Cloud Container Engine

API Reference

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HUAWEI

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1 Before You Start

1.1 Overview

Cloud Container Engine (CCE) is a container service that allows you to run containers efficiently in the cloud. CCE provides highly scalable, high-performance, enterprise-class Kubernetes clusters and supports Docker containers. With CCE, you can easily deploy, manage, and scale containerized applications in the cloud.

This document describes how to use APIs for performing operations on CCE, such as creating or deleting CCE resources, modifying resource specifications, or adding NICs. For details about all supported operations, see **API Overview**.

If you plan to access CCE resources through an API, ensure that you are familiar with CCE concepts.

CCE supports both Kubernetes-native APIs and proprietary APIs. With these APIs, you can use all functions of CCE.

- CCE has opened APIs through API gateway to support operations on cloud service infrastructures (for example, creating a node). Operations on cluster resources (such as **creating a workload**) are also supported.
- Kubernetes-native APIs: You can perform operations on cluster resources (such as **creating a workload**) using the Kubernetes-native API server. However, operations on cloud service infrastructures (such as creating a node) are not supported.

  For details about Kubernetes-native API versions, see **https://kubernetes.io/docs/concepts/overview/kubernetes-api/**.

  NOTE

  - The Kubernetes-native APIs called in the current version do not support HTTP persistent connections.
  - The Kubernetes-native APIs in the current version include Beta APIs, whose version names include **beta**, for example, **v1beta1**. This type of APIs varies according to Kubernetes-native APIs. Therefore, you are advised to use this type of APIs in unimportant scenarios, for example, short-term test clusters.

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1.2 API Calling

CCE supports Representational State Transfer (REST) APIs, allowing you to call APIs using HTTPS. For details about API calling, see **3 Calling APIs**.

1.3 Endpoints

An endpoint is the **request address** for calling an API. Endpoints vary depending on services and regions. An endpoint can be obtained from the administrator.

Select an endpoint based on your service requirements.

- The URL format for cluster, node, node pool, add-on, and quota management is **https://Endpoint/uri**. *uri* indicates the resource path, that is, the API access path.
- The URL format for Kubernetes APIs, storage management, and add-on management is **https://{clusterid}.Endpoint/uri**. In the URL, *{clusterid}* indicates the cluster ID, and *uri* indicates the resource path, that is, the path for API access.

  NOTE

  - The format of the URL called by the add-on management APIs is **https://{clusterid}.Endpoint/uri**. However, *{clusterid}* is used only for the domain name and is not verified or used by the APIs. Set *{clusterid}* in the query or body. For details about *{clusterid}*, see the add-on management sections.
  - *{clusterid}* is required for Kubernetes APIs and storage management, which indicates the cluster that needs to be accessed by calling the API.

Table 1-1 URL parameters

Parameter	Description
{clusterid}	Cluster ID. After a cluster is created, call the **API for obtaining a cluster in a specified project** to obtain the cluster ID.
Endpoint	Entry (URL) for a web service. Endpoints vary depending on services and regions.
uri	Access path of an API for performing an operation. Obtain the path from the URI of an API. For example, the **resource-path** of the API used to obtain a user token is **v3/auth/tokens**.

1.4 Constraints

- CCE imposes a quota on the number and capacity of resources that a user can access. By default, you can create a maximum of five clusters in each region and a cluster can have a maximum of 50 nodes.

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- For more constraints, see API description.

1.5 Concepts

- Account

  An account is created upon successful registration. The account has full access permissions for all of its cloud services and resources. It can be used to reset user passwords and grant user permissions. The account is a payment entity, which should not be used directly to perform routine management. For security purposes, create Identity and Access Management (IAM) users and grant them permissions for routine management.

- User

  An IAM user is created using an account to use cloud services. Each IAM user has their own identity credentials (password and access keys).

  The account name, username, and password will be required for API authentication.

- Region

  Regions are divided based on geographical location and network latency. Public services, such as Elastic Cloud Server (ECS), Elastic Volume Service (EVS), Object Storage Service (OBS), Virtual Private Cloud (VPC), Elastic IP (EIP), and Image Management Service (IMS), are shared within the same region. Regions are classified into universal regions and dedicated regions. A universal region provides universal cloud services for common tenants. A dedicated region provides specific services for specific tenants.

  For details, see **Region and AZ**.

- AZ

  An AZ comprises of one or more physical data centers equipped with independent ventilation, fire, water, and electricity facilities. Computing, network, storage, and other resources in an AZ are logically divided into multiple clusters. AZs within a region are interconnected using high-speed optical fibers to allow you to build cross-AZ high-availability systems.

- Project

  A project corresponds to a region. Default projects are defined. Users can be granted permissions in a default project to access all resources under their accounts in the region associated with the project. If you need more refined access control, create subprojects under a default project and create resources in subprojects. Then you can assign users the permissions required to access only the resources in the specific subprojects.

- Enterprise project

  Enterprise projects group and manage resources across regions. Resources in different enterprise projects are logically isolated.

  For details about enterprise projects and about how to obtain enterprise project IDs, see ***Enterprise Management User Guide***.

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2 API Overview

APIs provided by CCE are classified into two types: proprietary APIs and Kubernetes-native APIs. By using these two types of APIs, you can use all functions provided by CCE, including creating clusters and nodes, using the Kubernetes-native APIs to create workloads, and using the proprietary CCE APIs to monitor application data.

Type	Subtype	Description
Proprietary CCE APIs	Cluster-related APIs	Manage clusters, including creating and deleting clusters. You can use APIs in this category to create clusters and obtain information about created clusters.
	Node-related APIs	Manage nodes, including creating and deleting nodes. You can use these APIs in this category to add nodes to clusters and obtain information about created nodes.
	Node Pool-related APIs	Manage node pools, including creating and deleting node pools. You can use APIs in this category to create node pools and obtain information about created node pools.
	Add-on-related APIs	Manage add-ons, including querying AddonTemplates and creating, updating, deleting, and obtaining AddonInstances.
	Quota-related API	Query quotas of CCE resources.

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Type	Subtype	Description
Kubernetes-native APIs	None	For details about how to call Kubernetes-native APIs, see **Kubernetes APIs**. **NOTE** The Kubernetes-native APIs called in the current version do not support HTTP persistent connections.

Cluster-related APIs

Table 2-1 Cluster-related APIs

API	Description
Creating a Cluster	Create an empty cluster, which has only master nodes but do not have worker nodes.
Reading a Specified Cluster	Obtain details about a specified cluster.
Listing Clusters in a Specified Project	Obtain details about all clusters in a specified project.
Updating a Specified Cluster	Update information about a specified cluster.
Deleting a Cluster	Delete a specified cluster.
Hibernating a Cluster	Hibernate a specified cluster.
Waking Up a Cluster	Wake up a hibernated cluster.
Obtaining Cluster Certificates	Obtain certificates of a specified cluster.
Obtaining Job Information	Obtain the progress of a job with a specified job ID returned after a job request is issued.

Node-related APIs

Table 2-2 Node-related APIs

API	Description
Creating a Node	Create a node in a specified cluster.
Reading a Specified Node	Obtain details about a node with a specified node ID.

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API	Description
Reading all Nodes in a Cluster	Obtain details about all nodes in a cluster with a specified cluster ID.
Updating a Specified Node	Update information about a specified node.
Deleting a Node	Delete a specified node
Accepting a Node	Accept a node into a specified cluster.
Resetting a Node	Reset a node in a specified cluster.
Removing a Node	Remove a node from a specified cluster.
Migrating a Node	Migrate a node from a specified cluster to another cluster.

Node Pool-related APIs

Table 2-3 Node pool-related APIs

API	Description
Creating a Node Pool	Create a node pool in a specified cluster.
Reading a Specified Node Pool	Obtain details about a node with a specified node ID.
Listing All Node Pools in a Specified Cluster	Obtain details about all node pools in a cluster with a specified cluster ID.
Updating a Specified Node Pool	Update information about a specified node pool.
Deleting a Node Pool	Delete a specified node pool.

Add-on-related APIs

Table 2-4 Add-on-related APIs

API	Description
Installing an Add-on Instance	Install an add-on by using the add-on template. One or more instances will be created for the installed add-on.
Listing Add-on Templates	Query add-on information.

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API	Description
Updating an Add-on Instance	Update an add-on instance.
Deleting an Add-on Instance	Delete an add-on instance.
Reading an Add-on Instance	Obtain details about an add-on instance.
Listing Add-on Instances	List all add-on instances in the cluster.

Quota-related API

Table 2-5 Quota-related API

API	Description
Querying Resource Quotas	Query resource quotas.

Kubernetes APIs

API	Function	URI
Node	Reading a specified node	GET /api/v1/nodes/{name}
	Listing all nodes	GET /api/v1/nodes
	Updating a specified node	PATCH /api/v1/nodes/{name}
Namespace	Creating a namespace	POST /api/v1/namespaces
	Deleting a namespace	DELETE /api/v1/namespaces/{name}
	Querying a specified namespace	GET /api/v1/namespaces/{name}
	Replacing a specified namespace	PUT /api/v1/namespaces/{name}
	Replacing the status of a specified namespace	PUT /api/v1/namespaces/{name}/status
	Replacing the finalize values of a specified namespace	PUT /api/v1/namespaces/{name}/finalize
	Listing namespaces	GET /api/v1/namespaces
	Updating a specified namespace	PATCH /api/v1/namespaces/{name}

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API	Function	URI
Resourc equotas	Querying resource quotas	GET /api/v1/resourcequotas
	Creating a resource quota	POST /api/v1/namespaces/{namespace}/resourcequotas
	Updating a resource quota	PUT /api/v1/namespaces/{namespace}/resourcequotas/{name}
	Deleting a resource quota	DELETE /api/v1/namespaces/{namespace}/resourcequotas/{name}
Pod	Creating a pod	POST /api/v1/namespaces/{namespace}/pods
	Deleting a pod	DELETE /api/v1/namespaces/{namespace}/pods/{name}
	Deleting all pods	DELETE /api/v1/namespaces/{namespace}/pods
	Reading a specified pod	GET /api/v1/namespaces/{namespace}/pods/{name}
	Replacing a specified pod	PUT /api/v1/namespaces/{namespace}/pods/{name}
	Replacing the status of a specified pod	PUT /api/v1/namespaces/{namespace}/pods/{name}/status
	Listing all pods in a specified namespace	GET /api/v1/namespaces/{namespace}/pods
	Listing pods	GET /api/v1/pods
	Updating a specified pod	PATCH /api/v1/namespaces/{namespace}/pods/{name}
Deploy ment	Creating a Deployment	POST /apis/apps/v1/namespaces/{namespace}/deployments
	Rolling back a Deployment	PATCH /apis/apps/v1/namespaces/{namespace}/deployments/{name} (for clusters of v1.17 or later) POST /apis/apps/v1beta1/namespaces/{namespace}/deployments/{name}/rollback (for clusters of v1.15 and earlier) POST /apis/extensions/v1beta1/namespaces/{namespace}/deployments/{name}/rollback (for clusters of v1.15 and earlier)
	Deleting a Deployment	DELETE /apis/apps/v1/namespaces/{namespace}/deployments/{name}

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API	Function	URI
	Deleting all Deployments	DELETE /apis/apps/v1/namespaces/{namespace}/deployments
	Reading a specified Deployment	GET /apis/apps/v1/namespaces/{namespace}/deployments/{name}
	Reading the status of a specified Deployment	GET /apis/apps/v1/namespaces/{namespace}/deployments/{name}/status
	Reading the scaling operation of a specified Deployment	GET /apis/apps/v1/namespaces/{namespace}/deployments/{name}/scale
	Replacing a specified Deployment	PUT /apis/apps/v1/namespaces/{namespace}/deployments/{name}
	Replacing the status of a specified Deployment	PUT /apis/apps/v1/namespaces/{namespace}/deployments/{name}/status
	Replacing the scaling operation of a specified Deployment	PUT /apis/apps/v1/namespaces/{namespace}/deployments/{name}/scale
	Listing Deployments in a specified namespace	GET /apis/apps/v1/namespaces/{namespace}/deployments
	Listing all Deployments	GET /apis/apps/v1/deployments
	Updating a specified Deployment	PATCH /apis/apps/v1/namespaces/{namespace}/deployments/{name}
	Updating the status of a specified Deployment	PATCH /apis/apps/v1/namespaces/{namespace}/deployments/{name}/status
	Updating the scaling operation of a specified Deployment	PATCH /apis/apps/v1/namespaces/{namespace}/deployments/{name}/scale
StatefulSet	Creating a StatefulSet	POST /apis/apps/v1/namespaces/{namespace}/statefulsets
	Deleting a specified StatefulSet	DELETE /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}
	Deleting all StatefulSets	DELETE /apis/apps/v1/namespaces/{namespace}/statefulsets
	Reading a specified StatefulSet	GET /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}
	Reading the status of a specified StatefulSet	GET /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}/status
	Replacing a specified StatefulSet	PUT /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}

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API	Function	URI
	Replacing the status of a specified StatefulSet	PUT /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}/status
	Listing StatefulSets in a specified namespace	GET /apis/apps/v1/namespaces/{namespace}/statefulsets
	Listing all StatefulSets	GET /apis/apps/v1/statefulsets
	Updating a specified StatefulSet	PATCH /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}
	Updating the status of a specified StatefulSet	PATCH /apis/apps/v1/namespaces/{namespace}/statefulsets/{name}/status
DaemonSet	Creating a DaemonSet	POST /apis/apps/v1/namespaces/{namespace}/daemonsets
	Deleting a specified DaemonSet	DELETE /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}
	Deleting all DaemonSets	DELETE /apis/apps/v1/namespaces/{namespace}/daemonsets
	Reading a specified DaemonSet	GET /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}
	Reading the status of a specified DaemonSet	GET /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}/status
	Updating a specified DaemonSet	PATCH /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}
	Updating the status of a specified DaemonSet	PATCH /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}/status
	Listing all DaemonSets	GET /apis/apps/v1/daemonsets
	Listing DaemonSets in a specified namespace	GET /apis/apps/v1/namespaces/{namespace}/daemonsets
	Replacing a specified DaemonSet	PUT /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}
	Replacing the status of a specified DaemonSet	PUT /apis/apps/v1/namespaces/{namespace}/daemonsets/{name}/status
Job	Creating a job	POST /apis/batch/v1/namespaces/{namespace}/jobs
	Deleting a job	DELETE /apis/batch/v1/namespaces/{namespace}/jobs/{name}
	Deleting all jobs	DELETE /apis/batch/v1/namespaces/{namespace}/jobs

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API	Function	URI
	Reading a specified job	GET /apis/batch/v1/namespaces/{namespace}/jobs/{name}
	Reading the status of a specified job	GET /apis/batch/v1/namespaces/{namespace}/jobs/{name}/status
	Replacing a specified job	PUT /apis/batch/v1/namespaces/{namespace}/jobs/{name}
	Replacing the status of a specified job	PUT /apis/batch/v1/namespaces/{namespace}/jobs/{name}/status
	Listing jobs in a specified namespace	GET /apis/batch/v1/namespaces/{namespace}/jobs
	Listing all jobs	GET /apis/batch/v1/jobs
	Updating the status of a specified job	PATCH /apis/batch/v1/namespaces/{namespace}/jobs/{name}/status
	Updating a specified job	PATCH /apis/batch/v1/namespaces/{namespace}/jobs/{name}
CronJob	Creating a cron job	POST /apis/batch/v1beta1/namespaces/{namespace}/cronjobs
	Deleting a cron job	DELETE /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}
	Deleting all cron jobs	DELETE /apis/batch/v1beta1/namespaces/{namespace}/cronjobs
	Reading a specified cron job	GET /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}
	Reading the status of a specified cron job	GET /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}/status
	Replacing a specified cron job	PUT /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}
	Replacing the status of a specified cron job	PUT /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}/status
	Listing cron jobs under a specified namespace	GET /apis/batch/v1beta1/namespaces/{namespace}/cronjobs
	Listing all cron jobs	GET /apis/batch/v1beta1/cronjobs
	Updating the status of a specified cron job	PATCH /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}/status
	Updating a specified cron job	PATCH /apis/batch/v1beta1/namespaces/{namespace}/cronjobs/{name}

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API	Function	URI
ReplicaSet	Listing ReplicaSets	GET /apis/apps/v1/namespaces/{namespace}/replicasets
	Reading a specified ReplicaSet	GET /apis/apps/v1/namespaces/{namespace}/replicasets/{name}
	Listing all ReplicaSets	GET /apis/apps/v1/replicasets
ReplicationController	Creating a ReplicationController	POST /api/v1/namespaces/{namespace}/replicationcontrollers
	Deleting a ReplicationController	DELETE /api/v1/namespaces/{namespace}/replicationcontrollers/{name}
	Deleting all ReplicationControllers	DELETE /api/v1/namespaces/{namespace}/replicationcontrollers
	Reading a ReplicationController under a specified namespace	GET /api/v1/namespaces/{namespace}/replicationcontrollers/{name}
	Replacing a ReplicationController under a specified namespace	PUT /api/v1/namespaces/{namespace}/replicationcontrollers/{name}
	Replacing the status of a ReplicationController under a specified namespace	PUT /api/v1/namespaces/{namespace}/replicationcontrollers/{name}/status
	Listing ReplicationControllers in a specified namespace	GET /api/v1/namespaces/{namespace}/replicationcontrollers
	Listing ReplicationControllers	GET /api/v1/replicationcontrollers
	Updating a specified ReplicationController	PATCH /api/v1/namespaces/{namespace}/replicationcontrollers/{name}
Endpoints	Creating an endpoint	POST /api/v1/namespaces/{namespace}/endpoints
	Deleting an endpoint	DELETE /api/v1/namespaces/{namespace}/endpoints/{name}
	Deleting all endpoints	DELETE /api/v1/namespaces/{namespace}/endpoints
	Querying a specified endpoint	GET /api/v1/namespaces/{namespace}/endpoints/{name}

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API	Function	URI
	Replacing a specified endpoint	PUT /api/v1/namespaces/{namespace}/endpoints/{name}
	Listing endpoints	GET /api/v1/endpoints
	Listing endpoints in a specified namespace	GET /api/v1/namespaces/{namespace}/endpoints
	Updating a specified endpoint	PATCH /api/v1/namespaces/{namespace}/endpoints/{name}
Service	Creating a Service	POST /api/v1/namespaces/{namespace}/services
	Deleting a specified Service	DELETE /api/v1/namespaces/{namespace}/services/{name}
	Obtaining a specified Service	GET /api/v1/namespaces/{namespace}/services/{name}
	Replacing a specified Service	PUT /api/v1/namespaces/{namespace}/services/{name}
	Listing Services in a specified namespace	GET /api/v1/namespaces/{namespace}/services
	Listing Services	GET /api/v1/services
	Updating a specified Service	PATCH /api/v1/namespaces/{namespace}/services/{name}
Ingress	Creating an ingress	POST /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses (for clusters of v1.21 and later) POST /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses (for clusters from v1.15 to v1.21) POST /apis/extensions/v1beta1/namespaces/{namespace}/ingresses (for clusters earlier than v1.15)
	Updating a specified ingress	PATCH /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name} (for clusters of v1.21 and later) PATCH /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters from v1.15 to v1.21) PATCH /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters earlier than v1.15)

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API	Function	URI
	Replacing a specified ingress	PUT /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name} (for clusters of v1.21 and later) PUT /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters from v1.15 to v1.21) PUT /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters earlier than v1.15)
	Deleting an ingress	DELETE /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name} (for clusters of v1.21 and later) DELETE /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters from v1.15 to v1.21) DELETE /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters earlier than v1.15)
	Deleting all ingresses	DELETE /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses (for clusters of v1.21 and later) DELETE /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses (for clusters from v1.15 to v1.21) DELETE /apis/extensions/v1beta1/namespaces/{namespace}/ingresses (for clusters earlier than v1.15)
	Obtaining a specified ingress	GET /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name} (for clusters of v1.21 and later) GET /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters from v1.15 to v1.21) GET /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name} (for clusters earlier than v1.15)

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API	Function	URI
	Listing ingresses in a specified namespace	GET /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses (for clusters of v1.21 and later) GET /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses (for clusters from v1.15 to v1.21) GET /apis/extensions/v1beta1/namespaces/{namespace}/ingresses (for clusters earlier than v1.15)
	Listing ingresses	GET /apis/networking.k8s.io/v1/ingresses (for clusters of v1.21 and later) GET /apis/networking.k8s.io/v1beta1/ingresses (for clusters from v1.15 to v1.21) GET /apis/extensions/v1beta1/ingresses (for clusters earlier than v1.15)
	Obtaining the status of an ingress in a specified namespace	GET /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name}/status (for clusters of v1.21 and later) GET /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name}/status (for clusters from v1.15 to v1.21) GET /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name}/status (for clusters earlier than v1.15)
	Replacing the status of an ingress in a specified namespace	PUT /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name}/status (for clusters of v1.21 and later) PUT /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name}/status (for clusters from v1.15 to v1.21) PUT /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name}/status (for clusters earlier than v1.15)

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API	Function	URI
	Updating the status of an ingress in a specified namespace	PATCH /apis/networking.k8s.io/v1/namespaces/{namespace}/ingresses/{name}/status (for clusters of v1.21 and later) PATCH /apis/networking.k8s.io/v1beta1/namespaces/{namespace}/ingresses/{name}/status (for clusters from v1.15 to v1.21) PATCH /apis/extensions/v1beta1/namespaces/{namespace}/ingresses/{name}/status (for clusters earlier than v1.15)
Network Policy	Creating a network policy	POST /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies
	Updating a specified network policy	PATCH /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies/{name}
	Replacing a specified network policy	PUT /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies/{name}
	Deleting a specified network policy	DELETE /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies/{name}
	Deleting network policies in batches	DELETE /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies
	Reading a specified network policy	GET /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies/{name}
	Listing network policies in a specified namespace	GET /apis/networking.k8s.io/v1/namespaces/{namespace}/networkpolicies
	Listing all network policies	GET /apis/networking.k8s.io/v1/networkpolicies
PersistentVolume	Creating a PersistentVolume	POST /api/v1/persistentvolumes
	Deleting a specified PersistentVolume	DELETE /api/v1/persistentvolumes/{name}
	Deleting all PersistentVolumes	DELETE /api/v1/persistentvolumes
	Reading a specified PersistentVolume	GET /api/v1/persistentvolumes/{name}

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API	Function	URI
	Replacing a specified PersistentVolume	PUT /api/v1/persistentvolumes/{name}
	Replacing the status of a specified PersistentVolume	PUT /api/v1/persistentvolumes/{name}/status
	Listing all PersistentVolumes	GET /api/v1/persistentvolumes
	Updating a specified PersistentVolume	PATCH /api/v1/persistentvolumes/{name}
PersistentVolumeClaim	Creating a PersistentVolumeClaim	POST /api/v1/namespaces/{namespace}/persistentvolumeclaims
	Deleting a specified PersistentVolumeClaim	DELETE /api/v1/namespaces/{namespace}/persistentvolumeclaims/{name}
	Deleting all PersistentVolume-Claims	DELETE /api/v1/namespaces/{namespace}/persistentvolumeclaims
	Reading a specified PersistentVolumeClaim	GET /api/v1/namespaces/{namespace}/persistentvolumeclaims/{name}
	Replacing a specified PersistentVolumeClaim	PUT /api/v1/namespaces/{namespace}/persistentvolumeclaims/{name}
	Replacing the status of a specified PersistentVolumeClaim	PUT /api/v1/namespaces/{namespace}/persistentvolumeclaims/{name}/status
	Listing PersistentVolume-Claims in a specified namespace	GET /api/v1/namespaces/{namespace}/persistentvolumeclaims
	Listing all PersistentVolume-Claims	GET /api/v1/persistentvolumeclaims
	Updating a specified PersistentVolumeClaim	PATCH /api/v1/namespaces/{namespace}/persistentvolumeclaims/{name}
ConfigMap	Creating a ConfigMap	POST /api/v1/namespaces/{namespace}/configmaps
	Deleting a ConfigMap	DELETE /api/v1/namespaces/{namespace}/configmaps/{name}
	Deleting all ConfigMaps	DELETE /api/v1/namespaces/{namespace}/configmaps

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API	Function	URI
	Reading a specified ConfigMap	GET /api/v1/namespaces/{namespace}/configmaps/{name}
	Replacing a specified ConfigMap	PUT /api/v1/namespaces/{namespace}/configmaps/{name}
	Listing ConfigMaps in a specified namespace	GET /api/v1/namespaces/{namespace}/configmaps
	Listing all ConfigMaps	GET /api/v1/configmaps
	Updating a specified ConfigMap	PATCH /api/v1/namespaces/{namespace}/configmaps/{name}
Secret	Creating a secret	POST /api/v1/namespaces/{namespace}/secrets
	Deleting a secret	DELETE /api/v1/namespaces/{namespace}/secrets/{name}
	Deleting all secrets in a specified namespace	DELETE /api/v1/namespaces/{namespace}/secrets
	Reading a specified secret	GET /api/v1/namespaces/{namespace}/secrets/{name}
	Replacing a specified secret	PUT /api/v1/namespaces/{namespace}/secrets/{name}
	Listing the secrets in a namespace	GET /api/v1/namespaces/{namespace}/secrets
	Listing secrets in a cluster	GET /api/v1/secrets
RBAC/ ClusterRole	Creating a ClusterRole	POST /apis/rbac.authorization.k8s.io/v1/clusterroles
	Updating a specified ClusterRole	PATCH /apis/rbac.authorization.k8s.io/v1/clusterroles/{name}
	Replacing a specified ClusterRole	PUT /apis/rbac.authorization.k8s.io/v1/clusterroles/{name}
	Deleting a specified ClusterRole	DELETE /apis/rbac.authorization.k8s.io/v1/clusterroles/{name}
	Deleting ClusterRoles in batches	DELETE /apis/rbac.authorization.k8s.io/v1/clusterroles
	Reading a specified ClusterRole	GET /apis/rbac.authorization.k8s.io/v1/clusterroles/{name}
	Listing ClusterRoles	GET /apis/rbac.authorization.k8s.io/v1/clusterroles

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API	Function	URI
RBAC/ ClusterRoleBinding	Creating a ClusterRoleBinding	POST /apis/rbac.authorization.k8s.io/v1/clusterrolebindings
	Updating a specified ClusterRoleBinding	PATCH /apis/rbac.authorization.k8s.io/v1/clusterrolebindings/{name}
	Replacing a specified ClusterRoleBinding	PUT /apis/rbac.authorization.k8s.io/v1/clusterrolebindings/{name}
	Deleting a specified ClusterRoleBinding	DELETE /apis/rbac.authorization.k8s.io/v1/clusterrolebindings/{name}
	Deleting ClusterRoleBindings in batches	DELETE /apis/rbac.authorization.k8s.io/v1/clusterrolebindings
	Reading a specified ClusterRoleBinding	GET /apis/rbac.authorization.k8s.io/v1/clusterrolebindings/{name}
	Listing ClusterRoleBindings	GET /apis/rbac.authorization.k8s.io/v1/clusterrolebindings
RBAC/ Role	Creating a Role	POST /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles
	Updating a specified Role	PATCH /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles/{name}
	Replacing a specified Role	PUT /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles/{name}
	Deleting a specified Role	DELETE /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles/{name}
	Deleting Roles in batches	DELETE /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles
	Reading a specified Role	GET /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles/{name}
	Listing Roles in a specified namespace	GET /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/roles
	Listing all Roles	GET /apis/rbac.authorization.k8s.io/v1/roles
RBAC/ RoleBinding	Creating a RoleBinding	POST /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings
	Updating a specified RoleBinding	PATCH /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings/{name}
	Replacing a specified RoleBinding	PUT /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings/{name}

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API	Function	URI
	Deleting a specified RoleBinding	DELETE /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings/{name}
	Deleting RoleBindings in batches	DELETE /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings
	Reading a specified RoleBinding	GET /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings/{name}
	Listing RoleBindings in a specified namespace	GET /apis/rbac.authorization.k8s.io/v1/namespaces/{namespace}/rolebindings
	Listing all RoleBindings	GET /apis/rbac.authorization.k8s.io/v1/rolebindings
API groups	Listing APIVersions	GET /api
	Listing APIGroups	GET /apis
	listing APIResources of GroupVersion apiregistration.k8s.io/v1beta1	GET /apis/apiregistration.k8s.io/v1beta1
	listing APIResources of GroupVersion extensions/v1beta1	GET /apis/extensions/v1beta1
	listing APIResources of GroupVersion apps/v1&apps/v1beta1	GET /apis/apps/v1 (for clusters later than v1.15) GET /apis/apps/v1beta1 (for clusters of v1.15 and earlier)
	listing APIResources of GroupVersion authentication.k8s.io/v1	GET /apis/authentication.k8s.io/v1
	listing APIResources of GroupVersion authentication.k8s.io/v1beta1	GET /apis/authentication.k8s.io/v1beta1
	listing APIResources of GroupVersion authorization.k8s.io/v1	GET /apis/authorization.k8s.io/v1
	listing APIResources of GroupVersion authorization.k8s.io/v1beta1	GET /apis/authorization.k8s.io/v1beta1

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API	Function	URI
	listing APIResources of GroupVersion autoscaling/v1	GET /apis/autoscaling/v1
	listing APIResources of GroupVersion batch/v1	GET /apis/batch/v1
	listing APIResources of GroupVersion certificates.k8s.io/v1beta1	GET /apis/certificates.k8s.io/v1beta1
	listing APIResources of GroupVersion networking.k8s.io/v1	GET /apis/networking.k8s.io/v1
	listing APIResources of GroupVersion policy/v1beta1	GET /apis/policy/v1beta1
	listing APIResources of GroupVersion rbac.authorization.k8s.io/v1beta1	GET /apis/rbac.authorization.k8s.io/v1beta1
	listing APIResources of GroupVersion storage.k8s.io/v1	GET /apis/storage.k8s.io/v1
	listing APIResources of GroupVersion storage.k8s.io/v1beta1	GET /apis/storage.k8s.io/v1beta1
	listing APIResources of GroupVersion apiextensions.k8s.io/v1beta1	GET /apis/apiextensions.k8s.io/v1beta1
	listing APIResources of GroupVersion v1	GET /api/v1
Event	Reading events	GET /api/v1/events
	Listing events in a specified namespace	GET /api/v1/namespaces/{namespace}/events

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3 Calling APIs

3.1 Making an API Request

This section describes the structure of a REST API request, and uses the IAM API for as an example to demonstrate how to call an API. The obtained token can then be used to authenticate the calling of other APIs.

