aliyun.com</b> .  If you enter an address that does not contain a schema, CloudMonitor adds <b>pop3</b> as a schema to this address.  POP3(s) encrypts data by using TLS.

Parameter	Value	Required	Description
username	Text	Yes	<p>Your account is authenticated by using the <b>USER</b> and <b>PASS</b> commands.</p> <p>Make sure that you enter a valid username and password. CloudMonitor detects the Internet at the intervals specified by the <b>Monitoring frequency</b> parameter. If the username and password are invalid, frequent detection to a party may cause this party to block your account.</p>
Password	Text	Yes	

- **Advanced settings for SMTP**

Parameter	Value	Required	Description
Monitor Address	URL	Yes	<p>Every address that you enter must contain a schema, for example, <b>smtp://smtp.aliyun.com</b>.</p> <p>If you enter an address that does not contain a schema, CloudMonitor adds <b>smtp</b> as a schema to this address.</p> <p>SMTP uses the <b>STARTTLS</b> command to negotiate with the server on encryption. When a secured connection is used, the authentication information is also encrypted.</p>
username	Text	Yes	<p>Your account is authenticated by using the <b>PLAIN</b> command.</p> <p>Make sure that you enter a valid username and password. CloudMonitor detects the Internet at the intervals specified by the <b>Monitoring frequency</b> parameter. If the username and password are invalid, frequent detection to a party may cause this party to block your account.</p>
Password	Text	Yes	

- **Advanced settings for FTP**

Parameter	Value	Required	Description
Monitor Address	URL	Yes	Example: <b>ftp://smtp.aliyun.com</b> .
Are you anonymous login	A selected option	Yes	Valid values: <b>Anonymous Logon</b>   <b>Authentication Required</b> . Default value: <b>Anonymous Logon</b> .  If you select <b>Authentication Required</b> , you must enter a valid username and password.
username	Text		The username and password used for FTP authentication.  If you select <b>Anonymous Logon</b> , the username and password are <b>anonymous</b> and <b>ftp@example.com</b> , respectively.
Password	Text		

### 3.3 Manage a site monitoring task

This topic describes how to modify, delete, enable, and disable a site monitoring task.

#### Modify a site monitoring task

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **New Site Monitor > Site Manage**.
3. On the **Site Monitoring page**, click **Modify** in the **Action** column for the site monitoring task.
4. On the displayed page, modify the task settings and click **Modify**.

#### Delete a site monitoring task

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **New Site Monitor > Site Manage**.
3. On the **Site Monitoring page**, click **Delete** in the **Action** column for the site monitoring task.



**Note:**

After a site monitoring task is deleted, the related alarm rules are also deleted.

## Enable or disable a site monitoring task

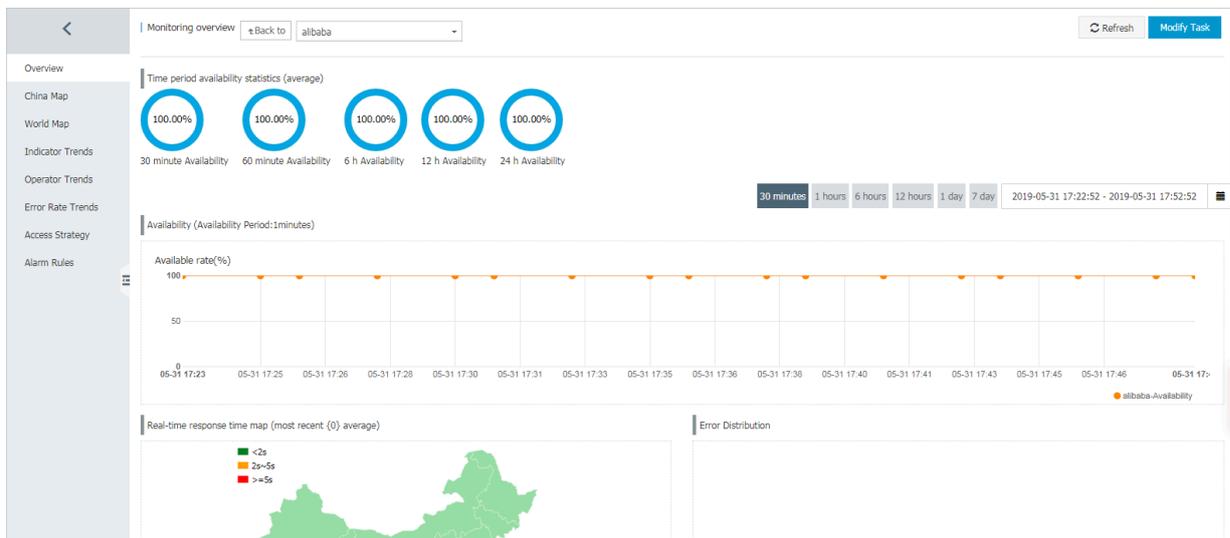
1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **New Site Monitor > Site Manage**.
3. On the **Site Monitoring** page, click **Enable** or **Disable** in the **Action** column for the site monitoring task.

## 3.4 View site monitoring data

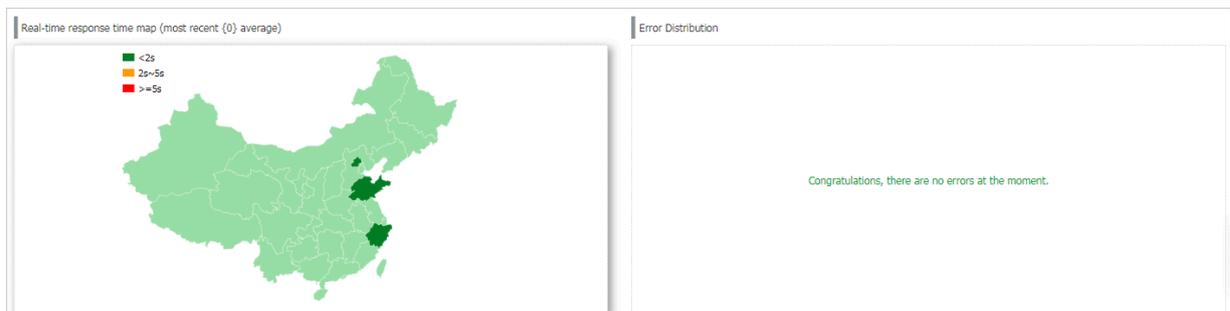
This topic describes how to view site monitoring data.

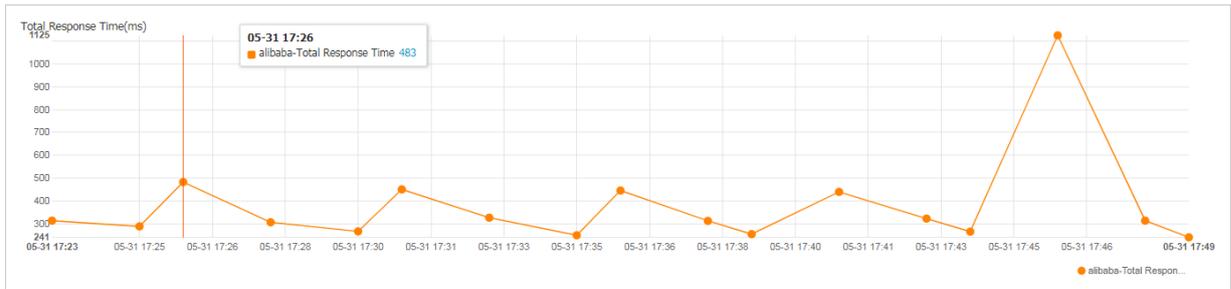
### Overview

This page provides data about access to the current site from four dimensions: availability, real-time response time, error distribution, and average response time.

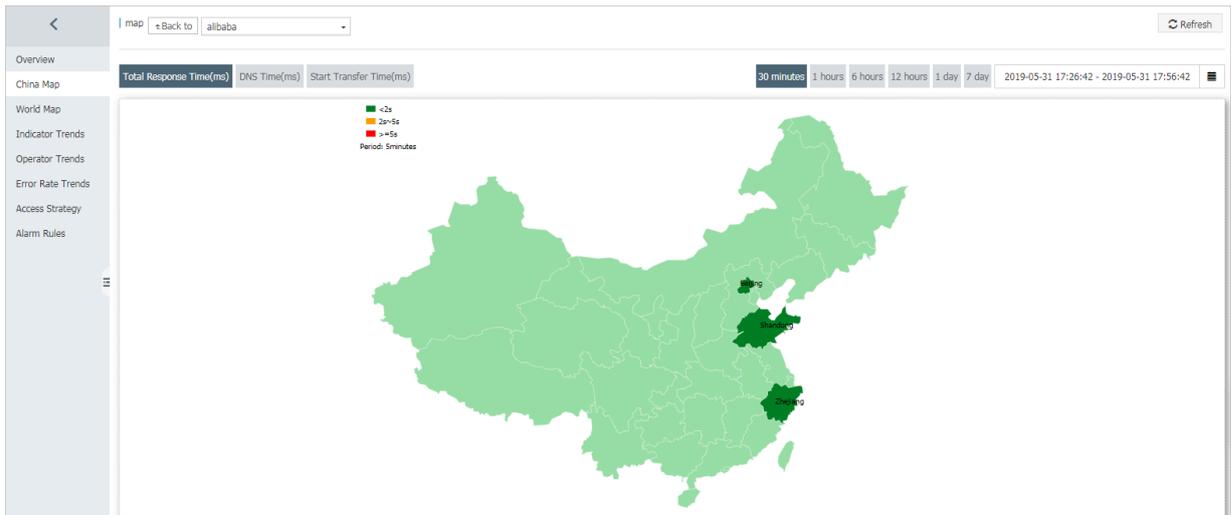


The error distribution shows the number of detection results with a status code greater than 399 for each carrier in each region within a specified period of time. You can click on the chart to view error details.

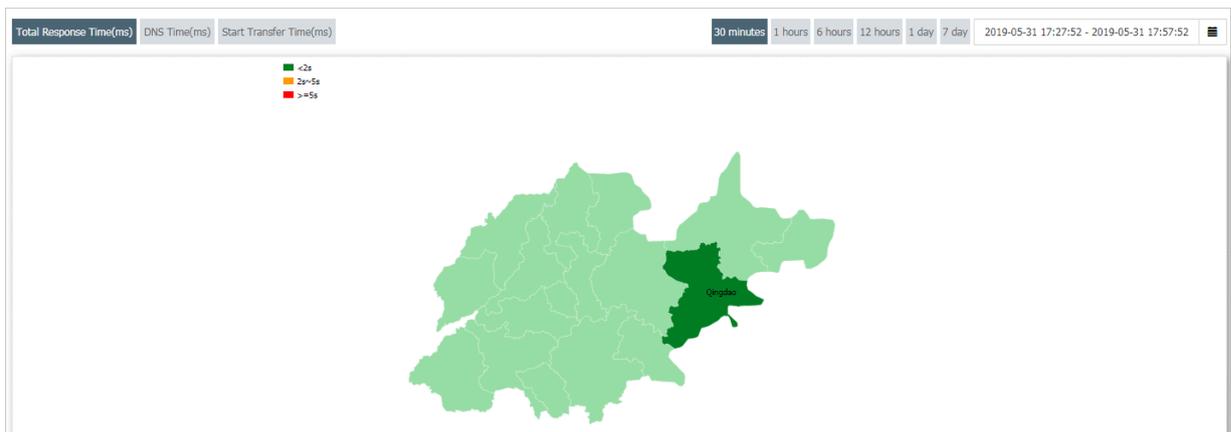




### China Map



If you click a province on the map, the second-level administrative divisions in the provide appear.

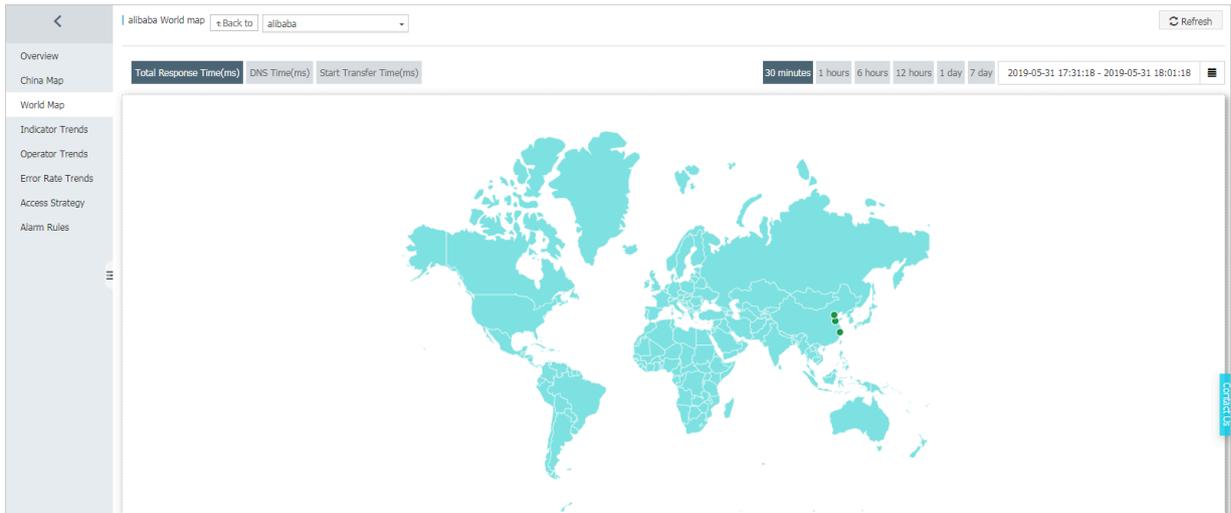


Detailed monitoring data is shown below the map.

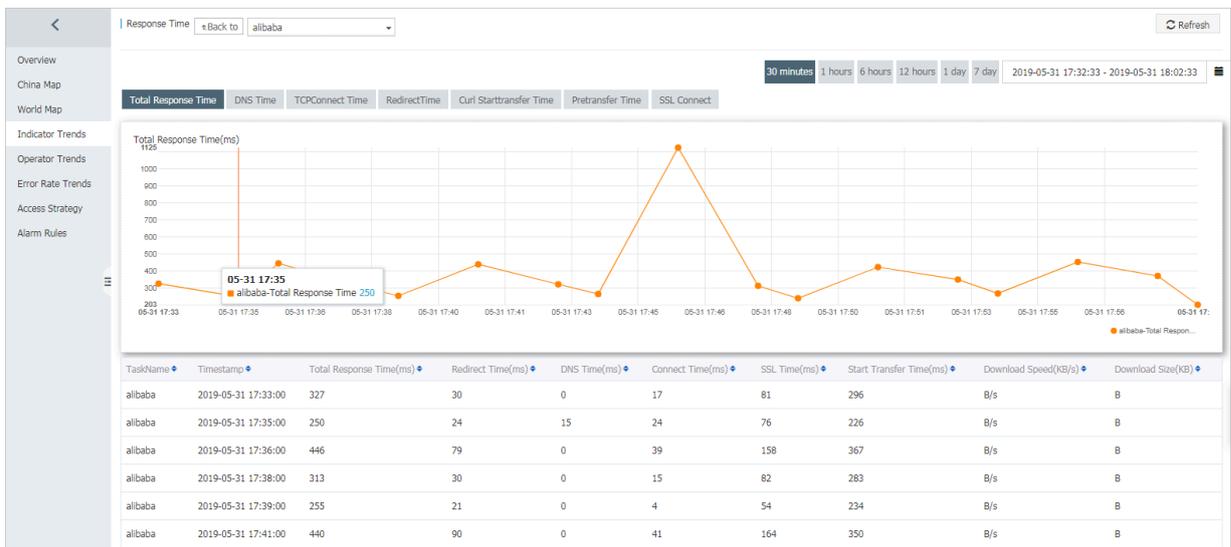
TaskName	Timestamp	Province	City	Total Response Time(ms)	Redirect Time(ms)	DNS Time(ms)	Connect Time(ms)	SSL Time(ms)	Start Transfer Time(ms)	Download Speed(KB/s)	Download Size(KB)
alibaba	2019-05-31 17:30:00			307	31	1	16	87	276	B/s	B
alibaba	2019-05-31 17:35:00			327	30	0	17	81	296	B/s	B
alibaba	2019-05-31 17:40:00			313	30	0	15	82	283	B/s	B
alibaba	2019-05-31 17:45:00			323	47	0	15	86	275	B/s	B

