

# **Elastic MapReduce**

## **EMR on CVM Operation Guide**

### **Product Documentation**



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# EMR on CVM Operation Guide

## Planning Cluster

### Cluster Types

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EMR supports six cluster types and their respective use cases and defines five node types. Different cluster types and their respective use cases support different node types, number of deployed nodes, and deployed services. You can select the most appropriate cluster type and use case based on your business needs when creating a cluster.

#### Note

ClickHouse and Doris cluster types are not available by default. To use them, [submit a ticket](#) for application.

## Cluster Type Description

### Hadoop cluster

Use Case	Description	Node Deployment
Default	Based on open-source Hadoop and the components that form a Hadoop ecosystem, it provides big data solutions for massive data storage, offline/real-time data analysis, streaming data computing, and machine learning.	<p>Master node: It is a management node that ensures the scheduling of the cluster works properly. Processes such as NameNode, ResourceManager, and HMaster are deployed here. The number of master nodes is 1 in non-HA mode and 2 in HA mode. Note: If Kudu is deployed, the cluster supports only the HA mode, and there are 3 master nodes.</p> <p>Core node: It is a compute and storage node. All your data in HDFS is stored in core nodes. Therefore, core nodes cannot be scaled in once scaled out to ensure data security. Processes such as DataNode, NodeManager, and RegionServer are deployed here. The number of core nodes is <math>\geq 2</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Task node: It is a node for computing only and does not store any data. The computed data comes from a core node or COS. Therefore, task nodes are often elastic nodes and can be scaled in or out as needed. Processes such as NodeManager and PrestoWork are deployed here. The number of task nodes can be changed at any time to scale the cluster, with a minimum value of 0.</p>

		<p>Common node: It provides data sharing and syncing and HA fault tolerance services for the master nodes in an HA cluster. Distributed coordinator components such as ZooKeeper and JournalNode are deployed here. The number of common nodes is 0 in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Router node: It is used to share the load of a master node or as the task submitter of the cluster. It can be scaled in or out at any time. Hadoop packages, including software programs and processes such as Hive, Hue, and Spark, are deployed here. The number of router nodes can be changed at any time, with a minimum value of 0.</p>
<p>ZooKeeper</p>	<p>It is suitable for creating a distributed, high-availability coordination service for large clusters.</p>	<p>Common node: Distributed coordinator components such as ZooKeeper are deployed here. The number of deployed common nodes must be odd and be at least three. Common nodes support only the HA mode.</p>
<p>HBase</p>	<p>It is suitable for storing massive amounts of unstructured or semi-structured data. It provides a high-reliability, high-performance, column-oriented, scalable distributed storage system that supports real-time data read/write.</p>	<p>Master node: It is a management node that ensures the scheduling of the cluster works properly. Processes such as NameNode, ResourceManager, and HMaster are deployed here. The number of master nodes is 1 in non-HA mode and 2 in HA mode.</p> <p>Core node: It is a compute and storage node. All your data in HDFS is stored in core nodes. Therefore, core nodes cannot be scaled in once scaled out to ensure data security. Processes such as DataNode, NodeManager, and RegionServer are deployed here. The number of core nodes is <math>\geq 2</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Task node: It is a node for computing only and does not store any data. The computed data comes from a core node or COS. Therefore, task nodes are often elastic nodes and can be scaled in or out as needed. Processes such as NodeManager are deployed here. The number of task nodes can be changed at any time to scale the cluster, with a minimum value of 0.</p> <p>Common node: It provides data sharing and syncing and HA fault tolerance services for the master nodes in an HA cluster. Distributed coordinator components such as ZooKeeper and JournalNode are deployed here. The number of common nodes is 0 in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Router node: It is used to share the load of a master node or as the task submitter of the cluster. It can be</p>

		<p>scaled in or out at any time. The number of router nodes can be changed at any time, with a minimum value of 0.</p>
Presto	<p>It provides an open-source distributed SQL query engine for quick query and analysis of massive amounts of data. It is suitable for interactive analytical queries.</p>	<p>Master node: It is a management node that ensures the scheduling of the cluster works properly. Processes such as NameNode and ResourceManager are deployed here. The number of master nodes is 1 in non-HA mode and 2 in HA mode.</p> <p>Core node: It is a compute and storage node. All your data in HDFS is stored in core nodes. Therefore, core nodes cannot be scaled in once scaled out to ensure data security. Processes such as DataNode and NodeManager are deployed here. The number of core nodes is <math>\geq 2</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Task node: It is a node for computing only and does not store any data. The computed data comes from a core node or COS. Therefore, task nodes are often elastic nodes and can be scaled in or out as needed. Processes such as NodeManager and PrestoWork are deployed here. The number of task nodes can be changed at any time to scale the cluster, with a minimum value of 0.</p> <p>Common node: It provides data sharing and syncing and HA fault tolerance services for the master nodes in an HA cluster. Distributed coordinator components such as ZooKeeper and JournalNode are deployed here. The number of common nodes is 0 in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Router node: It is used to share the load of a master node or as the task submitter of the cluster. It can be scaled in or out at any time. The number of router nodes can be changed at any time, with a minimum value of 0.</p>
Kudu	<p>It provides a distributed and scalable columnar storage manager and supports random reads/writes and OLAP analysis to process frequently updated data.</p>	<p>Master node: It is a management node that ensures the scheduling of the cluster works properly. Processes such as NameNode and ResourceManager are deployed here. The number of master nodes is 1 in non-HA mode and 2 in HA mode.</p> <p>Core node: It is a compute and storage node. All your data in HDFS is stored in core nodes. Therefore, core nodes cannot be scaled in once scaled out to ensure data security. The number of core nodes is <math>\geq 2</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p>



	<p>Task node: It is a node for computing only and does not store any data. The computed data comes from a core node or COS. Therefore, task nodes are often elastic nodes and can be scaled in or out as needed. The number of task nodes can be changed at any time to scale the cluster, with a minimum value of 0.</p> <p>Common node: It provides data sharing and syncing and HA fault tolerance services for the master nodes in an HA cluster. Distributed coordinator components such as ZooKeeper and JournalNode are deployed here. The number of common nodes is 0 in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Router node: It is used to share the load of a master node or as the task submitter of the cluster. It can be scaled in or out at any time. The number of router nodes can be changed at any time, with a minimum value of 0.</p>
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**Druid cluster**

Use Case	Description	Node Deployment
Default	It supports high-performance real-time analysis, big data queries in milliseconds, and multiple data ingestion methods. It is suitable for real-time big data query scenarios.	<p>Master node: It is a management node that ensures the scheduling of the cluster works properly. Processes such as NameNode and ResourceManager are deployed here. The number of master nodes is 1 in non-HA mode and 2 in HA mode.</p> <p>Core node: It is a compute and storage node. All your data in HDFS is stored in core nodes. Therefore, core nodes cannot be scaled in once scaled out to ensure data security. Processes such as DataNode and NodeManager are deployed here. The number of core nodes is <math>\geq 2</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Task node: It is a node for computing only and does not store any data. The computed data comes from a core node or COS. Therefore, task nodes are often elastic nodes and can be scaled in or out as needed. Processes such as NodeManager are deployed here. The number of task nodes can be changed at any time to scale the cluster, with a minimum value of 0.</p> <p>Common node: It provides data sharing and syncing and HA fault tolerance services for the master nodes in an HA cluster. Distributed coordinator components such as ZooKeeper and JournalNode are deployed here. The</p>

number of common nodes is 0 in non-HA mode and  $\geq 3$  in HA mode.

Router node: It is used to share the load of a master node or as the task submitter of the cluster. It can be scaled in or out at any time. The number of router nodes can be changed at any time, with a minimum value of 0.

## ClickHouse cluster

Use Case	Description	Node Deployment
Default	It provides a column-oriented database management system. It is suitable for data warehouse analysis scenarios such as real-time wide table analysis, real-time BI report analysis, and user behavior analysis.	<p>Core node: It is a compute and storage node. ClickHouseServer is deployed here.</p> <p>Common node: It provides data sharing and syncing and HA fault tolerance services for the master nodes in an HA cluster. Distributed coordinator components such as ZooKeeper are deployed here. The number of common nodes is 0 in non-HA mode and <math>\geq 3</math> in HA mode.</p>

## Doris cluster

Use Case	Description	Node Deployment
Default	It is an MPP analytical database product that supports sub-second queries on PB-scale, structured data. It is compatible with MySQL protocol and uses the standard SQL syntax. It is suitable for historical report analysis, real-time data analysis, interactive data analysis, etc.	<p>Master node: It is a frontend module that provides the WebUI feature. Processes such as FE Follower and Broker are deployed here. The number of master nodes is <math>\geq 1</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Core node: It is a backend module that provides the data storage feature. Processes such as BE and Broker are deployed here. The number of core nodes is <math>\geq 3</math>.</p> <p>Router node: It is a frontend module that helps achieve high read/write availability. Processes such as FE Observer and Broker are deployed here. Router nodes can be scaled out but not scaled in.</p>

## Kafka cluster

Use Case	Description	Node Deployment
Default	It is a distributed, partitioned, multi-replica, and multi-subscriber message processing system based on ZooKeeper coordination. It is suitable for asynchronous processing, message communication, and streaming data receiving and distribution.	<p>Core node: It is a backend module for data storage. Processes such as BE and Broker are deployed here. The number of core nodes is <math>\geq 1</math> in non-HA mode or <math>\geq 2</math> in HA mode.</p> <p>Common node: It provides data sharing and syncing and HA fault tolerance services for the core nodes in an HA cluster. The number of common nodes is 0 in non-HA mode or <math>\geq 3</math> in HA mode.</p>

### StarRocks cluster

Use Case	Description	Node Deployment
Default	StarRocks adopts full vectorization technology. It supports extremely fast and unified OLAP databases. It is suitable for many data analysis scenarios, such as multidimensional, real-time, and high-concurrency analysis.	<p>Master node: It is a frontend module that provides the WebUI feature. Processes such as FE Follower and Broker are deployed here. The number of master nodes is <math>\geq 1</math> in non-HA mode and <math>\geq 3</math> in HA mode.</p> <p>Core node: It is a backend module that provides the data storage feature. Processes such as BE and Broker are deployed here. The number of core nodes is <math>\geq 3</math>.</p> <p>Task node: It is a node for computing only and does not store any data. The computed data comes from a core node or COS. Therefore, task nodes are often elastic nodes and can be scaled in or out as needed. Processes such as Compute Node are deployed here. The number of task nodes can be changed at any time to scale the cluster, with a minimum value of 0.</p> <p>Router node: It is a frontend module that helps achieve high read/write availability. Processes such as FE Observer and Broker are deployed here. Router nodes can be scaled out but not scaled in.</p>

# Configuring Cluster Administrative rights

## CAM Overview

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## CAM Overview

When using Tencent Cloud EMR, different departments and roles need different permissions in order to avoid security risks such as leakages and maloperations. To this end, you can assign different permissions to different users through sub-accounts. By default, a sub-account does not have the permission to use EMR or related resources. Therefore, you need to create a policy to grant the required permission to the sub-account first.

Cloud Access Management (CAM) is a web-based Tencent Cloud service that helps you securely manage and control access permissions, resources, and use permissions of your Tencent Cloud account. Using CAM, you can create, manage, and terminate users (groups), and control the Tencent Cloud resources that can be used by the specified user through identity and policy management.

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

## CAM Use Cases

### 1. Resource management permissions need to be granted to sub-users

You can create users or roles in CAM and assign them separate security credentials (console login passwords, TencentCloud API keys, etc.) or request temporary credentials for them to access Tencent Cloud resources. You can also manage permissions to control the operations users and roles can perform and the resources they can access.

### 2. Users with external Tencent Cloud roles can access Tencent Cloud resources

You can use your existing authentication system through CAM to grant your employees and services the access permissions for Tencent Cloud services and resources.

### 3. Strengthen your security with an additional layer of protection

Currently, three authentication methods are supported: WeChat QR code, hardware/virtual MFA, and mobile verification code.

## Supported CAM Granularities

EMR supports **resource-level authentication** and **API-level authentication**. For API-level authentication, API input parameters include the cluster string ID, and the TencentCloud API directly forwards the authentication request to CAM for authentication. Resource-level authentication involves fine-granularity authentication on the EMR backend. EMR supports three authorization methods: resource-level authorization, API-level authorization, and authorization by tag.

**Resource-level and API-level authorization:** You can use policy syntax to grant sub-accounts permissions to manage individual resources. For more information, see [Authentication Granularity Scheme](#).

**Authorization by tag:** You can tag resources and grant sub-accounts permissions to manage resources with particular tags. For more information, see [Authentication Granularity Scheme](#).

# Role Authorization

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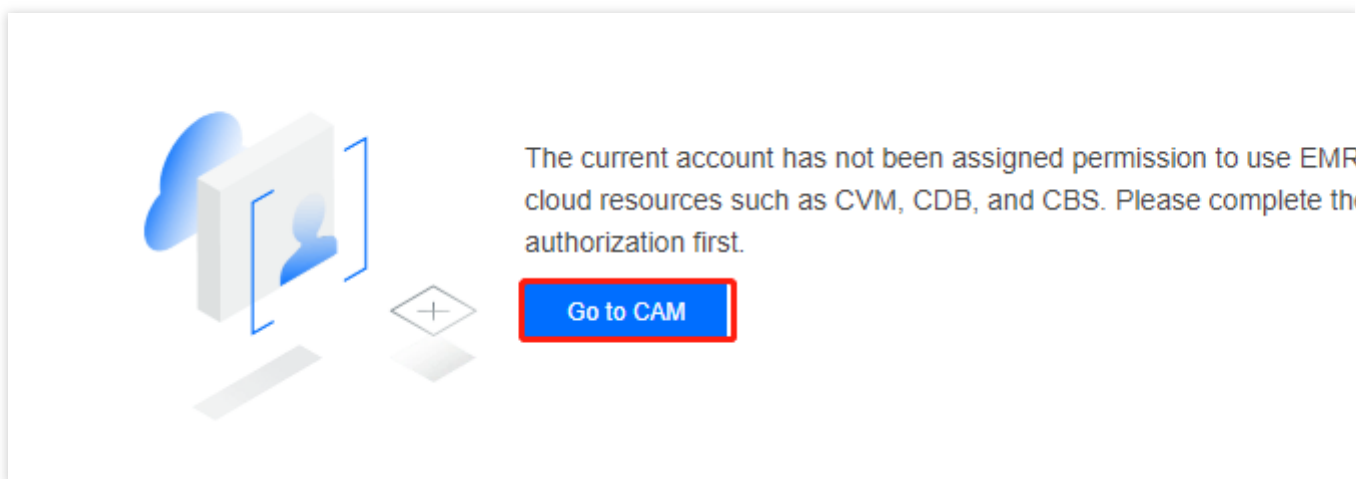
When using the EMR service, you need to authorize the default system role `EMR_QCSRole` for the service account. Only after the role is authorized successfully can EMR call relevant services such as CVM and COS to create clusters and store logs.

## Caution

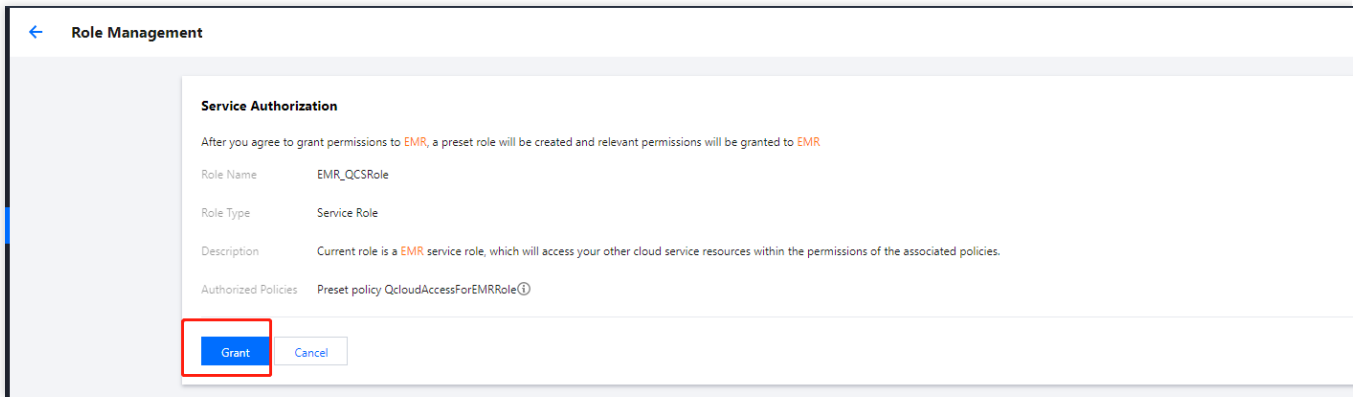
When you activate the EMR service for the first time, you must use the root account to complete role authorization; otherwise, neither sub-accounts nor the root account can use EMR.

## Role authorization process

1. When you create a cluster or a scheduled plan, if the `EMR_QCSRole` role fails to be authorized for the service account and the following prompt is displayed, you need to click **Go to CAM** to complete role authorization.



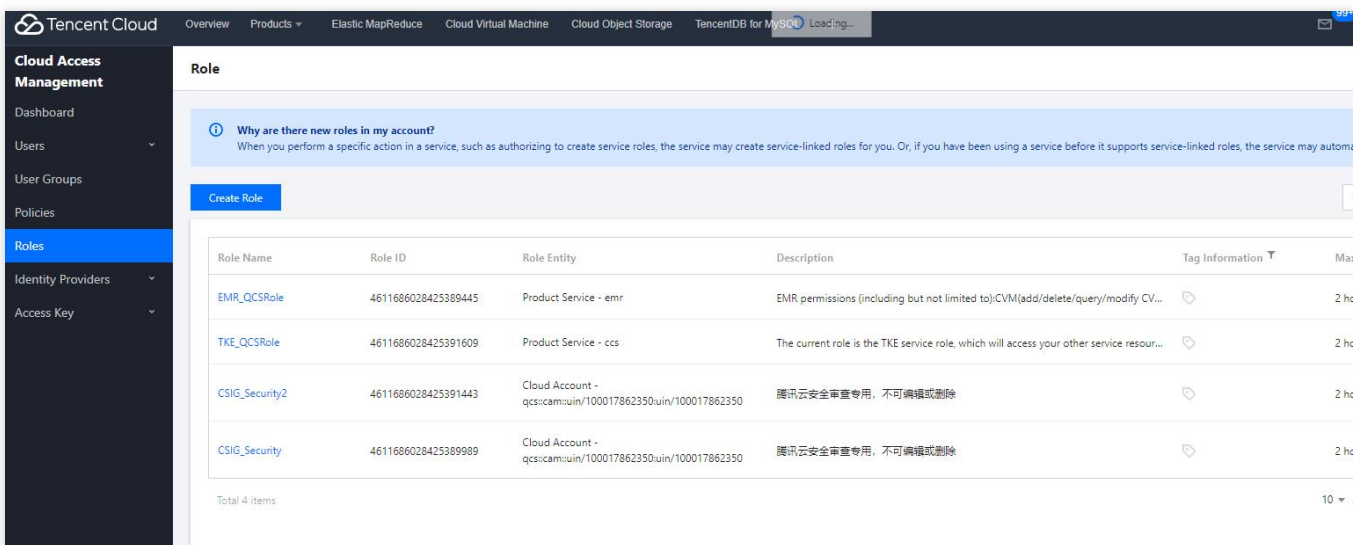
2. Click **Grant** to authorize the default role `EMR_QCSRole` for the EMR service account.

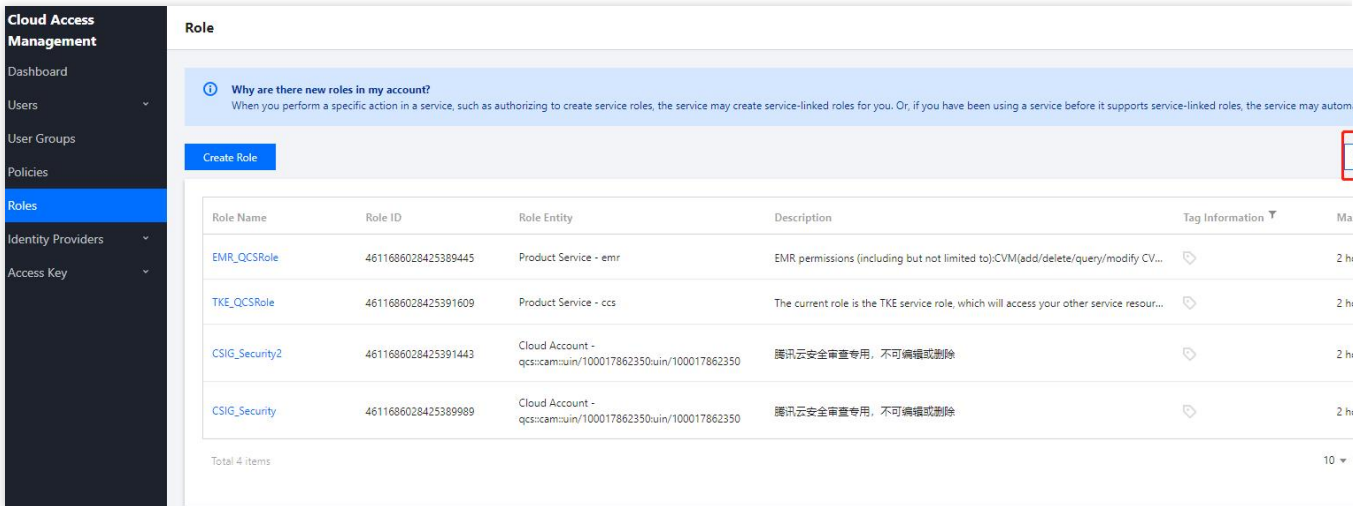


3. After the authorization, you need to refresh the EMR console or the purchase page. For more information on the policies related to `EMR_QCSRole`, please log in to the [CAM console](#). For more information on the permissions included in `EMR_QCSRole`, please see [Collaborator/Sub-account Permissions](#).

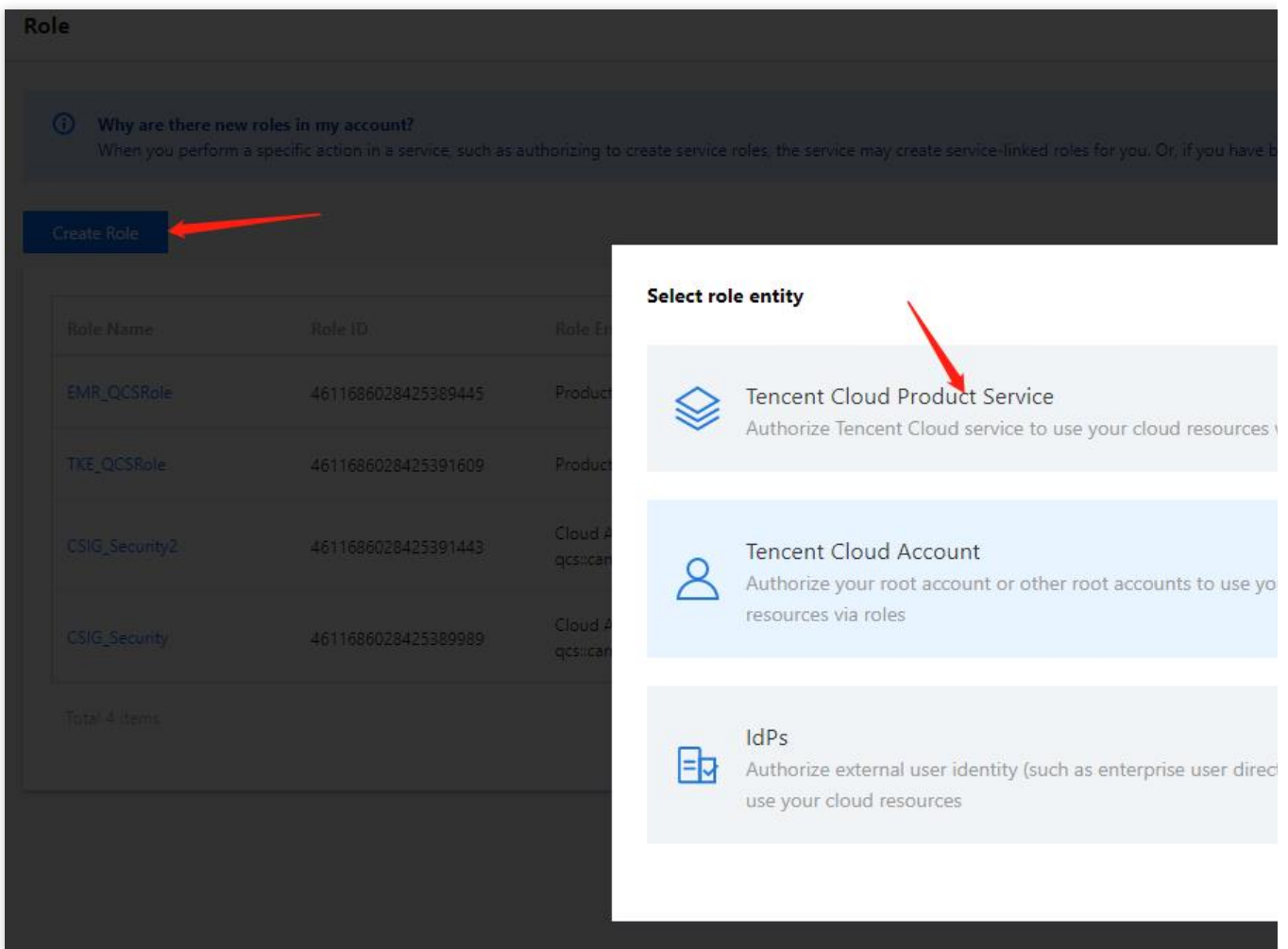
## Notes on rule authorization for container-based EMR

1. Before creating a container-based EMR cluster, you need to check whether the `CVM_QCSRole` role exists.





2. If the `CVM_QCSRole` role does not exist, you need to create it in advance. Log in to the [CAM console](#), create a role, and select **Tencent Cloud Product Service**.



3. Select **Cloud Virtual Machine (cvm)** and enter the role name.



<input type="checkbox"/> cloudWaf (waf)	<input type="checkbox"/> Cloud Monitor (monitor)	<input type="checkbox"/> Cloud Media Engine (cme)	<input type="checkbox"/> CODING DevOps (coding)
<input type="checkbox"/> Cloud Storage Gateway (csg)	<input type="checkbox"/> Cloud Training Platform (ctp)	<input type="checkbox"/> TencentDB for CTSDB (ctsdb)	<input checked="" type="checkbox"/> Cloud Virtual Machine (cvm)
<input type="checkbox"/> Tencent Cloud Developer-TDP (devops)	<input type="checkbox"/> DI (di)	<input type="checkbox"/> Data Lake Compute (dlc)	<input type="checkbox"/> Data Security Center (dsqc)
<input type="checkbox"/> EventBridge (eb)	<input type="checkbox"/> Elasticsearch MapReduce (emr)	<input type="checkbox"/> faceid (faceid)	<input type="checkbox"/> Game Sever Elastic-scaling (gse)
<input type="checkbox"/> IDaaS (idaas)	<input type="checkbox"/> IoTHub (iothub)	<input type="checkbox"/> IoT Suite (iotsuite)	<input type="checkbox"/> Internet of Things Video (iotvideo)
<input type="checkbox"/> Developer Laboratory (labs)	<input type="checkbox"/> Cloud Streaming Services (live)	<input type="checkbox"/> CDB for MariaDB (TDSQL) (mariadb)	<input type="checkbox"/> StreamLive (mdl)
<input type="checkbox"/> StreamPackage (mdp)	<input type="checkbox"/> Message Center (message)	<input type="checkbox"/> Mobile Game Online Battle Engine (mgobe)	<input type="checkbox"/> Cloud MongoDB (mongodb)
<input type="checkbox"/> Migration Service Platform (msp)	<input type="checkbox"/> Media Transcoding Service (mts)	<input type="checkbox"/> Network Assets Risk Monitor System (narms)	<input type="checkbox"/> Publicly Accessible Instance-PAI (pai)
<input type="checkbox"/> Stream Compute Service (scs)	<input type="checkbox"/> Serverless Framework (sls)	<input type="checkbox"/> Security Situation Awareness (ssa)	<input type="checkbox"/> Secrets Manager (ssm)
<input type="checkbox"/> Tencent Cloud Display (tcd)	<input type="checkbox"/> Tencent Cloud Mesh (tcm)	<input type="checkbox"/> Tencent Container Registry (tcr)	<input type="checkbox"/> Tencent Container Security Service (tcss)
<input type="checkbox"/> 4444444 (cams)	<input type="checkbox"/> TI (ti)	<input type="checkbox"/> TI Accelerator (tia)	<input type="checkbox"/> Tencent Cloud Infrastructure as Code (tic)
<input type="checkbox"/> TI Self-Learning (tis)	<input type="checkbox"/> Tencent Interactive Whiteboard (tiw)	<input checked="" type="checkbox"/> Tencent Cloud Service Engine (tse)	<input type="checkbox"/> Tencent Service Framework (tsf)
<input type="checkbox"/> Cloud Shield - Data Data Access Security Broker (dasb)	<input type="checkbox"/> Video Moderation System (vm)	<input type="checkbox"/> VOD (vod)	<input type="checkbox"/> Vulnerability Scan Service (vss)
<input type="checkbox"/> WeMall (wemall)	<input type="checkbox"/> workorder (workorder)	<input type="checkbox"/> YouMall (youmall)	<input type="checkbox"/> Cloud Operations Console (zhiyun)

to choose

**Cloud Virtual Machine**  
Allow Cloud Virtual Machine to access your tencent cloud resources

**Create Custom Role**

1 Enter Role Entity Info > 2 **Configure Role Policy** > 3 Set Role Tag > 4 Review

Select Policies (17 Total)

Policy Name	Policy type
<input type="checkbox"/> QcloudAccessForCARole CloudAudit permissions (including but not limited to): COS (COSDataWriteOnly PostObject/PutObject*/Uplo...	Preset Policy
<input type="checkbox"/> QcloudAccessForMariaDBRole MariaDB permissions (including but not limited to): KMS(add/delete/query KMS instance , generate datake...	Preset Policy
<input type="checkbox"/> QcloudAccessForSSMRole SSM permissions (including but not limited to): KMS(add/query KMS CMK, decrypt, encrypt, create data key).	Preset Policy
<input type="checkbox"/> QcloudAccessForTIONERoleInCodeRepository TI-ONE permissions (including but not limited to): KMS(create key, encrypt, decrypt, gernerate data key, list ...	Preset Policy
<input type="checkbox"/> QcloudKMSAccessForCASBRole	Preset Policy

Support for holding shift key down for multiple selection

2 selected

Policy Name
<input checked="" type="checkbox"/> QcloudCOSDataReadOnly Grant READ-only access on COS (exclude LIST)
<input checked="" type="checkbox"/> QcloudKMSAccessForCVMRole Cross-service access of Cloud Virtual Machine (CVM) to Key Management Service (KMS)

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# Collaborator/Sub-account Permissions

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Elastic MapReduce (EMR) will need to access or operate other cloud products. To ensure that sub-users or collaborators can use and operate EMR normally, this document describe how to grant sub-users or collaborators related permissions.

## Permission Policy Overview

Policy	Description	Required	Notes
QcloudCamSubaccountsAuthorizeRoleFullAccess	Permission required for CAM sub-users to obtain permissions granted by service roles	No	For more information, see <a href="#">Authorizing EMR to access other services</a> .
QcloudCamRoleFullAccess	Full access to CAM roles	No	Permission to custom service roles to control access to data across services. For more information, see <a href="#">Custom Service Roles</a> .
QcloudEMRFullAccess	Full access to EMR	No	Full permission to use all EMR features. For more information, see <a href="#">Purchasing and managing EMR clusters</a> .
QcloudEMRReadOnlyAccess	Read-only access to EMR	No	Permission to view EMR features
QcloudEMRPurchaseAccess	EMR finance permission	No	For more information, see <a href="#">Purchasing and managing EMR clusters</a> . This permission is not required if you don't

			need to purchase EMR clusters or adjust their configurations.
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### Caution

The `QcloudEMRPurchaseAccess` preset policy allows you to manage all users' permission to purchase EMR instances. It grants users the finance permissions of CVM, TencentDB, and EMR at the same time. To restrict users from purchasing CVM or TencentDB instances, do not grant the permission to place orders for the corresponding product.

## Use Cases

### Authorizing EMR to access other cloud services

Tencent Cloud root accounts and sub-users and collaborators with the

`QcloudCamSubaccountsAuthorizeRoleFullAccess` permission can access other cloud services after being authorized.

To use EMR to access CVM, CBS, TencentDB, and other services, you need to assign the `EMR_QCSRole` service role and grant the `QcloudAccessForEMRRole` permission (for EMR to read CVM, CBS, TencentDB, COS, and other services) to the first EMR instance you purchase.

To use EMR to access the data stored in COS, you need to assign the `EMR_QCSRole` service role and grant the `QcloudAccessForEMRRoleInApplicationDataAccess` permission (for EMR big data applications to access other data services, such as COS) to EMR.

The root account can grant the `QcloudCamSubaccountsAuthorizeRoleFullAccess` permission to sub-users or collaborators via the following steps:

1. Log in to the [CAM console](#), click **Users > User List**, find the target sub-user or collaborator, and click **Authorize**.

**User List**

**How to view more information?**  
 CAM protects the security of your sensitive information. You can click the drop-down button [▶] on the left side of the list to view more information about the user, such as identity security status subscription. You can also click the username to view or edit the user information.

Create User More ▾ Search by username

<input type="checkbox"/> Username	User Type	Account ID	Creation Date	Associated Info
▶ <input type="checkbox"/> <a href="#">Tencent Cloud</a>	Root Account	100010380611	2019-06-24 13:21:02	
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub01</a>	Sub-user	200016020914	2020-10-10 16:06:11	
▶ <input type="checkbox"/> <a href="#">re_bkimg_test</a>	Sub-user	100015595010	2020-09-04 17:27:30	
▶ <input type="checkbox"/> <a href="#">yoloqat</a>	Sub-user	100015571808	2020-09-03 15:31:26	
▶ <input type="checkbox"/> <a href="#">test_user</a>	Sub-user	1000153106639	2020-08-14 23:07:35	-
▶ <input type="checkbox"/> <a href="#">test_test</a>	Sub-user	1000141654939	2020-07-13 17:50:43	
▶ <input type="checkbox"/> <a href="#">BDC_test</a>	Sub-user	1000141711115	2020-06-22 15:21:36	

2. Search for and select the `QcloudCamSubaccountsAuthorizeRoleFullAccess` policy, and then click **Confirm**.

### Associate Policy

Select Policies (21 Total) 1 selected

Policy Name	Policy Type
Cross-service access of YouMall to Cloud ...	
<input checked="" type="checkbox"/> QcloudCamSubaccountsAuthorizeRoleFull... CAM sub-account authorization service ro...	Preset Policy
<input type="checkbox"/> QcloudCollApiKeyManageAccess Provides the ability for an CAM users to ...	Preset Policy
<input type="checkbox"/> QcloudCollMFAManageAccess Provides the ability for an CAM user to m...	Preset Policy
<input type="checkbox"/> QcloudCollPasswordManageAccess Provides the ability for an CAM sub-user t...	Preset Policy

Press Shift to select multiple items

Policy Name	Poli
QcloudCamSubaccountsAuthorizeRoleFu... CAM sub-account authorization service r...	Pres

Confirm
Cancel

You can associate the `QcloudAccessForEMRRoleInApplicationDataAccess` and `QcloudAccessForEMRRole` policies with the root account, sub-user, or collaborator. The process is the same as step 2.

### Purchasing and managing EMR clusters

To create a cluster, add a component, or scale out a cluster, a sub-user or collaborator must be associated with the `QcloudEMRFullAccess` and the custom TencentDB purchase policy. In cases not involving resource purchase, such as service configuration management, only the `QcloudEMRFullAccess` policy is required.

Policy Type	Policy Name	Description
Preset EMR policy	QcloudEMRFullAccess	Full access to EMR
Preset EMR policy	QcloudEMRReadOnlyAccess	Read-only access to EMR
Preset EMR policy	QcloudEMRPurchaseAccess	EMR finance permission

The root account can grant the above permissions to a sub-user or collaborator via the following steps:

1. Log in to the [CAM console](#), click **Users > User List**, find the target sub-user or collaborator, and click **Authorize**.

**User List**

**How to view more information?**  
CAM protects the security of your sensitive information. You can click the drop-down button [▶] on the left side of the list to view more information about the user, such as identity security status subscription. You can also click the username to view or edit the user information.

Create User More ▾ Search by username

<input type="checkbox"/>	Username	User Type	Account ID	Creation Date	Associated Info
▶ <input type="checkbox"/>	Root Account	Root Account	100010380611	2019-06-24 13:21:02	
▶ <input type="checkbox"/>	dev_test_sub01	Sub-user	200016020914	2020-10-10 16:06:11	
▶ <input type="checkbox"/>	re_testing_test	Sub-user	100015595010	2020-09-04 17:27:30	
▶ <input type="checkbox"/>	prodprod	Sub-user	100015571808	2020-09-03 15:31:26	
▶ <input type="checkbox"/>	testuser	Sub-user	1000153106639	2020-08-14 23:07:35	-
▶ <input type="checkbox"/>	test_test	Sub-user	1000141654939	2020-07-13 17:50:43	
▶ <input type="checkbox"/>	test_user	Sub-user	1000147111111	2020-06-22 15:21:36	

2. Search for and select each policy listed in the above table in the **Associate Policy** dialog box, and then click **Confirm**. The `QcloudEMRFullAccess` policy is used as an example in the following figure:
3. The process of associating the EMR finance policy `QcloudEMRPurchaseAccess` is the same as step 2.

### Associate Policy

Select Policies (1 Total)

✕ 🔍

Policy Name	Policy Type
<input checked="" type="checkbox"/> QcloudEMRFullAccess Full read-write access to Elasticsearch MapRe...	Preset Policy

1 selected

Policy Name	Poli
QcloudEMRFullAccess Full read-write access to Elasticsearch Ma...	Pres

↔

Press Shift to select multiple items

Confirm
Cancel

## Custom Service Roles

Tencent Cloud root accounts and collaborators and sub-users with the `QcloudCamRoleFullAccess` permission can precisely control COS bucket permissions and other cloud resource permissions. For more information see [Custom Service Roles](#).

A root account can grant the `QcloudCamRoleFullAccess` permission to a sub-user or collaborator via the following steps:

1. Log in to the [CAM console](#), click **Users > User List**, find the target sub-user or collaborator, and click **Authorize**.

**User List**

**How to view more information?**  
 CAM protects the security of your sensitive information. You can click the drop-down button [▶] on the left side of the list to view more information about the user, such as identity security status subscription. You can also click the username to view or edit the user information.

Create User More ▾ Search by username

<input type="checkbox"/> Username	User Type	Account ID	Creation Date	Associated Info
▶ <input type="checkbox"/> <a href="#">Tencent Cloud</a>	Root Account	100010380611	2019-06-24 13:21:02	
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub01</a>	Sub-user	200016020914	2020-10-10 16:06:11	
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub02</a>	Sub-user	100015595010	2020-09-04 17:27:30	
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub03</a>	Sub-user	100015571808	2020-09-03 15:31:26	
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub04</a>	Sub-user	100015310639	2020-08-14 23:07:35	-
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub05</a>	Sub-user	100014164939	2020-07-13 17:50:43	
▶ <input type="checkbox"/> <a href="#">elasticmapreduce_sub06</a>	Sub-user	100014171816	2020-06-22 15:21:36	

2. Search for and select the `QcloudCamRoleFullAccess` policy, and then click **Confirm**.



### Associate Policy

Select Policies (2 Total)

qcloudcamr

Policy Name	Policy Type
<input type="checkbox"/> QcloudCamReadOnlyAccess Read-only access to Cloud Access Managem...	Preset Policy
<input checked="" type="checkbox"/> QcloudCamRoleFullAccess Full read-write access to Role	Preset Policy

Press Shift to select multiple items

1 selected

Policy Name	Polic
QcloudCamRoleFullAccess Full read-write access to Role	Prese

Confirm Cancel

# CAM-Enabled EMR API Authorization Granularity Details

Last updated : 2023-12-27 10:00:46

## List of APIs supporting resource-level authorization

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

### Caution

A permission error may occur when new APIs are subsequently added. In case of such permission error, you can add the missing API permission in the policy based on the error message.

APIs supporting resource-level authorization include:

API	Description	Resource Type/Six-Segment Example Resource
DescribeKeyTabFile	Exports keytab file (user management)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeShowUserManagerTab	Specifies whether to show the user management tab (user management)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeResourceSchedule	Gets data from the YARN resource scheduling page	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeCamUserList	Queries CAM user list	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeClusterServiceInfo	Queries service information	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeUserManagerUserList	Queries user list (user management)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyUserManagerPwd	Changes user	emr-

	password (user management)	instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyResourcePools	Refreshes dynamic resource pool	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DeleteUserManagerUserList	Deletes user (user management)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyResourceScheduler	Modifies the YARN resource scheduler (the change will take effect after you click <b>**Apply**</b> )	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyResourceScheduleSwitch	After this switch is turned on, the configuration file of resource scheduling needs to be synced to the resource scheduler first before the resource scheduler page can be viewed and operations can be performed on the page	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
AddUserManagerUserList	Adds user (user management)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyUserManagerInfo	Modifies user information (user management)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyResourceScheduleConfig	Modifies the resource configuration of YARN resource scheduling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyResourceScheduleConfigForRollback	Cancels saving the resource configuration of YARN resource scheduling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
InquirePriceRefundEmr	Queries the refund	emr-

	amount of terminated node	instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
ModifySecurityGroup	Modifies cluster security group	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeInstanceRenewNodes	Queries renewed nodes of EMR cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
InquirePriceRenewEmr	Queries cluster price for renewal	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeInstancesList	Queries the list of EMR cluster instances	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
ModifyFlowStatus	Changes workflow status	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
ModifyMasterIp	Updates EMR cluster IP	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
CheckFlowCanBeCancelled	Checks whether the workflow can be canceled	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeModifySpec	Queries target specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
AddShellScriptTask	Generates cluster script task	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeShellScriptTaskList	Queries the list of cluster script tasks	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeShellScriptNodes	Queries the list of nodes in a single cluster script task	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeNodeList	Views node	emr-

	information	instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeNodeList	Views node information	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeShellScriptNodeDetails	Queries the detailed execution result of cluster script task on a single node	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DeleteShellScriptList	Deletes the records of cluster script tasks	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeMasterIp	Gets EMR cluster instance IP	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeEKSInstances	Queries the API information of TKE cluster	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
AddServiceConfFile	Adds custom configuration file	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DeleteServiceConfFile	Deletes custom configuration file	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
ModifyBootScript	Modifies bootstrap script	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeInstanceAlias	Gets alias	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeBootScript	Gets bootstrap script	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeSubJobFlowStatus	Describes EMR subtask workflow	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId

ListConfLogs	Gets configuration delivery logs	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
GenerateScaleoutGoodsDetail	Generates scale-out order	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
GenerateRenewGoodsDetail	Generates renewal order	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
GenerateModifyGoodsDetail	Generates configuration adjustment order	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyAutoScaleGlobalConf	Updates the global configuration of auto scaling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeFlowStatusDetail	Queries EMR task execution details	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeFileIps	Queries the list of IPs of the specified configuration file	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeExportConfsList	Queries the list of exportable configuration files	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeFlowStatus	Queries the EMR instance workflow status	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeFlowNum	Queries the number of workflows in EMR cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeClusterNodes	Queries the hardware node information of EMR cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ClearMetadata	Clears the metadata information of EMR	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId

	cluster and terminates cluster	
DescribeAutoScaleGlobalConf	Gets the global configuration of auto scaling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeAutoScaleSpecs	Gets auto scaling specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyAutoScaleSpecs	Modifies auto scaling specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
AddMetricScaleStrategy	Adds metric load-based scaling rule	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DeleteAutoScaleSpec	Deletes auto scaling specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeAutoScaleRecords	Gets auto scaling history	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DeleteAutoScaleStrategy	Deletes auto scaling rule	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyStrategyPriority	Changes rule priority	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeAutoScaleMetaRange	Gets auto scaling metadata	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeAutoScaleStrategies	Gets auto scaling rules	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyAutoScaleStrategy	Modifies auto scaling rule	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
AddAutoScaleSpec	Adds auto scaling	emr-

	specification	instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
TerminateAutoScaleNodes	Terminates all automatically scaled nodes	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeCbsEncrypt	Describes CBS encryption	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
ModifyConfigGroup	Modifies configuration group	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DeleteConfigGroup	Deletes configuration group	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
AddConfigGroup	Adds configuration group	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeConfigGroup	Describes configuration group	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
SynchronizeGroupConfCheck	Syncs configuration check	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
UnbindInstanceAndNodesTags	Unbinds cluster from tags	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeNodeResourceConfigFast	Quickly gets node specification configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
InstallCos	Enables COS upon installation	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeScaleoutableService	Describes services that can be scaled out	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DescribeNodeResourceConfig	Gets node	emr-



	specification configuration	instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DeleteNodeResourceConfig	Deletes node specification configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
AddNodeResourceConfig	Adds node specification configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
SetNodeResourceConfigDefault	Sets the default attributes of node specification configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeHbaseTableMetricDataOverview	Gets HBase table-level monitoring data overview	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeInstanceNode	Pulls node resources from the Tag console	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
UpdateWebproxyPassword	Updates the password of proxy component	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
TerminateTasks	Terminates task nodes	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
TerminateNodes	Terminates nodes	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
TerminateInstance	Terminates EMR instance	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
StopService	Stops component service	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
StopMonitor	Stops component monitoring	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId

StartService	Starts component service	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
StartMonitor	Starts component monitoring	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ScaleOutRouter	Adds router nodes	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeDestroyInfo	Queries the termination information of EMR cluster or node	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ScaleOutInstance	Scales out instance	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
RollBackConf	Rolls back configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
RestartService	Restarts component service	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyServiceParams	Modifies service component parameters	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyResource	Adjusts instance configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
AssignInstancesProject	Assigns EMR cluster to specified project	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyOptionalSpecStatus	Changes the status of optional specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyOptionalSpec	Modifies optional specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId

DescribeSelectedOptionalSpec	Queries selected optional specification	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyInstanceBasic	Renames cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
InstallSoftware	Installs component	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
InquiryPriceAddRouter	Queries the price of router adding	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
InquiryPriceRenewInstance	Queries the price for renewal	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
InquiryPriceUpdateInstance	Queries the price for configuration adjustment	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
InquiryPriceScaleOutInstance	Queries the price for scale-out	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeClusterNodes	Queries the hardware node information of EMR cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceNodeInfos	Queries the service process information of EMR cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceGroups	Queries the service group information of EMR cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceConfs	Queries all configuration information of the EMR cluster service	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeScaleoutGoodsDetail	Queries scale-out order	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-

		instance/\$emrInstanceId
DescribeRouterGoodsDetail	Queries router node order	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeRenewGoodsDetail	Queries renewal order	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeOptionalSpec	Queries the optional specifications of EMR instance node	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeModifyGoodsDetail	Queries configuration adjustment order	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeMetricsDimension	Queries the dimension values of monitoring at different levels	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeMetricMeta	Queries the monitoring metadata of EMR cluster	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeInstanceOplog	Queries the operation log of EMR instance	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeExecCustomScript	Queries the information of custom script	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeInstanceAlerts	Queries the alarm information of EMR cluster	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeInstances	Queries the information of EMR instances	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeInstallSoftwareInfo	Queries the information of components installed and uninstalled for EMR cluster	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId

DescribeExportConfs	Queries export configuration	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
CheckDiskInfo	Checks whether the disk metadata in the console is updated	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
SyncDiskInfo	Updates disk metadata in console	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceConfsNew	Gets the configuration information of component (configuration management page)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeConfFileList	Gets the list of configuration files (configuration management page)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceConfCategories	Gets the configuration type of component (configuration management page)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceConfDiff	Compares configurations (configuration management page)	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeConfigGroupList	Queries the configuration group information of node type	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeHbaseStatus	Displays the information of `DescribeHbaseStatus`	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyHbaseRit	Fixes HBase RIT issue	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
TerminateSparkApp	Terminates Spark	emr-

	job	instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeAccessKey	Gets the `AccessKey` of cluster	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeAttachableDisks	Queries the cloud disks that can be mounted to the node	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
InquirePriceRenewDisks	Queries the price for cloud disk renewal	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
AttachDisks	Mounts cloud disk	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeNodeDataDisks	Queries the data disk information of node	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
InquirePriceResizeDisks	Queries the price for cloud disk expansion	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
ResizeDataDisks	Expands cloud disk	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
ModifyAutoRenewFlag	Automatic Renewal	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
ScaleOutCluster	Adds cluster nodes	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
StartStopServiceOrMonitor	Starts or stops monitoring or service	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeClusterClients	Views the client information on the page	emr- instance qcs::emr:\${region}:uin/\${uin}:e instance/\$emrInstanceId
DescribeDelayedServiceConfig	Gets expired	emr-

	configuration (configuration management page)	instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
DescribeFailedServiceConfig	Gets failed configuration (configuration management page)	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
DescribeServiceConfDimensionDiff	Compares the configurations at different levels (configuration management page)	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
ModifyEmrManagerAgent	Updates EMR Manager Agent	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
ModifyServiceConfDiff	Overwrites different configuration (configuration management)	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
ModifyYarnLabelState	Delivers an instruction to add, delete, or bind a label	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
DescribeYarnScheduleHistory	Views the YARN resource scheduling history	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
DescribeYarnDeployMessage	Gets the prompt message	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
ModifyYarnDeploy	Applies deployment	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
DescribeParentLabels	Gets the list of labels of the parent queue	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId
DescribeYarnLastestLabels	Gets the latest label information	emr- instance qcs::emr:\${region}:uin/\${uin}:emr- instance/\$emrInstanceId

ModifyYarnLabels	Syncs YARN node labels	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyYarnQueue	Modifies the resource pool in resource scheduling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyOldLabelConfig	Cancels saving the edited content in YARN label management	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeNodeLabelWebUrl	Gets the web URL of YARN node labels	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeNodeManagerHosts	Gets the list of NodeManager IPs	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyGlobalScaleConf	Modifies the scaling configuration of cluster, including whether to enable scaling and the scaling type	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeGlobalScaleConf	Gets the scaling configuration of cluster, including whether to enable scaling and the scaling type	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
ModifyManagedScaleGlobalConf	Updates the global configuration of managed scaling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeManagedScaleGlobalConf	Gets the global configuration of managed scaling	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeServiceComponentInfos	Describes the role information of container cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId
DescribeRssClusterList	Gets the RSS clusters in the same EKS	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceId



	cluster as the current Spark cluster	instance/\$emrInstanceid
CreateSparkLinkRss	Associates RSS cluster with Spark cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid
DeleteSparkLinkRss	Disassociates RSS cluster from Spark cluster	emr-instance qcs::emr:\${region}:uin/\${uin}:emr-instance/\$emrInstanceid

## List of APIs supporting API-level authorization

API	Description
RunJobFlow	Creates and runs job
DescribeJobFlow	Queries running jobs
DescribeK8sResourcePrice	Queries the price of K8s resource
DescribePodSpecs	Describes Pod specification
GenerateCreateGoodsDetail	Generates cluster creation order
DescribeLogSearchFileNames	Gets the list of log search files
DescribeInstanceServiceRoleNames	Gets service role names
DescribeCompareMetricsList	Gets the list of comparison metrics
DescribeHeatMapMetricList	Returns the list of metrics in the aggregated cluster server dimension
DescribeHBaseRegionList	Gets the list of HBase regions
DescribeClusterOverview	Queries cluster overview
DescribeEMRNodeOverview	Queries the deployment status of various processes on node
DescribeNodeHardwareInfo	Queries the basic configuration of the host
DescribeTopNMeta	Gets the top N metadata information items

DescribeMetricDataAutoGranularity	Gets monitoring data and automatically sets time granularity
DescribeLogSearchTabs	Gets log search tabs
DescribeEMRHostOverview	Queries the process status on the host details page
DescribeLogSearchRecords	Gets log search content
DescribeTopNByProcess	Gets the top N processes
DescribeDiskInfo	Returns specific disk information
DescribeTopNByHost	Queries the top N hosts on the overview page
DescribeHeatMapDistribution	Returns the heat map data of cluster
DescribeInstanceServiceRoleTable	Gets the data of service role table
DescribeNodeAlias	Gets the alias of EMR node
DescribeInstanceNodes	Gets the host information of cluster
DescribeKeyPairs	Queries the information of key pairs
DescribeHbaseTableMetricData	Queries HBase table-level monitoring data
DescribeKeyPairs	Queries the information of key pairs
DescribeEmrMetaDB	Gets the unified metadatabase information of Hive
ModifyEmrRole	Updates the information of EMR role
DescribeDisasterRecoverGroup	Gets the information of spread placement group
DescribeTags	Pulls all tags of cluster
InquiryPriceCreateInstance	Queries the price of created instance
DescribeAccountBalance	Queries account balance
DescribeSecurityGroup	Gets the information of EMR security group
DescribeCvmSpec	Queries CVM instance specification
DescribeCdbPrice	Queries the price of TencentDB instance
CreateInstance	Creates EMR instance
GetMetricDataForMcController	Gets the monitoring information on the details page in the console

DescribeVpcList	Queries the list of VPCs
DescribeSceneProductInfo	Gets the cluster use case, type, product, and component information from the purchase page
DescribeRegionAndZoneSaleInfo	Gets the region and AZ information from the console and the purchase page
DescribeCgwProjects	Gets the list of CGW projects
DescribeServiceUpgradeVersion	View the service minor version that can be upgraded
ModifyServiceVersion	Upgrades service minor version
DescribeServiceRoleInstanceConstraints	Gets the constraint information of role instances removed from the service
CheckSupportServiceRoleInstance	Checks whether a role instance can be added to the service
DescribeServiceRoleNames	Gets the drop-down list of role names (or role types) of the service
DescribeServiceRoleInstanceDeployableNodes	Queries the list of nodes where the service role can be deployed
DescribeServiceDeletableRoleInstances	Queries the list of role instances that can be deleted from the service
DeleteServiceRoleInstance	Removes role instance
AddServiceRoleInstance	Adds role instance
ModifyResourcesTags	Forcibly modifies tag
CreateCluster	Creates cluster
RepairDisk	Repairs the business after the customer's corrupted disk is replaced at the CVM side
CreateOutsideClient	Provides component packages and deployment scripts for servers outside the EMR cluster to support their access to EMR and job submission
ModifyCvmReplaceFlag	Modifies the EMR cluster to support abnormal node replacement

For more information on resource-level and API-level authorization, see [Authorization Granularity Scheme](#).

# Authentication Granularity Scheme

Last updated : 2023-12-27 10:01:09

## Six-Segment Resource Description

`qcs`: Describes the abbreviation of `qcloud service` , indicating that a resource is a Tencent Cloud resource. This field is required.

`project_id`: Describes the project information, which is used to enable compatibility with legacy CAM logic and can be left empty.

`service_type`: Describes the product abbreviation, such as `CVM` .

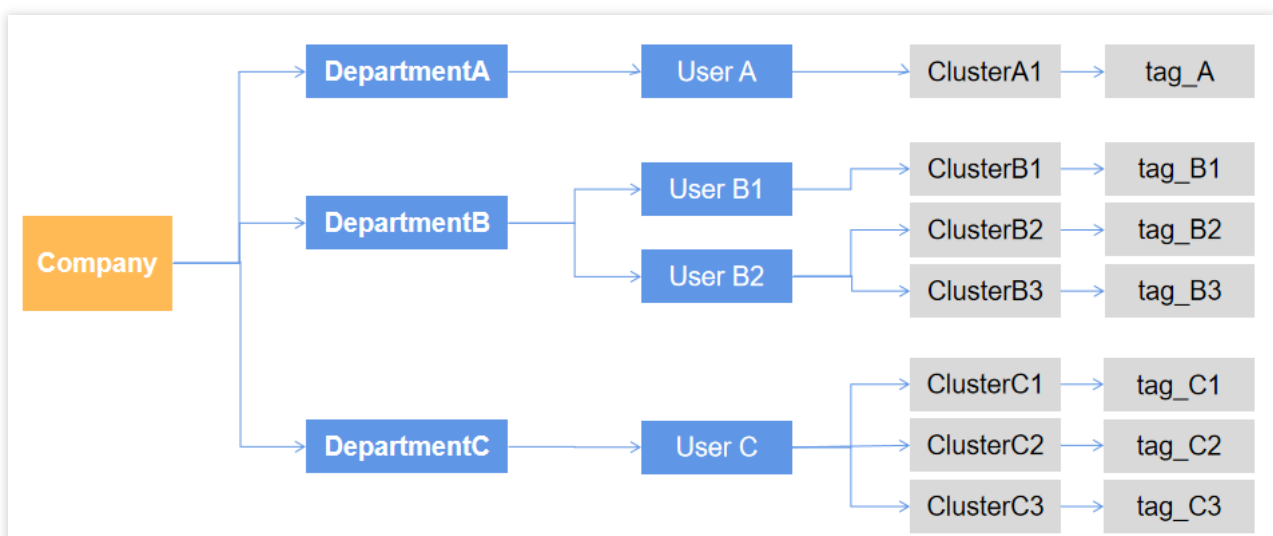
`region`: Describes the region information, such as `bj` (see the [CAM documentation](#)).

`account`: Describes the root account of the resource owner, such as `uin/164256472` .

`resource`: Describes the detailed resource information of each product, such as `instance/instance_id1` or `instance/*` .

## Tag Authentication Operation Guide

This section describes how to authenticate EMR tags. Before using tags to manage the authentication of EMR resources, you need to plan tags based on your departments or organizations; for example, you can set usernames, clusters, and tags for departments A, B, and C respectively. For more information on tags, see [Tag](#).



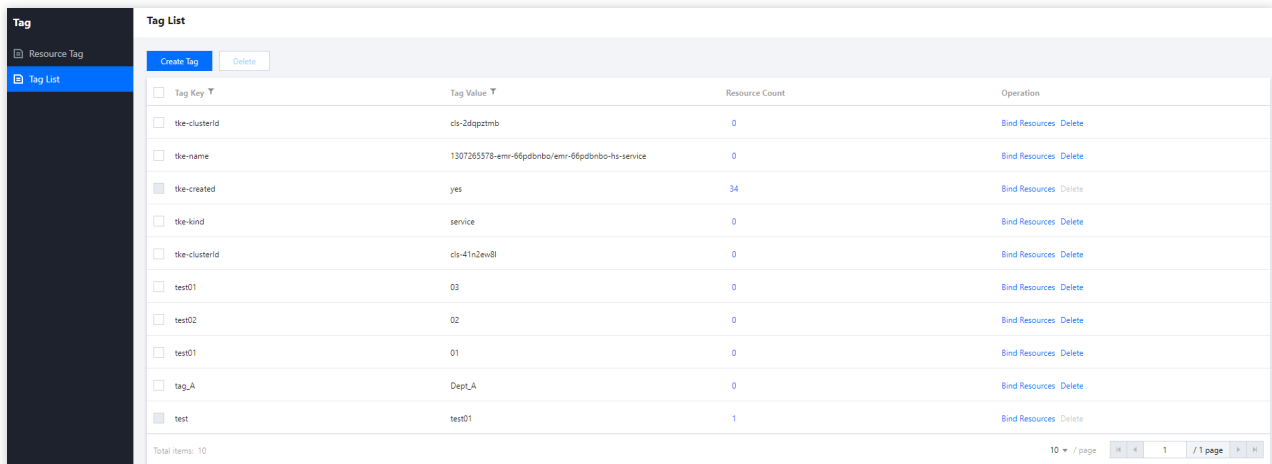
After completing the planning, to enable department A to manage cluster A1, you need to perform the following operations in sequence.

## 1. Create a tag and tag the cluster

Enter the [Tag List](#) page and click **Create Tag**.

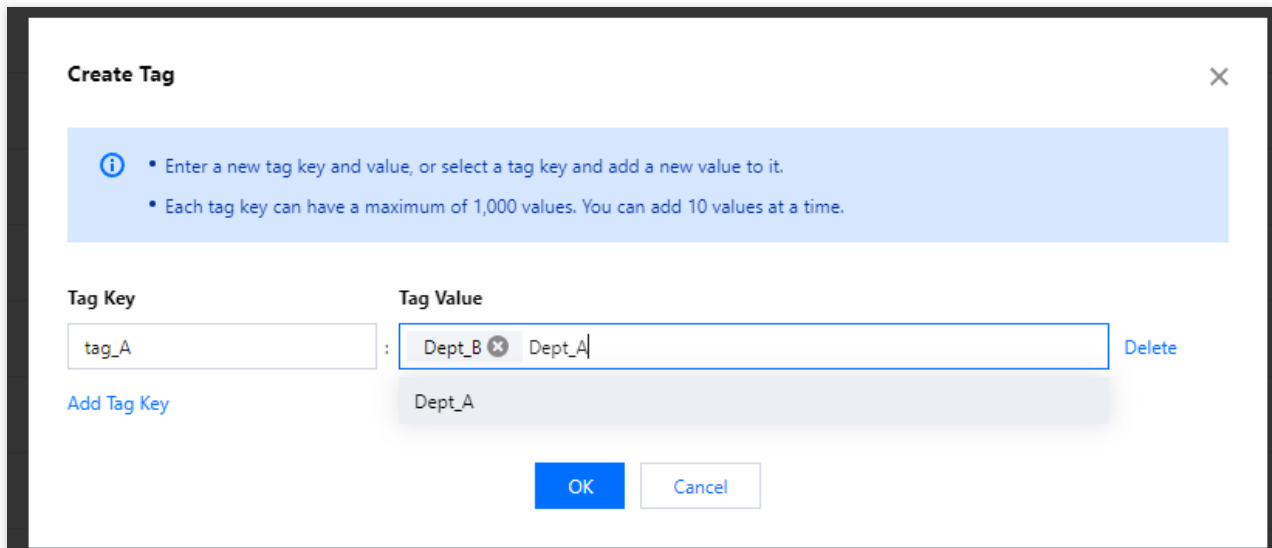
### Note

The `tag_A` tag is used as an example here and below.



Tag Key	Tag Value	Resource Count	Operation
tkc-clusterid	cls-2dggzmb	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
tkc-name	1307265378-emr-66pdrnbo/emr-66pdrnbo-hs-service	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
tkc-created	yes	34	<a href="#">Bind Resources</a> <a href="#">Delete</a>
tkc-kind	service	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
tkc-clusterid	cls-41n2ew8l	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
test01	03	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
test02	02	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
test01	01	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
tag_A	Dept_A	0	<a href="#">Bind Resources</a> <a href="#">Delete</a>
test	test01	1	<a href="#">Bind Resources</a> <a href="#">Delete</a>

Enter the tag key and tag value and click **OK**.



**Create Tag**

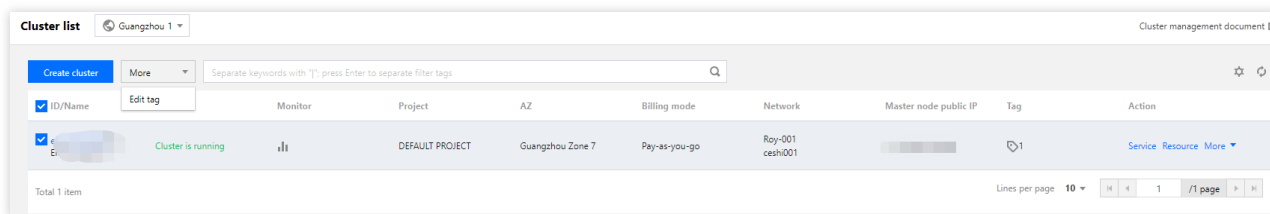
• Enter a new tag key and value, or select a tag key and add a new value to it.  
• Each tag key can have a maximum of 1,000 values. You can add 10 values at a time.

Tag Key: tag\_A

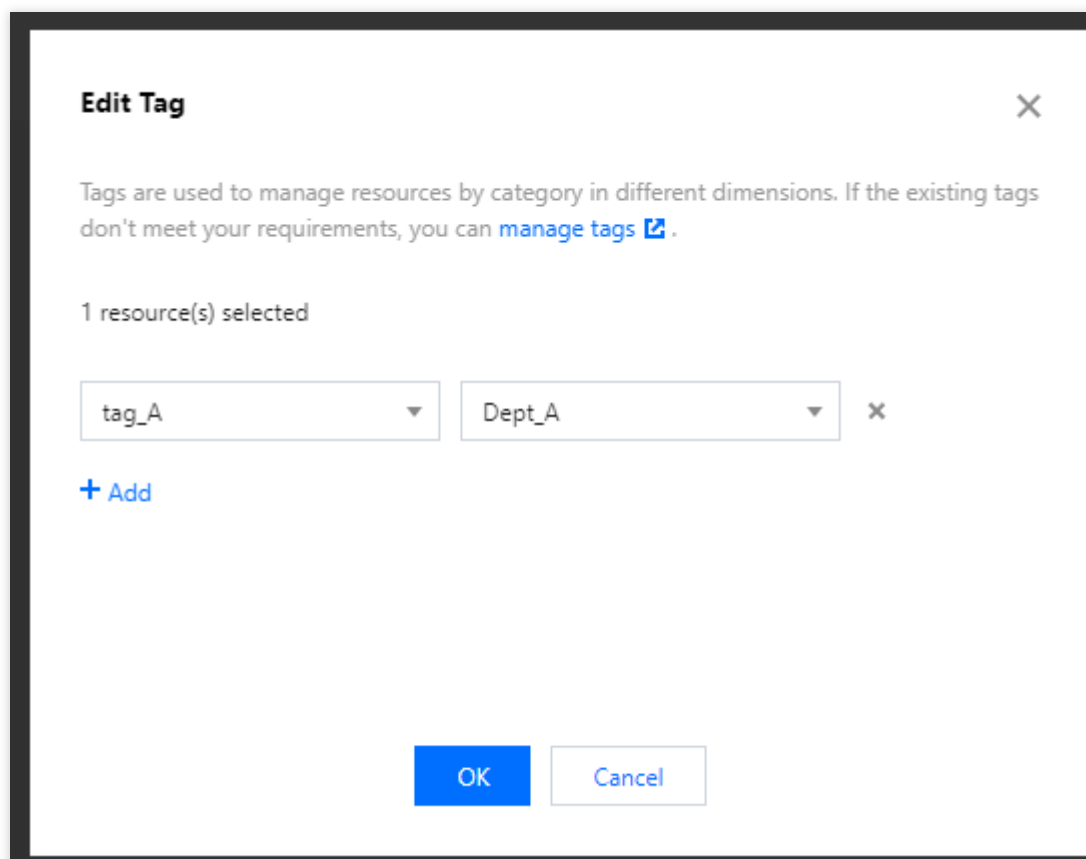
Tag Value: Dept\_B, Dept\_A

Buttons: Add Tag Key, Delete, OK, Cancel

On the [Cluster List](#) page, select the target cluster, click **More** at the top, and click **Edit Tag**.



On the **Edit Tag** page, select the created `tag_A` tag and click **Complete**.



## 2. Create a custom policy

Currently, certain EMR APIs don't support authentication by tag; therefore, you need to set two policies:

`Policy_Dept_A1` (for APIs that support authentication by tag) and `Policy_Dept_A2` (for APIs that don't).

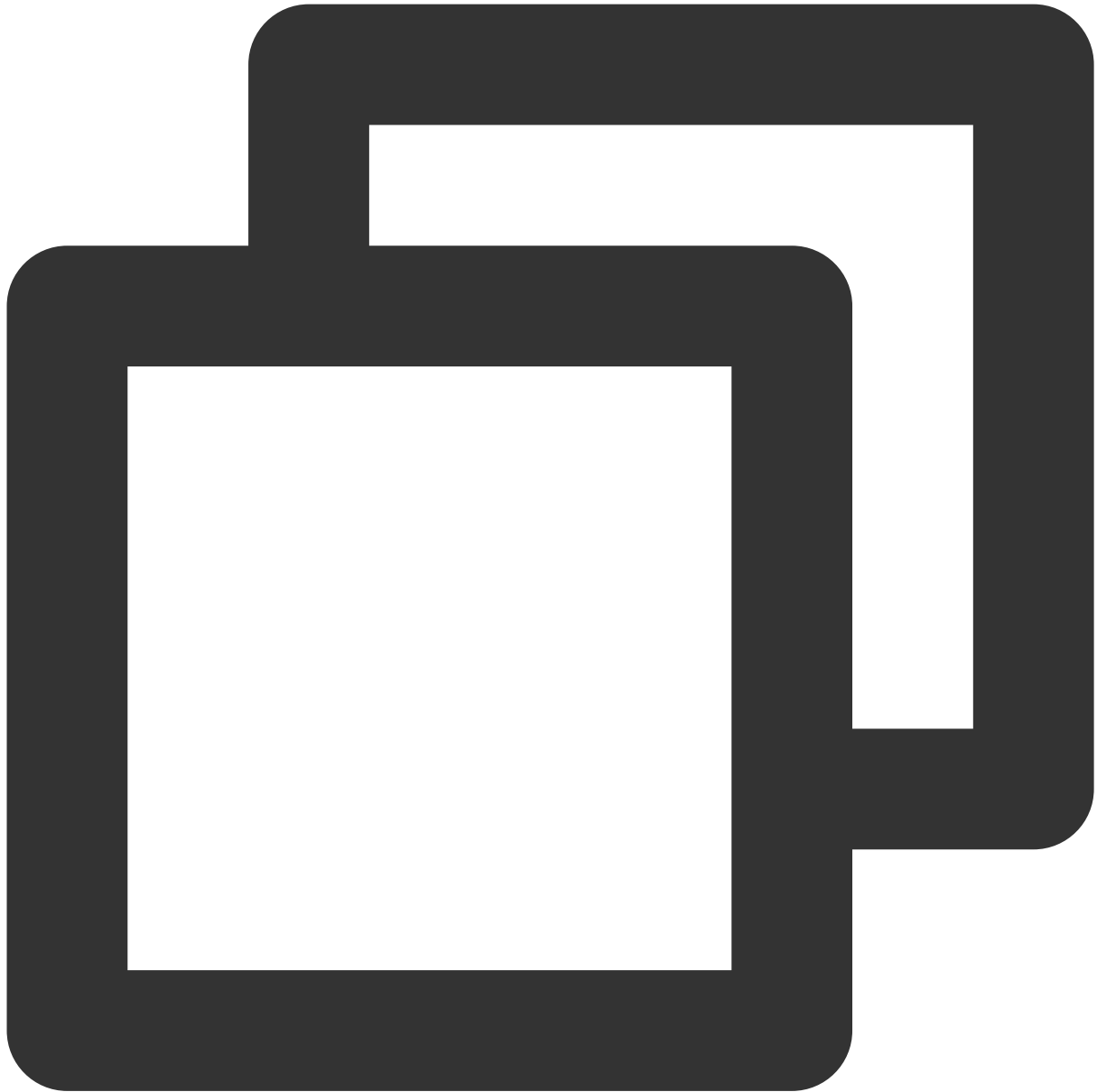
### Create custom policy `Policy_Dept_A1`

Go to the [Policies](#) page in the CAM console and click **Create Custom Policy**.

Select **Authorize by Tag**.

In **Tag Policy Generator**, select `Dept_A` for **Authorized Users**, leave **User Groups** empty, select the tag key and tag value of the planned tag for **Tag Key** and **Tag Value** respectively, add services and operations as needed, and click **Next**.

Create the `Policy_Dept_A1` policy, replace the content of the `action` and `resource` fields with the following in **Policy**, and click **Complete**.



```
{
  "effect": "allow",
  "action": [
    "emr:DescribeClusterNodes",
    "emr:DescribeInstancesList"
  ],
  "resource": [
    "*"
  ]
}
```



```
],
"condition": {
  "for_any_value:string_equal": {
    "qcs:resource_tag": [
      "tag_A&Dept_A",
      "tag_B&Dept_B",
      "tag_C&Dept_C",
      "tag_D&Dept_D"
    ]
  }
}
```

### Caution

The content of the `resource` field needs to be entered based on the actual resource. For more information on how to specify it, see [Resource Description Method](#).

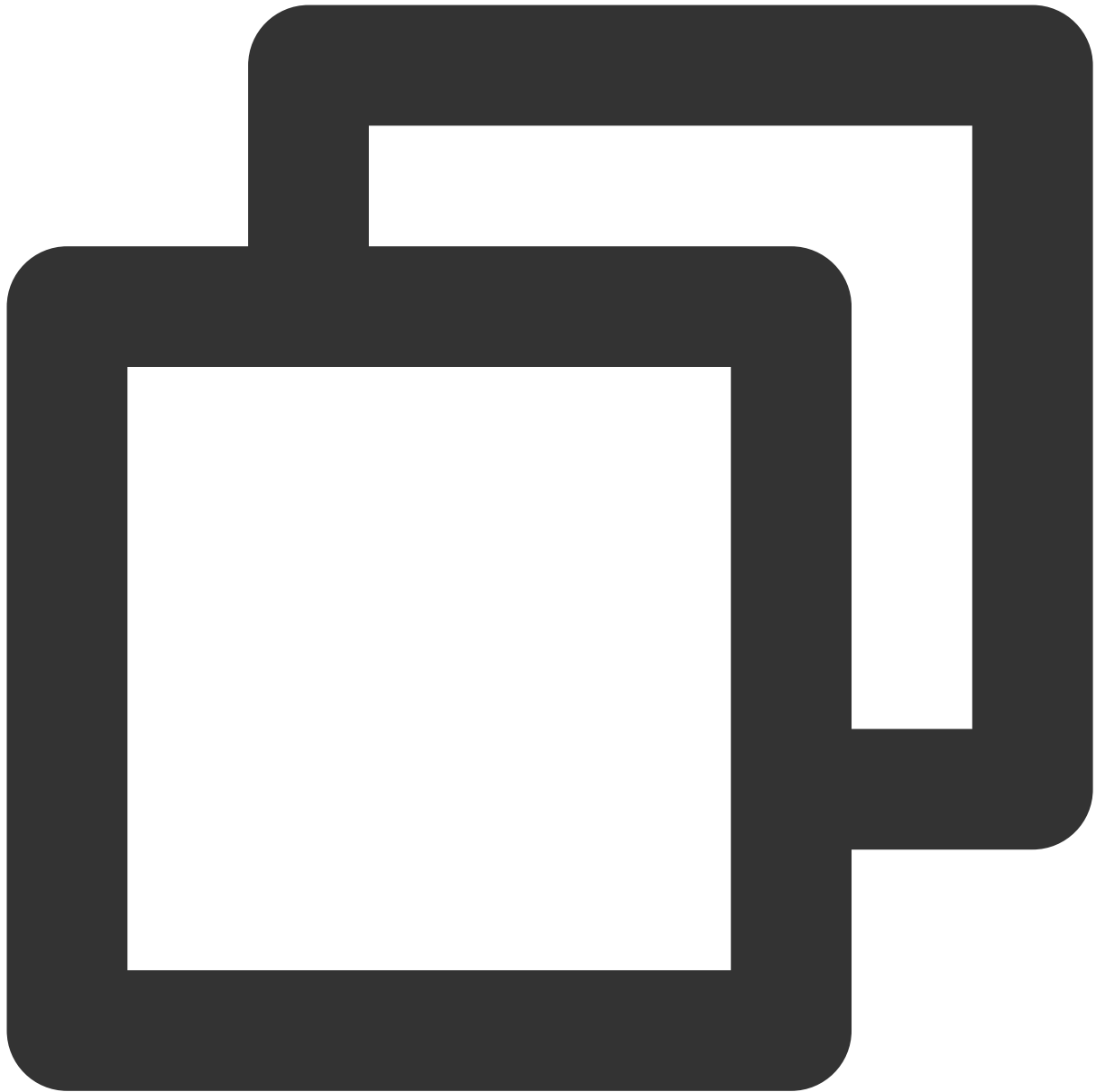
### Create custom policy `Policy_Dept_A2`

Go to the **Policies** page in the CAM console and click **Create Custom Policy**.

Select **Create by Policy Syntax**.

In **Select Policy Template**, select **Blank Template** and click **Next**.

Create the `Policy_Dept_A2` policy, clear the existing content in **Policy**, paste the following content, and click **Complete**.



```
{
  "version": "2.0",
  "statement": [
    {
      "effect": "allow",
      "action": [
"emr:RunJobFlow","emr:DescribeJobFlow","emr:FindClusterListForMC","emr:EmrScaleoutC
"emr:DescribeModifySpec","emr:DescribeMasterIp","emr:DescribeMetricsDimension"
      ],
      "resource": "*"
    }
  ]
}
```

```
]
}
```

### 3. Authorize and authenticate the sub-user

On the **User List** page, find the target sub-user and click **Authorize** on the right. For more information on how to create a sub-user, see [Creating Sub-user](#).

Select **Policy\_Dept\_A1** and **Policy\_Dept\_A2** and click **Complete**.

Log in as a sub-user for authentication.

At this point, when logging in to EMR, the sub-user can see and manage the `test_A` cluster only through the `tag_A` tag.

#### Caution

As the APIs in the `Policy_Dept_A2` policy can only be fully listed, a permission error may occur when new APIs are subsequently added. In case of such permission error, [submit a ticket](#) or [contact us](#) for assistance.

## Resource-Level and API-Level Authentication Operation Guide

This section describes how to authorize EMR resources. When using resource-level authentication to authorize an EMR feature, you need to plan resources for your departments or organizations first; for example, you can plan usernames, APIs, and clusters for departments A, B, and C as shown below.

After completing the planning, to grant department A only access to the `DescribeRegionAndZoneSaleInfo` API of the cluster, you need to perform the following operations in sequence:

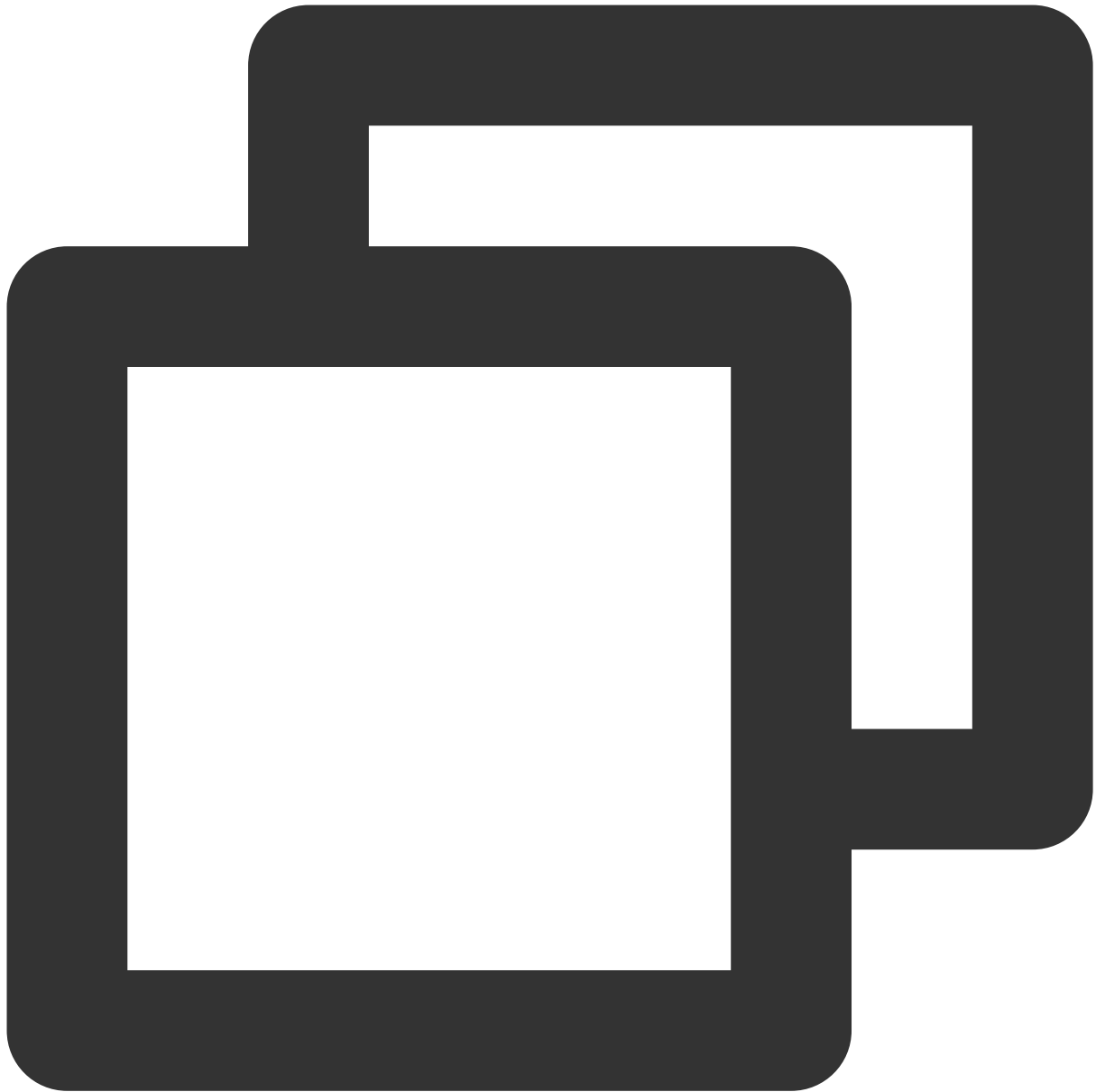
### 1. Create a custom policy

Go to the [Policies](#) page in the CAM console and click **Create Custom Policy**.