Request URI

A request URI is in the following format:

{URI-scheme}://{Endpoint}/{resource-path}?{query-string}

Although a request URI is included in the request header, most programming languages or frameworks require the request URI to be transmitted separately.

Table 3-1 URI parameters

Parameter	Description
URI-scheme	Protocol used to transmit requests. All APIs use HTTPS.
Endpoint	Domain name or IP address of the server bearing the REST service. The endpoint varies between services in different regions. It can be obtained from the administrator. For example, the endpoint of IAM in region **Dublin** is **iam.myhuaweicloud.eu**.
resource-path	Access path of an API for performing an operation. Obtain the path from the URI of an API. For example, the **resource-path** of the API used to obtain a user token is **/v3/auth/tokens**.
query-string	Query parameter, which is optional. Ensure that a question mark (?) is included before each query parameter that is in the format of *Parameter name*=*Parameter value*. For example, **? limit=10** indicates that a maximum of 10 data records will be displayed.

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NOTE

To simplify the URI display in this document, each API is provided only with a **resource-path** and a request method. The **URI-scheme** of all APIs is **HTTPS**, and the endpoints of all APIs in the same region are identical.

Request Methods

The HTTP protocol defines the following request methods that can be used to send a request to the server.

Table 3-2 HTTP methods

Method	Description
GET	Requests the server to return specified resources.
PUT	Requests the server to update specified resources.
POST	Requests the server to add resources or perform special operations.
DELETE	Requests the server to delete specified resources, for example, an object.
HEAD	Same as GET except that the server must return only the response header.
PATCH	Requests the server to update partial content of a specified resource. If the resource does not exist, a new resource will be created.

For example, in the case of the API used to obtain a user token, the request method is **POST**. The request is as follows:

```
POST https://{{endpoint}}/v3/auth/tokens
```

Request Header

You can also add additional header fields to a request, such as the fields required by a specified URI or HTTP method. For example, to request for the authentication information, add **Content-Type**, which specifies the request body type.

Common request header fields are as follows.

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Table 3-3 Common request header fields

Parameter	Description	Mandatory	Example Value
Host	Specifies the server domain name and port number of the resources being requested. The value can be obtained from the URL of the service API. The value is in the format of *Hostname:Port number*. If the port number is not specified, the default port is used. The default port number for **https** is **443**.	No This field is mandatory for AK/SK authentication.	code.test.com or code.test.com:443
Content-Type	Specifies the type (or format) of the message body. The default value **application/json** is recommended. Other values of this field will be provided for specific APIs if any.	Yes	application/json
Content-Length	Specifies the length of the request body. The unit is byte.	No	3495
X-Project-Id	Specifies the project ID. Obtain the project ID by following the instructions in **Obtaining a Project ID**.	No	e9993fc787d94b6c886cbaa340f9c0f4

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Parameter	Description	Mandatory	Example Value
X-Auth-Token	Specifies the user token. It is a response to the API for obtaining a user token (This is the only API that does not require authentication). After the request is processed, the value of **X-Subject-Token** in the response header is the token value.	No This field is mandatory for token authentication.	The following is part of an example token: MIIPAgYJKoZIhvcNAQc-Co...ggg1BBIINPXsidG9rZ

NOTE

In addition to supporting authentication using tokens, APIs support authentication using AK/SK, which uses SDKs to sign a request. During the signature, the **Authorization** (signature authentication) and **X-Sdk-Date** (time when a request is sent) headers are automatically added in the request.

For more details, see "Authentication Using AK/SK" in **Authentication**.

The API used to obtain a user token does not require authentication. Therefore, only the **Content-Type** field needs to be added to requests for calling the API. An example of such requests is as follows:

```
POST https://{{endpoint}}/v3/auth/tokens
Content-Type: application/json
```

(Optional) Request Body

This part is optional. The body of a request is often sent in a structured format as specified in the **Content-Type** header field. The request body transfers content except the request header.

The request body varies between APIs. Some APIs do not require the request body, such as the APIs requested using the GET and DELETE methods.

In the case of the API used to obtain a user token, the request parameters and parameter description can be obtained from the API request. The following provides an example request with a body included. Replace ***username***, ***domainname***, ********* (login password), and ***xxxxxxxxxxxxxxxxx*** (project name) with the actual values. Obtain a project name from the administrator.

NOTE

The **scope** parameter specifies where a token takes effect. You can set **scope** to an account or a project under an account. In the following example, the token takes effect only for the resources in a specified project. For more information about this API, see Obtaining a User Token.

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```
POST https://{{endpoint}}/v3/auth/tokens
Content-Type: application/json

{
    "auth": {
        "identity": {
            "methods": [
                "password"
            ],
            "password": {
                "user": {
                    "name": "username",
                    "password": "********",
                    "domain": {
                        "name": "domainname"
                    }
                }
            }
        },
        "scope": {
            "project": {
                "name": "xxxxxxxxxxxxxxxxx"
            }
        }
    }
}
```

If all data required for the API request is available, you can send the request to call the API through **curl**, **Postman**, or coding. In the response to the API used to obtain a user token, **x-subject-token** is the desired user token. This token can then be used to authenticate the calling of other APIs.

3.2 Authentication

Requests for calling an API can be authenticated using either of the following methods:

- Token authentication: Requests are authenticated using tokens.
- AK/SK authentication: Requests are encrypted using an AK/SK. AK/SK-based authentication is recommended because it is more secure than token-based authentication.

Token-based Authentication

NOTE

The validity period of a token is 24 hours. When using a token for authentication, cache it to prevent frequently calling the IAM API used to obtain a user token.

A token specifies temporary permissions in a computer system. During API authentication using a token, the token is added to requests to get permissions for calling the API.

You can obtain a token by calling the Obtaining a User Token API. When you call the API, set **auth.scope** in the request body to **project**.

```
{
    "auth": {
        "identity": {
            "methods": [
```

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```
            "password"
         ],
         "password": {
            "user": {
               "name": "username",
               "password": "********",
               "domain": {
                  "name": "domainname"
               }
            }
         }
      },
      "scope": {
         "project": {
            "name": "xxxxxxxx"
         }
      }
   }
}
```

After a token is obtained, the **X-Auth-Token** header field must be added to requests to specify the token when calling other APIs. For example, if the token is **ABCDEFJ....**, **X-Auth-Token: ABCDEFJ....** can be added to a request as follows:

```
POST https://{{endpoint}}/v3/auth/projects
Content-Type: application/json
X-Auth-Token: ABCDEFJ....
```

AK/SK Authentication

NOTE

AK/SK authentication supports API requests with a body not larger than 12 MB. For API requests with a larger body, token authentication is recommended.

In AK/SK authentication, AK/SK is used to sign requests and the signature is then added to the requests for authentication.

- AK: access key ID, which is a unique identifier used in conjunction with a secret access key to sign requests cryptographically.
- SK: secret access key, which is used in conjunction with an AK to sign requests cryptographically. It identifies a request sender and prevents the request from being modified.

In AK/SK authentication, you can use an AK/SK to sign requests based on the signature algorithm or using the signing SDK. For details about how to sign requests and use the signing SDK, see **API Request Signing Guide**.

NOTE

The signing SDK is only used for signing requests and is different from the SDKs provided by services.

3.3 Response

Status Code

After sending a request, you will receive a response, including a status code, response header, and response body.

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A status code is a group of digits, ranging from 1xx to 5xx. It indicates the status of a request. For more information, see **Status Code**.

For example, if status code **201** is returned for calling the API used to obtain a user token, the request is successful.

Response Header

Similar to a request, a response also has a header, for example, **Content-Type**.

Figure 3-1 shows the response header fields for the API used to obtain a user token. The **x-subject-token** header field is the desired user token. This token can then be used to authenticate the calling of other APIs.

Figure 3-1 Header fields of the response to the request for obtaining a user token

Response Body

The body of a response is often returned in structured format as specified in the **Content-Type** header field. The response body transfers content except the response header.

The following is part of the response body for the API used to obtain a user token.

```
{
    "token": {
        "expires_at": "2019-02-13T06:52:13.855000Z",
        "methods": [
            "password"
        ],
        "catalog": [
            {
                "endpoints": [
                    {
                        "region_id": "eu-west-101",
.....
```

If an error occurs during API calling, an error code and a message will be displayed. The following shows an error response body.

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```
{
    "error_msg": "The format of message is error",
    "error_code": "AS.0001"
}
```

In the response body, **error_code** is an error code, and **error_msg** provides information about the error.

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4 APIs

4.1 API URL

- The URL format for cluster, node, node pool, add-on, and quota management is **https://Endpoint/uri**. *uri* indicates the resource path, that is, the API access path.
- The URL format for Kubernetes APIs, storage management, and add-on management is **https://{clusterid}.Endpoint/uri**. In the URL, *{clusterid}* indicates the cluster ID, and *uri* indicates the resource path, that is, the path for API access.

  NOTE

  - The format of the URL called by the add-on management APIs is **https://{clusterid}.Endpoint/uri**. However, *{clusterid}* is used only for the domain name and is not verified or used by the APIs. Set *{clusterid}* in the query or body. For details about *{clusterid}*, see the add-on management sections.
  - *{clusterid}* is required for Kubernetes APIs and storage management, which indicates the cluster that needs to be accessed by calling the API.

Table 4-1 URL parameters

Parameter	Description
{clusterid}	Cluster ID. After a cluster is created, call the **API for obtaining a cluster in a specified project** to obtain the cluster ID.
Endpoint	URL that is the entry point for a web service. You can obtain it from **Endpoints**.
uri	Access path of an API for performing an operation. Obtain the path from the URI of an API. For example, the **resource-path** of the API used to obtain a user token is **v3/auth/tokens**.

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4.2 Cluster Management

4.2.1 Creating a Cluster

Function

This API is used to create an empty cluster, which has only master nodes but no worker nodes. After creating a cluster by calling this API, you can add nodes by **creating nodes**.

NOTE

- The URL for cluster management is in the format of **https://Endpoint/uri, in which *uri* indicates the resource path, that is, the path for API access.
- By default, ICAgent is not installed when you call this API to create a cluster. If you need to install ICAgent, add "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]" to **annotations** in the request body. ICAgent will be automatically installed during cluster creation. ICAgent is an O&M data collection agent used by Application Performance Management (APM). It runs on each server to collect data from probes in real time. ICAgent is the prerequisite for achieving application O&M. If ICAgent is not installed, the application O&M functions cannot be used.

Constraints

Before calling the CCE API to create a cluster, ensure that the following conditions are met:

- A **VPC** is available.
- CIDR blocks have been properly set for containers and Services. They are not editable after cluster creation, unless you create a new cluster.
- An agency has been correctly created and is not deleted. If the agency verification fails, the cluster fails to be created. You can log in to the CCE console. If no agency is created, the system prompts you to create one. If an agency has been created, no message is displayed.
- By default, an account can create a maximum of five clusters in each region. If you need to create more clusters, you can submit an application to increase the quota.

URI

POST /api/v3/projects/{project_id}/clusters

Table 4-2 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-3 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-4 Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **Cluster** or **cluster** and cannot be changed.
apiVersion	Yes	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	Yes	**ClusterMetadata** object	Basic information about a cluster. Metadata is a collection of attributes.
spec	Yes	**ClusterSpec** object	Detailed description of the cluster. CCE creates or updates objects by defining or updating **spec**.
status	No	**ClusterStatus** object	Cluster status and job ID of the cluster creation job.

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Table 4-5 ClusterMetadata

Parameter	Mandatory	Type	Description
name	Yes	String	Cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.
uid	No	String	Cluster ID, which uniquely identifies a cluster. This ID is automatically generated after a cluster is created. Only the automatically generated ID will take effect. When you create a yearly/monthly cluster, no cluster ID will be returned in the response body.
alias	No	String	Alias of a cluster name displayed on the CCE console, and the name can be changed. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. In the request body for creating or updating a cluster, if the cluster alias is not specified or set to null, the cluster name will be used as the cluster alias. In the response body for obtaining a cluster, the cluster alias is returned. If it is not configured, the cluster name will be returned.

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Parameter	Mandatory	Type	Description

annotations	No	Map<String,String>	Cluster annotations, in the format of key-value pairs.
			"annotations": {
			"key1" : "value1",
			"key2" : "value2"
			}
			NOTE
			• **annotations**: Does not label or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
			• This field is not stored in the database and is used only to specify the add-ons to be installed in the cluster.
			• Install ICAgent during cluster creation by adding the key-value pair "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]".

labels	No	Map<String,String>	Cluster labels, in the format of key-value pairs. **NOTE** The value of this field is automatically generated by the system and is used by the frontend to identify the features supported by the cluster during the upgrade. Customized values are invalid.
creationTimestamp	No	String	Time when the cluster was created.
updateTimestamp	No	String	Time when the cluster was updated.

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Table 4-6 ClusterSpec

Parameter	Mandatory	Type	Description
category	No	String	Cluster type. Options: • **CCE**: CCE cluster CCE cluster supports hybrid deployment of VMs and BMSs, and heterogeneous nodes such as GPU and NPU nodes, allowing you to run your containers in a secure and stable container runtime environment based on a high-performance network model.
type	No	String	Master node architecture: • **VirtualMachine**: x86

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Parameter	Mandatory	Type	Description
flavor	Yes	String	Default value. When you create a CCE cluster, the value is **cce.s1.small** for non-dedicated cloud scenarios and **cce.dec.s1.small** for dedicated cloud scenarios. Cluster flavor. Only the flavors of clusters v1.15 or later versions can be changed after a cluster is created. Select a cluster flavor based on your requirements. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • cce.s1.medium: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2000 worker nodes

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Parameter	Mandatory	Type	Description
			NOTE • **s1**: a CCE cluster with one master node • **s2**: a CCE cluster with multiple master nodes • **dec**: a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of worker nodes: The maximum number of worker nodes in a cluster. Select a cluster flavor based on your requirements. • A CCE cluster with one master node: If the master node is down, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is down, the cluster can still be functionally available.

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Parameter	Mandatory	Type	Description
version	No	String	Cluster version, which mirrors the baseline version of the Kubernetes community. The latest version is recommended. You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, log in to the CCE console, create a cluster, and check the **Cluster Version** parameter. You can call APIs to create clusters of other versions. However, these cluster versions will be gradually terminated. For details about the support policy, see the CCE announcement. **NOTE** • If not specified, a cluster of the latest version will be created. • If a baseline cluster version is specified but the R version is not specified, a cluster of the latest R version will be created by default. It is a good practice not to specify the R version.

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Parameter	Mandatory	Type	Description
platformVersion	No	String	CCE cluster platform version, indicating the internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes. This parameter cannot be customized. When you create a cluster, the latest corresponding platform version is automatically selected. The format of **platformVersion** is **cce.X.Y**. • **X**: internal feature version, indicating changes in features, patches, or OS support in the cluster version. The value starts from **1** and increases monotonically. • **Y**: patch version of an internal feature version. It is used only for software package update after the feature version is brought online. No other modification is involved. The value starts from **0** and increases monotonically.
description	No	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this field is left unspecified. To modify cluster description after the cluster is created, call the **API for updating cluster information** or go to the cluster details page on the CCE console. Only UTF-8 encoding is supported.

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Parameter	Mandatory	Type	Description
customSan	No	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
ipv6enable	No	Boolean	Whether the cluster supports IPv6 addresses. This field is supported in clusters of v1.15 and later versions.
hostNetwork	Yes	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. This field is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	Yes	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
serviceNetwork	No	**ServiceNetwork** object	Service CIDR block, including IPv4 CIDR blocks.
authentication	No	**Authentication** object	Configurations of the cluster authentication mode.
billingMode	No	Integer	Billing mode of a cluster. • **0**: pay-per-use Defaults to pay-per-use.
masters	No	Array of **MasterSpec** objects	Advanced configurations of master nodes

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Parameter	Mandatory	Type	Description
kubernetesSvcIpRange	No	String	Service CIDR blocks for Kubernetes clusterIPs. This field is available only for clusters of v1.11.7 and later. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used. This parameter is deprecated. Use **serviceNetwork** instead. The new field contains the IPv4 CIDR blocks.
clusterTags	No	Array of **ResourceTag** objects	Cluster resource tags.
kubeProxyMode	No	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters.
az	No	String	AZ. This field is returned only for a query.

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Parameter	Mandatory	Type	Description
extendParam	No	**ClusterExtendParam** object	Extended field to decide whether the cluster will span across AZs or belong to a specified enterprise project, or whether a dedicated CCE cluster is to be created.
supportIstio	No	Boolean	Whether Istio is supported.
configurationsOverride	No	Array of **PackageConfiguration** objects	Whether to overwrite the default component configurations of the cluster. If a component or a parameter that is not supported by the component is specified, this configuration is ignored. For details about the supported configurable components and their parameters, see

Table 4-7 HostNetwork

Parameter	Mandatory	Type	Description
vpc	Yes	String	ID of the VPC used to create a master node. Obtain the public address by performing the following steps: • Method 1: Log in to the VPC console, and click the name of a VPC to view the VPC ID on the displayed details page. • Method 2: Use the VPC API to query the VPC ID.
subnet	Yes	String	Network ID of the subnet used to create a master node. Methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** tab page. You can view the network ID on the displayed page. • Method 2: Use the VPC API for querying subnets. . .

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Parameter	Mandatory	Type	Description
SecurityGroup	No	String	Default worker node security group ID of the cluster. If specified, the cluster will be bound to the target security group. Otherwise, the system will automatically create a default worker node security group for you. The default worker node security group needs to allow access from certain ports to ensure normal communications.

Table 4-8 ContainerNetwork

Parameter	Mandatory	Type	Description
mode	Yes	String	Container network model. Select one of the following possible values: • **overlay_l2**: an overlay_l2 network (container tunnel network) built for containers by using OpenVSwitch (OVS). • **vpc-router**: an underlay_l2 network built for containers by using IPvlan and custom VPC routes.
cidr	No	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, or 192.168.0.0/16-19. If the selected CIDR block conflicts with existing ones, an error will be reported. Not editable after the cluster is created. (deprecated. A specified **cidrs** will make **cidr** invalid.)

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Parameter	Mandatory	Type	Description
cidrs	No	Array of ContainerCIDR objects	List of container CIDR blocks. In clusters of v1.21 or later, the **cidrs** field is used. When the cluster network type is **vpc-router**, you can configure a maximum of 20 container CIDR blocks. In cluster versions earlier than v1.21, if the **cidrs** field is used, the first CIDR element in the array is used as the container CIDR block. The configuration cannot be modified after the cluster is created.

Table 4-9 ContainerCIDR

Parameter	Mandatory	Type	Description
cidr	Yes	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-10 EniNetwork

Parameter	Mandatory	Type	Description
eniSubnetId	Yes	String	IPv4 subnet ID of ENI subnet. (IPv6 is not supported and is being discarded.) You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.
eniSubnetCIDR	Yes	String	ENI subnet CIDR (being discarded)

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Parameter	Mandatory	Type	Description
subnets	Yes	Array of **NetworkSubnet** objects	List of IPv4 subnet IDs

Table 4-11 NetworkSubnet

Parameter	Mandatory	Type	Description
subnetID	Yes	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-12 ServiceNetwork

Parameter	Mandatory	Type	Description
IPv4CIDR	No	String	Value range of the Kubernetes clusterIP IPv4 CIDR blocks. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used.

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Table 4-13 Authentication

Parameter	Mandatory	Type	Description
mode	No	String	Cluster authentication mode. • Clusters of Kubernetes v1.11 or earlier support **x509**, **rbac**, and **authenticating_proxy**. Defaults to **x509**. • Clusters of Kubernetes v1.13 or later support **rbac** and **authenticating_proxy**. Defaults to **rbac**.
authenticatingProxy	No	**AuthenticatingProxy** object	Configuration related to the authenticating_proxy mode. This field is mandatory when the authentication mode is **authenticating_proxy**.

Table 4-14 AuthenticatingProxy

Parameter	Mandatory	Type	Description
ca	No	String	X509 CA certificate (Base64-encoded) configured in authenticating_proxy mode. This field is mandatory when the cluster authentication mode is **authenticating_proxy**. Maximum size: 1 MB
cert	No	String	Client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

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Parameter	Mandatory	Type	Description
privateKey	No	String	Private key of the client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. The private key used by the Kubernetes cluster does not support password encryption. Use an unencrypted private key. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

Table 4-15 MasterSpec

Parameter	Mandatory	Type	Description
availabilityZone	No	String	AZ

Table 4-16 ResourceTag

Parameter	Mandatory	Type	Description
key	No	String	Key. • Cannot be null. Max characters: 128. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**. • Cannot start with **_sys_**.

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Parameter	Mandatory	Type	Description
value	No	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

Table 4-17 ClusterExtendParam

Parameter	Mandatory	Type	Description
clusterAZ	No	String	AZ of master nodes in the cluster. • **multi_az**: (Optional) The cluster will span across AZs. This field is configurable only for high-availability clusters. • *AZ of the dedicated cloud computing pool*: The cluster will be deployed in the AZ of Dedicated Cloud (DeC). This parameter is mandatory for dedicated CCE clusters.

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Parameter	Mandatory	Type	Description
dssMasterVolumes	No	String	Whether the system and data disks of a master node use dedicated distributed storage. If this parameter is omitted or left unspecified, EVS disks are used by default. This parameter is mandatory for dedicated CCE clusters. It is in the following format: `<rootVol.dssPoolID>.<rootVol.volType>;<dataVol.dssPoolID>.<dataVol.volType>` Field description: • **rootVol** is the system disk. **dataVol** is the data disk. • **dssPoolID** indicates the ID of the DSS storage pool. • **volType** indicates the storage volume type of the DSS storage pool, such as SAS and SSD. Example: c950ee97-587c-4f24-8a74-3367e3da570f.sas;6edbc2f4-1507-44f8-ac0d-eed1d2608d38.ssd **NOTE** This field cannot be configured for non-dedicated CCE clusters.
enterpriseProjectId	No	String	ID of the enterprise project that a cluster belongs to. **NOTE** • An enterprise project can be configured only after the enterprise project function is enabled. • The enterprise project to which the cluster belongs must be the same as that to which other cloud service resources associated with the cluster belong.

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Parameter	Mandatory	Type	Description
kubeProxyMode	No	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters. **NOTE** This parameter has been deprecated. If this parameter and **kubeProxyMode** in **ClusterSpec** are specified at the same time, the latter is used.
clusterExternalIP	No	String	EIP of the master node

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Parameter	Mandatory	Type	Description
alpha.cce/fixPoolMask	No	String	Number of mask bits of the fixed IP address pool of the container network model. This field is supported only for the VPC network model (vpc-router). This parameter determines the number of container IP addresses that can be allocated to a node. The maximum number of pods that can be created on a node is decided by this parameter and **maxPods** set during node creation. For details, see **Maximum Number of Pods That Can Be Created on a Node**. For integer characters, the value ranges from 24 to 28.
decMasterFlavor	No	String	Specifications of the master node in the dedicated hybrid cluster.
dockerUmaskMode	No	String	Default UmaskMode configuration of Docker in a cluster. The value can be **secure** or **normal**. If this parameter is not specified, **normal** is used by default.
kubernetes.io/cpuManagerPolicy	No	String	Cluster CPU management policy. The value can be none (or null) or static. The default value is none (or null). • **none** or **null**: disables pods from exclusively occupying CPUs. Select this option if you want a large pool of shareable CPU cores. • **static**: enables pods to exclusively occupy CPUs. Select this option if your workload is sensitive to CPU cache and scheduling latency.

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Parameter	Mandatory	Type	Description
upgradefrom	No	String	Records of how the cluster is upgraded to the current version

Table 4-18 PackageConfiguration

Parameter	Mandatory	Type	Description
name	No	String	Component name.
configurations	No	Array of **ConfigurationItem** objects	Component configuration item.

Table 4-19 ConfigurationItem

Parameter	Mandatory	Type	Description
name	No	String	Component configuration item name.
value	No	Object	Component configuration item value.

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Table 4-20 ClusterStatus

Parameter	Mandatory	Type	Description
phase	No	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.

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Parameter	Mandatory	Type	Description
jobID	No	String	ID of the task associated with the cluster in the current state. Options: • ID of the associated task returned when creating a cluster. You can use it to obtain the auxiliary tasks for creating a cluster. • ID of the associated task returned when a cluster fails to be deleted or is deleted. If this parameter is not empty, you can use the task ID to obtain the auxiliary tasks for deleting a cluster. **NOTE** Tasks are short-lived. Do not use task information in scenarios such as cluster status determination.
reason	No	String	Reason of cluster state change. This parameter is returned if the cluster is not in the Available state.
message	No	String	Detailed information about why the cluster changes to the current state. This parameter is returned if the cluster is not in the Available state.
endpoints	No	Array of **ClusterEndpoints** objects	Access address of kube-apiserver in the cluster.
deleteOption	No	Object	Whether to delete configurations. This parameter is contained only in the response to the deletion request.
deleteStatus	No	Object	Whether to delete the status information. This parameter is contained only in the response to the deletion request.

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Table 4-21 ClusterEndpoints

Parameter	Mandatory	Type	Description
url	No	String	Access address of kube-apiserver in the cluster.
type	No	String	Type of the cluster access address. • **Internal**: address for internal network access • **External**: address for external network access

Response Parameters

Status code: 201

Table 4-22 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** or **cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**ClusterMetadata** object	Basic information about a cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Detailed description of the cluster. CCE creates or updates objects by defining or updating **spec**.
status	**ClusterStatus** object	Cluster status and job ID of the cluster creation job.

Table 4-23 ClusterMetadata

Parameter	Type	Description
name	String	Cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.

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Parameter	Type	Description
uid	String	Cluster ID, which uniquely identifies a cluster. This ID is automatically generated after a cluster is created. Only the automatically generated ID will take effect. When you create a yearly/monthly cluster, no cluster ID will be returned in the response body.
alias	String	Alias of a cluster name displayed on the CCE console, and the name can be changed. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. In the request body for creating or updating a cluster, if the cluster alias is not specified or set to null, the cluster name will be used as the cluster alias. In the response body for obtaining a cluster, the cluster alias is returned. If it is not configured, the cluster name will be returned.

annotations	Map<String,String>	Cluster annotations, in the format of key-value pairs.
		`"annotations": {`
		`  "key1" : "value1",`
		`  "key2" : "value2"`
		`}`
		NOTE
		• **annotations**: Does not label or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This field is not stored in the database and is used only to specify the add-ons to be installed in the cluster.
		• Install ICAgent during cluster creation by adding the key-value pair "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]".

labels	Map<String,String>	Cluster labels, in the format of key-value pairs. **NOTE** The value of this field is automatically generated by the system and is used by the frontend to identify the features supported by the cluster during the upgrade. Customized values are invalid.
creationTimestamp	String	Time when the cluster was created.
updateTimestamp	String	Time when the cluster was updated.

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Table 4-24 ClusterSpec

Parameter	Type	Description
category	String	Cluster type. Options: • **CCE**: CCE cluster CCE cluster supports hybrid deployment of VMs and BMSs, and heterogeneous nodes such as GPU and NPU nodes, allowing you to run your containers in a secure and stable container runtime environment based on a high-performance network model.
type	String	Master node architecture: • **VirtualMachine**: x86

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Parameter	Type	Description
flavor	String	Default value. When you create a CCE cluster, the value is **cce.s1.small** for non-dedicated cloud scenarios and **cce.dec.s1.small** for dedicated cloud scenarios. Cluster flavor. Only the flavors of clusters v1.15 or later versions can be changed after a cluster is created. Select a cluster flavor based on your requirements. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • cce.s1.medium: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2000 worker nodes **NOTE** • **s1**: a CCE cluster with one master node • **s2**: a CCE cluster with multiple master nodes • **dec**: a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of worker nodes: The maximum number of worker nodes in a cluster. Select a cluster flavor based on your requirements. • A CCE cluster with one master node: If the master node is down, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is down, the cluster can still be functionally available.

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Parameter	Type	Description
version	String	Cluster version, which mirrors the baseline version of the Kubernetes community. The latest version is recommended. You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, log in to the CCE console, create a cluster, and check the **Cluster Version** parameter. You can call APIs to create clusters of other versions. However, these cluster versions will be gradually terminated. For details about the support policy, see the CCE announcement. **NOTE** • If not specified, a cluster of the latest version will be created. • If a baseline cluster version is specified but the R version is not specified, a cluster of the latest R version will be created by default. It is a good practice not to specify the R version.
platformVersion	String	CCE cluster platform version, indicating the internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes. This parameter cannot be customized. When you create a cluster, the latest corresponding platform version is automatically selected. The format of **platformVersion** is **cce.X.Y**. • **X**: internal feature version, indicating changes in features, patches, or OS support in the cluster version. The value starts from **1** and increases monotonically. • **Y**: patch version of an internal feature version. It is used only for software package update after the feature version is brought online. No other modification is involved. The value starts from **0** and increases monotonically.
description	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this field is left unspecified. To modify cluster description after the cluster is created, call the **API for updating cluster information** or go to the cluster details page on the CCE console. Only UTF-8 encoding is supported.

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Parameter	Type	Description
customSan	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
ipv6enable	Boolean	Whether the cluster supports IPv6 addresses. This field is supported in clusters of v1.15 and later versions.
hostNetwork	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. This field is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
serviceNetwork	**ServiceNetwork** object	Service CIDR block, including IPv4 CIDR blocks.
authentication	**Authentication** object	Configurations of the cluster authentication mode.
billingMode	Integer	Billing mode of a cluster. • **0**: pay-per-use Defaults to pay-per-use.
masters	Array of **MasterSpec** objects	Advanced configurations of master nodes
kubernetesSvcIpRange	String	Service CIDR blocks for Kubernetes clusterIPs. This field is available only for clusters of v1.11.7 and later. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used. This parameter is deprecated. Use **serviceNetwork** instead. The new field contains the IPv4 CIDR blocks.
clusterTags	Array of **ResourceTag** objects	Cluster resource tags.

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Parameter	Type	Description
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters.
az	String	AZ. This field is returned only for a query.
extendParam	**ClusterExtendParam** object	Extended field to decide whether the cluster will span across AZs or belong to a specified enterprise project, or whether a dedicated CCE cluster is to be created.
supportIstio	Boolean	Whether Istio is supported.
configurationsOverride	Array of **PackageConfiguration** objects	Whether to overwrite the default component configurations of the cluster. If a component or a parameter that is not supported by the component is specified, this configuration is ignored. For details about the supported configurable components and their parameters, see

Table 4-25 HostNetwork

Parameter	Type	Description
vpc	String	ID of the VPC used to create a master node. Obtain the public address by performing the following steps: • Method 1: Log in to the VPC console, and click the name of a VPC to view the VPC ID on the displayed details page. • Method 2: Use the VPC API to query the VPC ID.

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Parameter	Type	Description
subnet	String	Network ID of the subnet used to create a master node. Methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** tab page. You can view the network ID on the displayed page. • Method 2: Use the VPC API for querying subnets. . .
SecurityGroup	String	Default worker node security group ID of the cluster. If specified, the cluster will be bound to the target security group. Otherwise, the system will automatically create a default worker node security group for you. The default worker node security group needs to allow access from certain ports to ensure normal communications.

Table 4-26 ContainerNetwork

Parameter	Type	Description
mode	String	Container network model. Select one of the following possible values: • **overlay_l2**: an overlay_l2 network (container tunnel network) built for containers by using OpenVSwitch (OVS). • **vpc-router**: an underlay_l2 network built for containers by using IPvlan and custom VPC routes.
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, or 192.168.0.0/16-19. If the selected CIDR block conflicts with existing ones, an error will be reported. Not editable after the cluster is created. (deprecated. A specified **cidrs** will make **cidr** invalid.)

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Parameter	Type	Description
cidrs	Array of **ContainerCIDR** objects	List of container CIDR blocks. In clusters of v1.21 or later, the **cidrs** field is used. When the cluster network type is **vpc-router**, you can configure a maximum of 20 container CIDR blocks. In cluster versions earlier than v1.21, if the **cidrs** field is used, the first CIDR element in the array is used as the container CIDR block. The configuration cannot be modified after the cluster is created.

Table 4-27 ContainerCIDR

Parameter	Type	Description
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-28 EniNetwork

Parameter	Type	Description
eniSubnetId	String	IPv4 subnet ID of ENI subnet. (IPv6 is not supported and is being discarded.) You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.
eniSubnetCIDR	String	ENI subnet CIDR (being discarded)
subnets	Array of **NetworkSubnet** objects	List of IPv4 subnet IDs

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Table 4-29 NetworkSubnet

Parameter	Type	Description
subnetID	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-30 ServiceNetwork

Parameter	Type	Description
IPv4CIDR	String	Value range of the Kubernetes clusterIP IPv4 CIDR blocks. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used.

Table 4-31 Authentication

Parameter	Type	Description
mode	String	Cluster authentication mode. • Clusters of Kubernetes v1.11 or earlier support **x509**, **rbac**, and **authenticating_proxy**. Defaults to **x509**. • Clusters of Kubernetes v1.13 or later support **rbac** and **authenticating_proxy**. Defaults to **rbac**.
authenticatingProxy	**AuthenticatingProxy** object	Configuration related to the authenticating_proxy mode. This field is mandatory when the authentication mode is **authenticating_proxy**.

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Table 4-32 AuthenticatingProxy

Parameter	Type	Description
ca	String	X509 CA certificate (Base64-encoded) configured in authenticating_proxy mode. This field is mandatory when the cluster authentication mode is **authenticating_proxy**. Maximum size: 1 MB
cert	String	Client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.
privateKey	String	Private key of the client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. The private key used by the Kubernetes cluster does not support password encryption. Use an unencrypted private key. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

Table 4-33 MasterSpec

Parameter	Type	Description
availabilityZone	String	AZ

Table 4-34 ResourceTag

Parameter	Type	Description
key	String	Key. ● Cannot be null. Max characters: 128. ● Use letters, digits, and spaces in UTF-8 format. ● Can contain the following special characters: **_.:/=+-@**. ● Cannot start with **_sys_**.

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Parameter	Type	Description
value	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

Table 4-35 ClusterExtendParam

Parameter	Type	Description
clusterAZ	String	AZ of master nodes in the cluster. • **multi_az**: (Optional) The cluster will span across AZs. This field is configurable only for high-availability clusters. • *AZ of the dedicated cloud computing pool*: The cluster will be deployed in the AZ of Dedicated Cloud (DeC). This parameter is mandatory for dedicated CCE clusters.
dssMasterVolumes	String	Whether the system and data disks of a master node use dedicated distributed storage. If this parameter is omitted or left unspecified, EVS disks are used by default. This parameter is mandatory for dedicated CCE clusters. It is in the following format: `<rootVol.dssPoolID>.<rootVol.volType>;<dataVol.dssPoolID>.<dataVol.volType>` Field description: • **rootVol** is the system disk. **dataVol** is the data disk. • **dssPoolID** indicates the ID of the DSS storage pool. • **volType** indicates the storage volume type of the DSS storage pool, such as SAS and SSD. Example: c950ee97-587c-4f24-8a74-3367e3da570f.sas;6edbc2f4-1507-44f8-ac0d-eed1d2608d38.ssd **NOTE** This field cannot be configured for non-dedicated CCE clusters.

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Parameter	Type	Description
enterpriseProjectId	String	ID of the enterprise project that a cluster belongs to. **NOTE** • An enterprise project can be configured only after the enterprise project function is enabled. • The enterprise project to which the cluster belongs must be the same as that to which other cloud service resources associated with the cluster belong.
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters. **NOTE** This parameter has been deprecated. If this parameter and **kubeProxyMode** in **ClusterSpec** are specified at the same time, the latter is used.
clusterExternalIP	String	EIP of the master node
alpha.cce/fixPoolMask	String	Number of mask bits of the fixed IP address pool of the container network model. This field is supported only for the VPC network model (vpc-router). This parameter determines the number of container IP addresses that can be allocated to a node. The maximum number of pods that can be created on a node is decided by this parameter and **maxPods** set during node creation. For details, see **Maximum Number of Pods That Can Be Created on a Node**. For integer characters, the value ranges from 24 to 28.
decMasterFlavor	String	Specifications of the master node in the dedicated hybrid cluster.

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Parameter	Type	Description
dockerUmaskMode	String	Default UmaskMode configuration of Docker in a cluster. The value can be **secure** or **normal**. If this parameter is not specified, **normal** is used by default.
kubernetes.io/cpuManagerPolicy	String	Cluster CPU management policy. The value can be none (or null) or static. The default value is none (or null). • **none** or **null**: disables pods from exclusively occupying CPUs. Select this option if you want a large pool of shareable CPU cores. • **static**: enables pods to exclusively occupy CPUs. Select this option if your workload is sensitive to CPU cache and scheduling latency.
upgradefrom	String	Records of how the cluster is upgraded to the current version

Table 4-36 PackageConfiguration

Parameter	Type	Description
name	String	Component name.
configurations	Array of **ConfigurationItem** objects	Component configuration item.

Table 4-37 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

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Table 4-38 ClusterStatus

Parameter	Type	Description
phase	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.
jobID	String	ID of the task associated with the cluster in the current state. Options: • ID of the associated task returned when creating a cluster. You can use it to obtain the auxiliary tasks for creating a cluster. • ID of the associated task returned when a cluster fails to be deleted or is deleted. If this parameter is not empty, you can use the task ID to obtain the auxiliary tasks for deleting a cluster. **NOTE** Tasks are short-lived. Do not use task information in scenarios such as cluster status determination.
reason	String	Reason of cluster state change. This parameter is returned if the cluster is not in the Available state.
message	String	Detailed information about why the cluster changes to the current state. This parameter is returned if the cluster is not in the Available state.
endpoints	Array of **ClusterEndpoints** objects	Access address of kube-apiserver in the cluster.

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Parameter	Type	Description
deleteOption	Object	Whether to delete configurations. This parameter is contained only in the response to the deletion request.
deleteStatus	Object	Whether to delete the status information. This parameter is contained only in the response to the deletion request.

Table 4-39 ClusterEndpoints

Parameter	Type	Description
url	String	Access address of kube-apiserver in the cluster.
type	String	Type of the cluster access address. • **Internal**: address for internal network access • **External**: address for external network access

Example Requests

- Create an HA CCE cluster of v1.19 with 50 nodes.