Total 0 Record 10

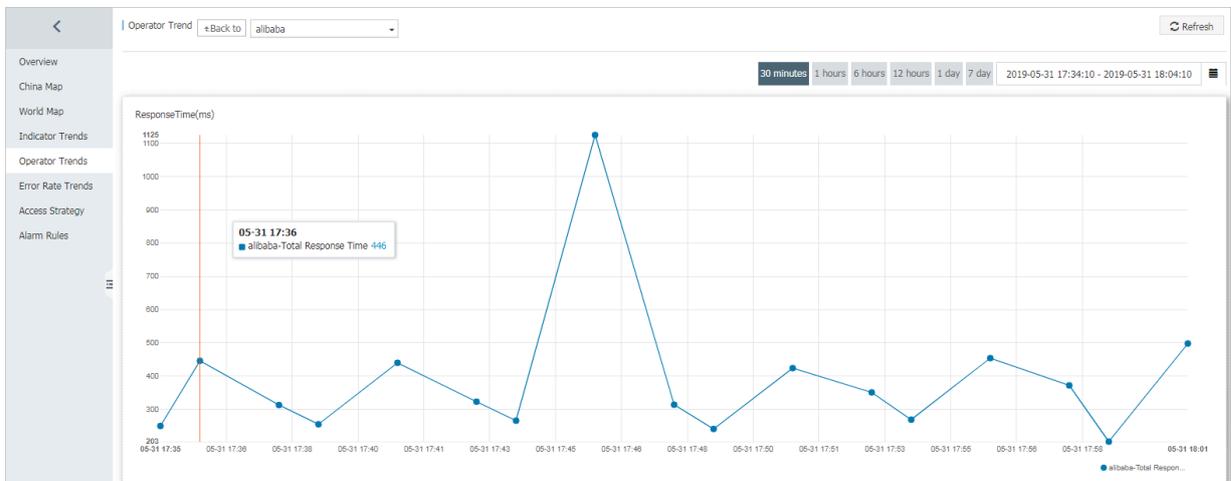
## World Map



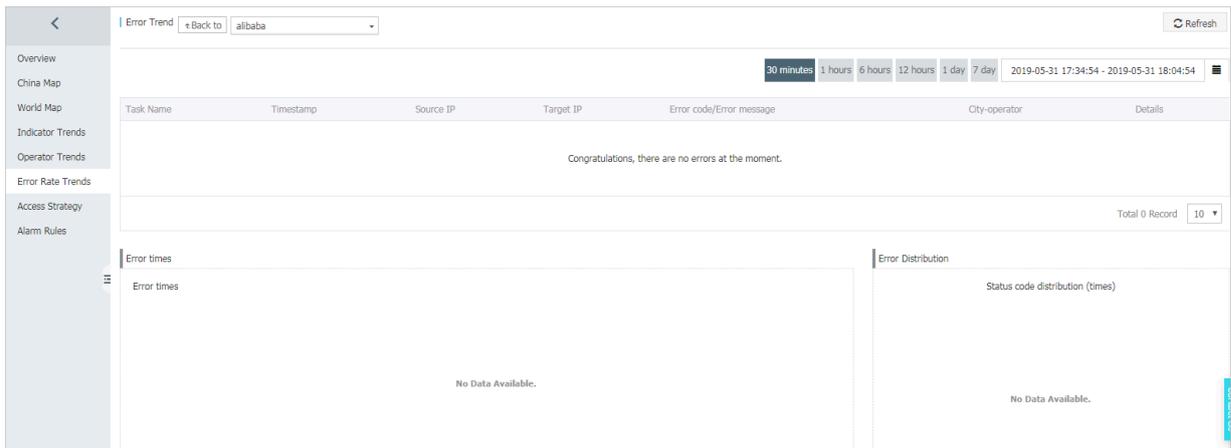
## Indicator Trends



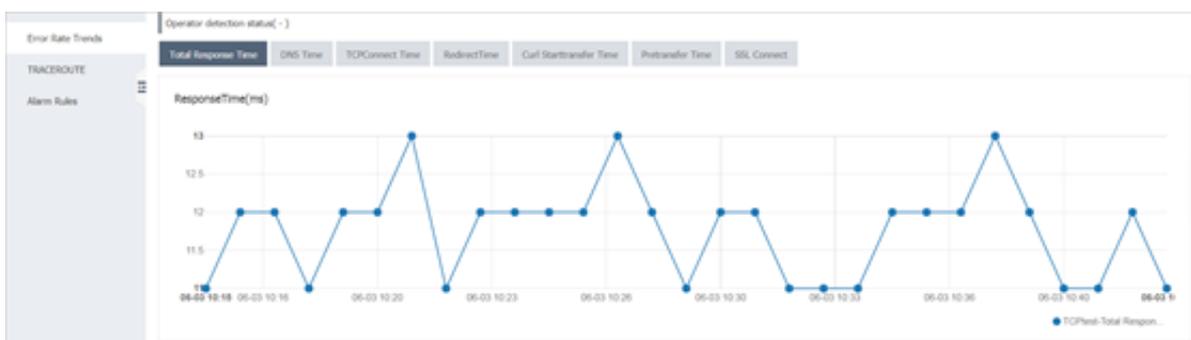
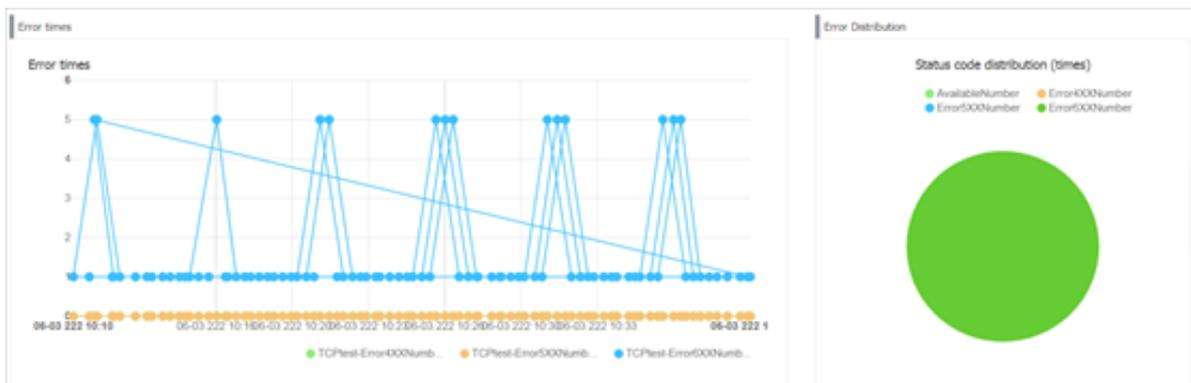
## Operator Trends



### Error Rate Trends



You can click **More** in the **Details** column for a task to view the error details for a specific carrier in a specific city.



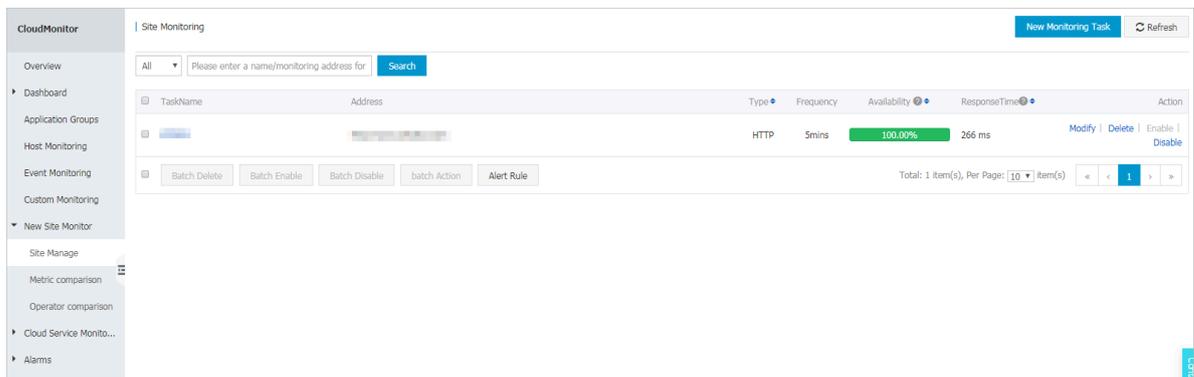
### Access Strategy

This page provides you with detailed detection results for each carrier in each region within a specified period of time.

TaskName	Timestamp	Probe Node	Total Response Time(ms)	Redirect Time(ms)	DNS Time(ms)	Connect Time(ms)	SSL Time(ms)	Start Transfer Time(ms)	Download Speed(KB/s)	Download Size(KB)
alibaba	2019-05-31 18:00:00		454	81	0	40	164	373	B/s	B
alibaba	2019-05-31 17:55:00		269	26	10	15	61	242	B/s	B
alibaba	2019-05-31 17:55:00		351	33	0	16	83	318	B/s	B
alibaba	2019-05-31 17:55:00		424	79	0	42	170	345	B/s	B
alibaba	2019-05-31 17:50:00		241	32	0	5	49	209	B/s	B
alibaba	2019-05-31 17:50:00		314	48	0	16	76	265	B/s	B
alibaba	2019-05-31 17:50:00		1125	80	2	39	153	1044	B/s	B
alibaba	2019-05-31 17:45:00		266	29	6	10	49	236	B/s	B
alibaba	2019-05-31 17:45:00		323	47	0	15	86	275	B/s	B
alibaba	2019-05-31 17:45:00		440	90	0	41	164	350	B/s	B

**Procedure**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **New Site Monitor > Site Manage**.



3. On the **Site Monitoring** page, click a site name to open the **Monitoring overview** page. In the left-side navigation pane, click a menu item and then in the main workspace view the corresponding monitoring data.

**Terms**

Term	Description
Availability	Number of detection results with a status code less than 400 from all probe points within a specified period of time/Total number of detection results × 100%
Total Response Time	The time taken to receive the first byte of an HTTP response after a probe point initiates detection. If the detection request is redirected, the time also includes the time spent to redirect the page.

Term	Description
DNS Time	The time for the Domain Name Server ( DNS) to resolve the domain name. Unit: millisecond.
TCPConnect Time	The time taken to write an HTTP request message after a probe point initiates detection. The time does not include the time for the DNS to resolve the domain name.
RedirectTime	The time taken to send the first detection request that is not redirected after a probe point initiates detection.
Start Transfer Time	The time taken to receive the first byte of an HTTP response after a probe point initiates detection.
Pretransfer Time	The time taken to write an HTTP request message after a probe point initiates detection.
SSL Connect	The time spent on SSL authentication after a probe point initiates detection.
Download Speed	The speed at which probe points read HTTP responses.
Download Size	The size of an HTTP response. If the HTTP response contains the Content-Length field, the download size equals the value of this field. If the HTTP response does not contain this field, the download size equals the number of bytes that are read from the HTTP response.

## 3.5 Status code description

Each site monitoring protocol returns a status code during the detection process. Common status codes are described as follows.

### Definitions of custom status codes of CloudMonitor

Protocols	Status code	Description
HTTP	610	Timeout (connection timeout , SSL Certificate exchange timeout, 30 s)
HTTP	613	DNS resolution Error
HTTP	615	The content does not match
HTTP	616	An error occurred while performing the authentication.
HTTP	611	Detection failure due to other reasons
HTTP	617	Maximum jump count exceeded  The Max number of 3xx Redirects allowed at the ECS probe point is 5 times  The maximum number of 3xx redirected jumps allowed by the carrier probe point is 2
HTTP	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
Ping	550	Network is not available

Protocols	Status code	Description
Ping	610	All sent packets receive no response in 2 seconds despite stable network condition.
Ping	613	Failed IP address resolution based on the host file
Ping	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
TCP	550	Failed to enable the socket . A typical cause is that the system sources have run out .
TCP	610	Failed response reception ( time-out or no response)
TCP	611	Failed connection (time-out or rejected by the peer end)
TCP	615	The content does not match
TCP	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
UDP	550	Failed to enable the socket . A typical cause is that the system sources have run out .
UDP	611	Failed connection (failed resolution based on the host file)
UDP	610	Failed sending or reception
UDP	615	The content does not match

Protocols	Status code	Description
UDP	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
DNS	610	DNS resolution failed
DNS	613	[DNS query communication error]
DNS	615	The content does not match
DNS	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
SMTP	610	Connection time-out
SMTP	611	Your site could not be accessed successfully, failure Reasons include, but are not limited to, DNS resolution failure, Incorrect email format, failed to initialize SMTP client, and so on
SMTP	616	Login denied
SMTP	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
POP3	611	Unable to successfully access your site

Protocols	Status code	Description
POP3	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .
FTP	610	FTP Transfer failed
FTP	611	Failure caused by other factors, such as failure of DNS resolution, failure of TCP connection, etc.
FTP	616	A RAM user fails to log on to the console
FTP	703	The internal network detection of the server is prohibited. The internal network probe can use the <a href="#">availability monitoring function</a> .

### Definitions of standard HTTP status codes

Status code	Description	Note
200	Request completed	Status Codes 2XX indicate that the service is normal.
300	Multiple choices	The server can perform multiple operations based on the request. The server selects one operation to perform based on the user agent, or provides a list of operations for the user agent to choose.

Status code	Description	Note
301	Moved permanently	The requested webpage has been permanently moved to a new location. When the server returns Status Code 301 (in response to a GET or HEAD request), it automatically redirects the user agent to the new location. You must use this status code to notify Googlebot that a webpage or website has been permanently transferred to a new location.
302	Moved temporarily	The server returns the response from a webpage in a different location, but the user agent must use the original location for subsequent requests. Similar to Code 301 in response to a GET or HEAD request, this code means that the server automatically redirects the user agent to a different location.
303	See other	The server returns this code when the user agent must send GET requests separately for different locations for response retrieval. For all requests except HEAD requests, the server automatically jumps to other locations.
304	Not modified	The requested webpage has not been modified since the last request. The webpage content is not returned when the server returns Status Code 304.

Status code	Description	Note
305	Use proxy	The user agent can access the requested webpage only by proxy. If the server returns this code, it also specifies the proxy that the user agent must use.
400	Bad request	The server does not understand the syntax of the request.
401	Unauthorized	Authentication is required for the request. The server may return Status Code 401 in response to the webpage access request after logon.
403	Forbidden	The server rejects the request.
404	Not found	The server cannot find the requested webpage. For example, if the requested webpage does not exist on the server, the server returns Status Code 404.
405	Method not allowed	The method specified in the request is forbidden.
406	Not acceptable	The content characteristics of the request cannot be used to respond to the webpage access request.
407	Proxy authentication required	This status code is similar to 401 (unauthorized), but it specifies that the user agent must use a proxy for authentication. If the server returns this code, it also specifies the proxy that the user agent must use.
408	The request times out.	The server timed out waiting for the request.

Status code	Description	Note
409	Conflict	A conflict occurred when the server completed the request. The server must include the conflict information in the response packet. The server may return Status Code 409 and provide a list of differences between two conflicting requests when responding to the PUT request that conflicts with the previous request.
411	Length required	The server does not accept the request that contains header fields of invalid content length.
412	Precondition failed	The server does not meet one of the preconditions that the user agent sets in the request.
413	Request entity too large	The server cannot process the request because the request entity is too large and exceeds the server's processing capability.
414	Requested URI too long	The server cannot process the request because the requested URI (usually the URL of the target website) is too long.
415	Unsupported media type	The request format is not supported by the requested webpage.
416	Range not satisfiable	The server returns this code if the request is out of the valid range of the requested webpage.

Status code	Description	Note
417	Expectation failed	The server does not meet the requirements of the <b>**Expect**</b> request-header field.
499	Client closed request	This status code is returned when the client closes the connection because it takes a long time for the server to process the request.
500	Internal server error	The request cannot be completed due to a server error.
501	Not implemented	This code is returned when the server does not have the function to complete the request. For example, when the server cannot identify the request method, it may return this status code.
502	Bad gateway	The gateway or proxy server receives an invalid response from the upstream server.
503	Service unavailable	The server is currently unavailable (due to overload or shutdown for maintenance). The unavailable state is temporary.
504	Gateway time-out	The gateway or proxy server failed to receive requests from the upstream server in time.
505	HTTP version not supported	The server does not support the HTTP version in the request.

## 4 Alarm service

---

### 4.1 Alarm service overview

You can set alarm rules for metrics in host monitoring, instances in cloud service monitoring, and metrics in custom monitoring. Alarm rules can be applied to all resources, to application groups, or to a single instance.

The alarm service supports alarm notifications through various channels such as emails, TradeManager, and DingTalk chatbots. TradeManager only supports alarm notifications through PC clients. You can also install the Alibaba Cloud app to receive alarm notifications in this method.

#### Host monitoring alarm rules

Alarm rules can be set for all metrics in host monitoring. Alarm detection frequency can be set to a minimum of once per minute.

#### Cloud service alarm rule

CloudMonitor allows you to set threshold alarms to monitor the consumption of your cloud resources, and set event alarms to monitor the status of instances and services.

#### Custom monitoring alarm rules

After reporting monitoring data through the custom monitoring API, you can set alarm rules for corresponding metrics. Then, when the value of a metric exceeds the specified threshold, an alarm is triggered and an alarm notification is sent through the specified notification method.

#### Custom event alarm rules

After reporting event exceptions through custom event API, you can set alarm rules for the events. Then, when an alarm rule is met, an alarm is triggered and an alarm notification is sent with the specified notification method.

## 4.2 Use alarm templates

This topic describes how to simplify the creation and management of alarm rules by using alarm templates.

### Scenarios

If you have multiple cloud resources (such as ECS instances, RDS services, SLB instances, and OSS buckets), we recommend that you use alarm templates to save alarm rules for these various resources. With having created alarm templates, you can directly apply the templates when creating alarm rules. This process can help you to simplify the creation and management of alarm rules, improving your overall O&M efficiency.

By default, CloudMonitor provides an initialized alarm template that contains common metrics for products such as ECS, RDS, SLB, and OSS, so that you can quickly and easily start to use alarm templates.