Select **Create by Policy Syntax**.

In **Select Policy Template**, select **Blank Template** and click **Next**.

Create a custom policy named `DescribeRegionAndZoneSaleInfo-test`, clear the existing content in **Policy**, configure the access `deny` policy for EMR's `DescribeRegionAndZoneSaleInfo` API, and save the configuration.



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

```
}
```

### Caution

For APIs that support resource-level authentication, see **List of APIs supporting resource-level authorization**. As the APIs can only be fully listed, a permission error may occur when new APIs are subsequently added. In case of such permission error, you can add the missing API permission in the policy based on the error message.

## 2. Authorize and authenticate the sub-account

On the **User List** page, find the target sub-user and click **Authorize** on the right. For how to create a sub-user, see [Creating Sub-user](#).

Select the `DescribeRegionAndZoneSaleInfo-test` custom policy and click **Complete**.

After you log in with the sub-account and call the above API, if a pop-up window similar to the following requesting authorization is displayed, the authentication has been successfully configured.

# Custom Service Roles

Last updated : 2023-12-27 10:01:27

The custom service role feature enables you to create a CAM service role for granting access to COS resources. Please select **Tencent Cloud Product Service** as the service type and **Elastic MapReduce** as the service supporting the role. If no custom service role is configured, the system uses the **EMRCosRole** role by default to access COS resources.

## Step 1. Customize a Permission Policy

1. Log in to the [CAM console](#), click **Create Custom Policy**, and select **Create by Policy Syntax** in the **Select Policy Creation Method** pop-up window.
2. On the **Create by Policy Syntax** page, select **Blank Template** as the template type.
3. Set the syntax policy as follows:



```
{
  "version": "2.0",
  "statement": [
    {
      "action": "cos:*",
      "effect": "allow",
      "resource": "qcs::cos::uid/appId:bucketName/*"
    }
  ]
}
```

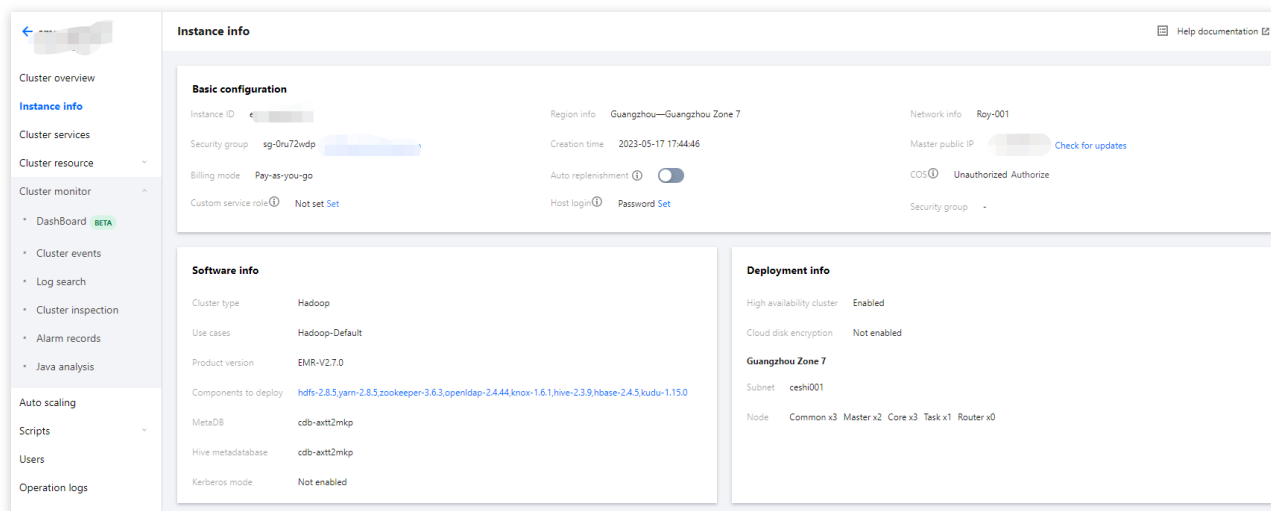
Where `appId` is the AppID of the root account, and `bucketName` is the name of the target bucket. Generate a policy named `TestPolicy`. In practical cases, you can customize the name.

## Step 2. Create a Custom Role

1. In the [CAM console](#), click **Create Role** to open the **Select role entity** pop-up window, select **Tencent Cloud Product Service** to go to the **Create Custom Role** page, and select **Elasticsearch MapReduce (emr)** in **Product Service**.
2. Associate the `TestPolicy` policy generated in step 1. In practical cases, you can associate a policy as needed.
3. Set the role tag keys and values and click **Next**.
4. Generate a custom role named `EMRCosRole`. In practical cases, you can customize the name.

## Step 3. Bind the Role with an EMR Cluster

In the [EMR console](#), click a cluster ID/name to go to the instance information page, select **Instance info > Basic configuration > Custom Service Role** and then click **Set**. Set the custom service role to the `EMRCosRole` role generated in step 2. In practical cases, you can customize the name.





# Setting Tags

Last updated : 2023-12-27 10:01:45

## Overview

**Tags** are key-value pairs provided by Tencent Cloud EMR to identify cluster types or node resources.

You can manage clusters or node resources in a categorized manner by using tags in various dimensions such as business, purpose, and responsible person, or use tags to easily identify them. Tag key-value pairs have no semantic meaning for EMR and are parsed and matched strictly based on strings.

## Limits

A tag is a key-value pair. You can set tags for EMR clusters or node resources to manage them in a categorized manner. Then, you can easily view and identify clusters and node resources under the corresponding tags. You can edit tags in the EMR console.

There are several limits on tags:

Quantity limit: Each cluster or node can have up to 50 tags. (**Up to five tags can be added at a time.**)

Tag key limits:

You cannot use "qcloud", "tencent", or "project" at the beginning of a tag key because they are reserved by the system.

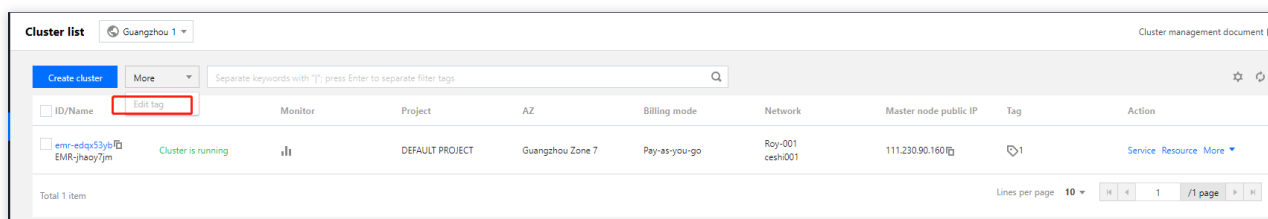
A tag key can contain up to 255 characters. Only digits, letters, and the + = . @ - symbols are supported.

Tag value limit: A tag value can contain up to 127 characters. Only digits, letters, symbols + = . @ -, and a null string are supported.

## Directions

### Editing cluster tags

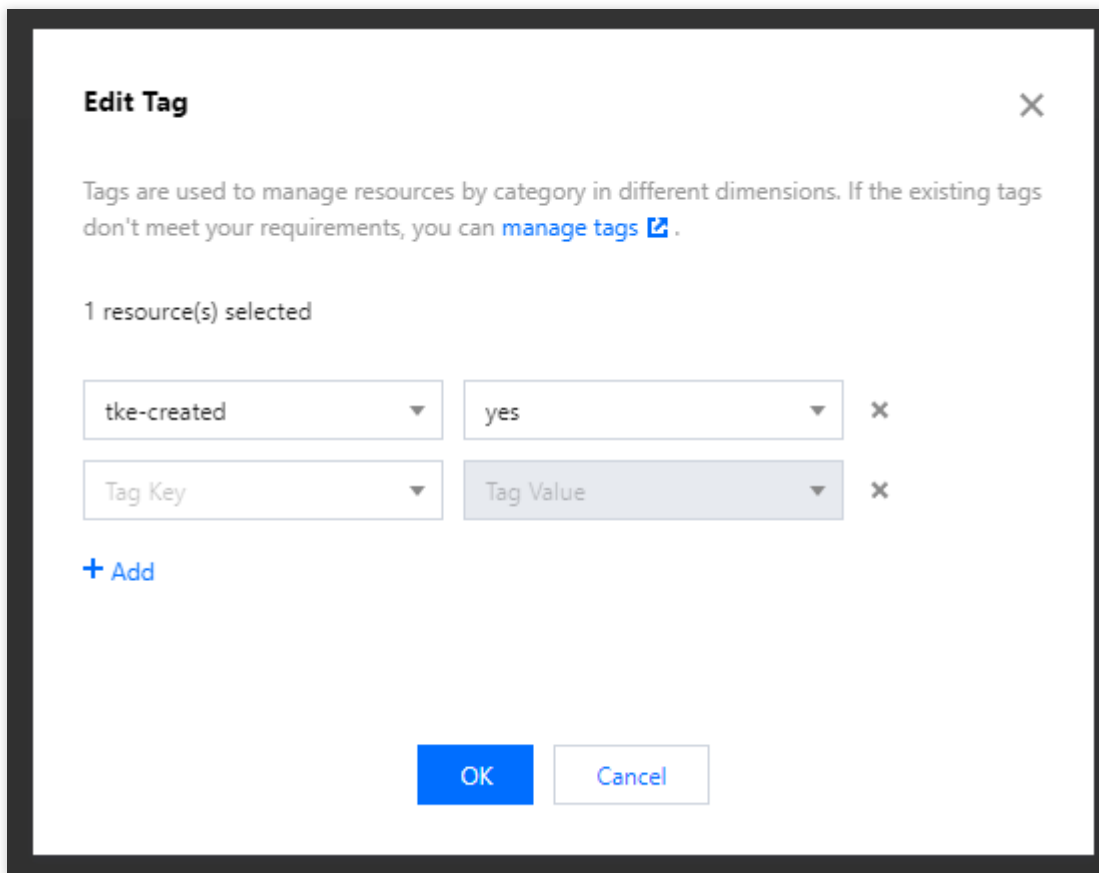
1. Log in to the [EMR console](#), select the target cluster on the **Cluster list** page and click **More > Edit tag**.



2. Add, modify or delete tags as needed in the pop-up dialog box.

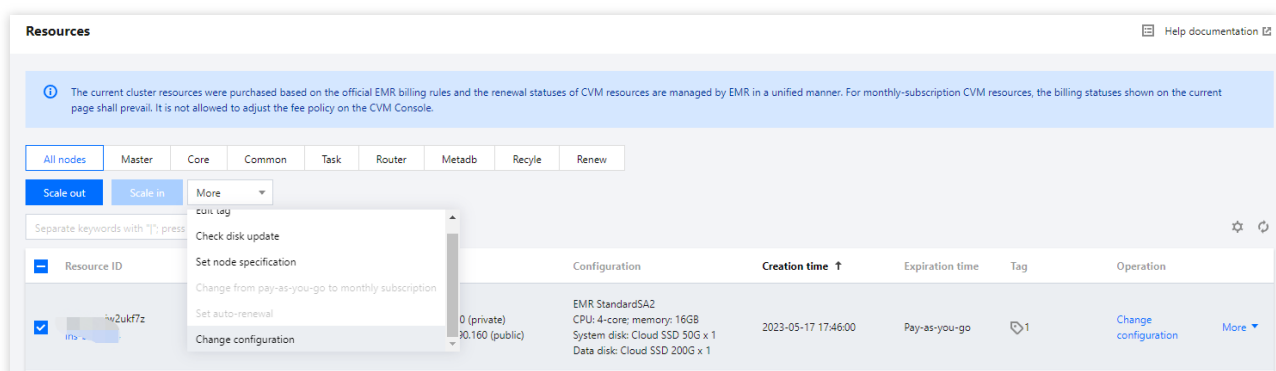
### Note

You can edit tags for up to 20 clusters at a time.



## Editing node tags

1. Log in to the [EMR console](#) and click a cluster ID/name to go to the cluster details page. Select **Cluster resources** > **Resources**, select the target node, and click **More** > **Edit tag**.




2. Add, modify or delete tags as needed in the pop-up dialog box.

**Note**

You can edit tags for up to 20 clusters at a time.

### Edit Tag ✕

Tags are used to manage resources by category in different dimensions. If the existing tags don't meet your requirements, you can [manage tags](#) .

1 resource(s) selected

tke-created <span>▼</span>	yes <span>▼</span>	✕
Tag Key <span>▼</span>	Tag Value <span>▼</span>	✕

[+ Add](#)

# Bootstrap Actions

Last updated : 2023-12-27 10:02:08

## Overview

A bootstrap action involves executing custom scripts during cluster creation so that you can modify the cluster environment, install third-party software, and utilize proprietary data. This action runs the bootstrap script during cluster creation (including cluster scale-out) and cluster termination (including cluster scale-in), except for router nodes.

Currently, you can specify a bootstrap action only for cluster creation and termination in the console. You can also specify a bootstrap action for the scale-out or scale-in process via API. By default, if no bootstrap action is specified via API, the bootstrap action specified for cluster creation is executed during the scale-out process, and the bootstrap action specified for cluster termination is executed during the scale-in process.

1. The bootstrap action specified for cluster creation (including cluster scale-out) can be executed in any of the following circumstances:

- a. After server initialization: After server resource initialization and before EMR cluster software installation.
- b. Before cluster start: Before cluster service start.
- c. After cluster start: After cluster service start.

2. The bootstrap action specified for cluster termination (including cluster scale-in) can be executed in the following circumstance:

- a. Before service deactivation: Before cluster service deactivation.

Bootstrap actions run scripts during cluster creation and scale-out in the order in which the scripts are added. The number of bootstrap actions cannot exceed 16.

### Note:

We recommend that you create a small pay-as-you-go cluster first to test whether the bootstrap action works properly, and if yes, create a cluster for actual business.

## Directions

### Option 1: Add a bootstrap action when creating a cluster on the [purchase page](#)

1. Choose **Basic Configuration** > **Advanced Settings** > **Add Bootstrap Action** to add a bootstrap action.

Advanced settings [^](#)

Bootstrap Actions [i](#)

Run	Name	Script Location	Parameter	Operation
No data yet				
<a href="#">+ Add Bootstrap Action</a>				

Tag [i](#)

[+ Add](#)

2. Edit or delete the added bootstrap action as needed.

### Add Bootstrap Action

Run  After node initialization  Before cluster start  After cluster start

Before service stop

Name

1-64 characters; supports Chinese characters, letters, digits, -, and \_

Script Location

Use the COS STANDARD storage class. Script example: `https://beijing-111111.cos.ap-beijing.myqcloud.com/data/test.sh`

Parameter

Follow standard Shell specifications.

Select a time for running the script and enter relevant parameters.

Name: We recommend you enter your object name.

Script Location: We recommend you copy the location information from the COS details page. Go to the [COS console](#), click **Bucket List**, select the target script, and choose **Operation > Details**.

On the **Details** page, you can see the object name and object address.

Parameter: This refers to the parameters for running the script. Separate multiple parameters by spaces, and do not add spaces in individual parameters. The total length of **Parameter** and **Name** cannot exceed 240 characters.

#### Option 2: Add a bootstrap action on the Basic information page of the cluster

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page. Then, choose **Basic information > Bootstrap Actions** and click **Add Bootstrap Action**.

2. Edit or delete the added bootstrap action as needed. Select a time for running the script and enter relevant parameters.

Name: We recommend you enter your object name.

Script Location: We recommend you copy the location information from the COS details page. Go to the [COS console](#), click **Bucket List**, select the target script, and choose **Operation > Details**.

Parameter: This refers to the parameters for running the script. Separate multiple parameters by spaces, and do not add spaces in individual parameters. The total length of **Parameter** and **Name** cannot exceed 240 characters.

## Viewing Bootstrap Result

Currently, you can specify a bootstrap action for scale-out via API but not in the console. If a bootstrap action is specified, it will be executed during scale-out; otherwise, the one specified for cluster creation will be executed.

1. View the bootstrap result in the script's system log.

Logs and script files to be executed are stored in the `/usr/local/service/scripts/` directory. The script system log is `script_syslog`. Naming convention 1: "Execution order" + "" + "Time" + "Script name" + "" + stderr.

Naming convention 2: "Execution order" + "" + "Time" + "Script name" + "" + stdout.

### Note:

The scripts will be executed on all types of nodes, and the script files and log files output by script execution will be stored on each node.

Bootstrap scripts need to be encoded in UTF-8.

2. View the bootstrap result in the Task Center.

Log in to the [EMR console](#), click **Task Center** on the left sidebar, or enter a cluster, click **Task** in the top-right corner, and select the target process (creating cluster, scaling out cluster, or initializing node). Then, you can click **Run Details** in the service initialization step of **Task details** to view the bootstrap result.

# Software Configuration

Last updated : 2023-12-27 10:02:29

## Feature

Software configuration enables you to customize configurations of components such as HDFS, YARN, and Hive when creating a cluster.

## Custom Software Configuration

Software programs such as Hadoop and Hive have many configuration items. By using the software configuration feature, you can customize component parameters when creating a cluster. During the configuration, you need to provide the corresponding JSON files as required. You can customize the files or generate them by exporting software configuration parameters of an existing cluster for quick cluster creation. For more information on how to export software configuration parameters, please see [Exporting Software Configuration](#).

Currently, only parameters in the following files can be customized:

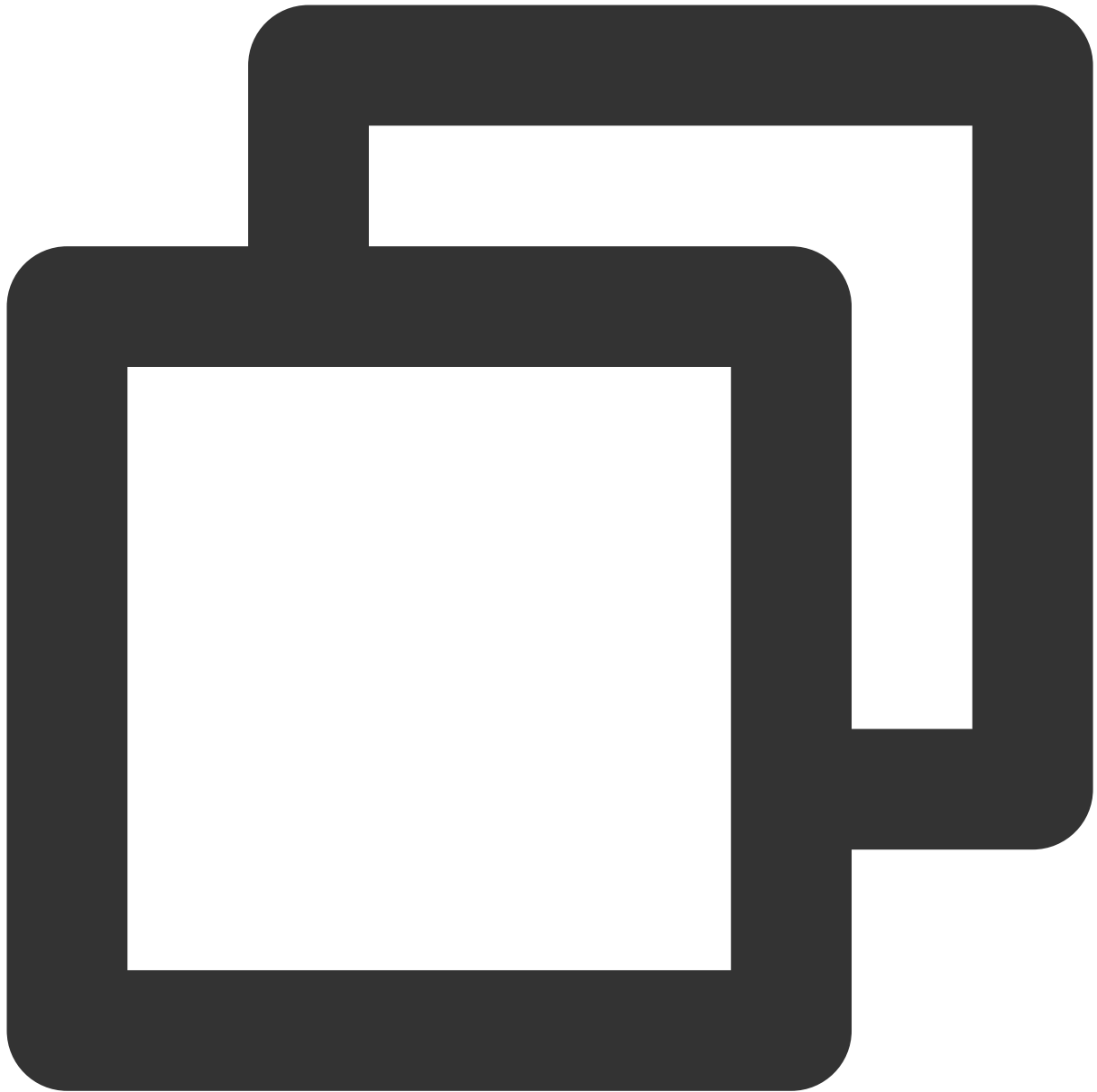
HDFS: core-site.xml, hdfs-site.xml, hadoop-env.sh, log4j.properties

YARN: yarn-site.xml, mapred-site.xml, fair-scheduler.xml, capacity-scheduler.xml, yarn-env.sh, mapred-env.sh

Hive: hive-site.xml, hive-env.sh, hive-log4j2.properties

### Sample JSON file and description:





```
[
  {
    "serviceName": "HDFS",
    "classification": "hdfs-site.xml",
    "serviceVersion": "2.8.4",
    "properties": {
      "dfs.blocksize": "67108864",
      "dfs.client.slow.io.warning.threshold.ms": "900000",
      "output.replace-datanode-on-failure": "false"
    }
  },
]
```

```
{
  "serviceName": "YARN",
  "classification": "yarn-site.xml",
  "serviceVersion": "2.8.4",
  "properties": {
    "yarn.app.mapreduce.am.staging-dir": "/emr/hadoop-yarn/staging",
    "yarn.log-aggregation.retain-check-interval-seconds": "604800",
    "yarn.scheduler.minimum-allocation-vcores": "1"
  }
},
{
  "serviceName": "YARN",
  "classification": "capacity-scheduler.xml",
  "serviceVersion": "2.8.4",
  "properties": {
    "content": "<?xml version=\\\"1.0\\\" encoding=\\\"UTF-8\\\"?>\\n<?xml-styl
  }
}
]
```

### Configuration parameter descriptions:

`serviceName`: component name, which must be in uppercase.

`classification`: filename, which must be a full name with file extension.

`serviceVersion`: component version, which must be the same as the corresponding component version in the EMR product version.

`properties`: parameters that need to be customized.

If you want to modify configuration parameters in `capacity-scheduler.xml` or `fair-scheduler.xml`, set `key` in `properties` to `content`, and set `value` to the content of the entire file.

If you want to adjust the component configuration of an existing cluster, you can [configure component parameters](#).

## Accessing External Clusters

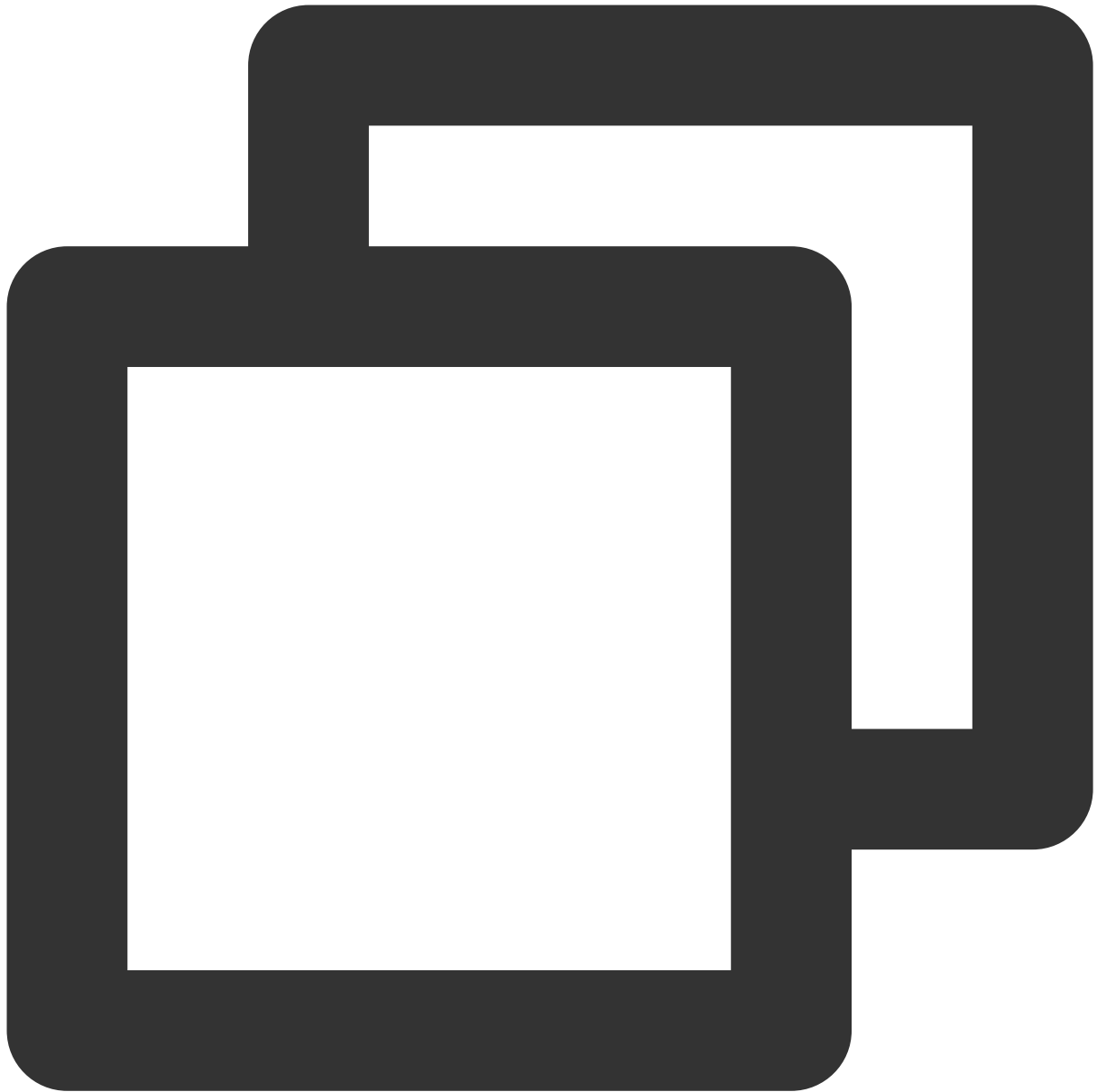
After configuring the HDFS access address information of an external cluster, you can read data in it.

### Configuration during purchase

EMR allows you to configure access to external clusters when you create an EMR cluster. On the purchase page, you only need to import a JSON file that meets the requirements in the software configuration section. Below is an example based on assumption:

#### Assumption

Assume that the `nameservice` of the external cluster to be accessed is `HDFS8088`, and the access method is as follows:

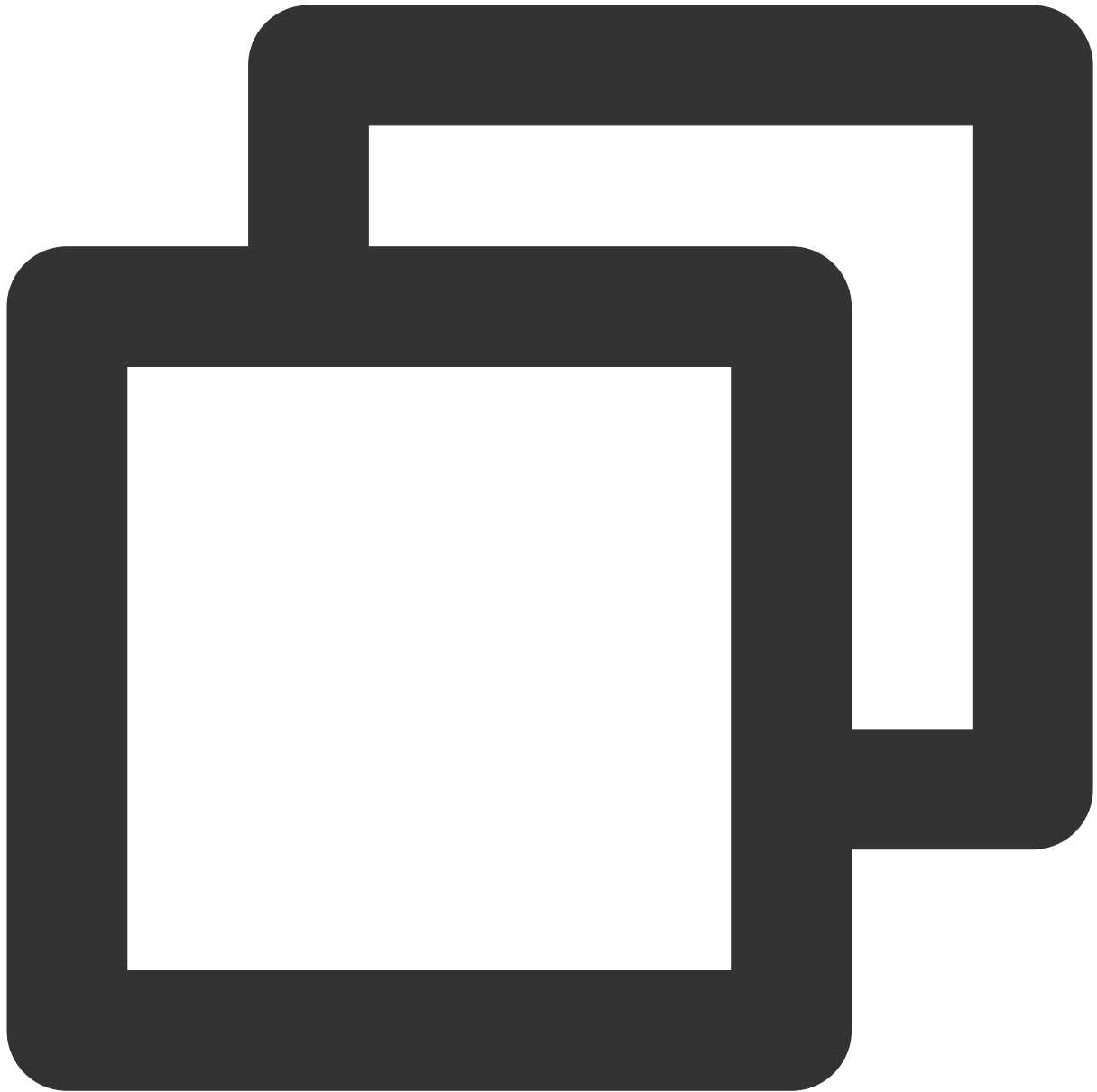


```
<property>
  <name>dfs.ha.namenodes.HDFS8088</name>
  <value>nn1,nn2</value>
</property>
<property>
  <name>dfs.namenode.http-address.HDFS8088.nn1</name>
  <value>172.21.16.11:4008</value>
</property>
<property>
  <name>dfs.namenode.https-address.HDFS8088.nn1</name>
  <value>172.21.16.11:4009</value>
</property>
```

```
</property>
  <name>dfs.namenode.rpc-address.HDFS8088.nn1</name>
  <value>172.21.16.11:4007</value>
</property>
  <name>dfs.namenode.http-address.HDFS8088.nn2</name>
  <value>172.21.16.40:4008</value>
</property>
</property>
  <name>dfs.namenode.https-address.HDFS8088.nn2</name>
  <value>172.21.16.40:4009</value>
</property>
</property>
  <name>dfs.namenode.rpc-address.HDFS8088.nn2</name>
  <value>172.21.16.40:4007</value>
</property>
```

**JSON file and description:**

Taking the assumption as an example, import the JSON file (the requirements for its content are the same as those for custom software configuration) in the box.



```
[
  {
    "serviceName": "HDFS",
    "classification": "hdfs-site.xml",
    "serviceVersion": "2.7.3",
    "properties": {
      "newNameServiceName": "newEmrCluster",
      "dfs.ha.namenodes.HDFS8088": "nn1,nn2",
      "dfs.namenode.http-address.HDFS8088.nn1": "172.21.16.11:4008",
      "dfs.namenode.https-address.HDFS8088.nn1": "172.21.16.11:4009",
      "dfs.namenode.rpc-address.HDFS8088.nn1": "172.21.16.11:4007",
```

```
"dfs.namenode.http-address.HDFS8088.nn2": "172.21.16.40:4008",
"dfs.namenode.https-address.HDFS8088.nn2": "172.21.16.40:4009",
"dfs.namenode.rpc-address.HDFS8088.nn2": "172.21.16.40:4007"
}
}
]
```

### Configuration parameter description

serviceName: component name, which must be "HDFS".

classification: filename, which must be "hdfs-site.xml".

serviceVersion: component version, which must be the same as the corresponding component version in the EMR product version.

properties: the content must be the same as that in the assumption.

newNameServiceName: it indicates the `nameservice` of the newly created cluster, which is optional. If this parameter is left empty, its value will be generated by the system; if it is not empty, its value must consist of a string, digits, and hyphen.

Access to external clusters is supported only for high-availability clusters.

Access to external clusters is supported only for clusters with Kerberos disabled.

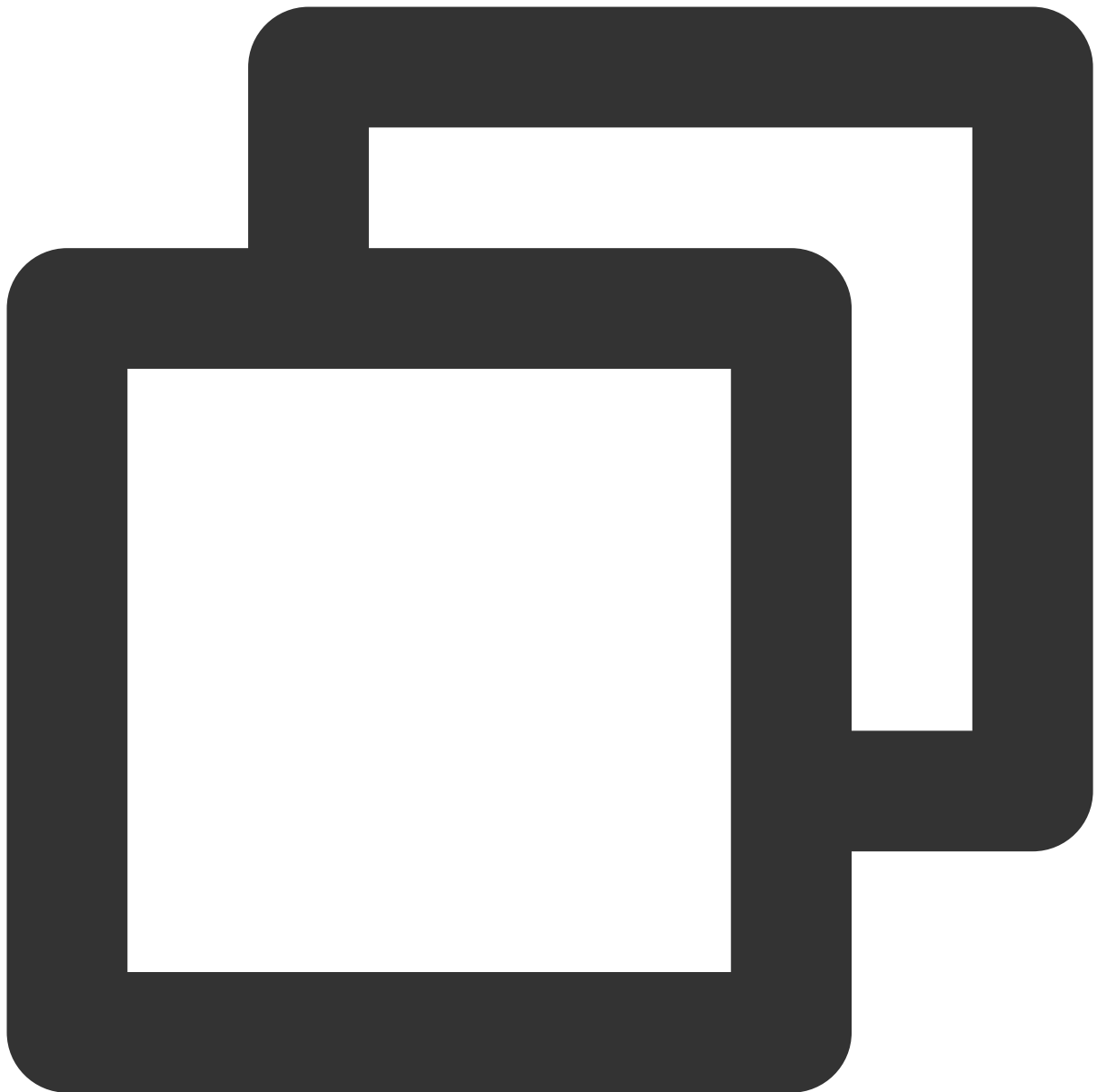
### Configuration after purchase

EMR allows you to use the [configuration distribution](#) feature to access external clusters after creating an EMR cluster.

#### Below is the assumption:

Assume that the `nameservice` of the cluster is `HDFS80238` (if it is not a high-availability cluster, the `nameservice` will usually be `masterIp:rpcport`, such as `172.21.0.11:4007`).

The `nameservice` of the external cluster to be accessed is `HDFS8088`, and the access method is as follows:



```
<property>
  <name>dfs.ha.namenodes.HDFS8088</name>
  <value>nn1,nn2</value>
</property>
<property>
  <name>dfs.namenode.http-address.HDFS8088.nn1</name>
  <value>172.21.16.11:4008</value>
</property>
<property>
  <name>dfs.namenode.https-address.HDFS8088.nn1</name>
  <value>172.21.16.11:4009</value>
</property>
```

```

</property>
  <name>dfs.namenode.rpc-address.HDFS8088.nn1</name>
    <value>172.21.16.11:4007</value>

    <property>
      <name>dfs.namenode.http-address.HDFS8088.nn2</name>
      <value>172.21.16.40:4008</value>
    </property>
  </property>
<property>
  <name>dfs.namenode.https-address.HDFS8088.nn2</name>
  <value>172.21.16.40:4009</value>
</property>
<property>
  <name>dfs.namenode.rpc-address.HDFS8088.nn2</name>
  <value>172.21.16.40:4007</value>
</property>

```

If the information above is in the EMR cluster, you can view it on the management page of [configuration distribution](#) or log in to the server to view the `/usr/local/service/hadoop/etc/hadoop/hdfs-site.xml` file.

1. Enter the [Configuration Distribution](#) page and select the `hdfs-site.xml` file of the HDFS component.
2. Change the value of the configuration item `dfs.nameservices` to `HDFS80238,HDFS8088`.
3. Add configuration items and their values.

Configuration Item	Value
<code>dfs.ha.namenodes.HDFS8088</code>	<code>nn1, nn2</code>
<code>fs.namenode.http-address.HDFS8088.nn1</code>	<code>172.21.16.11:4008</code>
<code>dfs.namenode.https-address.HDFS8088.nn1</code>	<code>172.21.16.11:4009</code>
<code>dfs.namenode.rpc-address.HDFS8088.nn1</code>	<code>172.21.16.11:4007</code>
<code>fs.namenode.http-address.HDFS8088.nn2</code>	<code>172.21.16.40:4008</code>
<code>dfs.namenode.https-address.HDFS8088.nn2</code>	<code>172.21.16.40:4009</code>
<code>dfs.namenode.rpc-address.HDFS8088.nn2</code>	<code>172.21.16.40:4007</code>
<code>dfs.client.failover.proxy.provider.HDFS8088</code>	<code>org.apache.hadoop.hdfs.server.namenode.ha.ConfiguredFailoverPr</code>
<code>dfs.internal.nameservices</code>	<code>HDFS80238</code>



`dfs.internal.nameservice` needs to be added; otherwise, if the cluster is scaled out, the "datanode" may report an error and be marked as "dead" by the `namenode` .

4. Distribute the configuration by using the [Configuration Distribution](#) feature.

For more information on relevant configurations and principles, please see the [community documentation](#).

# Mounting CHDFS Instance

Last updated : 2023-12-27 10:02:48

## Overview

CHDFS is a high-performance distributed file system with standard HDFS access protocols and hierarchical namespaces. EMR supports read/write of data in CHDFS. This document describes how to mount a CHDFS instance to an EMR cluster.

## Directions

### Scenario 1. Mounting a CHDFS instance to a new cluster

#### Note:

New cluster: This refers to clusters created on or after December 31, 2019. For new clusters, the default CHDFS mounting address of EMR is `/data/emr/hdfs/tmp/chdfs`.

An EMR cluster is automatically adaptive to CHDFS. Create a CHDFS instance and set permissions reasonably to interconnect the CHDFS instance and EMR cluster. The configuration steps are as follows:

1. Create a CHDFS instance in the same region as the EMR cluster as instructed in [Creating CHDFS Instance](#).
2. Create a permission group as needed as instructed in [Creating Permission Group](#).
3. Create permission rules as needed as instructed in [Creating Permission Rule](#).
4. Create a mount point on the same network as the EMR cluster as instructed in [Creating Mount Point](#).
5. Check the connectivity between the CHDFS instance and the EMR cluster. Use the `hadoop fs` command line tool to run the `hadoop fs -ls ofs://{mountpoint}/` command. Here, `mountpoint` is the mounting address. If the file list is output properly, the CHDFS has been successfully mounted.

### Scenario 2. Mounting a CHDFS instance to a legacy cluster

#### Note:

Legacy cluster: This refers to clusters created before December 31, 2019.

For more information on how to mount a CHDFS instance to a legacy EMR cluster, see [Mounting CHDFS Instance](#).

# Unified Management of Hive Metadata

Last updated : 2023-12-27 10:03:06

## Overview

When you choose to deploy the Hive component, the system provides two storage methods for Hive metadata: you can store the metadata in a MetaDB instance separately purchased for the cluster (default method) or associate the metadata with EMR-MetaDB or a self-built MySQL database. In the latter case, metadata will be stored in the associated database and will not be deleted when the cluster is terminated. This way, Hive metadata can be managed in a unified manner.

## Prerequisites

**Cluster default:** A MetaDB instance is automatically purchased to store Hive metadata, alongside metadata of other components. The MetaDB instance will also be terminated when the cluster is terminated. If you need to retain the metadata, please go to the TencentDB console and save it manually in advance.

Hive metadata is stored together with the metadata of Hue, Ranger, Oozie, Presto, Druid, and Superset.

A MetaDB instance needs to be purchased separately for the cluster as the metadatabase.

The MetaDB instance will be terminated when the cluster is terminated, i.e., the metadata stored in it will be deleted.

**Associate EMR-MetaDB:** When a cluster is created, the system will pull a MetaDB instance available in the cloud as the Hive metadatabase, so you don't need to purchase a MetaDB instance separately, which helps reduce your storage costs. Moreover, Hive metadata will not be deleted when the cluster is terminated.

The ID of the available MetaDB instance is the ID of an existing MetaDB instance in the EMR cluster under the same account.

If one or more components among Hue, Ranger, Oozie, Druid, and Superset are selected, a MetaDB instance will be automatically purchased to store the metadata of such components other than Hive.

To terminate the associated EMR-MetaDB instance, you need to go to the TencentDB console to do so. Hive metadatabases cannot be recovered once terminated.

Make sure that the associated EMR-MetaDB instance is in the same network as the newly created cluster.

**Associate self-built MySQL:** You can associate with your local self-built MySQL database to store Hive metadata, so you don't need to purchase a MetaDB instance separately, which helps reduce your storage costs. Please enter the address beginning with "jdbc:mysql://", username, and login password of the database correctly and make sure that the database can be connected with the cluster.

Make sure that the self-built database is in the same network as the EMR cluster.

Enter the username and password of the database correctly.

If one or more components among Hue, Ranger, Oozie, Druid, and Superset are selected, a MetaDB instance will be automatically purchased to store the metadata of such components other than Hive.

Make sure that the Hive metadata version in the self-built database is not below the Hive version in the new cluster.

## Directions

### Installing Hive when creating a cluster

1. Log in with your [Tencent Cloud account](#) and click [Buy Now](#). Select the Hive component in **Components to Deploy** on the **Software Configuration** page.

### Elastic MapReduce

1.Availability Zone and Software Configuration
2.Hardware Configuration
3.Basic Configuration

Billing Mode	<span style="border: 1px solid #00aaff; padding: 2px 5px;">Pay-as-you-go</span>
Region	<span style="border: 1px solid #00aaff; padding: 2px 5px;">South China</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">East China</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">North China</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">South Asia Pacific</span>
AZ	<span style="border: 1px solid #00aaff; padding: 2px 5px;">Guangzhou</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">Shanghai</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">Beijing</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">Mumbai</span>
Cluster Type	<span style="border: 1px solid #00aaff; padding: 2px 5px;">Guangzhou Zone 3</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">Guangzhou Zone 4</span>
Product Version	<span style="border: 1px solid #00aaff; padding: 2px 5px;">EMR-V2.2.0.tlinux</span> ▾
Required Components	<span style="border: 1px solid #00aaff; padding: 2px 5px;">HADOOP</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">DRUID</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">CLICKHOUSE</span>
Optional Components	<span style="border: 1px solid #00aaff; padding: 2px 5px;">zookeeper 3.5.5</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">knox 1.2.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">hadoop 2.8.5</span>
Hive Metadatabase	<span style="border: 1px solid #00aaff; padding: 2px 5px;">presto 0.228</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">ranger 1.2.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">spark_hadoop2.8 2.4.3</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">sqoop 1.4.7</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">storm 1.2.3</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">superset 0.35.2</span>
	<span style="border: 1px solid #00aaff; padding: 2px 5px;">zeppelin 0.8.2</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">oozie 5.1.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">livy 0.7.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">kylin 2.5.2</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">flink 1.9.2</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">flume 1.9.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">ganglia 3.7.2</span>
	<span style="border: 1px solid #00aaff; padding: 2px 5px;">hive 2.3.5</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">hudi 0.5.1</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">hue 4.6.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">impala 2.10.0</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">alluxio 1.8.1</span>
	<span style="border: 1px solid #00aaff; padding: 2px 5px;">Default</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">Associate EMR-MetaDB</span> <span style="border: 1px solid #00aaff; padding: 2px 5px;">Associate self-built MYSQL</span>

▶ [Advanced Settings](#)

Next Step: Hardware Configuration

2. Select one of the following values for **Hive metadatabase** as needed: **Cluster default**, **Associate EMR-MetaDB**, and **Associate self-built MySQL**.

3. Restrictions vary depending on the selected value. For more information, see **Prerequisites**.

## Installing Hive after a cluster is created

1. Log in to the [EMR console](#) and click **Cluster List** on the left sidebar. On the page that appears, click the **ID/Name** of the target cluster.
2. Choose **Cluster Service** > **Add Component** and select the Hive component.

### Add Component

The current cluster has no metadatabase. If you want to add a component such as Hive, Sqoop, Hue, Ranger, Oozie, and to purchase a new TencentDB instance to store metadata.

Product Version	EMR-V2.2.0.tlinux			
Optional Components	<input checked="" type="checkbox"/> zookeeper-3.5.5	<input checked="" type="checkbox"/> hadoop-2.8.5	<input checked="" type="checkbox"/> Knox-1.2.0	<input type="checkbox"/> ze
	<input type="checkbox"/> livy-0.7.0	<input type="checkbox"/> hbase-1.4.9	<input checked="" type="checkbox"/> hive-2.3.5	<input type="checkbox"/> hu
	<input checked="" type="checkbox"/> oozie-5.1.0	<input type="checkbox"/> presto-0.228	<input type="checkbox"/> ranger-1.2.0	<input type="checkbox"/> sp
	<input type="checkbox"/> storm-1.2.3	<input type="checkbox"/> sqoop-1.4.7	<input type="checkbox"/> tez-0.9.2	<input type="checkbox"/> ga
	<input type="checkbox"/> flume-1.9.0	<input type="checkbox"/> impala-2.10.0	<input type="checkbox"/> alluxio-1.8.1	<input type="checkbox"/> flir
	<input type="checkbox"/> kylin-2.5.2	<input type="checkbox"/> superset-0.35.2	<input type="checkbox"/> hudi-0.5.1	
Hive Metadatabase	<div style="display: flex; justify-content: space-between; border: 1px solid #ccc; padding: 2px;"> <span>Default</span> <span style="border: 1px solid #00aaff; padding: 2px;">Associate EMR-MetaDB</span> <span>Associate self-built MySQL</span> </div>			
Instance ID	<div style="border: 1px solid #ccc; padding: 2px; display: flex; align-items: center;"> <span>Select data</span> <span style="font-size: 10px;">▼</span> </div>			
MetaDB <span style="font-size: 12px;">?</span>	Pay-as-you-go 1 high IO TencentDB with 4,000 MB memory and 100 GB disk			
Cost				
<div style="display: flex; justify-content: flex-end; gap: 10px;"> <span style="background-color: #00aaff; color: white; padding: 5px 15px; border-radius: 3px;">Confirm</span> <span style="border: 1px solid #ccc; padding: 5px 15px; border-radius: 3px;">Cancel</span> </div>				

3. Select one of the following values for **Hive metadatabase** as needed: **Cluster default**, **Associate EMR-MetaDB**, and **Associate self-built MySQL**.

4. Restrictions vary depending on the selected value. For more information, see **Prerequisites**.

# Setting Security Groups

Last updated : 2024-01-10 10:02:25

EMR uses Tencent Cloud VPC as the underlying network. Security groups in EMR are used as virtual firewalls to control the access between the internal nodes in a cluster and access from external nodes to internal nodes. This document describes the best practices of using security groups in EMR to help you choose security group policies.

## Security Groups

A security group is a virtual firewall for stateful data packet filtering. As an important network isolation approach provided by Tencent Cloud, it is used to control network access to CVM instances (nodes). When creating an EMR cluster, you can select an existing security group. If there is no existing security group, EMR will automatically create one for you. If the number of security groups has reached the upper limit and you want to create a new one, delete those you no longer use. You can view existing security groups in the [VPC console](#).

## Use Limits and Rules

For use limits and quotas of security groups, see the **Security Group Limits** section in [Use Limits Overview](#).

A security group rule consists of:

Source: IP address of the source data (inbound) or target data (outbound)

Protocol type and protocol port: protocol type such as TCP and UDP

Policy: allow or reject access requests

## Rules for Selecting a Security Group

By default, **Select an existing security group** is selected and an EMR security group is selected. You can create a new EMR security group or select a non-EMR security group.

1. For a new EMR security group, port 22, port 30001, and necessary private network IP ranges are enabled. The security group is named in the format of "emr-xxxxxxx\_yyyyMMdd". Do not modify its name.
2. Select an existing security group available in the current region for the current instance. A security group starting with "emr" is recommended, as EMR service has been activated and necessary policies are running properly for such security groups. Security groups not starting with "emr" may lack necessary inbound and outbound rules. This may cause cluster creation failure or cluster unavailability.
3. If you add nodes in a cluster, by default, the nodes inherit the security group policy selected for the cluster when it is created.

## Details of EMR Security Group Policies

If you select a non-EMR security group when creating an EMR cluster, the following inbound and outbound rules must be included. Otherwise, the cluster creation will fail.

### Inbound rules

Source	Protocol Port	Policy	Note
10.0.0.0/8	ALL	ACCEPT	Opens IP range A.
172.16.0.0/12	ALL	ACCEPT	Opens IP range B.
192.168.0.0/16	ALL	ACCEPT	Opens IP range C.
0.0.0.0/0	ICMP	ACCEPT	Opens local ICMP.

### Outbound rules

Source	Protocol Port	Policy	Note
0.0.0.0/0	ALL	ACCEPT	Opens all outbound ports.

### Inbound rules for accessing webUI

To access the cluster service WebUI normally when using a non-EMR security group, the inbound rules must include the following policies:

Source	Protocol Port	Policy	Note
0.0.0.0/0	TCP:13000	ACCEPT	Opens port 13000 and port hue.
0.0.0.0/0	TCP:30001	ACCEPT	Opens port 30001.
0.0.0.0/0	TCP:30002	ACCEPT	Opens port 30002.
0.0.0.0/0	TCP:22	ACCEPT	Opens the remote login port.

For more information, see [Security Group](#).

# Component Configuration Sharing

Last updated : 2023-12-27 10:14:00

## Overview

You can share the components of an existing cluster with other clusters without deploying such components again. This makes it easier to manage multiple clusters with the same component configurations.

Currently supported components include Ranger, ZooKeeper, and Kerberos.

Currently supported versions include all EMR versions containing the above components.

Dependent: The current cluster is using components of other existing clusters.

Shared: One or more components of the current cluster are added to other newly created clusters.

### Caution

Shared components such as ZooKeeper, Kerberos, and Ranger are no longer deployed in dependent clusters separately, and dependencies cannot be canceled once set. When a cluster with shared components deployed is terminated, all its dependent clusters need to be terminated first. Note that if your account has any overdue payment, dependent clusters won't work properly.

## Limits

1. Your account must have the management permissions of one existing cluster.
2. When Kerberos is enabled, other clusters under the current account must have Kerberos deployed before you can enable the dependency.
3. If a dependent component involves user identity management, you need to manually sync the users in the shared cluster to the new cluster after creating it or adding a user. Note that as the current cluster doesn't deploy Kerberos, krb5 users cannot be created.

## Service Architecture

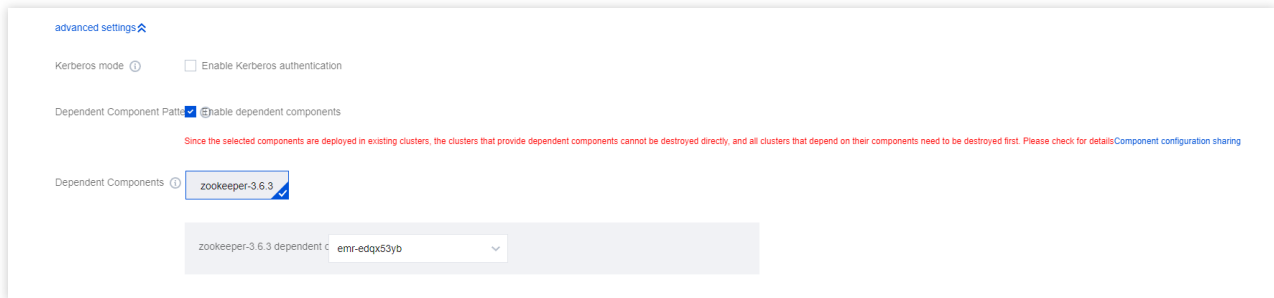
## Directions

### Purchasing a cluster

1. Go to the [purchase page](#) and select multiple components under Hadoop.
2. Click **Enable** and select the shared cluster.



3. After the new cluster is successfully purchased, relevant components will automatically depend on the selected cluster.



## Adding a component

1. Select **Cluster Service > Add Component** on the cluster details page in the [console](#)
2. Select the components to be added.
3. Click **Enable** and select the dependent components and cluster.
4. Click **OK** and wait for the components to be successfully added to the cluster.

## Cluster Information

If a cluster has dependent or shared components, the component information is displayed in **Instance info**.

### Caution

The management features of dependent components can be used only on the **Components** page of the depended-on cluster.

## Account Sync

User accounts need to be created in both the dependent and depended-on clusters.

1. Log in to the depended-on cluster and click **Create user** to create an account.
2. Log in to the dependent cluster and click **Create user** to create an account with the same username, user group, and password.
3. The dependent cluster will automatically sync the permission and usage information of the account.

emr-edqx53yb  
EMR-jhaoyjym

Cluster overview  
Instance info  
Cluster services  
Cluster resources  
Cluster monitor  
\* Dashboard **BETA**  
\* Cluster events  
\* Logs  
\* Cluster inspection  
\* Alarm records  
\* Java analysis  
Auto-scaling  
Scripts  
**Users**  
Operation logs

### Users

Help documentation

The user list shows only the user information added via the Users page.

Create user Delete

Separate keywords with "|"; press Enter to separate filter tags

<input type="checkbox"/>	Username	User group	Remarks	Creation time	Operation
<input type="checkbox"/>	root	root	-	2023-05-17 17:46:42	Reset password Download Keytab Delete
<input type="checkbox"/>	hadoop	hadoop	-	2023-05-17 17:46:42	Reset password Download Keytab Delete

Total 2 items

Lines per page 10

1 / 1 page

# Managing Cluster Instance Information

Last updated : 2023-12-27 10:26:23

## Overview

Instance information records the basic information of your EMR cluster. You can view the basic configuration, software information, and hardware information of the cluster on the **Instance Information** page.

The **Basic Configuration** section displays basic information of the cluster, such as network information, creation time, security group, high-availability switch status, master public IP, billing mode, host login method, automatic service role definition switch status, and COS switch status.

The **Software Info** section displays the cluster type, use case, product version, deployed component, MetaDB, Hive metadatabase, and Kerberos mode switch status.

The **Hardware Configuration** section displays the quantity of nodes in each type.

This document describes how to view the cluster instance information in the console.

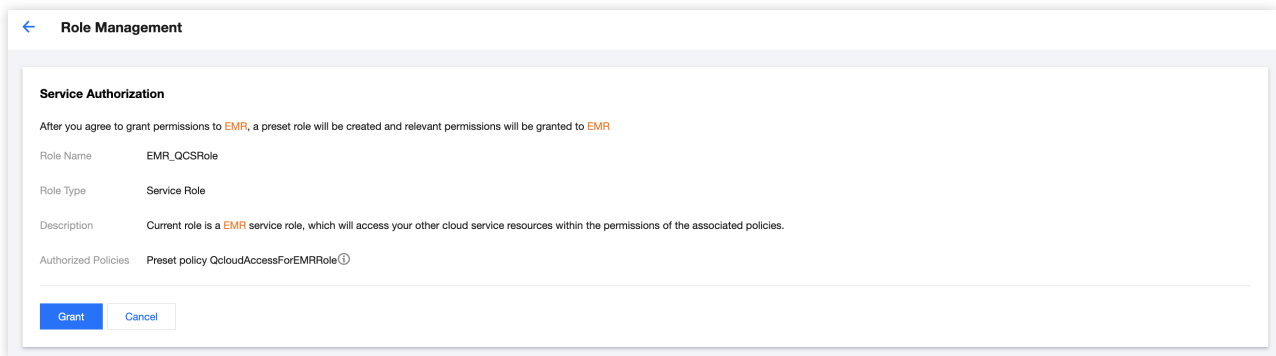
## Directions

1. After successfully creating a cluster, log in to the [EMR console](#) and click the **ID/Name** of the cluster.
2. If COS is not enabled for the cluster, click **Authorize**.

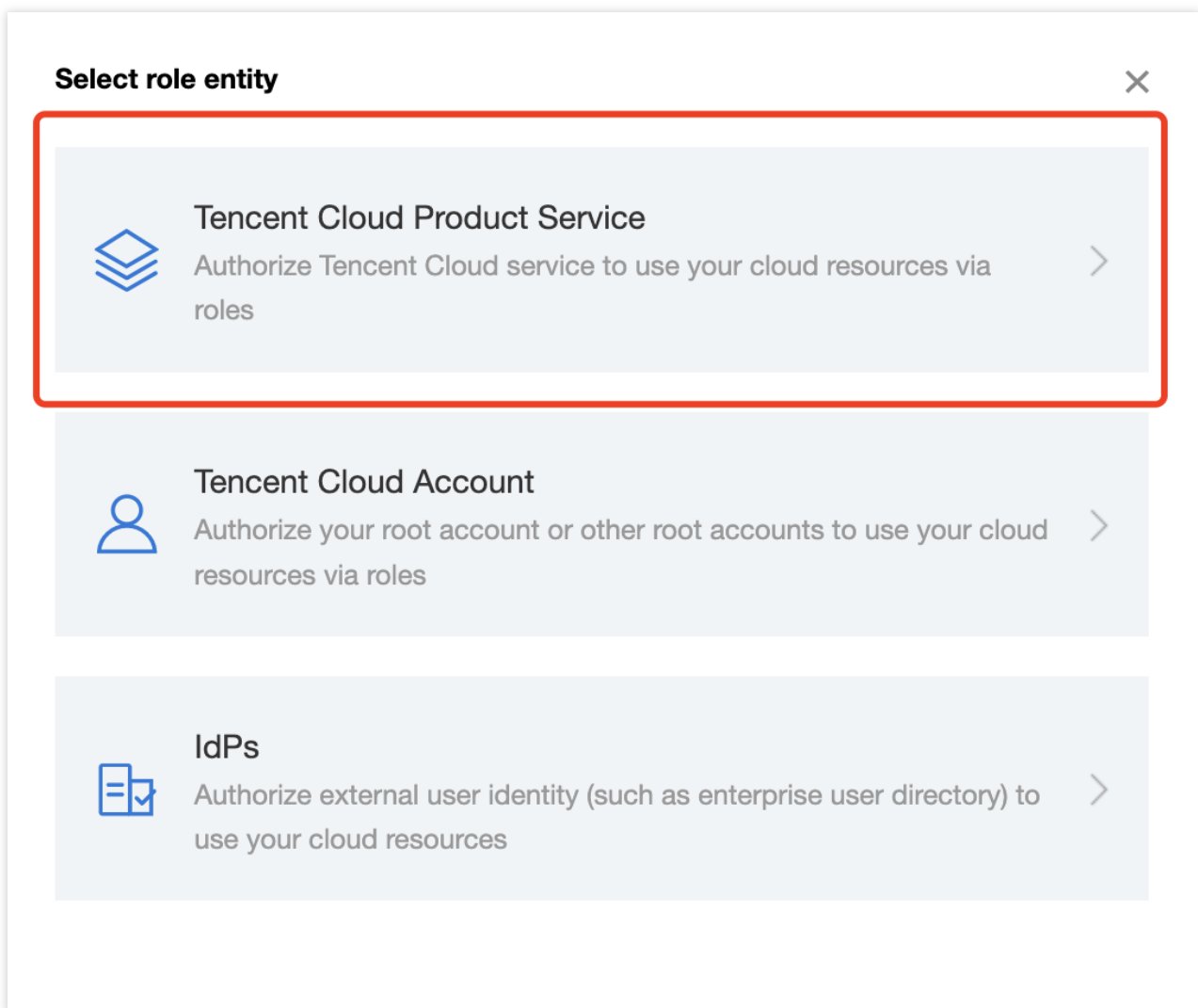
The screenshot displays the 'Instance Information' page in the Tencent Cloud EMR console. The page is divided into several sections:

- Basic Configuration:**
  - Instance ID: [Redacted]
  - Region Info: Guangzhou(Guangzhou Zone 7)
  - High Availability Cluster: Enabled
  - Network information: [Redacted]
  - Security Group: [Redacted] [Configure Security Groups](#)
  - Cloud disk encryption: Not enabled
  - Creation time: 2022-04-24 15:21:12
  - Master Public IP: [Redacted] [Check for Updates](#)
  - Billing mode: Pay-as-you-go
  - COS: Authorized
  - Custom Service Role: Not set [Set](#)
  - Host Login: Password [Set](#)
- Software Info:**
  - Cluster Type: Hadoop
  - Use Cases: Hadoop-Default
  - Product Version: EMR-V2.2.0.tlinux
  - Components to Deploy: [hdfs-2.8.5,yarn-2.8.5,zookeeper-3.5.5,knox-1.2.0,hive-2.3.5](#)
  - MetaDB: cdb-kcx3dajr
  - Hive Metadatabase: cdb-kcx3dajr
  - Kerberos mode: Not enabled
- Hardware Info:**
  - Master Node: 2
  - Core Node: 4
  - Common Node: 3

The left sidebar contains navigation options: Basic information (Instance Information, Bootstrap Actions), Cluster Service, Cluster Resource (Node Status, Resource Management), Cluster Monitoring, Auto Scaling, Cluster Scripts, and Operation Logs.



If you need refined authorization, you can set a custom service role for accessing Tencent Cloud resources during the execution of big data jobs. You should select **Tencent Cloud product service** as the service role type and **Elastic MapReduce** as the service supporting the role.



To change the host login password or method of cluster nodes after scale-out, click **Change**.

### Reset Default Password/SSH Key ×

⚠ 1. Modification of the default host login method applies only to new nodes of the cluster.  
2. You can go to [CVM console](#) to change host passwords/keys of existing nodes of the cluster. Before change, please see [Shutting Down Instances](#) to understand the potential shutdown risks.

Set PasswordAssociate SSH Key Pair

Username root

New Password \*

Confirm Password \*

ConfirmCancel

### Note

The login method set for initializing nodes in an EMR cluster. After the cluster is created, modification of the setting here applies only to new nodes.

You can go to the CVM console to change host passwords/keys of existing nodes of the cluster. Before change, see **Shutting Down Instances** to understand the potential shutdown risks.

# Node Specification Management

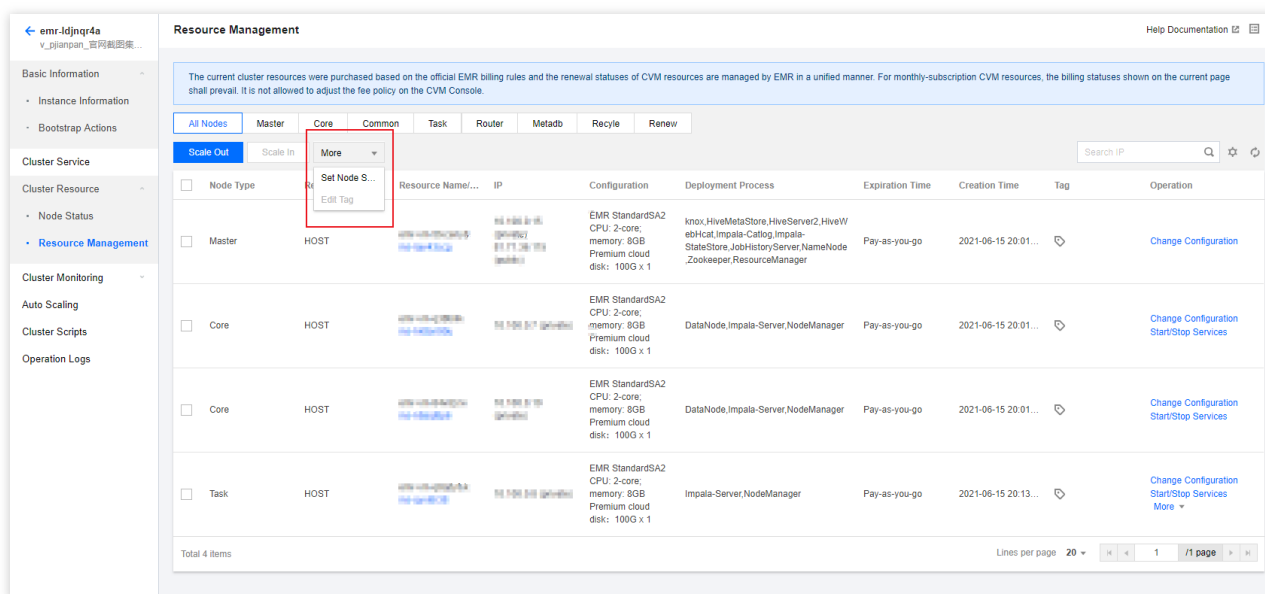
Last updated : 2023-12-27 10:26:39

## Feature Overview

Node specification management is used to set hardware specifications when adding more core, task, or router nodes. Each node type can have up to 3 specifications and will automatically select the current default specification during scaling. If the current default specification is sold out or unavailable, you can set a new default specification. You are recommended to keep the configuration of resources such as CPU cores, memory size, and disk capacity in the new specification the same as that of the existing nodes for optimal compatibility with current component parameters.

## Directions

1. Log in to the [EMR Console](#), select **Cluster List**, and click the ID/Name of the target cluster to enter the cluster details page.
2. Select **Cluster Resource > Resource Management > More > Set Node Specification** on the cluster details page



The screenshot shows the EMR Console interface for a cluster named 'emr-ldjnr4a'. The 'Resource Management' section is active, displaying a table of node specifications. The table has columns for Node Type, Host, Resource Name, IP, Configuration, Deployment Process, Expiration Time, Creation Time, Tag, and Operation. A red box highlights the 'More' dropdown menu for the first row (Master node), which contains options for 'Set Node Specification' and 'Edit Tag'.

Node Type	Host	Resource Name	IP	Configuration	Deployment Process	Expiration Time	Creation Time	Tag	Operation
Master	HOST	emr-ldjnr4a-master-1	10.10.10.10	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	knox,HiveMetaStore,HiveServer2,HiveW ebHcat,Impala-Catalog,Impala- StateStore,JobHistory,Server,NameNode _Zookeeper,ResourceManager	Pay-as-you-go	2021-06-15 20:01...		Change Configuration
Core	HOST	emr-ldjnr4a-core-1	10.10.10.11	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	DataNode,Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:01...		Change Configuration Start/Stop Services
Core	HOST	emr-ldjnr4a-core-2	10.10.10.12	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	DataNode,Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:01...		Change Configuration Start/Stop Services
Task	HOST	emr-ldjnr4a-task-1	10.10.10.13	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:13...		Change Configuration Start/Stop Services More

3. The default initial specification of the core nodes is the specification selected when the cluster is created. You can set or delete the default one for normal scaling.
4. The task and router nodes have no default specification. Please add the specification as prompted.

**Set Node Specification**

Node specification management is used to set the specifications for core, task, and router node scale-out. Up to 3 node specifications can be set for each node type. The default specifications for each node type are automatically selected for scale-out. If there is no quota of default specifications, you can set a new default specification. Please try to make the CPU, memory, disk, and other resources of the new specifications consistent with the existing nodes so that the component configuration parameters are compatible.

**Pay-as-you-go Specification**

**Core**

Type	Model	Disk	Add Time	Operation
EMR StandardSA2	2-core 8 GB	Premium cloud disk 100G * 1	2021-06-15 20:00:53	Set as default Delete
<a href="#">+ New Specification</a>				

**Task**

Type	Model	Disk	Add Time	Operation
EMR StandardSA2	2-core 8 GB	Premium cloud disk 100G * 1	2021-06-15 20:12:47	Set as default Delete
<a href="#">+ New Specification</a>				

**Router**

Type	Model	Disk	Add Time	Operation
<a href="#">+ New Specification</a>				

Confirm

# Checking and Updating Public IP

Last updated : 2023-12-27 10:26:58

## Feature Overview

The EMR console supports checking and updating the public IP on master1. After you update or add the master1 public IP, the master public IP in the cluster configuration information and the WebUI access address will be updated too.

## Directions

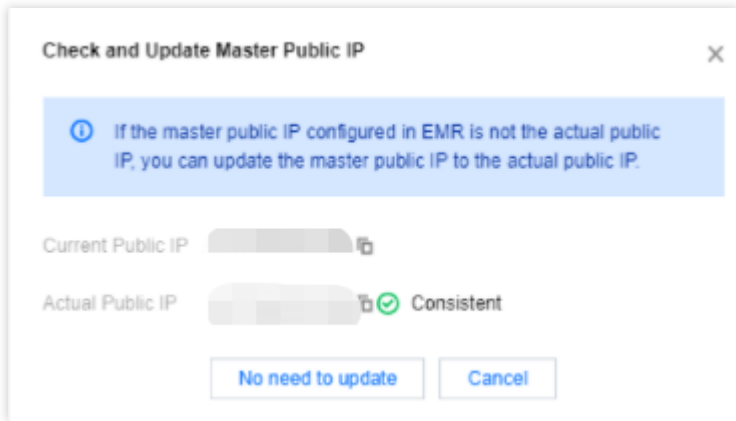
1. Log in to the [EMR console](#) and click a **cluster ID** in the cluster list to go to the instance information page. Click **Check for Updates** next to **Master Public IP** in the **Basic Configuration** section.

The screenshot displays the EMR console interface for a cluster named 'emr-6dmpunsz' (ID: Roy-emr-01). The 'Instance Information' page is active, showing the following details:

- Basic Configuration:**
  - Instance ID: [Redacted]
  - Region Info: Guangzhou(Guangzhou Zone 3)
  - High Availability Cluster: Disabled
  - Network Info: [Redacted]
  - Security Group: [Redacted]
  - Cloud disk encryption: Disabled
  - Creation Time: 2021-02-23 10:14:38
  - Master Node Public IP: [Redacted] **Check for Updates**
  - Billing Mode: Pay-as-you-go
  - COS: Authorized
  - Custom Service Role: Not set [Set](#)
- Software Info:**
  - Cluster Type: HADOOP
  - Product Version: EMR-V2.5.0
  - Component Info: [zookeeper-3.6.1,hadoop-2.8.5,knox-1.2.0](#)
  - MetaDB: None
  - Hive Metadatabase: None
  - Kerberos mode: Disabled
- Hardware Info:**
  - Core Node: 2
  - Master Node: 1

2. If the actual master public IP is different from the public IP saved in EMR, you can update the public IP saved in EMR to the actual master public IP. This page will refresh automatically after synchronization finishes.





# Cluster Scale-Out

Last updated : 2023-12-27 10:27:17

## Feature overview

When the compute and storage resources of your EMR cluster are insufficient, you can add more core and task nodes in the console. When the master node is overloaded or runs out of resources, you can scale out the cluster or add router nodes to share the load of the master node or to serve as task submitters in the cluster. You can scale the cluster at any time.

### Note

By default, the current instance specification for scale-out is the instance specification selected when the cluster was created. If the current default specification is unavailable, or if you want to adjust the scale-out configuration, you need to set it in **Node spec** as instructed in [Node Specification Management](#).

By default, the selected component will inherit the cluster-level configuration and fall into the default configuration group for that node type. You can also set the configuration of the target component through the **Specify configuration** parameter.

You cannot specify a configuration group for a ClickHouse cluster to be scaled out.

## Prerequisites

**Add router nodes:** A router node can be used as a submitter, through which you can submit YARN, Hive, and Spark computing tasks to the cluster. We recommend you select a model with larger memory, preferably not lower than the master node specification.

For a pay-as-you-go cluster, all newly added nodes support the pay-as-you-go billing mode.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Resource > Resource Management > Scale Out** and select the type of nodes to be added (core, task, or router), billing mode, optional services, and scale-out quantity as needed.

### Cluster Scale-out

Name: panjian123

Project: All projects

Node Type: Core Node Task Node Router Node

Billing Mode: Pay-as-you-go

Scale Out Components: HDFS-3.1.2 YARN-3.1.2

Deployment Process:  Show deployment process

Current Specification: EMR StandardS5 / 2-core 8 GB / Efficient cloud disk 100G \* 1  
The default node specification for scale-out. You can adjust the specification in [Node Specification](#).

Scale-out Quantity: − 1 +

Tag: [+ New Tag](#)  
Up to 5 tags can be bound

Cost:

Scale-out Service: The clients of selected services will be deployed to the new node by default.

Specify configuration: Find the target component and select the level from which to inherit the configuration.

If you choose to inherit the configuration of the cluster, an added node will inherit the cluster-level configuration and fall into the default configuration group for that node type.

If you choose to inherit the configuration of the configuration group, an added node will inherit the configuration group-level configuration and fall into the selected configuration group.

Deployment Process: Displays the information of service deployment processes after components are selected for the nodes to be added. You can edit the deployment process as needed.

Do not start services after scaling: If this option is selected during scaling, added nodes will not start the service. When needed, you can start the service as instructed in [Service Start/Stop](#).

Tag: Used to identify the added node resources.

Current Specification: The default specification.

You can set the default specification for scale-out as instructed in [Node Specification Management](#).

The default node specification is used for scale-out. You can adjust it by clicking **Set Node Specification**.

3. After selecting the desired components and number of nodes to be added, click **Confirm** and make the payment. Then, the cluster will start scaling out, which usually takes 10 to 20 minutes.

4. For ClickHouse cluster scale-out, you can add an even number of nodes in a high-availability (HA) instance, and unlimited nodes in a non-HA instance. You can choose an existing cluster or a new one for the nodes to be added.

#### Caution

There will be no data in the newly added nodes after the virtual ClickHouse cluster is scaled out. You need to migrate the data manually as the system won't automatically do it for you. In order to achieve data balance and improve resource utilization, migrate your data in time after successful cluster scaling.

# Cluster Scale-in

Last updated : 2023-12-27 10:27:35

## Overview

When the resources of your EMR cluster are excessive, you can remove task nodes in the console. When the cluster has router nodes that do not share the load of the master node or that serve as task submitters in the cluster, you can remove nodes to achieve cluster scale-in.

## Preparations

Since core nodes store data, we recommend you not terminate them to avoid data security issues. After a node is terminated, the data stored in it will be deleted. By terminating a node, you confirm that the data in it can be deleted.

Pay-as-you-go cluster: Once terminated, the cluster will not be retained in the recycle bin but will be permanently terminated. Please proceed with caution.

### Caution

Before terminating a cluster, please make sure that your data has been backed up as it cannot be recovered after cluster termination.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list.
2. On the **Cluster details** page, select **Cluster resources > Resources**, select cloud resources (task or router nodes) that can scale in from the node list. If two or more types of nodes are selected, the **Scale in** button will be unavailable.

### Scale in node ×

1 Termination options > 2 Confirm

1. If there are EIPs (including the IPs on the secondary ENI), the server will be retained after returned, and the idle IPs will continue to incur fees. If you don't need to retain it, please release it on the corresponding resource management page.

2. Please make sure that you back up the data before terminating the instance. After the instance is terminated, the data cannot be restored.

3. Please ensure that the data in the terminated nodes has been migrated. If the data hasn't been migrated, it cannot be recovered after the node is terminated. Please [migrate data] first.

1 node selected. [Learn more](#) ▼

No.	Node IP	Resource ID	Node type	Status
1	10.0.0.110	ins-5lsds90k	Task	Terminable

Graceful scale-in  [?](#)

I have read and agree to the [Termination documentation](#) [↗](#)

[Next](#)

3. In the pop-up window, confirm the instances to be terminated (removed). If the cluster metaDB is a shared metadatabase, the disk will be retained in this operation and needs to be manually removed in the CDB console.

# Auto Scaling

## Overview

Last updated : 2023-12-27 10:27:53

### Overview

You can configure scaling rules in EMR to automatically increase or reduce the computing resources of task nodes as your cluster load changes. This saves costs while quickly responding to changes in the computing needs. Automatic scaling supports two scaling policies: load-based scaling (for YARN-enabled clusters only) and time-based scaling.

### Notes

1. Automatic scaling is disabled by default. It can be either custom scaling or managed scaling. Currently, managed scaling is made available through an allowlist. To use it, [submit a ticket](#) for application.
2. Custom scaling can be either load-based or time-based. If you switch the scaling policy, the original scaling rules will be retained. However, they will be in an invalid state and will not be triggered or executed. The added nodes will be retained unless the scale-in rule is triggered.
3. In managed scaling, only **HOST** is supported as the resource type; in custom scaling, **HOST** and **POD** are supported and cannot be used at the same time. If you switch the resource type, the resource specification and instance deployment methods set for the original resource type will be retained. However, they will be in an invalid state and will not be triggered or executed. The added nodes will be retained unless a scale-in rule is triggered. Pod resources are currently made available through an allowlist. To use them, [submit a ticket](#) for application.
4. **Pay-as-you-go** and **Spot instances preferred** are supported as the instance deployment policies. However, Pod resources can be deployed only on a pay-as-you-go basis.