```
/api/v3/projects/{project_id}/clusters

{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "cluster"
  },
  "spec" : {
    "category" : "CCE",
    "flavor" : "cce.s2.small",
    "version" : "v1.19",
    "hostNetwork" : {
      "vpc" : "030bfb19-5fa7-42ad-8a0d-c0721d268867",
      "subnet" : "ca964acf-8468-4735-8229-97940ef6c881"
    },
    "containerNetwork" : {
      "mode" : "vpc-router",
      "cidr" : "10.0.0.0/16"
    },
    "kubernetesSvcIpRange" : "10.247.0.0/16",
    "description" : "",
    "billingMode" : 0,
    "extendParam" : {
      "kubeProxyMode" : "iptables",
      "alpha.cce/fixPoolMask" : "25",
      "enterpriseProjectId" : "0"
    },
    "authentication" : {
      "mode" : "rbac"
    },
    "ipv6enable" : false
```

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```
  }
}
```

- Create an HA CCE cluster of v1.19 with 50 nodes and install ICAgent in the cluster.

```
/api/v3/projects/{project_id}/clusters

{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "cluster",
    "annotations" : {
      "cluster.install.addons.external/install" : "[{\"addonTemplateName\":\"icagent\"}]"
    }
  },
  "spec" : {
    "category" : "CCE",
    "flavor" : "cce.s2.small",
    "version" : "v1.19",
    "hostNetwork" : {
      "vpc" : "030bfb19-5fa7-42ad-8a0d-c0721d268867",
      "subnet" : "ca964acf-8468-4735-8229-97940ef6c881"
    },
    "containerNetwork" : {
      "mode" : "vpc-router",
      "cidr" : "10.0.0.0/16"
    },
    "kubernetesSvcIpRange" : "10.247.0.0/16",
    "description" : "",
    "billingMode" : 0,
    "extendParam" : {
      "kubeProxyMode" : "iptables",
      "alpha.cce/fixPoolMask" : "25",
      "enterpriseProjectId" : "0"
    },
    "authentication" : {
      "mode" : "rbac"
    },
    "ipv6enable" : false
  }
}
```

- Create an HA CCE cluster of v1.19 with 50 nodes and configure the default security group for custom nodes in the cluster.

```
/api/v3/projects/{project_id}/clusters

{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "cluster"
  },
  "spec" : {
    "category" : "CCE",
    "flavor" : "cce.s2.small",
    "version" : "v1.19",
    "hostNetwork" : {
      "vpc" : "030bfb19-5fa7-42ad-8a0d-c0721d268867",
      "subnet" : "ca964acf-8468-4735-8229-97940ef6c881",
      "SecurityGroup" : "a4ef108c-2ec6-492f-a6c4-7b64e25ae490"
    },
    "containerNetwork" : {
      "mode" : "vpc-router",
      "cidr" : "10.0.0.0/16"
    },
    "kubernetesSvcIpRange" : "10.247.0.0/16",
    "description" : "",
    "billingMode" : 0,
```

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```
    "extendParam" : {
      "kubeProxyMode" : "iptables",
      "alpha.cce/fixPoolMask" : "25",
      "enterpriseProjectId" : "0"
    },
    "authentication" : {
      "mode" : "rbac"
    },
    "ipv6enable" : false
  }
}
```

- This API is used to create an HA CCE Turbo cluster of v1.25 with 50 nodes.

```
/api/v3/projects/{project_id}/clusters

{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "cluster"
  },
  "spec" : {
    "category" : "Turbo",
    "flavor" : "cce.s2.small",
    "version" : "v1.25",
    "type" : "VirtualMachine",
    "hostNetwork" : {
      "vpc" : "030bfb19-5fa7-42ad-8a0d-c0721d268867",
      "subnet" : "ca964acf-8468-4735-8229-97940ef6c881"
    },
    "containerNetwork" : {
      "mode" : "eni"
    },
    "eniNetwork" : {
      "eniSubnetId" : "861fb11d-2f0e-4c10-a98a-166dc26e4ff7",
      "eniSubnetCIDR" : "192.168.0.0/24",
      "subnets" : [ {
        "subnetID" : "861fb11d-2f0e-4c10-a98a-166dc26e4ff7"
      } ]
    },
    "serviceNetwork" : {
      "IPv4CIDR" : "10.247.0.0/16"
    },
    "description" : "",
    "billingMode" : 0,
    "extendParam" : {
      "kubeProxyMode" : "iptables",
      "enterpriseProjectId" : "0"
    },
    "authentication" : {
      "mode" : "rbac"
    },
    "ipv6enable" : false
  }
}
```

Example Responses

Status code: 201

The cluster creation job is successfully delivered.

```
{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "alias" : "cluster",
    "name" : "cluster",
    "uid" : "bce956e1-87f3-11ec-b5e5-0255ac101514",
```

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```
  "creationTimestamp" : "2022-02-07 08:55:45.785425492 +0000 UTC",
  "updateTimestamp" : "2022-02-07 08:55:45.78542824 +0000 UTC",
  "annotations" : {
    "jobid" : "bd42f724-87f3-11ec-b5e5-0255ac101514",
    "resourceJobId" : "bce99f78-87f3-11ec-b5e5-0255ac101514"
  }
 },
 "spec" : {
  "category" : "CCE",
  "type" : "VirtualMachine",
  "flavor" : "cce.s2.small",
  "version" : "v1.19.10-r0",
  "platformVersion" : "cce.5.0",
  "hostNetwork" : {
    "vpc" : "030bfb19-5fa7-42ad-8a0d-c0721d268867",
    "subnet" : "ca964acf-8468-4735-8229-97940ef6c881"
  },
  "containerNetwork" : {
    "mode" : "vpc-router",
    "cidr" : "10.0.0.0/16",
    "cidrs" : [ {
      "cidr" : "10.0.0.0/16"
    } ]
  },
  "eniNetwork" : { },
  "authentication" : {
    "mode" : "rbac",
    "authenticatingProxy" : { }
  },
  "billingMode" : 0,
  "kubernetesSvcIpRange" : "10.247.0.0/16",
  "kubeProxyMode" : "iptables",
  "extendParam" : {
    "alpha.cce/fixPoolMask" : "25",
    "enterpriseProjectId" : "0",
    "kubeProxyMode" : "iptables",
    "orderID" : ""
  }
 },
 "status" : {
  "phase" : "Creating",
  "jobID" : "bd42f724-87f3-11ec-b5e5-0255ac101514"
 }
}
```


Status Codes

Status Code	Description
201	The cluster creation job is successfully delivered.

Error Codes

See **Error Codes**.

4.2.2 Reading a Specified Cluster

Function

This API is used to obtain details about a specified cluster.

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NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}

Table 4-40 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Table 4-41 Query Parameters

Parameter	Mandatory	Type	Description
detail	No	String	Whether the details about a cluster are queried. If this parameter is set to **true**, the total number of nodes (totalNodesNumber), number of normal nodes (activeNodesNumber), total CPUs (totalNodesCPU), total memory size (totalNodesMemory), and installed add-ons (installedAddonInstances) will be added to the annotation. The details of installed add-ons include the add-on name (addonTemplateName), version (version), and status (status).

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Request Parameters

Table 4-42 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-43 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** or **cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**ClusterMetadata** object	Basic information about a cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Detailed description of the cluster. CCE creates or updates objects by defining or updating **spec**.
status	**ClusterStatus** object	Cluster status.

Table 4-44 ClusterMetadata

Parameter	Type	Description
name	String	Cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.

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Parameter	Type	Description
uid	String	Cluster ID, which uniquely identifies a cluster. This ID is automatically generated after a cluster is created. Only the automatically generated ID will take effect. When you create a yearly/monthly cluster, no cluster ID will be returned in the response body.
alias	String	Alias of a cluster name displayed on the CCE console, and the name can be changed. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. In the request body for creating or updating a cluster, if the cluster alias is not specified or set to null, the cluster name will be used as the cluster alias. In the response body for obtaining a cluster, the cluster alias is returned. If it is not configured, the cluster name will be returned.

annotations	Map<String,String>	Cluster annotations, in the format of key-value pairs.
		`"annotations": {`
		`  "key1" : "value1",`
		`  "key2" : "value2"`
		`}`
		NOTE
		• **annotations**: Does not label or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This field is not stored in the database and is used only to specify the add-ons to be installed in the cluster.
		• Install ICAgent during cluster creation by adding the key-value pair "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]".

labels	Map<String,String>	Cluster labels, in the format of key-value pairs. **NOTE** The value of this field is automatically generated by the system and is used by the frontend to identify the features supported by the cluster during the upgrade. Customized values are invalid.
creationTimestamp	String	Time when the cluster was created.
updateTimestamp	String	Time when the cluster was updated.

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Table 4-45 ClusterSpec

Parameter	Type	Description
category	String	Cluster type. Options: • **CCE**: CCE cluster CCE cluster supports hybrid deployment of VMs and BMSs, and heterogeneous nodes such as GPU and NPU nodes, allowing you to run your containers in a secure and stable container runtime environment based on a high-performance network model.
type	String	Master node architecture: • **VirtualMachine**: x86

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Parameter	Type	Description
flavor	String	Default value. When you create a CCE cluster, the value is **cce.s1.small** for non-dedicated cloud scenarios and **cce.dec.s1.small** for dedicated cloud scenarios. Cluster flavor. Only the flavors of clusters v1.15 or later versions can be changed after a cluster is created. Select a cluster flavor based on your requirements. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • cce.s1.medium: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2000 worker nodes **NOTE** • **s1**: a CCE cluster with one master node • **s2**: a CCE cluster with multiple master nodes • **dec**: a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of worker nodes: The maximum number of worker nodes in a cluster. Select a cluster flavor based on your requirements. • A CCE cluster with one master node: If the master node is down, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is down, the cluster can still be functionally available.

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Parameter	Type	Description
version	String	Cluster version, which mirrors the baseline version of the Kubernetes community. The latest version is recommended. You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, log in to the CCE console, create a cluster, and check the **Cluster Version** parameter. You can call APIs to create clusters of other versions. However, these cluster versions will be gradually terminated. For details about the support policy, see the CCE announcement. **NOTE** • If not specified, a cluster of the latest version will be created. • If a baseline cluster version is specified but the R version is not specified, a cluster of the latest R version will be created by default. It is a good practice not to specify the R version.
platformVersion	String	CCE cluster platform version, indicating the internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes. This parameter cannot be customized. When you create a cluster, the latest corresponding platform version is automatically selected. The format of **platformVersion** is **cce.X.Y**. • **X**: internal feature version, indicating changes in features, patches, or OS support in the cluster version. The value starts from **1** and increases monotonically. • **Y**: patch version of an internal feature version. It is used only for software package update after the feature version is brought online. No other modification is involved. The value starts from **0** and increases monotonically.
description	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this field is left unspecified. To modify cluster description after the cluster is created, call the **API for updating cluster information** or go to the cluster details page on the CCE console. Only UTF-8 encoding is supported.

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Parameter	Type	Description
customSan	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
ipv6enable	Boolean	Whether the cluster supports IPv6 addresses. This field is supported in clusters of v1.15 and later versions.
hostNetwork	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. This field is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
serviceNetwork	**ServiceNetwork** object	Service CIDR block, including IPv4 CIDR blocks.
authentication	**Authentication** object	Configurations of the cluster authentication mode.
billingMode	Integer	Billing mode of a cluster. • **0**: pay-per-use Defaults to pay-per-use.
masters	Array of **MasterSpec** objects	Advanced configurations of master nodes
kubernetesSvcIpRange	String	Service CIDR blocks for Kubernetes clusterIPs. This field is available only for clusters of v1.11.7 and later. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used. This parameter is deprecated. Use **serviceNetwork** instead. The new field contains the IPv4 CIDR blocks.
clusterTags	Array of **ResourceTag** objects	Cluster resource tags.

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Parameter	Type	Description
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters.
az	String	AZ. This field is returned only for a query.
extendParam	**ClusterExtendParam** object	Extended field to decide whether the cluster will span across AZs or belong to a specified enterprise project, or whether a dedicated CCE cluster is to be created.
supportIstio	Boolean	Whether Istio is supported.
configurationsOverride	Array of **PackageConfiguration** objects	Whether to overwrite the default component configurations of the cluster. If a component or a parameter that is not supported by the component is specified, this configuration is ignored. For details about the supported configurable components and their parameters, see

Table 4-46 HostNetwork

Parameter	Type	Description
vpc	String	ID of the VPC used to create a master node. Obtain the public address by performing the following steps: • Method 1: Log in to the VPC console, and click the name of a VPC to view the VPC ID on the displayed details page. • Method 2: Use the VPC API to query the VPC ID.

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Parameter	Type	Description
subnet	String	Network ID of the subnet used to create a master node. Methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** tab page. You can view the network ID on the displayed page. • Method 2: Use the VPC API for querying subnets. . .
SecurityGroup	String	Default worker node security group ID of the cluster. If specified, the cluster will be bound to the target security group. Otherwise, the system will automatically create a default worker node security group for you. The default worker node security group needs to allow access from certain ports to ensure normal communications.

Table 4-47 ContainerNetwork

Parameter	Type	Description
mode	String	Container network model. Select one of the following possible values: • **overlay_l2**: an overlay_l2 network (container tunnel network) built for containers by using OpenVSwitch (OVS). • **vpc-router**: an underlay_l2 network built for containers by using IPvlan and custom VPC routes.
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, or 192.168.0.0/16-19. If the selected CIDR block conflicts with existing ones, an error will be reported. Not editable after the cluster is created. (deprecated. A specified **cidrs** will make **cidr** invalid.)

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Parameter	Type	Description
cidrs	Array of **ContainerCIDR** objects	List of container CIDR blocks. In clusters of v1.21 or later, the **cidrs** field is used. When the cluster network type is **vpc-router**, you can configure a maximum of 20 container CIDR blocks. In cluster versions earlier than v1.21, if the **cidrs** field is used, the first CIDR element in the array is used as the container CIDR block. The configuration cannot be modified after the cluster is created.