### Before you begin

Alarm templates are used in combination with application groups. Therefore, we recommend that you create application groups for your resources before you use alarm templates in the creation of related alarm rules. For more information about how to create application groups, see [#unique\\_37](#).

### Create an alarm template



#### Note:

- Alarm templates can be applied only to application groups.
- Each Alibaba Cloud account can contain up to 100 alarm templates.
- Each alarm template can contain up to 30 metrics.
- The alarm template function is only a shortcut to create multiple alarm rules. Alarm rules are not bound to alarm templates. After an alarm template is modified, alarm rules generated by using this template will remain unchanged. To modify the alarm rules for different application groups in batches, you must apply the modified template to each application group.

#### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Alarms > Alarm Templates**.

### 3. Click **Create Alarm Template** to go to the **Create Alarm Template** page.

Create Alarm Template

**Basic Information**

• Template Name

The name must be within 30 characters and can contain number

Description

Up to 64 characters is allowed.

**Rule**

Rules such as heartbeat alarm in alarm template have been migrated to event monitoring. [Introduction to Cloud Products Events](#)

ECS

Rule Name	Rule Description	Resource Description
-----------	------------------	----------------------

+Add Rules

Products

Add Cancel

### 4. Enter a **Template Name** and **Description** in the **Basic Information** area.

### 5. Set an alarm rule. To add more alarm rules, click **Add Rules**.

### 6. Click **Add**.

## Use an alarm template

- Use an alarm template when you create an application group

When you create an application group for your resources, you can select an existing alarm template in the **MonitorAlarm** area. After you have successfully created the application group, CloudMonitor generates alarm rules for this group based on the selected alarm template.

- Apply an alarm template directly to an existing application group

If you have created an application group but have not created alarm rules for the group, you can create an alarm template and then quickly apply the template to the group.

## 4.3 Alarm rules

## 4.3.1 Create a threshold alarm rule

This topic describes how to create a threshold alarm rule, so you can receive an alarm when a metric value reaches the specified threshold, and perform timely troubleshooting.

### Background

You can create threshold alarm rules to manage and monitor the usage and operation of cloud service resources. When a metric value reaches the specified threshold, you can receive an alarm. In this way, you can be informed of exceptions and handle them efficiently.

### Prerequisites

We recommend that you create an alarm contact and an alarm contact group before creating a threshold alarm rule. When you create an alarm rule, you can select the alarm contact group as the alarm receiver. For more information about how to create an alarm contact and an alarm contact group, see [#unique\\_29](#).

If you want to use alarm callbacks in alarm rules, you must prepare a callback URL that is accessible on the Internet. In addition, you must enable the URL callback as a notification method in the existing operations and maintenance (O&M) or message notification system.

### Procedure

#### Note

CloudMonitor can notify you of alarms by means of emails or DingTalk ChatBot. If you want to receive alarms based on multiple methods, enter correct information when you configure alarm contacts.

#### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Alarms** > **Alarm Rules**. On the **Alarm Rules** page that appears, the **Threshold Value Alarm** tab page is displayed by default.

### 3. Click **Create Alarm Rule** to go to the **Create Alarm Rule** page.

**1 Related Resource**

Product:

Resource Range:

**2 Set Alarm Rules**

Event alarm has been moved to event monitoring. [View the Detail](#)

Alarm Rule:

Rule Description:       %

[+Add Alarm Rule](#)

Mute for:

Effective Period:  To:

**3 Notification Method**

Notification Contact:

Selected Groups 0 count

Notification Methods:

Email + DingTalk (Info)

Auto Scaling (the corresponding scaling rule will be triggered when the alarm occurs)

Email Remark:

HTTP CallBack:

### 4. Select a resource range, set alarm rule parameters, select a notification method, and then click **Confirm**. For more information about alarm rule parameters, see [Alarm rule parameters](#).

## References

- [Create an alarm callback](#)
- [Use alarm templates](#)

- [Use the Initiative Alarm feature](#)

## 4.3.2 Create an event alert rule

This topic describes how to create an event alert rule so that you can receive alert notification when system exceptions occur to an Alibaba Cloud service and handle the exceptions in a timely manner.

### Background information

When an exception occurs to an Alibaba Cloud service, users need to receive alert notification and handle the exception in a timely manner. The CloudMonitor alert service provides the following types of event alert notification so that you can trace exceptions as they occur and automate handling of the exceptions in a timely manner:

- Event alerts can be sent to you through phone calls, text messages, emails, or DingTalk Chatbot.
- Events are distributed to your MNS queue, Function Compute, and URL callback so that you can automate handling of exceptions based on your business scenario.

### Prerequisites

We recommend that you create an alert contact and alert contact group before creating an event alert rule. When you create an alert rule, you can select the alert contact group to receive alert notification. For more information about how to create an alert contact and an alert contact group, see [#unique\\_29](#).

If you want to use alert callback as an alert notification method for system events, you must prepare a callback URL that is accessible from the Internet. In addition, you must enable URL callback as a notification method in the existing O&M or message notification system.

If you want to use MNS queue or Function Compute as the notification method of a system event, create a message queue or function.

### Procedure

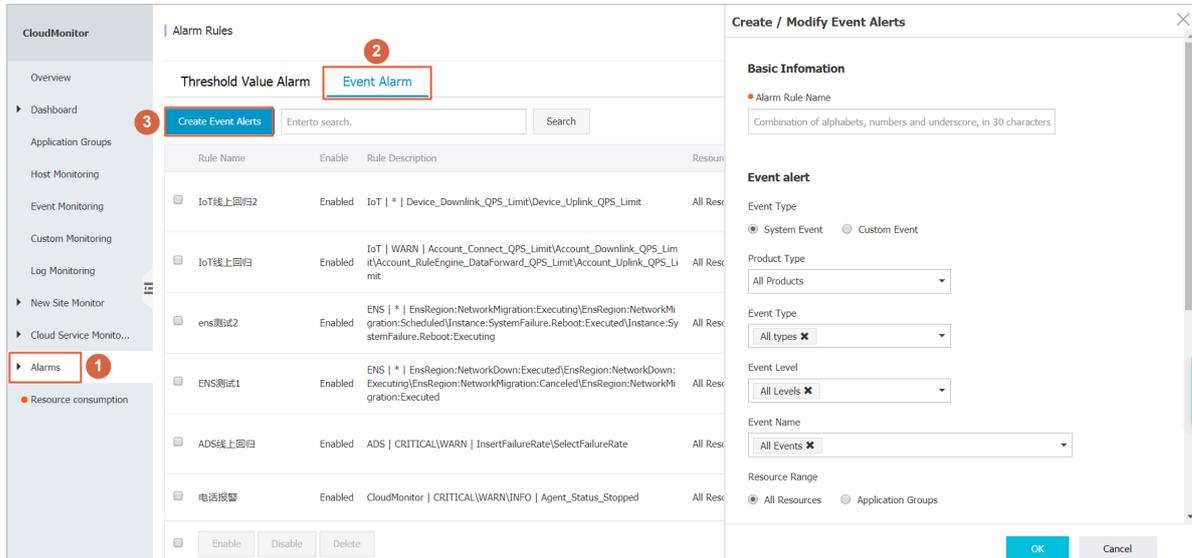
#### Precautions

Events are classified into system events and custom events. The alert rule and notification method vary with event type.

#### Procedure

1. Log on to the [CloudMonitor console](#).

- In the left-side navigation pane, choose **Alarms** > **Alarm Rules**. On the **Alarm Rules** page that appears, the **Threshold Value Alarm** tab is displayed by default.
- Click the **Event Alarm** tab. On the Event Alarm tab that appears, click **Create Event Alarms** in the upper-right corner. The **Create/Modify Event Alarms** dialog box is displayed.



- In the **Basic Information** section, enter the alert rule name.
- Set **Event Alarm Rule**:
  - If you set event type to **System Event**:
    - Product Type, Event Level, and Event Name: Set these parameters as needed.
    - Resource Range: If you select **All Resources**, notification is sent based on the configuration for any resource-related events. If you select **Application Group**, notification is sent only based on events related to the resources in the specified group.
  - If you set event type to **Custom Event**, set Application Group, Event Name, and Rule Description as needed.
- Set **Alarm Type**. System events can be distributed to alert notification, MNS queue, Function Compute, and URL callback. Custom events can be distributed to alert notification and alert callback.
- Click **OK**.

### Subsequent operations

After creating an event alert rule, you can use system event testing to simulate the occurrence of system events. In this way, you can verify whether the MNS queue configured

in the alert rule can receive events, and whether the function of Function Compute can be triggered.

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Alarms > Alarm Rules**. On the **Alarm Rules** page that appears, the **Threshold Value Alarm** tab is displayed by default.
3. Click the **Event Alarm** tab. The Event Alarm tab that appears shows an alert rule list.
4. Click **Test** in the Actions column corresponding to an alert rule. The **Create Event Test** page is displayed.

The screenshot shows the 'Create event test' dialog box in the CloudMonitor console. The dialog box is titled 'Create event test' and has a close button (X) in the top right corner. It contains the following fields:

- Product Type:** CloudMonitor
- Event Level:** CRITICAL
- Event Name:** A dropdown menu with the selected value '云监控报警'.
- Content(JSON):** A text area containing the following JSON content:
 

```
{
  "product": "CloudMonitor",
  "resourceId": "acs:ecs:cn-hongkong:1270678679467014:instanceId",
  "level": "CRITICAL",
  "instanceName": "instanceName",
  "regionId": "cn-hangzhou",
  "name": "Agent_Status_Stopped",
  "content": {
    "ipGroup": "0.0.0.0/0.0.0.1",
    "banjimonVersion": "1.2.11"
  },
  "status": "stopped"
}
```

At the bottom of the dialog box, there are two buttons: 'OK' and 'Cancel'.

5. Select an event that you want to test. The event content is displayed. You can modify the fields such as instance ID in the content as needed.
6. Click **OK**. The system will send an event based on the content, triggering alert notification, MNS queue, Function Compute, or URL callback that you configure in the alert rule.

### 4.3.3 Alarm rule parameters

This topic describes parameters of a threshold alarm rule.

#### Parameters

- **Product:** the monitored service, such as ECS, ApsaraDB for RDS, and Object Storage Service (OSS).
- **Resource Range:** the scope of the alarm rule. Valid values: **All Resources** and **Instances**.



#### Note:

If you set **Resource Range** to **All Resources**, the alarm rule is applicable to 1,000 instances or fewer. If the number of monitored resources is more than 1,000, you may not receive alarms when the specified metric reaches the threshold. We recommend that you add resources to service-specific application groups before creating the alarm rule. To create a threshold alarm rule for a group, go to the **Group Instances** page, and click **Threshold alarm**.

- **All Resources:** specifies that the alarm rule is applicable to all your instances of the specified service. The system sends alarm notifications if any metric of these instances reaches the specified threshold.
- **Instances:** specifies that the alarm rule is applicable to a specified instance. The system sends alarm notifications if any metric of the instance reaches the specified threshold.
- **Alarm Rule:** the name of the alarm rule.
- **Rule Description:** the content of the alarm rule. This parameter defines the metric conditions that cause alarms.

**Alarm rule example:** in host monitoring, a data point on the metric of a single host is reported at a 15-second interval. Therefore, 20 data points are reported in 5 minutes.

- Average CPU usage in a 5-minute cycle greater than 90% in three consecutive cycles : specifies that the average value of the 20 data points on CPU usage reported in a 5-minute cycle is greater than 90% in three consecutive cycles. The system sends alarm notifications if the specified metric reaches the threshold.
- CPU usage in a 5-minute cycle always greater than 90% in three consecutive cycles: specifies that the values of the 20 data points on CPU usage reported in a 5-minute cycle are greater than 90% in three consecutive cycles. The system sends alarm notifications if the specified metric reaches the threshold.
- CPU usage in a 5-minute cycle greater than 90% for once in three consecutive cycles : specifies that the value of at least one of the 20 data points on CPU usage reported in a 5-minute cycle is greater than 90% in three consecutive cycles. The system sends alarm notifications if the specified metric reaches the threshold.
- Total public network outbound traffic in a 5-minute cycle greater than 50 MB/s in three consecutive cycles: specifies that the sum of the values of the 20 data points on public network outbound traffic reported in a 5-minute cycle is greater than 50 MB /s in three consecutive cycles. The system sends alarm notifications if the specified metric reaches the threshold.

- **Mute For:** CloudMonitor sends an alarm notification only after detecting the specified exceptions consecutively for specified times. The minimum value is 5 minutes and the maximum value is 24 hours.
- **Effective Period:** the period when an alarm rule is effective. The system only sends alarm notifications within the effective period according to the alarm rule. The system only records alarms if the alarms occur during a non-effective period.
- **Notification Contact:** the contact group that CloudMonitor sends alarm notifications to.
- **Alarm Levels:** specifies the alarm severity level that corresponds to a specified notification method. Valid values: CRITICAL, WARN, and INFO.
  - INFO: sends alarm notifications by means of emails and DingTalk ChatBot.
- **Auto Scaling:** an alarm triggers the corresponding scaling rule after you select Auto Scaling and configure the rule.
- **Email Remark:** custom supplementary information of an alarm email. CloudMonitor sends the remarks along with the alarm email.
- **HTTP Callback:** CloudMonitor uses a POST request to push an alarm to the public URL address you provided. This callback supports HTTP-based requests.

### 4.3.4 Manage alarm rules

CloudMonitor provides monitoring and alarms for your cloud services, and helps you timely locate exceptional metrics and efficiently perform troubleshooting.

You can start to manage alarm rules in the CloudMonitor console in three ways: in the left-side navigation pane, choose Application Groups to go to the Application Groups page, or choose a required monitoring type to go to the corresponding monitoring metrics page, or choose Alarms > Alarm Rules to go to the Alarm Rules page.

- Go to the Application Groups page to [manage alarm rules](#).
- Go to the Host Monitoring page to [manage alarm rules](#).
- Set alarm rules in Cloud Service Monitoring.
- Go to the Custom Monitoring page to [set alarm rules](#).

## 4.3.5 Create an alert callback

This topic describes how to create an alert callback to integrate CloudMonitor alerts to your existing O&M or message system.

### Background information

CloudMonitor provides the alert callback feature for alert notification in addition to the methods such as emails, and DingTalk Chatbot. Alert callback allows O&M engineers and developers to handle alert events flexibly.

CloudMonitor pushes alerts to a specified Internet URL through HTTP POST requests. You can take actions based on received notification.

### Prerequisites

- You have a callback URL that is accessible through the Internet.
- URL callback is enabled as an alert notification method in your existing O&M or message system.

### Procedure

#### Precautions

- According to the retry policy of alert callback, the number of retries is 3 and the timeout period is 5 seconds.
- Currently, only HTTP is supported.

#### Procedure

1. Log on to the [CloudMonitor console](#).

## 2. Modify an existing alert rule by creating a callback or create an alert rule.

The screenshot shows the 'Notification Method' configuration page. It includes a 'Contact Group' list with a search bar and a 'Selected Groups 0 count' list. Below this are 'Notification Methods' (radio buttons for 'Email + DingTalk'), an 'Auto Scaling' checkbox, an 'Email Remark' text area, and an 'HTTP Callback' text input field. The 'HTTP Callback' field is highlighted with a red border and contains the text 'for example: http://alarm.aliyun.com:8080/callback'. At the bottom, there are 'Confirm' and 'Cancel' buttons.

3. In the notification method section, enter the URL address for alert callback and click **OK**.  
When an alert rule is triggered, CloudMonitor sends an alert to your specified URL.

### Callback parameters

The following table lists the content of a POST request that is pushed when an alert rule calls back a URL.

Parameter	Data type	Description
userId	String	The user ID.
alertName	String	The alert name.
timestamp	String	The time stamp when the alert is generated.
alertState	String	The alert state. One of the following states is returned: OK, ALARM, and INSUFFICIENT_DATA.
dimensions	String	The object that has triggered the alert. For example: [{"userId":"12345","instanceId":"i-12345"}]

Parameter	Data type	Description
expression	String	The alert conditions. For example, [{"expression": "\$value>12", "level": 4, "times": 2}] indicates that an alert is triggered when the threshold value is greater than 12 for two consecutive times. If the value of level is 4, an alert is sent to you through an email. If the value of level is 3, an alert is sent to you through a text message and an email. The times field indicates the number of consecutive times of reaching the alert threshold that you selected when configuring the alert rule.
curValue	String	The current value of the metric when an alert is triggered or cleared.
metricName	String	The metric name.
metricProject	String	The service name. For more information about the metric and service names, see <a href="#">Preset metrics reference</a> .