# Custom Scaling Configuration

Last updated : 2023-12-27 10:28:14

## Basic Settings

The **Basic settings** section allows you to set the node quantity range of the custom scaling feature, configure the elastic resource type, and configure whether to support graceful scale-in. It also displays the number of elastic node resources in the current cluster and supports quick release of elastic instances.

**Auto Scaling**

Custom scaling | Managed scaling

Policy Management | Scaling History

**Basic Settings**

Elastic node count: 1 [Release All](#)

Min node count: 1

Max node count: 20

Resource type: HOST

Global graceful scale-in:  Disable

**Scaling Specification Management**

Node selection policy: Pay-as-you-go [Modify](#)

Model	AZ	Hardware Configuration	Priority	Operati
EMR Standard55	Guangzhou Zone 7	4-core 8 GB System disk: 1 x 50GB 高效云盘 Data Disk: 1 x 200GB 高效云盘	1	<a href="#">Delete</a>

**Min node count:** The minimum number of elastic task nodes to be retained in the cluster after the auto scale-in policy is triggered.

**Max node count:** The maximum number of elastic task nodes to be retained in the cluster after the auto scale-out policy is triggered. The total number of nodes to be added based on one or more types of specifications cannot exceed the max node count.



### Edit basic settings ✕

Min node count  (0 - 9999)

Max node count  (1 - 9999)

Resource type  HOST

Switch to POD if resources are in shortage

Global graceful scale-in ⓘ

Release all: Clears all nodes added in an auto-scaling action with one click.

Release spot instances: Clears all spot instance nodes added in an auto-scaling action with one click.

Release pay-as-you-go instances: Clears all pay-as-you-go nodes added in an auto-scaling action with one click.

### Release elastic node ✕

Total elastic node count: 1

Pay-as-you-go node count: 1

Release 0 spot instances

Release All

Global graceful scale-in: This feature is disabled by default. It applies to all scale-in rules and can be disabled for individual scale-in rules.

Resource type: HOST resources are billed on a pay-as-you-go or spot basis, whereas POD resources are billed on a pay-as-you-go basis and can only be used to assume the NodeManager role of YARN.

#### Caution

When you switch the resource type, the scaling specifications and node selection policy of the new resource type apply.

## Scaling Specifications Management

Scaling specifications refer to node specifications for custom scaling. You can configure each cluster with up to five scaling specifications. When a scale-out rule is triggered, the scaling will be carried out according to the specification priority. When the high-priority specification has fewer resources than the number of resources to be added, the specification of the next priority will be used for supplement. In order to maintain the linear change of the cluster load, we recommend you keep the CPU and memory of the scaling specifications consistent.

Node selection policy: It can be **Pay-as-you-go** or **Spot instances preferred**. **Pay-as-you-go**: Only pay-as-you-go nodes are added to provide the required computing power when a scale-out rule is triggered.

**Spot instances preferred**: Spot instances will be preferred if they are available to provide the required computing power when a scale-out rule is triggered. **Min proportion of pay-as-you-go nodes**: The minimum proportion of pay-as-you-go nodes to the scale-out quantity.

### Example:

If 10 nodes are to be added and the **Min proportion of pay-as-you-go nodes** is 20%, at least two pay-as-you-go nodes will be added when a scale-out rule is triggered, with the remaining eight being spot instance nodes. When spot instance nodes are insufficient, additional pay-as-you-go nodes will be added to make up the difference.

You can add, delete, change, and query the nodes in the scaling specifications, and adjust the priority of scaling specifications as needed.

The sequence of the five specifications for scale-out is as follows (same for pay-as-you-go and spot instances): When the resources are sufficient:  $1 > 2 > 3 > 4 > 5$ .

### Example:

If five preset specifications are available and the resources are sufficient, when a scale-out rule is triggered to add 10 nodes, 10 nodes with specification 1 will be added according to the sequence, and other preset specifications will not be selected.

When the resources are insufficient:  $1 + 2 > 1 + 2 + 3 > 1 + 2 + 3 + 4 > 1 + 2 + 3 + 4 + 5$ .

### Example:

If there are eight nodes with specification 1, four with specification 2, and three with specification 3, when a scale-out rule is triggered to add 13 nodes, eight nodes with specification 1, four with specification 2, and one with specification 3 will be added following the sequence.

When a resource specification is out of stock (take specification 2 as an example):  $1 + 3 > 1 + 3 + 4 > 1 + 3 + 4 + 5$ .

### Example:

If there are eight nodes with specification 1, no nodes with specification 2 (out of stock), and three nodes with specification 3, when a scale-out rule is triggered to add 10 nodes, eight nodes with specification 1 and two nodes with specification 3 will be added according to the sequence, while specification 2 will not be selected.

If there are eight nodes with specification 1 and nodes with other preset specifications are all out of stock, when a scale-out rule is triggered to add 10 nodes, eight nodes with specification 1 will be added, with the scale-out being partially successful.



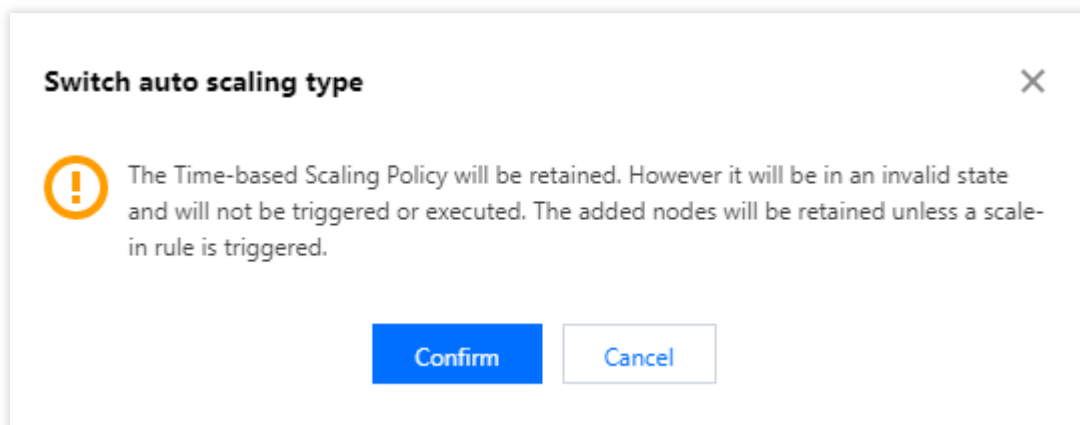
**Scaling Specification Management** ⓘ

Node selection policy ⓘ Pay-as-you-go [Modify](#)

Model	AZ	Hardware Configuration	Priority	Operati
EMR StandardS5	Guangzhou Zone 7	4-core 8 GB System disk:1 x 50GB高效云盘 Data Disk:1 x 200GB高效云盘	1	<a href="#">Delete</a>

## Scaling Rule Management

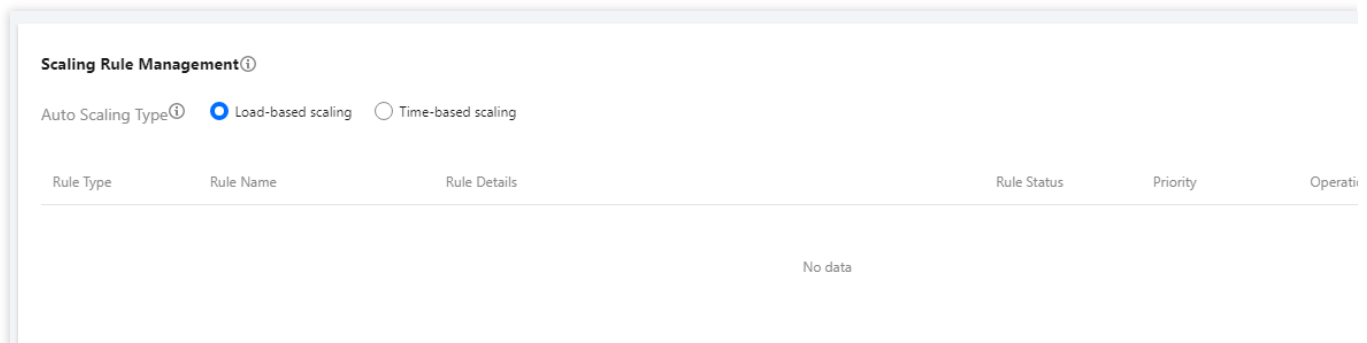
Scaling rules are business policies used to configure the trigger conditions of scaling actions and the number of nodes to be added or removed. Automatic scaling supports two types of policies: load-based scaling and time-based scaling. You can choose to use either type, but not both at the same time. When you switch the policies, the original scaling rules will be retained in an invalid state and will not be triggered. Those already added nodes will also be retained unless a scale-in rule is triggered. Each policy can be configured with up to 10 scaling rules. When two rules are triggered at the same time, the rule of the higher priority will be executed first.



To set a scaling rule, select **Load-based scaling** or **Time-based scaling** for **Auto-scaling type** in the **Scaling rule management** pane and click **Add**.

### Load-based scaling

When it is impossible to accurately estimate the peaks and valleys of cluster computing, you can configure the scaling policy based on the load to ensure that important jobs are completed on time. The load is mainly based on the preset YARN metric statistics rules and the task nodes are automatically adjusted when the preset conditions are triggered.



To add a load-based scaling rule, select **Load-based scaling** as the **Auto-scaling type**, click **Add**, and configure the following fields:

**Rule status:** Used to mark whether the rule is enabled. The default status of a rule is "Enabled". When you don't want a rule to be executed but still want to retain it, you can set the rule status to "Disabled".

**Rule name:** The name of the scaling rule. The scaling rule names in the same cluster must be unique (including scale-out and scale-in rules).

**Validity:** The load-based scaling rule can be triggered only within the validity. **Unlimited** is selected by default, and you can customize this field.

**Target service:** By default, the selected component will inherit the cluster-level configuration and fall into the default configuration group for that node type. You can also set the configuration of the target component through the **Specify configuration** parameter.

**Node label:** This field is empty by default, and the added nodes will be assigned the default label. If you have set a label, resources will be added to the node with this label.

**Load metric:** YARN load metric. You can set the condition rule for triggering the threshold based on the load metric selected here.

Category	Dimension	EMR Auto-Scaling Metric	Description
AvailableVCores	root	AvailableVCores#root	Number of virtual cores available in the root queue
	root.default	AvailableVCores#root.default	Number of virtual cores available in the root.default queue
	Custom subqueue	Example: AvailableVCores#root.test	Number of virtual cores available in the root.test queue

PendingVCores	root	PendingVCores#root	Number of virtual cores waiting to be available in the root queue
	root.default	PendingVCores#root.default	Number of virtual cores waiting to be available in the root.default queue
	Custom subqueue	Example: PendingVCores#root.test	Number of virtual cores waiting to be available in the root.test queue
AvailableMB	root	AvailableMB#root	Amount of memory available in the root queue, in MB
	root.default	AvailableMB#root.default	Amount of memory available in the root.default queue, in MB
	Custom subqueue	Example: AvailableMB#root.test	Amount of memory available in the root.test queue, in MB
PendingMB	root	PendingMB#root	Amount of memory waiting to be available in the root queue, in MB
	root.default	PendingMB#root.default	Amount of memory waiting to be available in the root.default queue, in MB
	Custom subqueue	Example: PendingMB#root.test	Amount of memory waiting to be available in the root.test queue, in MB
AvailableMemPercentage	Clusters	AvailableMemPercentage	Available memory in percentages
ContainerPendingRatio	Clusters	ContainerPendingRatio	Ratio of the number of containers to be allocated to the number of allocated containers
AppsRunning	root	AppsRunning#root	Number of running tasks in the root queue
	root.default	AppsRunning#root.default	Number of running tasks in

			the root.default queue
	Custom subqueue	Example: AppsRunning#root.test	Number of running tasks in the root.test queue
AppsPending	root	AppsPending#root	Number of pending tasks in the root queue
	root.default	AppsPending#root.default	Number of pending tasks in the root.default queue
	Custom subqueue	Example: AppsPending#root.test	Number of pending tasks in the root.test queue
PendingContainers	root	PendingContainers#root	Number of containers to be allocated in the root queue
	root.default	PendingContainers#root.default	Number of containers to be allocated in the root.default queue
	Custom subqueue	Example: PendingContainers#root.test	Number of containers to be allocated in the root.test queue
AllocatedMB	root	AllocatedMB#root	Amount of memory allocated in the root queue
	root.default	AllocatedMB#root.default	Amount of memory allocated in the root.default queue
	Custom subqueue	Example: AllocatedMB#root.test	Amount of memory allocated in the root.test queue
AllocatedMB	root	AllocatedVCores#root	Number of virtual cores allocated in the root queue
	root.default	AllocatedVCores#root.default	Number of virtual cores allocated in the root.default queue
	Custom subqueue	Example: AllocatedVCores#root.test	Number of virtual cores allocated in the root.test queue

ReservedVCores	root	ReservedVCores#root	Number of virtual cores reserved in the root queue
	root.default	ReservedVCores#root.default	Number of virtual cores reserved in the root.default queue
	Custom subqueue	Example: ReservedVCores#root.test	Number of virtual cores reserved in the root.test queue
AllocatedContainers	root	AllocatedContainers#root	Number of containers allocated in the root queue
	root.default	AllocatedContainers#root.default	Number of containers allocated in the root.default queue
	Custom subqueue	Example: AllocatedContainers#root.test	Number of containers allocated in the root.test queue
ReservedMB	root	ReservedMB#root	Amount of memory reserved in the root queue
	root.default	ReservedMB#root.default	Amount of memory reserved in the root.default queue
	Custom subqueue	Example: ReservedMB#root.test	Amount of memory reserved in the root.test queue
AppsKilled	root	AppsKilled#root	Number of tasks terminated in the root queue
	root.default	AppsKilled#root.default	Number of tasks terminated in the root.default queue
	Custom subqueue	Example: AppsKilled#root.test	Number of tasks terminated in the root.test queue
AppsFailed	root	AppsFailed#root	Number of tasks failed in the root queue

	root.default	AppsFailed#root.default	Number of tasks failed in the root.default queue
	Custom subqueue	Example: AppsFailed#root.test	Number of tasks failed in the root.test queue
AppsCompleted	root	AppsCompleted#root	Number of tasks completed in the root queue
	root.default	AppsCompleted#root.default	Number of tasks completed in the root.default queue
	Custom subqueue	Example: AppsCompleted#root.test	Number of tasks completed in the root.test queue
AppsSubmitted	root	AppsSubmitted#root	Number of tasks submitted in the root queue
	root.default	AppsSubmitted#root.default	Number of tasks submitted in the root.default queue
	Custom subqueue	Example: AppsSubmitted#root.test	Number of tasks submitted in the root.test queue
AvailableVCoresPercentage	Clusters	AvailableVCoresPercentage	Percentage of virtual cores available in the cluster
MemPendingRatio	root	MemPendingRatio#root	Percentage of memory waiting to be available in the root queue
	root.default	MemPendingRatio#root.default	Percentage of memory waiting to be available in the root.default queue
	Custom subqueue	Example: MemPendingRatio#root.test	Percentage of memory waiting to be available in the root.default queue

Statistical rule: The cluster load metric selected by the user is triggered once when the threshold is reached according to the selected aggregate dimension (average value) within a specific statistical period.

Statistical period: The statistical duration of the metric. Currently, three statistical periods are supported: 300s, 600s, and 900s.



Repeat count: The number of times that the threshold of the aggregated load metric is reached. When the repeat count is reached, the cluster will be automatically scaled.

Scale-out mode: You can select **Node**, **Memory**, or **Core**, and their values must be a positive integer.

In case of scale-out in the core or memory mode, the quantity of nodes guaranteeing the maximum computing power will be added.

**Example:**

1. In the core mode, if 10 cores are to be added, but the specification for auto-scaling is to add 8-core nodes in order of priority, then **two 8-core nodes** will be added when the rule is triggered.
2. In the memory mode, if 20 GB memory is to be added, but the specification for auto-scaling is to add 16 GB memory nodes in order of priority, then **two 16 GB MEM nodes** will be added when the rule is triggered.

Rule Type  Scale Out  Scale In

Rule Name ⓘ   
1-64 characters; supports Chinese characters, letters, digits, -, and \_

Valid Time ⓘ

Scale-out Service  HDFS-2.8.5  YARN-2.8.5

[Specify configuration](#) The component inherits the cluster-level configuration by default. To configuration, you can specify a configuration group.

Deployment Process **NodeManager**  
A deployment process refers to the process information of node deployment.

Node Label ⓘ   
The name of node label can only contain numbers, letters, - or \_. It cannot start with - or \_ and are supported.

Load Metric ⓘ

Statistical Rule ⓘ

Repeat Count ⓘ

Scale-out mode ⓘ

Resource supplement retry ⓘ  Enable

Cooldown Period ⓘ   
Cool-down time range: 0-43200 seconds

Scale-in mode: You can select **Node**, **Memory**, or **Core**, and their values must be a positive integer.

In case of scale-in in the core or memory mode, a minimum quantity of nodes will be released in reverse chronological order while keeping the business running properly, with at least one node released.

#### Example:

1. In the core mode, if 20 cores are to be released, and the cluster has three 8-core 16 GB MEM and two 4-core 8 GB MEM elastic nodes in reverse chronological order when a scale-in rule is triggered, then **two 8-core 16 GB MEM nodes** will be released.
2. In the memory mode, if 30 GB memory is to be released, and the cluster has three 8-core 16 GB MEM and two 4-core 8 GB MEM elastic nodes in reverse chronological order when a scale-in rule is triggered, then **one 8-core 16 GB MEM node** will be released.

Rule Type  Scale Out  Scale In

Rule Name ⓘ   
1-64 characters; supports Chinese characters, letters, digits, -, and \_

Valid Time ⓘ

Scale-out Service

[Specify configuration](#) The component inherits the cluster-level configuration by default. To configuration, you can specify a configuration group.

Deployment Process **NodeManager**  
A deployment process refers to the process information of node deployment.

Node Label ⓘ   
The name of node label can only contain numbers, letters, - or \_. It cannot start with - or \_ and are supported.

Load Metric ⓘ

Statistical Rule ⓘ

Repeat Count ⓘ

Scale-out mode ⓘ

Resource supplement retry ⓘ  Enable

Cooldown Period ⓘ   
Cool-down time range: 0-43200 seconds

Resource supplement retry: When auto scale-out is performed during peak hours, the number of nodes added may be less than the target number due to the lack of resources. In such a case, if the resource supplement retry policy is enabled, the system will automatically retry to request resources when there are sufficient resources of the set scaling specifications until the target number is reached or approximated. If frequently encountering this situation, you can

enable this feature. Please note that retry may extend the time of auto scale-out and this policy change may affect your business.

**Cooldown period:** The interval (60s to 43200s) before carrying out the next auto-scaling action after the rule is successfully executed.

**Graceful scale-in:** After this feature is enabled, if the scale-in action is triggered when a node is executing tasks, the node will not be released immediately. Instead, the scale-in action will be executed after the tasks are completed.

However, the scale-in action will still be executed if the tasks are not completed within the specified time.

## Create Rule

- i 1. If there are multiple preset resource specifications, we recommend you keep CPUs and memory sizes for different s consistent and match them with the resource occupation configuration of the service, so as to avoid the service proce due to the inconsistency between node hardware configuration and service configuration.
- 2. When the scale-in rule is triggered, nodes will be removed in reverse chronological order of their creation time.

Rule Type  Scale Out  Scale In

Rule Name i   
1-64 characters; supports Chinese characters, letters, digits, -, and \_

Valid Time i

Load Metric i

Statistical Rule i

Repeat Count i

Scale-in mode i

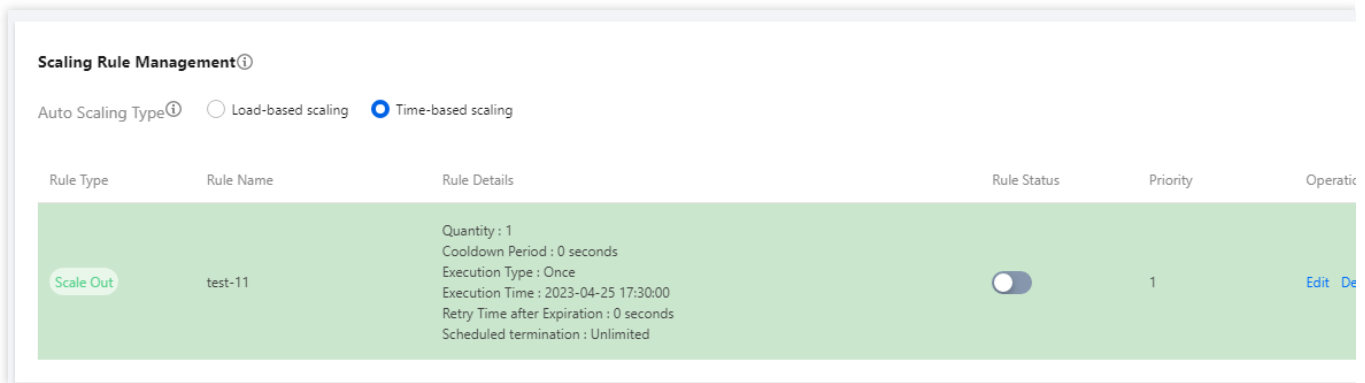
Cooldown Period i   
Cool-down time range: 0-43200 seconds

Graceful Scale-In i   Value range: 60-1800 seconds



## Time-based scaling

If there are obvious peaks and valleys in your cluster computing workload during a certain period, you can configure time-based scaling policies to ensure that important jobs are completed on time. Time-based scaling policies allows you to automatically add or remove task nodes daily, weekly, or monthly during a set time period.



To add a time-based scaling rule, select **Time-based scaling** as the **Auto-scaling type**, click **Add**, and configure the following fields:

**Rule name:** The name of the scaling rule. The scaling rule names in the same cluster must be unique (including scale-out and scale-in rules).

**Target service:** By default, the selected component will inherit the cluster-level configuration and fall into the default configuration group for that node type. You can also set the configuration of the target component through the **Specify configuration** parameter.

**Once:** Triggers a scaling action once at a specific time, accurate to the minute.

**Recurring:** Triggers a scaling action daily, weekly, or monthly at a specific time or time period.

**Retry period:** Auto-scaling may not be executed for various reasons at the specified time. After you set the retry period, the system will try to execute the scaling at a certain interval within the period until it is executed when the conditions are met.

**Rule expiration:** The time-based scaling rule is valid until the end of the date specified here.

**Scale-out mode:** You can select **Node**, **Memory**, or **Core**, and their values must be an integer other than 0.

In case of scale-out in the core or memory mode, the quantity of nodes guaranteeing the maximum computing power will be added.

#### Example:

1. In the core mode, if 10 cores are to be added, but the specification for auto-scaling is to add 8-core nodes in order of priority, then **two 8-core nodes** will be added when the rule is triggered.
2. In the memory mode, if 20 GB memory is to be added, but the specification for auto-scaling is to add 16 GB memory nodes in order of priority, then **two 16 GB MEM nodes** will be added when the rule is triggered.

Rule Type  Scale Out  Scale In

Rule Name ⓘ   
1-64 characters; supports Chinese characters, letters, digits, -, and \_

Scale-out Service  HDFS-2.8.5  YARN-2.8.5  
[Specify configuration](#) The component inherits the cluster-level configuration by default. To configuration, you can specify a configuration group.

Deployment Process **NodeManager**  
A deployment process refers to the process information of node deployment.

Node Label ⓘ   
The name of node label can only contain numbers, letters, - or \_. It cannot start with - or \_ as are supported.

Execution Type  Once  Recurring

Execution Time

Retry Time after Expiration ⓘ   
The retry time after expiration should be between 0 and 21600 seconds

Scale-out mode ⓘ    
**Node** Enable  
Core  
Memory

Cooldown Period ⓘ   
Cool-down time range: 0-43200 seconds

Scale-in mode: You can select **Node**, **Memory**, or **Core**, and their values must be an integer other than 0.

In case of scale-in in the core or memory mode, a minimum quantity of nodes will be released in reverse chronological order while keeping the business running properly, with at least one node released.

**Example:**



1. In the core mode, if 20 cores are to be released, and the cluster has three 8-core 16 GB MEM and two 4-core 8 GB MEM elastic nodes in reverse chronological order when a scale-in rule is triggered, then **two 8-core 16 GB MEM nodes** will be released.
2. In the memory mode, if 30 GB memory is to be released, and the cluster has three 8-core 16 GB MEM and two 4-core 8 GB MEM elastic nodes in reverse chronological order when a scale-in rule is triggered, then **one 8-core 16 GB MEM node** will be released.

## Create Rule

- i** 1. If there are multiple preset resource specifications, we recommend you keep CPUs and memory sizes for different specifications consistent and match them with the resource occupation configuration of the service, so as to avoid the service process being affected due to the inconsistency between node hardware configuration and service configuration.
2. When the scale-in rule is triggered, nodes will be removed in reverse chronological order of their creation time.

Rule Type  Scale Out  Scale In

Rule Name **i**

1-64 characters; supports Chinese characters, letters, digits, -, and \_

Execution Type  Once  Recurring

Execution Time

Retry Time after Expiration **i**

The retry time after expiration should be between 0 and 21600 seconds

Scale-in mode **i**

Cooldown Period **i**

Range: 0-43200 seconds

Graceful Scale-In **i**

Resource supplement retry: When auto scale-out is performed during peak hours, the number of nodes added may be less than the target number due to the lack of resources. In such a case, if the resource supplement retry policy is enabled, the system will automatically retry to request resources when there are sufficient resources of the set scaling specifications until the target number is reached or approximated. If frequently encountering this situation, you can enable this feature. Please note that retry may extend the time of auto scale-out and this policy change may affect your business.

**Cooldown period:** The interval (60s to 43200s) before carrying out the next auto-scaling action after the rule is successfully executed.

**Scheduled termination:** You can specify the usage duration for the added nodes, so that the nodes will not be affected when a scale-in rule is triggered. **Unlimited** is selected by default. You can enter an integer between 1–24 (in hours) here.

**Use cases:**

This feature is suitable when you need more computing resources for a specified period of time (within one day) and the resources should not be affected by other scale-in rules.

Resource supplement retry ⓘ  Disable  Enable

Cooldown Period ⓘ

Cool-d It must be an integer between 1 and 24

Scheduled termination ⓘ Custom  hour

Tag ⓘ

+ New Tag

Up to 5 tags can be bound

Confirm Cancel

**Rule status:** Used to mark whether the rule is enabled. The default status of a rule is "Enabled". When you don't want a rule to be executed but still want to retain it, you can set the rule status to "Disabled".

**Graceful scale-in:** After this feature is enabled, if the scale-in action is triggered when a node is executing tasks, the node will not be released immediately. Instead, the scale-in action will be executed after the tasks are completed.

However, the scale-in action will still be executed if the tasks are not completed within the specified time.

## Create Rule

- 1. If there are multiple preset resource specifications, we recommend you keep CPUs and memory sizes for different s consistent and match them with the resource occupation configuration of the service, so as to avoid the service proce due to the inconsistency between node hardware configuration and service configuration.
- 2. When the scale-in rule is triggered, nodes will be removed in reverse chronological order of their creation time.

Rule Type

Scale Out  Scale In

Rule Name ⓘ

1-64 characters; supports Chinese characters, letters, digits, -, and \_

Execution Type

Once  Recurring

Execution Time

2023-04-25  17:43

Retry Time after Expiration ⓘ

The retry time after expiration should be between 0 and 21600 seconds

Scale-in mode ⓘ

Node 

Cooldown Period ⓘ

Cool-down time range: 0-43200 seconds

Graceful Scale-In ⓘ

Value range: 60-1800 seconds

Confirm

Cancel

# Viewing Scaling Records

Last updated : 2023-12-27 10:28:32

The records of auto scaling actions can be viewed in **Scaling history**. Grading of auto scaling events is supported, and event alarm policies are set based on the event level. For more information about event levels, see [Cluster Events](#). For more information about event alarm configuration, see [Alarm Configurations](#).

## Custom Scaling Records

Supports filtering the scaling records by execution time range and searching by policy name.

Sorts by **Execution time**, and displays **Execution time**, **Policy name**, **Scaling type**, and **Execution status**. You can click **Details** in the **Operation** column to view details.

There are four auto scaling execution statuses:

**Executing**: The automatic scaling is being executed.

**Successful**: All nodes are added to or removed from the cluster.

**Partially successful**: Some nodes are successfully added or removed from the cluster, while others fail due to disk quota management or CVM inventory.

**Failed**: No node is added to or removed from the cluster.

**Resource supplement retry** displays whether this feature is enabled. If it is enabled, the retries will be displayed.

**Elastic node count** displays the details of the execution result. If the execution fails, it will display the cause of the failure as well as the solution.

**Scaling Specification** displays the instance specification and the number of added or removed nodes after the rule is triggered.

自动伸缩

策略管理 伸缩记录

今天 昨天 近7天 近30天 2022-07-07 00:00:00 至 2022-07-07 20:38:55 策略名称

执行时间	策略名称	伸缩类型	执行状态	操作
2022-07-07 18:06:27	task	扩容	成功	<a href="#">详情</a>
2022-07-07 17:20:17	task	扩容	成功	<a href="#">详情</a>
2022-07-07 16:49:45	task	缩容	成功	<a href="#">详情</a>
2022-07-07 16:24:22	task	缩容	成功	<a href="#">详情</a>
2022-07-07 16:08:52	task	缩容	成功	<a href="#">详情</a>
2022-07-07 15:48:28	task	扩容	成功	<a href="#">详情</a>
2022-07-07 15:28:02	task	缩容	成功	<a href="#">详情</a>
2022-07-07 15:07:30	task	扩容	成功	<a href="#">详情</a>
2022-07-07 14:47:08	task	扩容	成功	<a href="#">详情</a>
2022-07-07 14:16:35	task	缩容	成功	<a href="#">详情</a>

共 52 项

每页显示

**执行策略详情**
×

策略名称	负载-1021
策略类型	负载伸缩
执行状态	成功
开始时间	2023-02-22 14:43:19
结束时间	2023-02-22 14:49:22
资源补足重试	未开启
伸缩节点数	扩容信息:[扩容前:2台, 扩容后:12台, 成功:10台, 失败:0台]
伸缩规格	规格1: 付费模式: 按量计费 4台: SA2.LARGE8: CPU: 4核 内存:8GB 系统盘: 高效云盘: 50G 数据盘: 增强型SSD云硬盘: 100G x 1 规格2: 付费模式: 竞价实例 6台: SA2.LARGE8: CPU: 4核 内存:8GB 系统盘: 高效云盘: 50G 数据盘: 增强型SSD云硬盘: 100G x 1

关闭

## Managed scaling records

Supports filtering the scaling records by **Execution Time** or **Scaling Type**.

Supports sorting by **Execution Time**, **Scaling Type**, **Model Specification**, **Quantity**, **Execution Status**, or **Reason**.

There are two execution statuses of managed scaling:

Successful: The target node is added to or removed from the cluster based on the cluster load.

Failed: The target node failed to be added to the cluster based on the cluster load due to resource insufficiency. We recommend you modify the preset resource specification.

Model Specification: The target model specification and type after the rule is triggered for a scale-out or scale-in.

Quantity: The number of added or removed nodes in various specifications after the operation.

Custom scaling
Managed scaling

Policy Management
**Scaling History**

Today
Yesterday
Last 7 days
Last 30 days
2023-05-16 19:51:20 to 2023-05-23 19:51:20

Execution Time	Scaling Type	Model spec	Quantity	Execution Status	Reason
No data yet					



# Managed Scaling Configuration

Last updated : 2023-12-27 10:28:49

After the managed scaling feature is enabled, the system will continuously monitor the load of the YARN cluster and calculate the peak fluctuations in the last 10 minutes, so as to automatically add or remove task nodes. Managed scaling applies only to clusters containing the YARN component.

## Basic Settings

The **Basic settings** section allows you to set the node quantity range of the automatic scaling feature and the minimum number of pay-as-you-go nodes.

**Min number of nodes:** The minimum number of task nodes a cluster can have when the managed scale-in policy is triggered.

**Max number of nodes:** The maximum number of task nodes a cluster can have when the managed scale-out policy is triggered. The accumulated number of task nodes under one or more rules cannot exceed the maximum number of nodes.

**Min number of pay-as-you-go nodes:** The minimum number of pay-as-you-go nodes to be added after a scale-out is triggered, which is used to set the proportion of pay-as-you-go nodes and spot instances. By default, the value is the maximum number of nodes.

### For example:

If the minimum number of nodes is set to `0`, the maximum number of nodes to `100`, and the minimum number of pay-as-you-go nodes to `10`, at least 10 pay-as-you-go nodes will be added when a scale-out is triggered, with the remaining ones being spot instances. When spot instances are insufficient, additional pay-as-you-go nodes will be added to make up the difference.

## Scaling Specifications Management

Scaling specifications refer to node specifications for managed scaling. You can configure each cluster with up to five scaling specifications. When a scale-out rule is triggered, the scaling will be carried out according to the specification priority. When the high-priority specification has fewer resources than the number of resources to be added, the specification of the next priority will be used for supplement. In order to maintain the linear change of the cluster load, we recommend you keep the CPU and memory of the scaling specifications consistent. Managed scaling is supported only for host resources.

You can add, delete, change, and query the nodes in the scaling specifications, and adjust the priority of scaling specifications as needed.

The sequence of the five specifications for scale-out is as follows (same for pay-as-you-go and spot instances):

When the resources are sufficient: 1 > 2 > 3 > 4 > 5

**For example:**

If five preset specifications are available and the resources are sufficient, when a scale-out rule is triggered to add 10 nodes, 10 nodes with specification 1 will be added according to the sequence, and other preset specifications will not be selected.

When the resources are insufficient: 1 + 2 > 1 + 2 + 3 > 1 + 2 + 3 + 4 > 1 + 2 + 3 + 4 + 5.

**For example:**

If there are eight nodes with specification 1, four with specification 2, and three with specification 3, when a scale-out rule is triggered to add 13 nodes, eight nodes with specification 1, four with specification 2, and one with specification 3 will be added following the sequence.

When a resource specification is out of stock (take specification 2 as an example): 1 + 3 > 1 + 3 + 4 > 1 + 3 + 4 + 5.

**For example:**

If there are eight nodes with specification 1, no nodes with specification 2 (out of stock), and three nodes with specification 3, when a scale-out rule is triggered to add 10 nodes, eight nodes with specification 1 and two nodes with specification 3 will be added according to the sequence, while specification 2 will not be selected.

If there are eight nodes with specification 1 and nodes with other preset specifications are all out of stock, when a scale-out rule is triggered to add 10 nodes, eight nodes with specification 1 will be added, with the scale-out being partially successful.

## Managed scaling monitoring metrics

Managed scaling monitors many metrics and calculates the suggested number of nodes under each metric. Then, it determines on a scale-out or scale-in based on the number of nodes.

Managed Scaling Monitoring Metric	Description
AvailableMemPercentage	Available memory in percentages
AvailableVCoresPercentage	Proportion of virtual cores available in YARN in percentages

Statistical Rule: The cluster load metric is set to process the peak loads in the last 10 minutes based on the specified aggregation dimension within a statistical period.

Statistical Period: The statistical duration of the metric, which is 1 minute.

By default, managed scaling applies the principle of quick scale-out and cautious and graceful scale-in.

# Repairing Disks

Last updated : 2023-12-27 11:02:43

## Overview

Local disk replacement events are automatically monitored in the EMR console. After disk replacement, you can initialize the new disk in the console on your own.

### Caution

After you receive a faulty disk notification from the CVM and repair or replace the physical disk as instructed in the notification, the disk repair operation is triggered in the EMR console.

When a disk is replaced, all data on the disk is lost. Make sure that the data on the disk is backed up prior to replacement.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the corresponding cluster in the cluster list.
2. On the cluster details page, choose **Cluster Resource > Resource Management** and then repair the disk on the node where the disk is replaced.
3. In the disk repair process, the services on the current node will be restarted, during which both the services and node are unavailable. Therefore, we recommend you repair a disk during off-peak business hours.

## Kudu Service Recovery

### Caution

If there are multiple local disks and one or more of them use the EMR disk repair feature, the node where the disks are located will run the KuduServer service.

Due to the limitation of Kudu's `fs_data_dirs` feature, to ensure normal startup of KuduServer after one or more disks are formatted, all data directories on the KuduServer node are empty. You should confirm that these directories are not used by any businesses other than Kudu.

Scenario:

Under **Cluster Service** in the EMR console, you can view the health status of the KuduServer on the node where the disk is replaced. The health status is unavailable:

Data consistency check and recovery:

1.1 Ensure that the directory (as described below) is used exclusively for Kudu. If the directory is used for any other purpose, move the relevant data to another directory that is not configured as an `fs_data_dirs` directory before proceeding with the following steps.

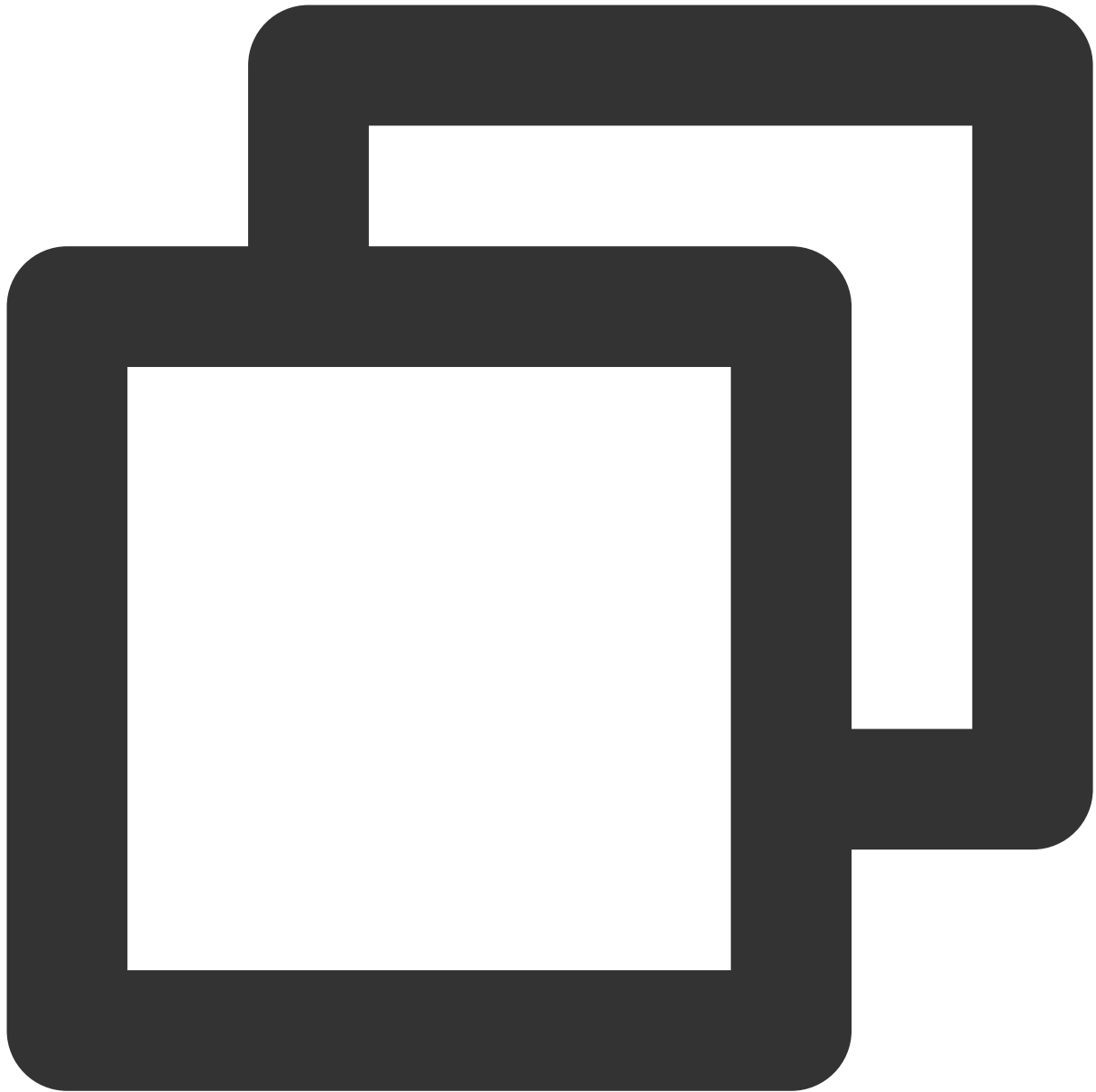
Specific directory: View the `/usr/local/service/kudu/conf/tserver.gflags` file:

```
--fs_data_dirs=/data/emr/kudu/tserver,/data1/emr/kudu/tserver
--webserver_doc_root=/usr/local/service/kudu/www
--fs_wal_dir=/data/emr/kudu/tserver/wal
--raft_get_node_instance_timeout_ms=300000
--log_dir=/data/emr/kudu/log
--fs_metadata_dir=/data/emr/kudu/tserver/meta
```

1.2 Log in to the abnormal node of the local disk to view logs: `/data/emr/kudu/log/kudu-tserver.INFO` :

```
[0110 14:16:50.918087 96777 minidump.cc:244] Setting minidump size limit to 20M
[0110 14:16:50.918205 96777 env_posix.cc:2179] Not raising this process' open files per process limit of 1000000; it is already as high as it can go
[0110 14:16:50.918251 96777 file_cache.cc:492] Constructed file cache file cache with capacity 400000
[0110 14:16:50.918663 96777 hybrid_clock.cc:249] auto-selected time source: builtin
[0110 14:16:50.920179 96777 hybrid_clock.cc:583] waiting up to --ntp_initial_sync_wait_secs=60 seconds for the clock to synchronize
[0110 14:16:50.927374 96777 hybrid_clock.cc:601] HybridClock initialized: now 1673331410927647 us; error 18281 us; skew 500 ppm
[0110 14:16:50.927525 96777 webserver.cc:395] Webserver started at http://0.0.0.0:8050/ using document root /usr/local/service/kudu/www and password file <none>
[0110 14:16:50.927855 96777 server_base.cc:612] This appears to be a new deployment of Kudu; creating new FS layout
E0110 14:16:50.938181 96777 tablet_server_main.cc:481 Already present: RunTabletServer() failed: FS layout already exists; not overwriting existing layout: unable to create fi
ready exist: /data/emr/kudu/tserver,/data1/emr/kudu/tserver
```

Run the following commands as a root user to remove inconsistent data:



```
rm -rf /data/emr/kudu/tserver/*  
rm -rf /data1/emr/kudu/tserver/*
```

The commands assume that `/data/emr/kudu/tserver/` and `/data1/emr/kudu/tserver/` are configured in `fs_data_dirs`. For more information, view `/usr/local/service/kudu/conf/tserver.gflags`.

1.3 Observe the service status of KuduServer in the console.

#### Note

If you encounter any issues, [submit a ticket](#).



# Graceful Scale-In

Last updated : 2023-12-27 11:06:02

## Overview

After graceful scale-in is enabled, if the scale-in action is triggered when a node is executing tasks, the node will not be released immediately. Instead, it will be released after completing the tasks. Graceful scale-in is available for both automatic scaling and manual scale-in.

### Note

YARN, HBase, and Presto (renamed Trino in EMR v2.7.0 and v3.40 or later) support graceful scale-in. However, Presto cannot be scaled in gracefully in Ranger, Kerberos, and OpenLDAP integration scenarios.

## Directions

### Auto-scaling

Auto-scaling allows you to enable or disable graceful scale-in for all scale-in rules. This feature is called global graceful scale-in and is disabled by default. When you add or edit a single scale-in rule, graceful scale-in is enabled by default, and the default duration is 60 seconds (valid range: 60–1800 seconds).

### Note

When global graceful scale-in and a single rule are enabled, graceful scale-in takes effect for the rule.

1. Log in to the [EMR console](#), click the **ID/name** of the target cluster to enter the cluster details page, and click **Auto-scaling**.
2. In the **Scaling rule management** section on the **Auto-scaling** page, click **Add rule** and add a scale-in rule.

### Manual scale-in

When you try to manually remove a node, graceful scale-in is disabled by default. When you enable this feature, the default duration is 60 seconds (valid range: 60–1800 seconds).

1. Click the **ID/name** of the target cluster to enter the cluster details page. Then, select **Cluster resources > Resources**.
2. Select the node to remove and click **Scale in**. In this case, graceful scale-in is disabled by default. You can enable it and set a duration.
3. After finishing your settings, click **Next**, confirm the node information, and click **Start termination**.

# Disk Update Check

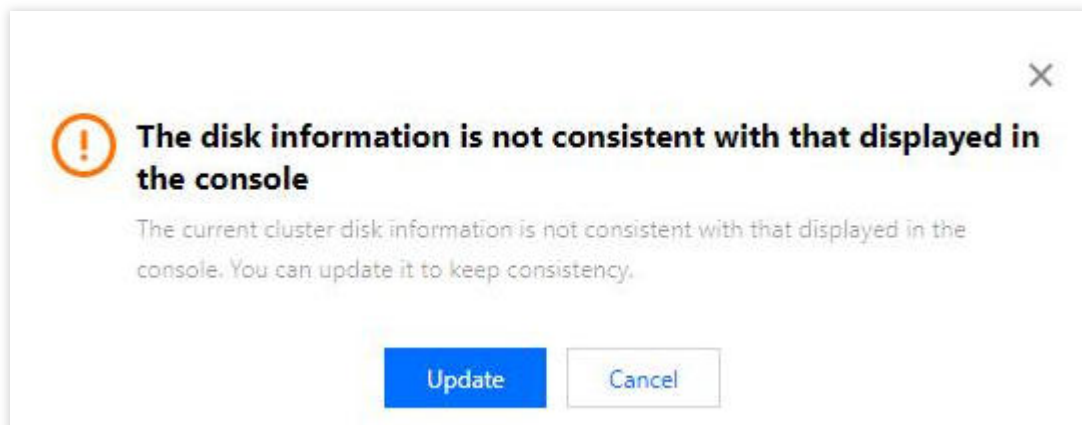
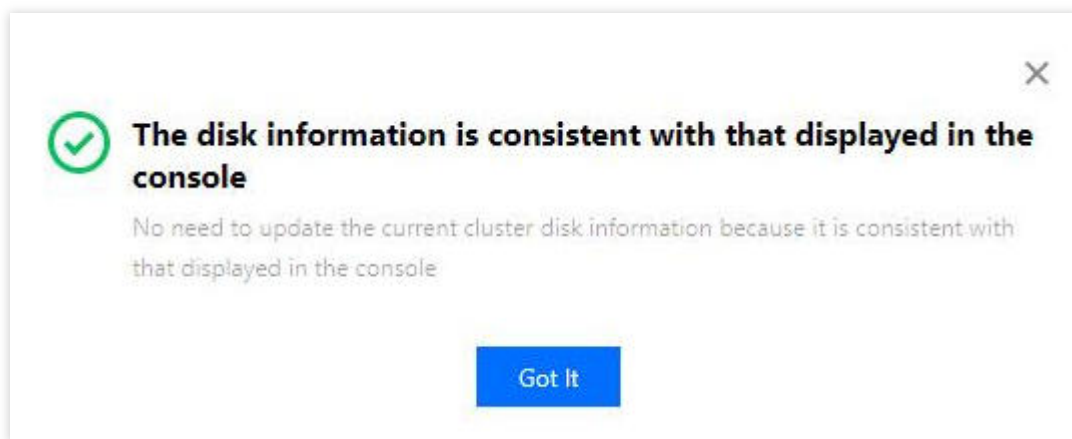
Last updated : 2023-12-27 11:06:24

## Feature overview

This feature checks whether the cluster disk information is consistent with that displayed in the console and supports performing updates to ensure consistency.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the **Cluster list** to enter the cluster details page.
2. On the cluster details page, select **Cluster Resource** to enter the **Resource Management** page. Select **More > Check disk update**. If the cluster disk information is inconsistent with the information displayed in the console, click **Update**, and the disk usage, total disk space, and disk space usage of the cluster will all be updated.





# Scaling up Cloud Disks

Last updated : 2023-12-27 11:06:40

## Overview

If the data storage space of a node becomes insufficient as your business grows, you need to expand the space. This document describes how to scale up cloud disks in the EMR console.

### Caution

You can scale up only cloud data disks but not system disks and local disks.

You cannot batch scale up cloud data disks on multiple nodes.

For your data security, we recommend you create snapshots of your cloud disks before scale-up.

To prevent data loss, a disk can be scaled up only but not scaled down.

## Scaling up Cloud Disks

### Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of a target cluster in the cluster list to go to the cluster details page.
2. Click the **Resource Management** tab and then click **Scale up cloud data disk** in the **Operation** column of the target node to enter the settings page.

The screenshot shows the 'Resource Management' page in the EMR console. It features a table with columns for Resource ID, Node type, Resource type, IP, Configuration, Creation time, Expiration time, and Operation. Three nodes are listed: one Master node and two Core nodes. The 'Operation' column for each node contains 'Change Configuration' and 'More' links. A 'Start/Stop Services' dropdown menu is open over the 'More' link of the bottom Core node, with 'Scale up cloud data disk' highlighted in red.

Resource ID	Node type	Resource type	IP	Configuration	Creation time	Expiration time	Operation
[Redacted]	Master	HOST	[Redacted]	EMR StandardS5 CPU: 8-core; memory: 16GB System disk: Premium cloud disk 50G x 1 Data Disk: Premium cloud disk 200G x 1	2023-04-25 17:19:39	Pay-as-you-go	Change Configuration More
[Redacted]	Core	HOST	[Redacted]	EMR StandardS5 CPU: 4-core; memory: 8GB System disk: Premium cloud disk 50G x 1 Data Disk: Premium cloud disk 200G x 1	2023-04-25 17:19:40	Pay-as-you-go	Change Configuration More
[Redacted]	Core	HOST	[Redacted]	EMR StandardS5 CPU: 4-core; memory: 8GB System disk: Premium cloud disk 50G x 1 Data Disk: Premium cloud disk 200G x 1	2023-04-25 17:19:41	Pay-as-you-go	Change Configuration More

Total 3 items

Lines per page: 20

Start/Stop Services

- Renew
- Set auto-renewal
- Scale up cloud data disk

3. If multiple cloud data disks are mounted to the current node, you can batch scale them up to the same capacity.

### Scale up cloud data disk

1 Select cloud data disk > 2 Change size

**Notes:**  
We strongly recommend that you snapshot the cloud disks before scale-up to avoid misoperation-related damage to the file system.  
Only disk scale-up is allowed to prevent data loss.

Cloud data disks selected: 1 [See Less](#)

Cloud disk ID	Billing mode	Expiration time	Current size
disk-gea2qs74	Pay-as-you-go	-	200GB

Common target size:  250 GB

Cost:

[Back](#) [Confirm](#) [Disable](#)

4. Disks will be initialized automatically after scale-up, and you don't need to manually update the disk information.

# Changing Configurations

Last updated : 2023-12-27 11:06:56

## Overview

In actual use, you may find that the configurations of the nodes in your cluster need to be upgraded, especially when the CPU or memory resources of the master nodes are insufficient. This document describes how to change the instance configuration in the [EMR console](#).

### Caution

The node will be shut down during the change. Note that the shutdown may affect the normal use of the cluster and even interrupt your business. Proceed with caution.

The size of data disks and system disks cannot be changed.

## Prerequisites

1. After the configurations of pay-as-you-go nodes are changed, the billing tier will restart from the first tier. For monthly subscribed clusters, you need to make up the difference.
2. The configurations of local disk models, Pod resources, and spot instance models cannot be changed.
3. If you batch adjust configurations, the system will automatically deduct fees one by one. Make sure your account has sufficient balance.
4. The refund will be credited to your Tencent Cloud account at the ratio of cash to trial credit paid upon purchase, but the discount amount or voucher (if any) will not be refunded.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. Select **Cluster Resource** on the cluster details page to enter the **Resource Management** page. Select the target node and **change the configuration**. Batch change is supported, but you can only change the configurations of nodes in the same billing mode to the same configuration.

The screenshot displays the Tencent Cloud Elastic MapReduce console interface. At the top, there are tabs for node types: All nodes, Master, Core, Common, Task, Router, Metadb, Recycle, and Renew. Below these are buttons for Scale Out, Scale In, and a More dropdown menu. The More menu is open, showing options: Check disk update, Set Node Specification, Edit tag, Set auto-renewal, and Change Configuration (highlighted with a red box). The main area shows a table of nodes with columns for Node type, Configuration, Creation time, and Expiration time. The table contains three rows of nodes, all of which are checked. The first row is a Master node, and the other two are Core nodes. The configuration for all nodes is EMR StandardSA2 with 4-core, 8GB memory, and 50G x 1 system disk. The creation times are 2022-10-25 15:58:23, 2022-10-25 15:58:25, and 2022-10-25 15:58:27. The expiration time for all nodes is Pay-as-you-go. At the bottom left, it says 'Total 3 items' and at the bottom right, 'Lines per page 20'.

3. On the configuration adjustment page, confirm the relevant information, read carefully the notes, and select **I have read and understood the notes and agree to the operation**.
4. On the **Select Target Configuration** tab, select the model, instance type, model list, and other configuration items. After confirming the cost, click **Start Adjustment**.
5. The fees incurred by adjusting the configurations of different nodes to the same configuration will be displayed on the billing details page.

### Change Configuration

1 **Select Target Configuration** > 2 Cost details > 3 Shutdown notes

**i**

- The configuration change does not apply to local models and pod resources.
- The configuration change does not apply to data and system disks.
- If you want to change resources of the corresponding component after the configuration change, redeliver the configuration "Configuration management" and restart the service.

Nodes selected: 1 [See Less](#) ▾

Resource ID	Node type	Current configuration	Billing Period	Operati
[blurred]	master	EMR StandardSA2 CPU: 4-core; memory: 16GB	-	Adjustal

Select a target configuration

Model  Standard  MEM Optimized  Compute

Type  Standard SA2  Standard S5

Model List **i**  ▾

Total cost to be frozen [blurred]

6. (Optional) To adjust the resources of the component after configuration adjustment, you need to deliver the configuration again in **Configuration Management** and restart the service.

### Change Configuration

1 **Select Target Configuration** >
 2 **Cost details** >
 3 **Shutdown notes**

i • Costs in a batch configuration change will be deducted item by item. Please ensure your account balance is sufficient.

• Discounts or vouchers (if any) used in the purchase will not be returned.

• If the configuration is changed, the pay-as-you-go nodes will be charged again from the first tier. Please proceed with caution.

Resource ID	Node type	Current configuration	Target configuration	Billing Period
emr-vm-7922rjab ins-qj24e5kc	master	EMR StandardSA2 CPU: 4-core; memory: 16GB	Standard SA2 CPU: 8-core, memory: 16 GB	-

I have read and understood the notes and agree to the operation

Back
Next
Cancel

### Caution

The YARN resources will be automatically adjusted according to the model and specification by default. After configuration adjustment, the size of the resources will change as the specification changes and does not need to be adjusted manually.

If you have manually adjusted the configuration of YARN resources, then after configuration adjustment, you need to modify the parameter values of the `yarn.nodemanager.resource.cpu-vcores` and `yarn.nodemanager.resource.memory-mb` configuration items in **Configuration Management**, click **Save configuration** to deliver the configuration, and restart the NodeManager service for the configuration of YARN resources to be updated.

# Automatic Replacement

Last updated : 2023-12-27 11:07:18

## Overview

The system continuously monitors task nodes and router nodes in a cluster for any abnormal running status. If any exceptions are detected, the system automatically purchases nodes of the same model to replace the affected nodes. Meanwhile, alarms are sent to notify users of the replacement result.

### Caution

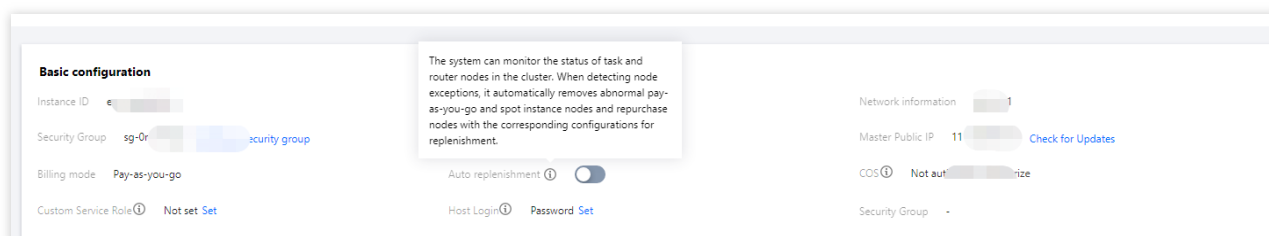
When "Instance Termination Protection" is enabled for nodes, this action cannot be triggered.

## Replacement Principle

1. Only pay-as-you-go and spot instance nodes support automatic replacement.
2. The system purchases only nodes of the same model in the same billing mode as abnormal nodes for automatic replacement.
3. When automatic replacement is not enabled, you can still receive alarms in the event of any node abnormalities.
4. Automatic replacement and exception monitoring are not supported for Pod nodes.

## Directions

1. Log in to the [EMR console](#) and click **Cluster List** in the left sidebar. On the page that appears, click the **ID/Name** of the cluster for which you want to enable automatic replacement.
2. Choose **Instance Information > Basic Configuration** and enable **Automatic Replacement**.



# Exporting Software Configuration

Last updated : 2023-12-27 11:07:38

## Overview

You can export the software configuration parameters of existing clusters in the [EMR console](#), so that you can reuse these parameters for [software configuration](#) to quickly create a cluster in the future.

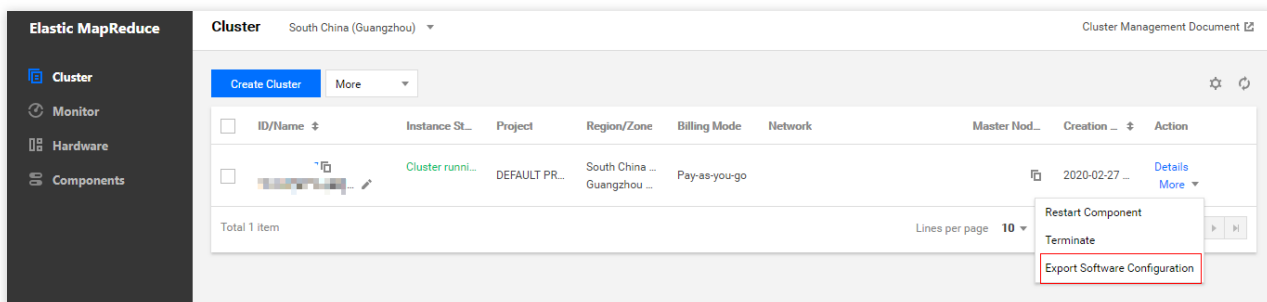
### Note

You can export configuration files at the cluster but not configuration group or node level.

To reuse the configuration of an existing cluster for a new cluster, we recommend you export only the modified configuration files of the existing cluster but not all the configuration files.

## Directions

1. Log in to the [EMR console](#) and go to the cluster list page.
2. In the **Action** column of the target cluster, select **More > Export Software Configuration**.



3. Select the files to be exported and click **Export Configuration** to download the software configuration files.



### Export Software Configuration ✕

Components Involved in Cluster Software Configuration Parameters: HDFS, YARN  
**Select configuration files:**

- Select All
- HDFS
  - core-site.xml
  - hadoop-env.sh
  - hdfs-site.xml
  - log4j.properties
- YARN

# Cluster Scripts

Last updated : 2023-12-27 11:07:55

## Feature Overview

The cluster script feature allows you to run a script on multiple nodes at a time for higher efficiency. Only one cluster script can be run in a cluster at a time. If a cluster script is running (such as installing a third-party software or modifying the running environment of the cluster), you cannot submit and execute new cluster scripts.

### Caution

Only files in COS can be selected as the script to run.

Only nodes in the current cluster can be selected to run the script on.

You can set custom parameters based on your business requirements.

The EMR console does not verify the scripts you run. Therefore, running a custom script is risky, so please operate with caution.

## Prerequisites

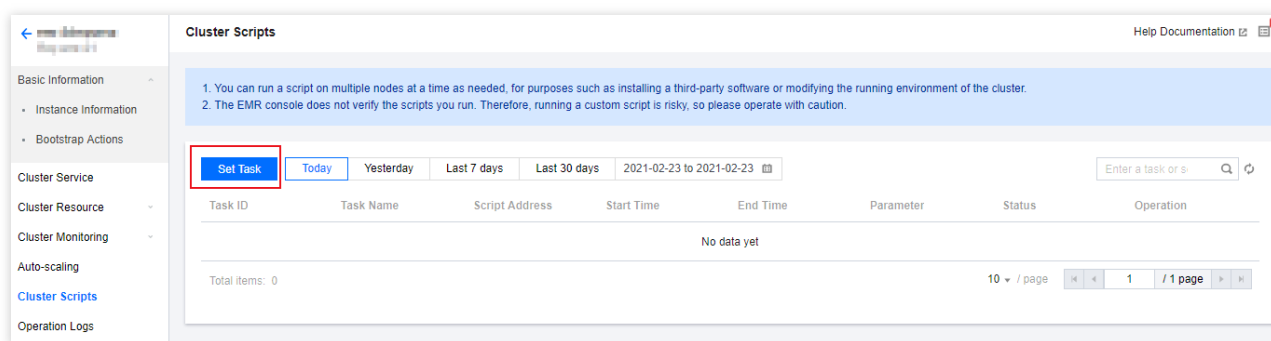
The cluster script feature is only available for clusters that are running.

The script to be run must be a shell script file in the COS STANDARD storage class.

To use the cluster script feature, you must grant EMR the permission to access COS.

## Directions


1. Log in to the [EMR console](#) and click a cluster ID in the cluster list to go the instance information page. Click **Cluster Scripts > Set Task**.




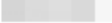

2. Set the **Task Name**, **Script**, **Nodes**, and **Custom Parameter** fields. After that, click **Run** to generate a task in the task list.

### Set Task

Task Name \*   
The length should be 6-36 characters. Chinese, letters, numbers, -, and \_ are supported.

Script \*   
Select a shell script file in the COS STANDARD storage class.

Nodes \*  

<input type="checkbox"/> Node Type	Node IP	Deploy Task	Deployment Process
<input type="checkbox"/> core		HDFS, FILEBEAT, YARN	DataNode, Filebeat, NodeManager
<input type="checkbox"/> master		YARN, HDFS, ZOOKEEPER, FILEBEAT, KNOX	Ldap, NameNode, QuorumPeerMain, ResourceManager, Filebeat, Gateway, JobHistoryServer

Selected nodes (0):

Custom Parameter

3. There are various task statuses depending on the execution results, including successful, failed, partially failed, etc. You can click **Details** to view details.

The screenshot shows the 'Cluster Scripts' interface for an EMR cluster. At the top, there are instructions: '1. You can run a script on multiple nodes at a time as needed, for purposes such as installing a third-party software or modifying the running environment of the cluster. 2. The EMR console does not verify the scripts you run. Therefore, running a custom script is risky, so please operate with caution.' Below this is a filter bar with tabs for 'Today', 'Yesterday', 'Last 7 days', 'Last 30 days', and a date range '2021-02-23 to 2021-02-23'. A search box is also present. The main table lists tasks with the following data:

Task ID	Task Name	Script Address	Start Time	End Time	Parameter	Status	Operation
191	Roy-001	[Redacted]	2021-02-23 10:19:52	2021-02-23 10:19:53		Running	Details Delete

At the bottom, it shows 'Total items: 1' and a pagination control set to '10 / page' with '1 / 1 page'.

The 'Details Roy-001' dialog box provides more information about the running task. It states: 'This script is run on 1 node(s). Successful: 0; failed: 0; running: 1.' Below this are two buttons: 'Copy Successful Node IPs' and 'Copy Failed Node IPs'. The following table shows the execution details:

Node IP	Node ...	Start Time	End Time	Execu...	Running Result
[Redacted]	core	2021-02-23 10:19...	2021-02-23 10:19...	Running	↑ stdout: stderr:

At the bottom of the dialog are 'Confirm' and 'Cancel' buttons.

4. A cluster script may run successfully on some nodes and fail on other nodes. You can batch copy the failed nodes to run the script again.

# Cluster Termination

Last updated : 2023-12-27 11:08:14

## Feature Overview

When you no longer need an EMR cluster, you can terminate it in the [EMR console](#).

## Prerequisites

Pay-as-you-go cluster: once terminated, the cluster will not be retained in the recycle bin but will be completely terminated and cannot be recovered. Please do so with caution.

Before terminating a cluster, please make sure that your data has been backed up as it cannot be recovered after termination.

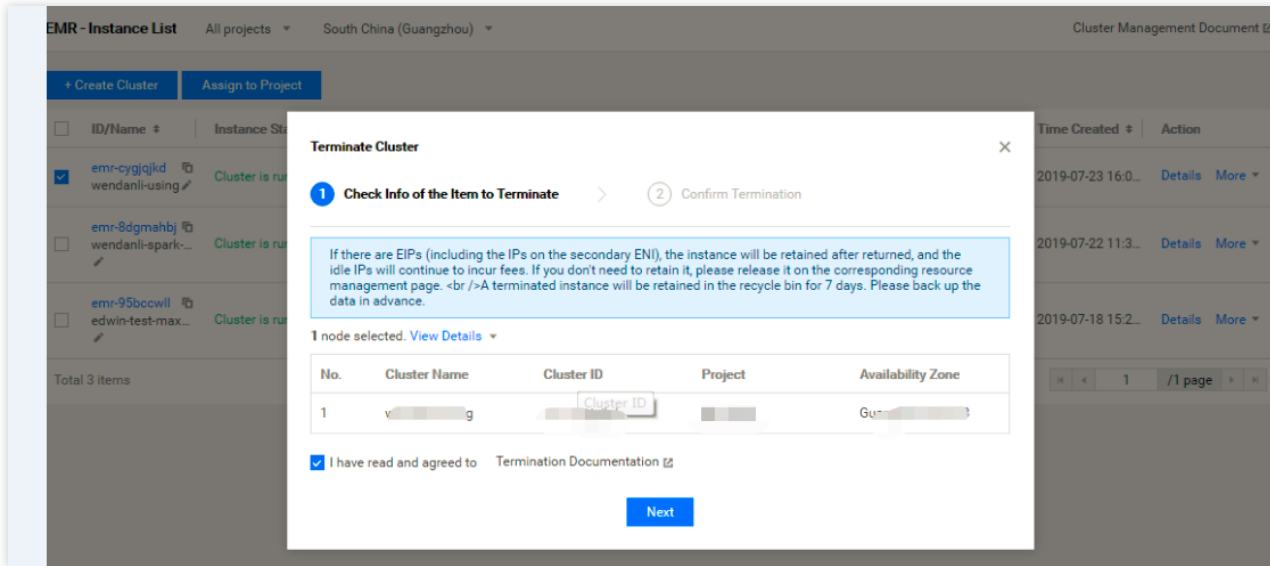
If there is an EIP (an IP with a secondary ENI), the instance will be retained once returned, and the idle IP will continue to incur fees. If you don't need to retain it, please release it on the corresponding resource management page.

## Directions

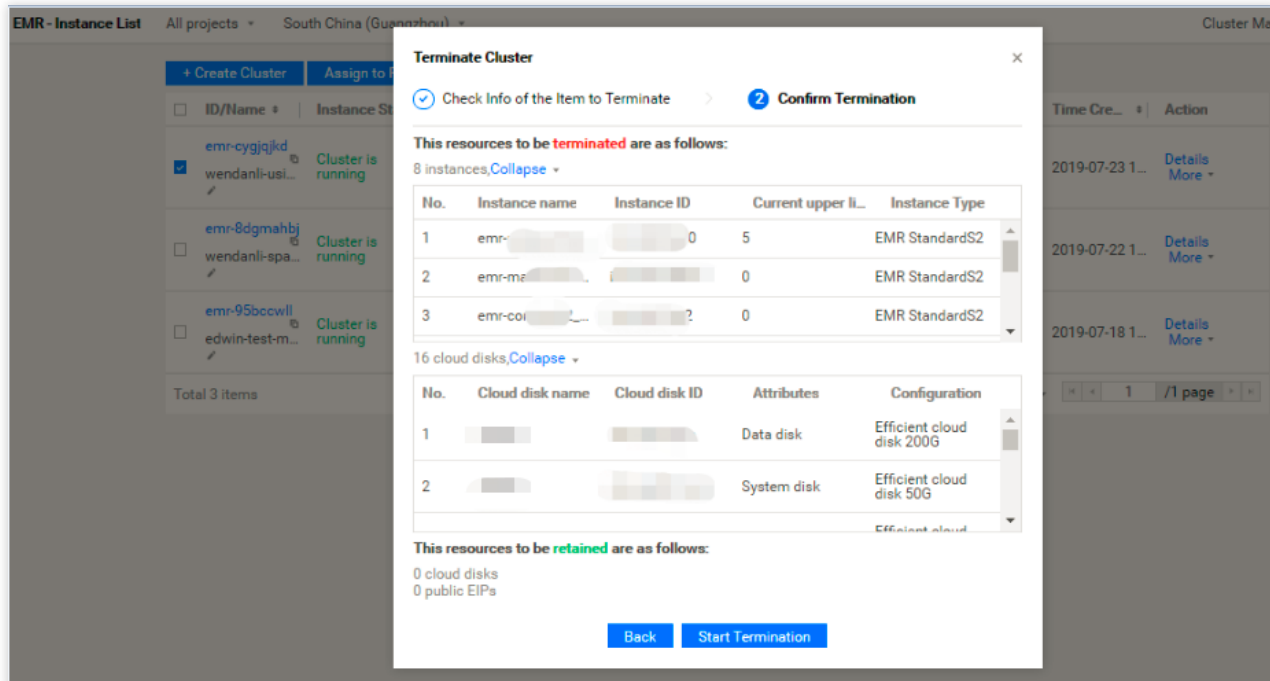
### Caution

If MetaDB in the cluster to be terminated is associated with an external cluster as a Hive metadatabase, it will be retained when the cluster is terminated; if you no longer need it, please go to the TencentDB console to terminate it. Hive metadatabases cannot be recovered once terminated. Please do so with caution.

Log in to the [EMR console](#), select **Action > More > Terminate** to enter the cluster termination page. Confirm the information of the cluster that needs to be terminated. After confirming that everything is correct, check **I have read and agree to** and click **Next**.



After confirming that everything is correct on the **Confirm Termination** tab, click **Start Termination** to terminate the cluster.



# Operation Logs

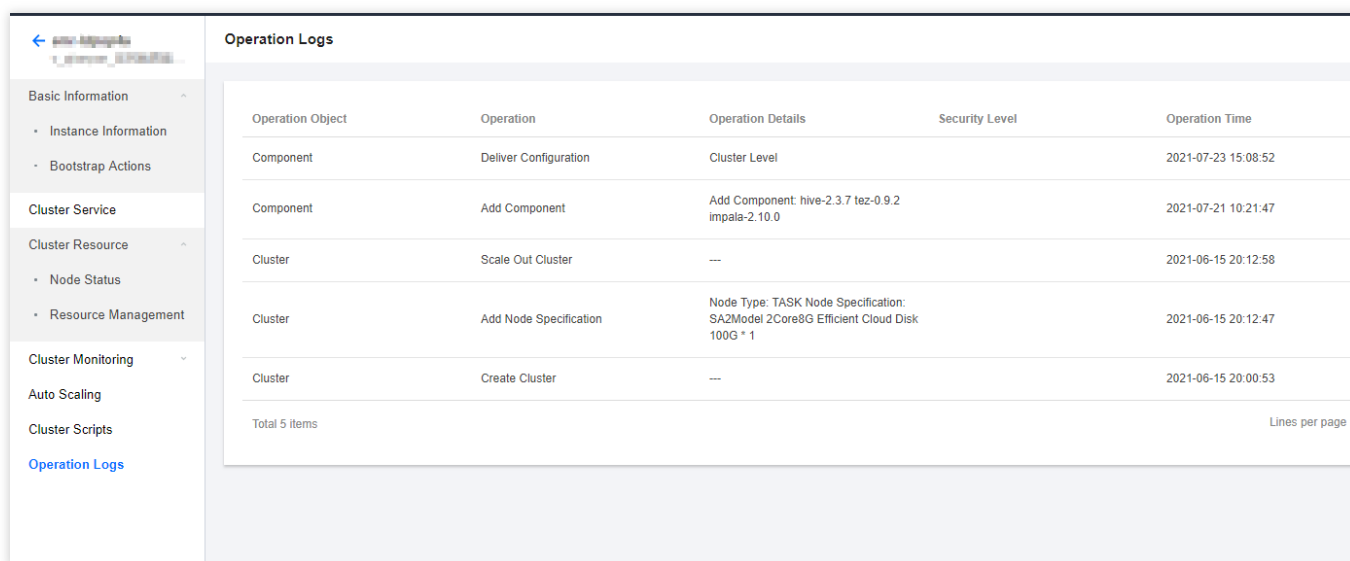
Last updated : 2023-12-27 11:08:30

## Feature Description

Operation logs record the operations you performed on clusters in the EMR console, such as creating and scaling clusters.

## Directions

After successfully creating a cluster, log in to the [EMR console](#), **select a region in the top-left corner of the cluster list**, click the **ID/Name** of the target cluster to enter the cluster details page, and click **Operation Logs** on the left.



Operation Object	Operation	Operation Details	Security Level	Operation Time
Component	Deliver Configuration	Cluster Level		2021-07-23 15:08:52
Component	Add Component	Add Component: hive-2.3.7 tez-0.9.2 impala-2.10.0		2021-07-21 10:21:47
Cluster	Scale Out Cluster	---		2021-06-15 20:12:58
Cluster	Add Node Specification	Node Type: TASK Node Specification: SA2Model 2Core8G Efficient Cloud Disk 100G * 1		2021-06-15 20:12:47
Cluster	Create Cluster	---		2021-06-15 20:00:53
Total 5 items				Lines per page

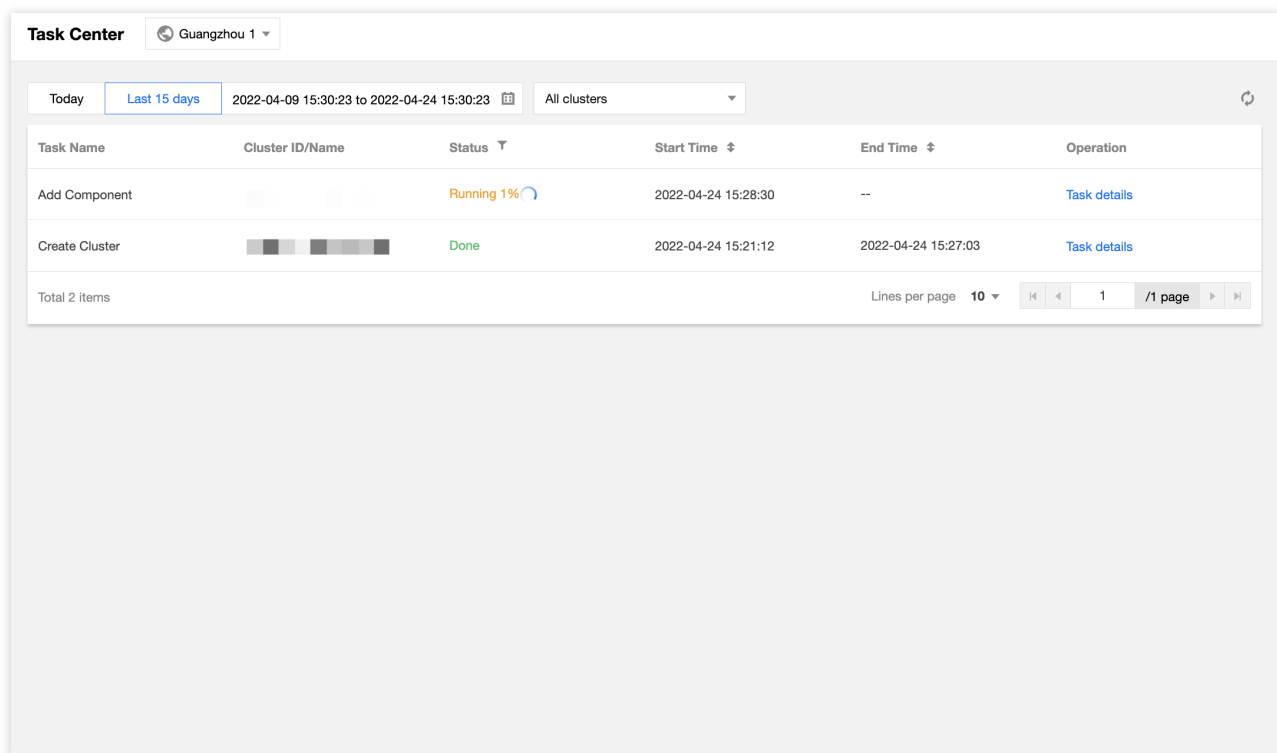
# Task Center

Last updated : 2023-12-27 11:08:48

EMR has a **Task Center** where you can view the execution status of all tasks in your clusters and retry, cancel, and display error information for tasks.

## Task List

Log in to the [EMR console](#) and click **Task Center** on the left sidebar to view the status, start time, end time, and operation information of all tasks in one or all clusters in the current region.



Task Name	Cluster ID/Name	Status	Start Time	End Time	Operation
Add Component		Running 1%	2022-04-24 15:28:30	--	<a href="#">Task details</a>
Create Cluster		Done	2022-04-24 15:21:12	2022-04-24 15:27:03	<a href="#">Task details</a>

Total 2 items

Lines per page 10

Log in to the [EMR console](#), click **Cluster List** on the left sidebar, select a cluster, and click **Task** in the top-right corner to view the status, start time, end time, and operation information of all tasks in the cluster.



**Instance Information**

Help Documentation

**Basic Configuration**

Instance ID: [redacted]      Region Info: Guangzhou(Guangzhou Zone 7)      High Availability Cluster: Enabled

Network information: [redacted]      Security Group: [redacted] [Configure Security Groups](#)      Cloud disk encryption: Not enabled

Creation time: 2022-04-24 15:21:12      Master Public IP: [redacted] [Check for Updates](#)      Billing mode: Pay-as-you-go

COS: Not authorized [Authorize](#)      Custom Service Role: Not set [Set](#)      Host Login: Password [Set](#)

**Software Info**

Cluster Type: Hadoop

Use Cases: Hadoop-Default

Product Version: EMR-V2.2.0.tlinux

Components to Deploy: [hdfs-2.8.5,yarn-2.8.5,zookeeper-3.5.5,knox-1.2.0,hive-2.3.5](#)

MetaDB: cdb-kcx3dajr

Hive Metadatabase: cdb-kcx3dajr

Kerberos mode: Not enabled

**Hardware Info**

Master Node: 2

Core Node: 3

Common Node: 3

## Task Details

Click **Task Details** to view task parameters and completion status of execution steps.

Task Parameters					
ClusterName	ceshi123	CoreSize	2	MasterSize	1
SoftInfo	zookeeper-3.5.5,hadoop-2.8.5,knox-1.2.0	SupportHA	false		

No.	Step Name	Status	Start Time	End Time	Operation
0	Confirm Order	Done	2020-05-07 18:12:46	2020-05-07 18:12:46	-
1	Create CVM	Done	2020-05-07 18:12:47	2020-05-07 18:13:04	-
2	Create TencentDB	Done	2020-05-07 18:12:47	2020-05-07 18:12:47	-
3	Bind tag	Done	2020-05-07 18:13:06	2020-05-07 18:13:06	-
4	Initialize security group	Done	2020-05-07 18:13:10	2020-05-07 18:13:10	-

### Task details

Task Parameters

CoreSize 1 DeployProcess DataNode,NodeManager,Filebeat

Node Type Core

No.	Step Name	Status	Start Time	End Time	Operation
1	Create Order	Done	2022-04-24 15:36:17	2022-04-24 15:36:18	-
2	Apply For Resource	Done	2022-04-24 15:36:19	2022-04-24 15:36:37	-
3	Bind tag	Done	2022-04-24 15:36:38	2022-04-24 15:36:39	-
4	Initialize security group	Done	2022-04-24 15:36:39	2022-04-24 15:36:41	-
5	Initialize resource	Done	2022-04-24 15:36:41	2022-04-24 15:36:42	-
6	Prepare for scale-out	Done	2022-04-24 15:36:42	2022-04-24 15:36:42	-
▶ 7	Initialize service	Done	2022-04-24 15:36:43	2022-04-24 15:40:01	<a href="#">Run Details</a>
8	End task	Done	2022-04-24 15:40:03	2022-04-24 15:40:03	-

[Confirm](#) [Cancel](#)

## Run Details

In some operation steps in **Task Details**, you can click **Run Details** to view the completion status of the corresponding steps.