Table 4-48 ContainerCIDR

Parameter	Type	Description
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-49 EniNetwork

Parameter	Type	Description
eniSubnetId	String	IPv4 subnet ID of ENI subnet. (IPv6 is not supported and is being discarded.) You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.
eniSubnetCIDR	String	ENI subnet CIDR (being discarded)
subnets	Array of **NetworkSubnet** objects	List of IPv4 subnet IDs

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Table 4-50 NetworkSubnet

Parameter	Type	Description
subnetID	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-51 ServiceNetwork

Parameter	Type	Description
IPv4CIDR	String	Value range of the Kubernetes clusterIP IPv4 CIDR blocks. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used.

Table 4-52 Authentication

Parameter	Type	Description
mode	String	Cluster authentication mode. • Clusters of Kubernetes v1.11 or earlier support **x509**, **rbac**, and **authenticating_proxy**. Defaults to **x509**. • Clusters of Kubernetes v1.13 or later support **rbac** and **authenticating_proxy**. Defaults to **rbac**.
authenticatingProxy	**AuthenticatingProxy** object	Configuration related to the authenticating_proxy mode. This field is mandatory when the authentication mode is **authenticating_proxy**.

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Table 4-53 AuthenticatingProxy

Parameter	Type	Description
ca	String	X509 CA certificate (Base64-encoded) configured in authenticating_proxy mode. This field is mandatory when the cluster authentication mode is **authenticating_proxy**. Maximum size: 1 MB
cert	String	Client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.
privateKey	String	Private key of the client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. The private key used by the Kubernetes cluster does not support password encryption. Use an unencrypted private key. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

Table 4-54 MasterSpec

Parameter	Type	Description
availabilityZone	String	AZ

Table 4-55 ResourceTag

Parameter	Type	Description
key	String	Key. ● Cannot be null. Max characters: 128. ● Use letters, digits, and spaces in UTF-8 format. ● Can contain the following special characters: **_.:/=+-@**. ● Cannot start with **_sys_**.

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Parameter	Type	Description
value	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

Table 4-56 ClusterExtendParam

Parameter	Type	Description
clusterAZ	String	AZ of master nodes in the cluster. • **multi_az**: (Optional) The cluster will span across AZs. This field is configurable only for high-availability clusters. • *AZ of the dedicated cloud computing pool*: The cluster will be deployed in the AZ of Dedicated Cloud (DeC). This parameter is mandatory for dedicated CCE clusters.
dssMasterVolumes	String	Whether the system and data disks of a master node use dedicated distributed storage. If this parameter is omitted or left unspecified, EVS disks are used by default. This parameter is mandatory for dedicated CCE clusters. It is in the following format: `<rootVol.dssPoolID>.<rootVol.volType>;<dataVol.dssPoolID>.<dataVol.volType>` Field description: • **rootVol** is the system disk. **dataVol** is the data disk. • **dssPoolID** indicates the ID of the DSS storage pool. • **volType** indicates the storage volume type of the DSS storage pool, such as SAS and SSD. Example: c950ee97-587c-4f24-8a74-3367e3da570f.sas;6edbc2f4-1507-44f8-ac0d-eed1d2608d38.ssd **NOTE** This field cannot be configured for non-dedicated CCE clusters.

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Parameter	Type	Description
enterpriseProjectId	String	ID of the enterprise project that a cluster belongs to. **NOTE** • An enterprise project can be configured only after the enterprise project function is enabled. • The enterprise project to which the cluster belongs must be the same as that to which other cloud service resources associated with the cluster belong.
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters. **NOTE** This parameter has been deprecated. If this parameter and **kubeProxyMode** in **ClusterSpec** are specified at the same time, the latter is used.
clusterExternalIP	String	EIP of the master node
alpha.cce/fixPoolMask	String	Number of mask bits of the fixed IP address pool of the container network model. This field is supported only for the VPC network model (vpc-router). This parameter determines the number of container IP addresses that can be allocated to a node. The maximum number of pods that can be created on a node is decided by this parameter and **maxPods** set during node creation. For details, see **Maximum Number of Pods That Can Be Created on a Node**. For integer characters, the value ranges from 24 to 28.
decMasterFlavor	String	Specifications of the master node in the dedicated hybrid cluster.

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Parameter	Type	Description
dockerUmaskMode	String	Default UmaskMode configuration of Docker in a cluster. The value can be **secure** or **normal**. If this parameter is not specified, **normal** is used by default.
kubernetes.io/cpuManagerPolicy	String	Cluster CPU management policy. The value can be none (or null) or static. The default value is none (or null). • **none** or **null**: disables pods from exclusively occupying CPUs. Select this option if you want a large pool of shareable CPU cores. • **static**: enables pods to exclusively occupy CPUs. Select this option if your workload is sensitive to CPU cache and scheduling latency.
upgradefrom	String	Records of how the cluster is upgraded to the current version

Table 4-57 PackageConfiguration

Parameter	Type	Description
name	String	Component name.
configurations	Array of **ConfigurationItem** objects	Component configuration item.

Table 4-58 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

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Table 4-59 ClusterStatus

Parameter	Type	Description
phase	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.
jobID	String	ID of the task associated with the cluster in the current state. Options: • ID of the associated task returned when creating a cluster. You can use it to obtain the auxiliary tasks for creating a cluster. • ID of the associated task returned when a cluster fails to be deleted or is deleted. If this parameter is not empty, you can use the task ID to obtain the auxiliary tasks for deleting a cluster. **NOTE** Tasks are short-lived. Do not use task information in scenarios such as cluster status determination.
reason	String	Reason of cluster state change. This parameter is returned if the cluster is not in the Available state.
message	String	Detailed information about why the cluster changes to the current state. This parameter is returned if the cluster is not in the Available state.
endpoints	Array of **ClusterEndpoints** objects	Access address of kube-apiserver in the cluster.

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Parameter	Type	Description
deleteOption	Object	Whether to delete configurations. This parameter is contained only in the response to the deletion request.
deleteStatus	Object	Whether to delete the status information. This parameter is contained only in the response to the deletion request.

Table 4-60 ClusterEndpoints

Parameter	Type	Description
url	String	Access address of kube-apiserver in the cluster.
type	String	Type of the cluster access address. • **Internal**: address for internal network access • **External**: address for external network access

Example Requests

None

Example Responses

Status code: 200

Information about the specified cluster is successfully obtained.


```
{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "alias" : "mycluster",
    "name" : "mycluster",
    "uid" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
    "creationTimestamp" : "2018-08-02 03:48:58.968214406 +0000 UTC",
    "updateTimestamp" : "2018-08-02 04:05:29.386391813 +0000 UTC"
  },
  "spec" : {
    "type" : "VirtualMachine",
    "flavor" : "cce.s1.small",
    "version" : "v1.7.3-r13",
    "description" : "this is a demo cluster",
    "customSan" : [ "192.168.1.0", "example.com" ],
    "hostNetwork" : {
      "vpc" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
      "subnet" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb"
    },
    "containerNetwork" : {
      "mode" : "overlay_l2",
      "cidr" : "172.16.0.0/16"
    },
```


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```
    "authentication" : {
      "mode" : "x509",
      "authenticatingProxy" : { }
    },
    "billingMode" : 0
  },
  "status" : {
    "phase" : "Available",
    "endpoints" : [ {
      "url" : "https://192.168.0.11:5443",
      "type" : "Internal"
    } ]
  }
}
```


Status Codes

Status Code	Description
200	Information about the specified cluster is successfully obtained.

Error Codes

See **Error Codes**.

4.2.3 Listing Clusters in a Specified Project

Function

This API is used to obtain details about all clusters in a specified project.

URI

GET /api/v3/projects/{project_id}/clusters

Table 4-61 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Table 4-62 Query Parameters

Parameter	Mandatory	Type	Description
detail	No	String	Whether the details about a cluster are queried. If this parameter is set to **true**, the total number of nodes (totalNodesNumber), number of normal nodes (activeNodesNumber), total CPUs (totalNodesCPU), total memory size (totalNodesMemory), and installed add-ons (installedAddonInstances) will be added to the annotation. The details of installed add-ons include the add-on name (addonTemplateName), version (version), and status (status).
status	No	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.

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Parameter	Mandatory	Type	Description
type	No	String	Cluster type. Options: • **VirtualMachine**: CCE cluster • **ARM64**: Kunpeng cluster
version	No	String	Cluster version filtering.

Request Parameters

Table 4-63 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-64 Response body parameters

Parameter	Type	Description
kind	String	Api type
apiVersion	String	API version
items	Array of **Cluster** objects	A list of details for all clusters in the current project. You can filter clusters by **items.metadata.name**.

Table 4-65 Cluster

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** or **cluster** and cannot be changed.

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Parameter	Type	Description
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**ClusterMetadata** object	Basic information about a cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Detailed description of the cluster. CCE creates or updates objects by defining or updating **spec**.
status	**ClusterStatus** object	Cluster status and job ID of the cluster creation job.

Table 4-66 ClusterMetadata

Parameter	Type	Description
name	String	Cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.
uid	String	Cluster ID, which uniquely identifies a cluster. This ID is automatically generated after a cluster is created. Only the automatically generated ID will take effect. When you create a yearly/monthly cluster, no cluster ID will be returned in the response body.
alias	String	Alias of a cluster name displayed on the CCE console, and the name can be changed. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. In the request body for creating or updating a cluster, if the cluster alias is not specified or set to null, the cluster name will be used as the cluster alias. In the response body for obtaining a cluster, the cluster alias is returned. If it is not configured, the cluster name will be returned.

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Parameter	Type	Description

annotations	Map<String,String>	Cluster annotations, in the format of key-value pairs.
		"annotations": {
		"key1" : "value1",
		"key2" : "value2"
		}
		NOTE
		• **annotations**: Does not label or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This field is not stored in the database and is used only to specify the add-ons to be installed in the cluster.
		• Install ICAgent during cluster creation by adding the key-value pair "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]".

labels	Map<String,String>	Cluster labels, in the format of key-value pairs. **NOTE** The value of this field is automatically generated by the system and is used by the frontend to identify the features supported by the cluster during the upgrade. Customized values are invalid.
creationTimestamp	String	Time when the cluster was created.
updateTimestamp	String	Time when the cluster was updated.

Table 4-67 ClusterSpec

Parameter	Type	Description
category	String	Cluster type. Options: • **CCE**: CCE cluster CCE cluster supports hybrid deployment of VMs and BMSs, and heterogeneous nodes such as GPU and NPU nodes, allowing you to run your containers in a secure and stable container runtime environment based on a high-performance network model.
type	String	Master node architecture: • **VirtualMachine**: x86

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Parameter	Type	Description
flavor	String	Default value. When you create a CCE cluster, the value is **cce.s1.small** for non-dedicated cloud scenarios and **cce.dec.s1.small** for dedicated cloud scenarios. Cluster flavor. Only the flavors of clusters v1.15 or later versions can be changed after a cluster is created. Select a cluster flavor based on your requirements. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • cce.s1.medium: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2000 worker nodes **NOTE** • **s1**: a CCE cluster with one master node • **s2**: a CCE cluster with multiple master nodes • **dec**: a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of worker nodes: The maximum number of worker nodes in a cluster. Select a cluster flavor based on your requirements. • A CCE cluster with one master node: If the master node is down, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is down, the cluster can still be functionally available.

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Parameter	Type	Description
version	String	Cluster version, which mirrors the baseline version of the Kubernetes community. The latest version is recommended. You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, log in to the CCE console, create a cluster, and check the **Cluster Version** parameter. You can call APIs to create clusters of other versions. However, these cluster versions will be gradually terminated. For details about the support policy, see the CCE announcement. **NOTE** • If not specified, a cluster of the latest version will be created. • If a baseline cluster version is specified but the R version is not specified, a cluster of the latest R version will be created by default. It is a good practice not to specify the R version.
platformVersion	String	CCE cluster platform version, indicating the internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes. This parameter cannot be customized. When you create a cluster, the latest corresponding platform version is automatically selected. The format of **platformVersion** is **cce.X.Y**. • **X**: internal feature version, indicating changes in features, patches, or OS support in the cluster version. The value starts from **1** and increases monotonically. • **Y**: patch version of an internal feature version. It is used only for software package update after the feature version is brought online. No other modification is involved. The value starts from **0** and increases monotonically.
description	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this field is left unspecified. To modify cluster description after the cluster is created, call the **API for updating cluster information** or go to the cluster details page on the CCE console. Only UTF-8 encoding is supported.

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Parameter	Type	Description
customSan	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
ipv6enable	Boolean	Whether the cluster supports IPv6 addresses. This field is supported in clusters of v1.15 and later versions.
hostNetwork	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. This field is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
serviceNetwork	**ServiceNetwork** object	Service CIDR block, including IPv4 CIDR blocks.
authentication	**Authentication** object	Configurations of the cluster authentication mode.
billingMode	Integer	Billing mode of a cluster. • **0**: pay-per-use Defaults to pay-per-use.
masters	Array of **MasterSpec** objects	Advanced configurations of master nodes
kubernetesSvcIpRange	String	Service CIDR blocks for Kubernetes clusterIPs. This field is available only for clusters of v1.11.7 and later. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used. This parameter is deprecated. Use **serviceNetwork** instead. The new field contains the IPv4 CIDR blocks.
clusterTags	Array of **ResourceTag** objects	Cluster resource tags.

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Parameter	Type	Description
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters.
az	String	AZ. This field is returned only for a query.
extendParam	**ClusterExtendParam** object	Extended field to decide whether the cluster will span across AZs or belong to a specified enterprise project, or whether a dedicated CCE cluster is to be created.
supportIstio	Boolean	Whether Istio is supported.
configurationsOverride	Array of **PackageConfiguration** objects	Whether to overwrite the default component configurations of the cluster. If a component or a parameter that is not supported by the component is specified, this configuration is ignored. For details about the supported configurable components and their parameters, see

Table 4-68 HostNetwork

Parameter	Type	Description
vpc	String	ID of the VPC used to create a master node. Obtain the public address by performing the following steps: • Method 1: Log in to the VPC console, and click the name of a VPC to view the VPC ID on the displayed details page. • Method 2: Use the VPC API to query the VPC ID.

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Parameter	Type	Description
subnet	String	Network ID of the subnet used to create a master node. Methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** tab page. You can view the network ID on the displayed page. • Method 2: Use the VPC API for querying subnets. . .
SecurityGroup	String	Default worker node security group ID of the cluster. If specified, the cluster will be bound to the target security group. Otherwise, the system will automatically create a default worker node security group for you. The default worker node security group needs to allow access from certain ports to ensure normal communications.

Table 4-69 ContainerNetwork

Parameter	Type	Description
mode	String	Container network model. Select one of the following possible values: • **overlay_l2**: an overlay_l2 network (container tunnel network) built for containers by using OpenVSwitch (OVS). • **vpc-router**: an underlay_l2 network built for containers by using IPvlan and custom VPC routes.
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, or 192.168.0.0/16-19. If the selected CIDR block conflicts with existing ones, an error will be reported. Not editable after the cluster is created. (deprecated. A specified **cidrs** will make **cidr** invalid.)

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Parameter	Type	Description
cidrs	Array of **ContainerCIDR** objects	List of container CIDR blocks. In clusters of v1.21 or later, the **cidrs** field is used. When the cluster network type is **vpc-router**, you can configure a maximum of 20 container CIDR blocks. In cluster versions earlier than v1.21, if the **cidrs** field is used, the first CIDR element in the array is used as the container CIDR block. The configuration cannot be modified after the cluster is created.

Table 4-70 ContainerCIDR

Parameter	Type	Description
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-71 EniNetwork

Parameter	Type	Description
eniSubnetId	String	IPv4 subnet ID of ENI subnet. (IPv6 is not supported and is being discarded.) You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.
eniSubnetCIDR	String	ENI subnet CIDR (being discarded)
subnets	Array of **NetworkSubnet** objects	List of IPv4 subnet IDs

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Table 4-72 NetworkSubnet

Parameter	Type	Description
subnetID	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-73 ServiceNetwork

Parameter	Type	Description
IPv4CIDR	String	Value range of the Kubernetes clusterIP IPv4 CIDR blocks. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used.

Table 4-74 Authentication

Parameter	Type	Description
mode	String	Cluster authentication mode. • Clusters of Kubernetes v1.11 or earlier support **x509**, **rbac**, and **authenticating_proxy**. Defaults to **x509**. • Clusters of Kubernetes v1.13 or later support **rbac** and **authenticating_proxy**. Defaults to **rbac**.
authenticatingProxy	**AuthenticatingProxy** object	Configuration related to the authenticating_proxy mode. This field is mandatory when the authentication mode is **authenticating_proxy**.

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Table 4-75 AuthenticatingProxy

Parameter	Type	Description
ca	String	X509 CA certificate (Base64-encoded) configured in authenticating_proxy mode. This field is mandatory when the cluster authentication mode is **authenticating_proxy**. Maximum size: 1 MB
cert	String	Client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.
privateKey	String	Private key of the client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. The private key used by the Kubernetes cluster does not support password encryption. Use an unencrypted private key. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

Table 4-76 MasterSpec

Parameter	Type	Description
availabilityZone	String	AZ

Table 4-77 ResourceTag

Parameter	Type	Description
key	String	Key. ● Cannot be null. Max characters: 128. ● Use letters, digits, and spaces in UTF-8 format. ● Can contain the following special characters: **_.:/=+-@**. ● Cannot start with **_sys_**.

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Parameter	Type	Description
value	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

Table 4-78 ClusterExtendParam

Parameter	Type	Description
clusterAZ	String	AZ of master nodes in the cluster. • **multi_az**: (Optional) The cluster will span across AZs. This field is configurable only for high-availability clusters. • *AZ of the dedicated cloud computing pool*: The cluster will be deployed in the AZ of Dedicated Cloud (DeC). This parameter is mandatory for dedicated CCE clusters.
dssMasterVolumes	String	Whether the system and data disks of a master node use dedicated distributed storage. If this parameter is omitted or left unspecified, EVS disks are used by default. This parameter is mandatory for dedicated CCE clusters. It is in the following format: `<rootVol.dssPoolID>.<rootVol.volType>;<dataVol.dssPoolID>.<dataVol.volType>` Field description: • **rootVol** is the system disk. **dataVol** is the data disk. • **dssPoolID** indicates the ID of the DSS storage pool. • **volType** indicates the storage volume type of the DSS storage pool, such as SAS and SSD. Example: c950ee97-587c-4f24-8a74-3367e3da570f.sas;6edbc2f4-1507-44f8-ac0d-eed1d2608d38.ssd **NOTE** This field cannot be configured for non-dedicated CCE clusters.

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Parameter	Type	Description
enterpriseProjectId	String	ID of the enterprise project that a cluster belongs to. **NOTE** • An enterprise project can be configured only after the enterprise project function is enabled. • The enterprise project to which the cluster belongs must be the same as that to which other cloud service resources associated with the cluster belong.
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters. **NOTE** This parameter has been deprecated. If this parameter and **kubeProxyMode** in **ClusterSpec** are specified at the same time, the latter is used.
clusterExternalIP	String	EIP of the master node
alpha.cce/fixPoolMask	String	Number of mask bits of the fixed IP address pool of the container network model. This field is supported only for the VPC network model (vpc-router). This parameter determines the number of container IP addresses that can be allocated to a node. The maximum number of pods that can be created on a node is decided by this parameter and **maxPods** set during node creation. For details, see **Maximum Number of Pods That Can Be Created on a Node**. For integer characters, the value ranges from 24 to 28.
decMasterFlavor	String	Specifications of the master node in the dedicated hybrid cluster.

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Parameter	Type	Description
dockerUmaskMode	String	Default UmaskMode configuration of Docker in a cluster. The value can be **secure** or **normal**. If this parameter is not specified, **normal** is used by default.
kubernetes.io/cpuManagerPolicy	String	Cluster CPU management policy. The value can be none (or null) or static. The default value is none (or null). • **none** or **null**: disables pods from exclusively occupying CPUs. Select this option if you want a large pool of shareable CPU cores. • **static**: enables pods to exclusively occupy CPUs. Select this option if your workload is sensitive to CPU cache and scheduling latency.
upgradefrom	String	Records of how the cluster is upgraded to the current version

Table 4-79 PackageConfiguration

Parameter	Type	Description
name	String	Component name.
configurations	Array of **ConfigurationItem** objects	Component configuration item.

Table 4-80 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

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Table 4-81 ClusterStatus

Parameter	Type	Description
phase	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.
jobID	String	ID of the task associated with the cluster in the current state. Options: • ID of the associated task returned when creating a cluster. You can use it to obtain the auxiliary tasks for creating a cluster. • ID of the associated task returned when a cluster fails to be deleted or is deleted. If this parameter is not empty, you can use the task ID to obtain the auxiliary tasks for deleting a cluster. **NOTE** Tasks are short-lived. Do not use task information in scenarios such as cluster status determination.
reason	String	Reason of cluster state change. This parameter is returned if the cluster is not in the Available state.
message	String	Detailed information about why the cluster changes to the current state. This parameter is returned if the cluster is not in the Available state.
endpoints	Array of **ClusterEndpoints** objects	Access address of kube-apiserver in the cluster.

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Parameter	Type	Description
deleteOption	Object	Whether to delete configurations. This parameter is contained only in the response to the deletion request.
deleteStatus	Object	Whether to delete the status information. This parameter is contained only in the response to the deletion request.

Table 4-82 ClusterEndpoints

Parameter	Type	Description
url	String	Access address of kube-apiserver in the cluster.
type	String	Type of the cluster access address. • **Internal**: address for internal network access • **External**: address for external network access

Example Requests

None

Example Responses

Status code: 200

The cluster list is successfully obtained.


```
{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "items" : [ {
    "kind" : "Cluster",
    "apiVersion" : "v3",
    "metadata" : {
      "alias" : "mycluster",
      "name" : "mycluster",
      "uid" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
      "creationTimestamp" : "2018-08-02 03:48:58.968214406 +0000 UTC",
      "updateTimestamp" : "2018-08-02 04:05:29.386391813 +0000 UTC"
    },
    "spec" : {
      "type" : "VirtualMachine",
      "flavor" : "cce.s1.small",
      "version" : "v1.7.3-r13",
      "description" : "awesome cluster",
      "customSan" : [ "192.168.1.0", "example.com" ],
      "hostNetwork" : {
        "vpc" : "f0c12911-4fdb-4284-9230-7ffb0860826a",
        "subnet" : "ac274229-fd2e-4695-9f01-a0c1372b8006"
      },
      "containerNetwork" : {
```


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```
      "mode" : "overlay_l2",
      "cidr" : "172.16.0.0/16"
    },
    "authentication" : {
      "mode" : "x509",
      "authenticatingProxy" : { }
    },
    "billingMode" : 0
  },
  "status" : {
    "phase" : "Available",
    "endpoints" : [ {
      "url" : "https://192.168.0.11:5443",
      "type" : "Internal"
    } ]
  }
 } ]
}
```


Status Codes

Status Code	Description
200	The cluster list is successfully obtained.

Error Codes

See **Error Codes**.

4.2.4 Updating a Specified Cluster

Function

This API is used to update information about a specified cluster.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}

Table 4-83 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-84 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-85 Request body parameters

Parameter	Mandatory	Type	Description
spec	Yes	**ClusterInformationSpec** object	Detailed cluster parameters
metadata	No	**ClusterMetadataForUpdate** object	Basic cluster information, including name-related fields

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Table 4-86 ClusterInformationSpec

Parameter	Mandatory	Type	Description
description	No	String	Cluster description. 1. A maximum of 200 characters are allowed. The value cannot contain the following special characters: ~$%^&*<>[]{}()'"#\ 2. Only clusters in the Available, ScalingUp, and ScalingDown states can be modified.
customSan	No	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
containerNetwork	No	**ContainerNetworkUpdate** object	Container networking parameters, including information about the container CIDR block.
eniNetwork	No	**EniNetworkUpdate** object	Cloud Native Network 2.0 network configuration, including the container subnet information of the CCE Turbo cluster.
hostNetwork	No	**hostNetwork** object	Node network parameters, including the default security group settings.

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Table 4-87 ContainerNetworkUpdate

Parameter	Mandatory	Type	Description
cidrs	No	Array of **ContainerCIDR** objects	List of container CIDR blocks. For a clusters of v1.21 or later, if it uses a VPC network, a maximum of 20 container CIDR blocks can be added incrementally. The configuration cannot be modified after the cluster is updated.

Table 4-88 ContainerCIDR

Parameter	Mandatory	Type	Description
cidr	Yes	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-89 EniNetworkUpdate

Parameter	Mandatory	Type	Description
subnets	No	Array of **NetworkSubnet** objects	List of IPv4 subnet IDs. CCE Turbo clusters of version 1.19.10 and later support multiple container subnets. In addition, the container subnet list can be incrementally updated. Subnets can be added, not deleted. Exercise caution when selecting a subnet. The request body must contain all existing subnets.

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Table 4-90 NetworkSubnet

Parameter	Mandatory	Type	Description
subnetID	Yes	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-91 hostNetwork

Parameter	Mandatory	Type	Description
SecurityGroup	No	String	The default security group of the worker node in the cluster needs to allow traffic through some ports to ensure normal communication. The modified security group applies only to nodes newly created or accepted. For existing nodes, you need to manually modify the security group rules for them.

Table 4-92 ClusterMetadataForUpdate

Parameter	Mandatory	Type	Description
alias	No	String	Alias of a cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. If this parameter is left blank, the alias is not changed.

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Response Parameters

Status code: 200

Table 4-93 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** or **cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**ClusterMetadata** object	Basic information about a cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Detailed description of the cluster. CCE creates or updates objects by defining or updating **spec**.
status	**ClusterStatus** object	Cluster status and job ID of the cluster creation job.

Table 4-94 ClusterMetadata

Parameter	Type	Description
name	String	Cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.
uid	String	Cluster ID, which uniquely identifies a cluster. This ID is automatically generated after a cluster is created. Only the automatically generated ID will take effect. When you create a yearly/monthly cluster, no cluster ID will be returned in the response body.

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Parameter	Type	Description
alias	String	Alias of a cluster name displayed on the CCE console, and the name can be changed. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. In the request body for creating or updating a cluster, if the cluster alias is not specified or set to null, the cluster name will be used as the cluster alias. In the response body for obtaining a cluster, the cluster alias is returned. If it is not configured, the cluster name will be returned.

annotations	Map<String,String>	Cluster annotations, in the format of key-value pairs.
		`"annotations": {`
		`  "key1" : "value1",`
		`  "key2" : "value2"`
		`}`
		NOTE
		• **annotations**: Does not label or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This field is not stored in the database and is used only to specify the add-ons to be installed in the cluster.
		• Install ICAgent during cluster creation by adding the key-value pair "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]".

labels	Map<String,String>	Cluster labels, in the format of key-value pairs. **NOTE** The value of this field is automatically generated by the system and is used by the frontend to identify the features supported by the cluster during the upgrade. Customized values are invalid.
creationTimestamp	String	Time when the cluster was created.
updateTimestamp	String	Time when the cluster was updated.

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Table 4-95 ClusterSpec

Parameter	Type	Description
category	String	Cluster type. Options: • **CCE**: CCE cluster CCE cluster supports hybrid deployment of VMs and BMSs, and heterogeneous nodes such as GPU and NPU nodes, allowing you to run your containers in a secure and stable container runtime environment based on a high-performance network model.
type	String	Master node architecture: • **VirtualMachine**: x86

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Parameter	Type	Description
flavor	String	Default value. When you create a CCE cluster, the value is **cce.s1.small** for non-dedicated cloud scenarios and **cce.dec.s1.small** for dedicated cloud scenarios. Cluster flavor. Only the flavors of clusters v1.15 or later versions can be changed after a cluster is created. Select a cluster flavor based on your requirements. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • cce.s1.medium: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2000 worker nodes **NOTE** • **s1**: a CCE cluster with one master node • **s2**: a CCE cluster with multiple master nodes • **dec**: a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of worker nodes: The maximum number of worker nodes in a cluster. Select a cluster flavor based on your requirements. • A CCE cluster with one master node: If the master node is down, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is down, the cluster can still be functionally available.