An example of a POST request is as follows:

```
{
  "userId": "12345",
  "alertName": "putNewAlarm_group_a37cd898-ea6b-4b7b-a8a8-de017a8327f6",
  "timestamp": "1508136760",
  "alertState": "ALARM",
  "dimensions": [
    {
      "userId": "12345",
      "instanceId": "i-12345"
    }
  ],
  "expression": "[{"expression": "$Average>90", "level": 4, "times": 2}]",
  "curValue": "95",
  "metricName": "CPUUtilization",
  "metricProject": "acs_ecs_dashboard"
}
```

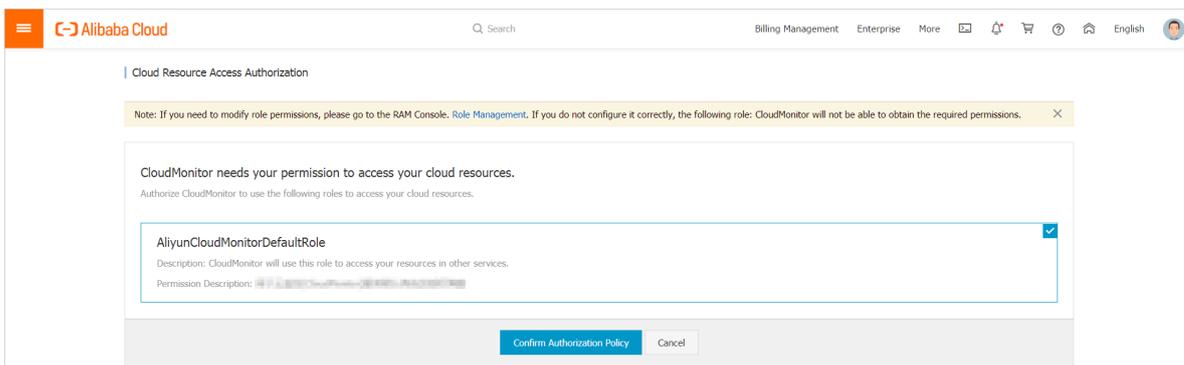
}

### 4.3.6 Write alarms to MNS

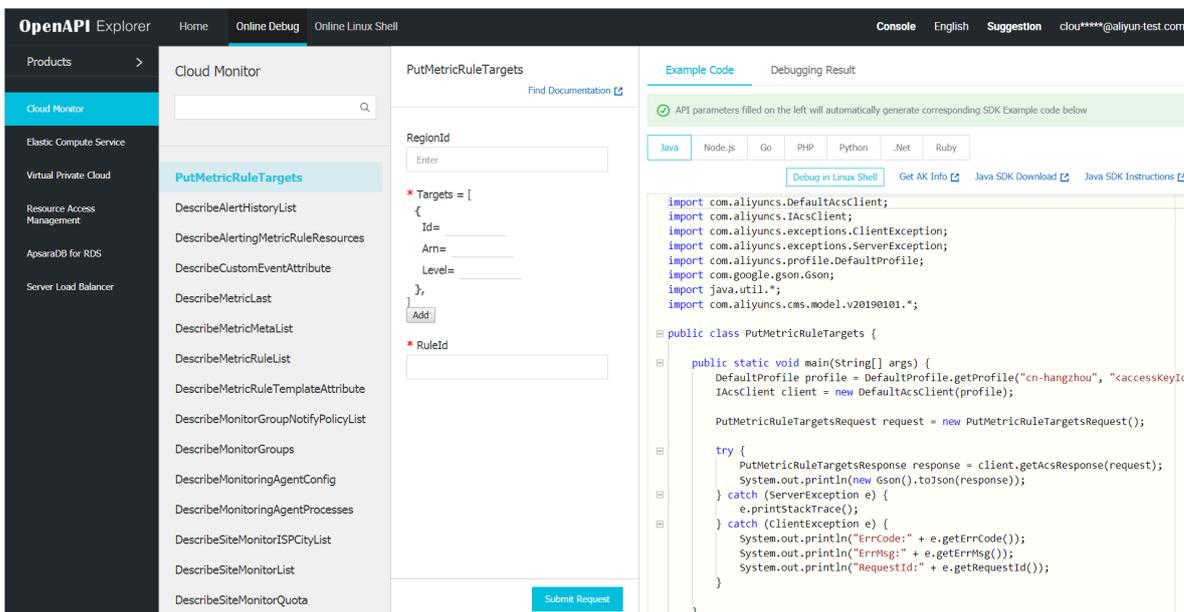
This topic describes how to write a threshold alarm to Message Service (MNS).

#### Procedure

1. To authorize CloudMonitor to write an alarm to MNS, click [here](#).



2. Start the OpenAPI Explorer service, and call the [PutResourceMetricRule](#) operation to create an alarm rule.
3. Call the [PutMetricRuleTargets](#) operation to create an alarm for the specified alarm rule, and set corresponding MNS parameters.



ARN: specifies the target MNS queue in the format of "acs:mns:{\$RegionId}:{\$UserId}:/queues/{queueName}/messages", or specifies the target MNS topic in the format of "acs:mns:{\$RegionId}:{\$UserId}:/topics/{queueName}/messages".

The following example shows parameters of PutMetricRuleTargets:

```
RuleId:"db17-4afc-b11a-568512d5a1f9",
```

```
Targets:[{
  Id: 1,
  Arn:"acs:mns:{$RegionId}:{$UserId}:/queues/{$queueName}/messages",
  Level: ["INFO", "WARN", "CRITICAL"],
}]
```

## Message body written to MNS

CloudMonitor writes a message body to MNS in the JSON string format. When MNS consumes the message body, your client parses the message structure as a JSON string as follows:

```
{
  "ruleId": "putNewAlarm_group_778af9ba-a291-46ab-ac53-3983bcee****",
  "ruleName": "test",
  //Current level.
  "curLevel": "WARN",
  //Previous level.
  "preLevel": "OK",
  //The instance that triggers the alarm.
  "resources": "{\"instanceId\": \"i-uf61rfofjd2iku7e****\"}",
  //The condition that triggers the alarm.
  "escalation": {
    "comparisonOperator": "GreaterThanYesterday",
    "level": 3,
    "statistics": "Average",
    "tag": "WARN",
    "threshold": "0",
    "times": 1
  },
  "metricData": {
    "timestamp": 1534736160000,
    "userId": "127067667954****",
    "instanceId": "i-uf61rfofjd2iku7e****",
    "Average": 470687744,
    "Maximum": 470794240,
    "Minimum": 470556672,
    //Compare some metrics with those in the previous month and those in the same
    period of the previous year.--Start.
    "AliyunCmsPrevValues": { //Compared values.
      "timestamp": 1534649760000,
      "userId": "127067667954****",
      "instanceId": "i-uf61rfofjd2iku7e****",
      "Average": 468463616,
      "Maximum": 468549632,
      "Minimum": 468258816
    },
    //Comparison formula.
    "AliyunCmsComplexExpression": "100.0 * ($Average-$$prevAverage)/$$prevAverage",
    //Conversion formula.
    "AliyunCmsComplexMath": "100.0 * (470687744-468463616)/468463616",
    //Calculation result.
    "AliyunCmsComplexValue": 0.47477070236336133
    //Compare some metrics with those in the previous month and those in the same
    period last year.--End.
  },
  //Metric parameters.
  "metricName": "memory_actualusedspace#60",
  "namespace": "acs_ecs_dashboard",
  "period": "60",
```

```
//Application group parameters.
"groupBy": "group",
"productGroupName": "RDS instance group",
"groupId": "44958",

//Alarm time
"lastTime": 327362743, //The duration of the alarm.
"time": 1534736160000, //The time when the data occurred.

"userId": "173651113438****",
"eventName": "AlertOk",
"eventType": "Alert",
//Use the following parameters to trace the alarm.
"batchId": "4272653-152082****-0",
"version": "1.0"
}
```

## 4.4 View alarm logs

This topic describes how to view alarm logs.

You can search for alarm logs by rule name or group name in the CloudMonitor console.

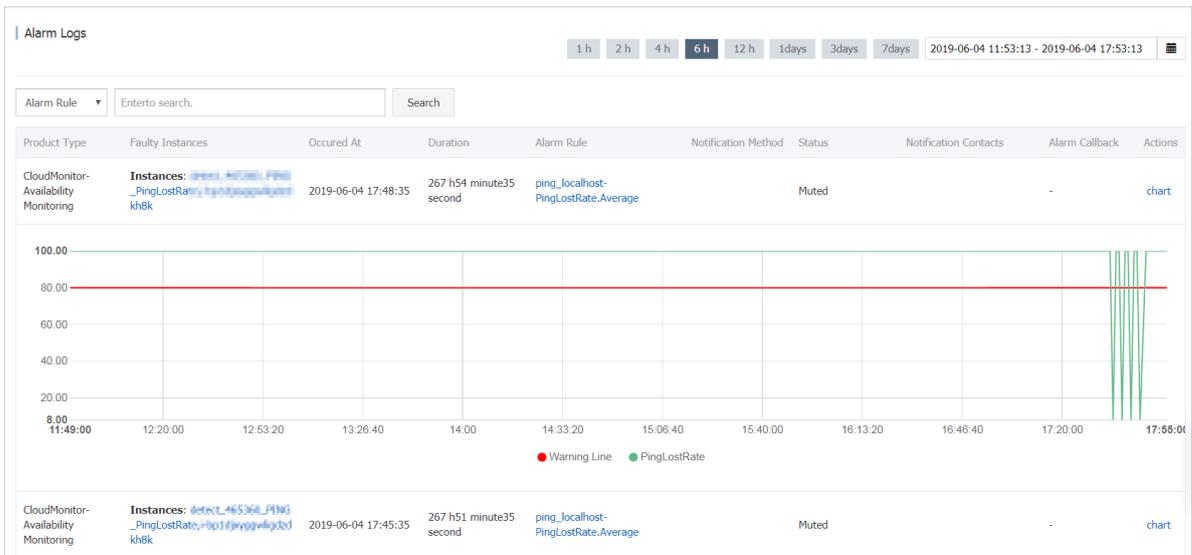
### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Alarms > Alarm Logs** to open the **Alarm Logs** page.

Product Type	Instances	Occurred At	Duration	Alarm Rule	Notification Method	Status	Notification Contacts	Alarm Callback	Actions
CloudMonitor-Availability Monitoring	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> _PingLostRate: <a href="#">http://pinglost-rate-4000-4000.kh8k</a>	2019-06-04 17:48:35	267 h54 minute35 second	ping_localhost-PingLostRate.Average		Muted	-	-	<a href="#">chart</a>
CloudMonitor-Availability Monitoring	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> _PingLostRate: <a href="#">http://pinglost-rate-4000-4000.kh8k</a>	2019-06-04 17:45:35	267 h51 minute35 second	ping_localhost-PingLostRate.Average		Muted	-	-	<a href="#">chart</a>
CloudMonitor-Availability Monitoring	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> _PingLostRate: <a href="#">http://pinglost-rate-4000-4000.kh8k</a>	2019-06-04 17:42:36	267 h48 minute36 second	ping_localhost-PingLostRate.Average		Muted	-	-	<a href="#">chart</a>
ECS	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> Instance ID: <a href="#">m3f9y29eakm</a> Instance ID: <a href="#">mai-1/149.129.0.50.19</a>	2019-06-04 17:40:40	12 minute40 second	ecs_concurrentConnections_1	Ali WangWang	Back to normal		-	<a href="#">chart</a>
CloudMonitor-Availability Monitoring	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> _PingLostRate: <a href="#">http://pinglost-rate-4000-4000.kh8k</a>	2019-06-04 17:39:35	267 h45 minute35 second	ping_localhost-PingLostRate.Average		Muted	-	-	<a href="#">chart</a>
CloudMonitor-Availability Monitoring	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> _PingLostRate: <a href="#">http://pinglost-rate-4000-4000.6wrq</a>	2019-06-04 17:39:35	697 h44 minute35 second	ping_localhost-PingLostRate.Average		Muted	-	-	<a href="#">chart</a>
CloudMonitor-Availability Monitoring	Instances: <a href="#">i-4e10101-1740-4000-1740-4000</a> _PingLostRate: <a href="#">http://pinglost-rate-4000-4000.6wrq</a>	2019-06-04 17:36:35	697 h41 minute35 second	ping_localhost-PingLostRate.Average		Muted	-	-	<a href="#">chart</a>

3. Select a search criterion (**Alarm Rule** or **Group Name**) from the drop-down list, enter a keyword in the search bar, and click **Search**.

4. Find the record that you want to view, and click **chart** in the **Actions** column.



5. Select a time range within which you want to view alarm logs. You can only view the alarm logs that were generated within the last 31 days.

## 4.5 Use one-click alert

This topic describes how to use the one-click alert function to enable key metric alerts with a single click.

### Background information

One-click alert allows you to enable key metric alerts with a single click. One-click alert is designed for inexperienced cloud service developers and O&M engineers. It helps them quickly establish a basic monitoring and alert system on the cloud without the need for a wide range of knowledge on cloud services and metrics. With this system, the engineers can receive alert notification on exceptions for key metrics.

### Prerequisites

Before using one-click alert, you must understand the services that support this function and related alert rules.

Service name	Metric name	Rule description
ECS	CPUUtilization	Maximum value in 1 minute greater than 90%, five consecutive times, 1-hour mute duration, email notification

Service name	Metric name	Rule description
	vm.DiskUtilization	Maximum value in 1 minute greater than 90%, five consecutive times, 1-hour mute duration, text message and email notification
	vm.MemoryUtilization	Maximum value in 1 minute greater than 90%, five consecutive times, 1-hour mute duration, email notification
	InternetOutRate_Percent	Maximum value in 1 minute greater than 90%, five consecutive times, 1-hour mute duration, email notification
RDS	CpuUsage	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	DiskUsage	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, text message and email notification
	IOPSUsage	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	ConnectionUsage	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	DataDelay	Maximum value in 5 minutes greater than 5, five consecutive times, 1-hour mute duration, email notification

Service name	Metric name	Rule description
SLB	DropConnection	Maximum value in 1 minute greater than 0, five consecutive times, 1-hour mute duration, email notification
	DropTrafficRX	Maximum value in 1 minute greater than 0, five consecutive times, 1-hour mute duration, email notification
	DropTrafficTX	Maximum value in 1 minute greater than 0, five consecutive times, 1-hour mute duration, email notification
ApsaraDB for Redis	CpuUsage	Maximum value in 1 minute greater than 80%, five consecutive times, 1-hour mute duration, email notification
	ConnectionUsage	Maximum value in 1 minute greater than 80%, five consecutive times, 1-hour mute duration, email notification
	MemoryUsage	Maximum value in 1 minute greater than 80%, five consecutive times, 1-hour mute duration, email notification
	IntranetInRatio	Maximum value in 1 minute greater than 80%, five consecutive times, 1-hour mute duration, email notification
	IntranetOutRatio	Maximum value in 1 minute greater than 80%, five consecutive times, 1-hour mute duration, email notification

Service name	Metric name	Rule description
ApsaraDB for MongoDB (replica set)	CPUUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	MemoryUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	DiskUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	IOPSUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	ConnectionUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
ApsaraDB for MongoDB (sharded cluster)	ShardingCPUUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	ShardingMemoryUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	ShardingDiskUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification

Service name	Metric name	Rule description
	ShardingIOPSUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
	ShardingConnectionUtilization	Maximum value in 5 minutes greater than 80%, five consecutive times, 1-hour mute duration, email notification
ApsaraDB for HBase	LoadPerCpu	Maximum value in 5 minutes greater than 3, three consecutive times, 1-hour mute duration, email notification
	cpu_idle	Maximum value in 5 minutes smaller than 10, three consecutive times, 1-hour mute duration, email notification
	compactionQueueSize	Maximum value in 5 minutes greater than 2,000, three consecutive times, 1-hour mute duration, email notification
	rs_handlerQueueSize	Maximum value in 5 minutes greater than 1,000, three consecutive times, 1-hour mute duration, email notification
	CapacityUsedPercent	Maximum value in 5 minutes greater than 80%, three consecutive times, 1-hour mute duration, email notification
	zookeeper_tcp_count	Maximum value in 5 minutes greater than 2,000, three consecutive times, 1-hour mute duration, email notification

Service name	Metric name	Rule description
Elasticsearch	ClusterStatus	Maximum value in 1 minute greater than 2, ten consecutive times, 1-hour mute duration, email notification
	NodeDiskUtilization	Maximum value in 1 minute greater than 75%, ten consecutive times, 1-hour mute duration, email notification
	NodeHeapMemoryUtilization	Maximum value in 1 minute greater than 85%, ten consecutive times, 1-hour mute duration, email notification
Open Search	DocSizeRatiobyApp	Maximum value in 10 minutes greater than 85 %, one time, 1-hour mute duration, email notification
	ComputeResourceRatio byApp	Maximum value in 10 minutes greater than 85 %, one time, 1-hour mute duration, email notification

## Procedure

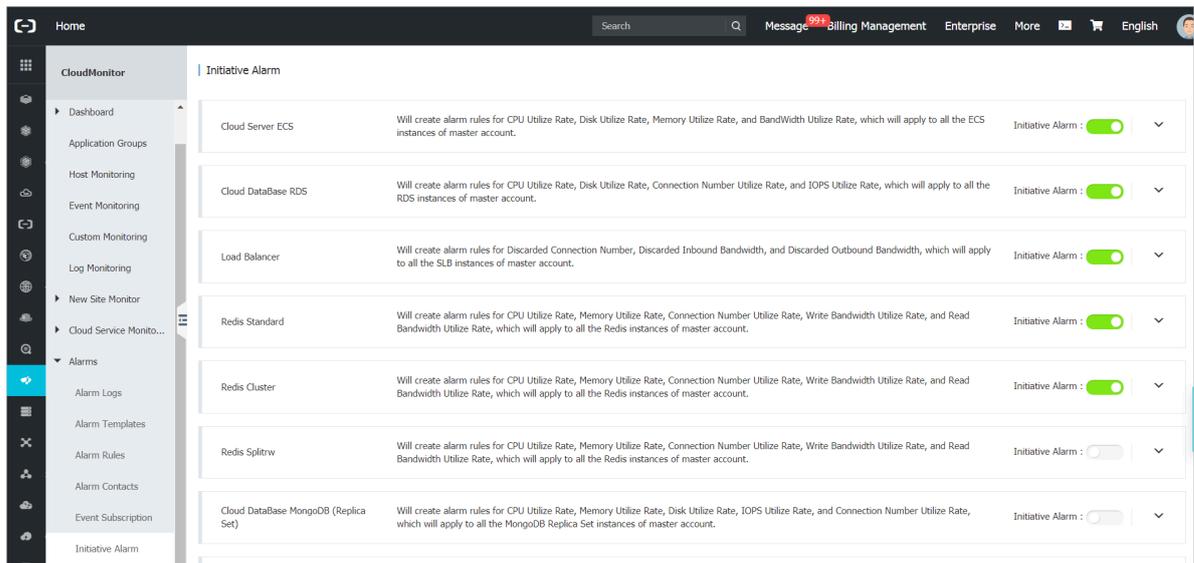
### Precautions

- When one-click alert is enabled, the built-in alert rules of CloudMonitor are enabled by default. An alert system is quickly established to monitor key metrics, not all metrics.
- When one-click alert is enabled, the corresponding alert rules apply to the existing and to-be-created instances of the selected services.
- One-click alert allows you to modify, disable, and delete built-in alert rules.