Elastic MapReduce Task details (Scale Out Core)

Cluster List  
Container-Based Cluster  
Task Center

**Task Parameters**

CoreSize 1 DeployProcess DataNode,NodeManager,Filebeat Node Type Core

No.	Step Name	Status	Start Time	End Time	Operation
1	Create Order	Done	2022-04-24 15:36:17	2022-04-24 15:36:18	-
2	Apply For Resource	Done	2022-04-24 15:36:19	2022-04-24 15:36:37	-
3	Bind tag	Done	2022-04-24 15:36:38	2022-04-24 15:36:39	-
4	Initialize security group	Done	2022-04-24 15:36:39	2022-04-24 15:36:41	-
5	Initialize resource	Done	2022-04-24 15:36:41	2022-04-24 15:36:42	-
6	Prepare for scale-out	Done	2022-04-24 15:36:42	2022-04-24 15:36:42	-
7	Initialize service	Done	2022-04-24 15:36:43	2022-04-24 15:40:01	<a href="#">See Less</a>
Node's IP State Start Time End Time ErrorDetails					
No data yet					
8	End task	Done	2022-04-24 15:40:03	2022-04-24 15:40:03	-

**Task details** ✕

**Task Parameters**

CoreSize 1 DeployProcess DataNode,NodeManager,Filebeat

Node Type Core

No.	Step Name	Status	Start Time	End Time	Operation
1	Create Order	Done	2022-04-24 15:36:17	2022-04-24 15:36:18	-
2	Apply For Resource	Done	2022-04-24 15:36:19	2022-04-24 15:36:37	-
3	Bind tag	Done	2022-04-24 15:36:38	2022-04-24 15:36:39	-
4	Initialize security group	Done	2022-04-24 15:36:39	2022-04-24 15:36:41	-
5	Initialize resource	Done	2022-04-24 15:36:41	2022-04-24 15:36:42	-
6	Prepare for scale-out	Done	2022-04-24 15:36:42	2022-04-24 15:36:42	-
7	Initialize service	Done	2022-04-24 15:36:43	2022-04-24 15:40:01	<a href="#">See Less</a>
Node's IP State Start Time End Time ErrorDetails					
No data yet					

[Confirm](#) [Cancel](#)

# Managing Service

## Managing Users

Last updated : 2023-12-27 11:09:05

### Overview

This feature allows you to manage (add, edit, or delete) users in an EMR cluster easily. New users can submit Hadoop cluster tasks.

#### Note:

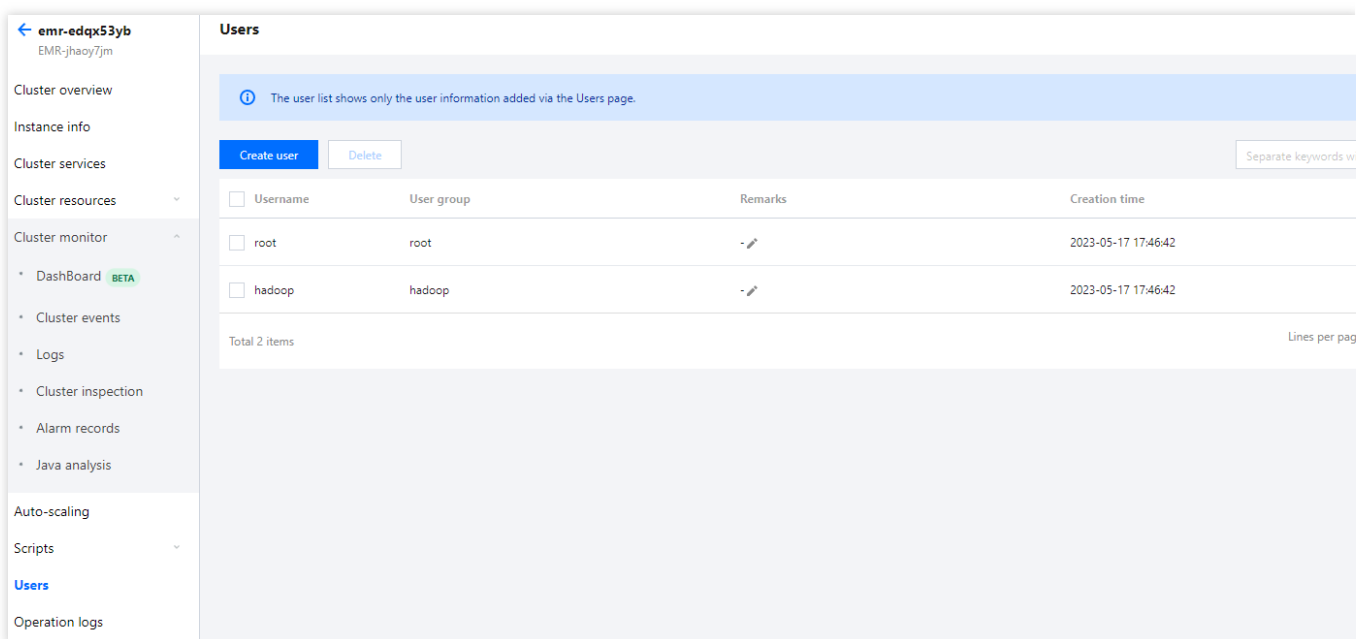
User management is available only for EMR-v2.6.0 and EMR-v3.2.1 and above.

You need to manually trigger the delivery of configurations in `ranger-ugsync-site.xml` and restart the EnableUnixAuth service to sync user configurations.

Deleting users and resetting passwords may cause a running task to fail.

### Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of a cluster in the cluster list to enter the cluster details page.
2. Click **Users**. On the displayed page, you can add and delete users in batches, reset passwords, and download keytabs.



The screenshot displays the 'Users' management interface in the EMR console. On the left is a navigation sidebar with options like 'Cluster overview', 'Instance info', 'Cluster services', 'Cluster resources', 'Cluster monitor', 'Auto-scaling', 'Scripts', 'Users', and 'Operation logs'. The main content area is titled 'Users' and contains a blue informational banner stating 'The user list shows only the user information added via the Users page.' Below this are 'Create user' and 'Delete' buttons, and a search input field labeled 'Separate keywords w'. A table lists the users:

<input type="checkbox"/>	Username	User group	Remarks	Creation time
<input type="checkbox"/>	root	root	- /	2023-05-17 17:46:42
<input type="checkbox"/>	hadoop	hadoop	- /	2023-05-17 17:46:42

At the bottom of the table, it indicates 'Total 2 items' and 'Lines per pag'.

3. Click **Create user** to create a user. **Username**, **User group**, and **Password** are required and **Remarks** is optional.

### Create user

**i** 1. Supports creating multiple users at a time.  
2. A username or user group name must be 1–30 characters long and contain letters, digits, hyphens, and underscores.

User Info

Username*	User group* <b>i</b>	Remarks
Enter	Enter	Max 128 characters
<a href="#" style="color: #007bff; text-decoration: none;">+ Add</a>		

Password \*   
8–30 characters; supports letters, digits, -, \_, !, @, #, \$, and %

Confirm password \*

4. Manually trigger the delivery of configuration for ranger-ugsync-site.xml and restart the service.

Log in to the [EMR console](#), select the target cluster in the cluster list, and click *\*Cluster services* to enter the cluster service list.

Select **Operation > Configurations** in the upper-right corner of the Ranger service panel.

On the **Configurations** page, select `ranger-ugsync-site.xml`, click **Edit configuration** and make no modification. Then, click **Save configuration** below, and select **Save and deliver** in the pop-up window.

Return to the **Roles** page, select the EnableUnixAuth service, and click **Restart service**.

5. Reset a password.

On the user management page, find the user whose password needs to be changed and click **Reset password** on the right. Enter the new password and confirm, and click **Confirm**.

### Reset password ✕

**!** Resetting the password may cause running tasks to fail. Please confirm this operation.

New password   
8–30 characters; supports letters, digits, -, \_ !, @, #, \$, and %

Confirm new password

#### 6. Download a keytab.

On the user management page, find the user for whom you want to download the keytab and click **Download keytab**. The keytab can be used to log in to the cluster.

#### Users

**i** The user list shows only the user information added via the Users page.

Separate keywords with ";"

<input type="checkbox"/>	Username	User group	Remarks	Creation time
<input type="checkbox"/>	test-11	hadoop	panjian	2023-07-13 15:47:54
<input type="checkbox"/>	root	root	-	2023-05-17 17:46:42
<input type="checkbox"/>	hadoop	hadoop	-	2023-05-17 17:46:42

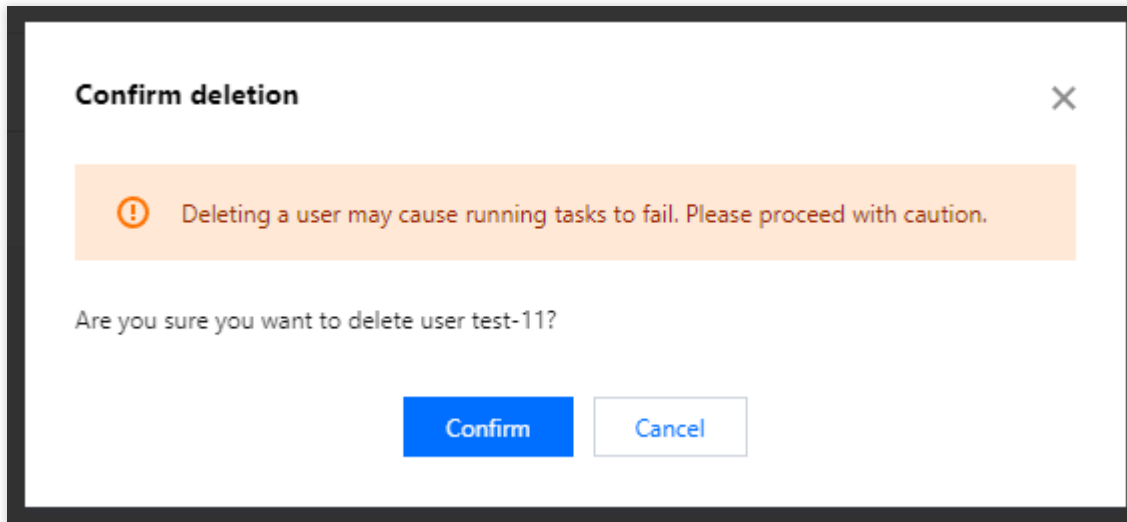
Total 3 items Lines per page 10

#### Caution

Keytab downloading is available only for Kerberos clusters.

#### 7. Delete a user.

On the user management page, find the user to be deleted and click **Delete** on the right. Then click **Delete**.



# Adding Components

Last updated : 2023-12-27 11:09:22

## Feature Description

This document describes how to add components in the EMR console.

### Caution

You need to manage the components through **Cluster Service**. Component changes made directly by logging in to a node (such as adding a component) will not be synced to the console and thus cannot be further managed. Components on a different EMR version or component version cannot be added. Instead, you can only add components on the current EMR version.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Service > Add Component** to add a component not installed in the cluster.

Component name	Status	Version	Native WebUI Access Address ⓘ	Access Info
ZOOKEEPER	Running	3.4.9		QuorumPeerMain IPC: [redacted]
HDFS	Running	3.1.2	https://[redacted]gateway/emr/hdfs	NameNode IPC: [redacted] zkfc IPC: JournalNode IPC: [redacted]
YARN	Running	3.1.2	https://[redacted]gateway/emr/yarn	ResourceManager IPC: [redacted] NodeManager IPC: [redacted] JobHistoryServer IPC: [redacted]



3. If there is no metadatabase in the cluster and Hue, Ranger, Oozie, Druid, and Superset components are to be installed, you need to purchase a TencentDB instance as the metadata store. You cannot add the Kudu component to a non-HA cluster.

4. There are two storage options for Hive metadata: you can store the metadata in the MetaDB (default option) or associate the metadata with EMR-MetaDB or a self-built MySQL database. In the latter case, metadata will be stored in the associated database and will not be deleted when the cluster is terminated.

### Add Component

The current cluster has no metadatabase. If you want to add a component such as Hive, Sqoop, Hue, Ranger, Oozie, and P purchase a new TencentDB instance to store metadata.

Cluster Version	EMR-V3.0.0.tlinux			
Optional Components	<input checked="" type="checkbox"/> zookeeper-3.4.9	<input checked="" type="checkbox"/> hadoop-3.1.2	<input checked="" type="checkbox"/> Knox-1.2.0	<input checked="" type="checkbox"/> sqoop-1.4.6
	<input type="checkbox"/> hbase-2.2.0	<input checked="" type="checkbox"/> hive-3.1.1	<input checked="" type="checkbox"/> hue-4.4.0	<input type="checkbox"/> oozie-4.1.0
	<input type="checkbox"/> presto-0.222	<input type="checkbox"/> ranger-2.0.0	<input type="checkbox"/> spark_hadoop3.1-2.4.3 ...	<input type="checkbox"/> scalding-0.12.0
	<input type="checkbox"/> tez-0.9.2	<input type="checkbox"/> flume-1.9.0	<input type="checkbox"/> impala-2.10.0	<input type="checkbox"/> aliyun
	<input type="checkbox"/> flink-1.8.1			

Hive Metadatabase

Default
Associate EMR-MetaDB
Associate self-built MYSQL

Instance ID

Select data
▼

MetaDB ?

Pay-as-you-go 1 high IO TencentDB with 4,000 MB memory and 100 GB disk

Cost

Confirm
Cancel

5. The selection for MetaDB purchase and Hive metadatabase is the same as when you purchase a new cluster.

6. After selecting the component, click **OK**.

# Restarting Service

Last updated : 2023-12-27 11:09:40

## Overview

After modifying the configuration of a component, you need to restart the service for the configuration to take effect. To minimize or avoid the impact of the service restart on your business, restart the service on a rolling basis. For instances with active and standby attributes, standby instances will be restarted first before active instances. Rolling restart takes longer than regular restart.

Services can be restarted in the console, and rolling restart is selected by default. Note that when rolling restart is disabled, restarting all nodes at the same time may make the service unavailable.

There are two policies for failure handling when node restart fails: waiting for processing in case of failure or continuing processing in case of single node failure.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. To restart the entire component, select **Operation > Restart Service** on the target component block of the **Cluster Service** page, or go to the component details page and select **More > Restart All Services** in the top-right corner. To restart a role instance, select **Operation > Role Management** on the target component block of the **Cluster Service** page, select the target service role, and click **Restart Service**.

When restarting a service on the component block or component details page, you need to select the target service role, restart method, rolling restart switch status, and failure handling policy.

If you set **Service Role** to **All**, the entire component will be restarted.

### Restart Service ✕

Service name \* HDFS

Service Role \*

Restart Range All eligible nodes (total 2)

Restart Method

Rolling Restart Each restart:  nodes, interval:  seconds

Up to 1 nodes can be restarted and the maximum interval is 5 minutes.

Failure-Handling Policy

Operation Reason

Enter no more than 200 characters

When restarting the service on the **Role Management** page, you only need to select the restart method and failure handling policy.

### Restart Service ✕

Service name \* HDFS

Service Role \* NameNode ▼

Restart Range All eligible nodes (total 2)

Restart Method Quick restart mode ▼

Rolling Restart Each restart:  nodes, interval:  seconds

Up to 1 nodes can be restarted and the maximum interval is 5 minutes.

Failure-Handling Policy Wait for processing in case of failure ▼

Operation Reason

Enter no more than 200 characters

Confirm
Cancel

3. The restart methods supported by service components are as follows:

Component	Service	Restart Mode	Description	Remarks
HDFS	NameNode	Quick restart mode	It can be restarted by running <code>hadoop-daemon.sh stop   start namenode</code> .	-
	NameNode	Safe restart mode	For an HA cluster, run <code>saveNameSpace`</code> on the standby NameNode. Then, restart the component by	Only rolling restart is supported.

			running <code>hadoop-daemon.sh stop   start namenode</code> . For a non-HA cluster, the quick restart mode is used.	
	DataNode	Default restart mode	It can be restarted by running <code>hadoop-daemon.sh stop   start datanode</code> .	-
	JournalNode	Default restart mode	It can be restarted by running <code>hadoop-daemon.sh stop   start journalnode</code> .	-
	zkfc	Default restart mode	It can be restarted by running <code>hadoop-daemon.sh stop   start zkfc</code> .	-
YARN	ResourceManager	Default restart mode	It can be restarted by running <code>sbin/yarn-daemon.sh stop   start resourcemanager</code> .	Only rolling restart is supported.
	NodeManager	Default restart mode	It can be restarted by running <code>sbin/yarn-daemon.sh stop   start nodemanager</code> .	-
	JobHistoryServer	Default restart mode	It can be restarted by running <code>sbin/yarn-daemon.sh stop   start historyserver</code> .	-
	TimeLineServer	Default restart mode	It can be restarted by running <code>sbin/yarn-daemon.sh stop   start timelineserver</code> .	-
HBase	HbaseThrift	Default restart mode	It can be restarted by running <code>hbase-daemon.sh stop   start thrift</code> .	-
	HMaster	Default restart	It can be restarted by	-

		mode	running hbase-daemon.sh stop   start master.	
	HRegionServer	Quick restart mode	It can be restarted by running hbase-daemon.sh stop   start regionserver.	-
	HRegionServer	Safe restart mode	It can be restarted by running graceful_stop.sh --restart --reload.	-
Hive	HiveMetaStore	Default restart mode	It can be restarted by running hcat_server.sh stop   start.	-
	HiveServer2	Default restart mode	It can be restarted by running hive-daemon.sh stop-h2   start-h2.	-
	HiveWebHcat	Default restart mode	It can be restarted by running webhcat_server.sh stop   start.	-
Presto	PrestoCoordinator	Default restart mode	It can be restarted by running bin/launcher stop   start.	Only rolling restart is supported.
	PrestoWorker	Default restart mode	It can be restarted by running bin/launcher stop   start.	-
ZooKeeper	QuorumPeerMain	Default restart mode	It can be restarted by running bin/zkServer.sh stop   start.	-
Spark	SparkJobHistoryServer	Default restart mode	It can be restarted by running sbin/stop-history-server.sh   sbin/start-history-server.sh.	-
Hue	Hue	Default restart mode	It can be restarted by running build/env/bin/start.sh	-

			and build/env/bin/stop.sh.	
Oozie	Oozie	Default restart mode	It can be restarted by running oozied.sh stop   start.	-
Storm	Nimbus	Default restart mode	It can be restarted by running bin/storm-daemon.sh nimbus stop   start.	-
	Supervisor	Default restart mode	It can be restarted by running bin/storm-daemon.sh supervisor stop   start.	-
	LogViewer	Default restart mode	It can be restarted by running bin/storm-daemon.sh nimbus stop   start.	-
	UI	Default restart mode	It can be restarted by running bin/storm-daemon.sh nimbus stop   start.	-
Ranger	Ranger	Default restart mode	It can be restarted by running sbin/ranger-daemon.sh stop   start.	-
Alluxio	AlluxioMaster	Default restart mode	It can be restarted by running bin/alluxio-stop.sh master and bin/alluxio-start.sh master.	-
	AlluxioWorker	Default restart mode	It can be restarted by running bin/alluxio-stop.sh worker and bin/alluxio-start.sh worker.	-
Ganglia	Httpd	Default restart mode	It can be restarted by running /sbin/service http stop   start.	-

	Gmetad	Default restart mode	It can be restarted by running <code>/sbin/service gmetad stop   start</code> .	-
	Gmond	Default restart mode	It can be restarted by running <code>/sbin/service gmond stop   start</code> .	-



# Starting/Stopping Services

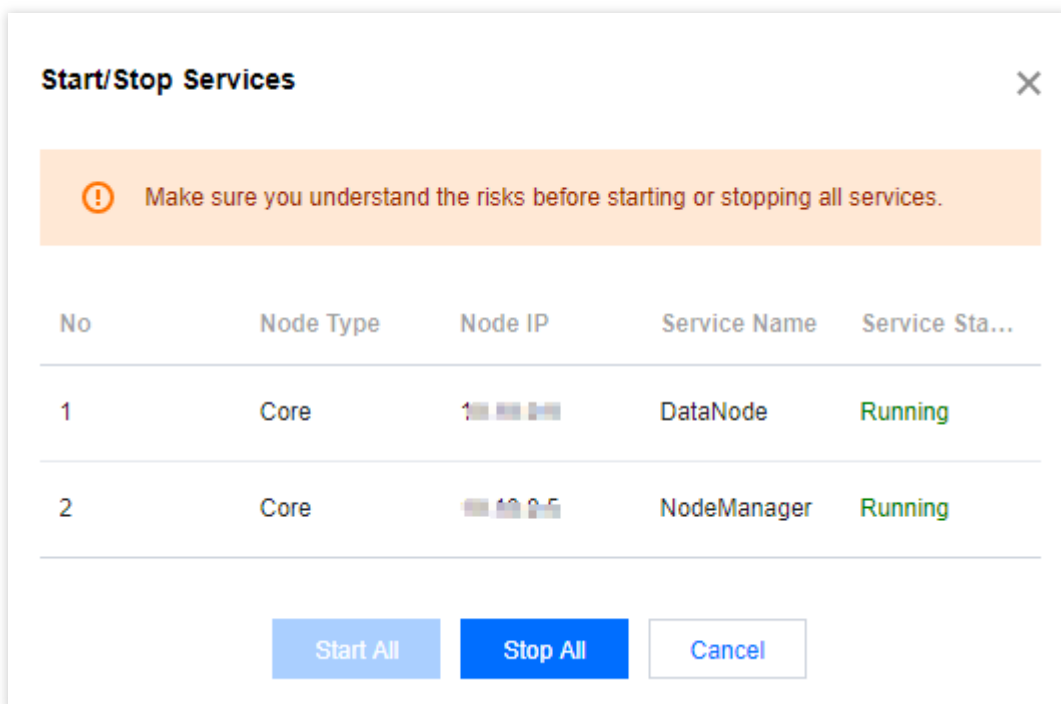
Last updated : 2023-12-27 11:09:56

## Overview

The Start/Stop Services feature can stop or start all services on a node. This document describes how to use Start/Stop Services in the EMR console.

## Directions

1. Log in to the [EMR console](#) and click the **Cluster ID/Name** of the target cluster in the **Cluster list** to enter the cluster details page.
2. Select **Cluster Resource** and click **Resource Management**. Then, select the target node and click **More > Start/Stop Services**.
3. Check the service information in the **Start/Stop Services** window.



4. After confirming that the information is correct, click **Start All** or **Stop All**.

# WebUI Access

Last updated : 2023-12-27 11:10:15

## Overview

The software WebUI entry feature is the accessibility to native component UIs provided by EMR. Such UIs can be quickly accessed through the public IP address of a master node (it is recommended to configure a security policy in a timely manner). If the private network of your cluster is interconnected with your organizational public network, you can disable this public IP address and access the UIs directly through the private network.

## Viewing WebUI Address

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.

2. Click **Cluster Services** and then click **WebUI address** below a target component to access its WebUI.

The access address requires authentication. The username is "root", and the default password is the one entered when the cluster was created. To change the password, click **Reset WebUI password** on the page.

## WebUI Access over Private Network

If **Enable public network for master nodes** is not selected during the cluster creation, you cannot access the WebUIs of components via the WebUI addresses given on the **Cluster Services** page. You can access these WebUIs with a browser via the following links in a private network environment.

Component	Link
HDFS UI	<code>http://{cluster IP in private network}:4008</code>
YARN UI	<code>http://{cluster IP in private network}:5004</code>
HBase UI	<code>http://{cluster IP in private network}:6001</code>
Hive UI	<code>http://{cluster IP in private network}:7003</code>
Hue UI	<code>http://{cluster IP in private network}:13000</code>
Ranger UI	<code>http://cluster IP in private network}:6080</code>

Storm UI	<code>http://{cluster IP in private network}:15001</code>
Oozie UI	<code>http://{cluster IP in private network}:12000</code>
Ganglia UI	<code>http://{cluster IP in private network}:1800</code>
Presto UI	<code>http://{cluster IP in private network}:9000</code>
Allexio UI	<code>http://{cluster IP in private network}:19999</code>

To access the WebUI of a component over a public network after the cluster is created, you can set an EIP for the master node as instructed below:

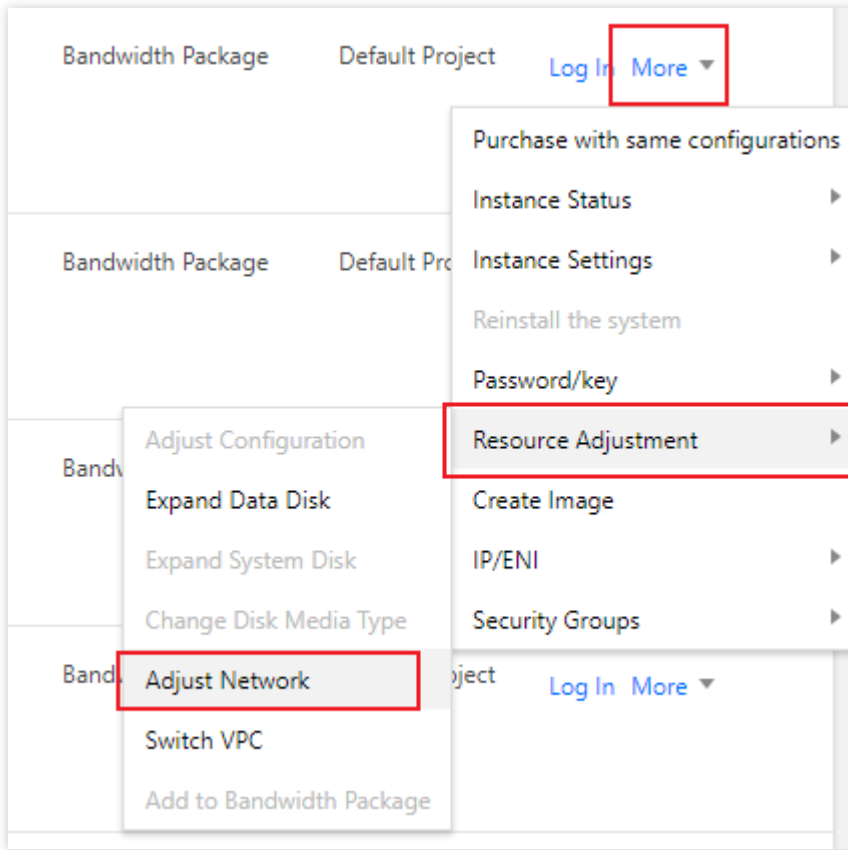
1. Log in to the [EMR console](#), click the **Cluster ID** of the target cluster to enter the cluster details page, then select **Cluster Resources > Resource Management**, and click the **Resource name/ID** of the target master node to go to the CVM console.

The screenshot displays the 'Resource Management' interface in the EMR console. It features a navigation sidebar on the left with options like 'Basic Information', 'Cluster Service', and 'Cluster Monitoring'. The main area shows a table of resources. The table has the following columns: Node Type, Resource Name, IP, Configuration, Deployment Process, Expiration Time, Creation Time, and Operation. A red box highlights the 'Resource Name' column for the Master node. The table contains four rows: Master, Core, Core, and Task. The Master node is highlighted with a red box around its 'Resource Name' cell.

Node Type	Resource Name	IP	Configuration	Deployment Process	Expiration Time	Creation Time	Tag	Operation
Master	emr-ldjnr4e-v-pjampn_实例名称	10.10.10.10	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	knex,HiveMetaStore,HiveServer2,HiveW ebHCat,Impala-Catalog,Impala- StateStore,JobHistoryServer,NameNode ,Zookeeper,ResourceManager	Pay-as-you-go	2021-06-15 20:01...		Change Configuration
Core	emr-ldjnr4e-v-pjampn_实例名称	10.10.10.11	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	DataNode,Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:01...		Change Configuration Start/Stop Services
Core	emr-ldjnr4e-v-pjampn_实例名称	10.10.10.12	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	DataNode,Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:01...		Change Configuration Start/Stop Services
Task	emr-ldjnr4e-v-pjampn_实例名称	10.10.10.13	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:13...		Change Configuration Start/Stop Services More

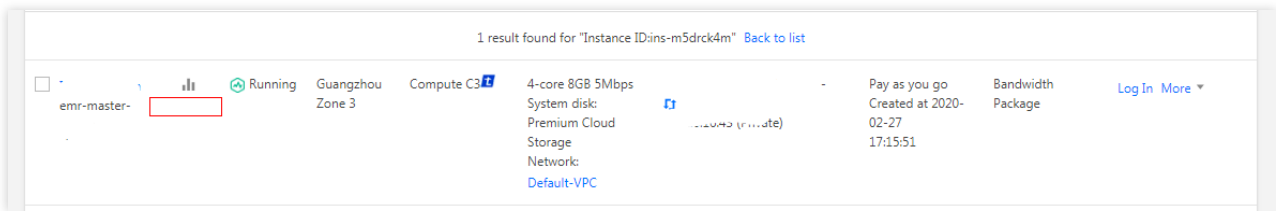
2. Change the network bandwidth setting of the CVM instance to be bound with an EIP, so that its bandwidth is not 0 to ensure connection.

In the CVM console, select **More actions > Resource adjustment > Adjust network** against the target instance in the CVM instance list.

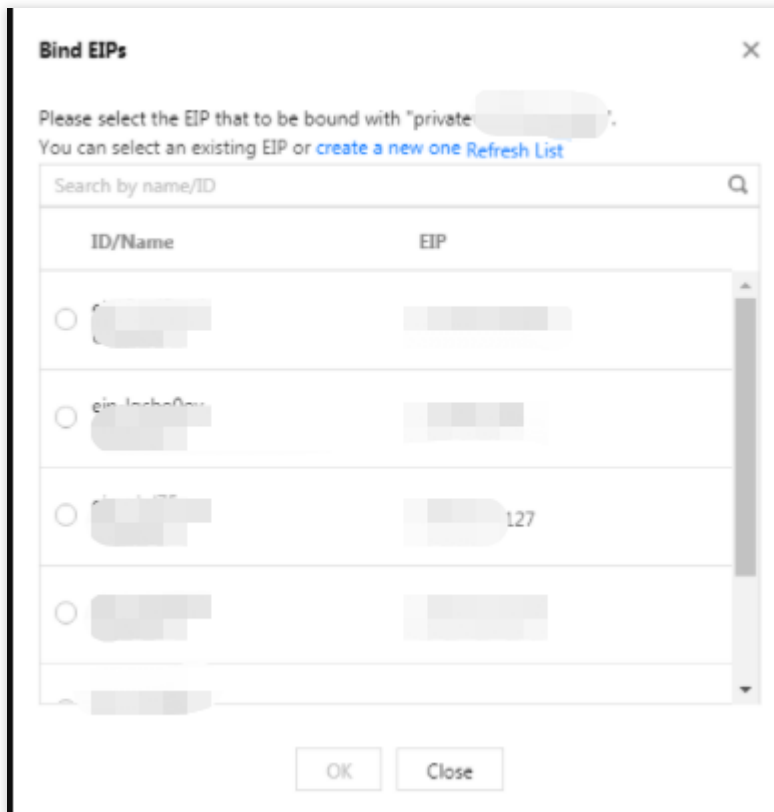


Set an appropriate target bandwidth cap to ensure the bandwidth of the CVM instance is greater than 0.

3. Click **Instance ID** of the CVM instance to enter its basic information page, and select the ENI tab.



4. Click **Bind** to bind an existing EIP or create a new EIP for the CVM instance.



After the EIP is bound, you can see the EIP information beside the public network IP bound to the primary ENI on the ENI page.

5. Check the CVM access over public network.

6. Use the `ping` or `ssh` command to check whether the EIP is effective. Ensure the security group inbound rule is available to ICMP and port 22. Then, access WebUIs of components.

EMR v1.3.1, EMR v2.0.1, EMR v2.1.0, and EMR v3.0.0 now support Apache Knox. By default, you can access WebUIs of components over a public network with Knox as the proxy. For UI details of all components and Knox usage, see [Knox Development Guide](#).

#### Note

After an EIP is bound, the WebUI addresses given in the EMR console will remain unchanged. To change these addresses, please [contact us](#).

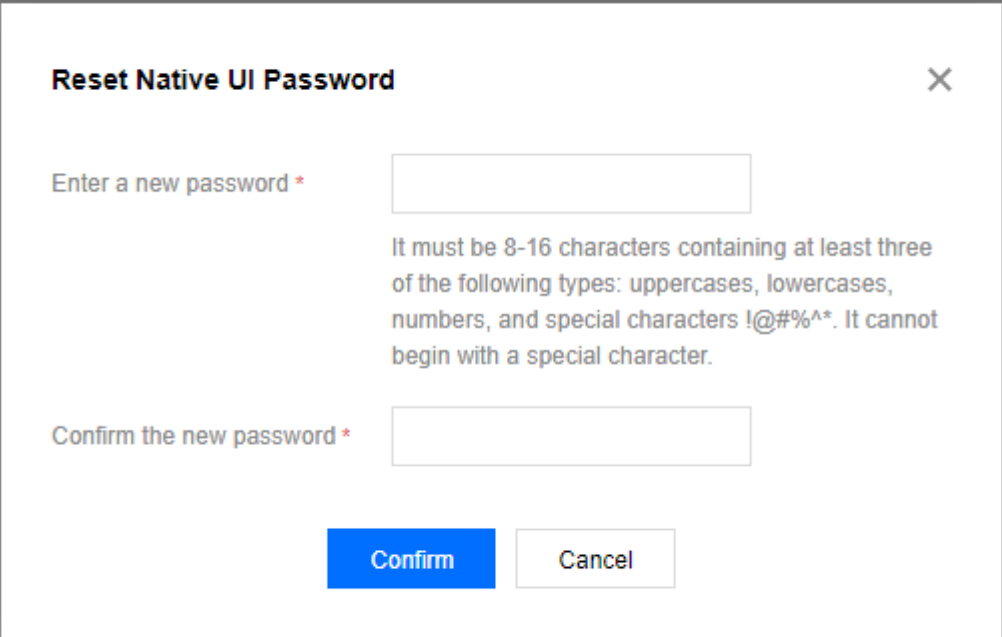
## Resetting WebUI Password

The access address requires authentication. The username is "root", and the default password is the one entered when the cluster was created. You can change the password as instructed below.

1. Log in to the [EMR console](#) and click the **ID/Name** of a target cluster in the cluster list to enter the cluster details page.
2. Click **Cluster Services** on the cluster details page and click **Reset WebUI password** in the top-left corner to reset the password.

**Caution**

The password must contain 8 to 16 characters in at least three of the following character types: uppercase letters, lowercase letters, digits, and special symbols (! @ # % ^ \*). The first character cannot be a special symbol. If OpenLDAP is installed in the cluster (EMR v2.6.0 and EMR v3.2.1 or later), you can change the password only on the **User Management** page. To reset the WebUI password, go to **User Management** and create a user.



**Reset Native UI Password** ✕

Enter a new password \*

It must be 8-16 characters containing at least three of the following types: uppercases, lowercases, numbers, and special characters !@#%^\*. It cannot begin with a special character.

Confirm the new password \*

**Confirm**

# Resetting WebUI Password

Last updated : 2023-12-27 11:10:59

## Overview

EMR provides a software WebUI entry to access the WebUIs of components. It is required to authenticate access requests. The username is "root", and the default password is the one you entered when creating the cluster. You can reset the WebUI password in the EMR console if you forgot it. This document describes how to do so.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. Click **Cluster Service** on the cluster details page and click **Reset WebUI Password** in the top-left corner to reset the password.

### Caution

The password must contain 8 to 16 characters with at least three of the following character types: uppercase letters, lowercase letters, digits, and special symbols (! @ # % ^ \*). The first character cannot be a special symbol.

If OpenLDAP is installed in the cluster (EMR v2.6.0 and EMR v3.2.1 or later), you can change the password only on the **User Management** page. To reset the WebUI password, go to **User Management** and create a user.

### Reset Native UI Password ✕

Enter a new password \*

It must be 8-16 characters containing at least three of the following types: uppercases, lowercases, numbers, and special characters !@#%^&\*. It cannot begin with a special character.

Confirm the new password \*



# Software WebUI Entry

Last updated : 2023-12-27 11:11:14

## Feature Overview

EMR provides a software WebUI entry for you to access the native component UIs. To do so, you can use the public IP of the primary node (we recommend configuring the security policy promptly). If your cluster's private network and the organization network are connected, you can disable the public IP and directly access the UIs over the private network.

## Directions

1. Log in to the [EMR Console](#), select **Cluster List**, and click the ID/Name of the target cluster to enter the cluster details page.
2. On the cluster details page, select **Cluster Service** and click the **WebUI address** of the target component for access.

The access address requires authentication. The username is "root", and the default password is the one you entered when creating the cluster. To change the password, click **Reset Native UI Password** on the page.

### Note:

Access incurs fees that are billed by traffic.

Component name	Status	Version	Native WebUI Access Address <sup>①</sup>	Access Info
ZOOKEEPER	Running	3.4.9		Quorum Leader IPC:172.16.4.106:4007
HDFS	Running	2.7.3	https://111.2.../gateway/emr/hdfs	NameNode IPC:172.16.4.106:4007 DataNode IPC:172.16.4.106:4001
YARN	Running	2.7.3	https://111.23.../gateway/emr/yarn	ResourceManager IPC:172.16.4.106:8030 NodeManager IPC:172.16.4.106:8020 JobHistoryServer IPC:172.16.4.106:8022

# Operation Guide for Access to WebUI over Private Network

Last updated : 2023-12-27 11:11:33

When creating an EMR cluster, if you do not check **Enable Public Network Access for Cluster Master Node**, you cannot access the WebUIs of relevant components through the native WebUI access addresses on the component management page. This document describes how to view native component WebUIs in a cluster where the public network access to master node is not enabled.

## Private Network Access

You can use a browser to access a component's WebUI over the private network. Below are the links to native WebUIs of each component:

Component	Link
HDFS UI	<code>http://{cluster private IP}:4008</code>
YARN UI	<code>http://{cluster private IP}:5004</code>
HBASE UI	<code>http://{cluster private IP}:6001</code>
HIVE UI	<code>http://{cluster private IP}:7003</code>
HUE UI	<code>http://{cluster private IP}:13000</code>
RANGER UI	<code>http://{cluster private IP}:6080</code>
STROM UI	<code>http://{cluster private IP}:15001</code>
OOZIE UI	<code>http://{cluster private IP}:12000</code>
GANGLIA UI	<code>http://{cluster private IP}:1800</code>
PRESTO UI	<code>http://{cluster private IP}:9000</code>
ALLUXIO UI	<code>http://{cluster private IP}:19999</code>

## Binding an EIP

You can bind an elastic public IP (EIP) to the master node by following the steps below to access component WebUIs from a browser over the public network:

1. Log in to the [EMR Console](#), select **Cluster List**, and click the **ID/Name** of the target cluster to enter the cluster details page. Select the primary node to which an EIP binds in **Cluster Resources ->Resource Management** and click its Instance ID/Resource Name to enter the CVM Console.

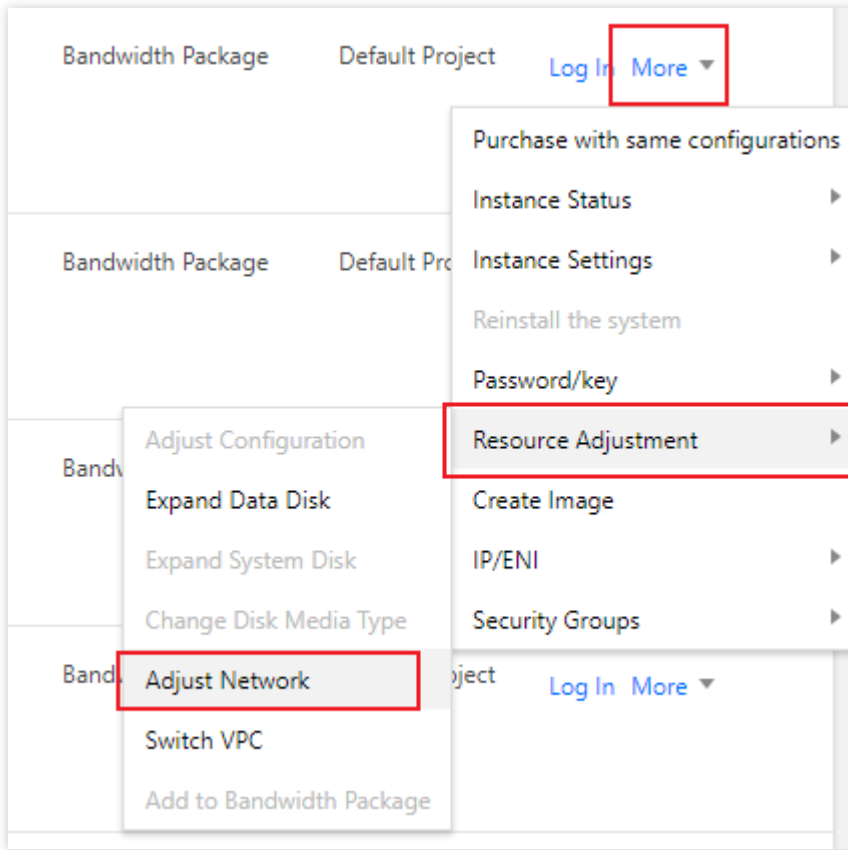
The screenshot shows the 'Resource Management' page in the EMR Console. The page title is 'emr-ljdnqr4a' and the sub-page is 'Resource Management'. A notice at the top states: 'The current cluster resources were purchased based on the official EMR billing rules and the renewal statuses of CVM resources are managed by EMR in a unified manner. For monthly-subscription CVM resources, it shall prevail. It is not allowed to adjust the fee policy on the CVM Console.' Below the notice are tabs for 'All Nodes', 'Master', 'Core', 'Common', 'Task', 'Router', 'Metadb', 'Recycle', and 'Renew'. Under the 'All Nodes' tab, there are buttons for 'Scale Out', 'Scale In', and 'More'. The main content is a table with the following columns: Node Type, Resource Name, IP, Configuration, Deployment Process, Expiration Time, and Creation Time. The table contains four rows: a Master node, two Core nodes, and one Task node. A red box highlights the 'Resource Name' column for the Master node.

Node Type	Resource Name	IP	Configuration	Deployment Process	Expiration Time	Creation Time
Master	emr-elasticmapreduce-1jdnqr4a-master-1	192.168.1.1	EMR StandardSA2 CPU: 1-core; memory: 8GB Premium cloud disk: 100G x 1	knox,HiveMetaStore,HiveServer2,HiveW ebHcat,Impala-Catlog,Impala- StateStore,JobHistoryServer,NameNode ,Zookeeper,ResourceManager	Pay-as-you-go	2021-06-15 20:01...
Core	emr-elasticmapreduce-1jdnqr4a-core-1	192.168.1.2	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	DataNode,Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:01...
Core	emr-elasticmapreduce-1jdnqr4a-core-2	192.168.1.3	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	DataNode,Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:01...
Task	emr-elasticmapreduce-1jdnqr4a-task-1	192.168.1.4	EMR StandardSA2 CPU: 2-core; memory: 8GB Premium cloud disk: 100G x 1	Impala-Server,NodeManager	Pay-as-you-go	2021-06-15 20:13...

Total 4 items

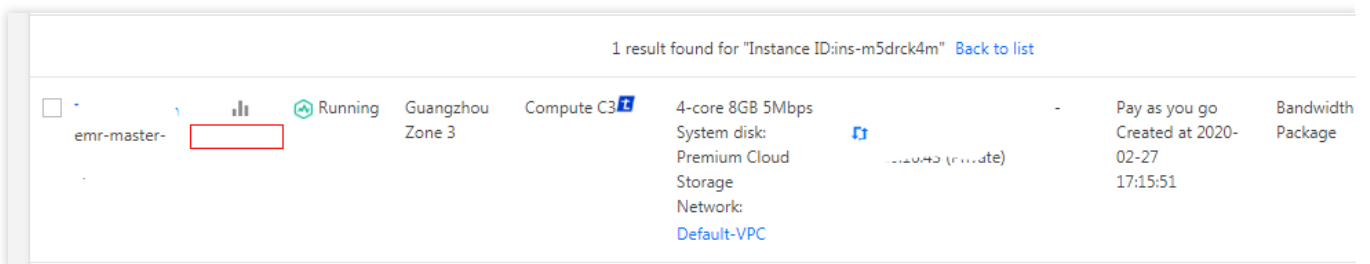
2. Adjust the network bandwidth settings of the CVM instance to which the EIP will be bound and make sure that its bandwidth is not 0; otherwise, the node cannot be connected.

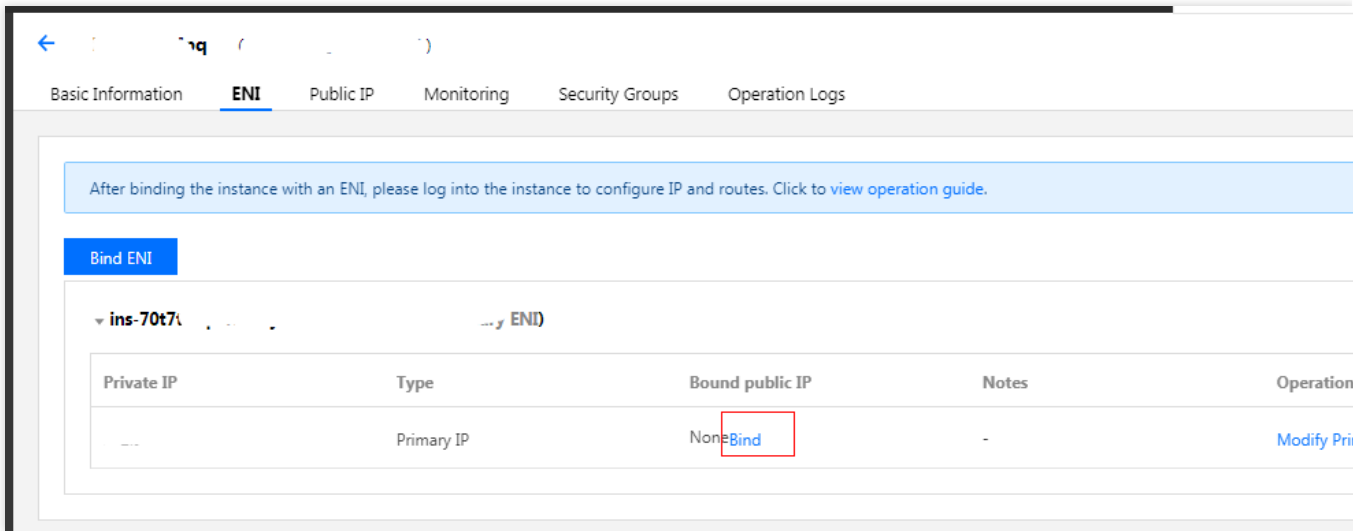
In the CVM instance list in the CVM Console, select **More > Resource Adjustment > Adjust Network** for the target instance.



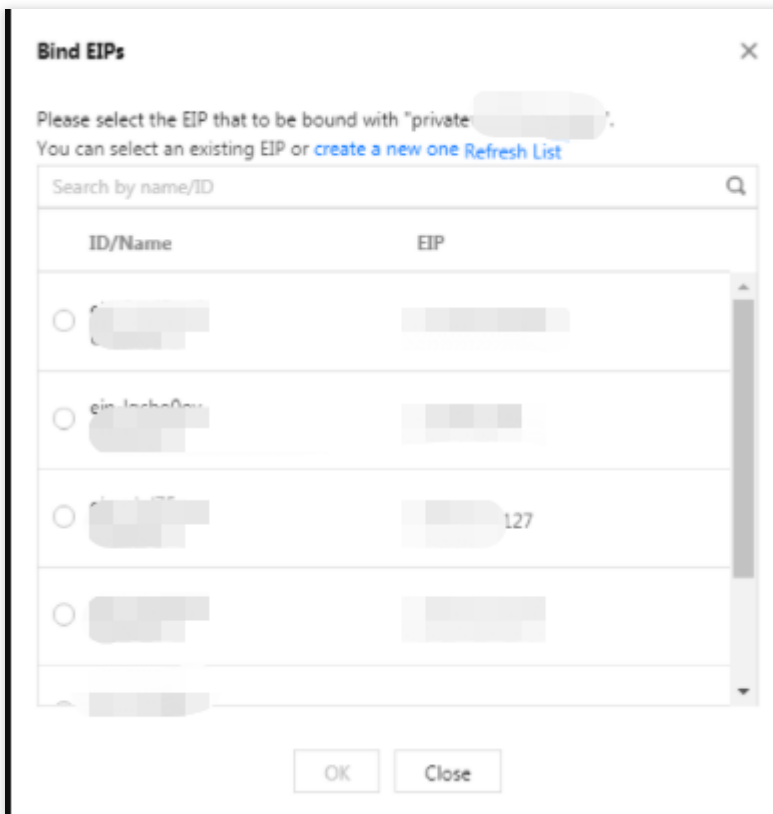
Adjust the bandwidth upper limit to an appropriate value to ensure that the bandwidth of the CVM instance is greater than 0.

3. Click the ID of the CVM instance to enter its basic information page and switch to the ENI tab.

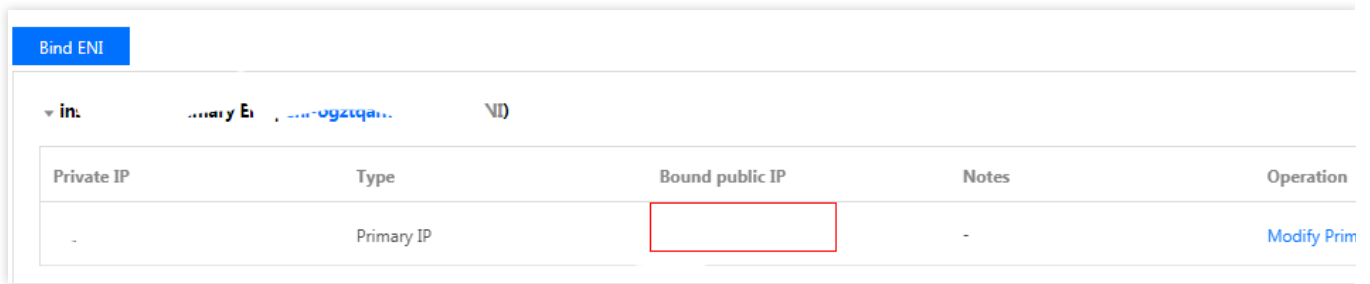




4. Click **Bind** to bind an existing EIP to the current CVM instance or create an EIP for binding.



After binding the EIP, in the ENI tab, you can see that there is EIP information in the "Bound Public IP" section of the primary ENI.



Private IP	Type	Bound public IP	Notes	Operation
-	Primary IP	<input type="text"/>	-	<a href="#">Modify Prim</a>

5. Check whether the CVM instance can be accessed over the public network.

You can use the `ping` or `ssh` command to check whether the EIP has taken effect. **Make sure that the inbound rules of the security group allow ICMP and port 22.**

6. Access the native WebUIs of components.

EMR v1.3.1, v2.0.1, v2.1.0, and v3.00 support Apache Knox, and access requests to native component WebUIs over the public network will pass through Knox by default. For specific UI links to each component and Knox usage, please see [Knox Development Guide](#).

#### Note

After an EIP is bound, the access addresses of native component WebUIs in the EMR Console will stay unchanged. If you need to change the addresses in the console, please [submit a ticket](#) for assistance.

# Role Management

Last updated : 2023-12-27 11:12:20

## Overview

Role management provides Ops and operation features at the service role level. You can restart, pause, and maintain service roles at the node level. Role status can be monitored to help you stay on top of the real-time status of role processes.

## Glossary

**Restart:** The nodes under the selected service role will be restarted on a rolling basis.

**Pause:** The nodes under the selected service role will be paused. They can be resumed by using the **Start** feature.

**Maintenance:** The process daemon will be stopped on the nodes under the selected service role, so when a process becomes abnormal for various reasons, no alarm or automatic recovery will occur. This is suitable for node debugging.

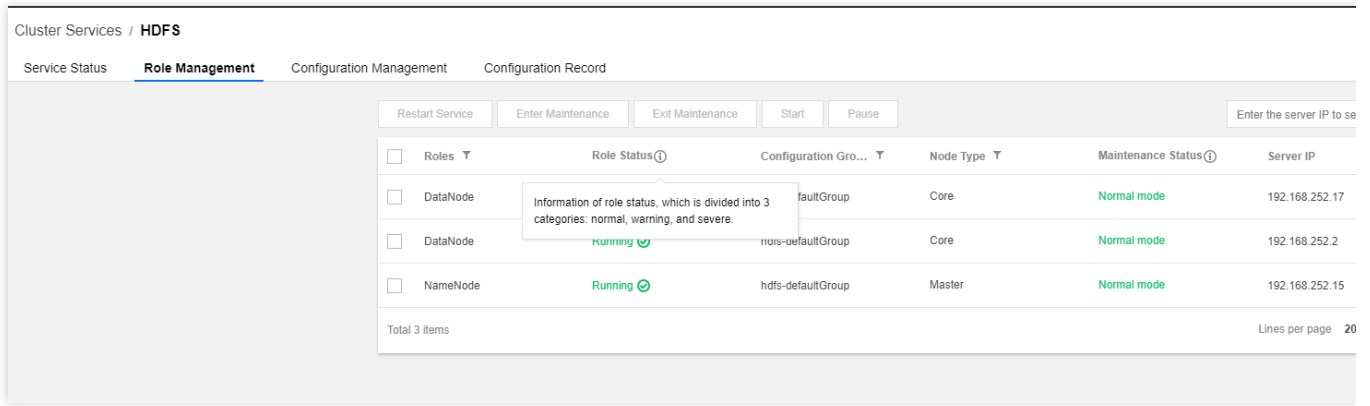
You can use the **Exit Maintenance** feature to resume the daemon.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Service** and click **Operation > Role Management** in the top-right corner of the target component block. The following uses HDFS as an example.
3. The **Role Management** list displays the current service role's health status, operation status, configuration group, node type, maintenance status, server IP, and last restarted time. You can select a role and **restart, maintain, start, or pause** it.

### Note

The **Health Status** column displays the running status of the current role. The **Operation Status** column displays user operations. The **Maintenance Status** column displays whether the role is under maintenance.



## Health Status

Health Status	Description
Good	Port check is responded to within 5s.
Risky	Port check is responded to within 5s-10s.
Unavailable	Port check is not responded to within 10s.
Not checked	Roles in the maintenance mode or in Stopped operation status are not checked.
Unknown	The checker is abnormal or down.



# Client Management

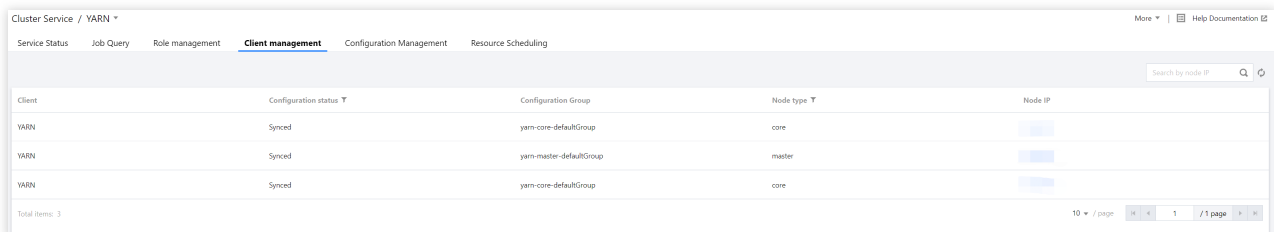
Last updated : 2023-12-27 11:50:33

## Overview

Client management provides the information of the client deployed in the component, including the configuration status, configuration group, node type, and node IP.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Service** and click **Operation > Client Management** in the top-right corner of the target component block to enter the **Client Management** page.



Client	Configuration status	Configuration Group	Node type	Node IP
YARN	Synced	yarn-core-defaultGroup	core	
YARN	Synced	yarn-master-defaultGroup	master	
YARN	Synced	yarn-core-defaultGroup	core	

# Configuration Management

## Configuration Management

Last updated : 2023-12-27 14:12:56

## Overview

Configuration management allows you to modify key configuration parameters of popular open-source components like HDFS, YARN, Hive, and Spark. The configuration of services can be modified as needed at the level of cluster, node, or configuration group. This document describes how to configure service parameters in the console.

### Caution

For security reasons, when a custom configuration file is deleted in **Configuration Management** in the console, it will not be deleted from the client.

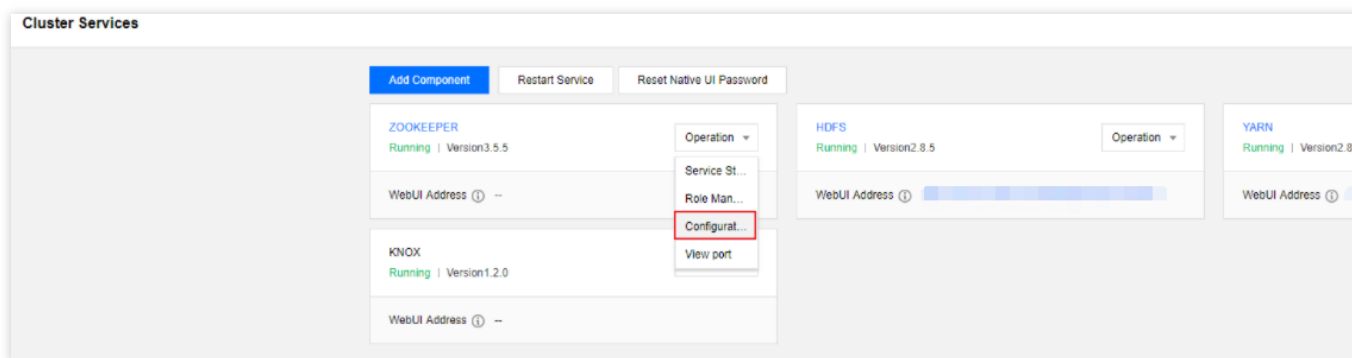
If you need to delete a custom configuration file from the client, you can use a cluster script to batch perform the operation on existing clusters.

After configuration modification, if the configuration status in **Role Management** changes to **Configuration expired**, you need to restart the service to make the configuration effective.

## Directions

### Editing a configuration item

1. Log in to the [EMR console](#), select the target cluster in the cluster list, and click **Service** to enter the cluster service list.
2. In the cluster service list, select **Operation > Configuration Management** in the top-right corner of the target service panel.

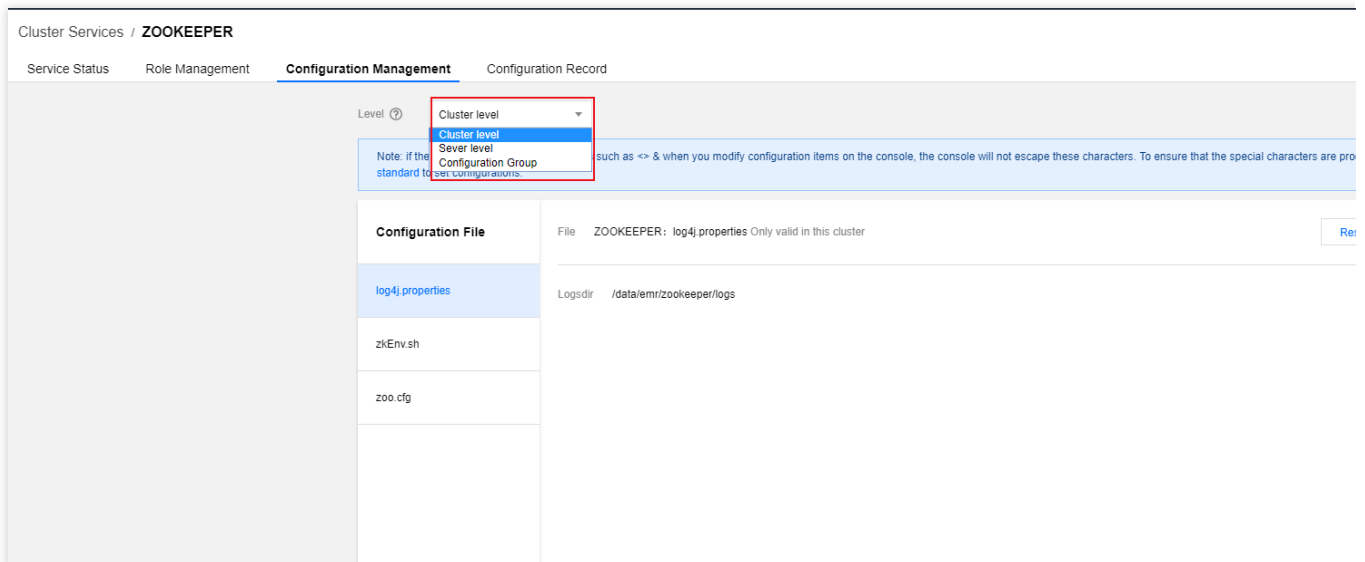


3. On the **Configuration Management** page, select the **Level** as needed. By default, **Cluster level** is selected.

To configure the parameters of all nodes of the selected service in the cluster, select **Cluster level**.

To configure the parameters of multiple specified nodes of the selected service, create a configuration group and use it as the level.

To configure the parameters of a specified node of the selected service, select **Node level**.



4. You can search for a configuration item or narrow down the search scope with the filter on the left.

5. Select the target configuration file, click **Edit Configuration**, and perform operations such as adding, editing, and deleting configuration items as needed.

Enter the new parameter value for the target parameter. If needed, you can click **Recover** to recover a parameter to its original value. You can also click **Default Value** to restore the parameter to the default value recommended by the system.

You can delete certain configuration items by clicking **Delete > OK**.

If the file does not have the parameter you want to configure, click **Add a configuration item** and enter the new parameter name and value in the pop-up window.

6. After confirming that the modification is correct, click **Save configuration**. After the configuration is delivered successfully, click **Restart Service**.

### Note

If the service process configuration is modified, the configuration will not take effect unless you restart the service.

If the client configuration is modified, the configuration will take effect immediately after being saved.

## Adding a configuration file

1. Log in to the [EMR console](#), select the target cluster in the cluster list, and click **Service** to enter the cluster service list.

2. In the cluster service list, select **Operation > Configuration Management** in the top-right corner of the target service panel.

3. If the configuration file you want to configure does not exist, you can click **Add configuration file** on the right to configure a configuration file.

4. After you click **Save configuration**, the parameters will be delivered, and the configuration file name will be updated in the configuration file list.

The screenshot shows the configuration interface for Elastic MapReduce. At the top, there is a 'Level' dropdown menu set to 'Cluster level'. Below this is a blue note box: 'Note: if the values contain special characters such as <> & when you modify configuration items on the console, the console will not escape ensure that the special characters are processed properly, please follow the XML standard to set configurations.' The main area is divided into two columns. The left column, titled 'Configuration File', contains a list of files: 'afasdfsdf', 'log4j.properties', 'zkEnv.sh', and 'zoo.cfg'. Below the list is a blue button labeled 'Create Configuration File'. At the bottom of this column is a '+ Create Configuration File' button. The right column contains input fields for 'File Name \*' (with 'New file name' as the value), 'Configuration Path \*' (with 'Configuration path i' as the value), 'Permission Property \*' (with 'Permission property' as the value), 'User Group \*' (with 'User group name in' as the value), and 'Username \*' (with 'Userna' as the value). At the bottom of the right column are two buttons: 'Save configuration' and 'Cancel'.

5. After the custom configuration file is delivered and takes effect, it can be modified and deleted.

## Comparing configurations at different levels

After configurations are modified at different levels, click **Switch to dimension-based comparisons** to compare them at the cluster, configuration group, and node levels. To make the configuration at a level the same as that at the higher level, overwrite the difference and save the modification.

Cluster Service / HDFS ▾

Service Status Role management Client management **Configuration Management**

For configuration adjustment in the console, special characters contained in values such as "<", ">", and "&" are not escaped. To ensure proper processing of special characters, please follow the [XML standard](#) to set configurations.

Configuration Record

**Configuration filter**

Enter a parameter name 🔍

**Range** [Clear all](#)

NameNode  
 DataNode  
 Client

**Category** [Clear all](#)

About Address Or Port  
 Advanced  
 Basic  
 CHdfs  
 Compression  
 About Cos  
 About Data Store  
 About Disk  
 group  
 About HA  
 Host  
 About JVM OR Memory  
 About Log  
 About Network  
 Path  
 About Performance  
 Pid  
 Proxy  
 About Security  
 About Time  
 uri

[All](#) [core-site.xml](#) [hadoop-env.sh](#) [hdfs-site.xml](#) [https-env.sh](#) [https-site.xml](#) [log4j.properties](#)

[Save configuration](#) [Cancel](#)

File	Parameter	Value (cluster/configuration group/node dimension) ⓘ
No data		

Total items: 0

# Configuration Status

Last updated : 2023-12-27 14:30:32

## Overview

After the component configuration is modified, saved, and delivered, you can view the configuration status to check for service configuration delivery failures or configuration expiration. You can view the configuration failure and expiration details to understand the modified configuration items of each role.

## Specification items

**Synced:** No configuration item is modified, or the service is restarted after the modification.

**Configuration expired:** The service is not restarted after the configuration item is modified and delivered, which means the configuration does not take effect.

**Configuration failed:** The modified configuration item fails to be delivered to the node configuration.

## Status

1. A role instance has three configuration statuses: **Synced**, **Configuration failed**, and **Configuration expired**.

The initial configuration status is **Synced**. If the role process configuration fails to be delivered, the configuration status of the role will become **Configuration failed**.

After the configuration is delivered successfully, the configuration status of the role will become **Configuration expired**.

In the absence of a configuration failure, the configuration status of the role will become **Synced** after the service is restarted successfully.

2. A client has two configuration statuses: **Synced** and **Configuration failed**.

The initial configuration status is **Synced**. If the client configuration or role process configuration fails to be delivered, the configuration status of the client will become **Configuration failed**.

After the configuration is delivered successfully, the configuration status of the client will become **Synced**.

3. A component has two configuration statuses: **Configuration failed** and **Configuration expired**.

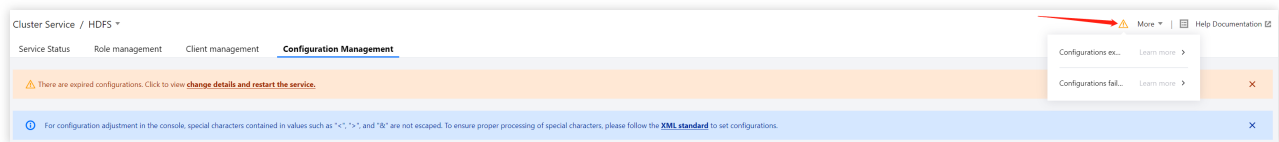
The initial status is not displayed. If the role instance or client fails to be configured, the configuration status of the component will become **Configuration failed**.

If the role instance configuration expires, the configuration status of the component will become **Configuration expired**.

If the role instance or client has both failed configuration and expired configuration, the configuration status of the component will be displayed as **Configuration failed**.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Service** and click the component block whose configuration status is **Configuration failed** or **Configuration expired**.
3. Here takes **Configuration expired** as an example. On the component details page, click the configuration status icon in the top-right corner to view the expired configuration details.



4. Confirm the target expired configuration and restart the service.

# Configuration Rollback

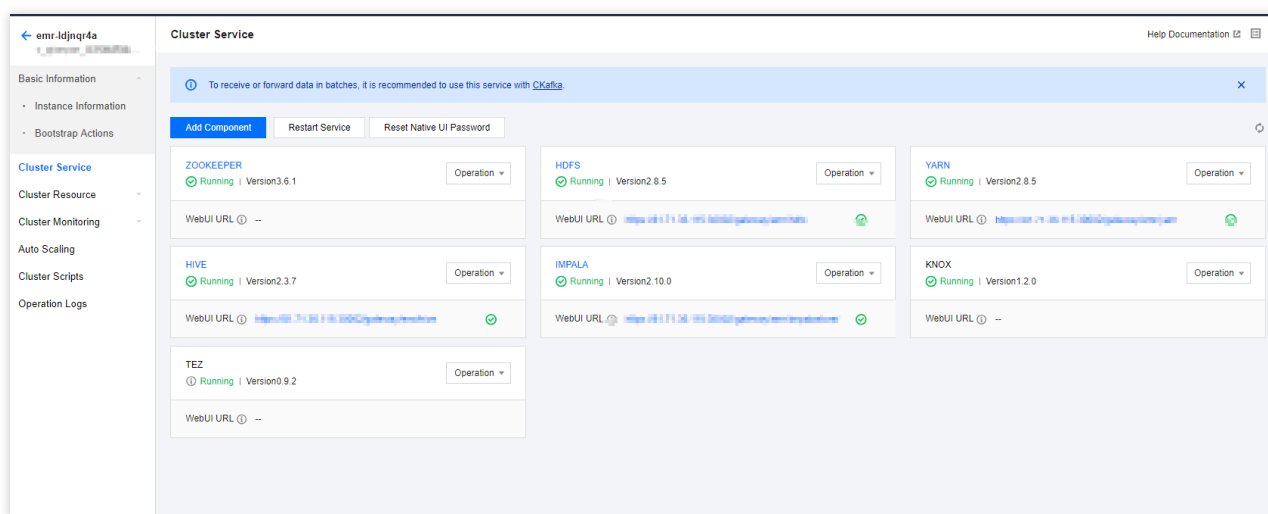
Last updated : 2023-12-27 14:30:49

## Overview

This document describes how to roll back operations on component configuration items, such as adding, modifying, and deleting configuration items, in the Elastic MapReduce (EMR) console.

## Directions

1. Log in to the [EMR console](#) and click **ID/Name** of the target cluster in the cluster list to go to the cluster details page.
2. On the cluster details page, click **Cluster Service** and choose **Operation > Configuration Management** in the top-right corner of the target component block. The following uses HDFS as an example:



3. Select **Configuration Record** on the **Configuration Management** page to display the configuration record of the current component by default. You can also switch to view the configuration record of all components. Click **Details** to view the parameter values before and after the configuration change. Click **Rollback > Confirm rollback** to roll back the configuration change of a parameter. After the rollback is successful, the component will be restarted, and the previous configuration will take effect in a short time.

### Note

Added, modified, or deleted configuration items can be rolled back, while added or deleted configuration files cannot.



Elastic MapReduce

Cluster

Monitor

Hardware

Components

emr-xxxxxx / HDFS

Role Management Configuration Management **Configuration Record**

Component Name	Configuration File	Level	Modified At	Reason for Change	Operation
HDFS	core-site.xml	Cluster	2020-02-27 18:50:04	No relevant remarks	<a href="#">Details</a> <a href="#">Rollback</a>

Total 1 item

Lines per page 10

1 / 1 page

# Configuration Group Management

Last updated : 2023-12-27 14:31:16

## Overview

A configuration group is used for group-based configuration management of nodes that have different specifications or purposes but are deployed with the same component. This document describes how to use a configuration group to manage service configuration.

A configuration item modified at the cluster level will overwrite that at the configuration group and node levels if you have not separately modified it at the configuration group and node levels.

A configuration item modified at the configuration group level will overwrite that at the node level within the configuration group if you have not separately modified it at the node level. After the modification, the configuration at the cluster level will not overwrite the configuration at the configuration group level.

A configuration item modified at the node level will be updated only for the node. After the modification, the configuration delivered from the cluster and configuration group levels will not overwrite the configuration at the node level.

### Note

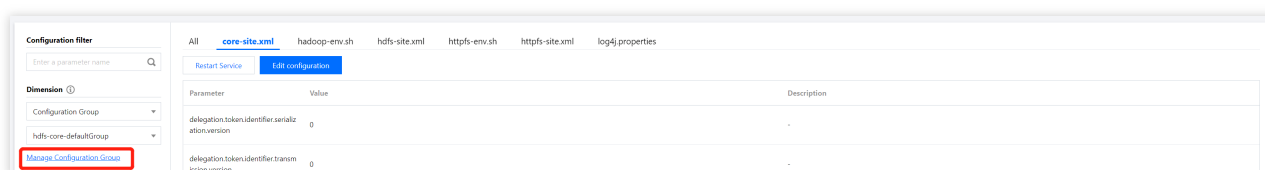
A node can belong to only one configuration group, and nodes in different groups are different.

## Directions

1. Log in to the [EMR console](#) and click **ID/Name** of the target cluster in the cluster list to go to the cluster details page.
2. On the cluster details page, click **Cluster services** and select **Operation > Configurations** in the top-right corner of the target component block. The following uses HDFS as an example:
3. Click **Configurations**, set **Level** to **Configuration group**, select the target configuration group, and click **Manage configuration groups**.

### Note

After a cluster is created, several default configuration groups based on node type will be generated for each component, which can only be modified but not deleted and will inherit the cluster configuration upon initialization. You can add configuration groups as needed, with a maximum of 15 configuration groups allowed for each component.

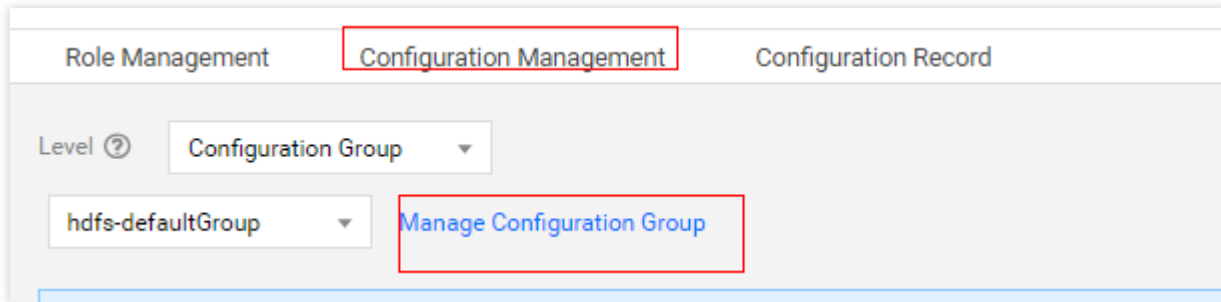


4. On the **Manage configuration groups** page, you can view, add, modify, and delete configuration groups for the current component.

**Note**

You can select an inherited configuration group for a new configuration group. If no inherited configuration group is selected, the cluster-level configuration is inherited by default.

After a custom configuration group is deleted, nodes in it will be transferred to the default configuration group for the same node type.



5. If the configuration of a configuration group is different from that of the cluster, click **Save** at the cluster level to overwrite the configuration group configuration. Similarly, if the configuration of a node is different from that of the configuration group to which the node belongs, click **Save** at the configuration group level to overwrite the node configuration.

# YARN Resource Scheduling

## Overview

Last updated : 2023-12-27 14:31:38

### Overview

YARN resource scheduling supports interactive YARN resource queue scheduling management, which is more convenient than file-based configuration management. Currently, it supports two types of scheduling configurations: Fair Scheduler and Capacity Scheduler.

### Notes

1. Fair Scheduler is used by default. Therefore, you need to configure parameters in the `fair-scheduler.xml` configuration file for the YARN component. If you switch to Capacity Scheduler, configure parameters in the `capacity-scheduler.xml` configuration file. No matter which scheduler you use, parameter configurations must be consistent with those on the **Resource Scheduling** page.
2. After switching the scheduler or setting the policy on the **Resource Scheduling** page, you need to click **Apply** to deliver the configuration, which may restart the ResourceManager.
3. If you have enabled label-based scheduling in **Configuration Management**, the sync operation will be performed when Capacity Scheduler is enabled.
4. Subpools can be nested inside a resource pool, and the nested subpools are subject to the rules set for the parent pool.
5. If you specify to sync the modified configuration when disabling the resource scheduler, the configuration file and parameters of the scheduler in **Configuration Management** will be overwritten.

# Configuring Fair Scheduler

Last updated : 2023-12-27 14:31:57

## Overview

Fair Scheduler allocates resources fairly to each job on YARN based on weight.

## Definitions

**Configuration Set:** Specifies the resource assignment among active resource pools during a specified period.

**Execution Plan:** Specifies when the configuration set will be active.

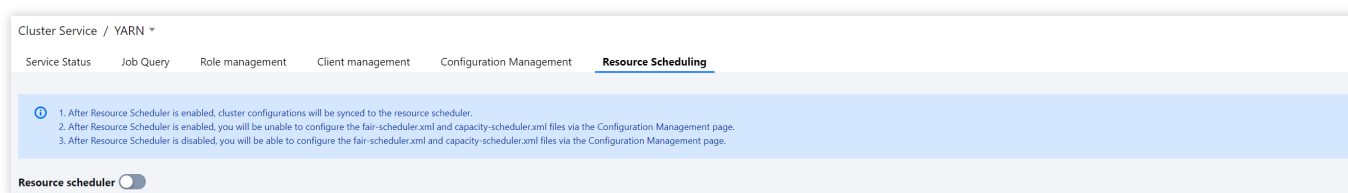
**Placement Rule:** Automatically allocates jobs submitted by different users to specified resource pools.

**User Limits:** Specifies the maximum number of applications that can be submitted by a user at a time.

## Directions

### Creating a resource pool

1. Log in to the [EMR console](#) and click **Details** of the target Hadoop cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster services** and click **Operation > Resource scheduling** in the top-right corner of the YARN component block to enter the **Resource scheduling** page.



3. Toggle on **Resource scheduler** and configure the scheduler.

Cluster Service / YARN

Service Status Job Query Role management Client management Configuration Management **Resource Scheduling**

1. Fair Scheduler is used by default. Please configure relevant parameters in the configuration file fair-scheduler.xml in "Configuration management" to keep them consistent with those on this resource scheduling page, or configure relevant parameters in the capacity-scheduler.xml if Capacity Scheduler is used.  
 2. After setting policies here, click [Apply] to update configuration files and parameters in "Configuration management". Executing [Apply] will deliver the corresponding policy configurations.  
 3. If you have enabled tag scheduling in "Configuration management", the settings will be synced when you enable the Capacity Scheduler.

Resource scheduler

Type •  Fair Scheduler  Capacity Scheduler

**Resource Pools** Execution Plans Placement Rules User Limits

Create Resource Pool

Resource Pool Name	Weight	Configuration Set		Min Resources		Max Resources		Max Running Apps	Scheduling Policy	Preempt
		default		CPU	Memory	CPU	Memory			
root	--	--	--	--	--	--	--	--	--	--
default	--	--	--	--	--	--	--	--	--	--

4. Create a resource pool for Fair Scheduler.

Select **Fair Scheduler**. On the displayed page, click **Create resource pool**. You can edit, clone, and delete an existing resource pool as well as create a subpool for it.

### Create Resource Pool

#### Basic Settings

Resource Pool Name ⓘ \*

Parent Pool

#### Resource Limits

Configuration Set ⓘ

Weight ⓘ

Min Resources ⓘ vCore  Memory  MB

Max Resources ⓘ vCore  Memory  MB

Max Concurrent Running Apps ⓘ

Max Share for App Master ⓘ

#### Scheduling Policy

DPE: Dominant Resource Fairness. This fairly schedules resources based on C...

Scheduling Policy ⓘ

- DRF: Dominant Resource Fairness. This fairly schedules resources based on CPU and memory.
- Fair: fairly schedules resources based on memory only.
- FIFO: schedules resources on a first-in, first-out basis.

Preemption

Preemption Mode ⓘ



Fair Share Preemption Threshold ⓘ

Fair Share Preemption Timeout ⓘ

 seconds

Min Share Preemption Timeout ⓘ

 seconds

Access Control

Submission ⓘ

- Allow all users to submit jobs to this resource pool
- Allow the following users to submit jobs to this resource pool

Management ⓘ

- Allow all users to manage this pool
- Allow the following users to manage this pool

Confirm

Cancel

Fields and parameters:

Field	Parameter	Description
Resource Pool Name	name	Name of the resource pool or queue. It can contain only letters, digits, hyphens, and underscores and cannot start with a hyphen or underscore.
Parent Pool	The value of `type` is `parent`.	Means that although the resource pool has no subpools, it is not a leaf node. A parent pool cannot have subpools in Hadoop v2.8 and later.
Configuration Set	None	YARN does not have this parameter, which means a collection of scheduled tasks.
Weight	weight	Percentage of resources in the parent pool. A greater weight means more resources allocated.
Min Resources	minResources	The minimum amount of resources guaranteed. When the minimum amount of resources guaranteed for a queue is not met, it has a higher priority than other queues at the same level to obtain resources.