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Parameter	Type	Description
version	String	Cluster version, which mirrors the baseline version of the Kubernetes community. The latest version is recommended. You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, log in to the CCE console, create a cluster, and check the **Cluster Version** parameter. You can call APIs to create clusters of other versions. However, these cluster versions will be gradually terminated. For details about the support policy, see the CCE announcement. **NOTE** • If not specified, a cluster of the latest version will be created. • If a baseline cluster version is specified but the R version is not specified, a cluster of the latest R version will be created by default. It is a good practice not to specify the R version.
platformVersion	String	CCE cluster platform version, indicating the internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes. This parameter cannot be customized. When you create a cluster, the latest corresponding platform version is automatically selected. The format of **platformVersion** is **cce.X.Y**. • **X**: internal feature version, indicating changes in features, patches, or OS support in the cluster version. The value starts from **1** and increases monotonically. • **Y**: patch version of an internal feature version. It is used only for software package update after the feature version is brought online. No other modification is involved. The value starts from **0** and increases monotonically.
description	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this field is left unspecified. To modify cluster description after the cluster is created, call the **API for updating cluster information** or go to the cluster details page on the CCE console. Only UTF-8 encoding is supported.

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Parameter	Type	Description
customSan	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
ipv6enable	Boolean	Whether the cluster supports IPv6 addresses. This field is supported in clusters of v1.15 and later versions.
hostNetwork	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. This field is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
serviceNetwork	**ServiceNetwork** object	Service CIDR block, including IPv4 CIDR blocks.
authentication	**Authentication** object	Configurations of the cluster authentication mode.
billingMode	Integer	Billing mode of a cluster. • **0**: pay-per-use Defaults to pay-per-use.
masters	Array of **MasterSpec** objects	Advanced configurations of master nodes
kubernetesSvcIpRange	String	Service CIDR blocks for Kubernetes clusterIPs. This field is available only for clusters of v1.11.7 and later. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used. This parameter is deprecated. Use **serviceNetwork** instead. The new field contains the IPv4 CIDR blocks.
clusterTags	Array of **ResourceTag** objects	Cluster resource tags.

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Parameter	Type	Description
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters.
az	String	AZ. This field is returned only for a query.
extendParam	**ClusterExtendParam** object	Extended field to decide whether the cluster will span across AZs or belong to a specified enterprise project, or whether a dedicated CCE cluster is to be created.
supportIstio	Boolean	Whether Istio is supported.
configurationsOverride	Array of **PackageConfiguration** objects	Whether to overwrite the default component configurations of the cluster. If a component or a parameter that is not supported by the component is specified, this configuration is ignored. For details about the supported configurable components and their parameters, see

Table 4-96 HostNetwork

Parameter	Type	Description
vpc	String	ID of the VPC used to create a master node. Obtain the public address by performing the following steps: • Method 1: Log in to the VPC console, and click the name of a VPC to view the VPC ID on the displayed details page. • Method 2: Use the VPC API to query the VPC ID.

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Parameter	Type	Description
subnet	String	Network ID of the subnet used to create a master node. Methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** tab page. You can view the network ID on the displayed page. • Method 2: Use the VPC API for querying subnets. . .
SecurityGroup	String	Default worker node security group ID of the cluster. If specified, the cluster will be bound to the target security group. Otherwise, the system will automatically create a default worker node security group for you. The default worker node security group needs to allow access from certain ports to ensure normal communications.

Table 4-97 ContainerNetwork

Parameter	Type	Description
mode	String	Container network model. Select one of the following possible values: • **overlay_l2**: an overlay_l2 network (container tunnel network) built for containers by using OpenVSwitch (OVS). • **vpc-router**: an underlay_l2 network built for containers by using IPvlan and custom VPC routes.
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, or 192.168.0.0/16-19. If the selected CIDR block conflicts with existing ones, an error will be reported. Not editable after the cluster is created. (deprecated. A specified **cidrs** will make **cidr** invalid.)

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Parameter	Type	Description
cidrs	Array of ContainerCIDR objects	List of container CIDR blocks. In clusters of v1.21 or later, the **cidrs** field is used. When the cluster network type is **vpc-router**, you can configure a maximum of 20 container CIDR blocks. In cluster versions earlier than v1.21, if the **cidrs** field is used, the first CIDR element in the array is used as the container CIDR block. The configuration cannot be modified after the cluster is created.

Table 4-98 ContainerCIDR

Parameter	Type	Description
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-99 EniNetwork

Parameter	Type	Description
eniSubnetId	String	IPv4 subnet ID of ENI subnet. (IPv6 is not supported and is being discarded.) You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.
eniSubnetCIDR	String	ENI subnet CIDR (being discarded)
subnets	Array of NetworkSubnet objects	List of IPv4 subnet IDs

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Table 4-100 NetworkSubnet

Parameter	Type	Description
subnetID	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-101 ServiceNetwork

Parameter	Type	Description
IPv4CIDR	String	Value range of the Kubernetes clusterIP IPv4 CIDR blocks. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used.

Table 4-102 Authentication

Parameter	Type	Description
mode	String	Cluster authentication mode. • Clusters of Kubernetes v1.11 or earlier support **x509**, **rbac**, and **authenticating_proxy**. Defaults to **x509**. • Clusters of Kubernetes v1.13 or later support **rbac** and **authenticating_proxy**. Defaults to **rbac**.
authenticatingProxy	**AuthenticatingProxy** object	Configuration related to the authenticating_proxy mode. This field is mandatory when the authentication mode is **authenticating_proxy**.

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Table 4-103 AuthenticatingProxy

Parameter	Type	Description
ca	String	X509 CA certificate (Base64-encoded) configured in authenticating_proxy mode. This field is mandatory when the cluster authentication mode is **authenticating_proxy**. Maximum size: 1 MB
cert	String	Client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.
privateKey	String	Private key of the client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. The private key used by the Kubernetes cluster does not support password encryption. Use an unencrypted private key. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

Table 4-104 MasterSpec

Parameter	Type	Description
availabilityZone	String	AZ

Table 4-105 ResourceTag

Parameter	Type	Description
key	String	Key. ● Cannot be null. Max characters: 128. ● Use letters, digits, and spaces in UTF-8 format. ● Can contain the following special characters: **_.:/=+-@**. ● Cannot start with **_sys_**.

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Parameter	Type	Description
value	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

Table 4-106 ClusterExtendParam

Parameter	Type	Description
clusterAZ	String	AZ of master nodes in the cluster. • **multi_az**: (Optional) The cluster will span across AZs. This field is configurable only for high-availability clusters. • *AZ of the dedicated cloud computing pool*: The cluster will be deployed in the AZ of Dedicated Cloud (DeC). This parameter is mandatory for dedicated CCE clusters.
dssMasterVolumes	String	Whether the system and data disks of a master node use dedicated distributed storage. If this parameter is omitted or left unspecified, EVS disks are used by default. This parameter is mandatory for dedicated CCE clusters. It is in the following format: `<rootVol.dssPoolID>.<rootVol.volType>;<dataVol.dssPoolID>.<dataVol.volType>` Field description: • **rootVol** is the system disk. **dataVol** is the data disk. • **dssPoolID** indicates the ID of the DSS storage pool. • **volType** indicates the storage volume type of the DSS storage pool, such as SAS and SSD. Example: c950ee97-587c-4f24-8a74-3367e3da570f.sas;6edbc2f4-1507-44f8-ac0d-eed1d2608d38.ssd **NOTE** This field cannot be configured for non-dedicated CCE clusters.

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Parameter	Type	Description
enterpriseProjectId	String	ID of the enterprise project that a cluster belongs to. **NOTE** • An enterprise project can be configured only after the enterprise project function is enabled. • The enterprise project to which the cluster belongs must be the same as that to which other cloud service resources associated with the cluster belong.
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters. **NOTE** This parameter has been deprecated. If this parameter and **kubeProxyMode** in **ClusterSpec** are specified at the same time, the latter is used.
clusterExternalIP	String	EIP of the master node
alpha.cce/fixPoolMask	String	Number of mask bits of the fixed IP address pool of the container network model. This field is supported only for the VPC network model (vpc-router). This parameter determines the number of container IP addresses that can be allocated to a node. The maximum number of pods that can be created on a node is decided by this parameter and **maxPods** set during node creation. For details, see **Maximum Number of Pods That Can Be Created on a Node**. For integer characters, the value ranges from 24 to 28.
decMasterFlavor	String	Specifications of the master node in the dedicated hybrid cluster.

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Parameter	Type	Description
dockerUmaskMode	String	Default UmaskMode configuration of Docker in a cluster. The value can be **secure** or **normal**. If this parameter is not specified, **normal** is used by default.
kubernetes.io/cpuManagerPolicy	String	Cluster CPU management policy. The value can be none (or null) or static. The default value is none (or null). • **none** or **null**: disables pods from exclusively occupying CPUs. Select this option if you want a large pool of shareable CPU cores. • **static**: enables pods to exclusively occupy CPUs. Select this option if your workload is sensitive to CPU cache and scheduling latency.
upgradefrom	String	Records of how the cluster is upgraded to the current version

Table 4-107 PackageConfiguration

Parameter	Type	Description
name	String	Component name.
configurations	Array of **ConfigurationItem** objects	Component configuration item.

Table 4-108 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

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Table 4-109 ClusterStatus

Parameter	Type	Description
phase	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.
jobID	String	ID of the task associated with the cluster in the current state. Options: • ID of the associated task returned when creating a cluster. You can use it to obtain the auxiliary tasks for creating a cluster. • ID of the associated task returned when a cluster fails to be deleted or is deleted. If this parameter is not empty, you can use the task ID to obtain the auxiliary tasks for deleting a cluster. **NOTE** Tasks are short-lived. Do not use task information in scenarios such as cluster status determination.
reason	String	Reason of cluster state change. This parameter is returned if the cluster is not in the Available state.
message	String	Detailed information about why the cluster changes to the current state. This parameter is returned if the cluster is not in the Available state.
endpoints	Array of **ClusterEndpoints** objects	Access address of kube-apiserver in the cluster.

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Parameter	Type	Description
deleteOption	Object	Whether to delete configurations. This parameter is contained only in the response to the deletion request.
deleteStatus	Object	Whether to delete the status information. This parameter is contained only in the response to the deletion request.

Table 4-110 ClusterEndpoints

Parameter	Type	Description
url	String	Access address of kube-apiserver in the cluster.
type	String	Type of the cluster access address. • **Internal**: address for internal network access • **External**: address for external network access

Example Requests

- Updating only the description of a cluster

```
{
  "spec" : {
    "description" : "new description"
  }
}
```

- Updating only the custom SAN of the cluster certificate

```
{
  "spec" : {
    "customSan" : [ "192.168.1.0", "example.com" ]
  }
}
```

- Updating both the cluster description and custom certificate SAN

```
{
  "spec" : {
    "description" : "new description",
    "customSan" : [ "192.168.1.0", "example.com" ]
  }
}
```

- Configure a CIDR block for a cluster that uses VPCs and is of a version later than v1.21.

```
{
  "spec" : {
    "containerNetwork" : {
      "cidrs" : [ {
        "cidr" : "10.10.0.0/16"
      }, {
        "cidr" : "10.11.0.0/16"
      } ]
    }
```

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```
  }
}
```

- Modify the default security group of a node in a cluster.

```
/api/v3/projects/{project_id}/clusters/{cluster_id}

{
  "spec" : {
    "hostNetwork" : {
      "SecurityGroup" : "6ee29825-8f49-4796-b33a-fc76f84a59ae"
    }
  }
}
```

Example Responses

Status code: 200

Information about the specified cluster is successfully updated.

```
{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "alias" : "mycluster",
    "name" : "mycluster",
    "uid" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
    "creationTimestamp" : "2018-08-02 03:48:58.968214406 +0000 UTC",
    "updateTimestamp" : "2018-08-02 06:39:36.844676088 +0000 UTC"
  },
  "spec" : {
    "type" : "VirtualMachine",
    "flavor" : "cce.s1.small",
    "version" : "v1.7.3-r13",
    "description" : "new description",
    "customSan" : [ "192.168.1.0", "example.com" ],
    "hostNetwork" : {
      "vpc" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
      "subnet" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
      "SecurityGroup" : "6ee29825-8f49-4796-b33a-fc76f84a59ae"
    },
    "containerNetwork" : {
      "mode" : "overlay_l2",
      "cidr" : "172.17.0.0/16"
    },
    "authentication" : {
      "mode" : "x509",
      "authenticatingProxy" : { }
    },
    "billingMode" : 0
  },
  "status" : {
    "phase" : "Available",
    "endpoints" : [ {
      "url" : "https://192.168.0.11:5443",
      "type" : "Internal"
    } ]
  }
}
```

Status Codes

Status Code	Description
200	Information about the specified cluster is successfully updated.

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Error Codes

See **Error Codes**.

4.2.5 Deleting a Cluster

Function

This API is used to delete a specified cluster.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

DELETE /api/v3/projects/{project_id}/clusters/{cluster_id}

Table 4-111 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Table 4-112 Query Parameters

Parameter	Mandatory	Type	Description
delete_efs	No	String	Whether to delete SFS Turbo volumes. Value options: • **true** or **block** (The system starts to delete the object. If the deletion fails, subsequent processes are blocked.) • **try** (The system starts to delete the object. If the deletion fails, no deletion retry is performed, and subsequent processes are not blocked.) • **false** or **skip** (The object is not deleted. These are the default value options.)
delete_evs	No	String	Whether to delete EVS disks. Value options: • **true** or **block** (The system starts to delete the object. If the deletion fails, subsequent processes are blocked.) • **try** (The system starts to delete the object. If the deletion fails, no deletion retry is performed, and subsequent processes are not blocked.) • **false** or **skip** (The object is not deleted. These are the default value options.)

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Parameter	Mandatory	Type	Description
delete_net	No	String	Whether to delete cluster Service and ingress resources, such as ELB load balancers. Value options: • **true** or **block** (The system starts to delete the object. If the deletion fails, subsequent processes are blocked.) • **try** (The system starts to delete the object. If the deletion fails, no deletion retry is performed, and subsequent processes are not blocked.) • **false** or **skip** (Skip the deletion.)
delete_obs	No	String	Whether to delete OBS volumes. Value options: • **true** or **block** (The system starts to delete the object. If the deletion fails, subsequent processes are blocked.) • **try** (The system starts to delete the object. If the deletion fails, no deletion retry is performed, and subsequent processes are not blocked.) • **false** or **skip** (The object is not deleted. These are the default value options.)

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Parameter	Mandatory	Type	Description
delete_sfs	No	String	Whether to delete SFS volumes. Value options: • **true** or **block** (The system starts to delete the object. If the deletion fails, subsequent processes are blocked.) • **try** (The system starts to delete the object. If the deletion fails, no deletion retry is performed, and subsequent processes are not blocked.) • **false** or **skip** (The object is not deleted. These are the default value options.)
delete_sfs30	No	String	Whether to delete an SFS 3.0 volume. Example value: • **true** or **block** (The system starts to delete the object. If the deletion fails, subsequent processes are blocked.) • **try** (The system starts to delete the object. If the deletion fails, no deletion retry is performed, and subsequent processes are not blocked.) • **false** or **skip** (The object is not deleted. These are the default value options.)

Request Parameters

Table 4-113 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-114 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Cluster** or **cluster** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**ClusterMetadata** object	Basic information about a cluster. Metadata is a collection of attributes.
spec	**ClusterSpec** object	Detailed description of the cluster. CCE creates or updates objects by defining or updating **spec**.
status	**ClusterStatus** object	Cluster status and job ID of the cluster creation job.

Table 4-115 ClusterMetadata

Parameter	Type	Description
name	String	Cluster name. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.

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Parameter	Type	Description
uid	String	Cluster ID, which uniquely identifies a cluster. This ID is automatically generated after a cluster is created. Only the automatically generated ID will take effect. When you create a yearly/monthly cluster, no cluster ID will be returned in the response body.
alias	String	Alias of a cluster name displayed on the CCE console, and the name can be changed. Enter 4 to 128 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. A cluster alias must be unique. In the request body for creating or updating a cluster, if the cluster alias is not specified or set to null, the cluster name will be used as the cluster alias. In the response body for obtaining a cluster, the cluster alias is returned. If it is not configured, the cluster name will be returned.

annotations	Map<String,String>	Cluster annotations, in the format of key-value pairs.
		`"annotations": {`
		`  "key1" : "value1",`
		`  "key2" : "value2"`
		`}`
		NOTE
		• **annotations**: Does not label or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This field is not stored in the database and is used only to specify the add-ons to be installed in the cluster.
		• Install ICAgent during cluster creation by adding the key-value pair "cluster.install.addons.external/install":"[{"addonTemplateName":"icagent"}]".

labels	Map<String,String>	Cluster labels, in the format of key-value pairs. **NOTE** The value of this field is automatically generated by the system and is used by the frontend to identify the features supported by the cluster during the upgrade. Customized values are invalid.
creationTimestamp	String	Time when the cluster was created.
updateTimestamp	String	Time when the cluster was updated.

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Table 4-116 ClusterSpec

Parameter	Type	Description
category	String	Cluster type. Options: • **CCE**: CCE cluster CCE cluster supports hybrid deployment of VMs and BMSs, and heterogeneous nodes such as GPU and NPU nodes, allowing you to run your containers in a secure and stable container runtime environment based on a high-performance network model.
type	String	Master node architecture: • **VirtualMachine**: x86

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Parameter	Type	Description
flavor	String	Default value. When you create a CCE cluster, the value is **cce.s1.small** for non-dedicated cloud scenarios and **cce.dec.s1.small** for dedicated cloud scenarios. Cluster flavor. Only the flavors of clusters v1.15 or later versions can be changed after a cluster is created. Select a cluster flavor based on your requirements. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • cce.s1.medium: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2000 worker nodes **NOTE** • **s1**: a CCE cluster with one master node • **s2**: a CCE cluster with multiple master nodes • **dec**: a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of worker nodes: The maximum number of worker nodes in a cluster. Select a cluster flavor based on your requirements. • A CCE cluster with one master node: If the master node is down, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is down, the cluster can still be functionally available.

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Parameter	Type	Description
version	String	Cluster version, which mirrors the baseline version of the Kubernetes community. The latest version is recommended. You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, log in to the CCE console, create a cluster, and check the **Cluster Version** parameter. You can call APIs to create clusters of other versions. However, these cluster versions will be gradually terminated. For details about the support policy, see the CCE announcement. **NOTE** • If not specified, a cluster of the latest version will be created. • If a baseline cluster version is specified but the R version is not specified, a cluster of the latest R version will be created by default. It is a good practice not to specify the R version.
platformVersion	String	CCE cluster platform version, indicating the internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes. This parameter cannot be customized. When you create a cluster, the latest corresponding platform version is automatically selected. The format of **platformVersion** is **cce.X.Y**. • **X**: internal feature version, indicating changes in features, patches, or OS support in the cluster version. The value starts from **1** and increases monotonically. • **Y**: patch version of an internal feature version. It is used only for software package update after the feature version is brought online. No other modification is involved. The value starts from **0** and increases monotonically.
description	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this field is left unspecified. To modify cluster description after the cluster is created, call the **API for updating cluster information** or go to the cluster details page on the CCE console. Only UTF-8 encoding is supported.

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Parameter	Type	Description
customSan	Array of strings	Custom SAN field in the server certificate of the cluster API server, which must comply with the SSL and X509 format specifications. 1. Duplicate names are not allowed. 2. Must comply with the IP address and domain name formats. Example: SAN 1: DNS Name=example.com SAN 2: DNS Name=www.example.com SAN 3: DNS Name=example.net SAN 4: IP Address=93.184.216.34
ipv6enable	Boolean	Whether the cluster supports IPv6 addresses. This field is supported in clusters of v1.15 and later versions.
hostNetwork	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. This field is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
serviceNetwork	**ServiceNetwork** object	Service CIDR block, including IPv4 CIDR blocks.
authentication	**Authentication** object	Configurations of the cluster authentication mode.
billingMode	Integer	Billing mode of a cluster. • **0**: pay-per-use Defaults to pay-per-use.
masters	Array of **MasterSpec** objects	Advanced configurations of master nodes
kubernetesSvcIpRange	String	Service CIDR blocks for Kubernetes clusterIPs. This field is available only for clusters of v1.11.7 and later. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used. This parameter is deprecated. Use **serviceNetwork** instead. The new field contains the IPv4 CIDR blocks.
clusterTags	Array of **ResourceTag** objects	Cluster resource tags.

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Parameter	Type	Description
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters.
az	String	AZ. This field is returned only for a query.
extendParam	**ClusterExtendParam** object	Extended field to decide whether the cluster will span across AZs or belong to a specified enterprise project, or whether a dedicated CCE cluster is to be created.
supportIstio	Boolean	Whether Istio is supported.
configurationsOverride	Array of **PackageConfiguration** objects	Whether to overwrite the default component configurations of the cluster. If a component or a parameter that is not supported by the component is specified, this configuration is ignored. For details about the supported configurable components and their parameters, see

Table 4-117 HostNetwork

Parameter	Type	Description
vpc	String	ID of the VPC used to create a master node. Obtain the public address by performing the following steps: • Method 1: Log in to the VPC console, and click the name of a VPC to view the VPC ID on the displayed details page. • Method 2: Use the VPC API to query the VPC ID.

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Parameter	Type	Description
subnet	String	Network ID of the subnet used to create a master node. Methods: • Method 1: Log in to VPC console and click the target subnet on the **Subnets** tab page. You can view the network ID on the displayed page. • Method 2: Use the VPC API for querying subnets. . .
SecurityGroup	String	Default worker node security group ID of the cluster. If specified, the cluster will be bound to the target security group. Otherwise, the system will automatically create a default worker node security group for you. The default worker node security group needs to allow access from certain ports to ensure normal communications.

Table 4-118 ContainerNetwork

Parameter	Type	Description
mode	String	Container network model. Select one of the following possible values: • **overlay_l2**: an overlay_l2 network (container tunnel network) built for containers by using OpenVSwitch (OVS). • **vpc-router**: an underlay_l2 network built for containers by using IPvlan and custom VPC routes.
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, or 192.168.0.0/16-19. If the selected CIDR block conflicts with existing ones, an error will be reported. Not editable after the cluster is created. (deprecated. A specified **cidrs** will make **cidr** invalid.)

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Parameter	Type	Description
cidrs	Array of **ContainerCIDR** objects	List of container CIDR blocks. In clusters of v1.21 or later, the **cidrs** field is used. When the cluster network type is **vpc-router**, you can configure a maximum of 20 container CIDR blocks. In cluster versions earlier than v1.21, if the **cidrs** field is used, the first CIDR element in the array is used as the container CIDR block. The configuration cannot be modified after the cluster is created.

Table 4-119 ContainerCIDR

Parameter	Type	Description
cidr	String	Container CIDR block. Recommended: 10.0.0.0/12-19, 172.16.0.0/16-19, and 192.168.0.0/16-19

Table 4-120 EniNetwork

Parameter	Type	Description
eniSubnetId	String	IPv4 subnet ID of ENI subnet. (IPv6 is not supported and is being discarded.) You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.
eniSubnetCIDR	String	ENI subnet CIDR (being discarded)
subnets	Array of **NetworkSubnet** objects	List of IPv4 subnet IDs

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Table 4-121 NetworkSubnet

Parameter	Type	Description
subnetID	String	IPv4 subnet ID of the subnet for creating master nodes. Currently, IPv6 is not supported. You can obtain it in either of the following ways: • Method 1: Log in to the VPC console and click the target subnet on the **Subnets** page. You can view the IPv4 subnet ID on the displayed page. • Method 2: Use the VPC API for querying subnets.

Table 4-122 ServiceNetwork

Parameter	Type	Description
IPv4CIDR	String	Value range of the Kubernetes clusterIP IPv4 CIDR blocks. If this parameter is not specified during cluster creation, the default value **10.247.0.0/16** will be used.

Table 4-123 Authentication

Parameter	Type	Description
mode	String	Cluster authentication mode. • Clusters of Kubernetes v1.11 or earlier support **x509**, **rbac**, and **authenticating_proxy**. Defaults to **x509**. • Clusters of Kubernetes v1.13 or later support **rbac** and **authenticating_proxy**. Defaults to **rbac**.
authenticatingProxy	**AuthenticatingProxy** object	Configuration related to the authenticating_proxy mode. This field is mandatory when the authentication mode is **authenticating_proxy**.

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Table 4-124 AuthenticatingProxy

Parameter	Type	Description
ca	String	X509 CA certificate (Base64-encoded) configured in authenticating_proxy mode. This field is mandatory when the cluster authentication mode is **authenticating_proxy**. Maximum size: 1 MB
cert	String	Client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.
privateKey	String	Private key of the client certificate issued by the X509 CA certificate configured in authenticating_proxy mode, which is used for authentication from kube-apiserver to the extended API server. The private key used by the Kubernetes cluster does not support password encryption. Use an unencrypted private key. (The value must be Base64-encoded.) This field is mandatory when the cluster authentication mode is **authenticating_proxy**.

Table 4-125 MasterSpec

Parameter	Type	Description
availabilityZone	String	AZ

Table 4-126 ResourceTag

Parameter	Type	Description
key	String	Key. • Cannot be null. Max characters: 128. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**. • Cannot start with **_sys_**.

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Parameter	Type	Description
value	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

Table 4-127 ClusterExtendParam

Parameter	Type	Description
clusterAZ	String	AZ of master nodes in the cluster. • **multi_az**: (Optional) The cluster will span across AZs. This field is configurable only for high-availability clusters. • *AZ of the dedicated cloud computing pool*: The cluster will be deployed in the AZ of Dedicated Cloud (DeC). This parameter is mandatory for dedicated CCE clusters.
dssMasterVolumes	String	Whether the system and data disks of a master node use dedicated distributed storage. If this parameter is omitted or left unspecified, EVS disks are used by default. This parameter is mandatory for dedicated CCE clusters. It is in the following format: `<rootVol.dssPoolID>.<rootVol.volType>;<dataVol.dssPoolID>.<dataVol.volType>` Field description: • **rootVol** is the system disk. **dataVol** is the data disk. • **dssPoolID** indicates the ID of the DSS storage pool. • **volType** indicates the storage volume type of the DSS storage pool, such as SAS and SSD. Example: c950ee97-587c-4f24-8a74-3367e3da570f.sas;6edbc2f4-1507-44f8-ac0d-eed1d2608d38.ssd **NOTE** This field cannot be configured for non-dedicated CCE clusters.

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Parameter	Type	Description
enterpriseProjectId	String	ID of the enterprise project that a cluster belongs to. **NOTE** • An enterprise project can be configured only after the enterprise project function is enabled. • The enterprise project to which the cluster belongs must be the same as that to which other cloud service resources associated with the cluster belong.
kubeProxyMode	String	Service forwarding mode. Two modes are available: • **iptables**: Traditional kube-proxy uses iptables rules to implement Service load balancing. In this mode, too many iptables rules will be generated when many Services are deployed. In addition, non-incremental updates will cause latency and even tangible performance issues in the case of service traffic spikes. • **ipvs**: Optimized kube-proxy mode with higher throughput and faster speed. This mode supports incremental updates and can keep connections uninterrupted during Service updates. It is suitable for large-sized clusters. **NOTE** This parameter has been deprecated. If this parameter and **kubeProxyMode** in **ClusterSpec** are specified at the same time, the latter is used.
clusterExternalIP	String	EIP of the master node
alpha.cce/fixPoolMask	String	Number of mask bits of the fixed IP address pool of the container network model. This field is supported only for the VPC network model (vpc-router). This parameter determines the number of container IP addresses that can be allocated to a node. The maximum number of pods that can be created on a node is decided by this parameter and **maxPods** set during node creation. For details, see **Maximum Number of Pods That Can Be Created on a Node**. For integer characters, the value ranges from 24 to 28.
decMasterFlavor	String	Specifications of the master node in the dedicated hybrid cluster.

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Parameter	Type	Description
dockerUmaskMode	String	Default UmaskMode configuration of Docker in a cluster. The value can be **secure** or **normal**. If this parameter is not specified, **normal** is used by default.
kubernetes.io/cpuManagerPolicy	String	Cluster CPU management policy. The value can be none (or null) or static. The default value is none (or null). • **none** or **null**: disables pods from exclusively occupying CPUs. Select this option if you want a large pool of shareable CPU cores. • **static**: enables pods to exclusively occupy CPUs. Select this option if your workload is sensitive to CPU cache and scheduling latency.
upgradefrom	String	Records of how the cluster is upgraded to the current version

Table 4-128 PackageConfiguration

Parameter	Type	Description
name	String	Component name.
configurations	Array of **ConfigurationItem** objects	Component configuration item.

Table 4-129 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

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Table 4-130 ClusterStatus

Parameter	Type	Description
phase	String	Cluster status. Possible values: • **Available**: The cluster is running properly. • **Unavailable**: The cluster is exhibiting unexpected behavior. Manually delete the cluster. • **ScalingUp**: Nodes are being added to the cluster. • **ScalingDown**: The cluster is being downsized to fewer nodes. • **Creating**: The cluster is being created. • **Deleting**: The cluster is being deleted. • **Upgrading**: The cluster is being upgraded. • **Resizing**: Cluster specifications are being changed. • **RollingBack**: The cluster is being rolled back. • **RollbackFailed**: The rollback is abnormal. • **Empty**: The cluster has no resources.
jobID	String	ID of the task associated with the cluster in the current state. Options: • ID of the associated task returned when creating a cluster. You can use it to obtain the auxiliary tasks for creating a cluster. • ID of the associated task returned when a cluster fails to be deleted or is deleted. If this parameter is not empty, you can use the task ID to obtain the auxiliary tasks for deleting a cluster. **NOTE** Tasks are short-lived. Do not use task information in scenarios such as cluster status determination.
reason	String	Reason of cluster state change. This parameter is returned if the cluster is not in the Available state.
message	String	Detailed information about why the cluster changes to the current state. This parameter is returned if the cluster is not in the Available state.
endpoints	Array of **ClusterEndpoints** objects	Access address of kube-apiserver in the cluster.

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Parameter	Type	Description
deleteOption	Object	Whether to delete configurations. This parameter is contained only in the response to the deletion request.
deleteStatus	Object	Whether to delete the status information. This parameter is contained only in the response to the deletion request.

Table 4-131 ClusterEndpoints

Parameter	Type	Description
url	String	Access address of kube-apiserver in the cluster.
type	String	Type of the cluster access address. • **Internal**: address for internal network access • **External**: address for external network access

Example Requests

None

Example Responses

Status code: 200

The job for deleting a cluster is successfully delivered.