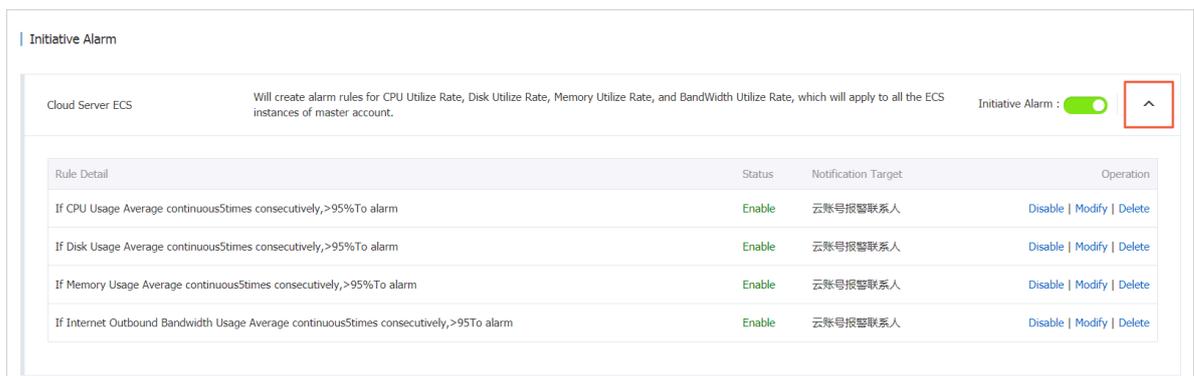
### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Alarms** > **One-click Alarm**. The **One-click Alarm** page is displayed.

- Turn on **One-click Alarm** corresponding to the cloud service for which you want to enable alert notification.



- Click the drop-down arrow to the right of the **One-click Alarm** switch to view the alert rules that are automatically generated by CloudMonitor.



- (Optional) You can click **Disable**, **Modify**, or **Delete** in the Actions column corresponding to an alert rule to disable, modify, or delete the rule.

# 5 Availability monitoring

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## 5.1 Create an availability monitoring task

This topic describes how to configure availability monitoring so that you can receive alarms if a local service or a dependent remote service does not respond within a specified timeout period or returns an error status code.

### Background

Based on availability monitoring, CloudMonitor helps you quickly locate issues when a local service or a remote service has no response. CloudMonitor can send an alarm to you if the local service or the remote service fails to respond within a specified timeout period or returns an error status code. In this way, you can efficiently check response conditions of local or remote paths and ports.

### Prerequisites

- You have created a resource group for availability monitoring. For more information, see [#unique\\_37](#).
- You have installed the CloudMonitor agent on the monitored host. For more information, see [Introduction to the CloudMonitor GoLang agent](#).

### Procedure

#### Restrictions



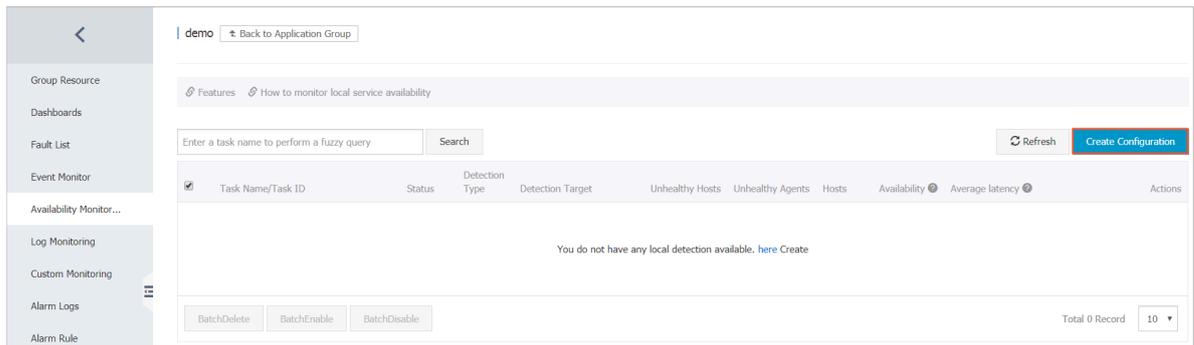
#### Note:

- Availability monitoring depends on the CloudMonitor agent. Make sure that you have installed the CloudMonitor agent on the monitored host.
- CloudMonitor performs the availability detection once a minute.

#### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Application Groups** to go to the **Application Groups** page.
3. Click the name of the application group where you want to create an availability monitoring task to go to the Basic Information page of the application group.

4. In the left-side navigation pane, click **Availability Monitoring** to go to the Availability Monitoring page.



5. Click **Create Configuration** in the upper-right corner to go to the **Create Availability Monitoring** page.

CreateAvailability Monitoring ✕

**1 Monitoring Configurations**

\* Task Name :   
Enter 4 to 50 characters. Only English letters, numbers, underlines, and Chinese characters are allowed.

\* Target Server :  All  

- 01a2a7b442ac
- cmastomule011175066070.usd3
- cmastomule000189016219.usd2
- cmastomule011175064120.usd3
- cmastomule0147282800446c.usd3

\* Detection Type :

\* Detection Target :

\* Request Method :  HEAD  GET  POST

[Advanced Configuration](#) ▾

**2 Alarm Configuration**

Status Code :    [Status Code Description](#)

Response Time :    millisecond

Notification Method :  Email + DingTalk   
 Email + DingTalk  
 Email + DingTalk

[Advanced Configuration](#) ▾

The detection period is 1 minute. When the above alarm configurations are met, any server will send an alarm notification to the contact group associated with the application group.

6. Set Task Name and Target Server. You can configure the same detection rule for all hosts in the group or some hosts in the group.

7. Set Detection Type to **URL or IP Address**, **ApsaraDB for RDS**, or **ApsaraDB for Redis**.

Afterward, set Detection Target.

- If you set Detection Type to **URL or IP Address**, you can set Detection Target to **HTTP(S)**, **TELNET**, or **PING**. If you set Detection Target to **HTTP(S)**, you can set Request Method to **HEAD**, **GET**, or **POST**. You can also configure the returned value.
- If you set Detection Target to **ApsaraDB for RDS** or **ApsaraDB for Redis**, you can view the instances in your group and their connection addresses.

8. In the Alarm Configuration field, set the Status Code and Response Time metrics.

CloudMonitor generates an alarm if either of these metrics reaches the specified threshold. The system sends alarms to the contact group of the corresponding application group.

- **Status Code**: the system generates an alarm if the local or remote service returns a status code as specified.
- **Response Time**: the system generates an alarm if the local or remote service failed to respond within the specified timeout period.
- **Notification Method**: the method that the system uses to send alarms.
- **Advanced Configuration**: you can configure **Mute For** and **Effective Period**.
  - **Mute For** is a period when your alarm rules are muted so that the system does not send any alarms even when the local or remote service runs in the specified alarm conditions.
  - **Effective Period**: the time when an alarm rule takes effect. The system only sends alarms within the effective period according to the alarm rule. The system only records alarms if the alarms occur during a non-effective period.

9. Click **OK**.

## 5.2 Manage availability monitoring

Availability monitoring conducts periodical detection tasks to check whether specified local or remote paths or ports respond properly and sends alarm notifications if response timeouts occur or status codes indicate errors based on the conditions specified in your alarm rules. This function can help you to quickly learn if local or remote services are unresponsive or abnormal, improving overall O&M and management efficiency.

### Viewing availability monitoring tasks

1. Log on to the [CloudMonitor Console](#).

2. Click Application Groups in the left-hand navigation bar to go to the application groups page.
3. Select the application groups for which you want to view availability monitoring, then click the application group name to enter the application group details page.
4. Select **Availability Monitoring** from the left-side navigation pane to go to the **Availability Monitoring** page. A list displaying the tasks that apply all availability monitoring in the group is displayed.

### View monitoring results

1. Log on to the [CloudMonitor Console](#).
2. Click **Application Groups** in the left-hand navigation bar to go to the **Application Groups** page.
3. Select the **Application Groups** for which you want to view availability monitoring, then click the application group name to enter the application groups details page.
4. Select **Availability Monitoring** from the left-side navigation pane to go to the Availability Monitoring page.
5. You can view monitoring results in the list.
  - When the task probe does not trigger an alarm, the number of faulty instances in the list is 0.
  - When an alarm is triggered for a probe exception, the number of instances that triggered an alarm is displayed in the list, click exception numbers to view the faulty instance details.
  - Exception details.

### Modify availability monitoring tasks

1. Log on to the [CloudMonitor Console](#).
2. Click **Application Groups** in the left-hand navigation bar to go to the **Application Groups** page.
3. Select the **Application Groups** that needs to modify the availability monitoring, click the application group name to go to the app grouping details page.
4. Select availability monitoring on the left-hand menu of the page to enter the management page for availability monitoring.
5. Select the task that needs to be modified, click Modify in the action to go to the modify application groups page.
6. Edit content on the modify application groups page and save the configuration.

## View alarm logs

1. Log on to the [CloudMonitor Console](#).
2. Click **Application Groups** in the left-hand navigation bar to go to the Application Groups page.
3. Select the application groups that needs to view the alarm logs, click the application group name to go to the application group details page.
4. Select **Alarm Logs** on the left-hand menu of the page, and go to the alarm logs page to view the alarm log details.

## Enable or disable monitoring tasks

Enabling or disabling monitoring tasks is supported for local health checks. When a task is disabled, health checks are no longer performed and alarms are no longer triggered for the task. However, when a task is enabled, probing is re-started and alarms will be triggered when the conditions specified in alarm rule settings are met.

1. Log on to the [CloudMonitor Console](#).
2. Click **Application Groups** in the left-hand navigation bar to go to the **Application Groups** page.
3. Select the application groups that needs to be enabled or disabled for availability monitoring, and click the application group name, enter the application group details page.
4. Select availability monitoring on the left-hand menu of the page to enter the task management page for availability monitoring.
5. Select the task that you want to enable or disable, and click enable or disable in the action to modify the task status.

## 5.3 Local service availability monitoring

This topic describes how to configure local service availability monitoring so that you can receive alarms if a local service does not respond within a specified timeout period or returns an error status code.

### Background

Based on local service availability monitoring, CloudMonitor helps you quickly locate issues when a local service has no response. CloudMonitor can send an alarm to you if the local service does not respond within a specified timeout period or returns an error status code.

## Prerequisites

- Local service availability monitoring depends on the CloudMonitor agent. Make sure that you have installed the CloudMonitor agent on the monitored host. For more information, see [Introduction to the CloudMonitor GoLang agent](#).
- Before you use local service availability monitoring, you must [#unique\\_37](#).

## Procedure

### Restrictions



#### Note:

- Local service availability monitoring depends on the CloudMonitor agent. Make sure that you have installed the CloudMonitor agent on the monitored host.
- CloudMonitor performs the availability detection once a minute.

### Procedure

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, click **Application Groups** to go to the **Application Groups** page.
3. Click the name of the application group where you want to create a local service availability monitoring task to go to the Basic Information page of the application group.
4. In the left-side navigation pane, click **Availability Monitoring** to go to the **Availability Monitoring**.

5. Click **Create Configuration** in the upper-right corner to go to the **Create Availability Monitoring** page.

CreateAvailability Monitoring
✕

**1 Monitoring Configurations**

\* Task Name :   
Enter 4 to 50 characters. Only English letters, numbers, underlines, and Chinese characters are allowed.

\* Target Server :  All  

91a2e7b442ac  
cmastomule011175066070.usd3  
cmastomule000189016219.usd2  
cmastomule011175064120.usd3  
cmastomule014722200446.usd3

\* Detection Type :

\* Detection Target :

\* Request Method :  HEAD  GET  POST

[Advanced Configuration](#) ▾

**2 Alarm Configuration**

Status Code :    [Status Code Description](#)

Response Time :

Notification Method :  Email + DingTalk   
 Email + DingTalk  
 Email + DingTalk

[Advanced Configuration](#) ▾

The detection period is 1 minute. When the above alarm configurations are met, any server will send an alarm notification to the contact group associated with the application group.

6. Set Task Name and Target Server. You can configure the same detection rule for all hosts in the group or some hosts in the group.
7. Set Detection Type to **URL or IP Address**, **ApsaraDB for RDS**, or **ApsaraDB for Redis**. Afterward, set Detection Target.
8. In the Alarm Configuration field, set the Status Code and Response Time metrics. CloudMonitor generates an alarm if either of these metrics reaches the specified

threshold. The system sends alarms to the contact group of the corresponding application group.

9. Click **OK**. If your service does not respond within the timeout period, you receive an alarm by means of SMS messages or emails, or in other ways.
- 10.(Optional) The availability monitoring list displays the number of unhealthy hosts. Click the value in the **Unhealthy Hosts** column to view the details of the unhealthy hosts.

### Parameters

- **Monitoring Configuration:**

- **Target Server:** the host that initiates the detection. Target Server and Detection Target specify the same host.
- **Detection Type:** select **URL or IP Address**.
- **Detection Target:** if you select **HTTP(S)**, enter the target address in the format of `localhost:port/path`. If you select **TELNET**, enter the target address in the format of `127.0.0.1:port`. For example, to test whether Apache Tomcat responds normally, select **HTTP(S)** and enter `localhost:8080/monitor`. To test the connectivity of MySQL, select **TELNET** and enter `127.0.0.1: 3306`.

- **Alarm Configuration:**

The **Status Code** and **Response Time** parameters are used as the metrics of availability monitoring. CloudMonitor generates an alarm if either of the metrics reaches the specified threshold. The system sends alarms to the contact group of the corresponding application group. For local availability monitoring, set Status Code to a value greater than 400.

- **Status Code:** the system generates an alarm if the local service returns a status code as specified.
- **Notification Method:** the method that the system uses to send alarms.
- **Advanced Configuration:**
  - **Mute For:** a period when your alarm rules are muted so that the system does not send any alarms even when the local service runs in the specified alarm conditions.
  - **Effective Period:** the period when an alarm rule is effective. The system only sends alarms within the effective period according to the alarm rule. The system only records alarms if the alarms occur during a non-effective period.

## 5.4 Status codes

The following is a list of the custom status codes returned whenever an exception is detected after an availability check is completed.

Protocol type	Status code	Definition
HTTP	610	Timeout due to no response within 5 seconds after the HTTP request was issued.
HTTP	611	The detection failed.
Telnet	630	Timeout due to no response within 5 seconds.
Telnet	631	The detection failed.

## 6 Cloud service monitoring

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### 6.1 ApsaraDB for RDS

CloudMonitor provides multiple metrics, such as the disk usage, input/output operations per second (IOPS) usage, connection usage, and CPU usage, to help you monitor the status of ApsaraDB for Relational Database Service (RDS). After you purchase RDS, CloudMonitor automatically collects data based on these metrics.

**Note:**

- Only primary and read-only instances in RDS support the monitoring and alerting services.
- By default, CloudMonitor creates alert rules for each primary instance and read-only instance. The alert threshold is 80% for the CPU usage, connection usage, IOPS usage, and disk usage. When the usage of a resource exceeds 80%, an SMS message and an email are sent to the specified contacts.