Max Resources	maxResources	The maximum amount of resources that can be used. The amount of resources available for each queue cannot exceed this value.
Max Concurrent Running Apps	maxRunningApps	The maximum number of concurrent running applications allowed. This limitation can prevent intermediate outputs generated by excessive concurrent running map tasks from filling up the disks.
Max Share for App Master	maxAMShare	The maximum percentage of resources that can be used to run Application Master. This attribute only applies to leaf queues.
Scheduling Policy	schedulingPolicy	You can set a scheduling policy for any queue. Valid values include `Fifo`, `Fair`, and `Drf`. If the value is `Fifo` or `Fair`, only memory is taken into account in resource allocation. If `Drf`, both memory and the number of cores are taken into account.
Preemption Mode	allowPreemptionFrom	This field applies only to Hadoop v3.x and later. In v2.x, you can only configure `yarn.scheduler.fair.preemption` to set the preemption mode.
Fair Share Preemption Threshold	fairSharePreemptionThreshold	The fair share preemption threshold for the queue. If the queue waits `fairSharePreemptionTimeout` without receiving `fairSharePreemptionThreshold*fairShare` resources, it is allowed to preempt resources from other queues. If this field is not set, the queue will inherit the value from its parent queue.
Fair Share Preemption Timeout	fairSharePreemptionTimeout	Number of seconds the queue is under its fair share threshold before it will try to preempt resources from other queues. If this field is not set, the queue will inherit the value from its parent queue.
Min Share Preemption Timeout	minSharePreemptionTimeout	Number of seconds the queue is under its minimum share before it will try to preempt resources from other queues. If this field is not set, the queue will inherit the value from its parent queue.
Submission	aclSubmitApps	List of users that can submit apps to the queue
Management	aclAdministerApps	List of users that can manage the queue

## Configuring an execution plan



1. In the **Policy settings** section, click **Execution plans** > **Create execution plan** to create an execution plan. **Configuration set status** indicates whether the execution plan is enabled, which defaults to "Enabled". When you don't want to enable an execution plan but still want to retain the configuration set, you can set the plan status to "Disabled".
2. In the **Create execution plan** window, select/enter the **Configuration set**, **Name**, and **Plan validity**.

### Create Execution Plan

Configuration Set  New  Existing

**Name \***  **Copy From**

**Plan Validity ⓘ \***   -

### Sample configuration set

1. Log in to the [EMR console](#) and click **Details** of the target Hadoop cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster services** and click **Operation** > **Resource scheduling** in the top-right corner of the YARN component block to go to the **Resource scheduling** page.
3. Toggle on **Resource scheduler** and select **Fair Scheduler**.
4. Click **Create resource pool** and configure parameters as needed.

**Resource scheduler**

Type •  Fair Scheduler  Capacity Scheduler

**Resource Pools** Execution Plans Placement Rules User Limits

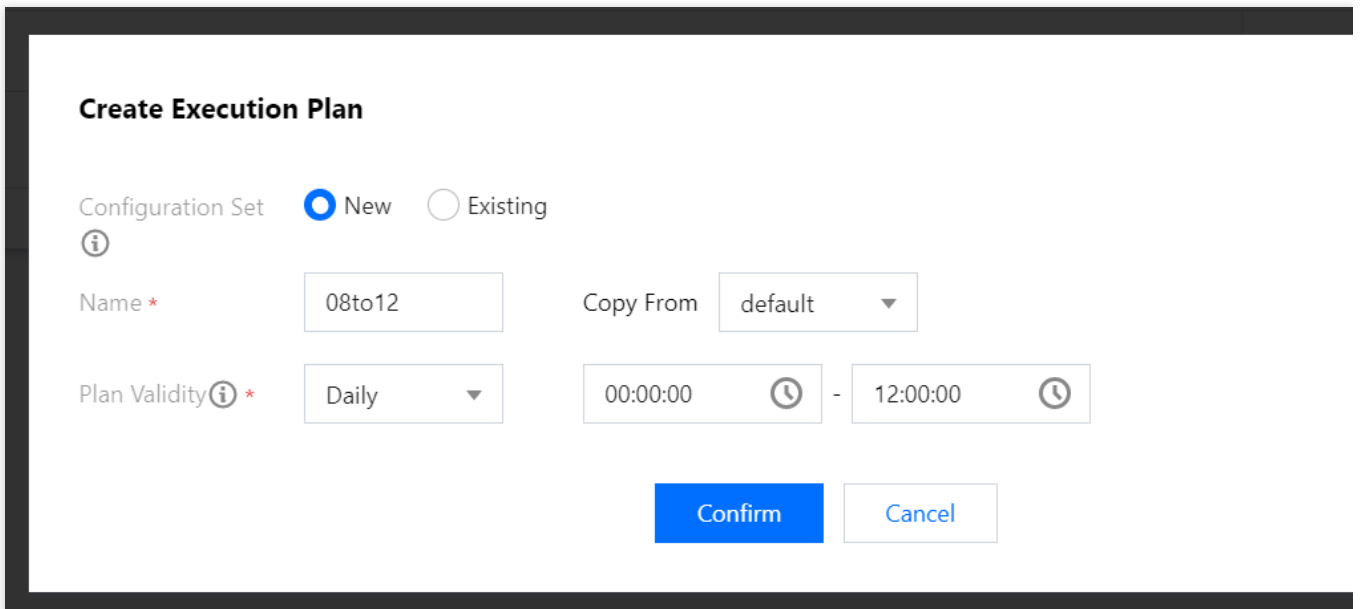
[Create Resource Pool](#)

Resource Pool Name	Weight	Configuration Set <input type="text" value="default"/>		Min Resources		Max Resources		Max Running Apps	Scheduling Policy	Preem
		CPU	Memory	CPU	Memory					
		root	--	--	--	--	--			
flink	4	--	--	--	--	--	--	drf	--	
hive	4	--	--	--	--	100	10	fair	--	
default	2	--	--	50	150	10	10	fair	--	

5. On the **Resource Scheduling** page, click **Execution Plans** > **Create Execution Plan** and adjust the **Plan Validity** as needed.

**Note**

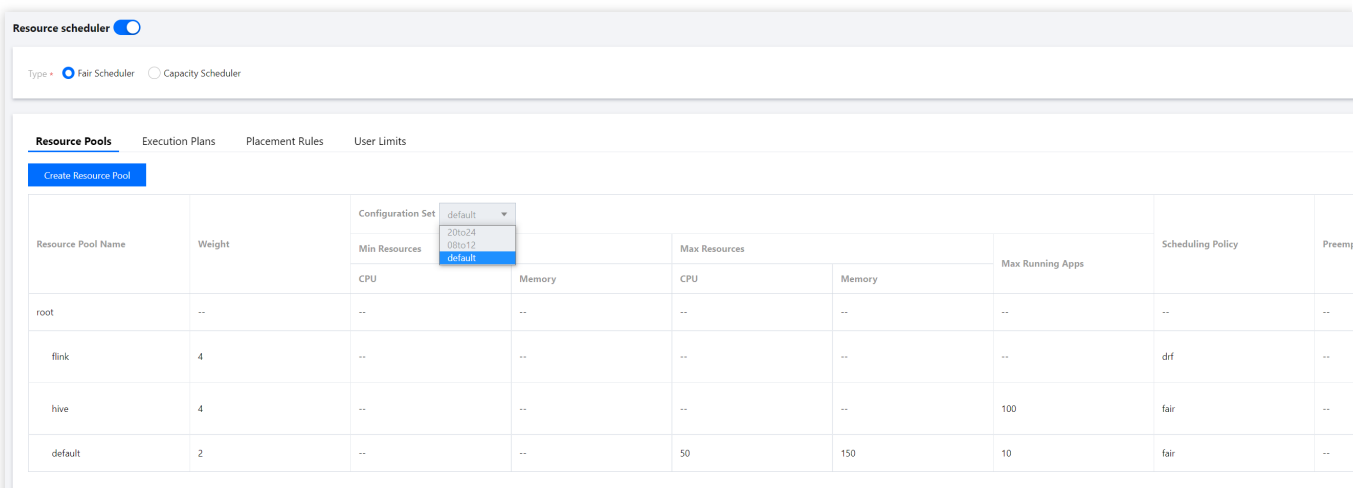
If scheduled scale-out is configured for the EMR cluster, we recommend you set the **Plan Validity** to a time period after the scheduled scale-out.



6. On the **Resource Scheduling** page, click **Resource Pools** and select an item from the **Configuration Set** drop-down list.

**Note**

The resource limits of a resource pool can be configured by configuration set.



7. Select the created resource pool from **Configuration Set** and adjust the **Resource Limits** as needed.

**Resource Pools** Execution Plans Placement Rules User Limits

Create Resource Pool

Resource Pool Name	Weight	Configuration Set: 08to12		Min Resources		Max Resources		Max Running Apps	Scheduling Policy	Preem
		CPU	Memory	CPU	Memory					
root	--	--	--	--	--	--	--	--	--	--
flink	2	--	--	--	--	--	--	--	drf	--
hive	2	--	--	--	--	--	--	100	fair	--
default	2	--	--	50	150	10	10	10	fair	--

**资源池** 计划模式 放置规则 用户限制

新建资源池

资源池名称	权重	配置集: 20to24		最小资源数		最大资源数		最高处于运行状态Application数目	调度策略	抢占权
		CPU	内存	CPU	内存					
root	--	--	--	--	--	--	--	--	--	--
flink	8	--	--	--	--	--	--	--	drf	--
hive	1	--	--	--	--	--	--	100	fair	--
default	1	--	--	50	150	10	10	10	fair	--

**资源池** 计划模式 放置规则 用户限制

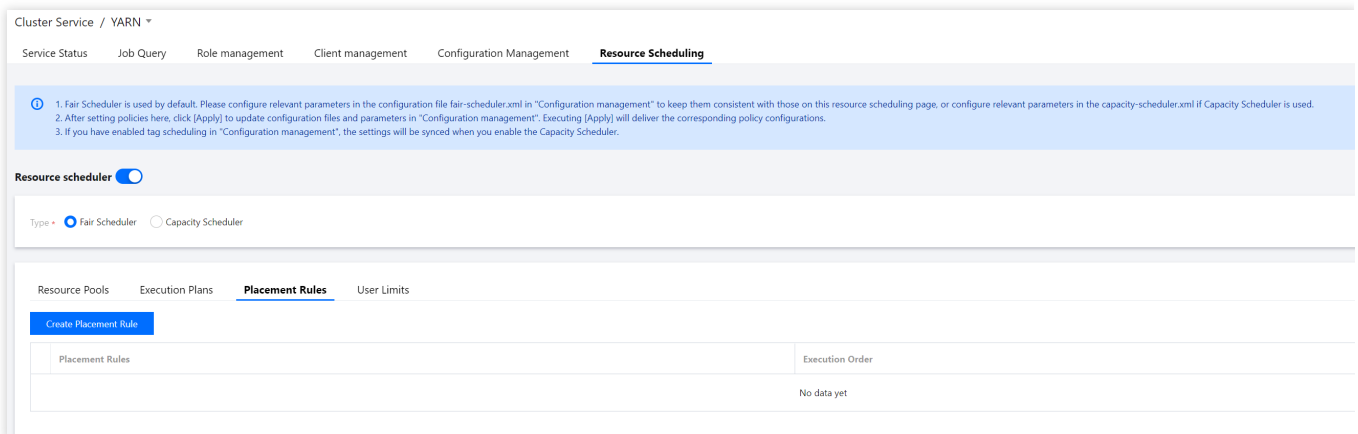
新建资源池

资源池名称	权重	配置集: default		最小资源数		最大资源数		最高处于运行状态Application数目	调度策略	抢占权
		CPU	内存	CPU	内存					
root	--	--	--	--	--	--	--	--	--	--
flink	4	--	--	--	--	--	--	--	drf	--
hive	4	--	--	--	--	--	--	100	fair	--
default	2	--	--	50	150	10	10	10	fair	--

8. After the resource pool adjustment, click **Apply** to make the settings effective.

## Configuring a placement rule

In the **Policy settings** section, click **Placement rules** > **Create placement rule** to create a placement rule.



Set **Placement type** and **Pool name**.

### 新建放置规则 ✕

放置类型 \*

池名称 \*

在池不存在时创建池。

确定
取消

**Configuration rule type description:root.[pool name]:** The rule always needs to be met and applies when other rules do not match. Therefore, it needs to be placed after others.

**root.[pool name].[username]:** The rule checks whether the pool name exists in the resource pool, and if so, a resource pool with the same name as the username will be created (when **Create one if the pool does not exist** is selected).

**root.[primary group]:** The rule uses the resource pool matching the user's primary group. On Linux, the user's default primary group has the same name as the username. The names of the user's primary group and resource pool are used for match.

**root.[primary group].[username]:** The rule first uses the resource pool matching the user's primary group and then the subpool matching the username. If the selected pool does not exist but a pool is created, a subpool with the same name as the username will be created under the pool.

**root.[secondarygroup]:** The rule matches the user's secondary groups and uses the resource pool matching one of the secondary groups.

**root.[secondarygroup].[username]:** The rule first matches the user's secondary groups and then the resource pool matching the username.

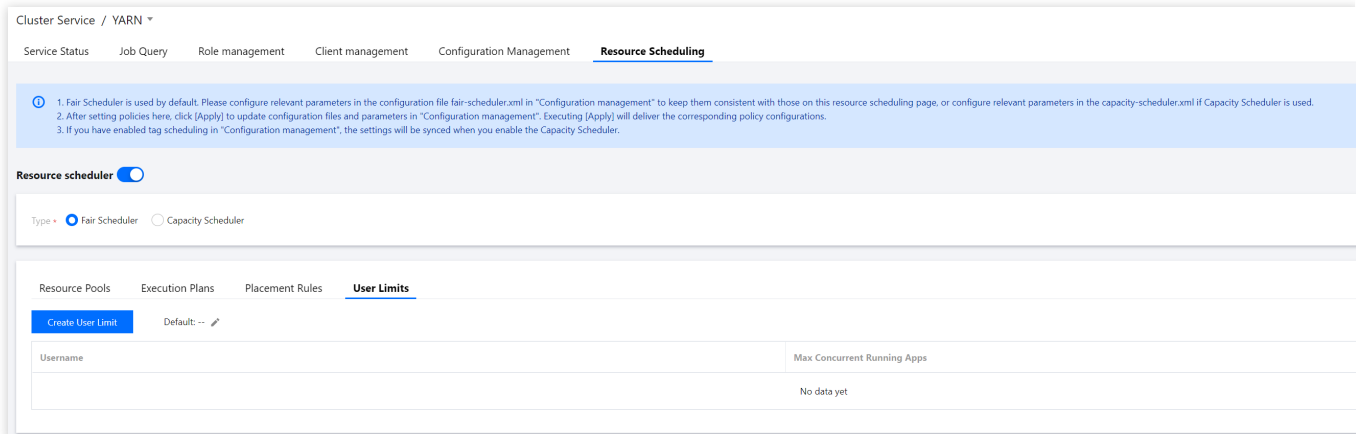
**root.[username]:** The rule matches the resource pool with the same name as the username (not recommended).

Specified at runtime: The rule mainly uses the resource pool specified at runtime.

Placement rules are matched in the order of 1, 2, 3... If a rule is matched, rules after it will not be matched.

## Configuring user limits

In the **Policy settings** section, click **User limits** > **Create user limit** to create a user limit.



Set **Username** and **Max Concurrent Running Apps**.

### 新建用户限制

用户名称 \*

同时运行应用程序上限 ⓘ \*

# Configuring Capacity Scheduler

Last updated : 2023-12-27 14:32:16

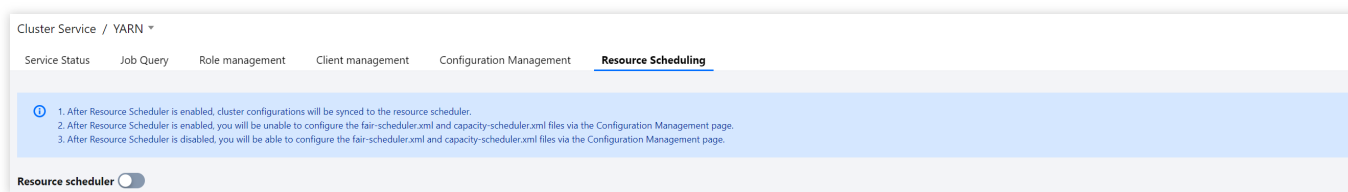
## Overview

Capacity Scheduler organizes resources in a hierarchical manner, allowing multiple users to share cluster resources based on multi-level resource restrictions.

## Directions

### Creating a resource pool

1. Log in to the [EMR console](#) and click **Details** of the target Hadoop cluster in the cluster list to go to the cluster details page.
2. On the cluster details page, select **Cluster Service** and choose **Operation > Resource Scheduling** in the top-right corner of the YARN component block to go to the **Resource Scheduling** page.



3. Toggle on **Resource scheduler** and configure the scheduler.
4. Create a resource pool for Capacity Scheduler.

Select **Capacity Scheduler** and click **Create Resource Pool** to create a resource pool. You can edit or clone an existing resource pool as well as create a subpool for it. You can also click **Default settings** to set the number of times of delayed scheduling.

Cluster Service / YARN

Service Status Job Query Role management Client management Configuration Management **Resource Scheduling**

- 1. Fair Scheduler is used by default. Please configure relevant parameters in the configuration file fair-scheduler.xml in "Configuration management" to keep them consistent with those on this resource scheduling page, or configure relevant parameters in the capacity-scheduler.xml if Capacity Scheduler is used.
- 2. After setting policies here, click [Apply] to update configuration files and parameters in "Configuration management". Executing [Apply] will deliver the corresponding policy configurations.
- 3. If you have enabled tag scheduling in "Configuration management", the settings will be synced when you enable the Capacity Scheduler.

Resource scheduler

Type  Fair Scheduler  Capacity Scheduler

**Resource Pools** Resource Pool Mappings

Create Resource Pool Default settings

Tag scheduling

Resource Pool Name	Capacity	Max C...	Min User Ca...	User Resour...	Max vCores per Container	Max Memory per Container
root	--	--	--	--	--	--
default	100%	100%	--	1	--	--

## Create Resource Pool

### Basic Settings

Resource Pool Name ⓘ

Enter a resource pool name

### Resource Limits

Tag settings

Tag

Capacity

Max Capacity

<DEFAULT\_PARTITION ▾

Enter

%

Enter

Min User Capacity ⓘ

Enter

%

User Resource Factor ⓘ

Enter

%

Max Memory per Container ⓘ

Enter

MB

Max vCores per Container ⓘ

Enter

Resource Pool Status ⓘ

RUNNING  STOPPED

### App Limits

Max Apps ⓘ

−

10000

+

Max Resources for AM ⓘ

25

%

Resource pool priority ⓘ

Enter

**Access control**

Submission ⓘ

- Allow all users to submit jobs to this resource pool
- Allow the following users to submit jobs to this resource pool

Management ⓘ

- Allow all users to manage this pool
- Allow the following users to manage this pool

Confirm

Cancel

**Fields and parameters:**

Field Name	Parameter	Description
Resource Pool Name	yarn.scheduler.capacity.<queue-path>.queues</queue-path>	Name of the resource pool or queue
Label Settings	N/A	Set the specified label that can be accessed by the queue.
Capacity	yarn.scheduler.capacity.<queue-path>.capacity</queue-path>	Available resource amount. The total capacity of the subpools of a parent pool is 100. Available resource amount = resource amount of the parent pool * percentage set here. The queue can consume more resources than the queue's capacity if there are idle resources in other queues.
Max Capacity	yarn.scheduler.capacity.<queue-path>.maximum-capacity</queue-path>	Maximum queue capacity in percentage. Because of resource sharing, the amount of resources used by a queue may exceed its capacity, and this field specifies the maximum amount of resources that can be used by the queue.
Default Label Expression	yarn.scheduler.capacity.<queue-path>.default-node-label-expression</queue-path>	If a resource request does not have a node label specified, the application will be submitted to the corresponding partition specified by this configuration item. By default, the value is empty, i.e., applications will be allocated to containers on nodes with no label.
Min User Capacity	yarn.scheduler.capacity.<queue-path>.minimum-user-limit-percent</queue-path>	Minimum resources in percentage guaranteed for each user. Each queue enforces a limit on the percentage of resources allocated to a user at any given time. When multiple users' applications are running in a queue concurrently, the amount

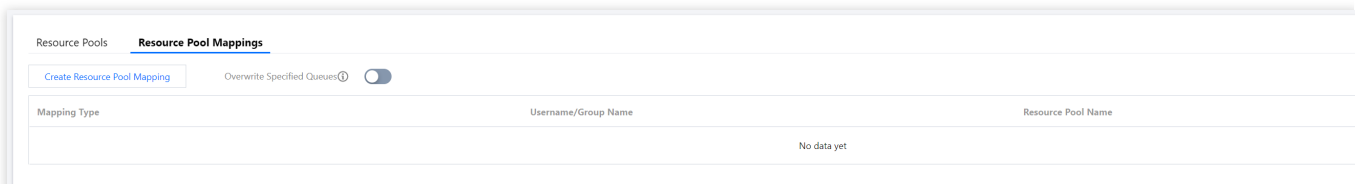


		of resources used by each user varies between a minimum and maximum value. The minimum value depends on the number of running applications, and the maximum value is determined by <code>minimum-user-limit-percent</code> .
User Resource Factor	<code>yarn.scheduler.capacity.&lt;queue-path&gt;.user-limit-factor&lt;/queue-path&gt;</code>	Maximum amount of resources in percentage that can be used by each user. For example, if the value is <code>30</code> , the amount of resources for each user cannot exceed 30% of the queue capacity at any given time.
Max Memory per Container	<code>yarn.scheduler.capacity.&lt;queue-path&gt;.maximum-allocation-mb&lt;/queue-path&gt;</code>	Maximum memory that can be allocated to each container. The value will overwrite and cannot be greater than that of the system's <code>yarn.scheduler.maximum-allocation-mb</code> .
Max vCores per Container	<code>yarn.scheduler.capacity.&lt;queue-path&gt;.maximum-allocation-vcores&lt;/queue-path&gt;</code>	Maximum number of CPU cores that can be allocated to each container. The value will overwrite and cannot be greater than that of the system's <code>yarn.scheduler.maximum-allocation-vcores</code> .
Resource Pool Status	<code>yarn.scheduler.capacity.&lt;queue-path&gt;.state&lt;/queue-path&gt;</code>	Status of the queue. The value can be <code>Running</code> or <code>Stopped</code> . If a queue is in the <code>Stopped</code> status, new applications cannot be submitted to it or any of its subqueues.
Max Apps	<code>yarn.scheduler.capacity.&lt;queue-path&gt;.maximum-applications&lt;/queue-path&gt;</code>	Maximum number of concurrent active (both running and pending) applications allowed in the system
Max Resources for AM	<code>yarn.scheduler.capacity.&lt;queue-path&gt;.maximum-am-resource-percent&lt;/queue-path&gt;</code>	Maximum percentage of resources in the cluster which can be used to run application masters. It controls the number of concurrent active applications.
Resource Pool Priority	<code>yarn.scheduler.capacity.root.&lt;leaf-queue-path&gt;.default-application-priority&lt;/leaf-queue-path&gt;</code>	Configure the priority of the resource queue, which is <code>0</code> by default. The larger the value, the higher the priority.
Submission	<code>yarn.scheduler.capacity.root.&lt;queue-path&gt;.acl_submit_applications</code>	List of users that can submit apps to the queue
Management	<code>yarn.scheduler.capacity.root.&lt;queue-path&gt;.acl_administer_queue</code>	List of users that can manage the queue
Delayed	<code>yarn.scheduler.capacity.node-</code>	Set the allowed number of times of delayed scheduling to

Scheduling	locality-delay	ensure the local execution of tasks. If the value is <code>`-1`</code> , delayed scheduling will be disabled.
------------	----------------	---

## Configuring resource pool mappings

1. In the **Policy Settings** section, choose **Resource Pool Mappings** > **Create Resource Pool Mapping** to create a resource pool mapping.



### Create Resource Pool Mapping ✕

Mapping Type \*

Username \*

Specific users: %user

Resource Pool Name \*

%user  %primary\_group

Mapping Result

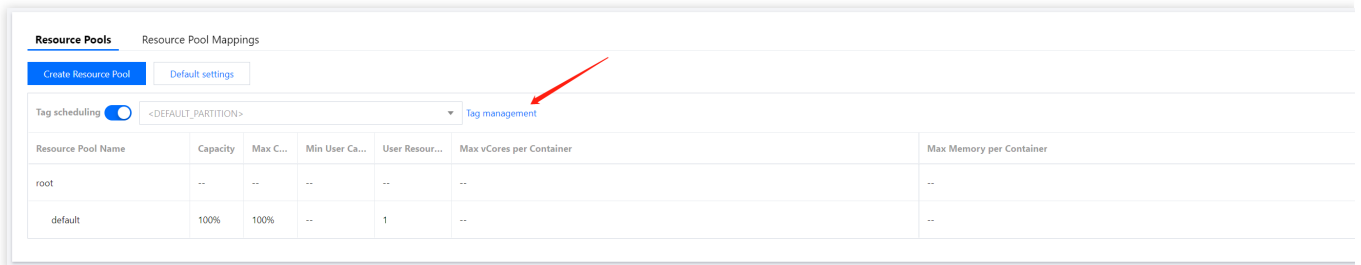
2. Configure **Overwrite Specified Queues**.

This feature is disabled by default. For example, you have defined a mapped queue in **Resource Pool Mappings** and specified a queue other than the mapped queue when submitting a job; if the specified queue is `default` and **Overwrite Specified Queues** is enabled, the mapped queue will be used; otherwise, the specified queue will be used.

## Sample label-based scheduling

1. Log in to the [EMR console](#) and click **Details** of the target Hadoop cluster in the cluster list to go to the cluster details page.

2. On the cluster details page, select **Cluster Service** and choose **Operation > Resource Scheduling** in the top-right corner of the YARN component block to go to the **Resource Scheduling** page.
3. Toggle on **Resource scheduler** and select **Capacity Scheduler**.
4. Toggle on **Label-based scheduling** and click **Label management** to go to the label management\*\* page.



5. Click **Create Label**, enter the label name, and set the label type and node to be bound to as needed.

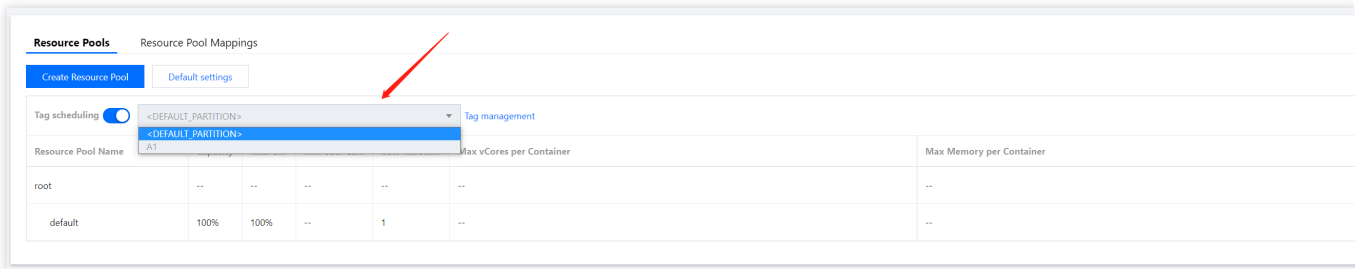
### Create tag

Tag name

Tag type  Exclusive  Non-exclusive

Node to be bound

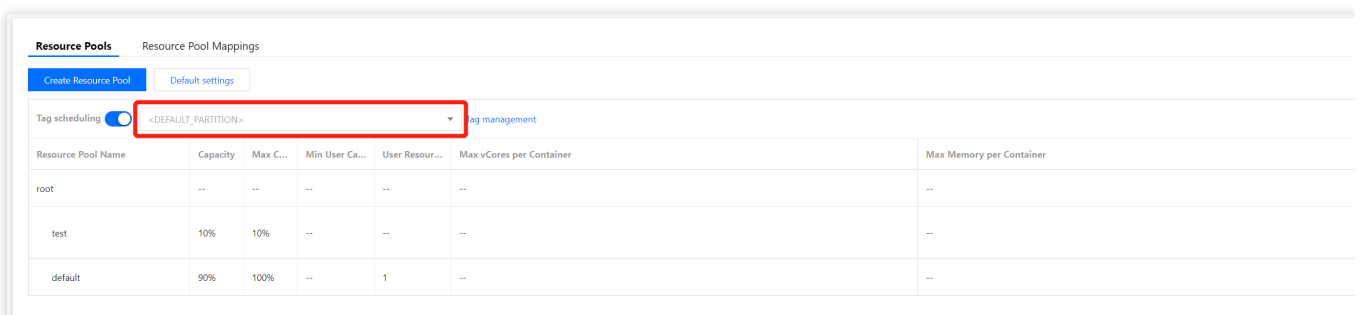
6. After the label is set, click **Apply**. Then, you can view and edit the resource queue of the label in the resource pool.



7. On the **Resource Scheduling** page, click **Create Resource Pool** and set **Label**, **Capacity**, **Max Capacity**, and other parameters as needed.

### Note

The capacity and maximum capacity of a resource pool can be configured by label.



8. After the resource pool is set, click **Apply** to submit the task to the backend.

### Caution

Proceed with caution when restarting the ResourceManager. If you are prompted that the ResourceManager will be restarted after you click **Apply**, check whether the operation is successful in **Scheduling History** and whether the ResourceManager is healthy in **Role Management**.

# Label Management

Last updated : 2023-12-27 14:34:47

## Overview

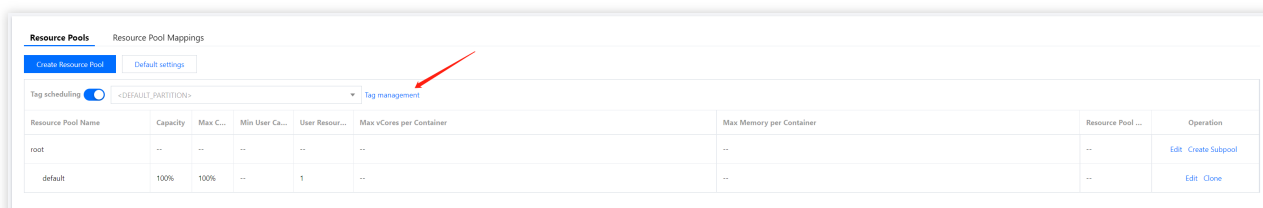
Label management allows you to create, edit, or delete a label or bind it to a node. Adding different labels to cluster nodes helps allocate resources at a finer granularity based on Capacity Scheduler and specify the running locations of applications.

## Prerequisites

You have enabled YARN resource scheduling, switched to Capacity Scheduler, and enabled label-based scheduling.

## Directions

1. Log in to the [EMR console](#) and click **Details** of the target Hadoop cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Service** and click **Operation > Resource Scheduling** in the top-right corner of the YARN component block to enter the **Resource Scheduling** page.
3. Toggle on **Resource scheduler** and select **Capacity Scheduler**.
4. Toggle on **Label-based scheduling** and click **Label Management** to enter the **Label Management** page.



5. On the **Label Management** page, view all labels of the cluster, create, edit, delete, or sync a label, or redirect to the web UI to view the node to which the label is bound.

### Tag management Apply Reset ✕

Create tag Sync tag View nodes [↗](#)

Tag	Operation
<DEFAULT_PARTITION>	<a href="#">Edit</a>
A1	<a href="#">Edit</a> <a href="#">Delete</a>

Total items: 2 10 ▾ / page ◀ ◁ 1 / 1 page ▷ ▶

# Viewing Scheduling History

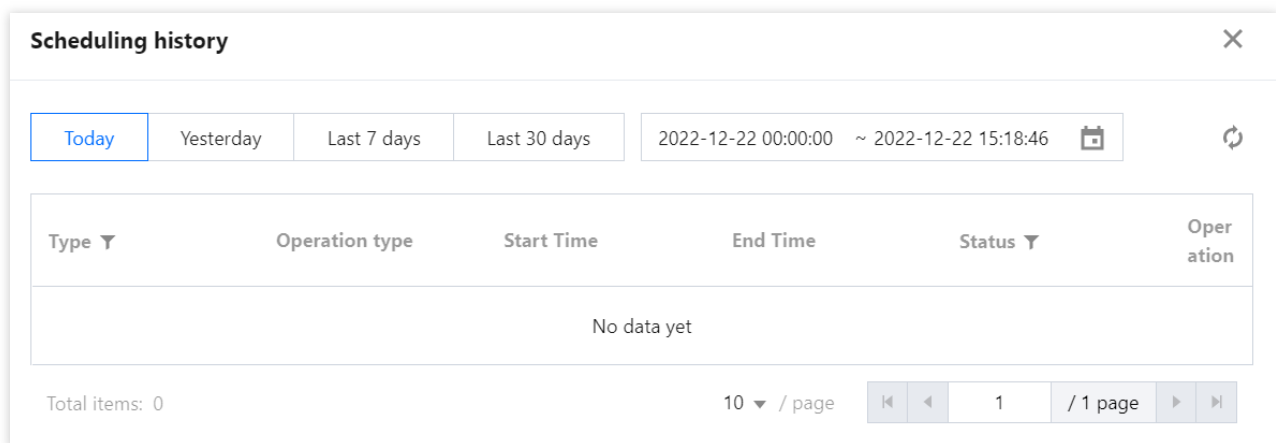
Last updated : 2023-12-27 14:35:03

## Overview

The scheduling history displays information such as operation records and task status of the resource queue configuration.

## Directions

1. Log in to the [EMR console](#) and click **Details** of the target Hadoop cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Service** and click **Operation > Resource Scheduling** in the top-right corner of the YARN component block to enter the **Resource Scheduling** page.
3. On the **Resource Scheduling** page, click **Scheduling History** to view the start time, end time, status, and operation information of a task.



**Scheduling history**

Today Yesterday Last 7 days Last 30 days 2022-12-22 00:00:00 ~ 2022-12-22 15:18:46

Type	Operation type	Start Time	End Time	Status	Operation
No data yet					

Total items: 0 10 / page 1 / 1 page

4. You can filter scheduling records by execution time and click **Details** in the **Operation** column to view detailed information.

# HBase RIT Fixing

Last updated : 2023-12-27 14:35:21

## Feature overview

The HBase RIT fixing feature is suitable for fixing regions in the `FAILED_OPEN` , `FAILED_CLOSED` , or `CLOSING` status when an HBase 2.2.0 or later cluster encounters prolonged Region-In-Transition (RIT) issues.

## Directions

1. Log in to the [EMR console](#) and click a **cluster ID/name** in the **Cluster list** to enter the cluster details page.
2. On the cluster details page, click **Cluster Service** and select **Operation > RIT fixing** in the top-right corner of the HBase component panel to view and fix regions in the RIT status.



3. In the list, click **Fix** in the **Operation** column, or select the target regions and click **Batch fix**, and confirm the information in the **RIT fixing** pop-up window.
4. After confirming that everything is incorrect, click **Confirm**.
5. You can view the progress and result of RIT fixing in the **Task Center**.



# Component Port Information

Last updated : 2023-12-27 14:35:38

This document describes common component ports.

## Common HDFS ports

Component	Port Number	Description
HDFS	4007	NameNode RPC port, which is used for: 1. The communication between the HDFS client and NameNode. 2. The connection between the DataNode and NameNode.
HDFS	4008	HDFS HTTP port (NameNode), which is used for: 1. Point-to-point NameNode checkpoint operations. 2. Connecting the remote web client to the NameNode UI.
HDFS	4009	HDFS HTTPS port (NameNode), which is used for: 1. Point-to-point NameNode checkpoint operations. 2. Connecting the remote web client to the NameNode UI.
HDFS	4004	DataNode IPC server port, which is used for connecting the client to the DataNode to perform RPC operations.
HDFS	4001	DataNode data transfer port, which is used for: 1. The data transfer from or to the DataNode to or from the HDFS client. 2. Point-to-point DataNode data transfer.
HDFS	4002	DataNode HTTP port, which is used for connecting the remote web client to the DataNode UI in safe mode.
HDFS	4003	DataNode HTTPS port, which is used for connecting the remote web client to the DataNode UI in safe mode.
HDFS	4005	JournalNode RPC port, which is used for client communication to access multiple types of information.
HDFS	4006	JournalNode HTTP port, which is used for connecting the remote web client to the JournalNode in safe mode.
HDFS	4032	The listener port of the HttpFS HTTP server, which is used for connecting the remote RESTful API to HttpFS.

## Common YARN ports

Component	Port Number	Description
YARN	5024	The web HTTP port of the JobHistory server, which is used for viewing the webpage of the JobHistory server.
YARN	5022	JobHistory server port, which is used for: 1. Recovering task data on the MapReduce client. 2. Getting the task report on the JobHistory client.
YARN	5003	The web HTTP port of the ResourceManager service.
YARN	5002	The web HTTPS port of the ResourceManager service, which is used for connecting to the ResourceManager web application in safe mode.
YARN	5004	The web HTTP port of the NodeManager.
YARN	5005	The web HTTPS port of the NodeManager, which is used for connecting to the NodeManager web application in safe mode.
YARN	5001	ResourceManager scheduler port.
YARN	5000	ResourceManager RPC port, which is used for submitting tasks on the client.

## Common Hive ports

Component	Port Number	Description
Hive	7010	The port for WebHCat to provide RESTful services, which is used for the communication between the WebHCat client and WebHCat server.
Hive	7001	The port for HiveServer to provide Thrift services, which is used for the communication between the HiveServer client (Beeline) and HiveServer.
Hive	7004	The port for MetaStore to provide Thrift services, which is used for the communication between the MetaStore client and MetaStore, i.e., the communication between HiveServer and MetaStore.
Hive	7003	The web UI port of Hive, which is used for the HTTPS/HTTP communication between web requests and the Hive UI server.

## Common Spark ports

Component	Port Number	Description
Spark	10000	HTTP port.

## Common Presto ports

Component	Port Number	Description
Presto	9000	The HTTP port for the Presto coordinator or worker to provide external services.

## Common PrestoSQL ports

Component	Port Number	Description
PrestoSQL	9000	The HTTP port for the PrestoSQL coordinator or worker to provide external services.

## Common Trino ports

Component	Port Number	Description
Trino	9000	The HTTP port for the Trino coordinator or worker to provide external services.

## Common Impala ports

Component	Port Number	Description
Impala	27000 and 27009	The ports for Impala application communication. The former is for Impala 2.x, and the latter is for Impala 3.x.
Impala	27001	The port for impala-shell communication.

Impala	27004	The web port of the Impala server.
Impala	27007	The web port of the Impala Catalog.
Impala	27005	The web port of the Impala StateStore.

## Common Kudu ports

Component	Port Number	Description
Kudu	7051	The PRC port of the Kudu master.
Kudu	7050	The RPC port of the Kudu server.
Kudu	8051	The HTTP port of the Kudu master.
Kudu	8050	The HTTP port of the Kudu server.

## Common ClickHouse ports

Component	Port Number	Description
ClickHouse	9000	The TCP port for accessing the business client.
ClickHouse	8123	The HTTP port for accessing the business client.
ClickHouse	9009	The HTTPS port for accessing the business client.

## Common Kylin ports

Component	Port Number	Description
Kylin	16500	Kylin HTTP port.

## Common Doris ports

Component	Port Number	Description
-----------	-------------	-------------

Doris	8000	The Thrift server port on the broker.
Doris	9060	The Thrift server port on the backend, which is used for receiving frontend requests.
Doris	8060	The BRPC port on the backend, which is used for the communication between backend instances.
Doris	9050	The heartbeat service port (Thrift) on the backend, which is used for receiving frontend heartbeats.
Doris	8040	The Thrift server port on the broker, which is used for receiving requests.
Doris	9010	The port on the frontend for the communication between metadata management modules (BDBJE).
Doris	8030	The HTTP server port on the frontend.
Doris	9020	The Thrift server port on the frontend.
Doris	9030	The port on the frontend for receiving MySQL client access requests.

## Common StarRocks ports

Component	Port Number	Description
StarRocks	8000	The Thrift server port on the broker.
StarRocks	9060	The Thrift server port on the backend, which is used for receiving frontend requests.
StarRocks	8060	The BRPC port on the backend for the communication between backend instances.
StarRocks	9050	The heartbeat service port (Thrift) on the backend, which is used for receiving frontend heartbeats.
StarRocks	8040	The Thrift server port on the broker, which is used for receiving requests.
StarRocks	9010	The port on the frontend for the communication between metadata management modules (BDBJE).
StarRocks	8030	The HTTP server port on the frontend.

StarRocks	9020	The Thrift server port on the frontend.
StarRocks	9030	The port on the frontend for receiving MySQL client access requests.

## Common Druid ports

Component	Port Number	Description
Druid	8082	The listener port of the broker server ( <code>broker-runtime.properties</code> ), which is used for receiving client queries.
Druid	8081	The listener port of the coordinator server ( <code>coordinator-runtime.properties</code> ) for the communication with other components.
Druid	8083	The listener port of the historical server ( <code>historical-runtime.properties</code> ) for the communication with other components.
Druid	8091	The listener port of the middleManager server ( <code>middleManager-runtime.properties</code> ) for the communication with other components.
Druid	8090	The listener port of the Overlord server ( <code>overlord-runtime.properties</code> ) for the communication with other components.
Druid	18888	The listener port of the router server ( <code>router-runtime.properties</code> ), which is used for routing client queries to the broker.

## Common HBase ports

Component	Port Number	Description
HBase	6000	HMaster RPC port, which is used for connecting the HBase client to HMaster.
HBase	6001	HMaster HTTPS port, which is used for connecting the remote web client to the HMaster UI.
HBase	6002	The RPC port of the RegionServer (RS), which is used for connecting the HBase client to the RegionServer.
HBase	6003	RegionServer HTTPS port, which is used for connecting the remote web client to the RegionServer UI.

HBase	6005	The Info Server listener port of the HBase Thrift server.
HBase	6004	The HBase Thrift server listener port.

## Common Flink ports

Component	Port Number	Description
Flink	16001	Flink web UI port, which is used for the HTTP/HTTPS communication between client web requests and the Flink server.

## Common Storm ports

Component	Port Number	Description
Storm	15002	Logviewer service port.
Storm	15000	Nimbus service port.
Storm	15001	Storm web UI port.

## Common Hue ports

Component	Port Number	Description
Hue	13000	The port for Hue to provide HTTPS web services, which can be modified.

## Common Oozie ports

Component	Port Number	Description
Oozie	12000	HTTP port, which is used for client access.

## Common Superset ports

Component	Port Number	Description
Superset	18088	Superset service port, which is used for client connection.

## Common Zeppelin ports

Component	Port Number	Description
Zeppelin	18000	Zeppelin service port, which is used for client connection.

## Common Kafka ports

Component	Port Number	Description
Kafka	9092	The port for the broker to provide data reception and acquisition services.

## Common Kafka Manager ports

Component	Port Number	Description
Kafka Manager	9000	The listener port of the Kafka Manager server, which is used for client connection.

## Common Ranger ports

Component	Port Number	Description
Ranger	6080	Ranger admin web UI port.
Ranger	5151	The port of Ranger UserSync for authentication services.

## Common COSRanger ports

Component	Port Number	Description
-----------	-------------	-------------



Component	Port Number	Description
COSRanger	9999	The listener port of the COSRangerServer server, which is used for client connection.

## Common KRB5 ports

Component	Port Number	Description
KRB5	749	Kadmin service port.
KRB5	754	Kprop service port.
KRB5	88	Kerberos server port for component authentication in the Kerberos service, which may be used in configuring mutual trust of clusters.

## Common Knox ports

Component	Port Number	Description
Knox	30002	HTTP port, which is usually used for browser connection.
Knox	33389	The LDAP port of Knox, which is used for Knox authentication.

## Common ZooKeeper ports

Component	Port Number	Description
ZooKeeper	2181	ZooKeeper client port, which is used for connecting the ZooKeeper client to the ZooKeeper server.

## Common OpenLDAP ports

Component	Port Number	Description
-----------	-------------	-------------

OpenLDAP	389	The port for client access.
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## Common Tez ports

Component	Port Number	Description
Tez	2000	The web UI port of Tez.

## Common Livy ports

Component	Port Number	Description
Livy	8998	The listener port of the Livy server, which is used for client connection.

## Common Kyuubi ports

Component	Port Number	Description
Kyuubi	10009	The listener port of the Kyuubi server, which is used for client connection.

## Common Alluxio ports

Component	Port Number	Description
Alluxio	20001	The RPC port of the Alluxio Job Master, which is used by the Alluxio Master to assign tasks to the Alluxio Job Master.
Alluxio	30001	The RPC port of the Alluxio Job Worker, which is used by the Alluxio Job Master to assign tasks to the Alluxio Job Worker.
Alluxio	19998	The RPC port of the Alluxio Master, which is used for connecting the client to the Alluxio Master.
Alluxio	29998	The RPC port of the Alluxio Worker, which is used by the Alluxio Master to assign read-write tasks to the Alluxio Worker.

## Common GooseFS ports

Component	Port Number	Description
GooseFS	9206	The RPC port of the Alluxio Job Master, which is used by the Alluxio Master to assign tasks to the Alluxio Job Master.
GooseFS	9210	The RPC port of the Alluxio Job Worker, which is used by the Alluxio Job Master to assign tasks to the Alluxio Job Worker.
GooseFS	9201	The RPC port of the Alluxio Master, which is used for connecting the client to the Alluxio Master.
GooseFS	9211	The listener port of the GooseFSProxy server, which is used for client proxy.
GooseFS	9204	The RPC port of the Alluxio Worker, which is used by the Alluxio Master to assign read-write tasks to the Alluxio Worker.

## Common Ganglia ports

Component	Port Number	Description
Ganglia	1602	Gmetad server port.
Ganglia	1603	Gmetad server port, which is used for receiving HTTPd data queries.
Ganglia	1601	The port for gmond process communication and gmetad access.

# Service Operation

Last updated : 2023-12-27 14:35:59

## Overview

Service operation is a collection of convenient Ops and management tools provided for components, including general service restart and command-based Ops operations specific to certain components, such as HDFS NameNode active/standby switch, HDFS data rebalance, YARN ResourceManager active/standby switch, and YARN queue refresh.

### Note

1. YARN ResourceManager active/standby switch requires you to disable

`yarn.resourcemanager.ha.automatic-failover.enabled` . If it is not displayed in the operation drop-down list on the YARN block, you need to find `yarn.resourcemanager.ha.automatic-failover.enabled` in the `yarn-site.xml` configuration file of YARN configuration management and disable it.

2. Do not delete the queues that have already taken effect in the scheduler's configuration file when refreshing YARN queues.

3. Ranger metadatabase change is currently supported only for MySQL databases, and only the connections of admin users will be tested.

## Specification Items

**HDFS NameNode active/standby switch:** This operation switches the active NameNode to standby status and the standby NameNode to active status.

**HDFS data rebalance:** This operation is usually required when a new DataNode is added. It will make the data evenly distributed to avoid hotspotting and make the cluster read/write load more balanced.

**YARN ResourceManager active/standby switch:** This operation switches the active ResourceManager to the standby status and the standby ResourceManager to active status. It is allowed only when

`yarn.resourcemanager.ha.automatic-failover.embedded` is disabled.

**YARN queue refresh:** This operation enables additions or updates to `capacity-scheduler.xml` or `fair-scheduler.xml` to take effect in the ResourceManager. Do not delete queues defined in them.

**Ranger metadatabase change:** To change the underlying database of Ranger, you need to modify the

`conf/install.properties` file and then run the `setup.sh` script locally. This script can synchronize the database information to the local `ranger-admin-site.xml` configuration file without modifying the content of `ranger-admin-site.xml` in **Configuration Management**. When you modify and deliver `ranger-admin-`

`site.xml` based on your needs, the database information will be overwritten, resulting in an exception. This operation allows you to quickly configure a Ranger metadatabase, so as to avoid exceptions caused by missing configuration items when you change the metadatabase address.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the corresponding cluster in the cluster list to go to the cluster details page.
2. On the cluster details page, select **Cluster Service** and click the target component block.
3. Taking HDFS NameNode active/standby switch as an example, in **Cluster Service**, select **HDFS > Operation > NN Failover** to perform the active/standby switch operation.

### NN Failover ✕

*i* Backend Command: `hdfs haadmin -failover`

Service name: HDFS

Service Role: NameNode

Operation Parameters

Select a NameService \*

Operation Scope:  Default node

Operation Reason \*

Enter no more than 200 characters

# HBase Table-Level Monitoring

Last updated : 2023-12-27 14:36:15

## Description

HBase table-level monitoring enables you to monitor the numbers of read and write requests and storage usage of each table in HBase.

## HBase Table Load List

1. Log in to the [EMR console](#) and click a **Cluster ID/Name** on the **Cluster List** page to enter the cluster details page.
2. On the cluster details page, click **Cluster Service** and select **Operation > Table-Level Monitoring** in the top-right corner of the HBase component block to query HBase table loads.

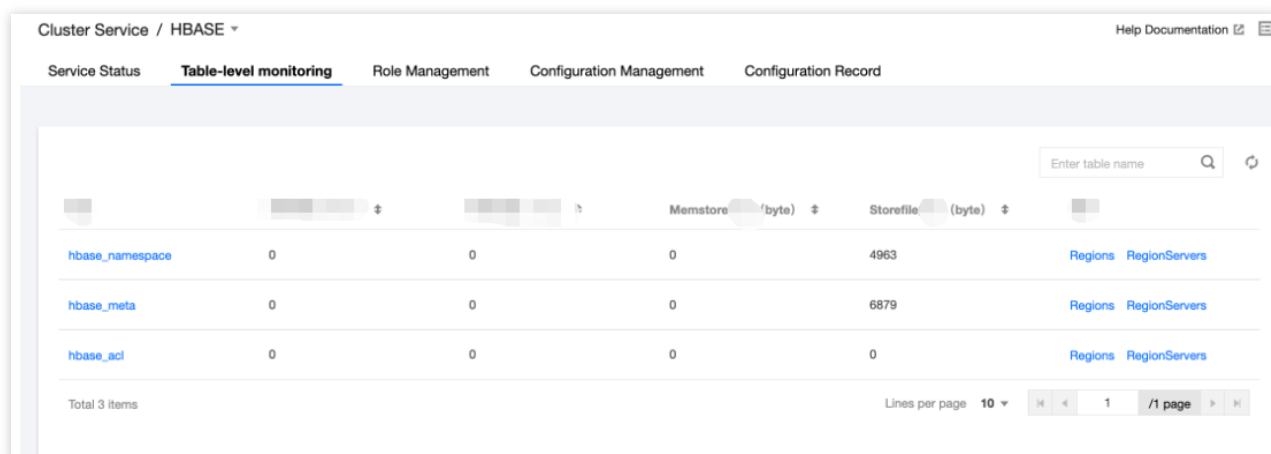


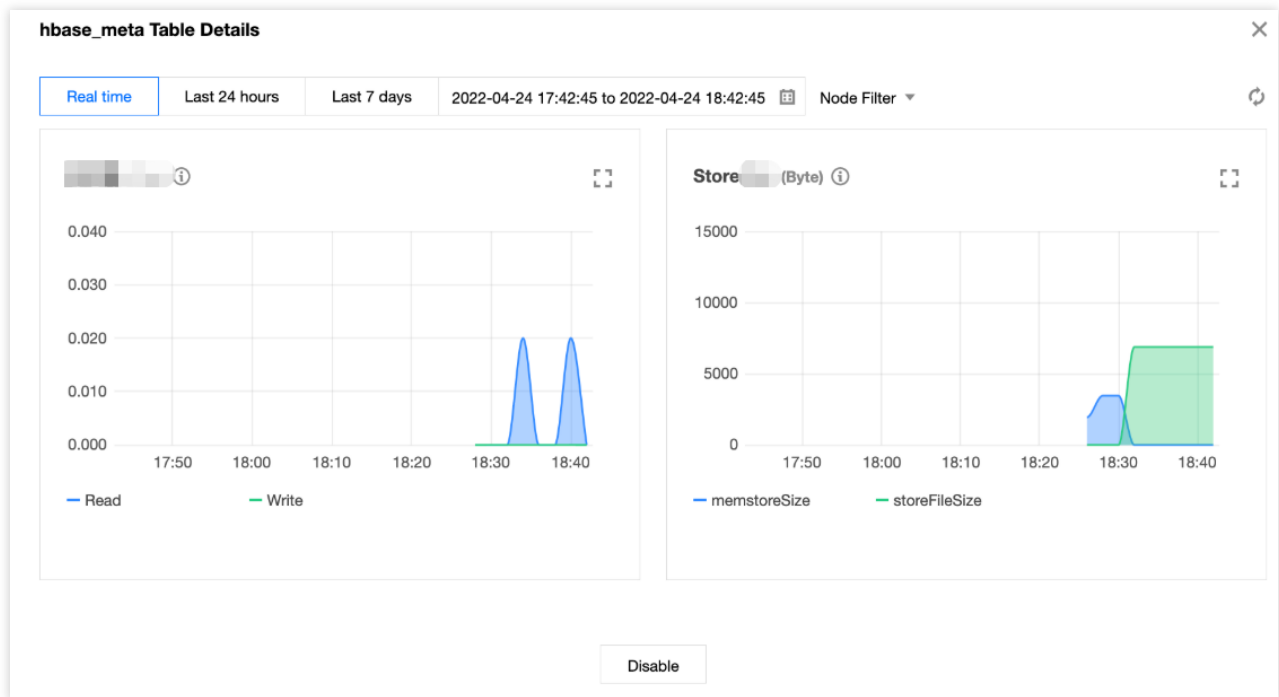
Table Name	Read Requests	Write Requests	Memstore (byte)	Storefile (byte)	Regions	RegionServers
<a href="#">hbase_namespace</a>	0	0	0	4963	<a href="#">Regions</a>	<a href="#">RegionServers</a>
<a href="#">hbase_meta</a>	0	0	0	6879	<a href="#">Regions</a>	<a href="#">RegionServers</a>
<a href="#">hbase_acl</a>	0	0	0	0	<a href="#">Regions</a>	<a href="#">RegionServers</a>

Total 3 items

Lines per page: 10 | Page: 1 / 1 page

## Viewing Table Details

Click a table name to pop up the table details. The details page can display the numbers of read and write requests and size of store (including MemStore and StoreFile) of the selected table in the dimension of the entire table or node. You can switch between nodes by using the **Node Filter** in the top-right corner.



## Regions Operation

Click **Regions Operation** to view the numbers of read and write requests of each region contained in the table.

Cluster Service / HBASE / hbase\_meta / **Region List** Help Documentation

Refresh

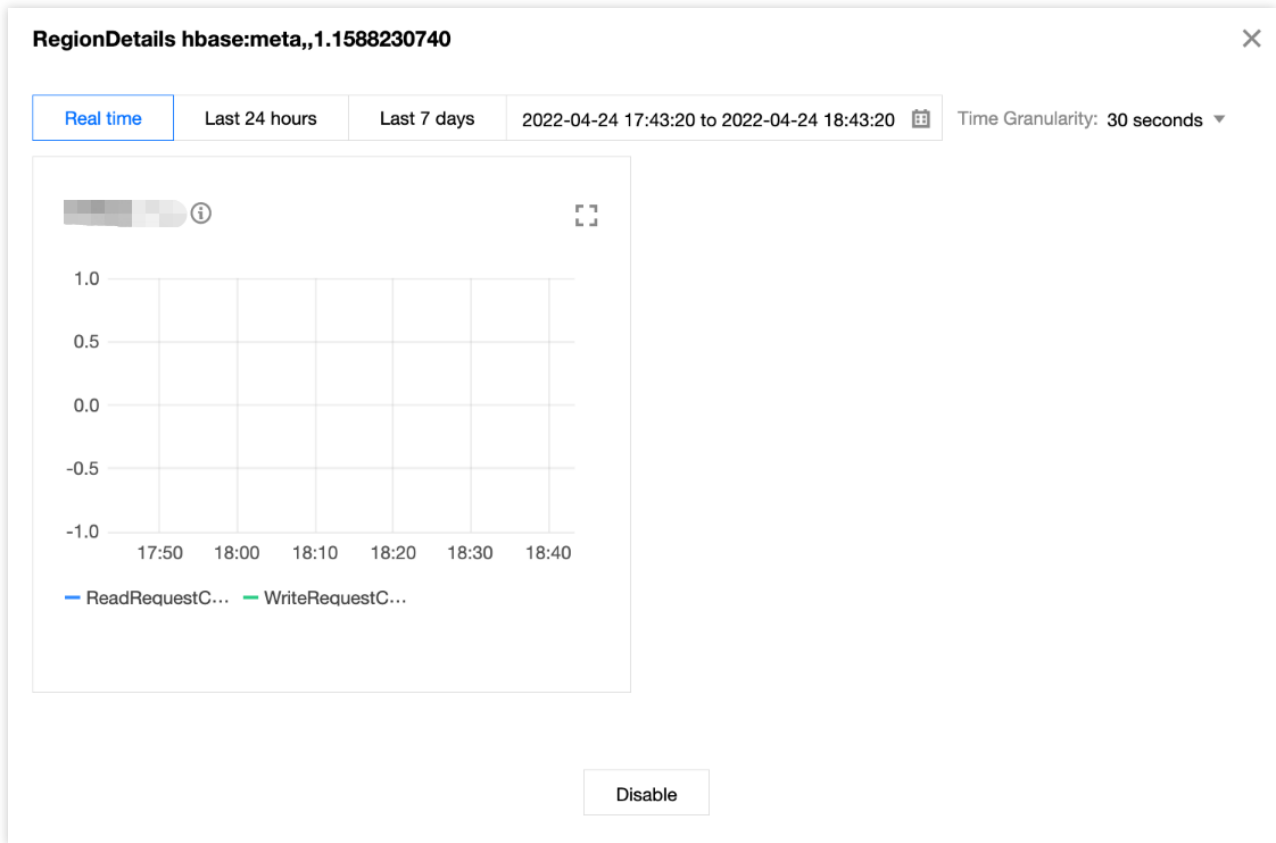
Region Name	RegionServer	Start Key	End Key	Read Request Count/s	Write Request Count/s
<a href="#">hbase:meta,,1.1588230740</a>	10.0.0.38:6003	-	-	0	0

Total 1 item

Lines per page 10 | 1 / 1 page

## Region Details

Click a region name to pop up the region details page, where the numbers of read and write requests of the selected table are displayed at different time granularities. Click **Time Granularity** in the top-right corner to switch between time granularities.



## RegionServers Operation

Click **RegionServers Operation** to view the request delay of each RegionServer where the table is distributed.

Cluster Service / HBASE / hbase\_namespace / **RegionServers** Help Documentation

Refresh

RegionServer	GetTimeTp99	ScanTimeTp99	PutTimeTp99	IncrementTimeTp99	AppendTimeTp99	DeleteTimeTp99
10.0.0.38	0	0	0	0	0	0

Total 1 item

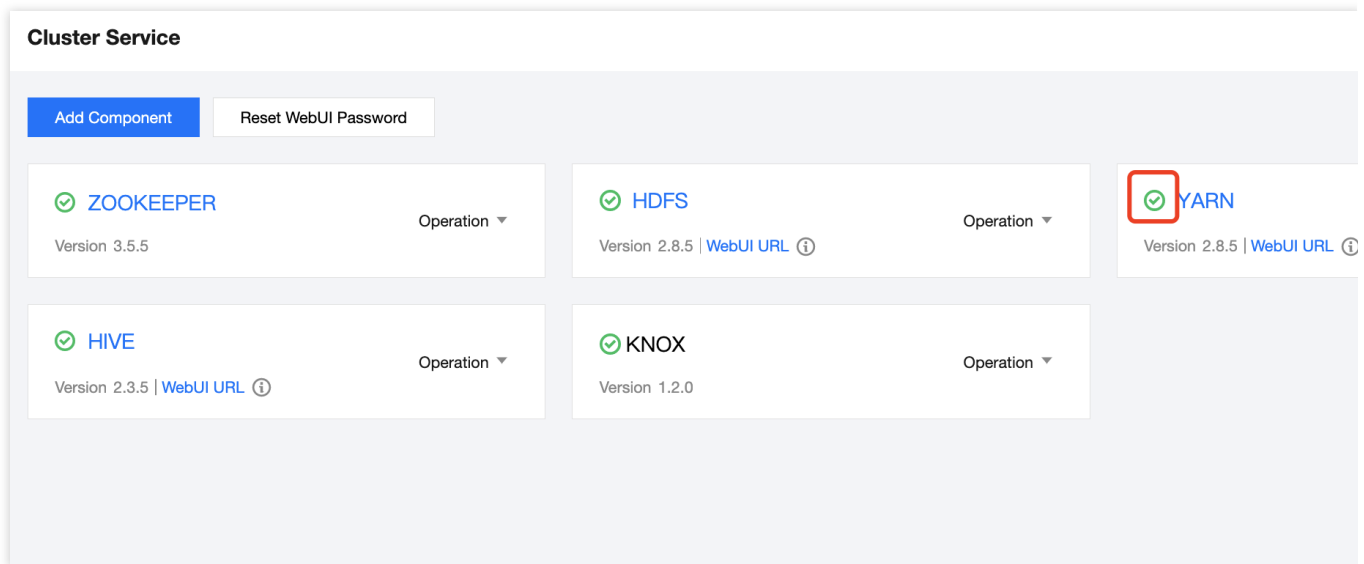
Lines per page 10 | 1 / 1 page



# Component Health Status

Last updated : 2023-12-27 14:37:08

The component health status shows whether the current component is running normally. It is aggregated from the health statuses of all roles and can be viewed on the **Cluster Service** page.



## Component Health Status

There are four component health statuses: Good, Risky, Unavailable, and Unknown or Not Checked. Different statuses are displayed in different colors.

Component Health Status	Description	Status Aggregation Rule
Green: Good	The service is running normally.	The health statuses of all role instances are Good.
Orange: Risky	Service available. The health status of some role instances is Unavailable or Risky. Please handle.	The health statuses of some instances of a role under the component are Unavailable or Risky. For example, if HDFS has one NameNode role instance and two DataNode role instances, the health status of one DataNode role instance is Unavailable, and the health statuses of the other DataNode role instance and the NameNode role instance are Good, then the health status of HDFS is Risky.
Red:	Service unavailable. The health	The health statuses of all instances of a role under

Unavailable	status of all instances of a role is Unavailable. Please handle in time.	the component are UNAVAILABLE. For example, if HDFS has one NameNode role instance and two DataNode role instances, the health statuses of the two DataNode role instances are Unavailable, and the health status of the NameNode role instance is Good, the health status of HDFS is Unavailable.
Gray: Unknown or Not Checked	Service health status Unknown or Not Checked. If there is no component, the health status will be Not Checked because no check is conducted; if there is a component, but it is in the maintenance mode or its operation status is Stopped, the health status will be Not Checked; if there is a component, but the health status of role instances cannot be obtained correctly, the health status will be Unknown. Ignore this if no problem is found in troubleshooting.	<ol style="list-style-type: none"> <li>1. The health statuses of all role instances of the component are not Risky or Unavailable, and the health status of at least one role instance is Unknown or Not Checked. For example, if HDFS has one NameNode role instance and two DataNode role instances, the health status of one DataNode role instance is Unknown or Not Checked, and the health statuses of the other DataNode role instance and the NameNode role instance are Good, the health status of HDFS is Unknown or Not Checked.</li> <li>2. The component has no processes, so no check is conducted, such as Iceberg, Hudi, and Flink.</li> </ol>

# Monitoring and Alarms

## Cluster Overview

Last updated : 2023-12-27 14:37:51

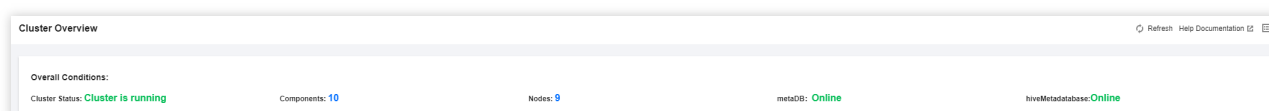
### Feature overview

Cluster overview displays a summary of cluster operation status, where you can view the cluster operation status, core service metrics, core node metrics, and top 10 nodes.

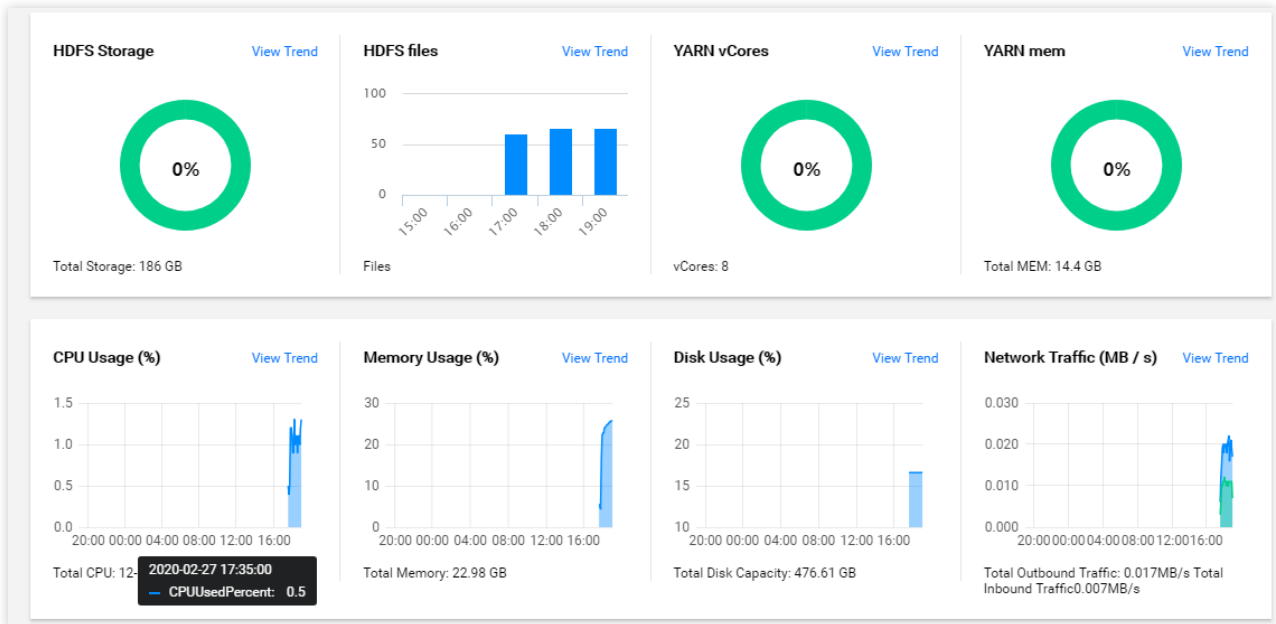
### Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Monitor > Cluster Overview** to view the overall status of the current cluster. The **Cluster Overview** page provides four monitoring views in the cluster dimension, namely, overall status of cluster, key cluster metrics, cluster deployment status, and top 10 nodes.

Overall cluster conditions: This view displays the current cluster status, node quantity, metadatabase online status, component health status, and events in the cluster within one hour.



Key cluster metrics: This view displays the total utilization of HDFS, YARN, CPU, memory, and disk as well as total network traffic of the current cluster. You can click **View Trend** in the top-right corner of each metric and select a target time period to view the corresponding usage trend.

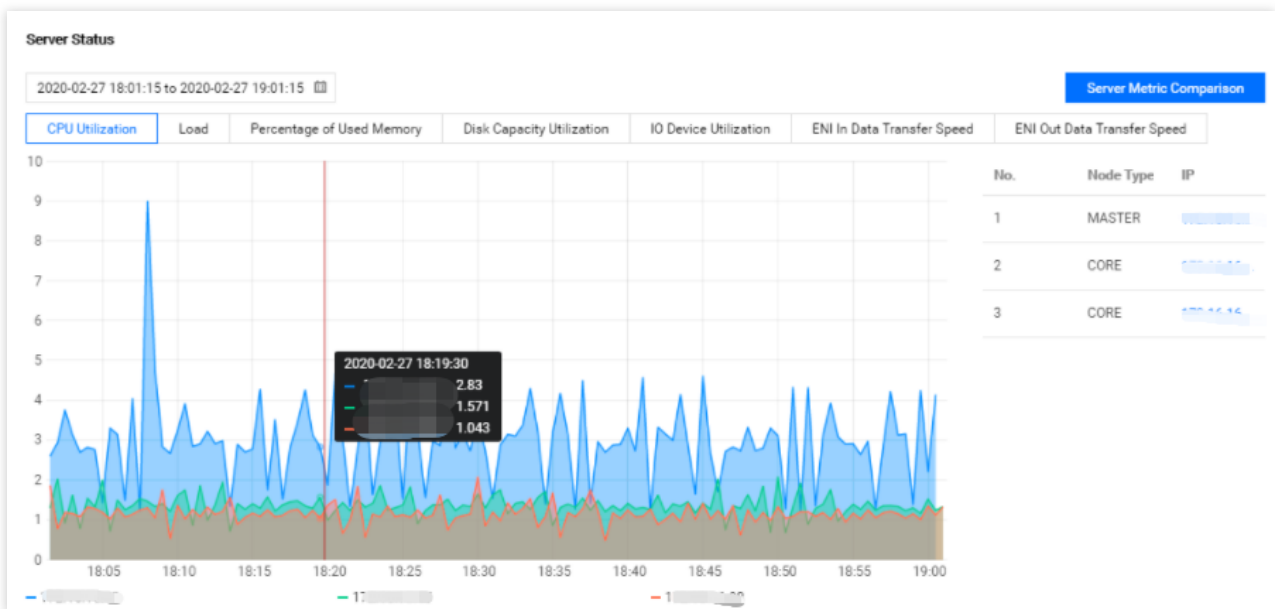


Cluster deployment status: This view displays abnormal, missing, and invalid processes deployed on nodes and the number of nodes in the current cluster, so that you can correct the configuration accordingly.

**Deployment Status**

Node Type	Standard process (deployed)	Standard process (missing)	Invalid Process	Nodes
MASTER	HMaster,HistoryServer,Knox,NameNode,QuorumPeerMain,ResourceManager,Spark,JobHistoryServer,ThriftServer			1
CORE	DataNode,NodeManager,RegionServer			2

Top 10 nodes: This view displays the trend of node loads in the current cluster under core metrics. You can select multiple nodes to compare their load trends under the same metric.



# Node Status

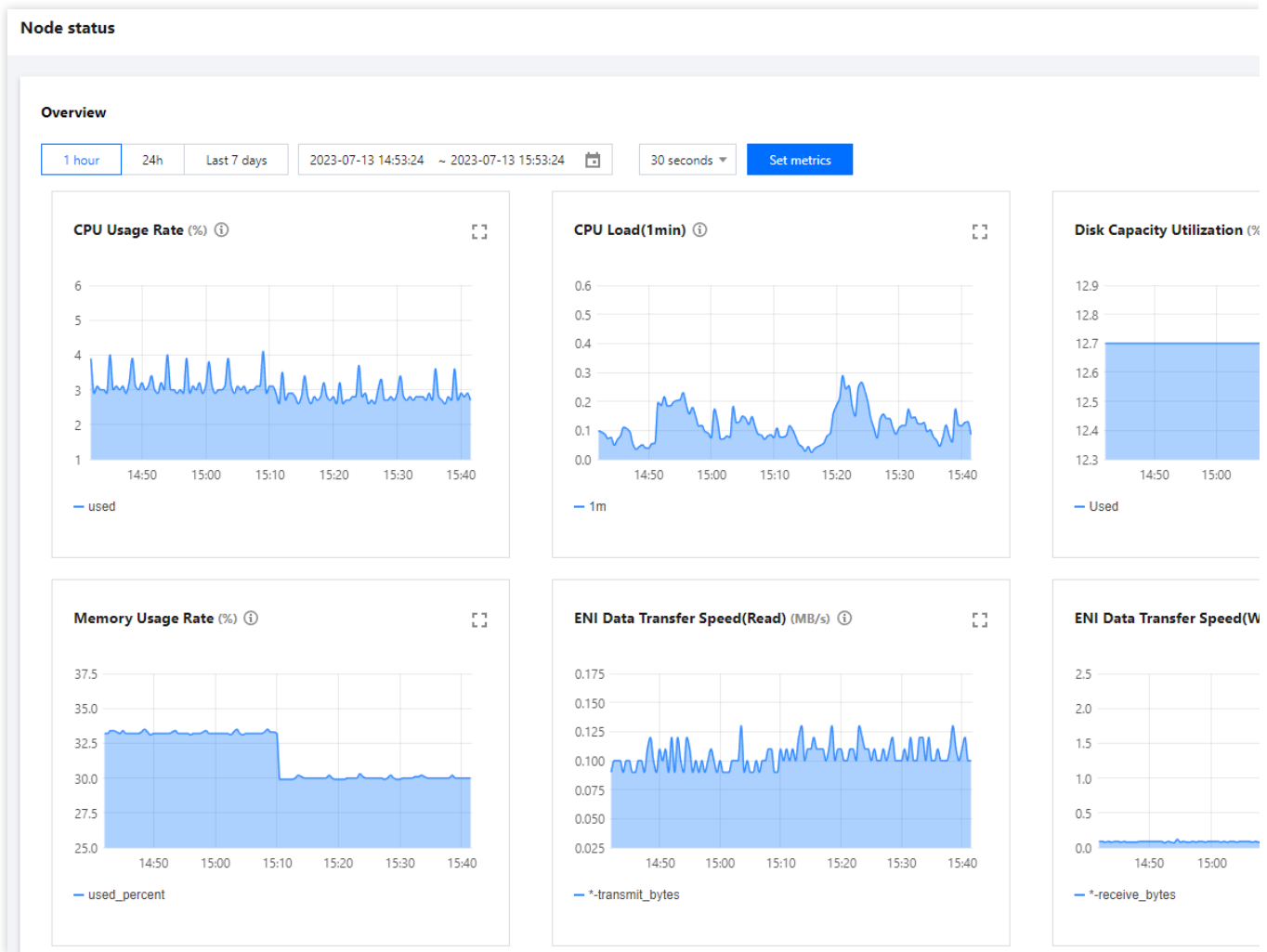
Last updated : 2023-12-27 14:38:20

## Overview

The **Node status** page displays the monitoring overview and list of all nodes in the current cluster. It enables you to view heat maps of all nodes. You can manage the status information and metrics of nodes in the EMR console.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. Select **Cluster resources > Node status** to view the monitoring information of all nodes in the cluster.
3. On the **Node status** page, view aggregated monitoring metrics and list of all nodes in the cluster.



**Overview:** Displays aggregated monitoring metrics of all nodes during a specified period of time and the statistical rule of each metric. You can click **Set metrics** to customize the displayed metrics.

### Set metrics

**Overview**

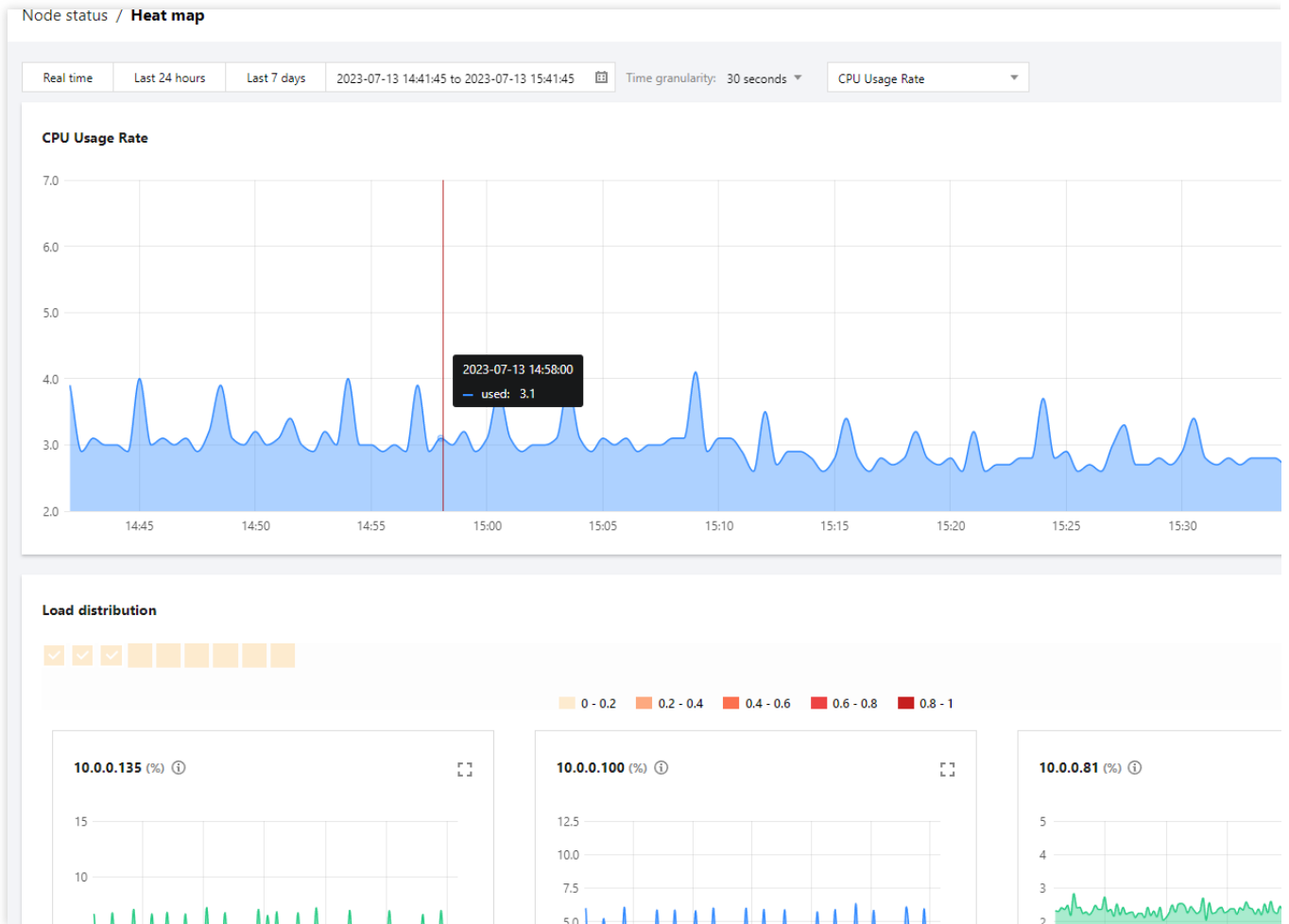
- CPU Usage Rate [Preview](#)
- CPU Load(15min) [Preview](#)
- CPU Load(1min) [Collapse](#)

Below the list are several vertical lines representing a grid for configuring the metrics.



**Heat map:** Displays the loads of nodes. You can view the maps for a specified period of time and under specified load conditions. Load heat maps consist of two parts: the aggregated map of all nodes in the current cluster and individual heat map of each node.





**Node list:** Displays all nodes in the cluster, including type, CPU utilization, memory utilization, disk utilization, and other items. You can click the IP of a node to view its basic configurations, deployment status, load status, and monitoring information.

**Basic configurations:** Display basic information of the node, such as type, resource name, resource ID, billing mode, and spec.

**Basic configuration**

IP:  

Node type: **Master** Resource name: **emr-vm-hrmm178p** Resource ID: **ins-90oejs2** Billing mode: **Pay as you go**

Node specification: **EMR StandardSA2** CPU: **4-core** MEM: **16GB** Cloud SSD: **200GB \* 1**

Disk	Mount point	Usage	Disk read-write speed
<b>vda1</b>	/	68% 35.87GB/52.71GB	Read: 0 MB/s Write: 0.09 MB/s
<b>vdb</b>	/data	0% 0.9GB/214.64GB	Read: 0 MB/s Write: 0 MB/s

**Deployment status:** Display services deployed in the node, process type, and process status.

**Deployment status**

Standard process deployed: 10   Standard process deployed: 0   Standard process deployed: 0

Process name	Process type	Process status
HMaster	Standard process	Running
HiveMetaStore	Standard process	Running
HiveServer2	Standard process	Running
HiveWebHcat	Standard process	Running
JobHistoryServer	Standard process	Running
Knox	Standard process	Running

Load status: Displays top N processes in the node. You can view the data on a specified date.