```
{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "alias" : "mycluster",
    "name" : "mycluster",
    "uid" : "fc563b3c-9552-11e8-8beb-0255ac106311",
    "creationTimestamp" : "2018-08-01 06:20:28.81667161 +0000 UTC",
    "updateTimestamp" : "2018-08-01 09:23:38.944333282 +0000 UTC"
  },
  "spec" : {
    "type" : "VirtualMachine",
    "flavor" : "cce.s1.small",
    "version" : "v1.7.3-r13",
    "description" : "new description",
    "hostNetwork" : {
      "vpc" : "cbed56e8-03e7-4304-a477-b54bef0857c3",
      "subnet" : "5de50062-2be2-4a52-893e-e0906e3e9c9d"
    },
    "containerNetwork" : {
      "mode" : "overlay_l2",
      "cidr" : "172.16.0.0/16"
    },
    "authentication" : {
```


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```
    "mode" : "x509",
    "authenticatingProxy" : { }
  },
  "billingMode" : 0
 },
 "status" : {
  "phase" : "Available",
  "jobID" : "e8ebf96c-956d-11e8-a949-0255ac10575d",
  "endpoints" : [ {
   "url" : "https://192.168.0.16:5443",
   "type" : "Internal"
  } ]
 }
}
```


Status Codes

Status Code	Description
200	The job for deleting a cluster is successfully delivered.

Error Codes

See **Error Codes**.

4.2.6 Hibernating a Cluster

Function

This API is used to hibernate a running cluster. After a cluster is hibernated, master node resources stop being billed.

Constraints

1. After a cluster is hibernated, resources such as workloads cannot be created or managed in the cluster.
2. After a pay-per-use cluster is hibernated, master node resources are not billed. Other resources such as the nodes to which the cluster belongs, bound EIP, and bandwidth are billed based on their billing mode (yearly/monthly or pay-per-use).

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/hibernate

Table 4-132 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-133 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

None

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	The cluster hibernation job is successfully delivered. Keep querying the cluster status. When the cluster status changes to **Hibernation**, the cluster is hibernated.

Error Codes

See **Error Codes**.

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4.2.7 Waking Up a Cluster

Function

This API is used to wake up a hibernated cluster. After the cluster is woken up, master node resources continue to be billed.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/awake

Table 4-134 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-135 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

None

Example Requests

None

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Example Responses

None

Status Codes

Status Code	Description
200	The cluster wakeup job is successfully delivered. Keep querying the cluster status. When the cluster status changes to **Available**, the cluster is woken up successfully.

Error Codes

See **Error Codes**.

4.2.8 Obtaining a Cluster Certificate

Function

This API is used to obtain a certificate of a specified cluster.

Constraints

This API is applicable to clusters of v1.13 and later.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/clustercert

Table 4-136 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-137 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-138 Request body parameters

Parameter	Mandatory	Type	Description
duration	Yes	Integer	Validity period of the cluster certificate. The minimum value is 1 day and the maximum value is 5 years. Therefore, the value ranges from 1 to 1827. (The unit is day. The actual limit depends on the number of leap years in the five years. For example, if there is a leap year in the five years, the upper limit is 1826 days.) If this parameter is set to -1, the maximum value is 5 years.

Response Parameters

Status code: 200

Table 4-139 Response header parameters

Parameter	Type	Description
Port-ID	String	Port ID of the cluster master node

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Table 4-140 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Config** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v1**.
preferences	Object	This field is not used currently and is left unspecified by default.
clusters	Array of **Clusters** objects	Cluster list
users	Array of **Users** objects	Certificate information and client key information of a specified user
contexts	Array of **Contexts** objects	Context list
current-context	String	Current context. If **publicIp** (VM EIP) exists, the value is **external**. If **publicIp** does not exist, the value is **internal**.

Table 4-141 Clusters

Parameter	Type	Description
name	String	Cluster name. • If **publicIp** does not exist (that is, no VM EIP exists), there is only one cluster in the cluster list, and the value of this parameter is **internalCluster**. • If **publicIp** exists (that is, the EIP exists), there are at least two clusters in the cluster list, and the value of this parameter is **externalCluster**.
cluster	**ClusterCert** object	Cluster information

Table 4-142 ClusterCert

Parameter	Type	Description
server	String	Server IP address

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Parameter	Type	Description
certificate-authority-data	String	Certificate authorization data
insecure-skip-tls-verify	Boolean	Whether to skip the server certificate verification. If the cluster type is **externalCluster**, the value is **true**.

Table 4-143 Users

Parameter	Type	Description
name	String	The value is fixed at **user**.
user	**User** object	Certificate information and client key information of a specified user

Table 4-144 User

Parameter	Type	Description
client-certificate-data	String	Client certificate
client-key-data	String	PEM encoding data from the TLS client key file

Table 4-145 Contexts

Parameter	Type	Description
name	String	Context name. • If **publicIp** does not exist (that is, no VM EIP exists), there is only one cluster in the cluster list, and the value of this parameter is **internal**. • If **publicIp** exists (that is, the EIP exists), there are at least two clusters in the cluster list, and the value of this field for all extension contexts is **external**.
context	**Context** object	Context information

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Table 4-146 Context

Parameter	Type	Description
cluster	String	Cluster context
user	String	User context

Example Requests

Applying for a cluster access certificate valid for 30 days

```
{
  "duration" : 30
}
```

Example Responses

Status code: 200

The certificate of the specified cluster is successfully obtained. For details about the certificate file format, see the Kubernetes v1.Config structure.

```
{
  "kind" : "Config",
  "apiVersion" : "v1",
  "preferences" : { },
  "clusters" : [ {
    "name" : "internalCluster",
    "cluster" : {
      "server" : "https://192.168.1.7:5443",
      "certificate-authority-data" : "Q2VydGlmaWNhdGU6******FTkQgQ0VSVElGSUNBVEUtLS0tLQo="
    }
  } ],
  "users" : [ {
    "name" : "user",
    "user" : {
      "client-certificate-data" : "LS0tLS1CRUdJTiBDR******QVRFLS0tLS0K",
      "client-key-data" : "LS0tLS1CRUdJTi******BLRVktLS0tLQo="
    }
  } ],
  "contexts" : [ {
    "name" : "internal",
    "context" : {
      "cluster" : "internalCluster",
      "user" : "user"
    }
  } ],
  "current-context" : "internal"
}
```

Status Codes

Status Code	Description
200	The certificate of the specified cluster is successfully obtained. For details about the certificate file format, see the Kubernetes v1.Config structure.

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Error Codes

See **Error Codes**.

4.2.9 Modifying Cluster Specifications

Function

This API is used to modify the specifications of a specified cluster.

NOTE

- The URL for cluster management is in the format of **https://Endpoint/uri**, where **uri** indicates the resource path for API access.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/resize

Table 4-147 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-148 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-149 Request body parameters

Parameter	Mandatory	Type	Description
flavorResize	Yes	String	Target specifications: • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • **cce.s1.medium**: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale CCE cluster with multiple master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale CCE cluster with multiple master nodes and a maximum of 200 nodes • **cce.s2.large**: a large-scale CCE cluster with multiple master nodes and a maximum of 1,000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale CCE cluster with multiple master nodes and a maximum of 2,000 nodes

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Parameter	Mandatory	Type	Description
			NOTE • **s1**: indicates a CCE cluster with one master node. • **s2**: indicates a CCE cluster with multiple master nodes. • **dec**: indicates a dedicated CCE cluster. For example, **cce.dec.s1.small** indicates a small-scale dedicated CCE cluster with one master node and a maximum of 50 worker nodes. • Maximum number of nodes: indicates the maximum number of worker nodes that can be managed by the cluster. Select a node scale based on your requirements. • A cluster with one master node: If the master node is faulty, the cluster will become unavailable, but the running workloads will not be affected. • A cluster with multiple master nodes: This is an HA cluster. If a master node is faulty, the cluster can still be functionally available.
extendParam	No	**extendParam** object	

Table 4-150 extendParam

Parameter	Mandatory	Type	Description
decMasterFlavor	No	String	Specifications of the master node in the dedicated hybrid cluster
isAutoPay	No	String	Whether auto payment is enabled. • **true**: Auto payment is enabled. • **false**: Auto payment is not enabled. **NOTE** This field is valid for yearly/monthly clusters. If not specified, auto payment is not enabled.

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Response Parameters

Status code: 201

Table 4-151 Response body parameters

Parameter	Type	Description
jobID	String	ID of the job
orderID	String	ID of the order for modifying the specifications of a yearly/monthly billed cluster

Example Requests

- Modifying the specifications of the yearly/monthly cluster (automatic payment)

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/resize

{
  "flavorResize" : "cce.s1.medium",
  "extendParam" : {
    "isAutoPay" : "true"
  }
}
```

- Modifying the specifications of the pay-per-use cluster

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/resize

{
  "flavorResize" : "cce.s1.medium"
}
```

Example Responses

Status code: 201

The job for modifying the specifications of the pay-per-use cluster is delivered.

```
{
  "jobID" : "13b8d958-8fcf-11ed-aef3-0255ac1001bd"
}
```

Status Codes

Status Code	Description
201	The job for modifying the specifications of the pay-per-use cluster is delivered.

Error Codes

See **Error Codes**.

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4.2.10 Querying a Job

Function

This API is used to obtain information about a job via the job ID returned after a query request is delivered.

NOTE

- The URL for cluster management is in the format of **https://Endpoint/uri**. In the URL, **uri** indicates the resource path, that is, the path for API access.
- You can call this API when:
  - Creating or deleting a cluster
  - Creating or deleting a node

URI

GET /api/v3/projects/{project_id}/jobs/{job_id}

Table 4-152 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
job_id	Yes	String	Job ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-153 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Response Parameters

Status code: 200

Table 4-154 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Job** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**JobMetadata** object	Job metadata
spec	**JobSpec** object	Detailed job parameters
status	**JobStatus** object	Job status

Table 4-155 JobSpec

Parameter	Type	Description
type	String	Job type. An example value is **CreateCluster**.
clusterUID	String	ID of the cluster where the job runs.
resourceID	String	ID of the resource on which the job is executed.
resourceName	String	Name of the resource on which the job is executed.
extendParam	Map<String,String>	Extended parameters
subJobs	Array of **Job** objects	Subjob list. • The list contains details about all subjobs. • Generally, a cluster/node creation job consists of multiple subjobs. The job is complete only after all subjobs are complete.

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Table 4-156 Job

Parameter	Type	Description
kind	String	API type. The value is fixed at **Job** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**JobMetadata** object	Job metadata
spec	**JobSpec** object	Detailed job parameters
status	**JobStatus** object	Job status

Table 4-157 JobMetadata

Parameter	Type	Description
uid	String	Job ID
creationTimestamp	String	Time when the job was created
updateTimestamp	String	Time when the job was updated

Table 4-158 JobStatus

Parameter	Type	Description
phase	String	Job status. Possible values: • JobPhaseInitializing JobPhase = "Initializing" • JobPhaseRunning JobPhase = "Running" • JobPhaseFailed JobPhase = "Failed" • JobPhaseSuccess JobPhase = "Success"
reason	String	Reason why the job is in the current state.

Example Requests

None

Example Responses

Status code: 200

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The progress of the specified job is successfully obtained.


```
{
  "kind" : "Job",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "354331b2c-229a-11e8-9c75-0255ac100ceb",
    "creationTimestamp" : "2018-08-02 08:12:40.672772389 +0000 UTC",
    "updateTimestamp" : "2018-08-02 08:21:50.478108569 +0000 UTC"
  },
  "spec" : {
    "type" : "CreateCluster",
    "clusterUID" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
    "resourceID" : "6f4dcb2c-229a-11e8-9c75-0255ac100ceb",
    "resourceName" : "cluster-name",
    "extendParam" : {
      "serverID" : "bc467e3a-2338-11e8-825b-0255ac100c13"
    },
    "subJobs" : [ {
      "kind" : "Job",
      "apiVersion" : "v3",
      "metadata" : {
        "uid" : "fd474fab-9606-11e8-baa9-0255ac10215d",
        "creationTimestamp" : "2018-08-02 03:52:34.615819618 +0000 UTC",
        "updateTimestamp" : "2018-08-02 04:05:29.196243031 +0000 UTC"
      },
      "spec" : {
        "type" : "InstallMaster",
        "clusterUID" : "fcc72de0-9606-11e8-baa8-0255ac10215d",
        "resourceID" : "fd3b4ac0-9606-11e8-baa8-0255ac10215d",
        "extendParam" : {
          "serverID" : "fd3b4ac0-9606-11e8-baa8-0255ac10215d"
        }
      },
      "status" : {
        "phase" : "Success"
      }
    }, {
      "kind" : "Job",
      "apiVersion" : "v3",
      "metadata" : {
        "uid" : "fd474f82-9606-11e8-baa8-0255ac10215d",
        "creationTimestamp" : "2018-08-02 03:52:33.859150791 +0000 UTC",
        "updateTimestamp" : "2018-08-02 03:52:34.615655429 +0000 UTC"
      },
      "spec" : {
        "type" : "CreatePSMCert",
        "clusterUID" : "fcc72de0-9606-11e8-baa8-0255ac10215d"
      },
      "status" : {
        "phase" : "Success"
      }
    } ]
  },
  "status" : {
    "phase" : "Running",
    "reason" : ""
  }
}
```


Status Codes

Status Code	Description
200	The progress of the specified job is successfully obtained.

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Error Codes

See **Error Codes**.

4.2.11 Binding/Unbinding Public API Server Address

Function

This API is used to bind or unbind the public API server address of the cluster by cluster ID.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/mastereip

Table 4-159 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-160 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-161 Request body parameters

Parameter	Mandatory	Type	Description
spec	Yes	**MasterEIPRequestSpec** object	Parameters in the request for binding or unbinding the public APIServer address of a cluster

Table 4-162 MasterEIPRequestSpec

Parameter	Mandatory	Type	Description
action	No	String	Binding or unbinding. Mandatory. • Binding: The value is fixed at {"action":"bind"}. • Unbinding: The value is fixed at {"action":"unbind"}.
spec	No	**spec** object	Configuration attributes of the elastic IP address to be bound
bandwidth	No	String	Bandwidth (This field has expired and is not recommended.)
elasticIp	No	String	ENI IP (This field has expired and is not recommended.)

Table 4-163 spec

Parameter	Mandatory	Type	Description
id	No	String	Specifies the ENI ID. This parameter is mandatory for binding an ENI and is invalid for unbinding an ENI.

Response Parameters

Status code: 200

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Table 4-164 Response body parameters

Parameter	Type	Description
metadata	**Metadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**MasterEIPResponseSpec** object	Configuration of the bound public APIServer address of a cluster
status	**status** object	Status information

Table 4-165 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-166 MasterEIPResponseSpec

Parameter	Type	Description
action	String	A binding operation
spec	**spec** object	Configuration attributes of the elastic IP address to be bound
elasticIp	String	EIP

Table 4-167 spec

Parameter	Type	Description
id	String	ENI ID

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Parameter	Type	Description
eip	**EipSpec** object	EIP details
IsDynamic	Boolean	Dynamic provisioning or not

Table 4-168 EipSpec

Parameter	Type	Description
bandwidth	**bandwidth** object	Bandwidth information

Table 4-169 bandwidth

Parameter	Type	Description
size	Integer	Bandwidth size
sharetype	String	Bandwidth type

Table 4-170 status

Parameter	Type	Description
privateEndpoint	String	Private IP for accessing the cluster (VIP in the case of an HA cluster)
publicEndpoint	String	Public IP for accessing the cluster

Example Requests

Bind the public API server address to a cluster.

```
{
  "spec" : {
    "action" : "bind",
    "spec" : {
      "id" : "a757a69e-f920-455a-b1ba-d7a22db0fd50"
    }
  }
}
```

Example Responses

Status code: 200

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This indicates that the public API server address of the cluster is successfully bound. No response body is returned if the unbinding is successful.

```
{
  "metadata" : { },
  "spec" : {
    "action" : "bind",
    "spec" : {
      "id" : "a757a69e-f920-455a-b1ba-d7a22db0fd50",
      "eip" : {
        "bandwidth" : {
          "size" : 5,
          "sharetype" : "PER"
        }
      },
      "IsDynamic" : false
    },
    "elasticIp" : "8.8.8.8"
  },
  "status" : {
    "privateEndpoint" : "https://192.168.3.238:5443",
    "publicEndpoint" : "https://8.8.8.8:5443"
  }
}
```

Status Codes

Status Code	Description
200	This indicates that the public API server address of the cluster is successfully bound. No response body is returned if the unbinding is successful.

Error Codes

See **Error Codes**.

4.2.12 Obtaining Cluster Access Address

Function

This API is used to obtain the cluster access addresses by cluster ID, including the private IP (VIP returned by an HA cluster) and public IP.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/openapi

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Table 4-171 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-172 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-173 Response body parameters

Parameter	Type	Description
metadata	**Metadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**OpenAPISpec** object	Parameters for configuring the address for accessing the cluster
status	**status** object	Status information

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Table 4-174 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-175 OpenAPISpec

Parameter	Type	Description
spec	**spec** object	Address for accessing the cluster

Table 4-176 spec

Parameter	Type	Description
eip	**EipSpec** object	EIP details
IsDynamic	Boolean	Dynamic provisioning or not

Table 4-177 EipSpec

Parameter	Type	Description
bandwidth	**bandwidth** object	Bandwidth information

Table 4-178 bandwidth

Parameter	Type	Description
size	Integer	Bandwidth size
sharetype	String	Bandwidth type

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Table 4-179 status

Parameter	Type	Description
privateEndpoint	String	Private IP for accessing the cluster (VIP in the case of an HA cluster)
publicEndpoint	String	Public IP for accessing the cluster

Example Requests

None

Example Responses

Status code: 200

The cluster access address is obtained successfully.

```
{
  "metadata" : { },
  "spec" : {
    "spec" : {
      "eip" : {
        "bandwidth" : { }
      },
      "IsDynamic" : false
    }
  },
  "status" : {
    "privateEndpoint" : "https://192.168.3.238:5443",
    "publicEndpoint" : ""
  }
}
```

Status Codes

Status Code	Description
200	The cluster access address is obtained successfully.

Error Codes

See **Error Codes**.

4.2.13 Obtaining a Cluster's Logging Configurations

Function

This API is used to obtain LTS configurations reported by the cluster components.

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URI

GET /api/v3/projects/{project_id}/cluster/{cluster_id}/log-configs

Table 4-180 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Table 4-181 Query Parameters

Parameter	Mandatory	Type	Description
type	No	String	Component type. Options: **control**, **audit**, and **system-addon**. If this parameter is not specified, all component types will be obtained. • **control**: Logs of the components on the master nodes will be obtained. • **audit**: Audit logs of the master nodes will be obtained. • **system-addon**: Logs of system add-ons will be obtained.

Request Parameters

Table 4-182 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-183 Response body parameters

Parameter	Type	Description
ttl_in_days	Integer	Time for storage
log_configs	Array of **log_configs** objects	Log configuration items

Table 4-184 log_configs

Parameter	Type	Description
name	String	Log type
enable	Boolean	Whether to collect logs.

Example Requests

The following example describes how to obtain add-on log configurations.

```
/api/v3/projects/{project_id}/cluster/{cluster_id}/log-configs?system-addon
```

Example Responses

Status code: 200

Cluster log configurations are obtained successfully.

```
{
  "log_configs" : [ {
    "name" : "volcano",
    "enable" : true
  }, {
    "name" : "coredns",
```

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```
    "enable" : false
  }, {
    "name" : "everest",
    "enable" : false
  } ]
}
```

Status Codes

Status Code	Description
200	Cluster log configurations are obtained successfully.

Error Codes

See **Error Codes**.

4.2.14 Configuring Cluster Logs

Function

This API is used to select the master node components whose logs are reported to LTS.

URI

PUT /api/v3/projects/{project_id}/cluster/{cluster_id}/log-configs

Table 4-185 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-186 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-187 Request body parameters

Parameter	Mandatory	Type	Description
ttl_in_days	No	Integer	Time for storage
log_configs	No	Array of **log_configs** objects	Log configuration items

Table 4-188 log_configs

Parameter	Mandatory	Type	Description
name	No	String	Log type
enable	No	Boolean	Whether to collect logs.

Response Parameters

Status code: 200

Table 4-189 Response body parameters

Parameter	Type	Description
ttl_in_days	Integer	Time for storage
log_configs	Array of **log_configs** objects	Log configuration items

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Table 4-190 log_configs

Parameter	Type	Description
name	String	Log type
enable	Boolean	Whether to collect logs.

Example Requests

The following example describes how to configure cluster logs that are reported to LTS.

```
/api/v3/projects/{project_id}/cluster/{cluster_id}/log-configs

{
  "log_configs" : [ {
    "name" : "kube-apiserver",
    "enable" : true
  }, {
    "name" : "kube-controller-manager",
    "enable" : false
  }, {
    "name" : "kube-scheduler",
    "enable" : false
  }, {
    "name" : "volcano",
    "enable" : true
  }, {
    "name" : "coredns",
    "enable" : false
  }, {
    "name" : "everest",
    "enable" : false
  } ]
}
```

Example Responses

Status code: 200

Cluster logs are configured successfully.