#### Monitoring service

- **Metrics**

Metric	Description	Dimension	Unit	Minimum frequency
Disk usage	The percentage of the disk capacity used by the instance.	Instance	Percentage	5 minutes
IOPS usage	The percentage of the IOPS used by the instance.	Instance	Percentage	5 minutes

Metric	Description	Dimension	Unit	Minimum frequency
Connection usage	The percentage of instances that the current application connects to. The number of instances that an application can connect to is limited. This metric indicates the percentage of connected instances.	Instance	Percentage	5 minutes
CPU usage	The percentage of the CPU capacity used by the instance . The CPU usage is determined by the database memory size.	Instance	Percentage	5 minutes
Memory usage	The percentage of the memory used by the instance. Currently, only MySQL databases support this metric.	Instance	Percentage	5 minutes
Read-only instance latency	The latency of the MySQL read-only instance.	Instance	Seconds	5 minutes
Inbound traffic	The inbound traffic per second to the instance.	Instance	bit/s	5 minutes

Metric	Description	Dimension	Unit	Minimum frequency
Outbound traffic	The outbound traffic per second from the instance.	Instance	bit/s	5 minutes
Instance failure	An event-type metric. You can set alert rules for this metric.	-	-	-
Instance failover	An event-type metric. You can set alert rules for this metric.	-	-	-

The metrics of inbound and outbound traffic support only MySQL and SQLServer databases.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for RDS**. The **ApsaraDB for RDS** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for RDS**. The **ApsaraDB for RDS** page appears.
3. Click **Alarm Rules** in the **Actions** column for an instance to view the alert rules.
4. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.2 Server Load Balancer

CloudMonitor provides multiple metrics, such as the inbound traffic and outbound traffic, to help you to monitor the status of Server Load Balancer (SLB). CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs. After you create an SLB instance, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**
  - Layer-4 protocol metrics

Metric	Description	Dimension	Unit	Minimum frequency
Inbound traffic on a port	The traffic consumed for accessing the port from the Internet.	Port	bit/s	1 minute
Outbound traffic on a port	The traffic consumed for accessing the Internet from the port.	Port	bit/s	1 minute
Received packets on a port	The number of packets received on the port per second.	Port	Count/second	1 minute
Transmitted packets on a port	The number of packets transmitted on the port per second.	Port	Count/second	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
New connections on a port	The average number of times that the status is SYN_SENT at first for a TCP three-way handshake in the monitoring period.	Port	Count	1 minute
Active connections on a port	The number of connections in the ESTABLISHED status on the port in the monitoring period.	Port	Count	1 minute
Inactive connections on a port	The number of connections in statuses other than ESTABLISHED on the port in the monitoring period.	Port	Count	1 minute
Concurrent connections on a port	The total number of connections on the port (including both active and inactive connections) in the monitoring period.	Port	Count	1 minute
Healthy backend Elastic Compute Service (ECS) instances	The number of instances that pass the health test.	Port	Count	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Faulty backend ECS instances	The number of instances that fail the health test.	Port	Count	1 minute
Connections discarded on a port	The average number of connections discarded on the port per second.	Port	Count/second	1 minute
Received packets discarded on a port	The average number of received packets discarded on the port per second.	Port	Count/second	1 minute
Transmitted packets discarded on a port	The average number of transmitted packets discarded on the port per second.	Port	Count/second	1 minute
Inbound traffic discarded on a port	The average inbound traffic discarded on the port per second.	Port	bit/s	1 minute
Outbound traffic discarded on a port	The average outbound traffic discarded on the port per second.	Port	bit/s	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Active connections on an instance	The number of connections in the ESTABLISHED status on the instance in the monitoring period.	Instance	Count/second	1 minute
Inactive connections on an instance	The number of connections in statuses other than ESTABLISHED on the instance in the monitoring period.	Instance	Count/second	1 minute
Connections discarded on an instance	The number of connections discarded on the instance per second.	Instance	Count/second	1 minute
Received packets discarded on an instance	The number of received packets discarded on the instance per second.	Instance	Count/second	1 minute
Transmitted packets discarded on an instance	The number of transmitted packets discarded on the instance per second.	Instance	Count/second	1 minute
Inbound traffic discarded on an instance	The amount of inbound traffic discarded on the instance per second.	Instance	bit/s	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Outbound traffic discarded on an instance	The amount of outbound traffic discarded on the instance per second.	Instance	bit/s	1 minute
Concurrent connections on an instance	The total number of connections on the instance (including both active and inactive connections) in the monitoring period.	Instance	Count/second	1 minute
New connections on an instance	The average number of times that the status is SYN_SENT at first for a TCP three-way handshake in the monitoring period.	Instance	Count/second	1 minute
Received packets on an instance	The number of packets received on the instance per second.	Instance	Count/second	1 minute
Transmitted packets on an instance	The number of packets transmitted on the instance per second.	Instance	Count/second	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Inbound traffic on an instance	The traffic consumed for accessing the instance from the Internet.	Instance	bit/s	1 minute
Outbound traffic on an instance	The traffic consumed for accessing the Internet from the instance.	Instance	bit/s	1 minute

- Layer-7 protocol metrics

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
QPS on a port	The QPS on the port.	Port	Count/second	1 minute
Response time (RT) on a port	The average response time to requests on the port.	Port	Milliseconds	1 minute
Status codes 2xx on a port	The number of status codes 2xx returned by SLB to the client on the port.	Port	Count/second	1 minute
Status codes 3xx on a port	The number of status codes 3xx returned by SLB to the client on the port.	Port	Count/second	1 minute
Status codes 4xx on a port	The number of status codes 4xx returned by SLB to the client on the port.	Port	Count/second	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Status codes 5xx on a port	The number of status codes 5xx returned by SLB to the client on the port.	Port	Count/second	1 minute
Other status codes on a port	The number of other status codes returned by SLB to the client on the port.	Port	Count/second	1 minute
Upstream status codes 4xx on a port	The number of status codes 4xx returned by RS to SLB on the port.	Port	Count/second	1 minute
Upstream status codes 5xx on a port	The number of status codes 5xx returned by RS to the client on the port.	Port	Count/second	1 minute
Upstream RT on a port	The average response time to requests from RS to the proxy on the port.	Port	Milliseconds	1 minute
QPS on an instance	The QPS on the instance.	Instance	Count/second	1 minute
RT on an instance	The average response time to requests on an instance.	Instance	Count/second	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Status codes 2xx on an instance	The number of status codes 2xx returned by SLB to the client on the instance.	Instance	Count/second	1 minute
Status codes 3xx on an instance	The number of status codes 3xx returned by SLB to the client on the instance.	Instance	Count/second	1 minute
Status codes 4xx on an instance	The number of status codes 4xx returned by SLB to the client on the instance.	Instance	Count/second	1 minute
Status codes 5xx on an instance	The number of status codes 5xx returned by SLB to the client on the instance.	Instance	Count/second	1 minute
Other status codes on an instance	The number of other status codes returned by SLB to the client on the instance.	Instance	Count/second	1 minute
Upstream status codes 4xx on the instance	The number of status codes 4xx returned by RS to SLB on the instance.	Instance	Count/second	1 minute

Metric	Description	Dimension	Unit	Minimum frequency
Upstream status codes 5xx on an instance	The number of status codes 5xx returned by RS to SLB on the instance.	Instance	Count/second	1 minute
Upstream RT on an instance	The average response time to requests from RS to the proxy on the instance.	Instance	Milliseconds	1 minute

**Note:**

In the preceding table, new connections, active connections, and inactive connections refer to TCP connection requests sent from clients to SLB.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Server Load Balancer**. The **Server Load Balancer** page appears.
3. Click a region. All instances in the region appear in the instance list.
4. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

**Alerting service**

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Server Load Balancer**. The **Server Load Balancer** page appears.
3. Click a region. All instances in the region appear in the instance list.
4. Click **Alarm Rules** in the **Actions** column for an instance to view the alert rules.
5. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the alert method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.3 Object Storage Service

By monitoring the basic service, performance, and metering data of the Object Service Storage (OSS) service, CloudMonitor enables you to gain insights into the overall performance of the OSS service and set alarm rules accordingly. Specifically, this can help you better track requests, analyze usage, collect statistics on business trends, and quickly discover and diagnose system issues.

### Monitoring service

- Metrics

The metrics used for monitoring OSS mainly include basic service, performance, and metering indicators. For more information, see [Monitoring indicators reference](#).

**Note:**

To maintain consistency with the billing policies, the collection and presentation of metering data have the following characteristics:

- Metering data is collected hourly, so that the metering data for your resources is aggregated to a single value each hour. This value represents the overall metering condition of the hour monitored.
- Metering data has an output delay of nearly 30 minutes.
- The metering data time refers to the start time of the relevant statistical period.
- The cutoff time of metering data is the end time of the last statistical period of the current month. If no metering data is produced in the current month, the metering data cutoff time is 00:00 on the first day of the current month.
- For presentation purposes, the maximum quantity of metering data is pushed. For more information about metering data, see [Usage Records](#).

#### Example

Assuming that you only use PutObject requests to upload data and perform this operation at an average of 10 times per minute. Then, in the hour between 08:00:00 and 09:00:00 on May 10, 2016, the metering result of your PUT requests is 600 times (10 × 60 minutes), the time of metering data is 08:00:00 on May 10, 2016, and

the result will be generated at around 09:30:00 on May 10, 2016. If the result is the last data record since 00:00:00 on May 1, 2016, the metering data cutoff time for the current month is 09:00:00 on May 10, 2016. If in May 2016, you have not produced any metering data, the metering data cutoff time will be 00:00:00 on May 1, 2016.

## Alarm service



### Note:

The names of OSS buckets are unique. Given this, after you delete a bucket, if you create another one with the same name as the deleted one, the monitoring rules and alarm rules that were previously set for the deleted bucket will also apply to the new bucket.

You can set alarm rules for several metrics in addition to the preceding metering and statistical indicators. You can also add these metrics to your monitoring list. Moreover, multiple alarm rules can be set for a single metric.

## Instructions

- For more information about the alarm service, see [Alarm service overview](#).
- For more information about the alarm service for OSS monitoring, see [#unique\\_56](#).

## 6.4 Alibaba Cloud CDN

CloudMonitor provides multiple metrics, such as the queries per second (QPS), bandwidth, and byte hit ratio, to help you monitor the status of Content Delivery Network (CDN). After you add a CDN domain name, CloudMonitor automatically collects data based on these metrics. You can log on to the CloudMonitor console and view the monitoring details on the CDN monitoring page. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

## Monitoring service

- **Metrics**

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Visits per second	The number of visits in the monitoring period divided by the monitoring period.	Domain name	QPS	1 minute
Bandwidth	The maximum traffic per unit time.	Domain name	bit/s	1 minute
Hit ratio	The probability that request bytes are found in the cache in the monitoring period. The number of request bytes is the number of requests multiplied by traffic. The byte hit ratio reflects the back-to-origin traffic.	Domain name	Percentage	1 minute
Outbound traffic to the Internet	The traffic from CDN to the Internet.	Domain name	Bytes	5 minutes
Percentage of status codes 4xx	The percentage of HTTP status codes 4xx to all the returned HTTP status codes in the monitoring period.	Domain name	Percentage	1 minute

Metric	Description	Dimension	Unit	Minimum frequency
Percentage of status codes 5xx	The percentage of HTTP status codes 5xx to all the returned HTTP status codes in the monitoring period.	Domain name	Percentage	1 minute

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Alibaba Cloud CDN**. The **CDN** page appears.
3. Click the **Domain Name List** tab.
4. Click a domain name or click **Monitoring Charts** in the **Actions** column for a domain name to view the monitoring charts.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Alibaba Cloud CDN**. The **CDN** page appears.
3. Click the **Domain Name List** tab.
4. Click **Alarm Rules** in the **Actions** column for a domain name to view the alert rules.
5. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.5 Elastic IP Address

CloudMonitor provides multiple metrics, such as the inbound traffic, outbound traffic, received packets, and transmitted packets, to help you monitor the status of Elastic IP

Address (EIP). CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs. After you purchase EIP, CloudMonitor automatically collects data based on these metrics.

## Monitoring service

- **Metrics**

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Inbound bandwidth	The traffic per second that passes through EIP to Elastic Compute Service (ECS).	Instance	bit/s	1 minute
Outbound bandwidth	The traffic per second that passes through EIP from ECS.	Instance	bit/s	1 minute
Received packets	The number of packets per second that pass through EIP to ECS.	Instance	PPS	1 minute
Transmitted packets	The number of packets per second that pass through EIP from ECS.	Instance	PPS	1 minute
Packet loss rate due to throttling	The packet loss rate when the actually used bandwidth exceeds the configured upper limit.	Instance	PPS	1 minute

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Elastic IP Address**. The **Elastic IP Address** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

### Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Elastic IP Address**. The **Elastic IP Address** page appears.
3. Click **Alarm Rules** in the **Actions** column for an instance to view the alert rules.
4. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.6 ApsaraDB for Redis

CloudMonitor provides multiple metrics, such as the used capacity and used connections, to help you monitor the status of ApsaraDB for Redis. After you create an ApsaraDB for Redis instance, CloudMonitor automatically collects data based on these metrics. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

### Monitoring service

- **Metrics**

Metric	Description	Dimension	Unit	Minimum frequency
Used capacity	The used capacity of the instance.	Instance	Bytes	1 minute

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Used connections	The number of client connections.	Instance	Count	1 minute
Write bandwidth	The write traffic per second.	Instance	bit/s	1 minute
Read bandwidth	The read traffic per second.	Instance	bit/s	1 minute
Failed operations	The number of failed KVStore operations.	Instance	Count	1 minute
Used capacity percentage	The percentage of the used capacity to the total capacity.	Instance	Percentage	1 minute
Used connection percentage	The percentage of used connections to total connections.	Instance	Percentage	1 minute
Write bandwidth usage	The percentage of the write bandwidth to the total bandwidth.	Instance	Percentage	1 minute
Read bandwidth usage	The percentage of the read bandwidth to the total bandwidth.	Instance	Percentage	1 minute
Instance failure	An event-type metric. You can set alert rules for this metric.	-	-	-
Instance failover	An event-type metric. You can set alert rules for this metric.	-	-	-

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for Redis**. The **Redis Monitoring List** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

### Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for Redis**. The **Redis Monitoring List** page appears.
3. Click **Alarm Rules** in the **Actions** column for an instance to view the alert rules.
4. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.7 Container Service

CloudMonitor provides multiple metrics, such as the CPU usage and memory usage, to help you monitor the status of Container Service. After you create a Container Service cluster, CloudMonitor automatically collects data based on these metrics. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

### Monitoring service

- **Metrics**

Metric	Description	Dimension	Unit	Minimum frequency
containerCpuUtilization	The CPU usage of the container	User and container	Percentage	30 seconds

Metric	Description	Dimension	Unit	Minimum frequency
containerMemoryUtilization	The memory usage of the container.	User and container	Percentage	30 seconds
containerMemoryAmount	The amount of memory used by the container.	User and container	Bytes	30 seconds
containerIneternetIn	The inbound traffic of the container.	User and container	Bytes	30 seconds
containerIneternetOut	The outbound traffic of the container.	User and container	Bytes	30 seconds
containerIORead	The I/O read traffic of the container.	User and container	Bytes	30 seconds
containerIOWrite	The I/O write traffic of the container.	User and container	Bytes	30 seconds



**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Container Service**. The **Clusters** page appears.
3. Click **Monitoring Charts** in the **Actions** column for a cluster to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules for a single cluster**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Container Service**. The **Clusters** page appears.
3. Click **Monitoring Charts** in the **Actions** column for a cluster to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Set alert rules for multiple clusters at a time**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Container Service**. The **Clusters** page appears.
3. Select target clusters and click **Set Alarm Rules** under the list to set alert rules for the selected clusters.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.8 Log Service

CloudMonitor provides multiple metrics, such as the inbound traffic and outbound traffic, total queries per second (QPS), and log statistics, to help you monitor the status of Log Service. After you create a Log Service project, CloudMonitor automatically collects data based on these metrics. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

## Monitoring service

- **Metrics**

Metric	Description	Dimension	Unit	Minimum frequency
Inflow	The inbound traffic of the Logstore per minute.	User, project, and Logstore	Bytes	1 minute
Outflow	The outbound traffic of the Logstore per minute.	User, project, and Logstore	Bytes	1 minute
SumQPS	The number of writes per minute in the Logstore.	User, project, and Logstore	Count	1 minute
LogMethodQPS	The number of writes per minute for each method in the Logstore.	User, project, Logstore, and method	Count	1 minute
LogCodeQPS	The number of writes per minute for each status code in the Logstore.	User, project, Logstore, and status	Count	1 minute
SuccessdByte	The number of resolved bytes in the Logstore.	User, project, and Logstore	Bytes	10 minutes
SuccessdLines	The number of lines in resolved logs in the Logstore.	User, project, and Logstore	Count	10 minutes
FailedLines	The number of lines in logs that failed to be resolved in the Logstore.	User, project, and Logstore	Count	10 minutes

Metric	Description	Dimension	Unit	Minimum frequency
AlarmPV	The total number of Elastic Compute Service (ECS) configuration errors in the Logstore.	User, project, and Logstore	Count	5 minutes
AlarmUv	The total number of ECS instances with incorrect configurations in the Logstore.	User, project, and Logstore	Count	5 minutes
AlarmIPCount	The number of errors incurred by each IP address in the Logstore.	User, project, Logstore, alert type, and source IP address	Count	5 minutes

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Log Service**. The **Log Service** page appears.
3. Click **Monitoring Charts** in the **Actions** column for a project to view the monitoring charts.
4. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Log Service**. The **Log Service** page appears.
3. Click **Alarm Rules** in the **Actions** column for a project to view the alert rules.
4. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- Parameters

**Note:**

- When setting alert rules, you can specify the status for a status-related metric. Valid values of the status field include 200, 400, 401, 403, 405, 500, and 502.
- You can specify the method for a metric related to the operation count. Valid values of the method field include PostLogStoreLogs, GetLogtailConfig, PutData, GetCursorOrData, GetData, GetLogStoreHistogram, GetLogStoreLogs, ListLogStores, and ListLogStoreTopics.