**Load status**

```

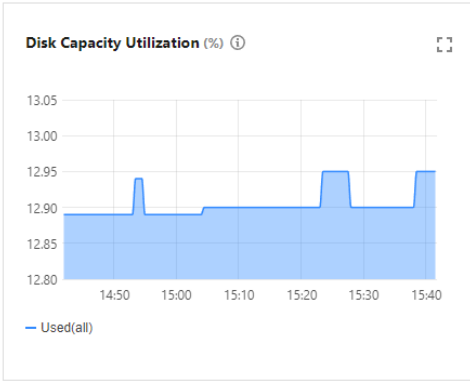
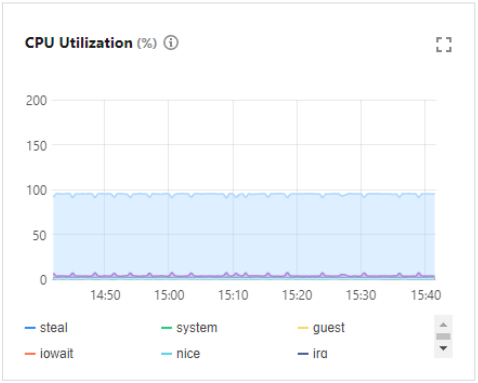
top - 15:43:25 up 56 days, 21:57, 0 users, load average: 0.02, 0.10, 0.15
Tasks: 150 total, 1 running, 76 sleeping, 0 stopped, 0 zombie
%Cpu(s): 1.6 us, 1.6 sy, 0.0 ni, 96.8 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
KiB Mem : 16128100 total, 2500512 free, 9281460 used, 4346128 buff/cache
KiB Swap: 0 total, 0 free, 0 used, 4787540 avail Mem

  PID USER      PR  NI  VIRT  RES  SHR  S  %CPU  %MEM    TIME+  COMMAND
 11179 hadoop    20   0 8531132 997.1m 96728 S  6.2  6.3  96:35.59 java
 1 root      20   0 129064  6688  4296 S  0.0  0.0  20:18.39 systemd
 2 root      20   0 0 0 0  S  0.0  0.0  0:04.59 kthreadd
 3 root      0 -20 0 0 0  I  0.0  0.0  0:00.00 rcu_gp
 4 root      0 -20 0 0 0  I  0.0  0.0  0:00.00 rcu_par_gp
 6 root      0 -20 0 0 0  I  0.0  0.0  0:00.00 kworker/0+
 8 root      0 -20 0 0 0  I  0.0  0.0  0:00.00 mm_percpu+
 9 root      20   0 0 0 0  S  0.0  0.0  2:51.30 ksoftirqd+
    
```

Node monitoring: Displays load maps of metrics (6 by default and max 12) of the node. You can click **Set metrics** to customize the displayed metrics.

Node monitoring

1 hour 24h Last 7 days 2023-07-13 14:55:41 ~ 2023-07-13 15:55:41 Time granularity 30 seconds Set metrics



# Service Status

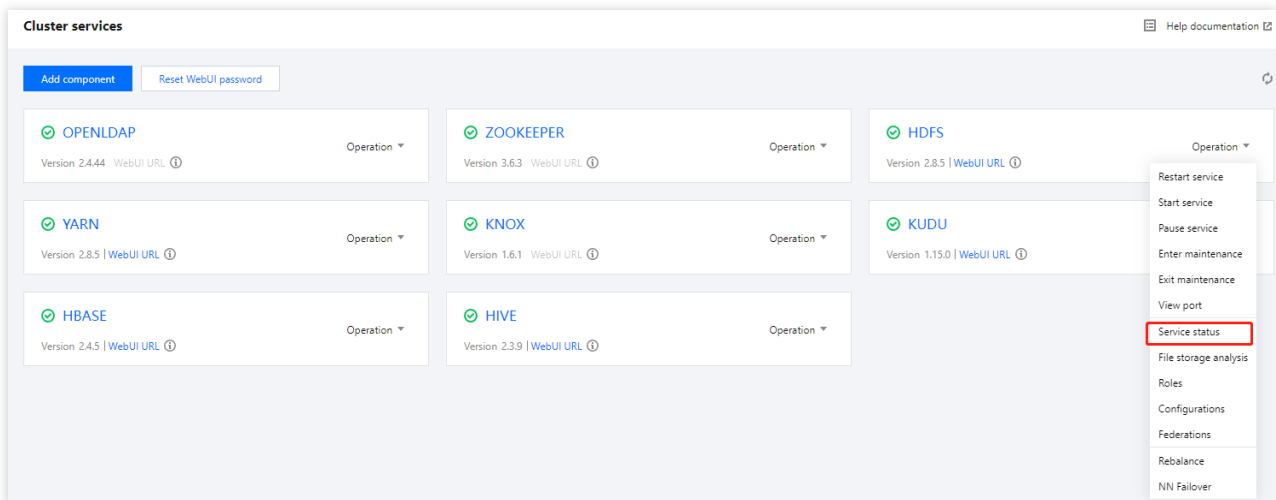
Last updated : 2023-12-27 14:38:36

## Overview

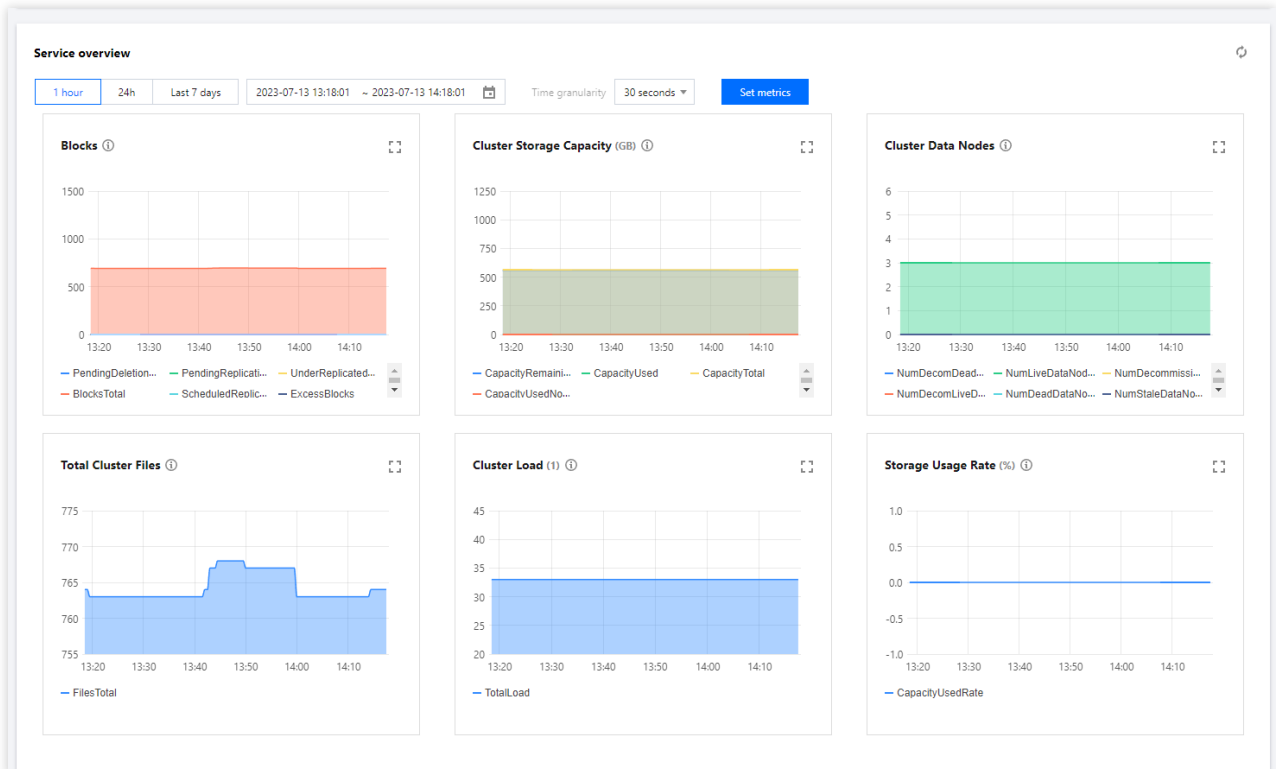
The **Service status** page provides detailed monitoring for main services installed in the cluster, including HDFS, YARN, Hive, ZooKeeper, Spark, HBase, and Presto. This document describes how to view cluster service status in the console.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list.
2. On the cluster details page, select **Cluster services** and click **Operation > Service status** in the top-right corner of the target component block. The following uses HDFS as an example.



3. The service status page provides monitoring views of three service dimensions, namely, service summary, health status, and service overview. As different service components have different services, the dimensions of display vary.
4. **Service overview** displays 6 metrics of service components by default and their statistical rules during a specified time period. You can click **Set metrics** to customize the displayed metrics.



### Set metrics ✕

**Cluster Overview**

- Snapshots [Preview](#)
- Block Capacity [Preview](#)
- Blocks [Preview](#)
- Cluster Storage Capacity [Preview](#)
- Cluster Data Nodes [Preview](#)
- Total Cluster Files [Preview](#)
- Cluster Load [Preview](#)
- Master/slave Conditions [Preview](#)
- Storage Usage Rate [Preview](#)

**Disk**

- Disk Failures [Preview](#)

[Confirm](#) [Cancel](#)

5. **Service summary** displays the current overall status of the service.

6. **Health status** displays running overview of each component in the current service. Clicking a role name or running overview will redirect you to **Roles** or **Role status** page.

Cluster services / HDFS

Service status | File storage analysis | Roles | Client management | Configurations | Federations

**Service summary**

NameNode HA State: 10.0.0.135(Active) 10.0.0.100(Standby) | DataNode Status: 3 Alive 0 Dead 0 Decommissioning | Missing Report: 0 Blocks 0 BlocksWithReplicationFactorOne

**Health status**

NameNode(2) ✔ 2 Good | zkfc(2) ✔ 2 Good  
 JournalNode(3) ✔ 3 Good | DataNode(3) ✔ 3 Good

On a role status page, you can click **Set metrics** to customize the displayed metrics.

Cluster services / HDFS / NameNode(10.0.0.135)

**Basic info**

Health Status: ✔ Good | Node IP: 10.0.0.135 | JVM Memory: Heap Memory Used 292M Heap Memory Total 4096M  
 State: Active | NameService: HDFS1006715

Real time | Last 24 hours | Last 7 days | 2023-07-13 13:26:50 to 2023-07-13 14:26:50 | Time granularity: 30 seconds | **Set metrics** | Role log

**Blocks (count)**

Legend: BlocksTotal, UnderReplicated..., PendingDeletionB..., ScheduledReplika..., ExcessBlocks, PendingReplcatio...

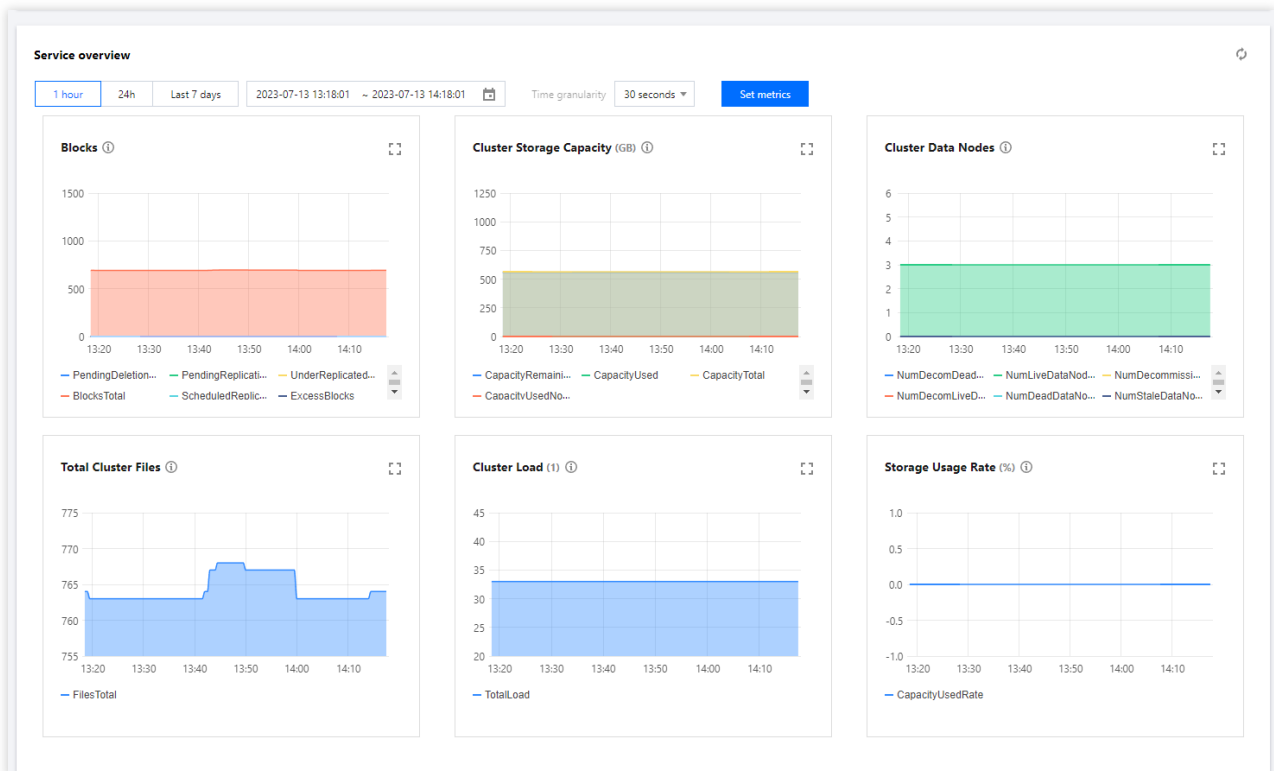
**SinceLastCheckpoint (count)**

Legend: SinceLastCheckpoi...

**LastCheckpoint (ms)**

Legend: LastCheckpoint

7. **Service overview** enables you to view cluster-level metrics. You can click **Set metrics** to customize the displayed metrics.



**Caution**

**Service monitoring** displays the HDFS service information by default. You can manually adjust to view other service components.

Service monitoring dimensions vary by service component due to different service types. For example, HBase supports table-level monitoring.



MapReduce Cloud Virtual Machine Cloud Object Storage TencentDB for MySQL Cloud Access Management
Set metrics

Cluster services / HDFS

**Basic info**

Health Status: ✔ Good Node IP: 10.0.0.135

State: Active NameService: HDFS1006715

Real time
Last 24 hours
Last 7 days
2023-07-13 13:28:20 to 2023-07-13 14:28:20
Time granular...

**Blocks (count)**

**SinceLastCheckpoint (count)**

**Missing Blocks**

**Total Cluster Files (count)**

**Blocks**

- Blocks [Preview](#)

**Checkpoint**

- SinceLastCheckpoint [Preview](#)
- LastCheckpoint [Preview](#)

**Exception**

- Stores Marked as Expired [Preview](#)
- Missing Blocks [Preview](#)
- Messages Suspended on the Slave NN for Block-related Operations [Preview](#)

**Files**

- Total Cluster Files [Preview](#)

**JVM**

- JVM Memory [Preview](#)
- GC Count [Preview](#)
- GC Time [Preview](#)
- MemHeapUsedM area percentage [Preview](#)
- JVM Threads [Preview](#)
- JVM Logs [Preview](#)
- Memory Area Percentage [Preview](#)

**Operation**

- Snapshot Operations [Preview](#)
- File Operations [Preview](#)
- Transaction Operations [Preview](#)
- Image Operations [Preview](#)
- Sync Operations [Preview](#)
- Data Block Operations [Preview](#)
- Cache Reporting [Preview](#)
- Data Block Reporting [Preview](#)

Confirm
Cancel

# Cluster Event

Last updated : 2023-12-27 14:38:57

## Overview

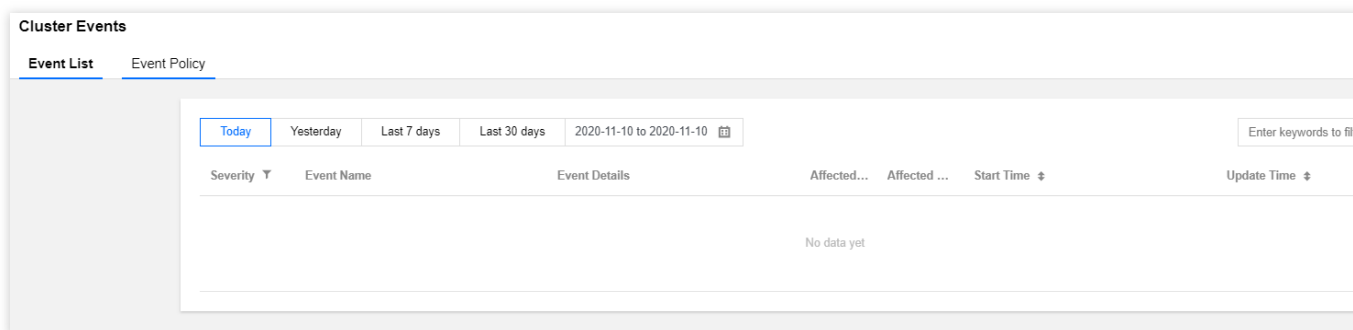
Cluster events include event lists and event policies.

Event list: It records key change events and abnormal events occurring in the cluster.

Event policy: Event monitoring trigger policies can be customized based on the actual business conditions. Events with monitoring enabled can be set as cluster inspection items.

## Viewing Event List

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster monitoring** > **Cluster events** > **Event list** to view all operation events in the current cluster.



The severity divides into the following:

**Fatal:** Exception events of a node or service that require manual intervention and will cause service interruption if left unattended. Such events may last for a period of time.


**Severe:** Alert events that currently have not caused service or node interruption but will cause fatal events if left unattended.




**Moderate:** Regular events occurring in the cluster that generally do not require special processing.


3. Click the value in the **Triggers today** column to view the event's trigger records, metrics, logs, and snapshots.

### Cluster Events

**Event List**    Event Policy

Today    Yesterday    Last 7 days    Last 30 days    2022-07-01 00:00:00 to 2022-07-01 17:02:18     Enter event details

Severity 	Triggers to...	Event Name 	Last discovered	Event Details	Affecte... 	Affect
--	▼ 1	HiveWebHcatFullGC	2022-07-01 10:31:53	ComponentName: HiveWebHcat, Full GC occurs at : 10.0.0.134	HIVE	HiveW


Discovered	Event Details	Affected S...	Affected Nodes	Snap
2022-07-01 10:31:53	ComponentName: HiveWebHcat, Full GC occurs at : 10.0.0.134	HIVE		<a href="#">View</a>

## Setting Event Policies

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list.
2. On the cluster details page, select **Cluster monitoring** > **Cluster events** > **Event policy** and you can customize the event monitoring trigger policies.
3. The event configuration list contains the event name, event trigger policy, severity (fatal, severe, and moderate), and option to enable/disable monitoring, which can be modified and saved.

### Cluster Events

Event List    **Event Policy**

 Event policy is used to define the trigger rules for event monitoring according to business conditions. Events with monitoring enabled can be used for cluster inspection configuration.

**Modify**

- ▶ NODE
- ▶ HDFS
- ▶ YARN
- ▶ ZOOKEEPER

4. Event trigger policies cover two types of events: fixed system policy events (which cannot be modified) and custom events (which can be configured based on the business standards).

**Cluster Events**

Event List **Event Policy**

① Event policy is used to define the trigger rules for event monitoring according to business conditions. Events with monitoring enabled can be used for cluster inspection configuration.

**Modify**

▼ NCDE

Event	Event Trigger Policy	Severity
CpuUsageMoreThanThreshold①	800	Critical
CpuUsageAvgMoreThanThreshold①	1800	Normal
CpuOWaitAvgMoreThanThreshold①	300	Critical
CpuLoad1mMoreThanThreshold①	1800	Normal
CpuLoad5mMoreThanThreshold①	300	Critical
MemoryFreeException①	1000	Critical
MemorySwapUsedException①	0	Normal
ProcessCntMoreThanThreshold①	0	Critical
ProcessForkCntMoreThanThreshold①	1800	Normal
ProcessOutOfMemory①		Critical
DiskIOError①		Fatal
DiskSpaceMoreThanThreshold①	1800	Critical
DiskUtilMoreThanThreshold①	800	Critical
FDAllocatedException①	800	Normal
TCPConnectionsEstablishedException①	1000	Normal

5. You can select whether to enable event monitoring in an event policy. Only events with monitoring enabled can be selected as cluster inspection items. Monitoring is enabled by default for some events and is disabled by default and cannot be disabled for some other events. The following are the specific rules:

Category	Event Name	Description	Recommendations and Measure	Default Value
Node	The CPU utilization exceeds the threshold continuously	The server CPU utilization has been greater than or equal to m for t (300 ≤ t ≤ 2,592,000) seconds continuously	Expand the node capacity or upgrade the node	m=85, t=1,800
	The average CPU utilization exceeds the threshold	The average server CPU utilization has been greater than or equal to m for t (300 ≤ t ≤ 2,592,000) seconds continuously	Expand the node capacity or upgrade the node	m=85, t=1,800

The average CPU iowait utilization exceeds the threshold	The average CPU iowait utilization of the server in the last $t$ ( $300 \leq t \leq 2,592,000$ ) seconds has been greater than or equal to $m$	Manually troubleshoot the issue	$m=60, t=1,800$
The 1-second CPU load exceeds the threshold continuously	The 1-minute CPU load has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	$m=8, t=1,800$
The 5-second CPU load exceeds the threshold continuously	The 5-minute CPU load has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	$m=8, t=1,800$
The memory utilization exceeds the threshold continuously	The memory utilization has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	$m=85, t=1,800$
The swap space exceeds the threshold continuously	The server swap memory has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	$m=0.1, t=300$
The total number of system processes exceeds the threshold continuously	The total number of system processes has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	$m=10,000, t=1,800$
The average total number of fork subprocesses exceeds the threshold	The average total number of fork subprocesses in the last $t$ ( $300 \leq t \leq 2,592,000$ ) seconds	Manually troubleshoot the issue	$m=5,000, t=1,800$

		has been greater than or equal to m		
No process OOM	An OOM error occurred in the process		Adjust the process heap memory size	-
A disk I/O error occurred (this event is not supported currently)	A disk I/O error occurred		Replace the disk	-
The average disk utilization exceeds the threshold continuously	The average disk space utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously		Expand the node capacity or upgrade the node	m=85, t=1,800
The average disk I/O utilization exceeds the threshold continuously	The average disk I/O utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously		Expand the node capacity or upgrade the node	m=85, t=1,800
The node file handle utilization exceeds the threshold continuously	The node file handle utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously		Manually troubleshoot the issue	m=85, t=1,800
The number of TCP connections to the node exceeds the threshold continuously	The number of TCP connections to the node has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously		Check whether there are connection leaks	m=10,000, t=1,800
The configured node memory utilization exceeds the threshold	The memory utilization configured for all roles on the node exceeds the node's physical memory threshold		Adjust the allocated node process heap memory	90%
The node process is	The node service		View the service logs	-

unavailable	process is unavailable	to find out why the service failed to be pulled	
The node heartbeat is missing	The node heartbeat failed to be reported regularly	Manually troubleshoot the issue	-
The hostname is incorrect	The node's hostname is incorrect	Manually troubleshoot the issue	-
Failed to ping the metadatabase	The TencentDB instance heartbeat failed to be reported regularly	-	-
The utilization of a single disk exceeds the threshold continuously	The single disk space utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	m=0.85, t=1,800
The I/O utilization of a single disk exceeds the threshold continuously	The single disk I/O device utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	m=0.85, t=1,800
The single disk inodes utilization exceeds the threshold continuously	The single disk inodes utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	m=0.85, t=1,800
The difference between the UTC time and NTP time of the server exceeds the threshold	The difference between the UTC time and NTP time of the server exceeds the threshold (in ms)	<ol style="list-style-type: none"> <li>1. Make sure that the NTP daemon is running</li> <li>2. Make sure that the network communication with the NTP server is normal</li> </ol>	Difference=3000t
Automatic node	If automatic node	1. If the replenishment	-

	replenishment	replenishment is enabled, when any exceptions in task and router nodes are detected, the system automatically purchases nodes of the same model to replace the affected nodes.	is successful, no more attention is required. 2. If the replenishment fails, manually terminate the affected nodes in the <a href="#">console</a> and purchase new nodes to replace them.	
	Node failure	Faulty nodes exist in a cluster	Handle the failure in the <a href="#">console</a> or <a href="#">submit a ticket</a> to contact us.	-
HDFS	The total number of HDFS files exceeds the threshold continuously	The total number of files in the cluster has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Increase the NameNode memory	m=50,000,000, t=1,800
	The average total number of HDFS files exceeds the threshold	The average total number of files in the cluster in the last t ( $300 \leq t \leq 2,592,000$ ) seconds has been greater than or equal to m	Increase the NameNode memory	m=50,000,000, t=1,800
	The total number of HDFS blocks exceeds the threshold continuously	The total number of blocks in the cluster has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Increase the NameNode memory or the block size	m=50,000,000, t=1,800
	The average total number of HDFS blocks exceeds the threshold	The average total number of HDFS blocks in the last t ( $300 \leq t \leq 2,592,000$ ) seconds has been greater than or equal to m	Increase the NameNode memory or the block size	m=50,000,000, t=1,800



The number of HDFS data nodes marked as dead exceeds the threshold continuously	The number of data nodes marked as dead has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=1, t=1,800
The HDFS storage space utilization exceeds the threshold continuously	The HDFS storage space utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Clear files in HDFS or expand the cluster capacity	m=85, t=1,800
The average HDFS storage space utilization exceeds the threshold	The average HDFS storage space utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Clear files in HDFS or expand the cluster capacity	m=85, t=1,800
Active/Standby NameNodes were switched	Active/Standby NameNodes were switched	Locate the cause of NameNode switch	-
The NameNode RPC request processing latency exceeds the threshold continuously	The RPC request processing latency has been greater than or equal to m milliseconds for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=300, t=300
The number of current NameNode connections exceeds the threshold continuously	The number of current NameNode connections has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=2,000, t=1,800
A full GC event occurred on a NameNode	A full GC event occurred on a NameNode	Fine-tune the parameter settings	-
The NameNode JVM	The NameNode JVM	Adjust the NameNode	m=85, t=1,800

memory utilization exceeds the threshold continuously	memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	heap memory size	
The DataNode RPC request processing latency exceeds the threshold continuously	The RPC request processing latency has been greater than or equal to m milliseconds for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=300, t=300
The number of current DataNode connections exceeds the threshold continuously	The number of current DataNode connections has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=2,000, t=1,800
A full GC event occurred on a DataNode	A full GC event occurred on a NameNode	Fine-tune the parameter settings	-
The DataNode JVM memory utilization exceeds the threshold continuously	The NameNode JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Adjust the DataNode heap memory size	m=85, t=1,800
Both NameNodes of HDFS are in Standby service status	Both NameNode roles are in Standby status at the same time	Manually troubleshoot the issue	-
The number of HDFS missing blocks exceeds the threshold	The number of missing blocks in the cluster has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	We recommend you troubleshoot HDFS data block corruption and run the <code>hadoop fsck /</code> command to check the HDFS file distribution	m=1, t=1,800
The HDFS NameNode entered the safe mode	The NameNode entered the safe mode	We recommend you troubleshoot HDFS	-

		(for 300 seconds continuously)	data block corruption and run the <code>hadoop fsck /</code> command to check the HDFS file distribution	
YARN	The number of currently missing NodeManagers in the cluster exceeds the threshold continuously	The number of currently missing NodeManagers in the cluster has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Check the NodeManager process status and check whether the network connection is smooth	$m=1, t=1,800$
	The number of pending containers exceeds the threshold continuously	The number of pending containers has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Reasonably specify resources that can be used by YARN jobs	$m=90, t=1,800$
	The cluster memory utilization exceeds the threshold continuously	The memory utilization has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Scale out the cluster	$m=85, t=1,800$
	The average cluster memory utilization exceeds the threshold	The average memory utilization in the last $t$ ( $300 \leq t \leq 2,592,000$ ) seconds has been greater than or equal to $m$	Scale out the cluster	$m=85, t=1,800$
	The cluster CPU utilization exceeds the threshold continuously	The CPU utilization has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Scale out the cluster	$m=85, t=1,800$
	The average cluster CPU utilization exceeds the threshold	The average CPU utilization in the last $t$ ( $300 \leq t \leq 2,592,000$ ) seconds has been	Scale out the cluster	$m=85, t=1,800$

		greater than or equal to m		
	The number of available CPU cores in each queue is below the threshold continuously.	The number of available CPU cores in each queue has been less than or equal to m for t (300 ≤ t ≤ 2,592,000) seconds continuously	Assign more resources to the queue	m=1, t=1,800
	The available memory in each queue is below the threshold continuously	The available memory in each queue has been less than or equal to m for t (300 ≤ t ≤ 2,592,000) seconds continuously	Assign more resources to the queue	m=1,024, t=1,800
	Active/Standby ResourceManagers were switched	Active/Standby ResourceManagers were switched	Check the ResourceManager process status and view the standby ResourceManager logs to locate the cause of active/standby switch	-
	A full GC event occurred in a ResourceManager	A full GC event occurred in a ResourceManager	Fine-tune the parameter settings	-
	The ResourceManager JVM memory utilization exceeds the threshold continuously	The ResourceManager JVM memory utilization has been greater than or equal to m for t (300 ≤ t ≤ 2,592,000) seconds continuously	Adjust the ResourceManager heap memory size	m=85, t=1,800
	A full GC event occurred in a NodeManager	A full GC event occurred in a NodeManager	Fine-tune the parameter settings	-
	The available memory in NodeManager is	The available memory in a single NodeManager has	Adjust the NodeManager heap memory size	m=1, t=1,800

	below the threshold continuously	been less than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously		
	The NodeManager JVM memory utilization exceeds the threshold continuously	The NodeManager JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Adjust the NodeManager heap memory size	m=85, t=1,800
HBase	The number of regions in RIT status in the cluster exceeds the threshold continuously	The number of regions in RIT status in the cluster has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	If the HBase version is below 2.0, run hbase hbck -fixAssignment	m=1, t=60
	The number of dead RegionServers exceeds the threshold continuously	The number of dead RegionServers has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=1, t=300
	The average number of regions in each RegionServer in the cluster exceeds the threshold continuously	The average number of regions in each RegionServer in the cluster has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Expand the node capacity or upgrade the node	m=300, t=1,800
	A full GC event occurred on HMaster	A full GC event occurred on HMaster	Fine-tune the parameter settings	m=5, t=300
	The HMaster JVM memory utilization exceeds the threshold continuously	The HMaster JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Adjust the HMaster heap memory size	m=85, t=1800

The number of current HMaster connections exceeds the threshold continuously	The number of current HMaster connections has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=1000, t=1800
A full GC event occurred in RegionServer	A full GC event occurred in RegionServer	Fine-tune the parameter settings	m=5, t=300
The RegionServer JVM memory utilization exceeds the threshold continuously	The RegionServer JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Adjust the RegionServer heap memory size	m=85, t=1800
The number of current RPC connections to RegionServer exceeds the threshold continuously	The number of current RPC connections to RegionServer has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=1000, t=1800
The number of RegionServer StoreFiles exceeds the threshold continuously	The number of RegionServer StoreFiles has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Run the major compaction	m=50,000, t=1,800
A full GC event occurred in HBase Thrift	A full GC event occurred in HBase Thrift	Fine-tune the parameter settings	m=5, t=300
The HBase Thrift JVM memory utilization exceeds the threshold continuously	The HBase Thrift JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Adjust the HBase Thrift heap memory size	m=85, t=1,800
Both HMaster of	Both HMaster roles	Manually troubleshoot	-

	HBase is in Standby service status	are in Standby status at the same time	the issue	
Hive	A full GC event occurred in HiveServer2	A full GC event occurred in HiveServer2	Fine-tune the parameter settings	m=5, t=300
	The HiveServer2 JVM memory utilization exceeds the threshold continuously	The HiveServer2 JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Adjust the HiveServer2 heap memory size	m=85, t=1,800
	A full GC event occurred in HiveMetaStore	A full GC event occurred in HiveMetaStore	Fine-tune the parameter settings	m=5, t=300
	A full GC event occurred in HiveWebHcat	A full GC event occurred in HiveWebHcat	Fine-tune the parameter settings	m=5, t=300
ZooKeeper	The number of ZooKeeper connections exceeds the threshold continuously	The number of ZooKeeper connections has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=65,535, t=1,800
	The number of ZNodes exceeds the threshold continuously	The number of ZNodes has been greater than or equal to m for t ( $300 \leq t \leq 2,592,000$ ) seconds continuously	Manually troubleshoot the issue	m=2,000, t=1,800
Impala	The ImpalaCatalog JVM memory utilization exceeds the threshold continuously	The ImpalaCatalog JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the ImpalaCatalog heap memory size	m=0.85, t=1,800
	The Impala daemon JVM memory	The Impala daemon JVM memory	Adjust the Impala daemon heap memory	m=0.85, t=1,800

	utilization exceeds the threshold continuously	utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	size	
	The number of Impala Beeswax API client connections exceeds the threshold	The number of Impala Beeswax API client connections has been greater than or equal to m	Adjust the value of fs_sevice_threads in the impalad.flgs configuration in the console	m=64, t=120
	The number of Impala HiveServer2 client connections exceeds the threshold	The number of Impala HiveServer2 client connections has been greater than or equal to m	Adjust the value of fs_sevice_threads in the impalad.flgs configuration in the console	m=64, t=120
	The query execution duration exceeds the threshold	The query execution duration exceeds m seconds	Manually troubleshoot the issue	-
	The total number of failed queries exceeds the threshold	The total number of failed queries has been greater than or equal to m for t seconds ( $300 \leq t \leq 604,800$ )	Manually troubleshoot the issue	m=1, t=300
	The total number of committed queries exceeds the threshold	The total number of committed queries has been greater than or equal to m for t seconds ( $300 \leq t \leq 604,800$ )	Manually troubleshoot the issue	m=1, t=300
	The query execution failure rate exceeds the threshold	The query execution failure rate has been greater than or equal to m for t seconds ( $300 \leq t \leq 604,800$ )	Manually troubleshoot the issue	m=1, t=300
PrestoSQL	The current number of failed PrestoSQL	The current number of failed PrestoSQL nodes has been	Manually troubleshoot the issue	m=1, t=1,800



	nodes exceeds the threshold continuously	greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously		
	The number of queuing resources in the current PrestoSQL resource group exceeds the threshold continuously	The number of queuing tasks in the PrestoSQL resource group has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Fine-tune the parameter settings	m=5,000, t=1,800
	The number of failed PrestoSQL queries exceeds the threshold	The number of failed PrestoSQL queries is greater than or equal to m	Manually troubleshoot the issue	m=1, t=1,800
	A full GC event occurred in a PrestoSQLCoordinator	A full GC event occurred in a PrestoSQLCoordinator	Fine-tune the parameter settings	-
	The PrestoSQLCoordinator JVM memory utilization exceeds the threshold continuously	The PrestoSQLCoordinator JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the PrestoSQLCoordinator heap memory size	m=0.85, t=1,800
	A full GC event occurred on a PrestoSQL worker	A full GC event occurred on a PrestoSQL worker	Fine-tune the parameter settings	-
	The PrestoSQLWorker JVM memory utilization exceeds the threshold continuously	The PrestoSQLWorker JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the PrestoSQLWorker heap memory size	m=0.85, t=1,800
Presto	The current number of failed Presto nodes	The current number of failed Presto nodes has been greater than	Manually troubleshoot the issue	m=1, t=1,800

	exceeds the threshold continuously	or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously		
	The number of queuing resources in the current Presto resource group exceeds the threshold continuously	The number of queuing tasks in the Presto resource group has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Fine-tune the parameter settings	m=5,000, t=1,800
	The number of failed Presto queries exceeds the threshold	The number of failed Presto queries is greater than or equal to m	Manually troubleshoot the issue	m=1, t=1,800
	A full GC event occurred on a PrestoSQL coordinator	A full GC event occurred on a PrestoSQL coordinator	Fine-tune the parameter settings	-
	The Presto coordinator JVM memory utilization exceeds the threshold continuously	The Presto coordinator JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the Presto coordinator heap memory size	m=0.85, t=1,800
	A full GC event occurred on a Presto worker	A full GC event occurred on a Presto worker	Fine-tune the parameter settings	-
	The Presto worker JVM memory utilization exceeds the threshold continuously	The Presto worker JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the Presto worker heap memory size	m=0.85, t=1,800
Alluxio	The current total number of Alluxio workers is below the threshold continuously	The current total number of Alluxio workers has been smaller than or equal to m for t ( $300 \leq t \leq$	Manually troubleshoot the issue	m=1, t=1,800

		604,800) seconds continuously		
	The utilization of the capacity on all tiers of the current Alluxio worker exceeds the threshold	The utilization of the capacity on all tiers of the current Alluxio worker has been greater than or equal to the threshold for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Fine-tune the parameter settings	m=0.85, t=1,800
	A full GC event occurred on an Alluxio master	A full GC event occurred on an Alluxio master	Manually troubleshoot the issue	-
	The Alluxio master JVM memory utilization exceeds the threshold continuously	The Alluxio master JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the Alluxio worker heap memory size	m=0.85, t=1,800
	A full GC event occurred on an Alluxio worker	A full GC event occurred on an Alluxio worker	Manually troubleshoot the issue	-
	The Alluxio worker JVM memory utilization exceeds the threshold continuously	The Alluxio worker JVM memory utilization has been greater than or equal to m for t ( $300 \leq t \leq 604,800$ ) seconds continuously	Adjust the Alluxio master heap memory size	m=0.85, t=1,800
kudu	The cluster replica skew exceeds the threshold	The cluster replica skew has been greater than or equal to the threshold for t ( $300 \leq t \leq 3,600$ ) seconds continuously	Run the rebalance command to balance the replicas	m=100, t=300
	The hybrid clock error exceeds the threshold	The hybrid clock error has been greater than or equal to the threshold for t ( $300 \leq t$	Make sure that the NTP daemon is running and the network	m=5,000,000, t=300

		$\leq 3,600$ ) seconds continuously	communication with the NTP server is normal	
The number of running tablets exceeds the threshold		The number of running tablets has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 3,600$ ) seconds continuously	Too many tablets on a node can affect the performance. We recommend you clear unnecessary tables and partitions or expand the capacity as needed.	$m=1,000, t=300$
The number of failed tablets exceeds the threshold		The number of failed tablets has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 3,600$ ) seconds continuously	Check whether any disk is unavailable or data file is corrupted	$m=1, t=300$
The number of failed data directories exceeds the threshold		The number of failed data directories has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 3,600$ ) seconds continuously	Check whether the path configured in the <code>fs_data_dirs</code> parameter is available	$m=1, t=300$
The number of full data directories exceeds the threshold		The number of full data directories has been greater than or equal to $m$ for $t$ ( $120 \leq t \leq 3,600$ ) seconds continuously	Clear unnecessary data files or expand the capacity as needed	$m=1, t=120$
The number of write requests rejected due to queue overloading exceeds the threshold		The number of write requests rejected due to queue overloading has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq 3,600$ ) seconds continuously	Check whether the number of write hotspots or worker threads is small	$m=10, t=300$
The number of expired scanners exceeds the threshold		The number of expired scanners has been greater than or equal to $m$ for $t$ ( $300 \leq t \leq$	Be sure to call the method for closing a scanner after reading data	$m=100, t=300$

		3,600) seconds continuously		
	The number of error logs exceeds the threshold	The number of error logs has been greater than or equal to m for t (300 ≤ t ≤ 3,600) seconds continuously	Manually troubleshoot the issue	m=10, t=300
	The number of RPC requests that timed out while waiting in the queue exceeds the threshold	The number of RPC requests that timed out while waiting in the queue has been greater than or equal to m for t (300 ≤ t ≤ 3,600) seconds continuously	Check whether the system load is too high	m=100, t=300
Kerberos	The Kerberos response time exceeds the threshold	The Kerberos response time has been greater than or equal to m (ms) for t (300 ≤ t ≤ 604,800) seconds continuously	Manually troubleshoot the issue	m=100, t=1,800
Cluster	The auto scaling policy has failed	<ol style="list-style-type: none"> <li>1. The scale-out rule failed due to insufficient subnet EIPs associated with the cluster.</li> <li>2. The scale-out rule failed due to insufficient expansion resource inventory of the preset specifications.</li> <li>3. The scale-out rule failed due to insufficient account balance.</li> <li>4. An internal error occurred.</li> </ol>	<ol style="list-style-type: none"> <li>1. Switch to another subnet in the same VPC.</li> <li>2. Switch to specifications of resources that are sufficient or submit a ticket to contact developers.</li> <li>3. Top up the account to ensure that the account balance is sufficient.</li> <li>4. <a href="#">Submit a ticket</a> to contact developers.</li> </ol>	-
	The execution of the auto scaling policy has timed out	<ol style="list-style-type: none"> <li>1. Scaling cannot be performed temporarily</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust the cooldown period for the scaling rule.</li> </ol>	-

	<p>as the cluster is in the cooldown period.</p> <p>2. Scaling is not triggered because the retry period upon expiration is too short.</p> <p>3. The cluster in the current status cannot be scaled out.</p>	<p>2. Extend the retry period upon expiration.</p> <p>3. Try again later or <a href="#">submit a ticket</a> to contact developers.</p>	
<p>The auto scaling policy is not triggered</p>	<p>1. The scale-out rule cannot be triggered because no expansion resource specification is set.</p> <p>2. The scale-out rule cannot be triggered because the maximum number of nodes for elastic resources is reached.</p> <p>3. The scale-in rule cannot be triggered because the minimum number of nodes for elastic resources is reached.</p> <p>4. The time range for scaling has expired.</p> <p>5. The scale-in rule cannot be triggered because there are no elastic resources in the cluster.</p>	<p>1. Set at least one elastic resource specification for the rule.</p> <p>2. Modify the maximum number of nodes to continue scaling out if the upper limit is reached.</p> <p>3. Modify the minimum number of nodes to continue scaling in if the lower limit is reached.</p> <p>4. Modify the effective time range of the rule if you want to continue using the rule for auto scaling.</p> <p>5. Execute the scale-in rule after adding elastic resources.</p>	-
<p>Auto scaling partially succeeded</p>	<p>1. Only partial resources were supplemented because the resource inventory was less than the required quantity for scale-out.</p> <p>2. Only partial resources were supplemented because the required</p>	<p>1. Use the available resources for manual scaling to supplement the resources for auto scaling.</p> <p>2. Use the available resources for manual scaling to supplement the resources for auto scaling.</p>	-

	<p>quantity for scale-out exceeded the actual quantity of resources delivered.</p> <p>3. The scale-out rule was partially successful because the maximum number of nodes for elastic resources was reached.</p> <p>4. The scale-in rule was partially successful because the minimum number of nodes for elastic resources was reached.</p> <p>5. The resource supplement failed due to insufficient subnet EIPs associated with the cluster.</p> <p>6. The resource supplement failed due to insufficient expansion resource inventory of the preset specifications.</p> <p>7. The resource supplement failed due to insufficient account balance.</p>	<p>3. Modify the maximum number of nodes to continue scaling out if the upper limit is reached.</p> <p>4. Modify the minimum number of nodes to continue scaling in if the lower limit is reached.</p> <p>5. Switch to another subnet in the same VPC.</p> <p>6. Switch to specifications of resources that are sufficient or submit a ticket to contact developers.</p> <p>7. Top up the account to ensure that the account balance is sufficient.</p>	
The node process is unavailable	The node process is unavailable	Manually troubleshoot the issue	-
The process is killed by OOMKiller	The process OOM is killed by OOMKiller	Adjust the process heap memory size	-
A JVM or OLD exception occurred	A JVM or OLD exception occurred	Manually troubleshoot the issue	<p>1. The OLD utilization reaches 80% for 5 consecutive minutes</p> <p>Or</p>

				2. The JVM memory utilization reaches 90%
	Timeout of service role health status occurred	The service role health status has timed out for t seconds ( $180 \leq t \leq 604,800$ )	The service role health status has timed out for minutes. To resolve this issue, check the logs of the corresponding service role and perform necessary actions accordingly.	t=300
	A service role health status exception occurred	The service role health status has been abnormal for t seconds ( $180 \leq t \leq 604,800$ )	The service role health status has been unavailable for minutes. To resolve this issue, check the logs of the corresponding service role and perform necessary actions accordingly.	t=300
	Auto scaling failed	This alert indicates that the auto scaling process has failed (either completely or partially)	Manually troubleshoot the issue	-



# Log

Last updated : 2024-01-10 09:56:47

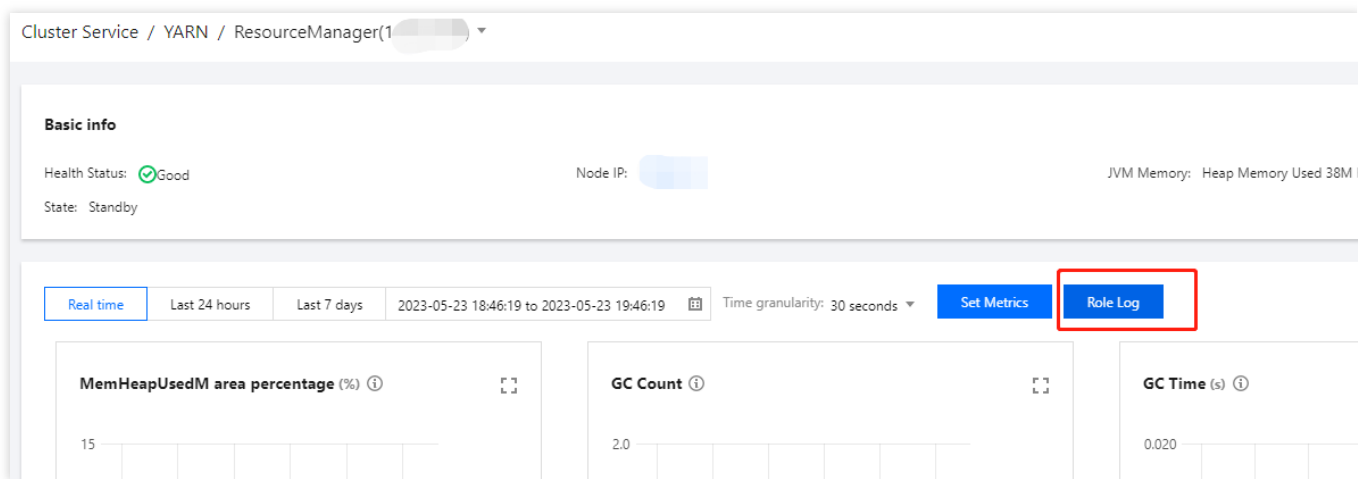
## Overview

The log search feature collects component operation logs. Then, you can search for core service logs of the current cluster and node system logs by keyword to quickly view key service logs without logging in to nodes.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list.
2. On the cluster details page, choose **Cluster Monitoring** > **Log Search** to filter and view log content by current cluster, log file, node IP, and time range.

Alternatively, choose **Cluster Service** > target component block > **Role Management**, click a **Node IP** in **Role List** to enter the page where the node monitoring metrics are displayed, and then click **Role Log** to enter the **Log Search** page.



The screenshot displays the EMR console interface for a specific node. The breadcrumb navigation at the top reads "Cluster Service / YARN / ResourceManager(1 [redacted])". Below this, the "Basic info" section shows the node's health status as "Good" (indicated by a green checkmark), its state as "Standby", and its JVM memory usage as "Heap Memory Used 38M". The "Node IP" is also visible. The main interface features a navigation bar with tabs for "Real time", "Last 24 hours", "Last 7 days", and a date range selector set to "2023-05-23 18:46:19 to 2023-05-23 19:46:19". A "Time granularity" dropdown is set to "30 seconds". There are two buttons: "Set Metrics" and "Role Log", with the latter highlighted by a red box. Below the navigation bar, three monitoring charts are visible: "MemHeapUsedM area percentage (%)", "GC Count", and "GC Time (s)".

Click a **Node IP** to enter the **Node Status** page, or click **Log Source** to enter the page where the node monitoring metrics are displayed.

### Log Search

Time
Real time
Last 24 hours
Last 7 days
2023-05-16 19:47:50 to 2023-05-23 19:47:50

Keywords

Log Source
ResourceManager
Node IP
Minimum log level
WARN

Query

Node IP	Log Source	Time ↓	Log Level	Log content
No data yet				

### Keyword description:

Supports full-text search based on keywords.

Supports search by using special symbols, including hyphen (-), period (.), asterisk (\*), greater-than sign (>), less-than sign (<), equal sign (=), exclamation mark (!), brackets (()) and {}), and forward slash (/).

Supports phrase-based search. Example: `address=/ip:port` .

3. During troubleshooting, you usually need to pay attention to contextual logs of keywords. On the **Log Search** page, click **View Context** to enter the **Log Context** page.

## Service Types Supported for Log Search

### Note:

Currently, only logs in the past 15 days can be searched for.

If log collection has not been enabled on your cluster, you can contact your Tencent Cloud rep for assistance.

Component	Role	Log	Description
HDFS	NameNode	/data/emr/hdfs/logs/hadoop-hadoop-namenode.log	NameNode runtime log
	ZKFC	/data/emr/hdfs/logs/hadoop-hadoop-zkfc.log	ZKFC runtime log
	DataNode	/data/emr/hdfs/logs/hadoop-hadoop-datanode.log	DataNode runtime log
	JournalNode	/data/emr/hdfs/logs/hadoop-hadoop-journalnode.log	JournalNode runtime log
	DFSRouter	/data/emr/hdfs/logs/hadoop-hadoop-dfsrouter.log	DFRouter runtime log

YARN	ResourceManager	/data/emr/yarn/logs/yarn-hadoop-resourcemanager.log	ResourceManager runtime log
	NodeManager	/data/emr/yarn/logs/yarn-hadoop-nodemanager.log	NodeManager runtime log
	JobHistoryServer	/data/emr/yarn/logs/mapred-hadoop-historyserver.log	JobHistoryServer runtime log
HBase	HMaster	/data/emr/hbase/logs/hbase-hadoop-master.log	HMaster runtime log
	ThriftServer	/data/emr/hbase/logs/hbase-hadoop-thrift.log	ThriftServer runtime log
	RegionServer	/data/emr/hbase/logs/hbase-hadoop-regionserver.log	RegionServer runtime log
ClickHouse	ClickHouse-server	/data/clickhouse/clickhouse-server/logs/clickhouse-server.log	ClickHouse-server runtime log
Druid	Broker	/data/emr/druid/var/log/druid/broker.log	Broker runtime log
	Coordinator	/data/emr/druid/var/log/druid/coordinator.log	Coordinator runtime log
	Router	/data/emr/druid/var/log/druid/router.log	Router runtime log
	Overload	/data/emr/druid/var/log/druid/overload.log	Overload runtime log
	Historical	/data/emr/druid/var/log/druid/historical.log	Historical runtime log
	MiddleManager	/data/emr/druid/var/log/druid/middleManager.log	MiddleManager runtime log
Zookeeper	Zookeeper	/data/emr/zookeeper/logs/zookeeper-root-server.log	ZooKeeper runtime log
Hive	HiveServer2	/data/emr/hive/logs/hadoop-hive	HiveServer2 runtime log
Kudu	KuduMaster	/data/emr/kudu/logs/kudu-master.WARNING	KuduMaster runtime log
	KuduServer	/data/emr/kudu/logs/kudu-tserver.WARNING	KuduServer

			runtime log
Alluxio	AlluxioMaster	/data/emr/alluxio/logs/master.log	AlluxioMaster runtime log
	AlluxioWorker	/data/emr/alluxio/logs/worker.log	AlluxioWorker runtime log
Ranger	EmbeddedServer	/data/emr/ranger/logs/ranger-admin.log	EmbeddedServer runtime log
CosRanger	CosRangerServer	/usr/local/service/cosranger/log/info.log	COSRanger runtime log
Impala	Catalogd	/data/emr/impala/logs/catalogd.INFO	Cataloged runtime log
	Statestored	/data/emr/impala/logs/statestored.INFO	Statestored runtime log
	Impalad	/data/emr/impala/logs/impalad.INFO	Impalad runtime log
Spark	HistoryServer	/data/emr/spark/logs/spark-hadoop.log	HistoryServer runtime log
Kylin	Kylin	/data/emr/kylin/logs/kylin.log	Kylin runtime log
Zeppelin	ZeppelinServer	/data/emr/zeppelin/logs/zeppelin-hadoop.log	ZeppelinServer runtime log
Knox	Gateway	/data/emr/knox/logs/gateway.log	Gateway runtime log
Doris	BrokerBootstrap	/data/emr/doris/broker/log/apache_hdfs_broker.log	BrokerBootstrap runtime log
	PaloFe	/data/emr/doris/fe/log/fe.log	PaloFe runtime log
	PaloBe	/data/emr/doris/be/log/be.INFO	PaloBe runtime log
Kafka	Kafka	/user/local/service/kafka/logs/server.log	Kafka runtime log

## Minimum Log Level Supported by Services

Service	Default Minimum Log Level
Impala and Kudu	INFO
Other services	WARN

## Query Rules for the Minimum Log Level

Minimum Log Level	Queryable Log Levels
INFO	INFO, WARN, ERROR, FATAL
WARN	WARN, ERROR, FATAL
ERROR	ERROR, FATAL
FATAL	FATAL

# Application Analysis

## YARN Job Query

Last updated : 2023-12-27 14:43:45

### Overview

You can view submitted jobs, memory and vCore consumption, and other information at the user granularity, and quickly check the queue, status, duration, and other metrics of YARN jobs in the EMR console. Comparison of historical tasks by job, job insight, task execution information, and other features are also available.

### Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list.
2. On the cluster details page, click **Cluster services** and select **Operation > Job query** in the top-right corner of the YARN component to view job statistics and resource consumption trends, query job and task information, get insights into application execution results, and compare application monitoring data.
  - i. Submitted jobs, view and distribution of memory and vCores consumed at the user granularity, and recent trends of relevant metrics.

Cluster Service / YARN ▾

Service Status   **Job Query**   Role Management   Configuration Management   Resource Scheduling

---

**Job List**

 
 Yesterday  
 Last 7 days  
 Last 30 days  
 2022-11-14 00:00:00 ~ 2022-11-14 17:44:01 📅  
 Application ID or name (fuzzy see

ApplicationId	User ▾	ApplicationName	Queue ▾	ApplicationType ▾	ElapsedTi
	hadoop		root.default	SPARK	4min10s
	hadoop		root.default	MAPREDUCE	34s270ms
	hadoop		root.default	MAPREDUCE	4min51s

Total items: 3 10 ▾ / page

ii. Job filtering by user, application name, queue name, job type, duration, or relevant throughput metrics.

iii. Resource consumption statistics by user, queue, or other metrics, helping check costs (also supported by API).

### Caution

To use the new features of task information, application insight, and application comparison for applications of Spark type, you first need to check whether the Spark History version is supported by running `curl "http://localhost:10000/api/v1/applications" | json_pp`. If the returned result is in abnormal JSON format, the Spark History version is not supported. In this case, you can [submit a ticket](#) to apply for enabling such features.

In job query, ResourceManager data is collected once every 30s. The collection operation has negligible impact on cluster running.

3. In the job list, click **More > Application insight** to view detailed application insight items and related insight rules, results, and suggestions.

Application insight			
Insight item	Level <span>▼</span>	Rule	Result/Recommendat
Map Data Skew	Severe	The data processed by the task is more than twice the ...	✓
Map Memory waste	Medium	The idle Memory resources account for more than 20...	✓
Map Slow Task	Medium	The task processing time is more than twice the avera...	✓
MapperTaskGC	Medium	The GC time of executor exceeds 20%	✓
Reduce Data Skew	Severe	The data processed by the task is more than twice the ...	✓
Reduce Memory waste	Medium	The idle Memory resources account for more than 20...	✓
Reduce Slow Task	Medium	The task processing time is more than twice the avera...	✓

### Caution

To ensure stable cluster running, no collection will be performed when any of the following rules is met:

- 1.1 Apps for which the runtime is less than 10 minutes.
- 1.2 Apps for which the number of subtasks during collection is greater than 30,000.
- 1.3 Apps for which the collection delay time is longer than 24 hours.

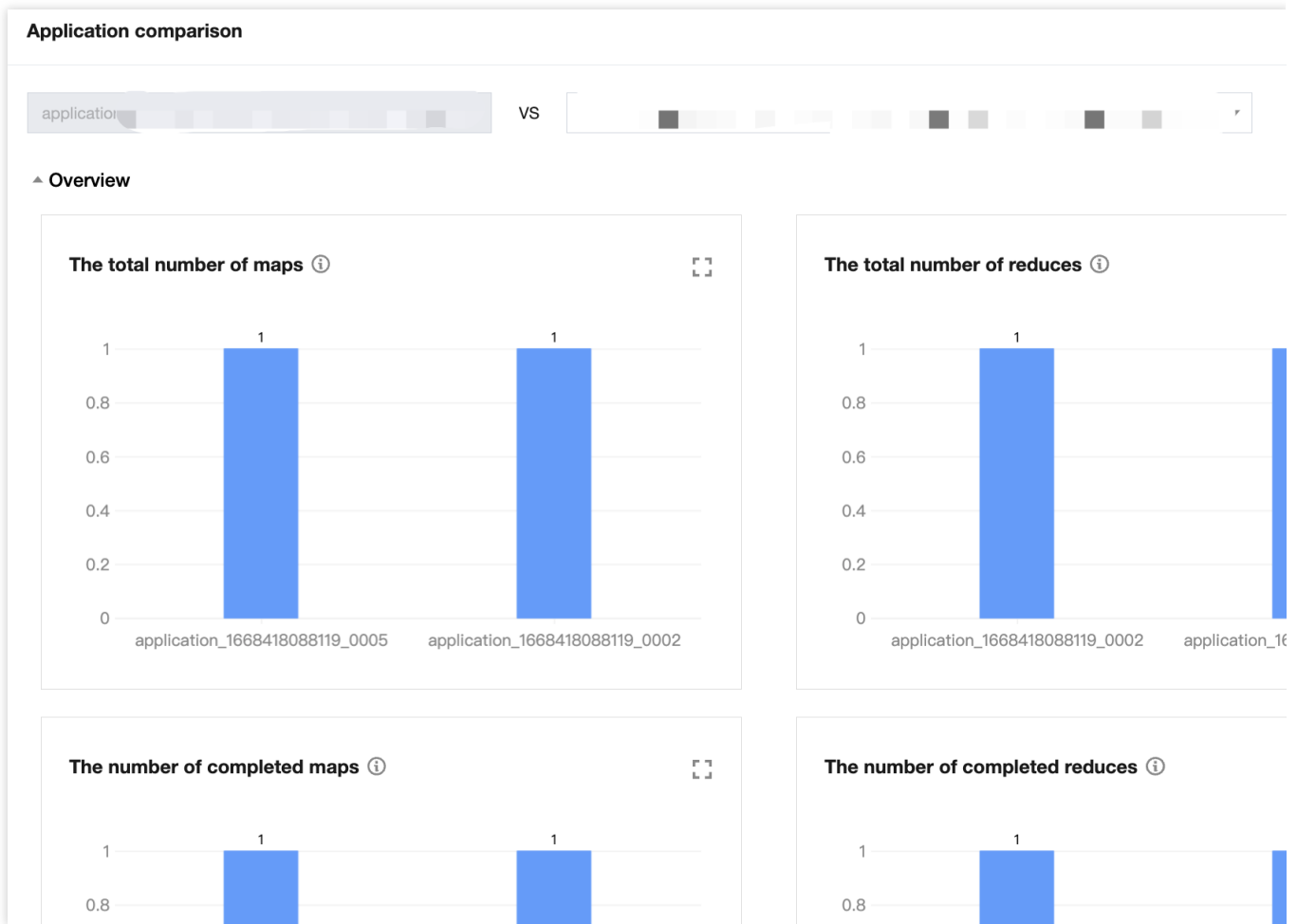
You can [submit a ticket](#) to modify relevant parameters of insight collection policy.

### Risk description

YARN's application insight feature collects and analyzes the application data of Spark History, Job History, and Timeline Server. If you find the number of requests of this service constantly exceeds the load threshold, you can [submit a ticket](#) to disable the feature.

4. In the job list, click **More > Application comparison** to compare the business metrics between the current application and another application of the same type.





**Caution**

Only applications of MAPREDUCE, Spark, or Tez type in the final status of SUCCEEDED can be compared. Applications of the same type with the same name are filtered on the page by default. Only applications of the same type can be selected and filtered for comparison, and real-time data can be filtered and queried on the backend.

5. In the job list, click **More > Task information** to view the job task list, hosts comparison, and task execution logs.

### Task list

[Compare hosts](#)

<input type="checkbox"/> id	State ▼	Type ▼	Host	StartTime	FinishTime
<input type="checkbox"/> ta: [progress bar]	SUCCEEDED	MAP	[host icons]	2022-11-14 17:38:44	2022-11-14 17:39:01
<input type="checkbox"/> task [progress bar]	SUCCEEDED	REDUCE	[host icons]	2022-11-14 17:39:04	2022-11-14 17:39:11

Total items: 2 10 / page

The feature support is as follows:

Job Type	Task Information	Hosts Comparison	Task Log
MAPREDUCE	Supported	Supported	Supported
Spark	Supported	Unsupported	Supported
Tez	Supported	Supported	Unsupported
Others	Unsupported	Unsupported	Unsupported

# HDFS File Storage Analysis

Last updated : 2023-12-27 14:44:48

## Overview

This feature allows you to perform an overall analysis of HDFS storage, including the total number of files, total storage usage, file distribution, and recent trends in file storage as of the day before the current day (T-1). It also provides top directory lists for large and small files.

You can view the daily changes and recent trends in the total number of files and total storage usage based on HDFS storage within a cluster.

The file count and storage usage pie charts can help you understand the proportion of small files and the storage used by them.

The feature also allows you to query and download directory information for the top 1,000 large/small files as of the last collection time.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the corresponding cluster in the cluster list.
2. On the cluster details page, click **Cluster Service** and choose **Operation > File Storage Analysis** in the top-right corner of the HDFS component block to view information about relevant files stored on **HDFS** and their directories as of the last collection time.
3. Obtain statistical views.
  - 3.1 You can view the daily increase and day-over-day change in the total number of files stored on HDFS and total storage usage.
  - 3.2 Pie charts are provided to show you the numbers of empty files (size = 0 MB), small files (size ≤ 2 MB), other files (2 MB < size < 128 MB), and large files (size ≥ 128 MB), and the storage used by each of the four categories of files.
4. You can view recent trends in the number and storage usage of different categories of files.
5. You can query and download information about the top 1,000 small/large files as of the day before the current day (T-1), including the file name, file path, file size, user group, owner, and last access time.

### Risk description

The data required for file storage analysis is collected at 14:00 (Beijing time) every day.

1. The file storage analysis involves collecting and analyzing backup Fslmage files, which can increase the memory usage of the local machine (a maximum increase of 4 GB). If the proportion of machines in the cluster that are using memory consistently remains at a high level, you can [submit a ticket](#) to disable the feature.

2.. In HA clusters, the analysis feature is executed on the Standby Master node, while in non-HA clusters, the feature is executed on the Master node.

# Impala Query Management

Last updated : 2023-12-27 14:45:04

## Feature overview

You can view the percentile distribution of various metrics for Impala queries in multiple dimensions. The Impala list allows you to quickly view detailed metrics such as query statements, query status, users, databases, scanned rows, peak memory usage, total read/sent bytes, and HDFS scanned rows.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, click **Cluster Service** and select **Operation > Query Management** in the top-right corner of the Impala component to query jobs.

Take the duration as an example. In the currently selected time range, if the TP90 percentile duration is 6.86k (ms), 90% of queries last for within 6.86s.

Query overview

Today Yesterday 2022-11-09 00:00:00 ~ 2022-11-09 20:29:24 Set Metrics



3. Impala query list information is provided. Certain column header fields can be filtered and sorted, and compound filtering by multiple dimensions is supported.

**Query list**

Today Yesterday Last 7 days Last 30 days 2022-11-09 00:00:00 ~ 2022-11-09 20:29:24 Execution statement or query ID

statement	Coordinator	MaxNodePeakMem...	queryType	PerNodePea...	ScanHl
select * from hiveitest.local_Native_TEXT...		--	QUERY	--	--
select count(*),name from hiveitest.local_...		--	QUERY	--	--
select count(*),name from hiveitest.local_...		--	QUERY	--	--
select a.name,b.age from hiveitest.local_...		--	QUERY	--	--
select * from hiveitest.hbase_test		--	QUERY	--	--
SELECT get_json_object(impala_hdfs_js...		199.84 KB	QUERY	352.17	2
select * from hiveitest.cos_default_defaul...		--	QUERY	--	--
insert into hiveitest.cos_default_default...		--	QUERY	--	--
SELECT * from impalatest.impala_hdfs_j...		199.84 KB	QUERY	335.88	2
CREATE external table if not exists impa...		2	DDL	--	--

Total items: 41 10 / page

4. Click **Overview** in the **Operation** column to view the time distribution information throughout the entire lifecycle of an Impala query, key metric information, and certain node information of the runtime.

总览

Full Query Cycle



Important Metrics

Key	Value	Key	Value
Estimated Per-Host Mem	41113800	Tables Missing Stats	default.impal
Request Pool	default-pool	Admission result	Admitted imr
Cluster Memory Admitted	78.42 MB	Executor Group	default
ClientFetchWaitTimer	4s424ms	NumRowsFetched	94.21K (942
NumRowsFetchedFromCache	0 (0)	RowMaterializationRate	3.93 M/sec

Click **Details** in the **Operation** column to view query statements, query plans, execution overview, profiles, and memory information.



Overview Products Elastic MapReduce Cloud Virtual Machine

← emr-51kb33a9  
EMR-o9hz7opx

Cluster Overview

Instance info

**Cluster Service**

Cluster Resource

Cluster monitor

- DashBoard BETA
- Cluster Events
- Log Search
- Cluster Inspection
- Alarm Records

Auto Scaling

Cluster Service / IMPALA

Service Status **Query Man**

Today Yesterday Last

statement

insert into stu values("gary",23),("cas

insert into stu values("gary",23),("cas

insert into stu values("gary",23),("cas

insert into stu values("gary",23),("cas

insert into stu values("gary",23),("cas

insert into stu values("gary",23),("cas

insert into stu values("gary",23),("cas

**Details**

Query Statement Query Plan Execution Overview **Profile** Memory

Query (id [redacted]):

Summary:

```

Session ID: [redacted]
Session Type: BEESWAX
Start Time: 2022-08-01 19:58:51.930712000
End Time: 2022-08-01 19:58:55.127934000
Query Type: QUERY
Query State: FINISHED
Impala Query State: FINISHED
Query Status: OK
Impala Version: impalad version 3.4.0-RELEASE RELEASE (build 66699337e89)
User: hadoop
Connected User: hadoop
Delegated User:
Network Address: [redacted] lu
Default Db: default
Sql Statement: select *from stu2
Coordinator: 10.0.0.132:27002
Query Options (set by configuration): TIMEZONE [redacted]
Query Options (set by configuration and planner): MT_DOP=0,TIMEZONE [redacted]
Plan:
            
```

**Note:**

For Impala queries that take more than 3s to execute, you can view profiles in **Overview** and **Details**.

# Hive Table Analysis

Last updated : 2023-12-27 14:45:23

## Overview

This feature allows you to quickly view multiple detailed metrics of YARN jobs such as the commit queue, status, and duration. Statistics views are also provided for viewing metric statistics in the three dimensions of queue, user, and job type.

Provides data distribution and trend information about the storage of databases and tables.

Provides the distribution of tables based on the last access time as a reference for the distribution of hot and cold data.

Helps you identify data skew in small files and partitions in a table based on the proportion of small files in the table and the amount of data in each partition.

## Directions

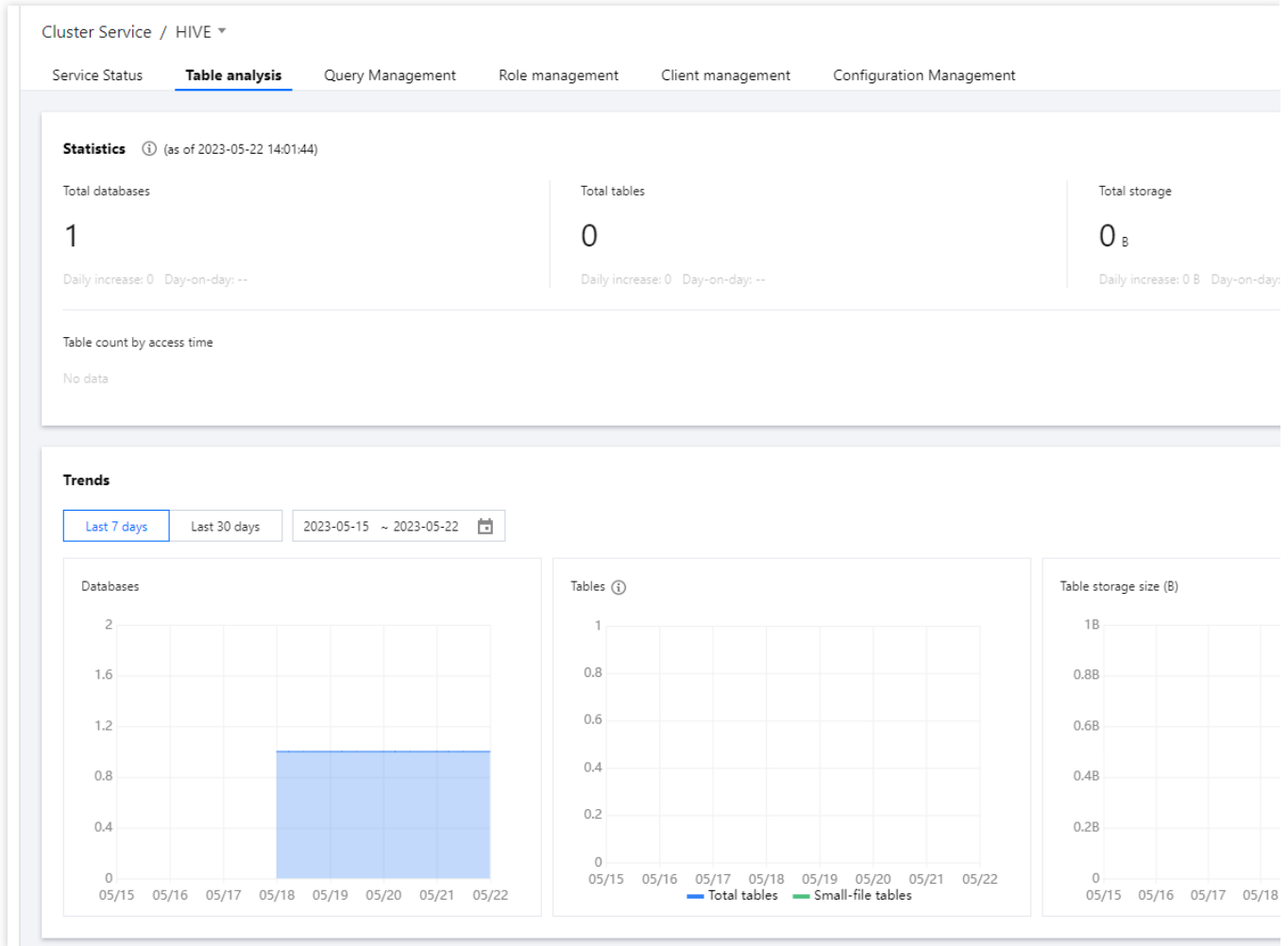
1. Log in to the [EMR console](#) and click the **ID/Name** of the corresponding cluster in the cluster list.
2. On the cluster details page, click **Cluster Service** and choose **Operation > Table Analysis** in the top-right corner of the Hive component block to view table and data information based on Hive MetaStore as of the last collection time.
3. Obtain statistical views.
  - 3.1 You can view the daily increase and day-over-day change in metrics such as the number of Hive databases, total number of Hive tables, and total Hive data storage size.
  - 3.2 You can view the distribution of tables based on the last access time as a reference for the distribution of hot and cold data.

### Note:

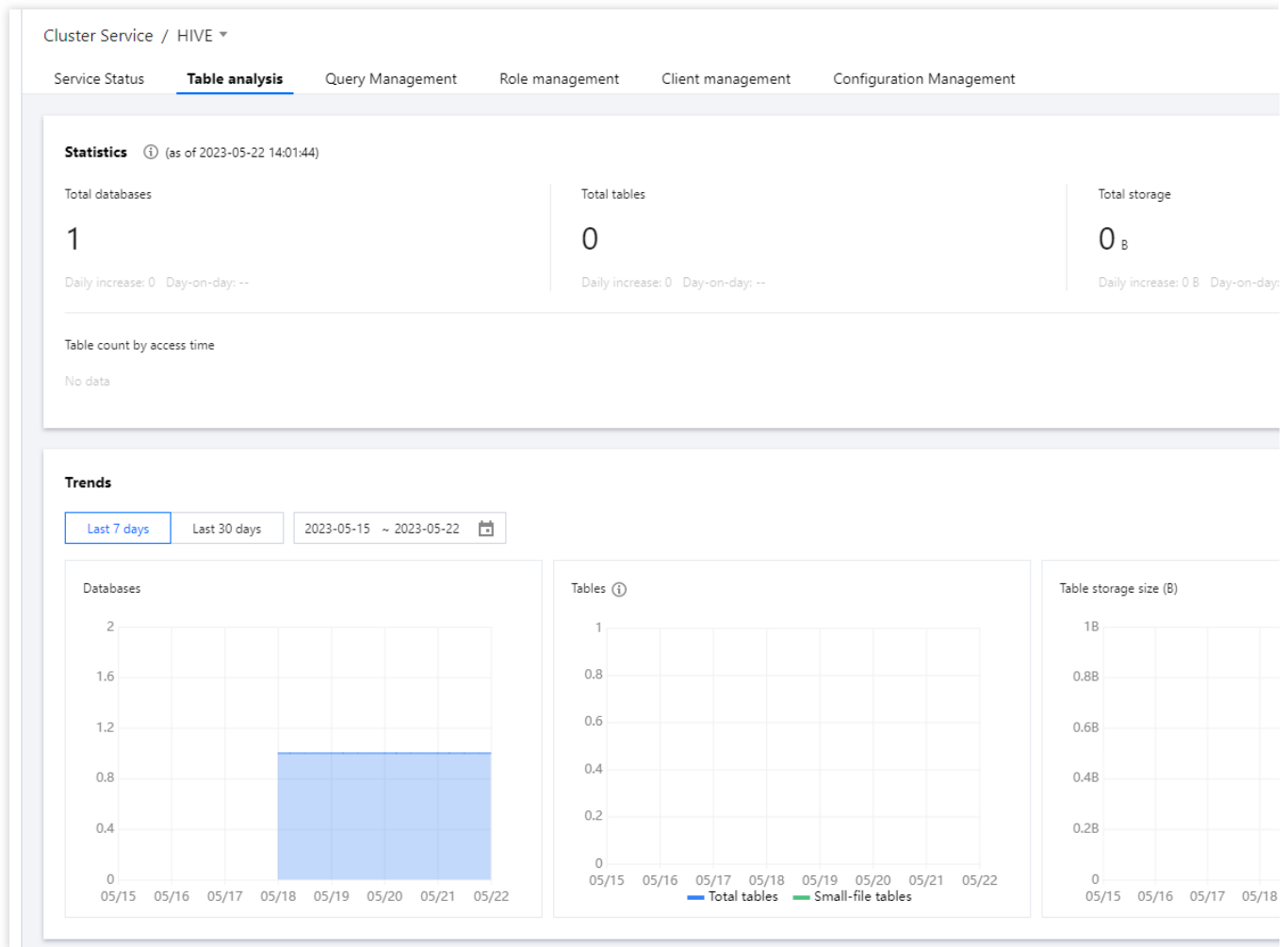
Time Range	Description
Within 3 months	The last access time is within the last 3 months from the current date.
3 months to 1 year	The last access time is more than 3 months ago but within the last year from the current date.
1 to 5 year	The last access time is more than 1 year ago but within the last 5 years from the current date.
More than 5 years	The last access time is more than 5 years ago from the current date.

Other

Data collection is not enabled on Cos/CHDFS.  
The system failed to collect the last access time of data.



4. The trend view displays the historical trends in the number of databases, number of tables, and storage size of tables. In the table count trend chart, the trend in the number of small files is also shown, providing insights into the distribution and growth trends of small files.



5. You can view the following information about a table: database, storage size, number of files, proportion of small files, and partitioning status. The number of files and proportion of small files provide insights into any issues with small files in Hive.

6. By clicking "View Partition Details", you can view some information about a partition, such as the name, size, and total number of files. This offers insights into the distribution of data across partitions and the number of files in each partition.

### Risk description

The data required for table analysis is collected at 14:00 every day.

1. Data collected mainly includes metadata on databases, tables, and partitions stored in HMS, as well as directory information stored in NameNode. This may lead to a slight increase in the number of requests made to HMS and NameNode. If the number of requests continues to grow and exceeds the capacity limit, [submit a ticket](#) to disable this feature.

2. The collection of data from HMS and NameNode involves only metadata and does not involve specific business data.

# HBase Table Analysis

Last updated : 2023-12-27 14:45:41

## Overview

Table analysis provides information such as the numbers of read/write requests and storage information for an entire HBase table, each individual region within the table, and each region server. The feature also supports analyzing the read/write queries per second (QPS) and their trends for the corresponding table or region server in practical scenarios.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the corresponding cluster in the cluster list.
2. On the cluster details page, click **Cluster Service** and choose **Operation > Table analysis** in the top-right corner of the HBase component block to query HBase table loads.

## Supported Operations in the Table List

In the HBase table list, you can view information about the read QPS, write QPS, MetaStore storage, and StoreFile size for each table. You can also identify the top tables in the cluster by using the sorting button in each column.

Cluster Service / HBASE ▾ More ▾ | Help Documentation 📄

Service Status **Table analysis** Role management Client management Configuration Management RIT fixing

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**Tables** Enter table name 🔍 ↻

Table	Read Requests/s ↕	Write Requests/s ↕	Memstore Size ↕	Storefile Size ↕	Operation
hbase_meta	0.02	0	768	10737	<a href="#">Regions</a> <a href="#">RegionServers</a>
hbase_namespace	0	0	256	4926	<a href="#">Regions</a> <a href="#">RegionServers</a>

Total 2 items Lines per page 10 ▾ | 1 / 1 page

---

**Statistics by Region** Search by table name 🔍 ↻

1 hour 6 hours 12 hours 2023-05-23 19:02:37 ~ 2023-05-23 20:02:37 📅

Region	TableName	RegionServer ▾	ReadRequestRate ↕ ↓	WriteRequestRate ↕ ↕
hbase:meta_1	hbase_meta	10.0.0.24:6003	0.01	0
59ecc1cbc0d857b0397c75744c8cb66c	hbase_namespace	10.0.0.95:6003	0	0

Total items: 2 10 ▾ / page | 1 / 1 page

### Viewing table details

Click a table name to obtain a detailed view of the table. The details page displays the numbers of read/write requests, MemStore storage, and storeFile size for the entire table or each individual node. You can switch between nodes by using the node filter in the top-right corner.

**hbase\_meta Table Details** ✕

Real time Last 24 hours Last 7 days 2023-05-23 19:03:26 to 2023-05-23 20:03:26 📅 Node Filter ▾ ↻

**Number Of Requests** ⓘ 🗲

— Write — Read

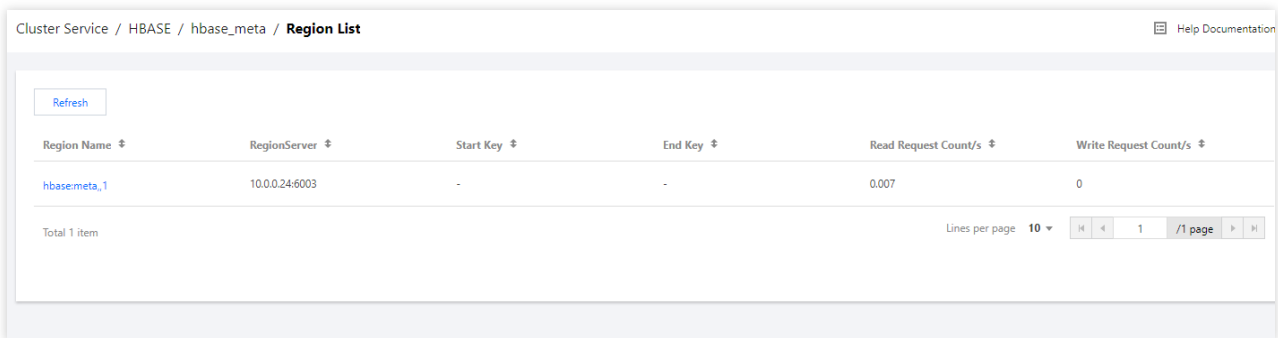
**Store Size (Byte)** ⓘ 🗲

— storeFileSize — memstoreSize

[Disable](#)

### Viewing the overall region information

Click **Regions** to view the overall region information, including the number of read/write requests for each region in the table, which helps you identify hot spot regions.