```
{
  "ttl_in_days" : 7,
  "log_configs" : [ {
    "name" : "kube-controller-manager",
    "enable" : true
  }, {
    "name" : "kube-apiserver",
    "enable" : true
  }, {
    "name" : "kube-scheduler",
    "enable" : true
  }, {
    "name" : "audit",
    "enable" : true
  } ]
}
```

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Status Codes

Status Code	Description
200	Cluster logs are configured successfully.

Error Codes

See **Error Codes**.

4.2.15 Obtaining the Partition List

Function

This API is used to obtain the partition list.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/partitions

Table 4-191 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

Status code: 200

Table 4-192 Response body parameters

Parameter	Type	Description
kind	String	Resource type

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Parameter	Type	Description
apiVersion	String	API version
items	Array of **Partition** objects	Cluster partition information

Table 4-193 Partition

Parameter	Type	Description
kind	String	Resource type
apiVersion	String	API version
metadata	**metadata** object	Metadata of partitions
spec	**spec** object	Partition configurations

Table 4-194 metadata

Parameter	Type	Description
name	String	Partition name
creationTimestamp	String	Creation time

Table 4-195 spec

Parameter	Type	Description
hostNetwork	**hostNetwork** object	Partition subnet
containerNetwork	Array of **containerNetwork** objects	Container subnet in the partition
publicBorderGroup	String	Group
category	String	Category

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Table 4-196 hostNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Table 4-197 containerNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Example Requests

None

Example Responses

Status code: 200

OK

```
{
  "kind" : "List",
  "apiVersion" : "v3",
  "items" : [ {
    "kind" : "Partition",
    "apiVersion" : "v3",
    "metadata" : {
      "name" : "partitionName",
      "creationTimestamp" : "2000-1-1 00:00:35.451967 +0000 UTC"
    },
    "spec" : {
      "hostNetwork" : {
        "subnetID" : "subnetID"
      },
      "containerNetwork" : [ {
        "subnetID" : "subnetID"
      } ],
      "publicBorderGroup" : "publicBorderGroup",
      "category" : "category"
    }
  } ]
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

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4.2.16 Creating a Partition

Function

This API is used to create a partition.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/partitions

Table 4-198 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-199 Request body parameters

Parameter	Mandatory	Type	Description
kind	No	String	Resource type
apiVersion	No	String	API version
metadata	No	**metadata** object	Metadata of partitions
spec	No	**spec** object	Partition configurations

Table 4-200 metadata

Parameter	Mandatory	Type	Description
name	No	String	Partition name

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Table 4-201 spec

Parameter	Mandatory	Type	Description
hostNetwork	No	**hostNetwork** object	Partition subnet
containerNetwork	No	Array of **containerNetwork** objects	Container subnet in the partition
publicBorderGroup	No	String	Group
category	No	String	Category

Table 4-202 hostNetwork

Parameter	Mandatory	Type	Description
subnetID	No	String	Subnet ID

Table 4-203 containerNetwork

Parameter	Mandatory	Type	Description
subnetID	No	String	Subnet ID

Response Parameters

Status code: 200

Table 4-204 Response body parameters

Parameter	Type	Description
kind	String	Resource type
apiVersion	String	API version
metadata	**metadata** object	Metadata of partitions
spec	**spec** object	Partition configurations

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Table 4-205 metadata

Parameter	Type	Description
name	String	Partition name
creationTimestamp	String	Creation time

Table 4-206 spec

Parameter	Type	Description
hostNetwork	**hostNetwork** object	Partition subnet
containerNetwork	Array of **containerNetwork** objects	Container subnet in the partition
publicBorderGroup	String	Group
category	String	Category

Table 4-207 hostNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Table 4-208 containerNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Example Requests

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/partitions

{
  "kind" : "Partition",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "partitionName"
  },
  "spec" : {
    "hostNetwork" : {
      "subnetID" : "subnetID"
    },
    "containerNetwork" : [ {
```

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```
    "subnetID" : "subnetID"
  } ],
  "publicBorderGroup" : "publicBorderGroup",
  "category" : "category"
 }
}
```

Example Responses

Status code: 200

OK

```
{
 "kind" : "Partition",
 "apiVersion" : "v3",
 "metadata" : {
  "name" : "partitionName",
  "creationTimestamp" : "2000-1-1 00:00:35.451967 +0000 UTC"
 },
 "spec" : {
  "hostNetwork" : {
   "subnetID" : "subnetID"
  },
  "containerNetwork" : [ {
   "subnetID" : "subnetID"
  } ],
  "publicBorderGroup" : "publicBorderGroup",
  "category" : "category"
 }
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.2.17 Obtaining Partition Details

Function

This API is used to obtain partition details.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/partitions/{partition_name}

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Table 4-209 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
partition_name	Yes	String	Partition name

Request Parameters

None

Response Parameters

Status code: 200

Table 4-210 Response body parameters

Parameter	Type	Description
kind	String	Resource type
apiVersion	String	API version
metadata	**metadata** object	Metadata of partitions
spec	**spec** object	Partition configurations

Table 4-211 metadata

Parameter	Type	Description
name	String	Partition name
creationTimestamp	String	Creation time

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Table 4-212 spec

Parameter	Type	Description
hostNetwork	**hostNetwork** object	Partition subnet
containerNetwork	Array of **containerNetwork** objects	Container subnet in the partition
publicBorderGroup	String	Group
category	String	Category

Table 4-213 hostNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Table 4-214 containerNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Example Requests

None

Example Responses

Status code: 200

OK

```
{
  "kind" : "Partition",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "partitionName",
    "creationTimestamp" : "2000-1-1 00:00:35.451967 +0000 UTC"
  },
  "spec" : {
    "hostNetwork" : {
      "subnetID" : "subnetID"
    },
    "containerNetwork" : [ {
      "subnetID" : "subnetID"
    } ],
    "publicBorderGroup" : "publicBorderGroup",
    "category" : "category"
```

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```
  }
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.2.18 Updating a Partition

Function

This API is used to update a partition.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/partitions/{partition_name}

Table 4-215 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
partition_name	Yes	String	Partition name

Request Parameters

Table 4-216 Request body parameters

Parameter	Mandatory	Type	Description
kind	No	String	Resource type
apiVersion	No	String	API version

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Parameter	Mandatory	Type	Description
metadata	No	**metadata** object	Metadata of partitions
spec	No	**spec** object	Partition configurations

Table 4-217 metadata

Parameter	Mandatory	Type	Description
name	No	String	Partition name

Table 4-218 spec

Parameter	Mandatory	Type	Description
hostNetwork	No	**hostNetwork** object	Partition subnet
containerNetwork	No	Array of **containerNetwork** objects	Container subnet in the partition
publicBorderGroup	No	String	Group
category	No	String	Category

Table 4-219 hostNetwork

Parameter	Mandatory	Type	Description
subnetID	No	String	Subnet ID

Table 4-220 containerNetwork

Parameter	Mandatory	Type	Description
subnetID	No	String	Subnet ID

Response Parameters

Status code: 200

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Table 4-221 Response body parameters

Parameter	Type	Description
kind	String	Resource type
apiVersion	String	API version
metadata	**metadata** object	Metadata of partitions
spec	**spec** object	Partition configurations

Table 4-222 metadata

Parameter	Type	Description
name	String	Partition name
creationTimestamp	String	Creation time

Table 4-223 spec

Parameter	Type	Description
hostNetwork	**hostNetwork** object	Partition subnet
containerNetwork	Array of **containerNetwork** objects	Container subnet in the partition
publicBorderGroup	String	Group
category	String	Category

Table 4-224 hostNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

Table 4-225 containerNetwork

Parameter	Type	Description
subnetID	String	Subnet ID

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Example Requests

```
PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/partitions/{partition_name}

{
  "kind" : "Partition",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "partitionName"
  },
  "spec" : {
    "hostNetwork" : {
      "subnetID" : "subnetID"
    },
    "containerNetwork" : [ {
      "subnetID" : "subnetID"
    } ],
    "publicBorderGroup" : "publicBorderGroup",
    "category" : "category"
  }
}
```

Example Responses

Status code: 200

OK

```
{
  "kind" : "Partition",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "partitionName",
    "creationTimestamp" : "2000-1-1 00:00:35.451967 +0000 UTC"
  },
  "spec" : {
    "hostNetwork" : {
      "subnetID" : "subnetID"
    },
    "containerNetwork" : [ {
      "subnetID" : "subnetID"
    } ],
    "publicBorderGroup" : "publicBorderGroup",
    "category" : "category"
  }
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

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4.3 Node Management

4.3.1 Creating a Node

Function

This API is used to create a node in a specified cluster.

NOTE

- If there is no cluster, **create one**.
- The URL for cluster management is in the format of **https://Endpoint/uri**. In the URL, **uri** indicates the resource path, that is, the path for API access.

Constraints

Only KVM nodes can be created. Non-KVM nodes cannot be used after being created.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes

Table 4-226 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Table 4-227 Query Parameters

Parameter	Mandatory	Type	Description
nodepoolScaleUp	No	String	Whether the request is delivered by the node pool. If the value is not **NodepoolScaleUp**, the number of pods in the corresponding node pool is automatically updated.

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Request Parameters

Table 4-228 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-229 Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **Node** and cannot be changed.
apiVersion	Yes	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	No	**NodeMetadata** object	Node metadata, which is a collection of attributes.
spec	Yes	**NodeSpec** object	Detailed description of the node. CCE creates or updates objects by defining or updating **spec**.

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Table 4-230 NodeMetadata

Parameter	Mandatory	Type	Description
name	No	String	Node name **NOTE** Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. If **name** is left empty or is not specified, the node name is generated based on the default rule, which is *Cluster name-Random characters*. Only the first 36 characters are kept for a long cluster name. If the number of nodes (**count**) is greater than **1**, some random characters are added to the end of the entered node name according to the default rule, which is *User-defined name-Random characters*. Only the first 50 characters in the custom name are kept, followed by some random characters. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.
uid	No	String	Node ID, which is unique and automatically generated after the resource is created. A user-defined ID will not take effect.

labels	No	Map<String,String>	CCE node label (not the native Kubernetes label).
			Labels are used to select objects that meet certain criteria. A label is a key-value pair.
			Example:
			`"labels": {`
			`  "key" : "value"`
			`}`

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Parameter	Mandatory	Type	Description

annotations	No	Map<String,String>	CCE node annotations, in key-value pairs (not the native Kubernetes annotations). Example:
			"annotations": {
			"key1" : "value1",
			"key2" : "value2"
			}
			NOTE
			• **annotations** are not used to identify or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
			• This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.

creationTimestamp	No	String	Time when the object was created. The value is automatically generated after the object is created. A user-defined value will not take effect.
updateTimestamp	No	String	Time when the object was updated. The value is automatically generated after the object is created. A user-defined value will not take effect.

Table 4-231 NodeSpec

Parameter	Mandatory	Type	Description
flavor	Yes	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	Yes	String	Name of the AZ where the node to be created is located. . .

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Parameter	Mandatory	Type	Description
os	No	String	The OS type of the node. For details about the supported OSs, see [Node OS Description] (node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	Yes	**Login** object	Node login mode.
rootVolume	Yes	**Volume** object	Information about disks on the node
dataVolumes	Yes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.

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Parameter	Mandatory	Type	Description
storage	No	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	No	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	No	**NodeNicSpec** object	NIC of the node
count	No	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	No	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Mandatory	Type	Description

taints	No	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters:
			• **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key.
			• **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.).
			• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
			Example:
			"taints": [{
			"key": "status",
			"value": "unavailable",
			"effect": "NoSchedule"
			}, {
			"key": "looks",
			"value": "bad",
			"effect": "NoSchedule"
			}]

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Parameter	Mandatory	Type	Description

k8sTags	No	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
			• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
			• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
			Example:
			`"k8sTags": {`
			`  "key": "value"`
			`}`

ecsGroupId	No	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.

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Parameter	Mandatory	Type	Description
dedicatedHostId	No	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.
userTags	No	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	No	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Mandatory	Type	Description

initializedConditions	No	Array of strings	Custom initialization flag, which is left blank by default.
			Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
			Example:
			1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
			2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
			`status:`
			`  conditions:`
			`  - type: CCEInitial`
			`  status: 'True'`
			`  - type: CustomedInitial`
			`  status: 'True'`
			1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.

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Parameter	Mandatory	Type	Description
			2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node. • Use only letters and digits. Max. characters: 20. • Max. flags: 2. • The unit of the timeout period is minute (m).
extendParam	No	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	No	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-232 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-233 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.

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Parameter	Mandatory	Type	Description
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-234 Volume

Parameter	Mandatory	Type	Description
size	Yes	Integer	Disk size, in GB. • System disk: 40 to 1024
volumetype	Yes	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	No	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.

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Parameter	Mandatory	Type	Description
cluster_id	No	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	No	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	No	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	No	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-235 VolumeMetadata

Parameter	Mandatory	Type	Description
__system__encrypted	No	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Mandatory	Type	Description
__system__cmkid	No	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-236 Storage

Parameter	Mandatory	Type	Description
storageSelectors	Yes	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Yes	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-237 StorageSelectors

Parameter	Mandatory	Type	Description
name	Yes	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	Yes	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	No	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

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Table 4-238 matchLabels

Parameter	Mandatory	Type	Description
size	No	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	No	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.
metadataEncrypted	No	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	No	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	No	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-239 StorageGroups

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	No	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.

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Parameter	Mandatory	Type	Description
selectorNames	Yes	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Yes	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

Table 4-240 VirtualSpace

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	Yes	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	No	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	No	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

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Table 4-241 LVMConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	No	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-242 RuntimeConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

Table 4-243 NodePublicIP

Parameter	Mandatory	Type	Description
ids	No	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	No	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	No	**NodeEIPSpec** object	EIP configuration.

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Table 4-244 NodeEIPSpec

Parameter	Mandatory	Type	Description
iptype	Yes	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	No	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-245 NodeBandwidth

Parameter	Mandatory	Type	Description
chargemode	No	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.
size	No	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.

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Parameter	Mandatory	Type	Description
sharetype	No	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-246 NodeNicSpec

Parameter	Mandatory	Type	Description
primaryNic	No	**NicSpec** object	Description of the primary NIC.
extNics	No	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-247 NicSpec

Parameter	Mandatory	Type	Description
subnetId	No	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	No	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.

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Parameter	Mandatory	Type	Description
ipBlock	No	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

Table 4-248 Taint

Parameter	Mandatory	Type	Description
key	Yes	String	Key.
value	No	String	Value.
effect	Yes	String	Effect.

Table 4-249 UserTag

Parameter	Mandatory	Type	Description
key	No	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	No	String	Value of the cloud server label.

Table 4-250 Runtime

Parameter	Mandatory	Type	Description
name	No	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

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Table 4-251 NodeExtendParam

Parameter	Mandatory	Type	Description
ecs:performancetype	No	String	ECS flavor types. This field is returned in the response.
maxPods	No	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.

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Parameter	Mandatory	Type	Description
DockerLVMConfigOverride	No	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Mandatory	Type	Description
dockerBaseSize	No	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	No	String	Public key of a node.
alpha.cce/preInstall	No	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	No	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	No	String	This parameter is required when a custom image is used to create a BMS node.

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Parameter	Mandatory	Type	Description
chargingMode	No	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	No	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	No	Integer	Reserved node memory, which is reserved for Kubernetes components.
systemReservedMem	No	Integer	Reserved node memory, which is reserved for system components.
init-node-password	No	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

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Table 4-252 HostnameConfig

Parameter	Mandatory	Type	Description
type	Yes	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Response Parameters

Status code: 201

Table 4-253 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Node** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.

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Parameter	Type	Description
metadata	**NodeMetadata** object	Node metadata, which is a collection of attributes.
spec	**NodeSpec** object	Detailed description of the node. CCE creates or updates objects by defining or updating **spec**.
status	**NodeStatus** object	Node status, which is dynamically recorded. A user-defined value will not function when a node is being created or modified.

Table 4-254 NodeMetadata

Parameter	Type	Description
name	String	Node name **NOTE** Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. If **name** is left empty or is not specified, the node name is generated based on the default rule, which is *Cluster name-Random characters*. Only the first 36 characters are kept for a long cluster name. If the number of nodes (**count**) is greater than **1**, some random characters are added to the end of the entered node name according to the default rule, which is *User-defined name-Random characters*. Only the first 50 characters in the custom name are kept, followed by some random characters. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.
uid	String	Node ID, which is unique and automatically generated after the resource is created. A user-defined ID will not take effect.

labels	Map<String,String>	CCE node label (not the native Kubernetes label).
		Labels are used to select objects that meet certain criteria. A label is a key-value pair.
		Example:
		`"labels": {`
		`  "key" : "value"`
		`}`

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Parameter	Type	Description

annotations	Map<String,String>	CCE node annotations, in key-value pairs (not the native Kubernetes annotations). Example:
		"annotations": {
		"key1" : "value1",
		"key2" : "value2"
		}
		NOTE
		• **annotations** are not used to identify or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.

creationTimestamp	String	Time when the object was created. The value is automatically generated after the object is created. A user-defined value will not take effect.
updateTimestamp	String	Time when the object was updated. The value is automatically generated after the object is created. A user-defined value will not take effect.

Table 4-255 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.

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Parameter	Type	Description
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigO-verride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-256 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-257 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-258 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-259 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-260 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-261 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-262 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-263 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-264 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-265 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-266 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-267 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-268 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-269 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-270 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-271 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-272 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-273 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-274 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-275 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-276 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

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Table 4-277 NodeStatus

Parameter	Type	Description
phase	String	Node status, which is the status of a node during its lifecycle (such as installation and uninstallation) or the status of a node in a Kubernetes cluster. Options: • **Build**: The node is being created. • **Installing**: The node is being managed. • **Upgrading**: The node is being upgraded. • **Active**: The node is running properly. • **Abnormal**: The node is abnormal. • **Deleting**: The node is being deleted. • **Error**: The node is faulty.
lastProbeTime	String	Last time when the node status was checked. If the cluster is in the abnormal, frozen, or intermediate state (for example, creating), the node status check may be affected. The node status that takes more than five minutes to check has no reference value.
jobID	String	ID of a creation or deletion job
serverId	String	ID of the underlying ECS or BMS node
privateIP	String	IP address in the private network segment of the primary NIC on the node
privateIPv6IP	String	IPv6 address in the private network segment of the primary NIC on the node
publicIP	String	Node EIP. If the ECS data is not synchronized in real time, you can click **Sync Node Data** on the console to manually update the data.
deleteStatus	**DeleteStatus** object	Resource status during resource deletion.

Table 4-278 DeleteStatus

Parameter	Type	Description
previous_total	Integer	Total number of existing cluster resource records when the cluster is deleted.
current_total	Integer	Latest number of resource records, which is generated based on the current cluster resource records.

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Parameter	Type	Description
updated	Integer	Total number of resource records updated when the cluster is deleted.
added	Integer	Total number of resource records updated when the cluster is deleted.
deleted	Integer	Total number of resource records deleted when the cluster is deleted.

Example Requests

Create a node with the flavor of 2 vCPUs and 4 GiB of memory. The node runs EulerOS 2.5 for Docker containers. The sizes of the system disk and data disk of the node are 50 GB and 100 GB, respectively. Both the disks are of the high I/O type.

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes

{
  "kind" : "Node",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "test-83790"
  },
  "spec" : {
    "flavor" : "c7.large.2",
    "az" : "*******",
    "os" : "EulerOS 2.5",
    "dataVolumes" : [ {
      "size" : 100,
      "volumetype" : "SAS"
    } ],
    "billingMode" : 0,
    "extendParam" : {
      "maxPods" : 110
    },
    "nodeNicSpec" : {
      "primaryNic" : {
        "subnetId" : "ca964acf-8468-4735-8229-97940ef6c881"
      }
    },
    "rootVolume" : {
      "size" : 50,
      "volumetype" : "SAS"
    },
    "runtime" : {
      "name" : "docker"
    },
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "storage" : {
      "storageSelectors" : [ {
        "name" : "cceUse",
        "storageType" : "evs",
        "matchLabels" : {
          "size" : "100",
          "volumeType" : "SAS",
          "count" : "1"
        }
      } ],
```

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```
    "storageGroups" : [ {
      "name" : "vgpaas",
      "selectorNames" : [ "cceUse" ],
      "cceManaged" : true,
      "virtualSpaces" : [ {
        "name" : "runtime",
        "size" : "90%"
      }, {
        "name" : "kubernetes",
        "size" : "10%"
      } ]
    } ]
  },
  "count" : 1
 }
}
```

Example Responses

Status code: 201

The job for creating a node in a specified cluster is successfully delivered.

```
{
 "kind" : "Node",
 "apiVersion" : "v3",
 "metadata" : {
  "name" : "test-83790",
  "uid" : "5ecfddfe-87db-11ec-b5e5-0255ac101514",
  "annotations" : {
   "jobid" : "5ec1518c-87db-11ec-b5e5-0255ac101514",
   "resourceJobId" : "5ed0d692-87db-11ec-b5e5-0255ac101514"
  }
 },
 "spec" : {
  "flavor" : "c7.large.2",
  "az" : "*******",
  "os" : "EulerOS 2.5",
  "login" : {
   "sshKey" : "KeyPair-001"
  },
  "rootVolume" : {
   "volumetype" : "SAS",
   "size" : 50
  },
  "dataVolumes" : [ {
   "volumetype" : "SAS",
   "size" : 100
  } ],
  "storage" : {
   "storageSelectors" : [ {
    "name" : "cceUse",
    "storageType" : "evs",
    "matchLabels" : {
     "count" : "1",
     "size" : "100",
     "volumeType" : "SAS"
    }
   } ],
   "storageGroups" : [ {
    "name" : "vgpaas",
    "cceManaged" : true,
    "selectorNames" : [ "cceUse" ],
    "virtualSpaces" : [ {
     "name" : "runtime",
     "size" : "90%"
    }, {
     "name" : "kubernetes",
     "size" : "10%"
```

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```
      } ]
    } ]
  },
  "publicIP" : {
    "eip" : {
      "bandwidth" : { }
    }
  },
  "nodeNicSpec" : {
    "primaryNic" : {
      "subnetId" : "ca964acf-8468-4735-8229-97940ef6c881"
    }
  },
  "count" : 1,
  "billingMode" : 0,
  "runtime" : {
    "name" : "docker"
  },
  "extendParam" : {
    "chargingMode" : 0,
    "ecs:performancetype" : "computingv3",
    "init-node-password" : "******",
    "maxPods" : 110,
    "publicKey" : ""
  }
 },
 "status" : {
  "jobID" : "5ec1518c-87db-11ec-b5e5-0255ac101514"
 }
}
```


Status Codes

Status Code	Description
201	The job for creating a node in a specified cluster is successfully delivered.

Error Codes

See **Error Codes**.

4.3.2 Reading a Specified Node

Function

This API is used to obtain details about a specified node via the node ID.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/{node_id}

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Table 4-279 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
node_id	Yes	String	Node ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-280 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-281 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Node** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.

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Parameter	Type	Description
metadata	**NodeMetadata** object	Node metadata, which is a collection of attributes.
spec	**NodeSpec** object	Detailed description of the node. CCE creates or updates objects by defining or updating **spec**.
status	**NodeStatus** object	Node status, which is dynamically recorded. A user-defined value will not function when a node is being created or modified.

Table 4-282 NodeMetadata

Parameter	Type	Description
name	String	Node name **NOTE** Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. If **name** is left empty or is not specified, the node name is generated based on the default rule, which is *Cluster name-Random characters*. Only the first 36 characters are kept for a long cluster name. If the number of nodes (**count**) is greater than **1**, some random characters are added to the end of the entered node name according to the default rule, which is *User-defined name-Random characters*. Only the first 50 characters in the custom name are kept, followed by some random characters. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.
uid	String	Node ID, which is unique and automatically generated after the resource is created. A user-defined ID will not take effect.

labels	Map<String,String>	CCE node label (not the native Kubernetes label).
		Labels are used to select objects that meet certain criteria. A label is a key-value pair.
		Example:
		`"labels": {`
		`  "key" : "value"`
		`}`

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Parameter	Type	Description

annotations	Map<String,String>	CCE node annotations, in key-value pairs (not the native Kubernetes annotations). Example:
		"annotations": {
		"key1" : "value1",
		"key2" : "value2"
		}
		NOTE
		• **annotations** are not used to identify or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.

creationTimestamp	String	Time when the object was created. The value is automatically generated after the object is created. A user-defined value will not take effect.
updateTimestamp	String	Time when the object was updated. The value is automatically generated after the object is created. A user-defined value will not take effect.

Table 4-283 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.

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Parameter	Type	Description
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigO-verride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description

taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters:
		• **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key.
		• **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.).
		• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"taints": [{`
		`  "key": "status",`
		`  "value": "unavailable",`
		`  "effect": "NoSchedule"`
		`}, {`
		`  "key": "looks",`
		`  "value": "bad",`
		`  "effect": "NoSchedule"`
		`}]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-284 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-285 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-286 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-287 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-288 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-289 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-290 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-291 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-292 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-293 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-294 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-295 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-296 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-297 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-298 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-299 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-300 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-301 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-302 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-303 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-304 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

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Table 4-305 NodeStatus

Parameter	Type	Description
phase	String	Node status, which is the status of a node during its lifecycle (such as installation and uninstallation) or the status of a node in a Kubernetes cluster. Options: • **Build**: The node is being created. • **Installing**: The node is being managed. • **Upgrading**: The node is being upgraded. • **Active**: The node is running properly. • **Abnormal**: The node is abnormal. • **Deleting**: The node is being deleted. • **Error**: The node is faulty.
lastProbeTime	String	Last time when the node status was checked. If the cluster is in the abnormal, frozen, or intermediate state (for example, creating), the node status check may be affected. The node status that takes more than five minutes to check has no reference value.
jobID	String	ID of a creation or deletion job
serverId	String	ID of the underlying ECS or BMS node
privateIP	String	IP address in the private network segment of the primary NIC on the node
privateIPv6IP	String	IPv6 address in the private network segment of the primary NIC on the node
publicIP	String	Node EIP. If the ECS data is not synchronized in real time, you can click **Sync Node Data** on the console to manually update the data.
deleteStatus	**DeleteStatus** object	Resource status during resource deletion.

Table 4-306 DeleteStatus

Parameter	Type	Description
previous_total	Integer	Total number of existing cluster resource records when the cluster is deleted.
current_total	Integer	Latest number of resource records, which is generated based on the current cluster resource records.

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Parameter	Type	Description
updated	Integer	Total number of resource records updated when the cluster is deleted.
added	Integer	Total number of resource records updated when the cluster is deleted.
deleted	Integer	Total number of resource records deleted when the cluster is deleted.

Example Requests

None

Example Responses

Status code: 200

Information about the specified node is successfully obtained.


```
{
  "kind" : "Node",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "myhost",
    "uid" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
    "creationTimestamp" : "2018-08-02 08:12:40.124294439 +0000 UTC",
    "updateTimestamp" : "2018-08-02 08:18:20.221871842 +0000 UTC",
    "annotations" : {
      "kubernetes.io/node-pool.id" : "az1.dc1#s1.medium#EulerOS 2.2"
    }
  },
  "spec" : {
    "flavor" : "s1.medium",
    "az" : "*******",
    "os" : "EulerOS 2.2",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "rootVolume" : {
      "volumetype" : "SAS",
      "size" : 40
    },
    "dataVolumes" : [ {
      "volumetype" : "SAS",
      "size" : 100
    } ],
    "publicIP" : {
      "eip" : {
        "bandwidth" : { }
      }
    },
    "billingMode" : 0
  },
  "status" : {
    "phase" : "Active",
    "serverId" : "456789abc-9368-46f3-8f29-d1a95622a568",
    "publicIP" : "10.34.56.78",
    "privateIP" : "192.168.1.23"
  }
}
```


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Status Codes

Status Code	Description
200	Information about the specified node is successfully obtained.

Error Codes

See **Error Codes**.

4.3.3 Listing All Nodes in a Cluster

Function

This API is used to obtain details about all nodes in a specified cluster with the cluster ID.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes

Table 4-307 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-308 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-309 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **List**.
apiVersion	String	API version. The value is fixed at **v3**.
items	Array of **Node** objects	List of details for all nodes in the current cluster. You can filter nodes by **items.metadata.name**.

Table 4-310 Node

Parameter	Type	Description
kind	String	API type. The value is fixed at **Node** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**NodeMetadata** object	Node metadata, which is a collection of attributes.
spec	**NodeSpec** object	Detailed description of the node. CCE creates or updates objects by defining or updating **spec**.
status	**NodeStatus** object	Node status, which is dynamically recorded. A user-defined value will not function when a node is being created or modified.

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Table 4-311 NodeMetadata

Parameter	Type	Description
name	String	Node name **NOTE** Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. If **name** is left empty or is not specified, the node name is generated based on the default rule, which is *Cluster name-Random characters*. Only the first 36 characters are kept for a long cluster name. If the number of nodes (**count**) is greater than **1**, some random characters are added to the end of the entered node name according to the default rule, which is *User-defined name-Random characters*. Only the first 50 characters in the custom name are kept, followed by some random characters. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.
uid	String	Node ID, which is unique and automatically generated after the resource is created. A user-defined ID will not take effect.

labels	Map<String,String>	CCE node label (not the native Kubernetes label).
		Labels are used to select objects that meet certain criteria. A label is a key-value pair.
		Example:
		`"labels": {`
		`  "key" : "value"`
		`}`

annotations	Map<String,String>	CCE node annotations, in key-value pairs (not the native Kubernetes annotations). Example:
		`"annotations": {`
		`  "key1" : "value1",`
		`  "key2" : "value2"`
		`}`
		NOTE
		• **annotations** are not used to identify or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.

creationTimestamp	String	Time when the object was created. The value is automatically generated after the object is created. A user-defined value will not take effect.

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Parameter	Type	Description
updateTimestamp	String	Time when the object was updated. The value is automatically generated after the object is created. A user-defined value will not take effect.

Table 4-312 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.

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Parameter	Type	Description
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-313 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-314 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-315 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-316 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-317 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-318 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-319 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-320 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-321 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-322 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-323 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-324 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-325 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-326 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-327 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-328 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-329 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-330 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-331 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-332 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-333 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

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Table 4-334 NodeStatus

Parameter	Type	Description
phase	String	Node status, which is the status of a node during its lifecycle (such as installation and uninstallation) or the status of a node in a Kubernetes cluster. Options: • **Build**: The node is being created. • **Installing**: The node is being managed. • **Upgrading**: The node is being upgraded. • **Active**: The node is running properly. • **Abnormal**: The node is abnormal. • **Deleting**: The node is being deleted. • **Error**: The node is faulty.
lastProbeTime	String	Last time when the node status was checked. If the cluster is in the abnormal, frozen, or intermediate state (for example, creating), the node status check may be affected. The node status that takes more than five minutes to check has no reference value.
jobID	String	ID of a creation or deletion job
serverId	String	ID of the underlying ECS or BMS node
privateIP	String	IP address in the private network segment of the primary NIC on the node
privateIPv6IP	String	IPv6 address in the private network segment of the primary NIC on the node
publicIP	String	Node EIP. If the ECS data is not synchronized in real time, you can click **Sync Node Data** on the console to manually update the data.
deleteStatus	**DeleteStatus** object	Resource status during resource deletion.

Table 4-335 DeleteStatus

Parameter	Type	Description
previous_total	Integer	Total number of existing cluster resource records when the cluster is deleted.
current_total	Integer	Latest number of resource records, which is generated based on the current cluster resource records.

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Parameter	Type	Description
updated	Integer	Total number of resource records updated when the cluster is deleted.
added	Integer	Total number of resource records updated when the cluster is deleted.
deleted	Integer	Total number of resource records deleted when the cluster is deleted.

Example Requests

None

Example Responses

Status code: 200

Information about all the nodes in the specified cluster is successfully obtained.