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.9 API Gateway

CloudMonitor provides multiple metrics, such as the inbound traffic, outbound traffic, and response time, to help you monitor the status of API Gateway.

After you purchase API Gateway, CloudMonitor automatically collects data based on these metrics. You can log on to the CloudMonitor console and view the monitoring details on the API Gateway monitoring page. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

### Monitoring service

- Metrics

Metric	Description	Dimension	Unit	Minimum frequency
Error distribution	The numbers of 2XX, 4XX, and 5XX status codes returned for an API in the monitoring period.	User and API	Count	1 minute
Inbound traffic	The total traffic of requests received by an API in the monitoring period.	User and API	Bytes	1 minute

Metric	Description	Dimension	Unit	Minimum frequency
Outbound traffic	The total traffic of responses sent by an API in the monitoring period.	User and API	Bytes	1 minute
Response time	The latency between the time when API Gateway calls the backend service of an API and the time when the result is received from the backend service in the monitoring period.	User and API	Seconds	1 minute
Total requests	The total number of requests received by an API in the monitoring period.	User and API	Count	1 minute

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > API Gateway**.  
The **API Gateway Monitoring List** page appears.
3. Click the name of an API or click **Monitoring Charts** in the **Actions** column for an API to view the monitoring charts.
4. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > API Gateway**.  
The **API Gateway Monitoring List** page appears.
3. Click **Alarm Rules** in the **Actions** column for an API to view the alert rules.
4. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.10 ApsaraDB for MongoDB

CloudMonitor provides multiple metrics, such as the CPU usage and memory usage, to help you monitor the status of ApsaraDB for MongoDB. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs. After you purchase ApsaraDB for MongoDB, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Description	Dimension	Unit	Minimum frequency
CPU usage	The CPU usage of the instance.	User, instance , and primary/ secondary node	Percentage	5 minutes
Memory usage	The memory usage of the instance.	User, instance , and primary/ secondary node	Percentage	5 minutes
Disk usage	The disk usage of the instance.	User, instance , and primary/ secondary node	Percentage	5 minutes
Input/Output operations per second (IOPS) usage	The IOPS usage of the instance.	User, instance , and primary/ secondary node	Percentage	5 minutes

Metric	Description	Dimension	Unit	Minimum frequency
Connection usage	The percentage of instances to which the current application connects. The number of instances to which an application can connect is limited. This metric indicates the percentage of connected instances.	User, instance , and primary/ secondary node	Percentage	5 minutes
Average number of SQL queries per second	The average number of SQL queries per second for the instance.	User, instance , and primary/ secondary node	Count	5 minutes
Connections in use	The number of instances to which the current application connects.	User, instance , and primary/ secondary node	Count	5 minutes
Disk space occupied by an instance	The total disk space occupied by the instance.	User, instance , and primary/ secondary node	Bytes	5 minutes
Disk space occupied by data	The disk space occupied by data.	User, instance , and primary/ secondary node	Bytes	5 minutes
Disk space occupied by logs	The disk space occupied by logs.	User, instance , and primary/ secondary node	Bytes	5 minutes
Inbound internal network traffic	The inbound traffic of the instance.	User, instance , and primary/ secondary node	Bytes	5 minutes

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Outbound internal network traffic	The outbound traffic of the instance.	User, instance , and primary/ secondary node	Bytes	5 minutes
Request count	The total number of requests sent to the server.	User, instance , and primary/ secondary node	Count	5 minutes
Insert operations	The total number of insert commands received since the last time the instance was started.	User, instance , and primary/ secondary node	Count	5 minutes
Query operations	The total number of query commands received since the last time the instance was started.	User, instance , and primary/ secondary node	Count	5 minutes
Update operations	The total number of update commands received since the last time the instance was started.	User, instance , and primary/ secondary node	Count	5 minutes
Delete operations	The total number of delete operations performed since the last time the instance was started.	User, instance , and primary/ secondary node	Count	5 minutes

Metric	Description	Dimension	Unit	Minimum frequency
Getmore operations	The total number of getmore operations performed since the last time the instance was started.	User, instance , and primary/ secondary node	Count	5 minutes
Command operations	The total number of commands sent to the database since the last time the instance was started.	User, instance , and primary/ secondary node	Count	5 minutes
Instance failure	An event-type metric. You can set alert rules for this metric.	-	-	-

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for MongoDB**. The **MongoDB** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules for a single instance**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for MongoDB**. The **MongoDB** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart to set alert rules for the corresponding metric of this instance.

- **Set alert rules for multiple instances at a time**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > ApsaraDB for MongoDB**. The **MongoDB** page appears.
3. Select target instances and click **Set Alarm Rules** under the list to set alert rules for the selected instances.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.11 Message Service

CloudMonitor provides multiple metrics, such as the numbers of delayed messages, invalid messages, and active messages, to help you monitor the status of Message Service (MNS). After you create an MNS queue, CloudMonitor automatically collects data based on these metrics. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

### Monitoring service

- **Metrics**

Metric	Description	Dimension	Unit	Minimum frequency
ActiveMessages	The total number of active messages in the queue.	User, region, bucket, and queue	Count	5 minutes

<b>Metric</b>	<b>Description</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
InactiveMessages	The total number of inactive messages in the queue.	User, region, bucket, and queue	Count	5 minutes
DelayMessage	The total number of delayed messages in the queue.	User, region, bucket, and queue	Count	5 minutes
SendMessageCount	The number of requests for sending a message.	User, region, and queue	Count	60 minutes
BatchSendMessageCount	The number of requests for sending multiple messages at a time.	User, region, and queue	Count	60 minutes
ReceiveMessageCount	The number of requests for receiving a message.	User, region, and queue	Count	60 minutes
BatchReceiveMessageCount	The number of requests for receiving multiple messages at a time.	User, region, and queue	Count	60 minutes
BatchDeleteMessageCount	The number of requests for deleting multiple messages at a time.	User, region, and queue	Count	60 minutes

Metric	Description	Dimension	Unit	Minimum frequency
ChangeMessageVisibilityCount	Change the number of visible messages.	User, region, and queue	Count	60 minutes

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Message Service**. The **MNS List** page appears.
3. Click the name of a queue or click **Monitoring Charts** in the **Actions** column for a queue to view the monitoring charts.
4. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Message Service**. The **MNS List** page appears.
3. Click **Alarm Rules** in the **Actions** column for a queue to view the alert rules.
4. Click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.12 E-MapReduce

CloudMonitor provides multiple metrics, such as the CPU idle rate, memory capacity, and disk capacity, to help you monitor the status of Elastic MapReduce (E-MapReduce). CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase E-MapReduce, CloudMonitor automatically collects data based on these metrics.

## Monitoring service

- **Metrics**

<b>Metric</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Inbound traffic rate	User, cluster, and role	bit/s	30 seconds
Outbound traffic rate	User, cluster, and role	bit/s	30 seconds
CPU idle rate	User, cluster, and role	Percentage	1 minute
User-mode CPU usage	User, cluster, and role	Percentage	30 seconds
System-mode CPU usage	User, cluster, and role	Percentage	30 seconds
Idle disk capacity	User, cluster, and role	Bytes	30 seconds
Total disk capacity	User, cluster, and role	Bytes	30 seconds
15-minute load average	User, cluster, and role	-	30 seconds
5-minute load average	User, cluster, and role	-	30 seconds
1-minute load average	User, cluster, and role	-	30 seconds
Idle memory capacity	User, cluster, and role	Bytes	30 seconds
Total memory capacity	User, cluster, and role	Bytes	30 seconds
Received packets per second	User, cluster, and role	PPS	30 seconds
Transmitted packets per second	User, cluster, and role	PPS	30 seconds
Running processes	User, cluster, and role	Count	30 seconds
Total processes	User, cluster, and role	Count	30 seconds

<b>Metric</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
Blocked processes	User, cluster, and role	Count	30 seconds
Created processes or threads	User, cluster, and role	Count	30 seconds
MemNonHeapUsedM	User, cluster, and role	Bytes	30 seconds
MemNonHeapCommittedM	User, cluster, and role	Bytes	30 seconds
MemNonHeapMaxM	User, cluster, and role	Bytes	30 seconds
MemHeapUsedM	User, cluster, and role	Bytes	30 seconds
MemHeapCommittedM	User, cluster, and role	Bytes	30 seconds
MemHeapMaxM	User, cluster, and role	Bytes	30 seconds
MemMaxM	User, cluster, and role	Bytes	30 seconds
ThreadsNew	User, cluster, and role	-	30 seconds
ThreadsRunnable	User, cluster, and role	-	30 seconds
ThreadsBlocked	User, cluster, and role	-	30 seconds
ThreadsWaiting	User, cluster, and role	-	30 seconds
ThreadsTimedWaiting	User, cluster, and role	-	30 seconds
ThreadsTerminated	User, cluster, and role	-	30 seconds
GcCount	User, cluster, and role	-	30 seconds
GcTimeMillis	User, cluster, and role	-	30 seconds

<b>Metric</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
CallQueueLength	User, cluster, and role	-	30 seconds
NumOpenConnections	User, cluster, and role	-	30 seconds
ReceivedByte	User, cluster, and role	-	30 seconds
SentByte	User, cluster, and role	-	30 seconds
BlockCapacity	User, cluster, and role	-	30 seconds
BlocksTotal	User, cluster, and role	-	30 seconds
CapacityRemaining	User, cluster, and role	-	30 seconds
CapacityTotal	User, cluster, and role	-	30 seconds
CapacityUsed	User, cluster, and role	-	30 seconds
CapacityUsedNonDFS	User, cluster, and role	-	30 seconds
CorruptBlocks	User, cluster, and role	-	30 seconds
ExcessBlocks	User, cluster, and role	-	30 seconds
ExpiredHeartbeats	User, cluster, and role	-	30 seconds
MissingBlocks	User, cluster, and role	-	30 seconds
PendingDataNodeMessageCount	User, cluster, and role	-	30 seconds
PendingDeletionBlocks	User, cluster, and role	-	30 seconds
PendingReplicationBlocks	User, cluster, and role	-	30 seconds

<b>Metric</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
PostponedMisreplicatedBlocks	User, cluster, and role	-	30 seconds
ScheduledReplicationBlocks	User, cluster, and role	-	30 seconds
TotalFiles	User, cluster, and role	-	30 seconds
TotalLoad	User, cluster, and role	-	30 seconds
UnderReplicatedBlocks	User, cluster, and role	-	30 seconds
BlocksRead	User, cluster, and role	-	30 seconds
BlocksRemoved	User, cluster, and role	-	30 seconds
BlocksReplicated	User, cluster, and role	-	30 seconds
BlocksUncached	User, cluster, and role	-	30 seconds
BlocksVerified	User, cluster, and role	-	30 seconds
BlockVerificationFailures	User, cluster, and role	-	30 seconds
BlocksWritten	User, cluster, and role	-	30 seconds
ByteRead	User, cluster, and role	-	30 seconds
ByteWritten	User, cluster, and role	-	30 seconds
FlushNanosAvgTime	User, cluster, and role	-	30 seconds
FlushNanosNumOps	User, cluster, and role	-	30 seconds
FsyncCount	User, cluster, and role	-	30 seconds

<b>Metric</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
VolumeFailures	User, cluster, and role	-	30 seconds
ReadBlockOpNumOps	User, cluster, and role	-	30 seconds
ReadBlockOpAvgTime	User, cluster, and role	Milliseconds	30 seconds
WriteBlockOpNumOps	User, cluster, and role	-	30 seconds
WriteBlockOpAvgTime	User, cluster, and role	Milliseconds	30 seconds
BlockChecksumOpNumOps	User, cluster, and role	-	30 seconds
BlockChecksumOpAvgTime	User, cluster, and role	Milliseconds	30 seconds
CopyBlockOpNumOps	User, cluster, and role	-	30 seconds
CopyBlockOpAvgTime	User, cluster, and role	Milliseconds	30 seconds
ReplaceBlockOpNumOps	User, cluster, and role	-	30 seconds
ReplaceBlockOpAvgTime	User, cluster, and role	Milliseconds	30 seconds
BlockReportsNumOps	User, cluster, and role	-	30 seconds
BlockReportsAvgTime	User, cluster, and role	Milliseconds	30 seconds
NodeManager_AllocatedContainers	User, cluster, and role	-	30 seconds
ContainersCompleted	User, cluster, and role	-	30 seconds
ContainersFailed	User, cluster, and role	-	30 seconds
ContainersIniting	User, cluster, and role	-	30 seconds

<b>Metric</b>	<b>Dimension</b>	<b>Unit</b>	<b>Minimum frequency</b>
ContainersKilled	User, cluster, and role	-	30 seconds
ContainersLaunched	User, cluster, and role	-	30 seconds
ContainersRunning	User, cluster, and role	-	30 seconds
ActiveApplications	User, cluster, and role	-	30 seconds
ActiveUsers	User, cluster, and role	-	30 seconds
AggregateContainersAllocated	User, cluster, and role	-	30 seconds
AggregateContainersReleased	User, cluster, and role	-	30 seconds
AllocatedContainers	User, cluster, and role	-	30 seconds
AppsCompleted	User, cluster, and role	-	30 seconds
AppsFailed	User, cluster, and role	-	30 seconds
AppsKilled	User, cluster, and role	-	30 seconds
AppsPending	User, cluster, and role	-	30 seconds
AppsRunning	User, cluster, and role	-	30 seconds
AppsSubmitted	User, cluster, and role	-	30 seconds
AvailableMB	User, cluster, and role	-	30 seconds
AvailableVCores	User, cluster, and role	-	30 seconds
PendingContainers	User, cluster, and role	-	30 seconds

Metric	Dimension	Unit	Minimum frequency
ReservedContainers	User, cluster, and role	-	30 seconds

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > E-MapReduce**. The **E-MapReduce Monitoring List** page appears.
3. Click the ID of a cluster or click **Monitoring Charts** in the **Actions** column for a cluster to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

**Alerting service**

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > E-MapReduce**. The **E-MapReduce Monitoring List** page appears.
3. Click the ID of a cluster or click **Monitoring Charts** in the **Actions** column for a cluster to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.13 Auto Scaling

CloudMonitor provides multiple metrics, such as the minimum and maximum numbers of instances, to help you monitor the status of Auto Scaling. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase Auto Scaling, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Minimum number of instances	User and scaling group	Count	5 minutes
Maximum number of instances	User and scaling group	Count	5 minutes
Total instances	User and scaling group	Count	5 minutes
Running instances	User and scaling group	Count	5 minutes
Instances being added	User and scaling group	Count	5 minutes
Instances being removed	User and scaling group	Count	5 minutes

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Auto Scaling**.  
The **Alibaba Cloud Auto Scaling** page appears.
3. Click the name of a scaling group or click **Monitoring Charts** in the **Actions** column for a scaling group to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

### Alerting service

- **Set alert rules for a single scaling group**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Auto Scaling**.  
The **Alibaba Cloud Auto Scaling** page appears.
3. Click the name of a scaling group or click **Monitoring Charts** in the **Actions** column for a scaling group to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Set alert rules for multiple scaling groups at a time**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Auto Scaling**.  
The **Alibaba Cloud Auto Scaling** page appears.
3. Select target scaling groups and click **Set Alarm Rules** under the list to set alert rules for the selected scaling groups.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.14 HybridDB for MySQL

CloudMonitor provides multiple metrics, such as the disk usage, inbound bandwidth, and outbound bandwidth, to help you monitor the status of HybridDB for MySQL. CloudMonitor

also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase HybridDB for MySQL, CloudMonitor automatically collects data based on these metrics.

## Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Disk usage	User and instance	GB	60 minutes
Inbound bandwidth	User and instance	KByte/s	5 minutes
Outbound bandwidth	User and instance	KByte/s	5 minutes
Requests per second	User and instance	Count/second	5 minutes
CPU usage of a child node	User and instance	Percentage	8 minutes
Disk usage of a child node	User and instance	GB	8 minutes
Input/Output operations per second (IOPS) of a child node	User and instance	Count/second	8 minutes



**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > HybridDB for MySQL**. The **HybridDB for MySQL** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

### Alerting service

- **Set alert rules for a single instance**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > HybridDB for MySQL**. The **HybridDB for MySQL** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Set alert rules for multiple instances at a time**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > HybridDB for MySQL**. The **HybridDB for MySQL** page appears.
3. Select target instances and click **Set Alarm Rules** under the list to set alert rules for the selected instances.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.15 AnalyticDB for PostgreSQL

CloudMonitor provides multiple metrics, such as the CPU usage and memory usage, to help you monitor the status of AnalyticDB for PostgreSQL. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase AnalyticDB for PostgreSQL, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Disk usage	User and instance	Percentage	5 minutes
Connection usage	User and instance	Percentage	5 minutes
CPU usage	User and instance	Percentage	5 minutes
Memory usage	User and instance	Percentage	5 minutes
I/O throughput usage	User and instance	Percentage	5 minutes



**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > AnalyticDB for PostgreSQL**. The **AnalyticDB for PostgreSQL Monitoring List** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules for a single instance**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > AnalyticDB for PostgreSQL**. The **AnalyticDB for PostgreSQL Monitoring List** page appears.
  3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
  4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.
- **Set alert rules for multiple instances at a time**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > AnalyticDB for PostgreSQL**. The **AnalyticDB for PostgreSQL Monitoring List** page appears.
  3. Select target instances and click **Set Alarm Rules** under the list to set alert rules for the selected instances.
- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.16 Function Compute

CloudMonitor provides multiple service-level and function-level metrics, such as the total invocations, average duration, and request status distribution, to help you monitor the status of Function Compute. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase Function Compute, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
BillableInvocations	User, service, and function	Count	1 minute

Metric	Dimension	Unit	Minimum frequency
BillableInvocationsRate	User, service, and function	Percentage	1 minute
ClientErrors	User, service, and function	Count	1 minute
ClientErrorsRate	User, service, and function	Percentage	1 minute
ServerErrors	User, service, and function	Count	1 minute
ServerErrorsRate	User, service, and function	Percentage	1 minute
Throttles	User, service, and function	Count	1 minute
ThrottlesRate	User, service, and function	Percentage	1 minute
TotalInvocations	User, service, and function	Count	1 minute
Average duration	User, service, and function	Milliseconds	1 minute

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Function Compute**. On the **Function Compute** page that appears, you can view the overall status of Function Compute.
3. Click the **Service List** tab to view the service-level or function-level monitoring information.

### Alerting service

CloudMonitor allows you to set alert rules for the metrics of Function Compute so that you can receive alerts when any exception occurs.

- **Set alert rules for a single service**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > Function Compute**. The **Function Compute** page appears.
  3. Click the **Alarm Rules** tab and then click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.
- **Set alert rules for multiple services at a time**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > Function Compute**. The **Function Compute** page appears.
  3. Click the **Service List** tab.
  4. Select target services and click **Set Alarm Rules** under the list to set alert rules for the selected services.
- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.17 DirectMail

CloudMonitor provides multiple metrics, such as metrics about the Web or API messaging sending method, Simple Mail Transfer Protocol (SMTP) message sending method, and abnormal accounts, to help you monitor the status of DirectMail. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase DirectMail, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Unit	Minimum frequency
Web or API over-length-error QPS	Count/minute	1 minute
Web/API over-quota-error QPS	Count/minute	1 minute

Metric	Unit	Minimum frequency
Web/API spam QPS	Count/minute	1 minute
Web/API success QPS	Count/minute	1 minute
SMTP authentication failure QPS	Count/minute	1 minute
SMTP authentication success QPS	Count/minute	1 minute
SMTP over-length-error QPS	Count/minute	1 minute
SMTP over-quota-error QPS	Count/minute	1 minute
SMTP spam QPS	Count/minute	1 minute

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > DirectMail**. On the **DirectMail** page that appears, you can view the metrics of DirectMail.

## Alerting service

CloudMonitor allows you to set alert rules for the metrics of DirectMail so that you can receive alerts when any exception occurs.

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > DirectMail**. The **DirectMail** page appears.
3. Click the **Alarm Rules** tab and then click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.18 NAT Gateway

CloudMonitor provides multiple metrics, such as the number of source network address translation (SNAT) connections, to help you monitor the status of Network Address Translation (NAT) Gateway. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase NAT Gateway, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
SNAT connections	User and instance	Count/minute	1 minute
Inbound bandwidth of a bandwidth package	User and instance	bit/s	1 minute
Outbound bandwidth of a bandwidth package	User and instance	bit/s	1 minute
Received packets of a bandwidth package	User and instance	PPS	1 minute
Transmitted packets of a bandwidth package	User and instance	PPS	1 minute
Outbound bandwidth usage of a bandwidth package	User and instance	Percentage	1 minute



**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > NAT Gateway**. The **NAT Gateway List** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

### Alerting service

- **Set alert rules for a single instance**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > NAT Gateway**. The **NAT Gateway List** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Set alert rules for multiple instances at a time**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > NAT Gateway**. The **NAT Gateway List** page appears.
3. Select target instances and click **Set Alarm Rules** under the list to set alert rules for the selected instances.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.19 Shared Bandwidth

CloudMonitor provides multiple metrics, such as the inbound bandwidth and outbound bandwidth, to help you monitor the status of Shared Bandwidth. CloudMonitor also allows

you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase Shared Bandwidth, CloudMonitor automatically collects data based on these metrics.

## Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Inbound bandwidth of a bandwidth package	User and instance	bit/s	1 minute
Outbound bandwidth of a bandwidth package	User and instance	bit/s	1 minute
Received packets of a bandwidth package	User and instance	PPS	1 minute
Transmitted packets of a bandwidth package	User and instance	PPS	1 minute
Outbound bandwidth usage of a bandwidth package	User and instance	Percentage	1 minute



### Note:

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to seven consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Shared Bandwidth**. The **Shared Bandwidth** page appears.
3. Click the ID of a bandwidth package or click **Monitoring Charts** in the **Actions** column for a bandwidth package to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to seven consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

### Alerting service

- **Set alert rules for a single bandwidth package**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Shared Bandwidth**. The **Shared Bandwidth** page appears.
3. Click the ID of a bandwidth package or click **Monitoring Charts** in the **Actions** column for a bandwidth package to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Set alert rules for multiple bandwidth packages at a time**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Shared Bandwidth**. The **Shared Bandwidth** page appears.
3. Select target bandwidth packages and click **Set Alarm Rules** under the list to set alert rules for the bandwidth packages.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.20 VPN Gateway

CloudMonitor provides multiple metrics, such as the inbound bandwidth and outbound bandwidth, to help you monitor the status of Virtual Private Network (VPN) Gateway.

CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase VPN Gateway, CloudMonitor automatically collects data based on these metrics.

## Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Inbound bandwidth of a bandwidth package	User and instance	bit/s	1 minute
Outbound bandwidth of a bandwidth package	User and instance	bit/s	1 minute
Received packets of a bandwidth package	User and instance	PPS	1 minute
Transmitted packets of a bandwidth package	User and instance	PPS	1 minute



**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to seven consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > VPN**. The **VPN** page appears.
3. Click the ID of a VPN or click **Monitoring Charts** in the **Actions** column for a VPN to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to seven consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules for a single VPN**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > VPN**. The **VPN** page appears.
  3. Click the ID of a VPN or click **Monitoring Charts** in the **Actions** column for a VPN to view the monitoring charts.
  4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.
- **Set alert rules for multiple VPNs at a time**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > VPN**. The **VPN** page appears.
  3. Select target VPNs and click **Set Alarm Rules** under the list to set alert rules for the selected VPNs.
- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.21 Global Acceleration

CloudMonitor provides multiple metrics, such as the inbound bandwidth and outbound bandwidth, to help you monitor the status of Global Acceleration. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase Global Acceleration, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Inbound bandwidth	User and instance	bit/s	1 minute

Metric	Dimension	Unit	Minimum frequency
Outbound bandwidth	User and instance	bit/s	1 minute
Received packets	User and instance	PPS	1 minute
Transmitted packets	User and instance	PPS	1 minute

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to seven consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Global Acceleration**. The **Global Acceleration** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to seven consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

**Alerting service**

- **Set alert rules for a single instance**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Global Acceleration**. The **Global Acceleration** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Set alert rules for multiple instances at a time**
  1. Log on to the [CloudMonitor console](#).
  2. In the left-side navigation pane, choose **Cloud Service Monitoring > Global Acceleration**. The **Global Acceleration** page appears.
  3. Select target instances and click **Set Alarm Rules** under the list to set alert rules for the selected instances.
- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.22 Elasticsearch

CloudMonitor provides multiple metrics, such as the cluster status, cluster queries per second (QPS), and cluster write QPS, to help you monitor the status of Elasticsearch. CloudMonitor also allows you to set alert rules for these metrics so that you can receive alerts when any exception occurs.

After you purchase Elasticsearch, CloudMonitor automatically collects data based on these metrics.

### Monitoring service

- **Metrics**

Metric	Dimension	Unit	Minimum frequency
Cluster status	Cluster		1 minute
Cluster QPS	Cluster	Count/second	1 minute
Cluster write QPS	Cluster	Count/second	1 minute
CPU usage of a node	Node	Percentage	1 minute
Disk usage of a node	Node	Percentage	1 minute
Heap memory usage of a node	Node	Percentage	1 minute
Load of a node within 1 minute	Node		1 minute
FullGC times of a node	Node	Count	1 minute

Metric	Dimension	Unit	Minimum frequency
Exceptions of a node	Node	Count	1 minute
Cluster snapshot status	Cluster	A value of -1 indicates that no snapshot exists. A value of 0 indicates that the snapshot is created. A value of 1 indicates that the snapshot is being created. A value of 2 indicates that the snapshot fails to be created.	1 minute

**Note:**

- Monitoring data is retained for up to 31 days.
- You can view the monitoring data for up to 14 consecutive days.

- **View monitoring data**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Elasticsearch**. The **Elasticsearch** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. In **Time Range**, select a preset time period or customize a time period. You can view the monitoring data for up to 14 consecutive days.
5. Optional. Click the zoom-in icon in the upper-right corner of a monitoring chart to enlarge the chart.

## Alerting service

- **Set alert rules**

1. Log on to the [CloudMonitor console](#).
2. In the left-side navigation pane, choose **Cloud Service Monitoring > Elasticsearch**. The **Elasticsearch** page appears.
3. Click the ID of an instance or click **Monitoring Charts** in the **Actions** column for an instance to view the monitoring charts.
4. Click the bell icon in the upper-right corner of a monitoring chart or click **Create Alarm Rule** in the upper-right corner of the page. Specify the resource range, set alert rules, set the notification method, and then click **Confirm**.

- **Parameters**

For more information about alert rule parameters, see [Alarm rule parameters](#).

## 6.23 DDoS high security IP

Cloud monitoring by providing DDoS high anti-IP outgoing bandwidth monitor, helps users monitor DDoS high-security IP usage, it also allows users to set alarm rules on monitoring items. After a user buys a DDoS high-security IP, cloud monitoring automatically collects data for the above monitoring items.

### Monitoring Services

- Monitoring items

Monitoring items	Dimensions	Unit	Minimum monitor Granularity
Network bandwidth	Instance dimension, IP dimension	Bits/s	30 s



**Note:**

- Monitor Data is saved for up to 31 days.
- Users can view monitoring data for up to 14 days in a row.

- Viewing Monitoring Data
  1. Log in to the cloud monitoring console.
  2. Enter the list of instances of DDoS high-security IP that the cloud service monitors.
  3. Click the Instance name or the monitor chart in the operation to go To the instance monitoring details page to view the metrics.
  4. Click the time range on the top of the page to quickly select a button or select an exact function, the maximum monitoring data allows you to view the monitored data for 14 consecutive days.
  5. Click the zoom button in the upper-right corner of the monitor MAP to view the monitor larger image.

### Alarm service

- Parameter descriptions
  - Monitoring: that is, the monitoring metrics provided by the DDoS high-security IP service.
  - Statistical Cycle: the alarm system checks if your monitoring data exceeds the alarm threshold for this cycle. For example, to set a memory usage alarm rule, the statistics cycle is 1 minute, an interval of 1 minute checks if memory usage exceeds the threshold.
  - Continuous number of times: refers to the continuous number of statistical cycle monitoring items that continue to exceed the threshold value to trigger the alarm.
- Set single alarm rule
  1. Log in to the cloud monitoring console.
  2. Enter the list of instances of DDoS high-security IP that the cloud service monitors.
  3. Click the Instance name or the monitor chart in the operation to go To the instance monitoring details page. Click the bell button in the upper right corner of the monitor chart or the new alarm rule in the upper right corner of the page, alarm rules can be set for monitoring items corresponding to this instance.

## 6.24 OpenAPI monitoring

Cloud monitoring by providing calls to the Ali cloud openapi, the number of errors, the rate of errors, helps users monitor the usage of the Ali cloud openapi, and enables users to set

alarm rules on monitoring items. When users use the Ali cloud openapi, cloud monitoring automatically collects data for the above monitoring items.

## Monitoring Services

- Monitoring items

Monitoring items	Dimensions	Unit	Minimum monitor Granularity	Description
Number of calls	Product Dimension, API dimension	Items	60 s	The total number of calls to interfaces during the statistics cycle
Number of errors	Product Dimension, API dimension	Items	60 s	Number of times the return status code is greater than or equal to 500 called during the statistics cycle
Error Rate	Product Dimension, API dimension	%	60 s	Number of times the return status code is greater than or equal to 500 in the statistics cycle/total number of calls * 100



### Note:

- Monitor Data is saved for up to 31 days.
- Users can view monitoring data for up to 14 days in a row.

- Viewing Monitoring Data
  1. Log in to the cloud monitoring console.
  2. Enter the list of interfaces to the openapi that the cloud service monitors.
  3. Click the Instance name or the monitor chart in the operation to go To the instance monitoring details page to view the metrics.
  4. Click the time range on the top of the page to quickly select a button or select an exact function, the maximum monitoring data allows you to view the monitored data for 14 consecutive days.
  5. Click the zoom button in the upper-right corner of the monitor MAP to view the monitor larger image.

### Alarm service

- Parameter descriptions
  - Monitoring: that is, the monitoring metrics provided by the Ali cloud openapi.
  - Statistical Cycle: the alarm system checks if your monitoring data exceeds the alarm threshold for this cycle. For example, to set a memory usage alarm rule, the statistics cycle is 1 minute, an interval of 1 minute checks if memory usage exceeds the threshold.
  - Continuous number of times: refers to the continuous number of statistical cycle monitoring items that continue to exceed the threshold value to trigger the alarm.
- Set single alarm rule
  1. Log in to the cloud monitoring console.
  2. Enter the list of interfaces to the openapi that the cloud service monitors.
  3. Click the Instance name or the monitor chart in the operation to go To the instance monitoring details page.
  4. Click the bell button in the upper right corner of the monitor chart or the new alarm rule in the upper right corner of the page, alarm rules can be set for monitoring items corresponding to this instance.

## 7 RAM for CloudMonitor

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RAM permissions are supported in CloudMonitor. Through the integration of the monitoring console with access control features, you can easily and quickly apply permissions for cloud service monitoring data, alarm rule management, alarm contact and alarm contact groups, and event subscription and related features.



### Note:

RAM monitoring data queries are supported for the following cloud products:

- ECS
- RDS
- Server Load Balancer
- OSS
- CDN
- ApsaraDB for Memcache
- EIP
- ApsaraDB for Redis
- Message Service
- Log Service

### Permissions

In RAM, if a user is authorized with read-only permissions for CloudMonitor, the user can only view relevant data, such as the monitoring data and alarm services, but cannot write data.

### Authentication types

In addition to basic RAM account permission controls, time-based, multi-factor, and IP authentication are supported.

### Resources

Fine-grained resource descriptions are not supported by RAM. The "\*" wildcard is used for resource authorization.

## Operation description

- Monitoring data

Data query actions are divided into two categories: Product instance lists and CloudMonitor metric data queries. When authorizing a RAM account to log on to the CloudMonitor portal and view metric data, you must also grant the account permissions for the corresponding product's instance list and metric data query.

The corresponding actions are listed in the following table.

Product	Action
CMS	QuerMetricList
CMS	QueryMetricLast
ECS	DescribeInstances
RDS	DescribeDBInstances
SLB	DescribeLoadBalancer*
OSS	ListBuckets
OCS	DescribeInstances
EIP	DescribeEipAddresses
Aliyun Cloud for Redis	DescribeInstances
Message Service	ListQueue
CDN	DescribeUserDomains

- Alarm service

The alarm service provides permission controls for alarm rule management, alarm contact and alarm contact group management, and event subscription and related features.

The query-related actions are listed in the following table.

Action	Description
QueryAlarm	Query an alarm rule
QueryAlarmHistory	Query an alarm history
QueryContactGroup	Query a contact group
QueryContact	Query a contact
QuerySms	Query the number of SMSs used

Action	Description
QueryMns	Querying an event subscription configuration

The management-related actions are listed in the following table.

Action	Description
UpdateAlarm	Modify an alarm rule
CreateAlarm	Create an alarm rule
DeleteAlarm	Delete an alarm rule
DisableAlarm	Disable an alarm rule
EnableAlarm	Enable an alarm rule
CreateContact	Create a contact
DeleteContact	Delete a contact
UpdateContact	Modify a contact
SendEmail	Send an email authentication code
SendSms	Send an SMS verification code
CheckEmail	Check an email verification code
CheckSms	Check an SMS verification code
CreateGroup	Create a contact group
DeleteGroup	Delete a contact group
UpdateGroup	Modify a contact group
CreateMns	Create an event subscription
DeleteMns	Delete an event subscription
UpdateMns	Modify an event subscription