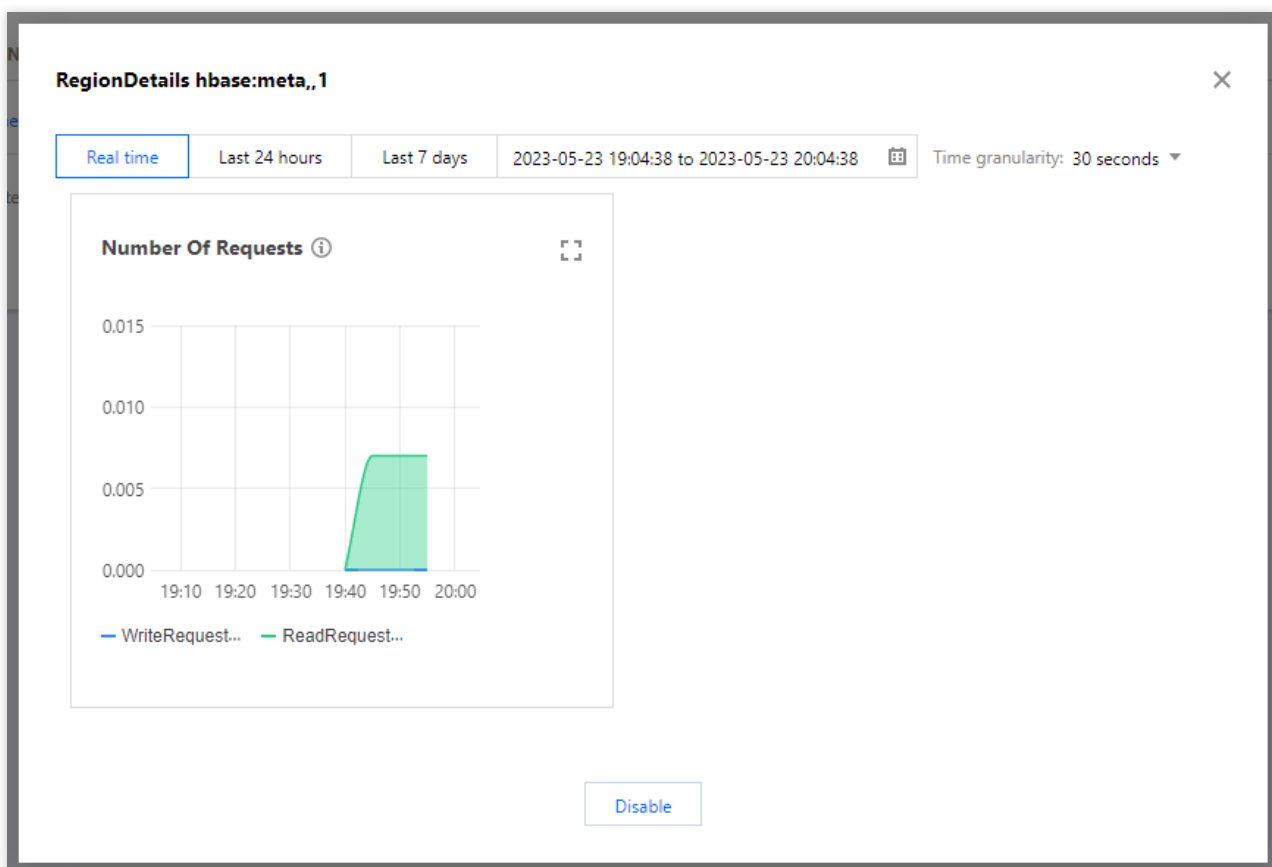


The screenshot shows a table titled "Region List" with the following columns: Region Name, RegionServer, Start Key, End Key, Read Request Count/s, and Write Request Count/s. The table contains one row for "hbase:meta,1" with a RegionServer of "10.0.0.24:6003", Start Key and End Key both as "-", Read Request Count/s of "0.007", and Write Request Count/s of "0". The table also includes a "Refresh" button, a "Total 1 item" summary, and a pagination control showing "Lines per page: 10" and "1 / 1 page".

Region Name	RegionServer	Start Key	End Key	Read Request Count/s	Write Request Count/s
hbase:meta,1	10.0.0.24:6003	-	-	0.007	0

## Viewing region details

Click a region name to obtain the detailed view of the region. The details page displays the numbers of read/write requests for the table at different time granularities. Select an option from **Time granularity** in the top-right corner to switch between different time granularities.



## Viewing the overall region server information

Click **RegionServers** to view the request latencies of each region server that hosts one or more regions in the table.

Cluster Service / HBASE / hbase\_namespace / **Regionserver list** Help Documentation

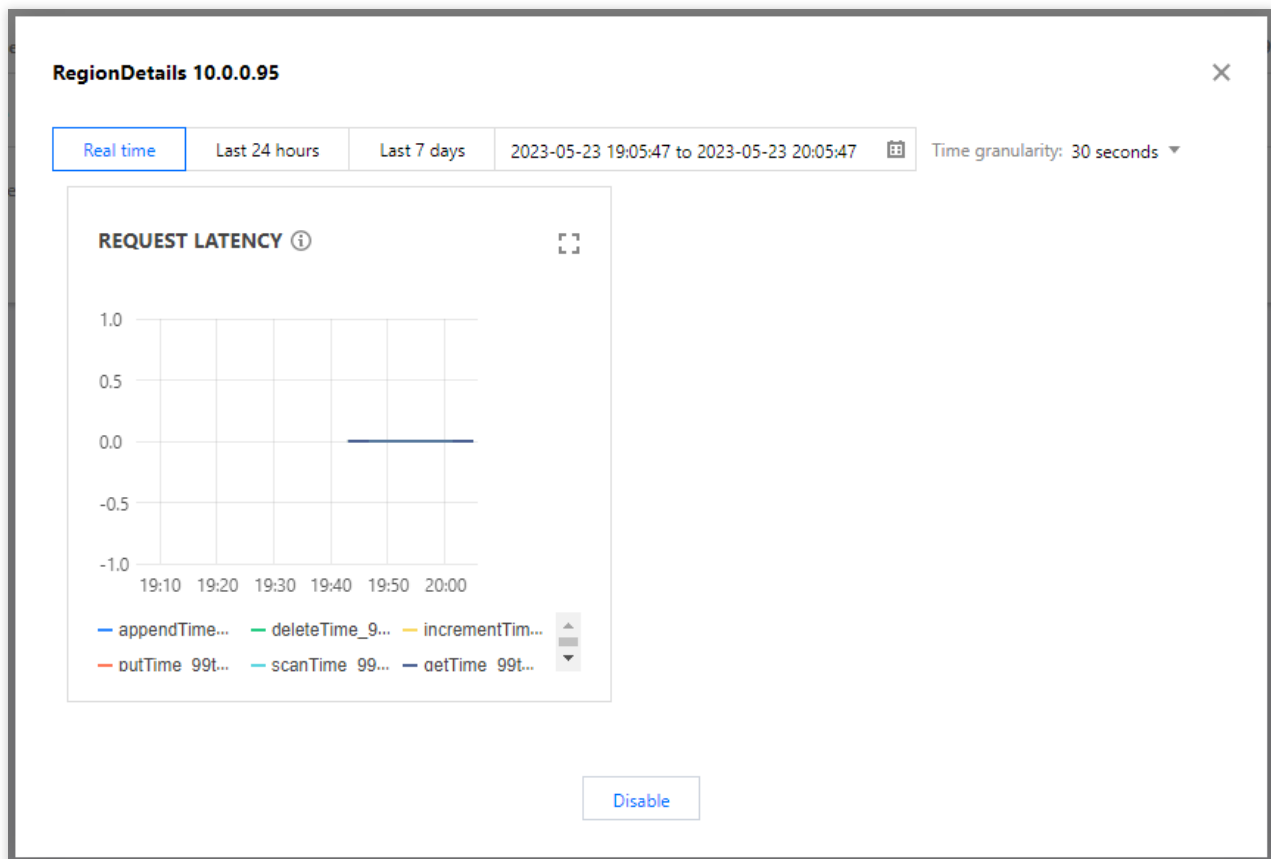
[Refresh](#)

RegionServer	GetTimeTp99	ScanTimeTp99	PutTimeTp99	IncrementTimeTp99	AppendTimeTp99	DeleteTimeTp99
10.0.0.95	0	0	0	0	0	0

Total 1 item Lines per page: 10 | 1 / 1 page

## Region Analysis

With region analysis, you can search for the table that a specific region belongs to or filter results by the region server that hosts the region. By examining the average request QPS and average read/write QPS, you can identify hot spots in the cluster where a large number of requests are being processed.





By clicking the view button in the "Average read QPS" or "Average write QPS" column header, you can view the trend of read/write QPS for the current region and observe sudden changes in request traffic. You can specify the time range for the information displayed.

# Kudu Table Analysis

Last updated : 2023-12-27 14:45:59

## Overview

Kudu table monitoring and Tablet analysis can help you identify data hot spots and skew in tables and Tablet deployment.

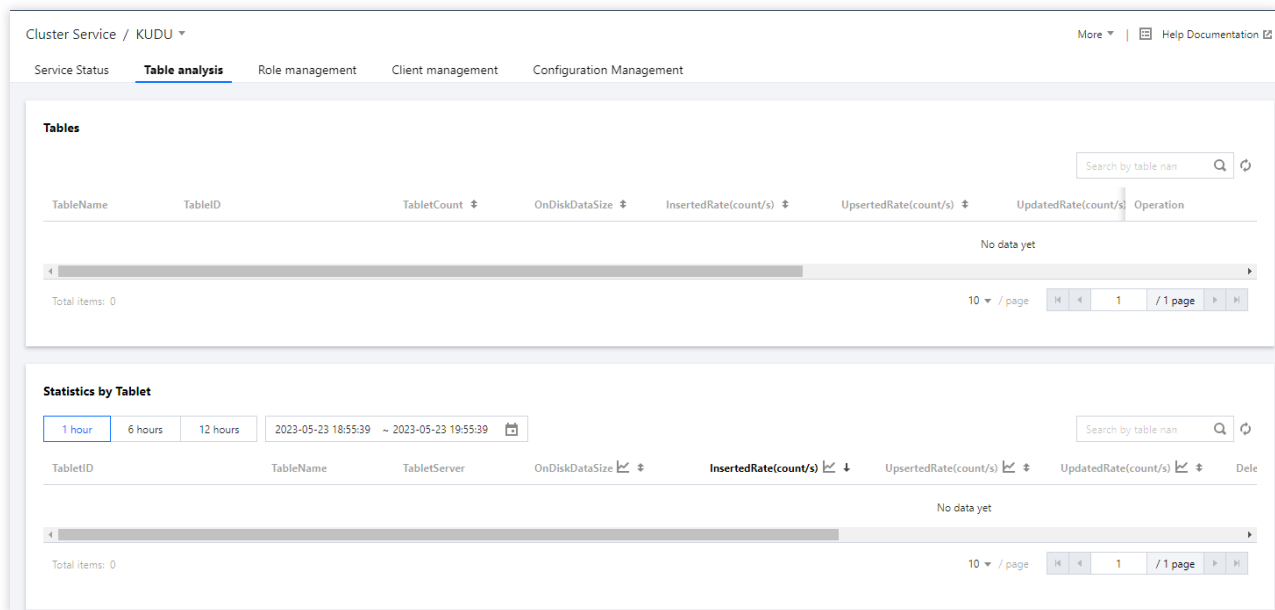
1. Kudu table analysis provides load information, including table-level, Tablet, and TabletServer read/write QPS and storage.
2. Through Tablet analysis, you can analyze the historical trends of read/write QPS information for tables or TabletServers, based on real-world scenarios.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the corresponding cluster in the cluster list.
2. On the cluster details page, click **Cluster Service** and choose **Operation > Table Analysis** in the top-right corner of the Kudu component block to view the analysis of Kudu table loads.

## Supported Operations in the Table List

In the Kudu table list, you can view information about table-level request QPS, write QPS, and OnDiskDataSize storage. You can also identify the top tables in the cluster by using the sorting button in each column header.



## Viewing table details

Click a table name to obtain a detailed view of the table. The details page displays the numbers of read/write requests and storage size (including OnDiskDataSize) for the entire table or each individual node. You can switch between nodes by using the node filter in the top-right corner.

## Viewing the overall Tablet information

Click **Tablets Operation** to view the overall information about the read/write request volumes of each Tablet in the table, and identify hot spots within the Tablets.

## Viewing Tablet details

Click the corresponding Tablet name to view the Tablet details and metric trends. The details page provides data on request and scan metrics for the selected Tablet at various time granularities. You can change the time granularity in the top-right corner.

## Viewing the overall TabletServer information

Click **TabletServers Operation** to view the overall information about each TabletServer, such as the request latency and data storage.

# Tablet Analysis

With Tablet analysis, you can search for the table that a specific region belongs to or filter results by the TabletServer that hosts the region. By examining the average request QPS and average read/write QPS, you can identify hot spots

in the cluster where a large number of requests are being processed.

By clicking the view button in the “Average read QPS” or “Average write QPS” column header, you can view the trend of read/write QPS for the current Tablet and observe sudden changes in request traffic. You can specify the time range for the information displayed.

# Cluster Inspection

Last updated : 2023-12-27 14:46:15

## Overview

You can perform health check on the nodes and services in each cluster instantly or periodically (daily or weekly) with the selected inspection items. Only one periodic inspection task can be configured for each cluster to help you know the cluster health conditions periodically and fix the exceptions and risks in time.

When you set a one-time or periodic inspection task, general inspection items will be selected by default. If you want to check certain service features in special cases, you can select the corresponding inspection items as needed. However, service feature inspection will compromise cluster performance, which is thus not recommended during business peak hours.

After each inspection task is completed, a PDF report will be generated, which can be downloaded and deleted. Up to 50 inspection reports can be retained under each root account. If an excessive report is generated, the oldest one will be deleted.

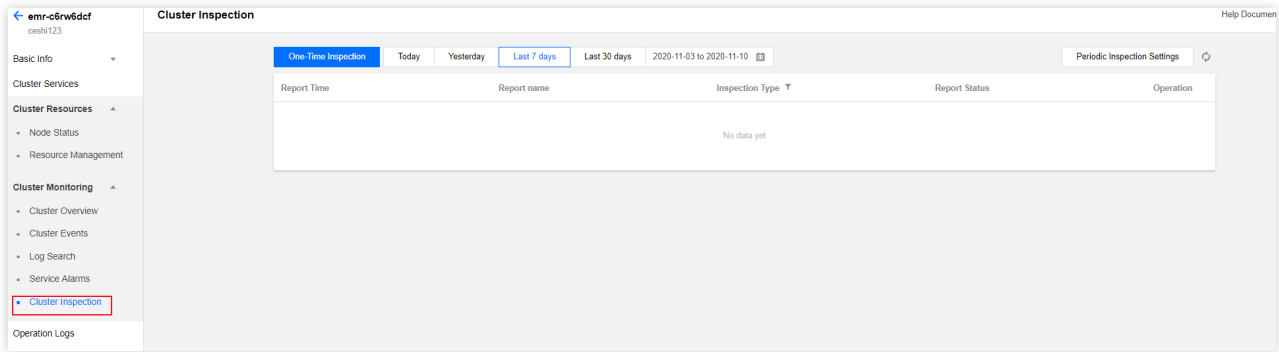
### Note

The inspection system supports service inspection items. Currently, only HDFS, YARN, HBase, Hive, and ZooKeeper are supported.

The configuration of a periodic inspection task cannot be changed when it is being executed.

## Directions



1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. On the cluster details page, select **Cluster Monitoring > Cluster Inspection** and you can perform health check on the nodes and services in the current cluster. Only one periodic inspection task can be configured for each cluster. You can also click **One-Time Inspection** to perform an inspection. To configure a periodic inspection task, click **Periodic Inspection Settings**.



**One-Time Inspection:** The health status of nodes and services in the cluster from a specified time point to the current time point will be checked, and an inspection report will be generated.

### Start One-Time Inspection ✕

**i** 1. One-time inspection: check the health status of a cluster's nodes and service from a specified moment to the current time and generate an inspection report.  
2. Periodic inspection: when periodic inspection is enabled, the system automatically checks the health status of nodes and services in each preset inspection cycle and generate an inspection report. Only one periodic inspection can be configured for each cluster.  
3. Inspection items support all enabled event monitoring policies by default. You can adjust the inspection items in [Event Policy](#).

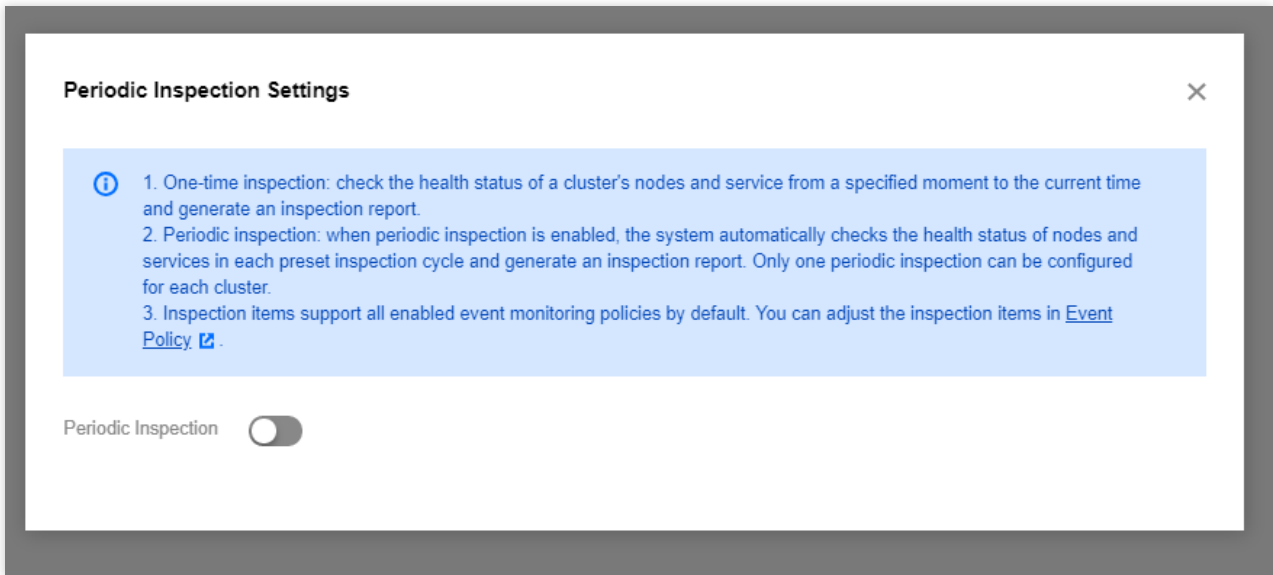
Inspection Interval: 2020-11-10  00:00  to date

Inspection Item

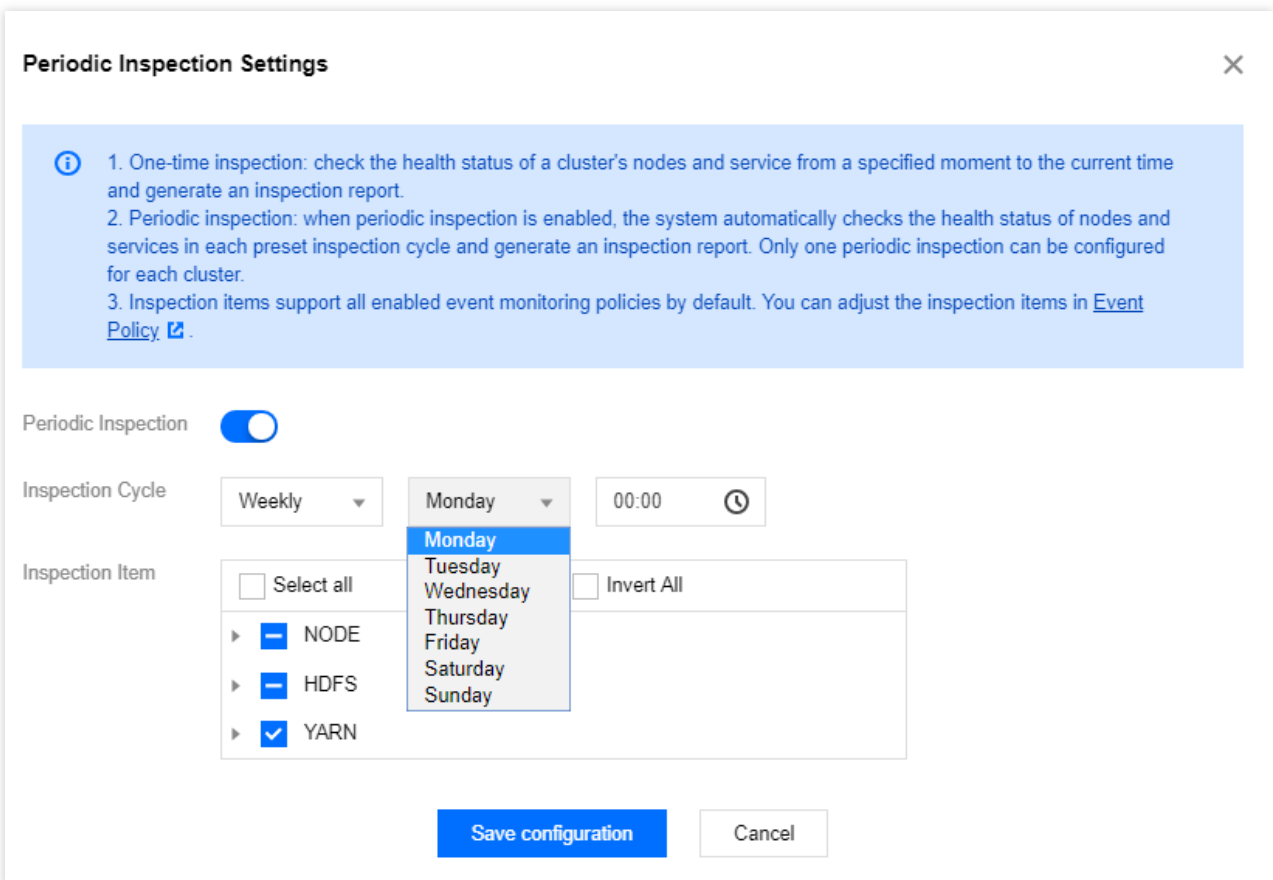
Select all  Invert All

- ▼  NODE
  - CpuUsageMoreThanThreshold
  - CpuIOWaitAvgMoreThanThreshold
  - MemoryFreeException
  - ProcessCntMoreThanThreshold
  - ProcessOutOfMemory
  - DiskIOError
  - DiskSpaceMoreThanThreshold
  - DiskUtilMoreThanThreshold
  - ProcessLost
  - HeartBeatLost
  - HostnameChanged
- ▶  HDFS
- ▶  YARN

Periodic Inspection: After a periodic inspection policy is enabled, the system will automatically check the health status of the nodes and services in the cluster in every inspection cycle and generate an inspection report. One periodic inspection policy can be configured for each cluster.



Inspection Item: All enabled event monitoring policies are supported by default. You can adjust the inspection items as instructed in [Cluster Event](#). All events with monitoring enabled are selected by default as the initial inspection items. When you customize the inspection items, those selected last time will be selected by default.





# Monitoring Metrics

## Node Monitoring Metrics

Last updated : 2023-12-27 14:46:33

### Node - CPU

Title	Metric	Unit	Description
CPU utilization	idle	%	Percentage of CPU idle time
	irq	%	Percentage of interrupts
	nice	%	Percentage of CPU utilization under nice priority
	steal	%	Percentage of wait time by virtual CPUs for physical CPUs
	softirq	%	Percentage of CPU soft interrupts
	guest	%	Percentage of time spent running virtual processors
	system	%	CPU utilization in kernel mode
	user	%	CPU utilization in user mode
	iowait	%	Percentage of CPU idleness due to process I/O waits
Load	1m	%	1-minute load
	5m	%	5-minute load
	15m	%	15-minute load
Cores	cpu_count	-	Number of CPU cores

### Node - memory

Title	Metric	Unit	Description
Memory utilization	MemTotal	GB	Total memory size
	MemFree	GB	Total free memory size
	MemAvailable	GB	Total available memory size
	Buffers	GB	Total memory size used by buffers

	Cached	GB	Total memory size used by file cache
	SwapCached	GB	Total swap memory size by anonymous page writes
	SwapFree	GB	Total available swap size
	AnonPages	GB	Total unmapped memory size
	SwapTotal	GB	Total swap size
	Dirty	GB	Total memory size to write to disk
	Writeback	GB	Total memory size being written back to disk
	HardwareCorrupted	GB	Total unavailable memory size due to memory hardware failure
	Shmem	GB	Total shared memory size
	MemUsed	GB	Total used memory size
Percentage of used memory	available_percent	%	Percentage of available memory size out of total memory
	used_percent	%	Percentage of used memory size out of total memory

## Node - disk

Title	Metric	Unit	Description
Device read/write rate	Read	MB/s	Data read per second
	Write	MB/s	Data written per second
Device IOPS	all	count/s	Number of I/O operations in progress on current device
I/O operation time	Read	ms	Average wait time per device I/O read operation
	Write	ms	Average wait time per device I/O write operation
	IO	ms	Average processing time per I/O request
Device read/write QPS	Read	count/s	Read QPS
	Write	count/s	Write QPS
	Merge-Read	count/s	Merged read QPS

	Merge-Write	count/s	Merged write QPS
I/O device utilization	all	%	Disk busyness
Disk space	Free	GB	Free disk storage space
	Available	GB	Available disk storage space (for unprivileged users)
	Total	GB	Total disk storage space
Disk space utilization	Used	%	Disk space utilization
INODES	Free	-	Number of remaining disk inodes
	Total	-	Total number of disk inodes
Inode utilization	Used	%	Disk inode utilization

### Node - file handle

Title	Metric	Unit	Description
File handle	allocated	-	Number of allocated file handles
	maximum	-	Maximum number of file handles
System interrupt	intr_total	count/s	Number of system interrupts
System context switch	context_switches_total	count/s	Number of system context switches
System process	forks_total	-	Number of new system processes
	procs_running	-	Number of running system processes
	procs_blocked	-	Number of blocked system processes
	procs_total	-	Total number of system processes
	thrds_total	-	Total number of system threads
Agent version	AgentVersionI	version	Agent version

### Node - network

Title	Metric	Unit	Description
TCP LISTEN	ListenDrops	count/s	Number of incoming connections (SYN packets)

exception			dropped for any reason
	ListenOverflows	count/s	Number of occurrences where the upper limit of the Accept queue is exceeded after the last step of three-way handshake is completed
TCPSyncookies	SyncookiesFailed	count/s	Number of packets received with invalid SYN Cookie information
	SyncookiesRecv	count/s	Number of packets received with valid SYN Cookie information
	SyncookiesSent	count/s	Number of SYN/ACK packets sent through SYN Cookie
TCP connection abort exception	TCPAbortOnTimeout	count/s	Number of connections closed because the attempts of retransmissions of various timers (RTO/PTO/keepalive) exceed the upper limit
	TCPAbortOnData	count/s	Number of sockets closed due to unknown data received
	TCPAbortOnClose	count/s	Number of sockets closed when the user-mode program has data in the buffer
	TCPAbortOnMemory	count/s	Number of connections closed due to memory issues
	TCPAbortOnLinger	count/s	Number of connections suspended in lingering status after being closed
	TCPAbortFailed	count/s	Number of failed attempts to close connection
TCP connection establishment	ActiveOpens	count/s	Number of actively established TCP connections
	CurrEstab	count/s	Number of TCP connections currently established
	PassiveOpens	count/s	Number of passively established TCP connections
	AttemptFails	count/s	Number of connection establishment failures
	EstabResets	count/s	Number of reset connections
TCP packet	InSegs	count/s	Number of received packets, including erroneous

			ones
	OutSegs	count/s	Number of sent packets
	RetransSegs	count/s	Number of received TCP packets
	InErrs	count/s	Number of retransmitted packets
	OutRsts	count/s	Number of sent RST packets
TCP retransmission rate	RetransSegsRate	%	Retransmission rate at TCP layer
	ResetRate	%	RESET sending frequency
	InErrRate	%	Percentage of erroneous packets
TCP TIME-WAIT	TW	count/s	Number of sockets ending TIME_WAIT status after normal timeout
	TWKilled	count/s	Number of sockets ending TIME_WAIT status through tcp_tw_recycle mechanism
	TCPTimeWaitOverflow	count/s	Number of TIME_WAIT sockets unable to be allocated due to limit exceeding
	TWRecycled	count/s	Number of sockets ending TIME_WAIT status through tcp_tw_reuse mechanism
TCP RTO	TCPTimeouts	count/s	Number of first RTO timer timeouts
	TCPSpuriousRTOs	count/s	Number of spurious timeouts detected through F-RTO mechanism
	TCPLossProbes	count/s	Number of Tail Loss Probe (TLP) packets sent due to Probe Timeout (PTO)
	TCPLossProbeRecovery	count/s	Number of lost packets just repaired by TLP probes
	TCPRenoRecoveryFail	count/s	Number of connections that enter the Recovery phase and then undergo RTO (SACK option not supported by the opposite)
	TCPSackRecoveryFail	count/s	Number of connections that enter the Recovery phase and then undergo RTO (SACK option supported by the opposite)

	TCPRenoFailures	count/s	Number of failures that enter the TCP_CA_Disorder phase and then undergo RTO (SACK option not supported by the opposite)
	TCPsackFailures	count/s	Number of failures that enter the TCP_CA_Disorder phase and then undergo RTO (SACK option supported by the opposite)
	TCPLossFailures	count/s	Number of connections that enter the TCP_CA_Loss phase and then undergo RTO timeout
TCP RTO constant	RtoAlgorithm	1/s	Number of delayed algorithms for forwarding unanswered objects
	RtoMax	1	Maximum number of retransmissions due to TCP latency
	RtoMin	1	Minimum number of retransmissions due to TCP latency
TCP retransmission	TCPLostRetransmit	count/s	Number of SKB retransmissions due to loss
	TCPFastRetrans	count/s	Number of fast SKB retransmissions
	TCPForwardRetrans	count/s	Number of regular SKB retransmissions
	TCPSlowStartRetrans	count/s	Number of SKB retransmissions with successful slow start
	TCPRetransFail	count/s	Number of failed retransmission attempts
UDP datagram	OutDatagrams	count/s	Number of sent UDP datagrams
	InDatagrams	count/s	Number of received UDP datagrams
ENI data receiving/sending rate	eth0-receive_bytes	MB/s	Volume of data received by ENI
	eth0-transmit_bytes	MB/s	Volume of data sent by ENI
ENI packet receiving/sending rate	eth0-receive_drop	count/s	Volume of data received and then dropped by ENI
	eth0-receive_errs	count/s	Volume of data failed to be received by ENI
	eth0-transmit_drop	count/s	Volume of data sent and then dropped by ENI
	eth0-transmit_errs	count/s	Volume of data failed to be sent by ENI

	eth0-transmit_packetsl	count/s	Number of packets sent by ENI
TCP socket	TCP_inuse	-	Number of TCP sockets in use (listening)
	TCP_orphan	-	Number of TCP connections waiting to be closed
	TCP_tw	-	Number of TCP sockets to be terminated
	TCP_alloc	-	Number of TCP sockets allocated (established, sk_buff obtained)
	sockets_used	-	Total number of used sockets
TCP connection status	ESTABLISHED	-	Number of TCP connections in Established status
	SYN-SENT	-	Number of TCP connections in SYN-SENT status
	SYN-RECV	-	Number of TCP connections in SYN-RECV status
	FIN-WAIT1	-	Number of TCP connections in FIN-WAIT1 status
	FIN-WAIT2	-	Number of TCP connections in FIN-WAIT2 status
	TIME-WAIT	-	Number of TCP connections in TIME-WAIT status
	CLOSE	-	Number of TCP connections in CLOSE status
	CLOSE-WAIT	-	Number of TCP connections in CLOSE-WAIT status
	LAST-ACK	-	Number of TCP connections in LAST-ACK status
	LISTEN	-	Number of TCP connections in LISTEN status
	CLOSEING	-	Number of TCP connections in CLOSEING status

**Node - event**

Title	Metric	Unit	Description
CPU utilization	used	%	1 - (percentage of CPU idle time)

15-minute CPU load	15m	-	15-minute load
1-minute CPU load	1m	-	1-minute load
5-minute CPU load	5m	-	5-minute load
Disk IOPS	all	-	Number of I/O operations in progress on current device
Disk I/O operation time	IO	-	Average processing time per I/O request
Disk space utilization	Used	-	Disk space utilization
Disk I/O device utilization	all	-	Disk busyness
Memory utilization	used_percent	-	Percentage of used memory size out of total memory
Outbound network traffic rate	*-transmit_bytes	-	Volume of data sent by ENI
Inbound network traffic rate	*-receive_bytes	-	Volume of data received by ENI
TCP connections	CurrEstab	-	Number of TCP connections currently established



# HDFS Monitoring Metrics

Last updated : 2023-12-27 14:48:18

## HDFS - Overview

Title	Metric	Unit	Description
Cluster storage capacity	CapacityTotal	GB	Total cluster storage capacity
	CapacityUsed	GB	Used cluster storage capacity
	CapacityRemaining	GB	Remaining cluster storage capacity
	CapacityUsedNonDFS	GB	Non-HDFS used cluster capacity
Cluster load	TotalLoad	1	Current connections
Total files in cluster	FilesTotal	-	Total number of files
Blocks	BlocksTotal	-	Total number of blocks
	PendingReplicationBlocks	-	Number of blocks waiting to be backed up
	UnderReplicatedBlocks	-	Number of blocks with insufficient replicas
	CorruptBlocks	-	Number of corrupted blocks
	ScheduledReplicationBlocks	-	Number of blocks arranged for backup
	PendingDeletionBlocks	-	Number of blocks waiting to be deleted
	ExcessBlocks	-	Number of excess blocks
	PostponedMisreplicatedBlocks	-	Number of abnormal blocks postponed to be processed
Block capacity	BlockCapacity	-	Block capacity
Cluster data node	NumLiveDataNodes	-	Number of live data nodes
	NumDeadDataNodes	-	Number of data nodes marked as dead

	NumDecomLiveDataNodes	-	Number of decommissioned live nodes
	NumDecomDeadDataNodes	-	Number of decommissioned dead nodes
	NumDecommissioningDataNodes	-	Number of decommissioning nodes
	NumStaleDataNodes	-	Number of DataNodes marked as stale
HDFS storage space utilization	CapacityUsedRate	-	HDFS cluster storage space utilization
Snapshots	Snapshots	-	Number of snapshots
Disk failure	VolumeFailuresTotal	-	Total number of volume failures across all DataNodes

## HDFS - NameNode

Title	Metric	Unit	Description
Data traffic	ReceivedBytes	Bytes/s	Data receiving rate
	SentBytes	Bytes/s	Data sending rate
QPS	RpcQueueTimeNumOps	1/s	RPC call rate
Request processing latency	RpcQueueTimeAvgTime	ms	Average RPC latency
	RpcProcessingTimeAvgTime	ms	Average RPC request processing time
Authentication and authorization	RpcAuthenticationFailures	1 per time	Number of RPC authentication failures
	RpcAuthenticationSuccesses	2 per time	Number of RPC authentication successes
	RpcAuthorizationFailures	3 per time	Number of RPC authorization failures
	RpcAuthorizationSuccesses	4 per time	Number of RPC authorization successes
Current connections	NumOpenConnections	-	Number of current connections

Length of RPC processing queue	CallQueueLength	-	Length of current RPC processing queue
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapCommittedM configured by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Committed size of JVM HeapMemory
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemMaxM	MB	Maximum size of memory available to JVM runtime
Block reporting latency	BlockReportAvgTime	count/s	Average latency of process DataNode blocks per second
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status
	ThreadsWaiting	-	Number of threads in WAITING status
	ThreadsTimedWaiting	-	Number of threads in TIME WAITING status
	ThreadsTerminated	-	Number of threads in Terminated status
JVM logs	LogFatal	-	Number of FATAL-level logs
	LogError	-	Number of ERROR-level logs
	LogWarn	-	Number of WARN-level logs

	LogInfo	-	Number of INFO-level logs
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor memory
	S1	%	Percentage of used Survivor memory
	E	%	Percentage of used Eden memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
	CCS	%	Percentage of used compressed class space memory
Storages marked as content stale	NumStaleStorages	-	Number of DataNode storages marked as content stale
Pending block-related messages for later processing on the standby NameNode	PendingDataNodeMessageCount	count/s	Number of DataNode requests queued on the standby NameNode
Missing blocks	NumberOfMissingBlocks	-	Number of missing blocks
	NumberOfMissingBlocksWithReplicationFactorOne	-	Number of missing blocks (1)

Snapshot operation	AllowSnapshotOps	count/s	Number of AllowSnapshot operations executed per second
	DisallowSnapshotOps	count/s	Number of DisallowSnapshot operations executed per second
	CreateSnapshotOps	count/s	Number of CreateSnapshot operations executed per second
	DeleteSnapshotOps	count/s	Number of DeleteSnapshot operations executed per second
	ListSnapshottableDirOps	count/s	Number of ListSnapshottableDir operations executed per second
	SnapshotDiffReportOps	count/s	Number of SnapshotDiffReportOps operations executed per second
	RenameSnapshotOps	count/s	Number of RenameSnapshotOps operations executed per second
File operation	CreateFileOps	count/s	Number of CreateFile operations executed per second
	GetListingOps	count/s	Number of GetListing operations executed per second
	TotalFileOps	count/s	Number of TotalFileOps operations executed per second
	DeleteFileOps	count/s	Number of DeleteFile operations executed per second

	FileInfoOps	count/s	Number of FileInfo operations executed per second
	GetAdditionalDatanodeOps	count/s	Number of GetAdditionalDatanode operations executed per second
	CreateSymlinkOps	count/s	Number of CreateSymlink operations executed per second
	GetLinkTargetOps	count/s	Number of GetLinkTarget operations executed per second
	FilesInGetListingOps	count/s	Number of FilesInGetListing operations executed per second
File statistics	FilesDeleted	count	Number of deleted or renamed files and folders
	FilesCreated	count	Number of created files and folders
	FilesAppended	count	Number of appended files and folders
Transaction operation	TransactionsNumOps	count/s	Number of journal transaction operations processed per second
	TransactionsBatchedInSync	count/s	Number of journal transaction operations batch processed per second
Image operation	GetEditNumOps	count/s	Number of GetEditNumOps operations executed per second
	GetImageNumOps	count/s	Number of GetImageNumOps operations executed per second
	PutImageNumOps	count/s	Number of PutImageNumOps operations executed per second

Sync operation	SyncsNumOps	count/s	Number of journal sync operations processed per second
Block operation	BlockReceivedAndDeletedOps	count/s	Number of BlockReceivedAndDeleted operations executed per second
	BlockOpsQueued	count/s	Number of processed DataNode block reporting operations
Cache reporting	CacheReportNumOps	count/s	Number of CacheReport operations processed per second
Block reporting	BlockReportNumQps	count/s	Number of DataNode block reporting operations processed per second
Sync operation latency	SyncsAvgTime	ms	Average latency of process journal sync operations
Cache reporting latency	CacheReportAvgTime	ms	Average latency of cache reporting
Image operation latency	GetEditAvgTime	ms	Average latency of reading Edit files
	GetImageAvgTime	ms	Average latency of reading image files
	PutImageAvgTime	ms	Average latency of writing image files
Transaction operation latency	TransactionsAvgTime	ms	Average latency of process journal transaction operations
Start time	StartTime	ms	Process start time
Active/Standby status	State	1	NameNode HA status
Active/Standby status	State	1: Active.	NameNode active/standby status

		0: Standby	
Threads	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Number of threads
	DaemonThreadCount	-	Number of backend thread
Transactions since the last checkpoint	SinceLastCheckpoint	count	Total number of transaction since the last checkpoint
Checkpoint time	LastCheckpoint	time	Time since the last checkp
Length of the queue waiting for file locks	LockQueueLength	count	LockQueueLength length of the queue waiting file locks
Average RPC time (1)	CompleteAvgTime	ms	Average latency of Complete requests
	CreateAvgTime	ms	Average latency of Create requests
	RenameAvgTime	ms	Average latency of Rename requests
	AddBlockAvgTime	ms	Average latency of AddBlock requests
	GetListingAvgTime	ms	Average latency of GetListing requests
	GetFileInfoAvgTime	ms	Average latency of GetFileInfo requests
	SendHeartbeatAvgTime	ms	Average latency of SendHeartbeat requests
Average RPC time (2)	RegisterDatanodeAvgTime	ms	Average latency of RegisterDatanode requests
	BlockReportAvgTime	ms	Average latency of BlockReport requests
	DeleteAvgTime	ms	Average latency of Delete requests



			requests
	RenewLeaseAvgTime	ms	Average latency of RenewLease requests
	BlockReceivedAndDeletedAvgTime	ms	Average latency of BlockReceivedAndDeleted requests
	FsyncAvgTime	ms	Average latency of fsync requests
	VersionRequestAvgTime	ms	Average latency of VersionRequest requests
Average RPC time (3)	ListEncryptionZonesAvgTime	ms	Average latency of ListEncryptionZones requests
	SetPermissionAvgTime	ms	Average latency of SetPermission requests
	SetTimesAvgTime	ms	Average latency of SetTimes requests
	SetSafeModeAvgTime	ms	Average latency of SetSafeMode requests
	MkdirsAvgTime	ms	Average latency of Mkdirs requests
	GetServerDefaultsAvgTime	ms	Average latency of GetServerDefaults request
	GetBlockLocationsAvgTime	ms	Average latency of GetBlockLocations requests
RPC statistics (1)	CompleteNumOps	count/s	Number of Complete calls per second
	CreateNumOps	count/s	Number of Create calls per second
	RenameNumOps	count/s	Number of Rename calls per second
	AddBlockNumOps	count/s	Number of AddBlock calls per second

	GetListingNumOps	count/s	Number of GetListing per second
	GetFileInfoNumOps	count/s	Number of GetFileInfo calls second
	SendHeartbeatNumOps	count/s	Number of SendHeart calls per second
RPC statistics (2)	RegisterDatanodeNumOps	count/s	Number of RegisterDatanode calls per second
	BlockReportNumOps	count/s	Number of BlockReport calls per second
	DeleteNumOps	count/s	Number of Delete calls second
	RenewLeaseNumOps	count/s	Number of RenewLease calls per second
	BlockReceivedAndDeletedNumOps	count/s	Number of BlockReceivedAndDeleted calls per second
	FsyncNumOps	count/s	Number of fsync calls second
	VersionRequestNumOps	count/s	Number of VersionRequest calls per second
RPC statistics (3)	ListEncryptionZonesNumOps	count/s	Number of ListEncryptionZones calls per second
	SetPermissionNumOps	count/s	Number of SetPermission calls per second
	SetTimesNumOps	count/s	Number of SetTimes calls per second
	SetSafeModeNumOps	count/s	Number of SetSafeMode calls per second
	MkdirsNumOps	count/s	Number of Mkdirs calls per second

	GetServerDefaultsNumOps	count/s	Number of GetServerDefaults calls per second
	GetBlockLocationsNumOps	count/s	Number of GetBlockLocations calls per second

## HDFS - DataNode

Title	Metric	Unit	Description
Xceivers	XceiverCount	-	Number of Xceivers
Data read/write rate	BytesWrittenMB	Bytes/s	DataNode byte write rate
	BytesReadMB	Bytes/s	DataNode byte read rate
	RemoteBytesReadMB	Bytes/s	Remote client byte read rate
	RemoteBytesWrittenMB	Bytes/s	Remote client byte write rate
Client connections	WritesFromRemoteClient	-	Remote client write QPS
	WritesFromLocalClient	-	Local client write QPS
	ReadsFromRemoteClient	-	Remote client read QPS
	ReadsFromLocalClient	-	Local client read QPS
Block verification failure	BlockVerificationFailures	count/s	Number of block verification failures
Disk failure	VolumeFailures	count/s	Number of disk failures
Network error	DatanodeNetworkErrors	count/s	Network error statistics
Heartbeat latency	HeartbeatsAvgTime	ms	Average heartbeat time
Heartbeat QPS	HeartbeatsNumOps	count/s	Heartbeat QPS
Packet transfer RT	SendDataPacketTransferNanosAvgTime	ms	Average time of sending packets
Block operation	ReadBlockOpNumOps	count/s	Block read OPS from DataNode
	WriteBlockOpNumOps	count/s	Block write OPS to

			DataNode
	BlockChecksumOpNumOps	count/s	Checksum OPS by DataNode
	CopyBlockOpNumOps	count/s	Block copying OPS
	ReplaceBlockOpNumOps	count/s	Block replacement OPS
	BlockReportsNumOps	count/s	Block reporting OPS
	IncrementalBlockReportsNumOps	count/s	Incremental block reporting OPS
	CacheReportsNumOps	count/s	Cache reporting OPS
	PacketAckRoundTripTimeNanosNumOps	count/s	Number of ACK round trips processed per second
Fsync operation	FsyncNanosNumOps	count/s	Number of fsync operations processed per second
Flush operation	FlushNanosNumOps	count/s	Number of flush operations processed per second
Block operation latency statistics	ReadBlockOpAvgTime	ms	Average block read time
	WriteBlockOpAvgTime	ms	Average block write time
	BlockChecksumOpAvgTime	ms	Average block check time
	CopyBlockOpAvgTime	ms	Average block copy time
	ReplaceBlockOpAvgTime	ms	Average block replacement time
	BlockReportsAvgTime	ms	Average block reporting time
	IncrementalBlockReportsAvgTime	ms	Average time of incremental block reporting
	CacheReportsAvgTime	ms	Average time of cache reporting
	PacketAckRoundTripTimeNanosAvgTime	ms	Average time of ACK round trip processing
Flush latency	FlushNanosAvgTime	ms	Average flush time

Fsync latency	FsyncNanosAvgTime	ms	Average fsync time
RamDisk Blocks	RamDiskBlocksWrite	blocks/s	Total number of blocks written to memory
	RamDiskBlocksWriteFallback	blocks/s	Total number of blocks failed to be written to memory (failover to disk)
	RamDiskBlocksDeletedBeforeLazyPersisted	blocks/s	Total number of blocks deleted before the application is saved to the disk
	RamDiskBlocksReadHits	blocks/s	Number of blocks read from memory
	RamDiskBlocksEvicted	blocks/s	Total number of blocks cleared in memory
	RamDiskBlocksEvictedWithoutRead	blocks/s	Total number of blocks retrieved from memory
	RamDiskBlocksLazyPersisted	blocks/s	Number of disk writes by lazy writer
	RamDiskBytesLazyPersisted	Bytes/s	Total number of bytes written to disk by lazy writer
	RamDisk write speed	RamDiskBytesWrite	Bytes/s
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapCommittedM configured by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Committed size of JVM HeapMemory
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM

	MemMaxM	MB	Maximum size of memory available to JVM runtime
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status
	ThreadsWaiting	-	Number of threads in WAITING status
	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads in Terminated status
JVM logs	LogFatal	-	Number of Fatal logs
	LogError	-	Number of Error logs
	LogWarn	-	Number of Warn logs
	LogInfo	-	Number of Info logs
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory

	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
Data traffic	ReceivedBytes	Bytes/s	Data receiving rate
	SentBytes	Bytes/s	Data sending rate
QPS	RpcQueueTimeNumOps	count/s	RPC call rate
Request processing latency	RpcQueueTimeAvgTime	ms	Average RPC latency
	RpcProcessingTimeAvgTime	count/s	Average RPC request processing time
Authentication and authorization	RpcAuthenticationFailures	count/s	Number of RPC authentication failures
	RpcAuthenticationSuccesses	count/s	Number of RPC authentication successes
	RpcAuthorizationFailures	count/s	Number of RPC authorization failures
	RpcAuthorizationSuccesses	count/s	Number of RPC authorization successes
Current connections	NumOpenConnections	-	Number of current connections
Length of RPC processing queue	CallQueueLength	1	Length of current RPC processing queue
CPU time	CurrentThreadSystemTime	ms	System time
	CurrentThreadUserTime	ms	User time
Start time	StartTime	s	Process start time
Threads	PeckThreadCount	-	Peak number of threads
	DaemonThreadCount	-	Number of backend threads
Read/Write	write	ms	Write time

latency	read	ms	Read time
Packet transfer QPS	DataPacketOps	count/s	Packet transfer QPS
Blocks	Related to disk information, such as <code>`/data/qcloud/data/hdfs`</code>	-	Blocks
Used disk capacity	Related to disk information, such as <code>`/data/qcloud/data/hdfs`</code>	GB	Used disk capacity
Free disk capacity	Related to disk information, such as <code>`/data/qcloud/data/hdfs`</code>	GB	Free disk capacity
Reserved disk capacity	Related to disk information, such as <code>`/data/qcloud/data/hdfs`</code>	GB	Reserved disk capacity

## HDFS - JournalNode

Title	Metric	Unit	Description
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapCommittedM configured by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Committed size of JVM HeapMemory
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemMaxM	MB	Maximum size of memory available to JVM runtime
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status



	ThreadsWaiting	-	Number of threads in WAITING status
	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads in Terminated status
JVM logs	LogFatal	-	Number of FATAL-level logs
	LogError	-	Number of ERROR-level logs
	LogWarn	-	Number of WARN-level logs
	LogInfo	-	Number of INFO-level logs
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
Data traffic	ReceivedBytes	Bytes/s	Data receiving rate
	SentBytes	Bytes/s	Data sending rate
Request processing latency	RpcQueueTimeAvgTime	ms	Average RPC latency

Authentication and authorization	RpcAuthenticationFailures	count/s	Number of RPC authentication failures
	RpcAuthenticationSuccesses	count/s	Number of RPC authentication successes
	RpcAuthorizationFailures	count/s	Number of RPC authorization failures
	RpcAuthorizationSuccesses	count/s	Number of RPC authorization successes
Current connections	NumOpenConnections	-	Number of current connections
Length of RPC processing queue	CallQueueLength	1	Length of current RPC processing queue
CPU time	CurrentThreadSystemTime	ms	System time
	CurrentThreadUserTime	ms	User time
Start time	StartTime	s	Process start time
Threads	PeckThreadCount	-	Peak number of threads
	DaemonThreadCount	-	Number of backend threads

## HDFS - ZKFC

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory

	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory

## HDFS-Router

Title	Metric	Unit	Description
ALTER TABLE request duration	HIVE.HMS.API_ALTER_TABLE	ms	Average duration of ALTER TABLE requests
ALTER TABLE WITH ENV CONTEXT request duration	HIVE.HMS.API_ALTER_TABLE_WITH_ENV_CONTEXT	ms	Average duration of ALTER TABLE WITH ENV CONTEXT requests
CREATE TABLE request duration	HIVE.HMS.API_CREATE_TABLE	ms	Average duration of CREATE TABLE requests
CREATE TABLE WITH ENV CONTEXT request duration	HIVE.HMS.API_CREATE_TABLE_WITH_ENV_CONTEXT	ms	Average duration of CREATE TABLE WITH ENV CONTEXT requests
DROP TABLE request duration	HIVE.HMS.API_DROP_TABLE	ms	Average duration of DROP TABLE requests
DROP TABLE WITH ENV CONTEXT request duration	HIVE.HMS.API_DROP_TABLE_WITH_ENV_CONTEXT	ms	Average duration of DROP TABLE WITH

			ENV CONTEXT requests
GET TABLE request duration	HIVE.HMS.API_GET_TABLE	ms	Average duration of GET TABLE requests
GET TABLES request duration	HIVE.HMS.API_GET_TABLES	ms	Average duration of GET TABLES requests
GET MULTI TABLE request duration	HIVE.HMS.API_GET_MULTI_TABLE	ms	Average duration of GET MULTI TABLE requests
GET TABLE REQ request duration	HIVE.HMS.API_GET_TABLE_REQ	ms	Average duration of GET TABLE REQ requests
GET DATABASE request duration	HIVE.HMS.API_GET_DATABASE	ms	Average duration of GET DATABASE requests
GET DATABASES request duration	HIVE.HMS.API_GET_DATABASES	ms	Average duration of GET DATABASES requests
GET ALL DATABASES request duration	HIVE.HMS.API_GET_ALL_DATABASES	ms	Average duration of GET ALL DATABASES requests
GET ALL FUNCTIONS request	HIVE.HMS.API_GET_ALL_FUNCTIONS	ms	Average duration of

duration			GET ALL FUNCTIONS requests
Current number of active CREATE TABLE requests	HIVE.HMS.ACTIVE_CALLS_API_CREATE_TABLE	-	Current number of active CREATE TABLE requests
Current number of active DROP TABLE requests	HIVE.HMS.ACTIVE_CALLS_API_DROP_TABLE	-	Current number of active DROP TABLE requests
Current number of active ALTER TABLE requests	HIVE.HMS.ACTIVE_CALLS_API_ALTER_TABLE	-	Current number of active ALTER TABLE requests

# YARN Monitoring Metrics

Last updated : 2023-05-30 11:24:00

## YARN - overview

Title	Metric	Unit	Description
Nodes	NumActiveNMs	-	Number of live NodeManagers
	NumDecommissionedNMs	-	Number of decommissioned NodeManagers
	NumLostNMs	-	Number of lost NodeManagers
	NumUnhealthyNMs	-	Number of unhealthy NodeManagers
CPU cores	AllocatedVCores	-	Number of allocated VCores in the current queue
	ReservedVCores	-	Number of reserved VCores in the current queue
	AvailableVCores	-	Number of available VCores in the current queue
	PendingVCores	-	Number of pending VCores in resource requests in the current queue
Total applications	AppsSubmitted	-	Number of submitted jobs in the current queue
	AppsRunning	-	Number of running jobs in the current queue
	AppsPending	-	Number of pending jobs in the current queue
	AppsCompleted	-	Number of completed jobs in the current queue
	AppsKilled	-	Number of killed jobs in the current queue
	AppsFailed	-	Number of failed jobs in the

			current queue
	ActiveApplications	-	Number of active jobs in the current queue
	running_0	-	Number of running jobs in the current queue that have run for less than 60 minutes
	running_60	-	Number of running jobs in the current queue that have run for 60–300 minutes
	running_300	-	Number of running jobs in the current queue that have run for 300–1,440 minutes
	running_1440	-	Number of running jobs in the current queue that have run for more than 1,440 minutes
Memory size	AllocatedMB	MB	Amount of allocated memory in the current queue
	AvailableMB	MB	Amount of available memory in the current queue
	PendingMB	MB	Amount of pending memory in resource requests in the current queue
	ReservedMB	MB	Amount of reserved memory in the current queue
Containers	AllocatedContainers	-	Number of allocated containers in the current queue
	PendingContainers	-	Number of pending containers in resource requests in the current queue
	ReservedContainers	-	Number of reserved containers in the current queue
Total allocated/released containers	AggregateContainersAllocated	-	Total number of allocated containers in the current queue
	AggregateContainersReleased	-	Total number of released

			containers in the current queue
Users	ActiveUsers	-	Number of active users in the current queue
Memory	allocatedMB	MB	Amount of allocated memory in the cluster
	availableMB	MB	Amount of available memory in the cluster
	reservedMB	MB	Amount of reserved memory in the cluster
	totalMB	MB	Total amount of memory in the cluster
Applications	completed	-	Number of completed jobs in the cluster during the statistical period
	failed	-	Number of failed jobs in the cluster during the statistical period
	killed	-	Number of killed jobs in the cluster during the statistical period
	pending	-	Number of pending jobs in the cluster during the statistical period
	running	-	Number of running jobs in the cluster during the statistical period
	submitted	-	Number of submitted jobs in the cluster during the statistical period
Containers	containersAllocated	-	Number of allocated containers in the cluster
	containersPending	-	Number of pending containers in the cluster
	containersReserved	-	Number of reserved containers in the cluster
Memory utilization	usageRatio	%	Current memory utilization of the cluster
Cores	allocatedVirtualCores	-	Number of allocated CPU cores in



			the cluster
	availableVirtualCores	-	Number of available CPU cores in the cluster
	reservedVirtualCores	-	Number of reserved CPU cores in the cluster
	totalVirtualCores	-	Total number of CPU cores in the cluster
CPU utilization	usageRatio	%	Current CPU utilization of the cluster
Launched AMs	AMLaunchDelayNumOps	-	Launched AMs
Average time for RM to launch AM	AMLaunchDelayAvgTime	ms	Average time for RM to launch AM
Total registered AMs	AMRegisterDelayNumOps	-	Total registered AMs
Average time for AM to register with RM	AMRegisterDelayAvgTime	ms	Average time for AM to register with RM
Queue CPU utilization	YARN.RM.QUEUE.VCORES.RATIO	-	Utilization of CPU allocated for the current queue
Queue memory utilization	YARN.RM.QUEUE.MEM.RATIO	-	Utilization of memory allocated for the current queue

## YARN - ResourceManager

Title	Metric	Unit	Description
RPC authentications/authorizations	RpcAuthenticationFailures	-	Number of failed RPC authentications
	RpcAuthenticationSuccesses	-	Number of successful RPC authentications
	RpcAuthorizationFailures	-	Number of failed RPC authorizations
	RpcAuthorizationSuccesses	-	Number of successful RPC authorizations

Data received/sent by RPC	ReceivedBytes	bytes/s	Amount of data received by RPC
	SentBytes	bytes/s	Amount of data sent by RPC
RPC connections	NumOpenConnections	-	Current number of open connections
RPC requests	RpcProcessingTimeNumOps	-	Number of RPC requests
	RpcQueueTimeNumOps	-	Number of RPC requests
RPC queue length	CallQueueLength	-	Length of the current RPC queue
Average RPC processing time	RpcProcessingTimeAvgTime	s	Average RPC request processing time
	RpcQueueTimeAvgTime	s	Average time of RPC in the queue
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory

	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status
	ThreadsWaiting	-	Number of threads in WAITING status
	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads in Terminated status
JVM logs	LogFatal	-	Number of Fatal logs
	LogError	-	Number of Error logs
	LogWarn	-	Number of Warn logs
	LogInfo	-	Number of Info logs
JVM memory	MemNonHeapUsedM	MB	Non-heap memory size used by process
	MemNonHeapCommittedM	MB	Non-heap memory size committed to process
	MemHeapUsedM	MB	Heap memory size used by process
	MemHeapCommittedM	MB	Heap memory size committed to process

	MemHeapMaxM	MB	Maximum heap memory size available to process
	MemMaxM	MB	Maximum memory size available to process
CPU utilization	ProcessCpuLoad	%	CPU utilization
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Process execution duration	Uptime	s	Process execution duration
Worker threads	DaemonThreadCount	-	Number of daemon threads in the process
	ThreadCount	-	Number of threads in the process
Node status	haState	1:Active,0:Standby	ResourceManager active/standby status
Active/Standby switch	switchOccurred	-	ResourceManager active/standby switch

## YARN - JobHistoryServer

Title	Metric	Unit	Description
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status

	ThreadsWaiting	-	Number of threads in WAITING status
	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads in Terminated status
JVM logs	LogFatal	-	Number of FATAL-level logs
	LogError	-	Number of ERROR-level logs
	LogWarn	-	Number of WARN-level logs
	LogInfo	-	Number of INFO-level logs
JVM memory	MemNonHeapUsedM	MB	Non-heap memory size used by process
	MemNonHeapCommittedM	MB	Non-heap memory size committed to process
	MemHeapUsedM	MB	Heap memory size used by process
	MemHeapCommittedM	MB	Heap memory size committed to process
	MemHeapMaxM	MB	Maximum heap memory size available to process
	MemMaxM	MB	Maximum memory size available to process
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory

	M	%	Percentage of used Metaspace memory
CPU utilization	ProcessCpuLoad	%	CPU utilization
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Process execution duration	Uptime	s	Process execution duration
Worker threads	DaemonThreadCount	-	Number of daemon threads in the process
	ThreadCount	-	Number of threads in the process

## YARN - NodeManager

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory

JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status
	ThreadsWaiting	-	Number of threads in WAITING status
	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads currently in TERMINATED status
JVM logs	LogFatal	-	Number of FATAL-level logs
	LogError	-	Number of ERROR-level logs
	LogWarn	-	Number of WARN-level logs
	LogInfo	-	Number of INFO-level logs
JVM memory	MemNonHeapUsedM	MB	Non-heap memory size used by process
	MemNonHeapCommittedM	MB	Non-heap memory size committed to process
	MemHeapUsedM	MB	Heap memory size used by process
	MemHeapCommittedM	MB	Heap memory size committed to process
	MemHeapMaxM	MB	Maximum heap memory size available to process
	MemMaxM	MB	Maximum memory size available to process
Total containers	ContainersLaunched	-	Number of launched containers
	ContainersCompleted	-	Number of completed containers
	ContainersFailed	-	Number of failed containers
	ContainersKilled	-	Number of killed containers

	ContainersIniting	-	Number of containers being initialized
	ContainersRunning	-	Number of running containers
	AllocatedContainers	-	Number of containers allocated by NodeManager
Average container launch time	ContainerLaunchDurationAvgTime	ms	Average container launch time
Container launches	ContainerLaunchDurationNumOps	-	Container launches
CPU cores	AvailableVCores	-	Number of VCores available to NodeManager
	AllocatedVCores	-	Number of VCores allocated by NodeManager
Memory size	AllocatedGB	GB	Amount of memory allocated by NodeManager
	AvailableGB	GB	Amount of memory available to NodeManager
CPU utilization	ProcessCpuLoad	%	CPU utilization
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Process execution duration	Uptime	s	Process execution duration
Worker threads	DaemonThreadCount	-	Number of daemon threads in the process
	ThreadCount	-	Number of threads in the process



# ZooKeeper Monitoring Metrics

Last updated : 2023-12-27 14:48:59

## ZooKeeper

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM

	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
CPU utilization	ProcessCpuLoad	%	CPU utilization
File descriptors	zk_max_file_descriptor_count	-	Maximum number of file descriptors
	zk_open_file_descriptor_count	-	Number of opened file descriptors
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration
Worker threads	DaemonThreadCount	-	Number of daemon threads
	ThreadCount	-	Total number of threads
Connections	zk_num_alive_connections	-	Number of current connections
Latency	zk_avg_latency	ms	Average ZooKeeper processing latency
	zk_max_latency	ms	Maximum ZooKeeper processing latency
	zk_min_latency	ms	Minimum ZooKeeper processing latency
Zondes	zk_watch_count	-	Number of ZooKeeper watches
	zk_znode_count	-	Number of ZooKeeper znodes
	zk_ephemerals_count	-	Number of ephemeral ZooKeeper nodes
Data size	zk_approximate_data_size	Byte	Volume of data stored in ZooKeeper

Node status	zk_server_state	1: Master. 0: Slave. 2: Standalone	ZooKeeper node type
Received/Sent packets	zk_packets_received	count/s	ZooKeeper packet receiving rate
	zk_packets_sent	count/s	ZooKeeper packet sending rate
Queuing requests	zk_outstanding_requests	-	Number of queuing requests

# HBase Monitoring Metrics

Last updated : 2023-12-27 14:49:18

## HBase - overview

Title	Metric	Unit	Description
Cluster regions in RIT status	ritCount	-	Number of regions in transition
	ritCountOverThreshold	-	Number of regions that have been in transition for more than the threshold time
Cluster RIT time	ritOldestAge	ms	Age of the longest region in transition
Average number of regions per RegionServer	averageLoad	-	Average number of regions per RegionServer
Cluster RegionServers	numRegionServers	-	Number of live RegionServers
	numDeadRegionServers	-	Number of dead RegionServers
Data read/written from/to HMaster	receivedBytes	bytes/s	Amount of data received by cluster
	sentBytes	bytes/s	Amount of data sent by cluster
Total cluster API requests	clusterRequests	count/s	Total number of cluster requests
Cluster assignment manager operation	Assign_num_ops	-	Number of region assignments
	BulkAssign_num_ops	-	Number of bulk region assignments
Cluster load balancing operations	BalancerCluster_num_ops	-	Number of cluster load balancing operations

## HBase - HMaster

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time

	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM logs	LogFatal	-	Number of Fatal logs
	LogError	-	Number of Error logs
	LogWarn	-	Number of Warn logs
	LogInfo	-	Number of Info logs
JVM memory	MemNonHeapUsedM	MB	Non-heap memory size used by process
	MemNonHeapCommittedM	MB	Non-heap memory size committed to process
	MemHeapUsedM	MB	Heap memory size used by process
	MemHeapCommittedM	MB	Heap memory size committed to process
	MemHeapMaxM	MB	Maximum heap memory size available to process
	MemMaxM	MB	Maximum memory size available to process
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status
	ThreadsWaiting	-	Number of threads in WAITING status

	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads currently in TERMINATED status
RPC connections	numOpenConnections	-	Number of RPC connections
RPC exceptions	FailedSanityCheckException	-	Number of FailedSanityCheckException exceptions
	NotServingRegionException	-	Number of NotServingRegionException exceptions
	OutOfOrderScannerNextException	-	Number of OutOfOrderScannerNextException exceptions
	RegionMovedException	-	Number of RegionMovedException exceptions
	RegionTooBusyException	-	Number of RegionTooBusyException exceptions
	UnknownScannerException	-	Number of UnknownScannerException exceptions
RPC queue requests	numCallsInPriorityQueue	-	Number of requests in the general queue
	numCallsInReplicationQueue	-	Number of RPC requests in the replication queue
Process start time	masterActiveTime	s	Master active time
	masterStartTime	s	Master process start time

## HBase - RegionServer

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time

	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM logs	LogFatal	-	Number of Fatal logs
	LogError	-	Number of Error logs
	LogWarn	-	Number of Warn logs
	LogInfo	-	Number of Info logs
JVM memory	MemNonHeapUsedM	MB	Non-heap memory size used by process
	MemNonHeapCommittedM	MB	Non-heap memory size committed to process
	MemHeapUsedM	MB	Heap memory size used by process
	MemHeapCommittedM	MB	Heap memory size committed to process
	MemHeapMaxM	MB	Maximum heap memory size available to process
	MemMaxM	MB	Maximum memory size available to process
JVM threads	ThreadsNew	-	Number of threads in NEW status
	ThreadsRunnable	-	Number of threads in RUNNABLE status
	ThreadsBlocked	-	Number of threads in BLOCKED status
	ThreadsWaiting	-	Number of threads in WAITING status

	ThreadsTimedWaiting	-	Number of threads in TIMED WAITING status
	ThreadsTerminated	-	Number of threads currently in TERMINATED status
Regions	regionCount	-	Number of regions
Region localization	percentFilesLocal	%	Percentage of HFiles on the local HDFS data node in the region
Region replica localization	percentFilesLocalSecondaryRegions	%	Percentage of HFiles on the local HDFS data node in the region replica
RPC authentications	authenticationFailures	-	Number of RPC authentication failures
	authenticationSuccesses	-	Number of RPC authentication successes
RPC connections	numOpenConnections	-	Number of RPC connections
RPC exceptions	FailedSanityCheckException	-	Number of FailedSanityCheckException exceptions
	NotServingRegionException	-	Number of NotServingRegionException exceptions
	OutOfOrderScannerNextException	-	Number of OutOfOrderScannerNextException exceptions
	RegionMovedException	-	Number of RegionMovedException exceptions
	RegionTooBusyException	-	Number of RegionTooBusyException exceptions
	UnknownScannerException	-	Number of UnknownScannerException exceptions
RPC handlers	numActiveHandler	-	Number of active RPC handlers
	numActiveWriteHandler	-	Number of active read RPC handlers
	numActiveReadHandler	-	Number of active write RPC handlers



	numActiveScanHandler	-	Number of active scan RPC handlers
RPC queue requests	numCallsInPriorityQueue	-	Number of requests in the priority queue
	numCallsInReplicationQueue	-	Number of RPC requests in the replication queue
	numCallsInPriorityQueue	-	Number of requests in the general queue
	numCallsInWriteQueue	-	Number of RPC calls in the write call queue
	numCallsInReadQueue	-	Number of RPC calls in the read call queue
	numCallsInScanQueue	-	Number of RPC calls in the scan call queue
WAL files	hlogFileCount	-	Number of WAL files
WAL file size	hlogFileSize	Byte	WAL file size
MemStore size	memStoreSize	MB	MemStore size
Stores	storeCount	-	Number of stores
StoreFiles	storeFileCount	-	Number of StoreFiles
StoreFile size	storeFileSize	MB	StoreFile size
Disk write rate	flushedCellsSize	bytes/s	Disk write rate
Average latency	Append_mean	ms	Average Append latency
	Replay_mean	ms	Average Replay latency
	Get_mean	ms	Average GET latency
	updatesBlockedTime	ms	Number of milliseconds updates have been blocked so the memstore can be flushed
RegionServer disk writes	FlushTime_num_ops	-	Number of MemStore flushes

Requests in operation queue	splitQueueLength	-	Length of the split queue
	compactionQueueLength	-	Length of the compaction queue
	flushQueueLength	-	Length of the region flush queue
Replay operations	Replay_num_ops	-	Number of Replay operations
Slow operations	slowAppendCount	-	Number of Append requests that took over 1s to complete
	slowDeleteCount	-	Number of Delete requests that took over 1s to complete
	slowGetCount	-	Number of Get requests that took over 1s to complete
	slowIncrementCount	-	Number of Increment requests that took over 1s to complete
	slowPutCount	-	Number of Put requests that took over 1s to complete
Split request	splitRequestCount	-	Number of split requested
	splitSuccessCount	-	Number of successfully executed splits
Cache blocks	blockCacheCount	-	Number of blocks in the block cache
	blockCacheHitCount	-	Number of block cache hits
	blockCacheMissCount	-	Number of block cache misses
Cache read hit rate	blockCacheExpressHitPercent	%	Cache read hit rate
Memory size used by the cache block	blockCacheSize	Byte	Memory size used by the cache block
Index size	staticBloomSize	Byte	Uncompressed size of static bloom filters
	staticIndexSize	Byte	Uncompressed size of static indexes
	storeFileIndexSize	Byte	Size of indexes in StoreFiles on disk
Received bytes	receivedBytes	bytes/s	Received bytes

	sentBytes	bytes/s	Sent bytes
Read and write requests	Total	count/s	Total number of requests. When there are scan requests, this value will be smaller than the sum of read and write requests
	Read	count/s	Number of read requests
	Write	count/s	Number of write requests
	Append_num_ops	count/s	Number of Append requests
	Mutate_num_ops	count/s	Number of Mutate requests
	Delete_num_ops	count/s	Number of Delete requests
	Increment_num_ops	count/s	Number of Increment requests
	Get_num_ops	count/s	Number of Get requests
	Put_num_ops	count/s	Number of Put requests
	ScanTime_num_ops	count/s	Scan requests (time)
	ScanSize_num_ops	count/s	Scan requests (size)
Mutations	mutationsWithoutWALCount	-	Number of mutations
Mutation size	mutationsWithoutWALSize	Byte	Mutation size
Process start time	regionServerStartTime	s	Process start time
Log sync	source.sizeOfLogQueue	-	Total length of synced logs
Sync duration	source.ageOfLastShippedOp	ms	Sync duration
Requests	ReadRequestCount	count/s	Read requests/s
	WriteRequestCount	count/s	Write requests/s
Requests	Read	count/s	Read requests/s
	Write	count/s	Write requests/s
Store size	memstoreSize	Byte	MemStore size
	storeFileSize	Byte	StoreFile size

Table-level request latency	getTime_99th_percentile	ms	99th percentile of request processing latency
	scanTime_99th_percentile	ms	99th percentile of request processing latency
	putTime_99th_percentile	ms	99th percentile of request processing latency
	incrementTime_99th_percentile	ms	99th percentile of request processing latency
	appendTime_99th_percentile	ms	99th percentile of request processing latency
	deleteTime_99th_percentile	ms	99th percentile of request processing latency
Request processing latency	99th_percentile	ms	99th percentile of request processing latency
	99.9th_percentile	ms	99.9% request processing latency
Request queueing latency	99th_percentile	ms	99th percentile of request queueing latency
	99.9th_percentile	ms	99.9% request queueing latency
Scan size	max	bytes	Maximum scan size
	mean	bytes	Average scan size
	min	bytes	Minimum scan size
Scan time	max	s	Maximum scan time
	mean	s	Average scan time
	min	s	Minimum scan time

# Hive Monitoring Metrics

Last updated : 2023-12-27 14:49:37

## Hive - HiveMetaStore

Title	Metric	Unit	Description
GC count	YGC	-	Young GC c
	FGC	-	Full GC cou
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection tir
	YGCT	s	Young GC t
Memory zone proportion	S0	%	Percentage used Surviv memory
	E	%	Percentage used Eden memory
	CCS	%	Percentage used compressed class space memory
	S1	%	Percentage used Surviv memory
	O	%	Percentage used Old m
	M	%	Percentage used Metas memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemo

			currently us JVM
	MemHeapCommittedM	MB	Size of HeapMemo committed t JVM
	MemHeapMaxM	MB	Size of HeapMemo configured t JVM
	MemHeapInitM	MB	Size of initia JVM HeapM
	MemNonHeapUsedM	MB	Size of NonHeapM currently us JVM
	MemNonHeapCommittedM	MB	Size of NonHeapM currently committed t JVM
	MemNonHeapInitM	MB	Size of initia JVM NonHeapM
File descriptors	OpenFileDescriptorCount	-	Number of opened file descriptors
	MaxFileDescriptorCount	-	Maximum number of fi descriptors
CPU utilization	ProcessCpuLoad	%	Process CP utilization
	SystemCpuLoad	%	System CPT utilization
Percentage of CPU	CPURate	seconds/second	Percentage CPU usage

usage time			
Worker threads	DaemonThreadCount	-	Number of daemon threads
	ThreadCount	-	Total number of threads
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative usage time
Process execution duration	Uptime	s	Process execution duration
GC extra sleep time	ExtraSleepTime	ms/s	GC extra sleep time
ALTER TABLE request duration	HIVE.HMS.API_ALTER_TABLE	ms	Average duration of ALTER TABLE requests
ALTER TABLE WITH ENV CONTEXT request duration	HIVE.HMS.API_ALTER_TABLE_WITH_ENV_CONTEXT	ms	Average duration of ALTER TABLE WITH ENV CONTEXT requests
CREATE TABLE request duration	HIVE.HMS.API_CREATE_TABLE	ms	Average duration of CREATE TABLE requests
CREATE TABLE WITH ENV CONTEXT request duration	HIVE.HMS.API_CREATE_TABLE_WITH_ENV_CONTEXT	ms	Average duration of CREATE TABLE WITH ENV CONTEXT requests
DROP TABLE request duration	HIVE.HMS.API_DROP_TABLE	ms	Average duration of DROP TABLE requests

DROP TABLE WITH ENV CONTEXT request duration	HIVE.HMS.API_DROP_TABLE_WITH_ENV_CONTEXT	ms	Average duration of DROP TABLE WITH ENV CONTEXT requests
GET TABLE request duration	HIVE.HMS.API_GET_TABLE	ms	Average duration of GET TABLE requests
GET TABLES request duration	HIVE.HMS.API_GET_TABLES	ms	Average duration of GET TABLES requests
GET MULTI TABLE request duration	HIVE.HMS.API_GET_MULTI_TABLE	ms	Average duration of GET MULTI TABLE requests
GET TABLE REQ request duration	HIVE.HMS.API_GET_TABLE_REQ	ms	Average duration of GET TABLE REQ requests
GET DATABASE request duration	HIVE.HMS.API_GET_DATABASE	ms	Average duration of GET DATABASE requests
GET DATABASES request duration	HIVE.HMS.API_GET_DATABASES	ms	Average duration of GET DATABASES requests
GET ALL DATABASES request duration	HIVE.HMS.API_GET_ALL_DATABASES	ms	Average duration of GET ALL DATABASES requests
GET ALL FUNCTIONS request duration	HIVE.HMS.API_GET_ALL_FUNCTIONS	ms	Average duration of GET ALL FUNCTIONS requests
Current number of	HIVE.HMS.ACTIVE_CALLS_API_CREATE_TABLE	-	Current number of active



active CREATE TABLE requests			CREATE T/ requests
Current number of active DROP TABLE requests	HIVE.HMS.ACTIVE_CALLS_API_DROP_TABLE	-	Current num of active DF TABLE req
Current number of active ALTER TABLE requests	HIVE.HMS.ACTIVE_CALLS_API_ALTER_TABLE	-	Current num of active AL TABLE req

**Hive - HiveServer2**

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory

	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Percentage of used heap memory	MemHeapUsedRate	%	Proportion of the heap memory

			size currently used by JVM to the heap memory size configured for JVM
CPU utilization	ProcessCpuLoad	%	CPU utilization
Percentage of CPU usage time	CPUUsedRate	seconds/second	Percentage of CPU usage time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration
Worker threads	DaemonThreadCount	-	Number of daemon threads
	ThreadCount	-	Total number of threads
Driver execution latency	99th_percentile	ms	99th percentile of driver execution latency
	Avg	ms	Average driver execution latency
Open connections	NumOpenConnections	-	Number of open connections
Current size of the pool of async HiveServer2 threads	PoolSize	-	Current size of the pool of async HiveServer2 threads
Current size of the queue	QueueSize	-	Current size of

for async HiveServer2 operations			the queue for async HiveServer2 operations
Hive operations	Closed	-	Number of closed operations
	Finished	-	Number of completed operations
	Canceled	-	Number of canceled operations
	Error	-	Number of erroneous operations
GC extra sleep time	ExtraSleepTime	ms/s	GC extra sleep time
Number of API requests	HIVE.H2.ACTIVE.CALLS.API	Count	Current number of serializePlan requests
		Count	Current number of semanticAnalyze requests
		Count	Current number of runtask requests
		Count	Current number of releaseLocks requests
		Count	Current number of getSplits requests
Duration of SQL tasks in PENDING status	HIVE.H2.SQL.OPERATION.PENDING	ms	Average duration of SQL tasks in PENDING status

Duration of SQL tasks in RUNNING status	HIVE.H2.SQL.OPERATION.RUNNING	ms	Average duration of SQL tasks in RUNNING status
Current number of active users	HIVE.H2.SQL.OPERATION	Count	Current number of active users
Query execution time	HIVE.H2.EXECUTING.QUERIES	ms	Average query execution time
Query submission time	HIVE.H2.SUBMITTED.QUERIES	ms	Query submission time
Number of submitted Hive on MR jobs	HIVE.H2.MR.TASKS	Count	Number of submitted Hive on MR jobs
Number of submitted Hive on Spark jobs	HIVE.H2.SPARK.TASKS	Count	Number of submitted Hive on Tez jobs
Number of submitted Hive on Tez jobs	HIVE.H2.TEZ.TASKS	Count	Number of submitted Hive on Spark jobs
Failed queries	HIVE.H2.FAILED.QUERIES.RATE	Count/min	Number of failed queries per minute
Number of worker threads	HIVE.H2.THREAD.COUNT	-	Number of JVM blocked threads
		-	Number of JVM terminate threads
		-	Number of JVM deadlock threads
		-	Number of JVM new threads
		-	Number of JVM runnable threads
		-	Number of JVM timed_waiting threads
		-	

		-	Number of JVM waiting threads
Number of sessions	HIVE.H2.OPEN.SESSIONS	-	Number of open sessions
Current number of active sessions	HIVE.H2.ACTIVE.SESSIONS	-	Number of active sessions

## Hive - HiveWebHcat

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory

# Spark Monitoring Metrics

Last updated : 2023-12-27 14:49:54

## Spark - history server

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory

# Presto Monitoring Metrics

Last updated : 2023-12-27 14:50:22

## Presto - overview

Title	Metric	Unit	Description
Nodes	Active	-	Number of active nodes
	Total	-	Total number of nodes
	Failed	-	Number of failed nodes
Query	RunningQueries	-	Total number of running queries
	QueuedQueries	-	Total number of waiting queries
Query frequency	FailedQueries	count/min	Total number of failed queries
	AbandonedQueries	count/min	Total number of abandoned queries
	CanceledQueries	count/min	Total number of canceled queries
	CompletedQueries	count/min	Total number of completed queries
	StartedQueries	count/min	Total number of started queries
Data volume input/output per minute	InputDataSizeOneMinute	GB/min	Data input rate
	OutputDataSizeOneMinute	GB/min	Data output rate

## Presto - worker

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count



	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Data input/output rate	InputDataSize.OneMinute.Rate	GB/min	Data input rate
	OutputDataSize.OneMinute.Rate	GB/min	Data output rate
Processes	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Number of threads

	DaemonThreadCount	-	Number of backend threads
Process execution duration	Uptime	s	Process execution duration
Process start time	StartTime	s	Process start time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

## Presto - coordinator

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed

			by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Processes	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Number of threads
	DaemonThreadCount	-	Number of backend threads
Process execution duration	Uptime	s	Process execution duration
Process start time	StartTime	s	Process start time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

# Trino Monitoring Metrics

Last updated : 2023-12-27 14:50:38

## Trino - Overview

Title	Metric	Unit	Description
Nodes	Active	-	Number of active nodes
	Total	-	Total number of nodes
	Failed	-	Number of failed nodes
Query	RunningQueries	-	Total number of running queries
	QueuedQueries	-	Total number of waiting queries
Query frequency	FailedQueries	count/min	Total number of failed queries
	AbandonedQueries	count/min	Total number of abandoned queries
	CanceledQueries	count/min	Total number of canceled queries
	CompletedQueries	count/min	Total number of completed queries
	StartedQueries	count/min	Total number of started queries
Data volume input/output per minute	InputDataSizeOneMinute	GB/min	Data input rate
	OutputDataSizeOneMinute	GB/min	Data output rate

## Trino - worker

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count

	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Data input/output rate	InputDataSize.OneMinute.Rate	GB/min	Data input rate
	OutputDataSize.OneMinute.Rate	GB/min	Data output rate
Worker threads	PeakThreadCount	-	Peak number of threads

	ThreadCount	-	Number of threads
	DaemonThreadCount	-	Number of backend threads
Process execution duration	Uptime	s	Process execution duration
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

### Trino - coordinator

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed

			by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Worker threads	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Number of threads
	DaemonThreadCount	-	Number of backend threads
Process execution duration	Uptime	s	Process execution duration
Process start time	StartTime	s	Process start time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

# ClickHouse Monitoring Metrics

Last updated : 2023-12-27 14:50:56

## ClickHouse - metrics

Title	Metric	Unit	Description
Network connections	tcp	-	Number of TCP server connections
	http	-	Number of HTTP server connections
ZooKeeper event subscriptions	watches	-	Number of ZooKeeper event subscriptions
Ephemeral nodes held in ZooKeeper	ephemeralNode	-	Number of ephemeral nodes held in ZooKeeper
Active tasks in BackgroundPool	backgroundPoolTask	-	Number of active tasks in BackgroundProcessingPool
	backgroundSchedulePoolTask	-	Number of active tasks in BackgroundSchedulePool
Threads waiting for locks in Context	contextLockWait	-	Number of threads waiting for locks in Context
Throttled INSERT queries	delayedInserts	-	Number of throttled INSERT queries
Requests in fly to data sources of dictionaries of cache type	dictCacheRequests	-	Number of requests in fly to data sources of dictionaries of cache type
Pending files to process for asynchronous insertion into distributed tables	distributedSend	-	Number of pending files to process for asynchronous insertion into distributed tables
Threads	global	-	Number of threads in the global thread pool
	globalActive	-	Number of active threads in the global thread pool



	local	-	Number of threads in the local thread pool
	localActive	-	Number of active threads in the local thread pool
Replicas participating in leader election	leaderElection	-	Number of replicas participating in leader election
Replicated tables	leaderReplica	-	Number of replicated tables that are leaders
	readonlyReplica	-	Number of replicated tables in read-only status
Total allocated memory size	memoryTracking	GB	Total memory size allocated to queries being executed
	backgroundProcessingPool	GB	Total memory size allocated to the background processing pool
	backgroundSchedulePool	GB	Total memory size allocated to the background scheduling pool
	memoryTrackingForMerges	GB	Total memory size allocated to background merges
Merges being executed in the background	merge	-	Number of merges being executed in the background
Opened files	read	-	Number of opened readable files
	write	-	Number of opened writable files
Table changes	partMutation	-	Number of table changes
Query processing threads	queryThread	-	Number of query processing threads
Stopped or waiting queries	queryPreempted	-	Number of stopped or waiting queries

System calls	read	-	Number of read system calls
	write	-	Number of write system calls
Blocks	fetch	-	Number of blocks collected from replicas
	send	-	Number of blocks sent to replicas
	check	-	Number of blocks for consistency check
Server change	revision	-	Number of server changes
Version number	version	1	Version number
Threads waiting for read/write locks	waitingRead	-	Number of threads waiting for read/write locks to read from tables
	waitingWrite	-	Number of threads waiting for read/write locks to write to tables
	activeRead	-	Number of threads holding read locks on tables
	activeWrite	-	Number of threads holding write locks on tables
Rows in buffer tables	storageBufferRows	-	Number of rows in buffer tables
Bytes in buffer tables	storageBufferBytes	MB	Number of bytes in buffer tables

### ClickHouse - events

Title	Metric	Unit	Description
Queries	total	-	Total number of queries that may be executed
	select	-	Number of SELECT queries that may be executed

	insert	-	Number of INSERT queries that may be executed
Inserted rows	insertedRows	-	Number of rows inserted into all tables
Inserted bytes	insertedBytes	-	Number of bytes inserted into all tables
Total time waiting for system calls	read	μs	Total time waiting for read system calls
	write	μs	Total time waiting for write system calls
Opened files	fileOpen	-	Number of opened files
Reads/Writes from/to file descriptors	read	-	Number of reads from file descriptors
	write	-	Number of writes to file descriptors
Bytes read/written from/to file descriptors	read	MB	Number of bytes read from file descriptors
	write	MB	Number of bytes written to file descriptors
Total time processing threads	realtime	μs	Total time processing threads
	user	μs	Total time processing threads executing CPU instructions in user space
	system	μs	Total time processing threads executing CPU instructions in OS kernel space
Compiled regular expressions	regexCreated	-	Number of compiled regular expressions

### ClickHouse - asynchronous metrics

Title	Metric	Unit	Description
Size of cache of marks of StorageMergeTree	markCacheBytes	MB	Size of cache of marks of StorageMergeTree
Cache files of marks of StorageMergeTree	markCacheFiles	-	Number of cache files of marks of StorageMergeTree
Maximum number of active blocks	maxPartCountForPartition	-	Number of largest active data blocks in partition
Databases	databaseCount	-	Number of databases
Data tables	tableCount	-	Number of data tables
Maximum replica latency	absolute	μs	Maximum replica queue latency

	relative	$\mu\text{s}$	Maximum difference of the absolute latency from other blocks
Size of the queue for the operations to be performed	replicasMaxQueueSize	-	Size of the queue for the operations to be performed

# Druid Monitoring Metrics

Last updated : 2023-12-27 14:51:14

## Druid - Broker

Metric Name	Unit	Description
YGC	-	Young GC count
FGC	-	Full GC count
FGCT	s	Full GC time
GCT	s	Garbage collection time
YGCT	s	Young GC time
S0	%	Percentage of used Survivor 0 memory
E	%	Percentage of used Eden memory
CCS	%	Percentage of memory used by compressed class space
S1	%	Percentage of used Survivor 1 memory
O	%	Percentage of used Old memory
M	%	Percentage of used Metaspace memory
MemHeapInitM	MB	Size of initial JVM HeapMem
MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
MemHeapMaxM	MB	Size of HeapMemory configured by JVM
MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
ThreadsNew	-	Number of threads in NEW state
ThreadsRunnable	-	Number of threads in RUNNABLE state
ThreadsBlocked	-	Number of threads in BLOCKED state

ThreadsWaiting	-	Number of threads in WAITING state
ThreadsTimedWaiting	-	Number of threads in TIMED_WAITING state
ThreadsTerminated	-	Number of threads in TERMINATED state
LogFatal	-	Number of FATAL logs
LogError	-	Number of ERROR logs
LogWarn	-	Number of WARN logs
LogInfo	-	Number of INFO logs
jetty.numOpenConnections	-	Number of open Jetty connections
segment.scan.pending	-	Number of segments in queue waiting to be scanned
broker.query.count	-	number of total queries
broker.query.success.count	-	number of queries successfully processed
broker.query.failed.count	-	number of failed queries
broker.query.interrupted.count	-	number of queries interrupted due to cancellation or timeout
normal.count	-	Number of queries with delay shorter than 1 second
abnormal.count	-	Number of queries with delay longer than or equal to 1 second

## Druid - Coordinator

Metric Name	Unit	Description
segment.assigned.count	-	Number of segments loaded into Druid cluster
segment.moved.count	-	Number of segments moved in Druid cluster
segment.dropped.count	-	Number of segments deleted in Druid cluster due to expiration
segment.deleted.count	-	Number of segments deleted in Druid cluster due to rule settings
segment.unneeded.count	-	Number of segments deleted in Druid cluster for being marked as "unused"
segment.cost.raw	ms	Used in cost balancing. The raw cost of hosting segments.
segment.cost.normalization	ms	Used in cost balancing. The normalization of hosting segments.

segment.cost.normalized	ms	Used in cost balancing. The normalized cost of hosting segments.
segment.loadQueue.size	Bytes	Size in bytes of segments to load.
segment.loadQueue.failed	-	Number of segments that failed to load.
segment.loadQueue.count	-	Number of segments to load.
segment.dropQueue.count	-	Number of segments to drop.
segment.overshadowed.count	-	Number of overshadowed segments.
tier.historical.count	-	Number of available historical nodes in each tier.
tier.replication.factor	-	Configured maximum replication factor in each tier.
tier.required.capacity	Bytes	Total capacity in bytes required in each tier.
tier.total.capacity	Bytes	Total capacity in bytes available in each tier.
compact.task.count	-	Number of compaction tasks
YGC	-	Young GC count
FGC	-	Full GC count
FGCT	s	Full GC time
GCT	s	Garbage collection time
YGCT	s	Young GC time
S0	%	Percentage of used Survivor 0 memory
E	%	Percentage of used Eden memory
CCS	%	Percentage of memory used by compressed class space
S1	%	Percentage of used Survivor 1 memory
O	%	Percentage of used Old memory
M	%	Percentage of used Metaspace memory
MemHeapInitM	MB	Size of initial JVM HeapMem
MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
MemHeapMaxM	MB	Size of HeapMemory configured by JVM

MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
ThreadsNew	-	Number of threads in NEW state
ThreadsRunnable	-	Number of threads in RUNNABLE state
ThreadsBlocked	-	Number of threads in BLOCKED state
ThreadsWaiting	-	Number of threads in WAITING state
ThreadsTimedWaiting	-	Number of threads in TIMED_WAITING state
ThreadsTerminated	-	Number of threads in TERMINATED state
LogFatal	-	Number of FATAL logs
LogError	-	Number of ERROR logs
LogWarn	-	Number of WARN logs
LogInfo	-	Number of INFO logs
segment.size	Bytes	Total size of used segments in a data source. Emitted only for data sources to which at least one used segment belongs.
segment.count	-	Number of used segments belonging to a data source. Emitted only for data sources to which at least one used segment belongs.
segment.unavailable.count	-	Number of segments (not including replicas) left to load until segments that should be loaded in the cluster are available for queries.
segment.underReplicated.count	-	Number of segments (including replicas) left to load until segments that should be loaded in the cluster are available for queries.
jetty.numOpenConnections	-	Number of open Jetty connections

## Druid - Historical

Metric Name	Unit	Description



YGC	-	Young GC count
FGC	-	Full GC count
FGCT	s	Full GC time
GCT	s	Garbage collection time
YGCT	s	Young GC time
S0	%	Percentage of used Survivor 0 memory
E	%	Percentage of used Eden memory
CCS	%	Percentage of memory used by compressed class space
S1	%	Percentage of used Survivor 1 memory
O	%	Percentage of used Old memory
M	%	Percentage of used Metaspace memory
MemHeapInitM	MB	Size of initial JVM HeapMem
MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
MemHeapMaxM	MB	Size of HeapMemory configured by JVM
MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
ThreadsNew	-	Number of threads in NEW state
ThreadsRunnable	-	Number of threads in RUNNABLE state
ThreadsBlocked	-	Number of threads in BLOCKED state
ThreadsWaiting	-	Number of threads in WAITING state
ThreadsTimedWaiting	-	Number of threads in TIMED_WAITING state
ThreadsTerminated	-	Number of threads in TERMINATED state
LogFatal	-	Number of FATAL logs

LogError	-	Number of ERROR logs
LogWarn	-	Number of WARN logs
LogInfo	-	Number of INFO logs
jetty.numOpenConnections	-	Number of open Jetty connections
segment.scan.pending	-	Number of segments in queue waiting to be scanned
segment.max	Bytes	Maximum byte limit available for segments
segment.pendingdelete	Bytes	On-disk size in bytes of segments that are waiting to be cleared out
historical.query.count	-	Total number of historical queries
historical.query.success.count	-	Total number of historical query successes
historical.query.failed.count	-	Total number of historical query failures
historical.query.interrupted.count	-	Total number of historical query interruptions
normal.count	-	Number of queries with delay shorter than 1 second
abnormal.count	-	Number of queries with delay longer than or equal to 1 second

## Druid - MiddleManager

Metric Name	Unit	Description
YGC	-	Young GC count
FGC	-	Full GC count
FGCT	s	Full GC time
GCT	s	Garbage collection time
YGCT	s	Young GC time
S0	%	Percentage of used Survivor 0 memory
E	%	Percentage of used Eden memory
CCS	%	Percentage of memory used by compressed class space
S1	%	Percentage of used Survivor 1 memory

O	%	Percentage of used Old memory
M	%	Percentage of used Metaspace memory
MemHeapInitM	MB	Size of initial JVM HeapMem
MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
MemHeapMaxM	MB	Size of HeapMemory configured by JVM
MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
ThreadsNew	-	Number of threads in NEW state
ThreadsRunnable	-	Number of threads in RUNNABLE state
ThreadsBlocked	-	Number of threads in BLOCKED state
ThreadsWaiting	-	Number of threads in WAITING state
ThreadsTimedWaiting	-	Number of threads in TIMED_WAITING state
ThreadsTerminated	-	Number of threads in TERMINATED state
LogFatal	-	Number of FATAL logs
LogError	-	Number of ERROR logs
LogWarn	-	Number of WARN logs
LogInfo	-	Number of INFO logs
jetty.numOpenConnections	-	Number of open Jetty connections

## Druid - Overlord

Metric Name	Unit	Description
YGC	-	Young GC count
FGC	-	Full GC count
FGCT	s	Full GC time

GCT	s	Garbage collection time
YGCT	s	Young GC time
S0	%	Percentage of used Survivor 0 memory
E	%	Percentage of used Eden memory
CCS	%	Percentage of memory used by compressed class space
S1	%	Percentage of used Survivor 1 memory
O	%	Percentage of used Old memory
M	%	Percentage of used Metaspace memory
MemHeapInitM	MB	Size of initial JVM HeapMem
MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
MemHeapMaxM	MB	Size of HeapMemory configured by JVM
MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
ThreadsNew	-	Number of threads in NEW state
ThreadsRunnable	-	Number of threads in RUNNABLE state
ThreadsBlocked	-	Number of threads in BLOCKED state
ThreadsWaiting	-	Number of threads in WAITING state
ThreadsTimedWaiting	-	Number of threads in TIMED_WAITING state
ThreadsTerminated	-	Number of threads in TERMINATED state
LogFatal	-	Number of FATAL logs
LogError	-	Number of ERROR logs
LogWarn	-	Number of WARN logs
LogInfo	-	Number of INFO logs

jetty.numOpenConnections	-	Number of open Jetty connections
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## Druid - Router

Metric Name	Unit	Description
YGC	-	Young GC count
FGC	-	Full GC count
FGCT	s	Full GC time
GCT	s	Garbage collection time
YGCT	s	Young GC time
S0	%	Percentage of used Survivor 0 memory
E	%	Percentage of used Eden memory
CCS	%	Percentage of memory used by compressed class space
S1	%	Percentage of used Survivor 1 memory
O	%	Percentage of used Old memory
M	%	Percentage of used Metaspace memory
MemHeapInitM	MB	Size of initial JVM HeapMem
MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
MemHeapMaxM	MB	Size of HeapMemory configured by JVM
MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
ThreadsNew	-	Number of threads in NEW state
ThreadsRunnable	-	Number of threads in RUNNABLE state
ThreadsBlocked	-	Number of threads in BLOCKED state
ThreadsWaiting	-	Number of threads in WAITING state

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ThreadsTimedWaiting	-	Number of threads in TIMED_WAITING state
ThreadsTerminated	-	Number of threads in TERMINATED state
LogFatal	-	Number of FATAL logs
LogError	-	Number of ERROR logs
LogWarn	-	Number of WARN logs
LogInfo	-	Number of INFO logs
jetty.numOpenConnections	-	Number of open Jetty connections

# Kudu Monitoring Metrics

Last updated : 2023-12-27 14:51:37

## Kudu - overview

Title	Metric	Unit	Description
Tablets	TabletRunning	-	Total number of tablets currently running on all tablet servers
Difference in the number of tablet replicas	ClusterReplicaSkew	-	Difference between the number of replicas on the tablet server hosting the most replicas and the number of replicas on the tablet server hosting the fewest replicas
TServer threads	ThreadsRunning	-	Number of threads currently running on all tablet servers
Master threads	ThreadsRunning	-	Number of threads currently running on all masters
TServer logs	ErrorMessages	-	Number of ERROR-level log messages emitted in all processes
Master logs	ErrorMessages	-	Number of ERROR-level log messages emitted in all processes
	WarningMessages	-	Number of WARNING-level log messages emitted in all processes
Oversized write requests	OversizedWriteRequests	-	Number of oversized write requests to the system catalog tablet rejected by the master since start

## Kudu - server

Title	Metric	Unit	Description
Block cache hit	BlockCacheHit	-	Number of block cache hits. When confirming the cache efficiency, use the value of this metric instead of that of cache_hits
	BlockCacheMiss	-	Number of block cache misses. When confirming the cache efficiency, use the

			value of this metric instead of that of cache_misses
Block cache utilization	BlockCacheUsage	bytes	Memory used by block cache
File cache hit	FileCacheHit	-	Number of file descriptor cache hits. When confirming the cache efficiency, use the value of this metric instead of that of cache_hits
	FileCacheMiss	-	Number of file descriptor cache misses. When confirming the cache efficiency, use the value of this metric instead of that of cache_misses
File cache utilization	FileCacheUsage	-	Number of entries file cache
Scanner	ActiveScanners	-	Number of currently active scanners
	ExpiredScanners	-	Number of scanners that have expired due to inactivity since service start
Block manager blocks	BlockUnderManagement	-	Number of currently managed data blocks
	BlockOpenReading	-	Number of data blocks currently opened for read
	BlockOpenWriting	-	Number of data blocks currently opened for write
Block manager bytes	BytesUnderManagement	bytes	Number of bytes of currently managed data blocks
Block manager containers	ContainersUnderManagement	-	Number of log block containers
	FullContainersUnderManagement	-	Number of full log block containers
Tablet leaders	NumRaftLeaders	-	Number of tablet replicas that are Raft leaders
Tablet sessions	OpenClientSessions	-	Number of currently opened tablet copy client sessions on this server
	OpenSourceSessions	-	Number of currently opened tablet copy source sessions on this server



Tablets	TabletBootstrapping	-	Number of currently bootstrapping tablets
	TabletFailed	-	Number of failed tablets
	TabletInitialized	-	Number of currently initialized tablets
	TabletNotInitialized	-	Number of currently uninitialized tablets
	TabletRunning	-	Number of currently running tablets/Number of currently running threads
	TabletShutdown	-	Number of currently shut down tablets
	TabletStopped	-	Number of currently stopped tablets
	TabletStopping	-	Number of currently stopping tablets
CPU time	CpuStime	ms	Total system CPU time of process
	CpuUtime	ms	Total user CPU time of process
Data path	DataDirsFailed	-	Number of data directories whose disks are currently in failed status
	DataDirsFull	-	Number of data directories whose disks are currently full
Thread	ThreadsRunning	-	Number of currently running threads
Context	InvoluntarySwitches	-	Total involuntary context switches
	VoluntarySwitches	-	Total voluntary context switches
Spinlock	SpinlockContentionTime	μs	Amount of time consumed by contention on internal spinlocks since server start
Log information	ErrorMessages	-	Number of ERROR-level log messages emitted by the application
	WarningMessages	-	Number of WARNING-level log messages emitted by the application
Operations in queue	TotalCount	-	Total number
	Min	-	Minimum number of tasks waiting in

			the queue
	Max	-	Maximum number of tasks waiting in the queue
	Mean	-	Average number of tasks waiting in the queue
	Percentile_99_9	-	99.9th percentile of the number of tasks waiting in the queue
Operation execution duration	TotalCount	μs	Total number of operations
	Min	μs	Minimum run time
	Max	μs	Maximum run time
	Mean	μs	Average run time
	Percentile_99_9	μs	99.9th percentile of the run time
Queuing wait time	TotalCount	μs	Total number of operations
	Min	μs	Minimum wait time
	Max	μs	Maximum wait time
	Mean	μs	Average wait time
	Percentile_99_9	μs	99.9th percentile of the wait time
Allocated bytes	AllocatedBytes	bytes	Number of bytes used by applications. This usually does not match the memory usage reported by the operating system because it does not include TCMalloc overhead or memory fragments
Hybrid clock error	HybridClockError	μs	Server clock maximum error; returns $2^{64}-1$ when unable to read the base clock
Hybrid clock timestamp	HybridClockTimestamp	μs	Hybrid clock timestamp; returns $2^{64}-1$ when unable to read the base clock
TCMalloc memory	HeapSize	bytes	Bytes of system memory reserved by TCMalloc
	CurrentThreadCacheBytes	bytes	A measure of some of the memory

			TCMalloc is using (for small objects)
	TotalThreadCacheBytes	bytes	A limit to how much memory TCMalloc dedicates for small objects
TCMalloc PageHeap	FreeBytes	bytes	Number of bytes of free mapped pages in the page heap
	UnMappedBytes	bytes	Number of bytes of free unmapped pages in the page heap
RPC request	ConnectionsAccepted	-	Number of incoming TCP connections made to the RPC server
	QueueOverflow	-	Number of RPCs dropped because the service queue was full
	TimesOutInQueue	-	Number of RPCs that timed out while waiting in the service queue and thus were not processed
RPC FetchData	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC AlterSchema	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC CreateTablet	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time

	Percentile_99_9	μs	99.9th percentile of the processing time
RPC DeleteTablet	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC Quiesce	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC scan	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC ScannerKeepAlive	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC write	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time

	Percentile_99_9	μs	99.9th percentile of the processing time
Write requests rejected due to queue overloading	QueueOverloadRejections	count	Number of write requests rejected due to queue overloading
Scan rate	ScannedFromDiskRate	bytes/s	Amount of data scanned per second
	ScannerReturnedRate	bytes/s	Amount of data returned per second
Scanner bytes	ScannedFromDisk	bytes	Total amount of data scanned from disk
	ScannerReturned	bytes	Total amount of returned data
Total row operations	RowsInserted	count	Number of rows inserted into the node
	RowsDeleted	count	Number of rows deleted from the node
	RowsUpserted	count	Number of rows upserted into the node
	RowsUpdated	count	Number of rows updated on the node
Row operation rate	RowsInsertedRate	count/s	Number of rows inserted into the node per second
	RowsDeletedRate	count/s	Number of rows deleted from the node per second
	RowsUpsertedRate	count/s	Number of rows upserted into the node per second
	RowsUpdatedRate	count/s	Number of rows updated on the node per second

## Kudu - master

Title	Metric	Unit	Description
Block cache hit	BlockCacheHit	-	Number of block cache hits. When confirming the cache efficiency, use the value of this metric instead of that of cache_hits
	BlockCacheMiss	-	Number of block cache misses. When confirming the cache efficiency, use the value of this metric instead of that of cache_misses

Block cache utilization	BlockCacheUsage	bytes	Memory used by block cache
File cache hit	FileCacheHit	-	Number of file descriptor cache hits. When confirming the cache efficiency, use the value of this metric instead of that of cache_hits
	FileCacheMiss	-	Number of file descriptor cache misses. When confirming the cache efficiency, use the value of this metric instead of that of cache_misses
File cache utilization	FileCacheUsage	-	Number of entries file cache
Block manager blocks	BlockUnderManagement	-	Number of currently managed data blocks
	BlockOpenReading	-	Number of data blocks currently opened for read
	BlockOpenWriting	-	Number of data blocks currently opened for write
Block manager bytes	BytesUnderManagement	bytes	Number of bytes of currently managed data blocks
Block manager containers	ContainersUnderManagement	-	Number of log block containers
	FullContainersUnderManagement	-	Number of full log block containers
CPU time	CpuStime	ms	Total system CPU time of process
	CpuUtime	ms	Total user CPU time of process
Thread	ThreadsRunning	-	Number of currently running threads
Data path	DataDirsFailed	-	Number of data directories whose disks are currently in failed status
	DataDirsFull	-	Number of data directories whose disks are currently full
Allocated bytes	AllocatedBytes	bytes	Number of bytes used by applications. This usually does not match the memory usage reported by the operating system

			because it does not include TCMalloc overhead or memory fragments
Log information	ErrorMessages	-	Number of ERROR-level log messages emitted by the application
	WarningMessages	-	Number of WARNING-level log messages emitted by the application
Context	InvoluntarySwitches	-	Total involuntary context switches
	VoluntarySwitches	-	Total voluntary context switches
Operations in queue	TotalCount	-	Total number
	Min	-	Minimum number of tasks waiting in the queue
	Max	-	Maximum number of tasks waiting in the queue
	Mean	-	Average number of tasks waiting in the queue
	Percentile_99_9	-	99.9th percentile of the number of tasks waiting in the queue
Queuing wait time	TotalCount	μs	Total number of operations
	Min	μs	Minimum wait time
	Max	μs	Maximum wait time
	Mean	μs	Average wait time
	Percentile_99_9	μs	99.9th percentile of the wait time
Operation execution duration	TotalCount	μs	Total number of operations
	Min	μs	Minimum run time
	Max	μs	Maximum run time
	Mean	μs	Average run time
	Percentile_99_9	μs	99.9th percentile of the run time
Spinlock	SpinlockContentionTime	μs	Amount of time consumed by contention on internal spinlocks since server start

Oversized write requests	OversizedWriteRequests	-	Number of oversized write requests to the system catalog tablet rejected since start
Hybrid clock error	HybridClockError	μs	Server clock maximum error; returns 2 <sup>64</sup> -1 when unable to read the base clock
Hybrid clock timestamp	HybridClockTimestamp	μs	Hybrid clock timestamp; returns 2 <sup>64</sup> -1 when unable to read the base clock
Difference in the number of tablet replicas	ClusterReplicaSkew	-	Difference between the number of replicas on the tablet server hosting the most replicas and the number of replicas on the tablet server hosting the fewest replicas
Tablet leaders	NumRaftLeaders	-	Number of tablet replicas that are Raft leaders
Tablet sessions	OpemSourceSessions	-	Number of currently opened tablet copy source sessions on this server
TCMalloc memory	HeapSize	bytes	Bytes of system memory reserved by TCMalloc
	CurrentThreadCacheBytes	bytes	A measure of some of the memory TCMalloc is using (for small objects)
	TotalThreadCacheBytes	bytes	A limit to how much memory TCMalloc dedicates for small objects
TCMalloc page heap	FreeBytes	bytes	Number of bytes of free mapped pages in the page heap
	UnMappedBytes	bytes	Number of bytes of free unmapped pages in the page heap
RPC request	ConnectionsAccepted	-	Number of incoming TCP connections made to the RPC server
	QueueOverflow	-	Number of RPCs dropped because the service queue was full
	TimesOutInQueue	-	Number of RPCs that timed out while waiting in the service queue and thus were not processed



RPC RunLeaderElection	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC ConnectToMaster	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC Ping	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC TSHearbeat	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time
RPC FetchData	TotalCount	μs	Total number of operations
	Min	μs	Minimum processing time
	Max	μs	Maximum processing time
	Mean	μs	Average processing time
	Percentile_99_9	μs	99.9th percentile of the processing time



# Alluxio Monitoring Metrics

Last updated : 2023-12-27 14:51:59

## Alluxio - cluster

Title	Metric	Unit	Description
Total data reads and writes	BytesReadAlluxio	Bytes	Total number of bytes read from Alluxio storage reported by all workers
	BytesReadUfsAll	Bytes	Total number of bytes read by all workers from all Alluxio UFSes
	BytesWrittenAlluxio	Bytes	Total number of bytes written to Alluxio storage in all workers
	BytesWrittenUfsAll	Bytes	Total number of bytes written to all Alluxio UFSes by all workers
Data read and write throughput	BytesReadAlluxioThroughput	Bytes	Data read throughput from Alluxio storage by all workers
	BytesReadUfsThroughput	Bytes	Read throughput from all Alluxio UFSes by all workers
	BytesWrittenAlluxioThroughput	Bytes	Data write throughput to Alluxio storage by all workers
	BytesWrittenUfsThroughput	Bytes	Write throughput to all Alluxio UFSes by all workers
Worker capacity on tiers	CapacityFree	Bytes	Total number of free bytes on all tiers of all workers
	CapacityTotal	Bytes	Total capacity on all tiers of all workers
	CapacityUsed	Bytes	Total number of used bytes on all tiers of all workers
Total workers	Workers	-	Total number of active workers inside the cluster

## Alluxio - master

Title	Metric	Unit	Description

CompleteFile operation	CompleteFileOps	-	Total number of CompleteFile operations
	FilesCompleted	-	Total number of successful CompleteFile operations
CreateDirectory operation	CreateDirectoryOps	-	Total number of CreateDirectory operations
	DirectoriesCreated	-	Total number of successful CreateDirectory operations
CreateFile operation	CreateFileOps	-	Total number of CreateFile operations
	FilesCreated	-	Total number of successful CreateFile operations
Delete operation	DeletePathOps	-	Total number of Delete operations
	PathsDeleted	-	Total number of successful Delete operations
FreeFile operation	FreeFileOps	-	Total number of FreeFile operations
	FilesFreed	-	Total number of successful FreeFile operations
GetFileBlockInfo operation	GetFileBlockInfoOps	-	Total number of GetFileBlockInfo operations
	FileBlockInfosGot	-	Total number of successful GetFileBlockInfo operations
GetFileInfo operation	GetFileInfoOps	-	Total number of GetFileInfo operations
	FileInfosGot	-	Total number of successful GetFileInfo operations
GetNewBlock operation	GetNewBlockOps	-	Total number of GetNewBlock operations
	NewBlocksGot	-	Total number of successful GetNewBlock operations
Mount operation	MountOps	-	Total number of Mount operations
	PathsMounted	-	Total number of successful Mount operations
Unmount operation	UnmountOps	-	Total number of Unmount operations
	PathsUnmounted	-	Total number of successful Unmount operations
Rename operation	RenamePathOps	-	Total number of Rename operations

	PathsRenamed	-	Total number of successful Rename operations
SetAcl operation	SetAclOps	-	Total number of SetAcl operations
SetAttribute operation	SetAttributeOps	-	Total number of SetAttribute operations
Total files	FilesPersisted	-	Total number of successfully persisted files
	FilesPinned	-	Total number of currently pinned files
Total file directories	TotalPaths	-	Total number of files and directories in the Alluxio namespace
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM

	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem

**Alluxio - worker**

Title	Metric	Unit	Description
Async cache request	AsyncCacheDuplicateRequests	-	Total number of duplicate async cache requests received by worker
	AsyncCacheRequests	-	Total number of async cache requests received by worker
Async cache blocks	AsyncCacheFailedBlocks	-	Total number of failed async cache blocks in worker
	AsyncCacheRemoteBlocks	-	Total number of blocks that need to be asynchronously cached from remote sources
	AsyncCacheSucceededBlocks	-	Total number of blocks that were asynchronously cached successfully in the worker
	AsyncCacheUfsBlocks	-	Total number of blocks that need to be asynchronously cached from local sources
Blocks	BlocksAccessed	-	Total number of blocks accessed in worker
	BlocksCached	-	Total number of blocks used for caching data in worker
	BlocksCancelled	-	Total number of temporary blocks canceled in worker
	BlocksDeleted	-	Total number of blocks deleted from worker by external requests
	BlocksEvicted	-	Total number of blocks evicted from worker
	BlocksLost	-	Total number of blocks lost in worker
	BlocksPromoted	-	Total number of blocks moved to a new tier in worker
Worker capacity on	CapacityFree	Bytes	Total free bytes on all tiers of worker
	CapacityTotal	Bytes	Total capacity on all tiers of worker

tiers	CapacityUsed	Bytes	Total used bytes on all tiers of worker
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem

# PrestoSQL Monitoring Metrics

Last updated : 2023-12-27 14:52:15

## Note:

Currently, only PrestoSQL v322, PrestoSQL v350, and later support PrestoSQL metrics.

## PrestoSQL - overview

Title	Metric	Unit	Description
Nodes	Active	-	Number of active nodes
	Total	-	Total number of nodes
	Failed	-	Number of failed nodes
Query	RunningQueries	-	Total number of running queries
	QueuedQueries	-	Total number of waiting queries
Query frequency	FailedQueries	count/min	Total number of failed queries
	AbandonedQueries	count/min	Total number of abandoned queries
	CanceledQueries	count/min	Total number of canceled queries
	CompletedQueries	count/min	Total number of completed queries
	StartedQueries	count/min	Total number of started queries
Data volume input/output per minute	InputDataSizeOneMinute	GB/min	Data input rate
	OutputDataSizeOneMinute	GB/min	Data output rate

## PrestoSQL - worker

Title	Metric	Unit	Description



GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Data input/output rate	InputDataSize.OneMinute.Rate	GB/min	Data input rate
	OutputDataSize.OneMinute.Rate	GB/min	Data output rate

Processes	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Total number of threads
	DaemonThreadCount	-	Number of daemon threads
Process execution duration	Uptime	s	Process execution duration
Process start time	StartTime	s	Process start time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

### PrestoSQL - coordinator

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM

	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
Processes	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Number of threads
	DaemonThreadCount	-	Number of backend threads
Process execution duration	Uptime	s	Process execution duration
Process start time	StartTime	s	Process start time
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

# Impala Monitoring Metrics

Last updated : 2023-12-27 14:52:35

## Note:

Currently, only Impala v3.4.0 and later support Impala metrics.

## Impala - catalog

Title	Metric	Unit	Description
Resident set size	RSS	bytes	Resident set size
JVM memory	MemHeapInitM	MB	Peak size of initial JVM HeapMemory
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
Interval between heartbeats from the daemon process to StateStore	Last	s	Latest interval between heartbeats from the daemon process to StateStore
	Max	s	Maximum interval between heartbeats from the daemon process to StateStore
	Mean	s	Average interval between

			heartbeats from the daemon process to StateStore
	Min	s	Minimum interval between heartbeats from the daemon process to StateStore
	Stddev	s	Standard deviation in the interval between heartbeats from the daemon process to StateStore
TCMalloc memory	Used	bytes	Number of bytes used by the program
	PageheapFreeBytes	bytes	Number of bytes of free mapped pages in the page heap
	PageheapUnmappedBytes	bytes	Number of bytes of free unmapped pages in the page heap
	PhysicalBytesReserved	bytes	Amount of physical memory used by the process
	TotalBytesReserved	bytes	Number of bytes of system memory reserved by TCMalloc
Active connections	Thrift_Server_Connections_Used	-	Number of active connections
Process execution duration	Uptime	s	Process execution duration
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Threads	ThreadCount	-	Total number of threads

	DaemonThreadCount	-	Number of daemon threads
CPU utilization	SystemCpuLoad	-	System CPU Utilization

## Impala - StateStore

Title	Metric	Unit	Description
Resident set size	RSS	bytes	Resident set size
TCMalloc memory	Used	bytes	Number of bytes used by the program
	PageheapFreeBytes	bytes	Number of bytes of free mapped pages in the page heap
	PageheapUnmappedBytes	bytes	Number of bytes of free unmapped pages in the page heap
	PhysicalBytesReserved	bytes	Amount of physical memory used by the process
	TotalBytesReserved	bytes	Number of bytes of system memory reserved by TCMalloc
Connections	Used	-	Number of active connections
Running threads	Count	-	Number of running threads
StateStore subscribers	Count	-	Number of StateStore subscribers

## Impala - daemon

Title	Metric	Unit	Description
JVM memory	MemHeapInitM	MB	Peak size of initial JVM HeapMemory
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapUsedM	MB	Size of HeapMemory

			currently used by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
TCMalloc memory	Used	bytes	Number of bytes used by the program
	PageheapFreeBytes	bytes	Number of bytes of free mapped pages in the page heap
	PageheapUnmappedBytes	bytes	Number of bytes of free unmapped pages in the page heap
	PhysicalBytesReserved	bytes	Amount of physical memory used by the process
	TotalBytesReserved	bytes	Number of bytes of system memory reserved by TCMalloc
Threads	ThreadCount	-	Total number of threads
	DaemonThreadCount	-	Number of daemon threads
Process execution duration	Uptime	s	Process execution duration
File descriptors	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors

CPU utilization	SystemCpuLoad	-	System CPU Utilization
Beeswax API client connections	Use	-	Number of active Beeswax API connections
	Conn_In_Use	-	Number of active Beeswax API connections to this Impala daemon
	TotalConns	-	Total number of active Beeswax API connections to this Impala daemon
	ConnSetupQueueSize	-	Number of Beeswax API connections that this Impala daemon has received and are waiting to establish
HS2 API client connections	Use	-	Number of active HS2 API connections
	Conn_In_Use	-	Number of active HS2 API connections
	TotalConns	-	Total number of HS2 API connections this Impala daemon has established during the lifecycle
	ConnSetupQueueSize	-	Number of HS2 API connections that this Impala daemon has received and are waiting to establish
Thread manager	RunningThreads	-	Number of running threads
	TotalCreatedThreads	-	Number of threads created during the lifecycle



Memory manager limit	Limit	Bytes	Memory beyond the memory limit (default value: -1)
Amount of memory beyond the memory limit (default value: -1)	OverLimit	Bytes	Number of threads created during the lifecycle
HS2 API client wait time for connection establishment	P20	us	HS2 API client wait time for connection establishment
	P50		
	P70		
	P90		
	P95		
	P99.9		
Beeswax API client wait time for service thread establishment	P20	us	Beeswax API client wait time for service thread establishment
	P50		
	P70		
	P90		
	P95		
	P99.9		
Timed-out Beeswax API connections	TimeOutCnncRequests	-	Number of timed-out Beeswax API connections
Time spent parsing requests from request pool (milliseconds)	Total	ms	Time spent parsing requests from request pool (milliseconds)
Cache misses in external data source cache class	Misses	-	Number of cache misses in external data source cache class
Impala backend server connection requests that timed out waiting for setup	ConnSetupQueueSize	-	Number of Impala backend server connection requests

			that timed out waiting for setup
Impala backend connection requests that timed out waiting for setup	TimeOutCnncRequests	-	Number of Impala backend connection requests that timed out waiting for setup
Total Impala backend client connections to this Impala daemon	TotalConnections	-	Total number of Impala backend client connections to this Impala daemon
Time spent by Impala backend client waiting for connection establishment	P20	us	Time spent by Impala backend client waiting for connection establishment
	P50		
	P70		
	P90		
	P95		
	P99.9		
	Count		
	Sum		
Time spent by Impala backend client waiting for service thread	P20	us	Time spent by Impala backend client waiting for service thread
	P50		
	P70		
	P90		
	P95		
	P99.9		
	Count		
	Sum		
HS2 API client wait time for service thread establishment	P20	us	HS2 API client wait time for service thread establishment
	P50		

	P70		
	P90		
	P95		
	P99.9		
	Count		
	Sum		
HS2 HTTP API client wait time for service thread	P20	us	HS2 HTTP API client wait time for service thread
	P50		
	P70		
	P90		
	P95		
	P99.9		
	Count		
Sum			
DataStreamService: Rejected service queue overflows	RpcsQueueOverflow	-	DataStreamService: Number of rejected service queue overflows
ControlStreamService: Rejected service queue overflows	RpcsQueueOverflow	-	ControlStreamService: Number of rejected service queue overflows
DataStreamService: Used bytes	PeakUsageBytes	Bytes	Peak number of bytes used by Memtracker DataStreamService
	CurrentUsageBytes	Bytes	Current number of bytes used by Memtracker DataStreamService
ControlService: Used bytes	PeakUsageBytes	Bytes	Peak number of bytes used by Memtracker

			ControlService
	CurrentUsageBytes	Bytes	Current number of bytes used by Memtracker ControlService
Resident set size (RSS) for this process	RSS	Bytes	Resident set size (RSS) for this process
Total backends registered in StateStore	Total	-	Total number of backends registered in StateStore
Query release delay	P20	us	Query release delay
	P50		
	P70		
	P90		
	P95		
	P99.9		
	Count		
Sum			
Opened HDFS files	NumFilesOpenForInsert	-	Number of opened HDFS files
Scan range read during the lifecycle of the process	ScanRangesTotal	-	Scan range read during the lifecycle of the process
Opened Beeswax sessions	NumOpenBeeswaxSessions	-	Number of opened Beeswax sessions
Total query fragments processed during the lifecycle of the process	NumFragments	-	Total number of query fragments processed during the lifecycle of the process
Total scan ranges read during the lifecycle of the process without volume metadata	ScanRangesNumMissingVolumId	-	Total number of scan ranges read during the lifecycle of the process

			without volume metadata
Hedged read attempts	HedgedReadOps	-	Number of hedged read attempts
Total queries processed during the lifecycle of the process	NumQueries	-	Total number of queries processed during the lifecycle of the process
Total rows supporting caching HS2 FETCH_FIRST	ResultSetCacheTotalNumRows	-	Total number of rows supporting caching HS2 FETCH_FIRST
Total queries registered on this Impala server	NumQueriesRegistered	-	Total number of queries registered on this Impala server
Total backend queries	NumQueriesExecuted	-	Total number of backend queries
Sessions terminated due to inactivity	NumSessionsExpired	-	Number of sessions terminated due to inactivity
Queries terminated due to inactivity	NumQueriesExpired	-	Number of queries terminated due to inactivity
Opened HS2 sessions	NumOpenHS2Sessions	-	Number of opened HS2 sessions
Tables in catalog	NumTables	-	Number of tables in catalog
Databases in catalog	NumDatabases	-	Number of databases in catalog
Bytes written to the disk by the I/O manager	BytesWritten	-	Number of bytes written to the disk by the I/O manager
Files opened by the I/O manager	NumOpenFiles	-	Number of files opened by the I/O manager
Used HDFS file handles	NumFileHandlesOutstanding	Bytes	Number of used

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			HDFS file handles
Read local bytes	LocalBytesRead	Bytes	Number of local bytes read by the I/O manager

# Ranger Monitoring Metrics

Last updated : 2023-12-27 14:52:55

## Ranger - admin

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem

CPU utilization	ProcessCpuLoad	%	CPU utilization
File handles	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration
Threads	ThreadCount	-	Number of threads
	PeakThreadCount	-	Peak number of threads
	DaemonThreadCount	-	Number of backend threads

### Ranger - UserSync

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM



	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
CPU utilization	ProcessCpuLoad	%	CPU utilization
File handles	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration
Threads	ThreadCount	-	Number of threads
	PeakThreadCount	-	Peak number of threads
	DaemonThreadCount	-	Number of backend threads

# COSRanger Monitoring Metrics

Last updated : 2023-12-27 14:53:49

## Note:

Metrics such as verification failure statistics, authentication failure statistics, and authentication success statistics currently don't have specific data, which will be available in the future.

## COSRanger - COSRangerServer

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM

	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
CPU utilization	ProcessCpuLoad	%	CPU utilization
File handles	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration
Worker threads	ThreadCount	-	Number of threads
	PeakThreadCount	-	Peak number of threads
	DaemonThreadCount	-	Number of backend threads
-	Leader	-	Whether it is the COSRanger master node
Check statistics	PermissionAllowCnt	count	Total number of permission allows
	AuthDenyCnt	count	Total number of authentication failures
	PermissionDenyCnt	count	Total number of permission denies
Authentication success statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes

	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
Authentication failure statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
Permission deny statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
Permission allow statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests

			per minute
accessStat_DELETE operation statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
accessStat_LIST operation statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
accessStat_READ operation statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
accessStat_WRITE operation statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes

	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
rpc_getRangerAuthPolicy call count statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
rpc_checkPermission call count statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
rpc_getDelegationToken call count statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests

			per minute
rpc_renewDelegationToken call count statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
rpc_cancelDelegationToken call count statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
rpc_getSTS call count statistics	Qps	count	Number of queries per second
	Total_5m	count	Total number of requests per five minutes
	Total_1m	count	Total number of requests per minute
	Qps_5m	count	Average number of requests per five minutes
	Qps_1m	count	Average number of requests per minute
cosRpc_getSTS call duration	Cost_Avg	μs	Average duration in the current second
	Cost_Avg_1m	μs	Average duration per minute

	Cost_Avg_5m	μs	Average duration per five minutes
	Cost_Max	μs	Maximum duration in the current second
	Cost_Max_1m	μs	Maximum duration per minute
	Cost_Max_5m	μs	Maximum duration per five minutes
	Cost_Min	μs	Minimum duration in the current second
	Cost_Min_1m	μs	Minimum duration per minute
	Cost_Min_5m	μs	Minimum duration per five minutes
cosRpc_renewDelegationToken call duration	Cost_Avg	μs	Average duration in the current second
	Cost_Avg_1m	μs	Average duration per minute
	Cost_Avg_5m	μs	Average duration per five minutes
	Cost_Max	μs	Maximum duration in the current second
	Cost_Max_1m	μs	Maximum duration per minute
	Cost_Max_5m	μs	Maximum duration per five minutes
	Cost_Min	μs	Minimum duration in the current second
	Cost_Min_1m	μs	Minimum duration per minute
cosRpc_cancelDelegationToken call duration	Cost_Avg	μs	Average duration in the current second
	Cost_Avg_1m	μs	Average duration per minute
	Cost_Avg_5m	μs	Average duration per five



			minutes
	Cost_Max	μs	Maximum duration in the current second
	Cost_Max_1m	μs	Maximum duration per minute
	Cost_Max_5m	μs	Maximum duration per five minutes
	Cost_Min	μs	Minimum duration in the current second
	Cost_Min_1m	μs	Minimum duration per minute
	Cost_Min_5m	μs	Minimum duration per five minutes
cosRpc_getDelegationToken call duration	Cost_Avg	μs	Average duration in the current second
	Cost_Avg_1m	μs	Average duration per minute
	Cost_Avg_5m	μs	Average duration per five minutes
	Cost_Max	μs	Maximum duration in the current second
	Cost_Max_1m	μs	Maximum duration per minute
	Cost_Max_5m	μs	Maximum duration per five minutes
	Cost_Min	μs	Minimum duration in the current second
	Cost_Min_1m	μs	Minimum duration per minute
cosRpc_checkPermission call duration	Cost_Avg	μs	Average duration in the current second
	Cost_Avg_1m	μs	Average duration per minute
	Cost_Avg_5m	μs	Average duration per five minutes

	Cost_Max	μs	Maximum duration in the current second
	Cost_Max_1m	μs	Maximum duration per minute
	Cost_Max_5m	μs	Maximum duration per five minutes
	Cost_Min	μs	Minimum duration in the current second
	Cost_Min_1m	μs	Minimum duration per minute
	Cost_Min_5m	μs	Minimum duration per five minutes
cosRpc_getRangerAuthPolicy call duration	Cost_Avg	μs	Average duration in the current second
	Cost_Avg_1m	μs	Average duration per minute
	Cost_Avg_5m	μs	Average duration per five minutes
	Cost_Max	μs	Maximum duration in the current second
	Cost_Max_1m	μs	Maximum duration per minute
	Cost_Max_5m	μs	Maximum duration per five minutes
	Cost_Min	μs	Minimum duration in the current second
	Cost_Min_1m	μs	Minimum duration per minute
	Cost_Min_5m	μs	Minimum duration per five minutes

# Doris Monitoring Metrics

Last updated : 2023-12-27 14:54:08

## Doris - FE

Title	Metric	Unit	Description
Node information	FeNodeNum	count	Total number of FE nodes
	BeAliveNum	count	Number of alive BE nodes
	BkDeadNum	count	Number of dead broker nodes
Connections	Num	count	Number of FE node JVM connections
JVM threads	Total	count	Total number of threads in the JVM of the FE node, including daemon threads and non-daemon threads
	Peak	count	Peak number of threads in the JVM of the FE node
GC count	YoungGC	count	FE node JVM Young GC count
	OldGC	count	FE node JVM Old GC count
GC time	YoungGC	s	FE node JVM Young GC time
	OldGC	s	FE node JVM Old GC time
FE query latency	Quantile75	ms	75th percentile of the FE query latency
	Quantile95	ms	95th percentile of the FE query latency
	Quantile99	ms	99th percentile of the FE query latency
	Quantile999	ms	99.9th percentile of the FE query latency
Maximum compaction score of tablet	MAX	score	Maximum compaction score of FE tablet
Scheduled tablets	ScheduledTablet	count	Number of scheduled tablets in FE
Request response	QPS	count	Number of queries per second
	RPS	count	Number of requests that can be processed per

			second
Query failure rate	ErrRate	%	Query error rate
Cache query	SqlModelHitQuery	count	Number of queries that hit the SQL model
	PartitionModelHitQuery	count	Number of queries that hit the partition model
	SqlModelQuery	count	Number of queries in the SQL cache model
	PartitionModelQuery	count	Number of queries in the partition cache model
	CachePartitionHit	count	Number of partitions that hit the cache in the query
	CachePartitionScan	count	Number of all partitions scanned in the query
Routine load rows	TotalRows	count	Number of FE routine load rows
	ErrorRows	count	Number of FE routine load error rows
Transaction status statistics	Reject	count	Number of rejected transactions on FE
	Begin	count	Number of transactions that have begun on FE
	Success	count	Number of successful transactions on FE
	Failed	count	Number of failed transactions on FE
Images	Write	count	Number of image writes on FE
	Push	count	Number of image pushes on FE
ALTER job statistics	RollupRunning	count	Number of running alter jobs of ROLLUP type
	SchemaChangeRunning	count	Number of running alter jobs of SCHEMA_CHANGE type
UNKNOWN load job statistics	UNKNOWN	count	Number of load jobs of UNKNOWN type in UNKNOWN status
	PENDING	count	Number of load jobs of UNKNOWN type in PENDING status
	ETL	count	Number of load jobs of UNKNOWN type in ETL status
	LOADING	count	Number of load jobs of UNKNOWN type in

			LOADING status
	COMMITTED	count	Number of load jobs of UNKNOWN type in COMMITTED status
	FINISHED	count	Number of load jobs of UNKNOWN type in FINISHED status
	CANCELLED	count	Number of load jobs of UNKNOWN type in CANCELLED status
SPARK load job statistics	UNKNOWN	count	Number of load jobs of SPARK type in UNKNOWN status
	PENDING	count	Number of load jobs of SPARK type in PENDING status
	ETL	count	Number of load jobs of SPARK type in ETL status
	LOADING	count	Number of load jobs of SPARK type in LOADING status
	COMMITTED	count	Number of load jobs of SPARK type in COMMITTED status
	FINISHED	count	Number of load jobs of SPARK type in FINISHED status
	CANCELLED	count	Number of load jobs of SPARK type in CANCELLED status
DELETE load job statistics	UNKNOWN	count	Number of load jobs of DELETE type in UNKNOWN status
	PENDING	count	Number of load jobs of DELETE type in PENDING status
	ETL	count	Number of load jobs of DELETE type in ETL status
	LOADING	count	Number of load jobs of DELETE type in LOADING status
	COMMITTED	count	Number of load jobs of DELETE type in COMMITTED status
	FINISHED	count	Number of load jobs of DELETE type in

			FINISHED status
	CANCELLED	count	Number of load jobs of DELETE type in CANCELLED status
INSERT load job statistics	UNKNOWN	count	Number of load jobs of INSERT type in UNKNOWN status
	PENDING	count	Number of load jobs of INSERT type in PENDING status
	ETL	count	Number of load jobs of INSERT type in ETL status
	LOADING	count	Number of load jobs of INSERT type in LOADING status
	COMMITTED	count	Number of load jobs of INSERT type in COMMITTED status
	FINISHED	count	Number of load jobs of INSERT type in FINISHED status
	CANCELLED	count	Number of load jobs of INSERT type in CANCELLED status
BROKER load job statistics	UNKNOWN	count	Number of load jobs of BROKER type in UNKNOWN status
	PENDING	count	Number of load jobs of BROKER type in PENDING status
	ETL	count	Number of load jobs of BROKER type in ETL status
	LOADING	count	Number of load jobs of BROKER type in LOADING status
	COMMITTED	count	Number of load jobs of BROKER type in COMMITTED status
	FINISHED	count	Number of load jobs of BROKER type in FINISHED status
	CANCELLED	count	Number of load jobs of BROKER type in CANCELLED status
MINI load job	UNKNOWN	count	Number of load jobs of MINI type in

statistics			UNKNOWN status
	PENDING	count	Number of load jobs of MINI type in PENDING status
	ETL	count	Number of load jobs of MINI type in ETL status
	LOADING	count	Number of load jobs of MINI type in LOADING status
	COMMITTED	count	Number of load jobs of MINI type in COMMITTED status
	FINISHED	count	Number of load jobs of MINI type in FINISHED status
	CANCELLED	count	Number of load jobs of MINI type in CANCELLED status
HADOOP load job statistics	UNKNOWN	count	Number of load jobs of HADOOP type in UNKNOWN status
	PENDING	count	Number of load jobs of HADOOP type in PENDING status
	ETL	count	Number of load jobs of HADOOP type in ETL status
	LOADING	count	Number of load jobs of HADOOP type in LOADING status
	COMMITTED	count	Number of load jobs of HADOOP type in COMMITTED status
	FINISHED	count	Number of load jobs of HADOOP type in FINISHED status
	CANCELLED	count	Number of load jobs of HADOOP type in CANCELLED status

**Doris - BE**

Title	Metric	Unit	Description
Thrift utilization	Broker	count	Number of thrifts used by broker
	Backend	count	Number of thrifts used by BE

	Extdatasource	count	Number of thrifts used by extdatasource
	Frontend	count	Number of thrifts used by FE
Streaming load statistics	RequestsTotal	count	Number of streaming load requests
	CurrentProcessing	count	Number of existing streaming load processes
	PipeCount	count	Number of streaming load pipes
Streaming load time	Duration	ms	Streaming load duration
Streaming load data volume	LoadTotal	bytes	Size of data imported by streaming load
Fragment statistics	PlanFragment	count	Number of plan fragments
	Endpoint	count	Number of DataStreams
	RequestsTotal	count	Number of fragment requests
Fragment request duration	Duration	μs	Fragment request duration
BE memory	Total	bytes	Size of BE memory pool
	Allocated	bytes	Size of allocated BE memory
Maximum compaction score of tablet	CumulativeMax	score	Maximum cumulative compaction score of tablet
	BaseMax	score	Maximum base compaction score of tablet
Data handled by compaction	Cumulative	bytes	Amount of data handled by cumulative compaction
	Base	bytes	Amount of data handled by base compaction
Delta data handled by compaction	Cumulative	bytes	Amount of delta data handled by cumulative compaction
	Base	bytes	Amount of delta data handled by base compaction
MemPools used by compaction	CurrentConsumption	count	Sum of MemPools used by compaction (all compaction threads)



Process file handles	Used	count	Number of file handles used by BE process
	SoftLimit	count	Soft limit on file handles for BE process
	HardLimit	count	Hard limit on file handles for BE process
Running threads in process	NUM	count	Number of threads running in BE process
Engine request statistics	FailedBaseCompaction	count	Number of failed engine requests of base_compaction type
	FailedCultCompt	count	Number of failed engine requests of cumulative_compaction type
	TotalBaseCompaction	count	Total number of engine requests of base_compaction type
	TotalCultCompt	count	Total number of engine requests of cumulative_compaction type

**Doris - BK**

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory

	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMem
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMem
CPU utilization	ProcessCpuLoad	%	CPU utilization
File handles	MaxFileDescriptorCount	-	Maximum number of file descriptors
	OpenFileDescriptorCount	-	Number of opened file descriptors
CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration
Worker threads	ThreadCount	-	Number of threads
	PeakThreadCount	-	Peak number of threads
	DaemonThreadCount	-	Number of backend threads

# Kylin Monitoring Metrics

Last updated : 2023-12-27 14:54:25

## Kylin - Kylin

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory

File descriptors	OpenFileDescriptorCount	-	Number of opened file descriptors
	MaxFileDescriptorCount	-	Maximum number of file descriptors
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
	SystemCpuLoad	%	System CPU Utilization
Worker threads	DaemonThreadCount	-	Number of daemon threads
	ThreadCount	-	Total number of threads
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration

# Zeppelin Monitoring Metrics

Last updated : 2023-12-27 14:54:44

## Zeppelin - Zeppelin

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory

# Oozie Monitoring Metrics

Last updated : 2023-12-27 14:55:01

## Oozie - Oozie

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory

# Storm Monitoring Metrics

Last updated : 2023-12-27 14:55:18

## Storm - Nimbus

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory

File descriptors	OpenFileDescriptorCount	-	Number of opened file descriptors
	MaxFileDescriptorCount	-	Maximum number of file descriptors
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
Worker threads	DaemonThreadCount	-	Number of daemon threads
	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Total number of threads
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration

### Storm - supervisor

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM



	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory
File descriptors	OpenFileDescriptorCount	-	Number of opened file descriptors
	MaxFileDescriptorCount	-	Maximum number of file descriptors
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
Worker threads	DaemonThreadCount	-	Number of daemon threads
	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Total number of threads
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration

# Livy Monitoring Metrics

Last updated : 2023-12-27 14:55:36

## Livy - LivyServer

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory

File descriptors	OpenFileDescriptorCount	-	Number of opened file descriptors
	MaxFileDescriptorCount	-	Maximum number of file descriptors
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
Worker threads	DaemonThreadCount	-	Number of daemon threads
	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Total number of threads
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration

# Kyuubi Monitoring Metrics

Last updated : 2023-12-27 14:55:56

## Kyuubi - KyuubiServer

Title	Metric	Unit	Description
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	FGCT	s	Full GC time
	GCT	s	Garbage collection time
	YGCT	s	Young GC time
Memory zone proportion	S0	%	Percentage of used Survivor 0 memory
	E	%	Percentage of used Eden memory
	CCS	%	Percentage of used compressed class space memory
	S1	%	Percentage of used Survivor 1 memory
	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
JVM memory	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemHeapCommittedM	MB	Size of HeapMemory committed by JVM
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory committed by JVM
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory

File descriptors	OpenFileDescriptorCount	-	Number of opened file descriptors
	MaxFileDescriptorCount	-	Maximum number of file descriptors
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
Worker threads	DaemonThreadCount	-	Number of daemon threads
	PeakThreadCount	-	Peak number of threads
	ThreadCount	-	Total number of threads
Cumulative CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
Process execution duration	Uptime	s	Process execution duration

# StarRocks Monitoring Metrics

Last updated : 2023-12-27 15:00:50

## StarRocks - BE

Title	Metric	Unit	Description
Delta data handled by compaction	Cumulative	rowsets	Amount of delta data handled by cumulative compaction
	Base	rowsets	Amount of delta data handled by base compaction
	Update	rowsets	Amount of delta data handled by update compaction
Data handled by compaction	Cumulative	bytes	Amount of data handled by cumulative compaction
	Base	bytes	Amount of data handled by base compaction
	Update	bytes	Amount of data handled by update compaction
Maximum compaction score of tablet	CumulativeMax	score	Maximum cumulative compaction score of tablet
	BaseMax	score	Maximum base compaction score of tablet
Engine request failure statistics (1)	base_compaction	count	Number of failed engine requests of base_compaction type
	clone	count	Number of failed engine requests of clone type
	create_rollup	count	Number of failed engine requests of create_rollup type
	create_tablet	count	Number of failed engine requests of create_tablet type
	cumulative_compaction	count	Number of failed engine requests of

			cumulative_compaction type
	delete	count	Number of failed engine requests of delete type
	finish_task	count	Number of failed engine requests of finish_task type
Engine request failure statistics (2)	publish	count	Number of failed engine requests of publish type
	report_all_tablets	count	Number of failed engine requests of report_all_tablets type
	report_disk	count	Number of failed engine requests of report_disk type
	report_tablet	count	Number of failed engine requests of report_tablet type
	report_task	count	Number of failed engine requests of report_task type
	schema_change	count	Number of failed engine requests of schema_change type
Engine request statistics (1)	base_compaction	count	Number of failed engine requests of base_compaction type
	clone	count	Number of failed engine requests of clone type
	create_rollup	count	Number of failed engine requests of create_rollup type
	create_tablet	count	Number of failed engine requests of create_tablet type
	cumulative_compaction	count	Number of failed engine requests of cumulative_compaction type
	delete	count	Number of failed engine requests of delete type
	drop_tablet	count	Number of failed engine requests of drop_tablet type
	finish_task	count	Number of failed engine requests of

			finish_task type
Engine request statistics (2)	publish	count	Number of failed engine requests of publish type
	report_all_tablets	count	Number of failed engine requests of report_all_tablets type
	report_disk	count	Number of failed engine requests of report_disk type
	report_tablet	count	Number of failed engine requests of report_tablet type
	report_task	count	Number of failed engine requests of report_task type
	schema_change	count	Number of failed engine requests of schema_change type
	storage_migrate	count	Number of failed engine requests of storage_migrate type
Fragment statistics	PlanFragment	count	Number of plan fragments
	Endpoint	count	Number of DataStreams
Fragment request duration	Duration	µs	Fragment request duration
Transaction request statistics	begin	count	Number of transaction requests of begin type
	commit	count	Number of transaction requests of commit type
	exec	count	Number of transaction requests of exec type
	rollback	count	Number of transaction requests of rollback type
Data imported by streaming load	LoadTotal	bytes	Amount of data imported by streaming load
Streaming load statistics	CurrentProcessing	count	Number of existing streaming load processes
	PipeCount	count	Number of streaming load pipes



Streaming load duration	Duration	ms	Streaming load duration
BE memory	Total	bytes	Size of BE memory pool
	Allocated	bytes	Size of allocated BE memory
Process file handles	Used	count	Number of file handles used by BE process
	SoftLimit	count	Soft limit on file handles for BE process
	HardLimit	count	Hard limit on file handles for BE process
Running threads in process	Thread	count	Number of threads running in BE process
Used thrifts	Broker	count	Number of thrifts used by broker
	Backend	count	Number of thrifts used by BE
	Frontend	count	Number of thrifts used by FE
Tablet write statistics	Writer	count	Statistics of tablet writes on BE

## StarRocks - FE

Title	Metric	Unit	Description
ALTER job statistics	RollupRunning	count	Number of running alter jobs of rollup type
	SchemaChangeRunning	count	Number of running alter jobs of schema_change type
Image statistics	Write	count	Number of image writes on FE
	Push	count	Number of image pushes on FE
Scheduled tablets	ScheduledTablet	count	Number of scheduled tablets on FE
Transaction status statistics	Reject	count	Number of rejected transactions on FE
	Begin	count	Number of started transactions on FE
	Success	count	Number of successful transactions on FE

	Failed	count	Number of failed transactions on FE
Heap memory in JVM	max	bytes	Maximum amount of heap memory
	committed	bytes	Amount of committed heap memory
	used	bytes	Amount of used heap memory
Non-heap memory in JVM	committed	bytes	Amount of committed non-heap memory
	used	bytes	Amount of used non-heap memory
Old memory in JVM	used	bytes	Amount of used old memory
	peak_used	bytes	Maximum amount of used old memory
	max	bytes	Maximum amount of old memory
Young memory in JVM	used	bytes	Amount of used young memory
	peak_used	bytes	Maximum amount of used young memory
	max	bytes	Maximum amount of young memory
Routine load queue size	report queue	count	Size of FE report queue
Routine load rows	TotalRows	count	Number of FE routine load rows
	ErrorRows	count	Number of FE routine load error rows
Routine load size	Receive	bytes	Size of FE routine load
Maximum compaction score of tablet	MAX	score	Maximum compaction score of FE tablet
EditLog write latency	Quantile75	ms	75th percentile of the FE EditLog write latency
	Quantile95	ms	95th percentile of the FE EditLog write latency
	Quantile98	ms	98th percentile of the FE EditLog write latency
	Quantile99	ms	99th percentile of the FE EditLog write latency

	Quantile999	ms	99.9th percentile of the FE EditLog write latency
GC count	YoungGC	count	FE node JVM Young GC count
	OldGC	count	FE node JVM Old GC count
GC time	YoungGC	Sec	FE node JVM Young GC time
	OldGC	Sec	FE node JVM Old GC time
JVM threads	Total	count	Total number of threads in the JVM of the FE node
	Peak	count	Peak number of threads in the JVM of the FE node
BROKER load job statistics	UNKNOWN	count	Number of load jobs of BROKER type in UNKNOWN status
	PENDING	count	Number of load jobs of BROKER type in PENDING status
	ETL	count	Number of load jobs of BROKER type in ETL status
	LOADING	count	Number of load jobs of BROKER type in LOADING status
	COMMITTED	count	Number of load jobs of BROKER type in COMMITTED status
	FINISHED	count	Number of load jobs of BROKER type in FINISHED status
	CANCELLED	count	Number of load jobs of BROKER type in CANCELLED status
DELETE load job statistics	UNKNOWN	count	Number of load jobs of DELETE type in UNKNOWN status
	PENDING	count	Number of load jobs of DELETE type in PENDING status
	ETL	count	Number of load jobs of DELETE type in ETL status
	LOADING	count	Number of load jobs of DELETE type in LOADING status

	COMMITTED	count	Number of load jobs of DELETE type in COMMITTED status
	FINISHED	count	Number of load jobs of DELETE type in FINISHED status
	CANCELLED	count	Number of load jobs of DELETE type in CANCELLED status
HADOOP load job statistics	UNKNOWN	count	Number of load jobs of HADOOP type in UNKNOWN status
	PENDING	count	Number of load jobs of HADOOP type in PENDING status
	ETL	count	Number of load jobs of HADOOP type in ETL status
	LOADING	count	Number of load jobs of HADOOP type in LOADING status
	COMMITTED	count	Number of load jobs of HADOOP type in COMMITTED status
	FINISHED	count	Number of load jobs of HADOOP type in FINISHED status
	CANCELLED	count	Number of load jobs of HADOOP type in CANCELLED status
INSERT load job statistics	UNKNOWN	count	Number of load jobs of INSERT type in UNKNOWN status
	PENDING	count	Number of load jobs of INSERT type in PENDING status
	ETL	count	Number of load jobs of INSERT type in ETL status
	LOADING	count	Number of load jobs of INSERT type in LOADING status
	COMMITTED	count	Number of load jobs of INSERT type in COMMITTED status
	FINISHED	count	Number of load jobs of INSERT type in FINISHED status

	CANCELLED	count	Number of load jobs of INSERT type in CANCELLED status
Routine load job statistics	NEED_SCHEDULE	count	Number of routine load jobs in NEED_SCHEDULE status
	RUNNING	count	Number of routine load jobs in RUNNING status
	PAUSED	count	Number of routine load jobs in PAUSED status
	STOPPED	count	Number of routine load jobs in STOPPED status
	CANCELLED	count	Number of routine load jobs in CANCELLED status
SPARK load job statistics	UNKNOWN	count	Number of load jobs of SPARK type in UNKNOWN status
	PENDING	count	Number of load jobs of SPARK type in PENDING status
	ETL	count	Number of load jobs of SPARK type in ETL status
	LOADING	count	Number of load jobs of SPARK type in LOADING status
	COMMITTED	count	Number of load jobs of SPARK type in COMMITTED status
	FINISHED	count	Number of load jobs of SPARK type in FINISHED status
	CANCELLED	count	Number of load jobs of SPARK type in CANCELLED status
FE MASTER	FE Master	count	Whether it is the FE master. Valid values: 1: Master; 0: Follower.
Node information	FeNodeNum	count	Total number of FE nodes
	BeNodeNum	count	Total number of BE nodes
	BeAliveNum	count	Number of live BE nodes
	BeDecommissionedNum	count	Number of live BE nodes

	BkDeadNum	count	Number of dead broker nodes
Request response	QPS	count/s	Number of queries per second
	RPS	count/s	Number of requests that can be processed per second
FE query statistics	total	count	Total number of FE queries
	err	count	Total number of FE query errors
	timeout	count	Number of timed-out FE queries
	success	count	Total number of successful FE queries
	slow	count	Total number of slow FE queries
Query failure rate	ErrRate	%	Query error rate
FE query latency	Quantile75	ms	75th percentile of the FE query latency
	Quantile95	ms	95th percentile of the FE query latency
	Quantile99	ms	99th percentile of the FE query latency
	Quantile999	ms	99.9th percentile of the FE query latency
Connections	Num	count	Number of FE node connections

## StarRocks - Broker

Title	Metric	Unit	Description
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	GCT	s	Garbage collection time
	FGCT	s	Full GC time

	YGCT	s	Young GC time
Memory zone proportion	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
	CCS	%	Percentage of used compressed class space memory
	S0	%	Percentage of used Survivor 0 memory
	S1	%	Percentage of used Survivor 1 memory
	E	%	Percentage of used Eden memory
JVM memory	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM
	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
File handles	OpenFileDescriptorCount	count	Number of opened file descriptors
	MaxFileDescriptorCount	count	Maximum number of file descriptors
Process execution duration	Uptime	s	Process execution duration
Worker threads	PeakThreadCount	count	Peak number of threads
	ThreadCount	count	Total number of threads
	DaemonThreadCount	count	Number of Daemon threads

# Kafka Monitoring Metrics

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Title	Metric	Unit	Description
CPU utilization	ProcessCpuLoad	%	Process CPU utilization
CPU usage time	ProcessCpuTime	ms	Cumulative CPU usage time
GC count	YGC	-	Young GC count
	FGC	-	Full GC count
GC time	GCT	s	Garbage collection time
	FGCT	s	Full GC time
	YGCT	s	Young GC time
Memory zone proportion	O	%	Percentage of used Old memory
	M	%	Percentage of used Metaspace memory
	CCS	%	Percentage of used compressed class space memory
	S0	%	Percentage of used Survivor 0 memory
	S1	%	Percentage of used Survivor 1 memory
	E	%	Percentage of used Eden memory
JVM memory	MemHeapInitM	MB	Size of initial JVM HeapMemory
	MemNonHeapInitM	MB	Size of initial JVM NonHeapMemory
	MemHeapMaxM	MB	Size of HeapMemory configured by JVM
	MemHeapCommittedM	MB	Size of HeapMemory currently committed by JVM



	MemHeapUsedM	MB	Size of HeapMemory currently used by JVM
	MemNonHeapCommittedM	MB	Size of NonHeapMemory currently committed by JVM
	MemNonHeapUsedM	MB	Size of NonHeapMemory currently used by JVM
File handles	OpenFileDescriptorCount	count/s	Number of opened file descriptors
	MaxFileDescriptorCount	count/s	Maximum number of file descriptors
Process execution duration	Uptime	s	Process execution duration
Worker threads	PeakThreadCount	count/s	Peak number of threads
	ThreadCount	count/s	Total number of threads
	DaemonThreadCount	count/s	Number of Daemon threads
Production traffic of Broker	OneMinuteRate	bytes/s	Rate of message production by the Broker per minute
Consumption traffic of Broker	OneMinuteRate	bytes/s	Rate of message consumption by the Broker per minute
Rejected consumption traffic	OneMinuteRate	bytes/s	Rate of Topic request rejection per minute
Failed Fetch requests	OneMinuteRate	count/s	Rate of Fetch request failures per minute
Failed Produce requests	OneMinuteRate	count/s	Rate of Produce request failures per minute
Produced messages	OneMinuteRate	count/s	Rate of message production per minute
Read traffic from other Brokers	OneMinuteRate	bytes/s	Amount of traffic read from other Brokers per minute
Read traffic to other Brokers	OneMinuteRate	bytes/s	Amount of traffic read to other Brokers per minute
Fetch requests	OneMinuteRate	count/s	Rate of Fetch requests per

			minute
Produce requests	OneMinuteRate	count/s	Rate of Produce requests per minute
ControllerBroker	IsControllerBroker	-	The metric value is 1 on the Broker where Controller is located and is 0 on other Brokers.
LeaderElection rate	OneMinuteRate	count/s	Rate of LeaderElections per minute
LeaderElection latencies	99thPercentile	ms	The 99th percentile of LeaderElection latencies
	999thPercentile		The 99.9th percentile of LeaderElection latencies
	Mean		Mean value of LeaderElection latencies
UncleanLeaderElections rate	OneMinuteRate	count/s	Rate of UncleanLeaderElections per minute
GlobalPartition count	GlobalPartitionCount	count/s	Number of global partitions observed by the controller
OfflinePartitions count	OfflinePartitionCount	count/s	Number of offline partitions observed by the controller
GlobalTopic count	GlobalTopicCount	count/s	Number of global topics observed by the controller
Offline log directory count	OfflineLogDirectory	count/s	Number of offline log directories
LogFlush rate	OneMinuteRate	calls/s	Rate of message log flush per minute
LogFlush latencies	99thPercentile	ms	The 99th percentile of LogFlush latencies
	999thPercentile		The 99.9th percentile of LogFlush latencies
	Mean		Mean value of LogFlush latencies

Average network processor idleness rate	NetworkProcessorAvgIdlePercent	-	Average idleness rate of threads in a network thread pool
ISR expansion rate	OneMinuteRate	count/s	In-sync replica (ISR) expansion rate per minute
ISR shrinkage rate	OneMinuteRate	count/s	ISR shrinkage rate per minute
Replicas count	LeaderReplicaCount	count/s	Number of offline replicas
	OfflineReplicaCount	count/s	Number of leader replicas
Partitions count	PartitionCount	count	Number of partitions
	UnderMinIsrPartitionCount		Number of partitions under the minimum ISR count
	UnderReplicatedPartitions		Number of UnderReplicatedPartitions
FetchConsumer request latencies	99thPercentile	ms	The 99.9th percentile of FetchConsumer request latencies
	999thPercentile		The 99.9th percentile of FetchConsumer request latencies
	Mean		Mean value of FetchConsumer request latencies
FetchFollower request latencies	99thPercentile	ms	The 99.9th percentile of FetchFollower request latencies
	999thPercentile		The 99.9th percentile of FetchFollower request latencies
	Mean		Mean value of FetchFollower request latencies
Produce request latency	99thPercentile	ms	The 99.9th percentile of Produce request latencies
	999thPercentile		The 99.9th percentile of Produce request latencies
	Mean		Mean value of Produce request latencies

Size of the request queue	RequestQueueSize	size	Size of the request queue
Purgatory size	Fetch	size	Number of requests waiting in fetch purgatory
	Produce	-	Number of requests waiting in producer purgatory
Average request handler idleness rate	OneMinuteRate	-	Idleness rate of request handlers per minute
ZooKeeper request latencies	99thPercentile	ms	The 99th percentile of ZooKeeper request latencies
	999thPercentile		The 99.9th percentile of ZooKeeper request latencies
	Mean		Mean value of ZooKeeper request latencies

# Alarm Configurations

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## Overview

Elastic MapReduce (EMR) has been connected to Cloud Monitor (CM). You can configure alarm policies for EMR nodes and service monitoring metrics in the CM console.

### Note:

EMR has been connected to CM's default alarms. CM will automatically create a default alarm policy. For information about metrics/events or alarm rules supported by the EMR default policy, see [Default Alarm Policy](#).

You can manually create an alarm policy and set it as the default alarm policy. After the default policy is set, newly purchased instances will be automatically associated with the default policy without requiring manual addition.

## Directions

1. Log in to the Cloud Monitor console and click **Alarm Configuration** > [Alarm Policy](#) on the left sidebar.
2. On the **Alarm Policy** page, click **Create**.
3. In the pop-up window, configure the basic information, alarm policy, and notification template as instructed below.

Configuration Type	Configuration Item	Description
Basic information	Policy name	Custom policy name
	Remarks	Custom policy remarks
	Monitoring type	Supported cloud service monitoring type
	Policy type	Select the desired policy type for monitoring Tencent Cloud services.
	Project	You can filter to find alarm policies under a project in the alarm policy list.
Alarm rule configuration	Alarm object	<p>If you select an instance ID, the alarm policy will be associated with the selected instance.</p> <p>If you select an instance group, the alarm policy will be associated with the selected instance group.</p> <p>If you select all objects, the alarm policy will be associated all instances that the current account has permission on.</p>

	Trigger condition	Manual configuration (metric alarm)	Trigger condition: consists of metric, comparison, threshold, statistical period, and the number of consecutive periods. You can expand the trigger condition to view the metric trend, and based on which, set a proper threshold.
		Manual configuration (event alarm)	Create an event alarm policy to get notifications in case of service resources or underlying infrastructure exceptions.
		Select template	Select a configured template in the drop-down list. For more information, see <a href="#">Configuring Trigger Condition Template</a> .
	Configure alarm notification (optional)	Notification template	You can use the preset notification template (alarms will be notified to the root account administrator via SMS and email. This template is selected by default.) or customize one. Up to three notification templates can be bound to each alarm policy. For more information about notification template configuration, see <a href="#">Creating Notification Template</a> .

4. Click **Complete**.

# Alarm Records

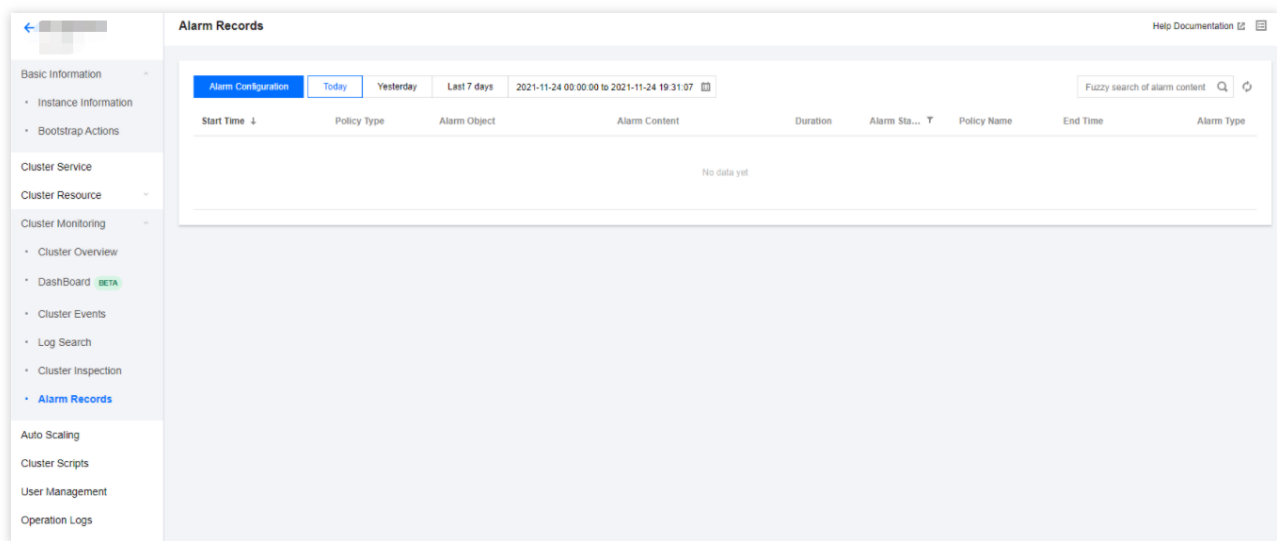
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## Feature Overview

The alarm records feature allows you to view alarms in the past six months. On the **Alarm Records** page, you can also quickly access alarm policies by policy type and subscribe to them.

## Directions

1. Log in to the [EMR console](#) and click the **ID/Name** of the target cluster in the cluster list to enter the cluster details page.
2. Select **Cluster Monitoring > Alarm Records**. On the displayed page, you can perform fuzzy search for alarms by alarm content, filter by time range and alarm status, and sort by start time.



3. Click **Alarm Configuration** to go to the alarm configuration page in the Cloud Monitor console to configure alarm policies. For details, see [Alarm Configurations](#).