```
{
  "kind" : "List",
  "apiVersion" : "v3",
  "items" : [ {
    "kind" : "Node",
    "apiVersion" : "v3",
    "metadata" : {
      "name" : "myhost",
      "uid" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
      "creationTimestamp" : "2018-08-02 07:37:24.005071325 +0000 UTC",
      "updateTimestamp" : "2018-08-02 07:44:04.965500815 +0000 UTC",
      "annotations" : {
        "kubernetes.io/node-pool.id" : "az1.dc1#s1.medium#EulerOS 2.2"
      }
    },
    "spec" : {
      "flavor" : "s1.medium",
      "az" : "az1.dc1",
      "os" : "EulerOS 2.2",
      "login" : {
        "sshKey" : "KeyPair-001"
      },
      "rootVolume" : {
        "volumetype" : "SAS",
        "size" : 40
      },
      "dataVolumes" : [ {
        "volumetype" : "SAS",
        "size" : 100
      } ],
      "publicIP" : {
        "eip" : {
          "bandwidth" : { }
        }
      },
      "billingMode" : 0
    },
    "status" : {
      "phase" : "Active",
      "serverId" : "456789abc-9368-46f3-8f29-d1a95622a568",
      "publicIP" : "10.34.56.78",
```


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```
    "privateIP" : "192.168.1.23"
  }
 } ]
}
```

Status Codes

Status Code	Description
200	Information about all the nodes in the specified cluster is successfully obtained.

Error Codes

See **Error Codes**.

4.3.4 Updating a Specified Node

Function

This API is used to update information about a specified node.

NOTE

- Currently, only the **name** field in **metadata** can be updated. This field indicates the node name.
- The URL for cluster management is in the format of **https://Endpoint/uri**. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/{node_id}

Table 4-336 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
node_id	Yes	String	Node ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-337 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-338 Request body parameters

Parameter	Mandatory	Type	Description
metadata	Yes	**ClusterNodeInformationMetadata** object	Node metadata, which is a collection of attributes.

Table 4-339 ClusterNodeInformationMetadata

Parameter	Mandatory	Type	Description
name	Yes	String	Node name **NOTE** After the node name is changed, the ECS name (VM name) will be changed accordingly. Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.

Response Parameters

Status code: 200

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Table 4-340 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Node** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**NodeMetadata** object	Node metadata, which is a collection of attributes.
spec	**NodeSpec** object	Detailed description of the node. CCE creates or updates objects by defining or updating **spec**.
status	**NodeStatus** object	Node status, which is dynamically recorded. A user-defined value will not function when a node is being created or modified.

Table 4-341 NodeMetadata

Parameter	Type	Description
name	String	Node name **NOTE** Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. If **name** is left empty or is not specified, the node name is generated based on the default rule, which is *Cluster name-Random characters*. Only the first 36 characters are kept for a long cluster name. If the number of nodes (**count**) is greater than **1**, some random characters are added to the end of the entered node name according to the default rule, which is *User-defined name-Random characters*. Only the first 50 characters in the custom name are kept, followed by some random characters. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.
uid	String	Node ID, which is unique and automatically generated after the resource is created. A user-defined ID will not take effect.

labels	Map<String,String>	CCE node label (not the native Kubernetes label).
		Labels are used to select objects that meet certain criteria. A label is a key-value pair.
		Example:
		`"labels": {`
		`  "key" : "value"`
		`}`

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Parameter	Type	Description

annotations	Map<String,String>	CCE node annotations, in key-value pairs (not the native Kubernetes annotations). Example:
		"annotations": {
		"key1" : "value1",
		"key2" : "value2"
		}
		NOTE
		• **annotations** are not used to identify or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.

creationTimestamp	String	Time when the object was created. The value is automatically generated after the object is created. A user-defined value will not take effect.
updateTimestamp	String	Time when the object was updated. The value is automatically generated after the object is created. A user-defined value will not take effect.

Table 4-342 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.

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Parameter	Type	Description
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigO-verride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-343 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-344 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-345 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-346 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-347 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-348 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-349 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-350 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-351 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-352 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-353 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-354 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-355 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-356 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-357 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-358 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-359 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-360 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-361 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-362 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-363 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

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Table 4-364 NodeStatus

Parameter	Type	Description
phase	String	Node status, which is the status of a node during its lifecycle (such as installation and uninstallation) or the status of a node in a Kubernetes cluster. Options: • **Build**: The node is being created. • **Installing**: The node is being managed. • **Upgrading**: The node is being upgraded. • **Active**: The node is running properly. • **Abnormal**: The node is abnormal. • **Deleting**: The node is being deleted. • **Error**: The node is faulty.
lastProbeTime	String	Last time when the node status was checked. If the cluster is in the abnormal, frozen, or intermediate state (for example, creating), the node status check may be affected. The node status that takes more than five minutes to check has no reference value.
jobID	String	ID of a creation or deletion job
serverId	String	ID of the underlying ECS or BMS node
privateIP	String	IP address in the private network segment of the primary NIC on the node
privateIPv6IP	String	IPv6 address in the private network segment of the primary NIC on the node
publicIP	String	Node EIP. If the ECS data is not synchronized in real time, you can click **Sync Node Data** on the console to manually update the data.
deleteStatus	**DeleteStatus** object	Resource status during resource deletion.

Table 4-365 DeleteStatus

Parameter	Type	Description
previous_total	Integer	Total number of existing cluster resource records when the cluster is deleted.
current_total	Integer	Latest number of resource records, which is generated based on the current cluster resource records.

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Parameter	Type	Description
updated	Integer	Total number of resource records updated when the cluster is deleted.
added	Integer	Total number of resource records updated when the cluster is deleted.
deleted	Integer	Total number of resource records deleted when the cluster is deleted.

Example Requests

Update the name of a specified node.

```
{
  "metadata" : {
    "name" : "new-hostname"
  }
}
```

Example Responses

Status code: 200

Information about the specified node is successfully updated.

```
{
  "kind" : "Node",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "new-hostname",
    "uid" : "4d1ecb2c-229a-11e8-9c75-0255ac100ceb",
    "creationTimestamp" : " 2017-08-20T21:11:09Z",
    "updateTimestamp" : "2017-08-20T21:11:09Z",
    "annotations" : {
      "kubernetes.io/node-pool.id" : "az1.dc1#s1.medium#EulerOS 2.2"
    }
  },
  "spec" : {
    "flavor" : "s1.medium",
    "az" : "az1.dc1",
    "os" : "EulerOS 2.2",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "rootVolume" : {
      "volumetype" : "SAS",
      "size" : 40
    },
    "dataVolumes" : [ {
      "volumetype" : "SAS",
      "size" : 100
    } ],
    "publicIP" : {
      "eip" : { }
    },
    "billingMode" : 0
  },
  "status" : {
    "phase" : "Active",
    "serverId" : "456789abc-9368-46f3-8f29-d1a95622a568",
    "publicIP" : "10.34.56.78",
```

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```
    "privateIP" : "192.168.1.23"
  }
}
```

Status Codes

Status Code	Description
200	Information about the specified node is successfully updated.

Error Codes

See **Error Codes**.

4.3.5 Deleting a Node

Function

This API is used to delete a specified node.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

DELETE /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/{node_id}

Table 4-366 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
node_id	Yes	String	Node ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Table 4-367 Query Parameters

Parameter	Mandatory	Type	Description
nodepoolScaleDown	No	String	Whether the request is delivered by the node pool. If the value is not **NoScaleDown**, the number of pods in the corresponding node pool is automatically updated.

Request Parameters

Table 4-368 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-369 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Node** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**NodeMetadata** object	Node metadata, which is a collection of attributes.
spec	**NodeSpec** object	Detailed description of the node. CCE creates or updates objects by defining or updating **spec**.

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Parameter	Type	Description
status	NodeStatus object	Node status, which is dynamically recorded. A user-defined value will not function when a node is being created or modified.

Table 4-370 NodeMetadata

Parameter	Type	Description
name	String	Node name **NOTE** Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. If **name** is left empty or is not specified, the node name is generated based on the default rule, which is *Cluster name-Random characters*. Only the first 36 characters are kept for a long cluster name. If the number of nodes (**count**) is greater than **1**, some random characters are added to the end of the entered node name according to the default rule, which is *User-defined name-Random characters*. Only the first 50 characters in the custom name are kept, followed by some random characters. Names of nodes running in clusters v1.28.1, v1.27.3, v1.25.6, v1.23.11, v1.21.12 or later support periods (.), but this configuration is not recommended.
uid	String	Node ID, which is unique and automatically generated after the resource is created. A user-defined ID will not take effect.

labels	Map<String,String>	CCE node label (not the native Kubernetes label).
		Labels are used to select objects that meet certain criteria. A label is a key-value pair.
		Example:
		`"labels": {`
		`  "key" : "value"`
		`}`

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Parameter	Type	Description

annotations	Map<String,String>	CCE node annotations, in key-value pairs (not the native Kubernetes annotations). Example:
		"annotations": {
		"key1" : "value1",
		"key2" : "value2"
		}
		NOTE
		• **annotations** are not used to identify or select objects. The metadata in **annotations** may be small or large, structured or unstructured, and may include characters that are not allowed in labels.
		• This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.

creationTimestamp	String	Time when the object was created. The value is automatically generated after the object is created. A user-defined value will not take effect.
updateTimestamp	String	Time when the object was updated. The value is automatically generated after the object is created. A user-defined value will not take effect.

Table 4-371 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.

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Parameter	Type	Description
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigO-verride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-372 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-373 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-374 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-375 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-376 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-377 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-378 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-379 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-380 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-381 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-382 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-383 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-384 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-385 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-386 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-387 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-388 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-389 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-390 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-391 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-392 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

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Table 4-393 NodeStatus

Parameter	Type	Description
phase	String	Node status, which is the status of a node during its lifecycle (such as installation and uninstallation) or the status of a node in a Kubernetes cluster. Options: • **Build**: The node is being created. • **Installing**: The node is being managed. • **Upgrading**: The node is being upgraded. • **Active**: The node is running properly. • **Abnormal**: The node is abnormal. • **Deleting**: The node is being deleted. • **Error**: The node is faulty.
lastProbeTime	String	Last time when the node status was checked. If the cluster is in the abnormal, frozen, or intermediate state (for example, creating), the node status check may be affected. The node status that takes more than five minutes to check has no reference value.
jobID	String	ID of a creation or deletion job
serverId	String	ID of the underlying ECS or BMS node
privateIP	String	IP address in the private network segment of the primary NIC on the node
privateIPv6IP	String	IPv6 address in the private network segment of the primary NIC on the node
publicIP	String	Node EIP. If the ECS data is not synchronized in real time, you can click **Sync Node Data** on the console to manually update the data.
deleteStatus	**DeleteStatus** object	Resource status during resource deletion.

Table 4-394 DeleteStatus

Parameter	Type	Description
previous_total	Integer	Total number of existing cluster resource records when the cluster is deleted.
current_total	Integer	Latest number of resource records, which is generated based on the current cluster resource records.

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Parameter	Type	Description
updated	Integer	Total number of resource records updated when the cluster is deleted.
added	Integer	Total number of resource records updated when the cluster is deleted.
deleted	Integer	Total number of resource records deleted when the cluster is deleted.

Example Requests

None

Example Responses

Status code: 200

The job for deleting a node is successfully delivered.


```
{
  "kind" : "Node",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "new-hostname",
    "uid" : "cc697ad9-9563-11e8-8ea7-0255ac106311",
    "creationTimestamp" : "2018-08-01 08:20:49.944664515 +0000 UTC",
    "updateTimestamp" : "2018-08-01 09:20:05.644032347 +0000 UTC",
    "annotations" : {
      "kubernetes.io/node-pool.id" : "az1.dc1#s1.medium#EulerOS 2.2"
    }
  },
  "spec" : {
    "flavor" : "s1.medium",
    "az" : "az1.dc1",
    "os" : "EulerOS 2.2",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "rootVolume" : {
      "volumetype" : "SAS",
      "size" : 40
    },
    "dataVolumes" : [ {
      "volumetype" : "SAS",
      "size" : 100
    } ],
    "publicIP" : {
      "eip" : {
        "bandwidth" : { }
      }
    },
    "billingMode" : 0
  },
  "status" : {
    "phase" : "Active",
    "jobID" : "661f6f7d-956c-11e8-a916-0255ac10575d",
    "serverId" : "5b504f8d-33f1-4ab7-a600-b62dac967d72",
    "privateIP" : "192.168.0.69",
    "publicIP" : "10.154.194.59"
  }
}
```


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Status Codes

Status Code	Description
200	The job for deleting a node is successfully delivered.

Error Codes

See **Error Codes**.

4.3.6 Accepting a Node

Function

This API is used to accept a node into a specified cluster.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/add

Table 4-395 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-396 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-397 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version. The value is fixed at **v3**.
kind	Yes	String	API type. The value is fixed at **List**.
nodeList	Yes	Array of **AddNode** objects	List of the nodes to be accepted.

Table 4-398 AddNode

Parameter	Mandatory	Type	Description
serverID	Yes	String	Server ID. For details about how to obtain the server ID, see the ECS or BMS documentation.
spec	Yes	**ReinstallNodeSpec** object	Node reinstallation configuration parameters. Currently, accepted nodes cannot be added into node pools.

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Table 4-399 ReinstallNodeSpec

Parameter	Mandatory	Type	Description
os	Yes	String	Operating system. If you specify a custom image, the actual OS version in the IMS image is used. Select an OS version supported by the current cluster, for example, EulerOS 2.5, CentOS 7.6, or EulerOS 2.8.
login	Yes	**Login** object	Node login mode.
name	No	String	Node name. **NOTE** Specifying this field during reinstallation will change the node name, and the server name will change accordingly. By default, the current server name is used as the node name. Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-).
serverConfig	No	**ReinstallServerConfig** object	Server configuration.
volumeConfig	No	**ReinstallVolumeConfig** object	Volume management configuration.
runtimeConfig	No	**ReinstallRuntimeConfig** object	Container runtime configuration.
k8sOptions	No	**ReinstallK8sOptionsConfig** object	Kubernetes node configuration.
lifecycle	No	**NodeLifecycleConfig** object	Customized lifecycle configuration of a node.

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Parameter	Mandatory	Type	Description
initializedConditions	No	Array of strings	Custom initialization flag. Before CCE nodes are initialized, they are tainted with **node.cloudprovider.kubernetes.io/uninitialized** to prevent pods from being scheduled to them. CCE supports custom initialization flags. After receiving the **initializedConditions** parameter, CCE converts the parameter value into a node label and provisions the label with the node, for example, **cloudprovider.openvessel.io/inject-initialized-conditions=CCEInitial_CustomedInitial**. After the node is labeled, its **status.Conditions** is polled to check whether the **type** of **conditions** has a flag name, such as **CCEInitial** and **CustomedInitial**. If all input flags exist and their status is **True**, the node initialization is complete and the initialization taint is removed. • Use only letters and digits. Max. characters: 20. • Max. flags: 2.
extendParam	No	**ReinstallExtendParam** object	Extended reinstallation parameter, which is discarded.
hostnameConfig	No	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

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Table 4-400 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-401 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

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Table 4-402 ReinstallServerConfig

Parameter	Mandatory	Type	Description
userTags	No	Array of **UserTag** objects	Cloud server labels. The key of a label must be unique. The maximum number of user-defined labels supported by CCE depends on the region. In the region that supports the least number of labels, you can still create up to 5 labels for a cloud server.
rootVolume	No	**ReinstallVolumeSpec** object	System disk configurations used in reinstallation.

Table 4-403 UserTag

Parameter	Mandatory	Type	Description
key	No	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	No	String	Value of the cloud server label.

Table 4-404 ReinstallVolumeSpec

Parameter	Mandatory	Type	Description
imageID	No	String	Custom image ID.
cmkID	No	String	User master key ID. If this parameter is left blank by default, the EVS disk is not encrypted.

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Table 4-405 ReinstallVolumeConfig

Parameter	Mandatory	Type	Description
lvmConfig	No	String	Docker data disk configurations. The following is an example default configuration: `"lvmConfig":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` The following fields are included: • **userLV**: size of the user space, for example, **vgpaas/20%VG**. • **userPath**: mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.
storage	No	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.

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Table 4-406 Storage

Parameter	Mandatory	Type	Description
storageSelectors	Yes	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Yes	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-407 StorageSelectors

Parameter	Mandatory	Type	Description
name	Yes	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	Yes	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	No	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-408 matchLabels

Parameter	Mandatory	Type	Description
size	No	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100

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Parameter	Mandatory	Type	Description
volumeType	No	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.
metadataEncrypted	No	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	No	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	No	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-409 StorageGroups

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	No	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Yes	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.

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Parameter	Mandatory	Type	Description
virtualSpaces	Yes	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

Table 4-410 VirtualSpace

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	Yes	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	No	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	No	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

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Table 4-411 LVMConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	No	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-412 RuntimeConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-413 ReinstallRuntimeConfig

Parameter	Mandatory	Type	Description
dockerBaseSize	No	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
runtime	No	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Table 4-414 Runtime

Parameter	Mandatory	Type	Description
name	No	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-415 ReinstallK8sOptionsConfig

Parameter	Mandatory	Type	Description

labels	No	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
			• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
			• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string.
			Example:
			`"k8sTags": {`
			`  "key": "value"`
			`}`

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Parameter	Mandatory	Type	Description

taints	No	Array of **Taint** objects	Taints can be added for anti-affinity when creating nodes. A maximum of 20 taints can be added. Each taint contains the following parameters:
			• **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key.
			• **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.).
			• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**.
			Example:
			"taints": [{
			"key": "status",
			"value": "unavailable",
			"effect": "NoSchedule"
			}, {
			"key": "looks",
			"value": "bad",
			"effect": "NoSchedule"
			}]

maxPods	No	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods.

Table 4-416 Taint

Parameter	Mandatory	Type	Description
key	Yes	String	Key.

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Parameter	Mandatory	Type	Description
value	No	String	Value.
effect	Yes	String	Effect.

Table 4-417 NodeLifecycleConfig

Parameter	Mandatory	Type	Description
preInstall	No	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
postInstall	No	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)

Table 4-418 ReinstallExtendParam

Parameter	Mandatory	Type	Description
alpha.cce/NodeImageID	No	String	(Discarded) ID of the user image to run the target OS. Specifying this parameter is equivalent to specifying **imageID** in **ReinstallVolumeSpec**. The original value will be overwritten.

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Table 4-419 HostnameConfig

Parameter	Mandatory	Type	Description
type	Yes	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Response Parameters

Status code: 200

Table 4-420 Response body parameters

Parameter	Type	Description
jobid	String	Job ID returned after the job is delivered. The job ID can be used to query the job execution status.

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Example Requests

Add a node running EulerOS 2.5 to a cluster.

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/add

{
  "kind" : "List",
  "apiVersion" : "v3",
  "nodeList" : [ {
    "serverID" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",
    "spec" : {
      "name" : "my-ecs-0001",
      "os" : "EulerOS 2.5",
      "login" : {
        "sshKey" : "KeyPair-001"
      }
    }
  } ]
}
```

Example Responses

Status code: 200

The job for accepting a node into a specified cluster is successfully delivered.

```
{
  "jobid" : "2ec9b78d-9368-46f3-8f29-d1a95622a568"
}
```

Status Codes

Status Code	Description
200	The job for accepting a node into a specified cluster is successfully delivered.

Error Codes

See **Error Codes**.

4.3.7 Resetting a Node

Function

This API is used to reset a node in a specified cluster.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/reset

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Table 4-421 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-422 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-423 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version. The value is fixed at **v3**.
kind	Yes	String	API type. The value is fixed at **List**.
nodeList	Yes	Array of **ResetNode** objects	List of the nodes to be reset.

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Table 4-424 ResetNode

Parameter	Mandatory	Type	Description
nodeID	Yes	String	Node ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
spec	Yes	**ReinstallNodeSpec** object	Node reinstallation configuration parameters. Nodes in a node pool cannot be specified externally. These nodes will be reinstalled based on the node pool settings. By default, this parameter is mandatory for nodes in a node pool.

Table 4-425 ReinstallNodeSpec

Parameter	Mandatory	Type	Description
os	Yes	String	Operating system. If you specify a custom image, the actual OS version in the IMS image is used. Select an OS version supported by the current cluster, for example, EulerOS 2.5, CentOS 7.6, or EulerOS 2.8.
login	Yes	**Login** object	Node login mode.
name	No	String	Node name. **NOTE** Specifying this field during reinstallation will change the node name, and the server name will change accordingly. By default, the current server name is used as the node name. Enter 1 to 56 characters starting with a letter and not ending with a hyphen (-).
serverConfig	No	**ReinstallServerConfig** object	Server configuration.
volumeConfig	No	**ReinstallVolumeConfig** object	Volume management configuration.

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Parameter	Mandatory	Type	Description
runtimeConfig	No	**ReinstallRuntimeConfig** object	Container runtime configuration.
k8sOptions	No	**ReinstallK8sOptionsConfig** object	Kubernetes node configuration.
lifecycle	No	**NodeLifecycleConfig** object	Customized lifecycle configuration of a node.
initializedConditions	No	Array of strings	Custom initialization flag. Before CCE nodes are initialized, they are tainted with **node.cloudprovider.kubernetes.io/uninitialized** to prevent pods from being scheduled to them. CCE supports custom initialization flags. After receiving the **initializedConditions** parameter, CCE converts the parameter value into a node label and provisions the label with the node, for example, **cloudprovider.openvessel.io/inject-initialized-conditions=CCEInitial_CustomedInitial**. After the node is labeled, its **status.Conditions** is polled to check whether the **type** of **conditions** has a flag name, such as **CCEInitial** and **CustomedInitial**. If all input flags exist and their status is **True**, the node initialization is complete and the initialization taint is removed. • Use only letters and digits. Max. characters: 20. • Max. flags: 2.
extendParam	No	**ReinstallExtendParam** object	Extended reinstallation parameter, which is discarded.

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Parameter	Mandatory	Type	Description
hostnameConfig	No	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-426 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-427 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

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Table 4-428 ReinstallServerConfig

Parameter	Mandatory	Type	Description
userTags	No	Array of **UserTag** objects	Cloud server labels. The key of a label must be unique. The maximum number of user-defined labels supported by CCE depends on the region. In the region that supports the least number of labels, you can still create up to 5 labels for a cloud server.
rootVolume	No	**ReinstallVolumeSpec** object	System disk configurations used in reinstallation.

Table 4-429 UserTag

Parameter	Mandatory	Type	Description
key	No	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	No	String	Value of the cloud server label.

Table 4-430 ReinstallVolumeSpec

Parameter	Mandatory	Type	Description
imageID	No	String	Custom image ID.
cmkID	No	String	User master key ID. If this parameter is left blank by default, the EVS disk is not encrypted.

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Table 4-431 ReinstallVolumeConfig

Parameter	Mandatory	Type	Description
lvmConfig	No	String	Docker data disk configurations. The following is an example default configuration: `"lvmConfig":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` The following fields are included: • **userLV**: size of the user space, for example, **vgpaas/20%VG**. • **userPath**: mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.
storage	No	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.

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Table 4-432 Storage

Parameter	Mandatory	Type	Description
storageSelectors	Yes	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Yes	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-433 StorageSelectors

Parameter	Mandatory	Type	Description
name	Yes	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	Yes	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	No	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-434 matchLabels

Parameter	Mandatory	Type	Description
size	No	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100

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Parameter	Mandatory	Type	Description
volumeType	No	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.
metadataEncrypted	No	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	No	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	No	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-435 StorageGroups

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	No	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Yes	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.

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Parameter	Mandatory	Type	Description
virtualSpaces	Yes	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

Table 4-436 VirtualSpace

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	Yes	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	No	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	No	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

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Table 4-437 LVMConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	No	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-438 RuntimeConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-439 ReinstallRuntimeConfig

Parameter	Mandatory	Type	Description
dockerBaseSize	No	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
runtime	No	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Table 4-440 Runtime

Parameter	Mandatory	Type	Description
name	No	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-441 ReinstallK8sOptionsConfig

Parameter	Mandatory	Type	Description

labels	No	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
			• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
			• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string.
			Example:
			`"k8sTags": {`
			`  "key": "value"`
			`}`

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Parameter	Mandatory	Type	Description

taints	No	Array of **Taint** objects	Taints can be added for anti-affinity when creating nodes. A maximum of 20 taints can be added. Each taint contains the following parameters:
			• **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key.
			• **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.).
			• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**.
			Example:
			"taints": [{
			"key": "status",
			"value": "unavailable",
			"effect": "NoSchedule"
			}, {
			"key": "looks",
			"value": "bad",
			"effect": "NoSchedule"
			}]

maxPods	No	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods.

Table 4-442 Taint

Parameter	Mandatory	Type	Description
key	Yes	String	Key.

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Parameter	Mandatory	Type	Description
value	No	String	Value.
effect	Yes	String	Effect.

Table 4-443 NodeLifecycleConfig

Parameter	Mandatory	Type	Description
preInstall	No	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
postInstall	No	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)

Table 4-444 ReinstallExtendParam

Parameter	Mandatory	Type	Description
alpha.cce/NodeImageID	No	String	(Discarded) ID of the user image to run the target OS. Specifying this parameter is equivalent to specifying **imageID** in **ReinstallVolumeSpec**. The original value will be overwritten.

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Table 4-445 HostnameConfig

Parameter	Mandatory	Type	Description
type	Yes	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Response Parameters

Status code: 200

Table 4-446 Response body parameters

Parameter	Type	Description
jobid	String	Job ID returned after the job is delivered. The job ID can be used to query the job execution status.

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Example Requests

- Reset the nodes running EulerOS 2.5 in the default node pool.

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/reset

{
  "kind" : "List",
  "apiVersion" : "v3",
  "nodeList" : [ {
    "nodeID" : "yyyyyyyy-yyyy-yyyy-yyyy-yyyyyyyyyyyy",
    "spec" : {
      "name" : "my-ecs-0001",
      "os" : "EulerOS 2.5",
      "login" : {
        "sshKey" : "KeyPair-001"
      }
    }
  } ]
}
```

- Reset a node in a node pool (invalid spec).

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/reset

{
  "kind" : "List",
  "apiVersion" : "v3",
  "nodeList" : [ {
    "nodeID" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",
    "spec" : {
      "name" : "my-ecs-0001",
      "os" : "EulerOS 2.5",
      "login" : {
        "sshKey" : "KeyPair-001"
      }
    }
  } ]
}
```

Example Responses

Status code: 200

The job for resetting a node in a specified cluster is successfully delivered.

```
{
  "jobid" : "2ec9b78d-9368-46f3-8f29-d1a95622a568"
}
```

Status Codes

Status Code	Description
200	The job for resetting a node in a specified cluster is successfully delivered.

Error Codes

See **Error Codes**.

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4.3.8 Removing a Node

Function

This API is used to remove a node from a specified cluster.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/operation/remove

Table 4-447 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-448 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-449 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	No	String	API version. The value is fixed at **v3**.
kind	No	String	API type. The value is fixed at **RemoveNodesTask**.
spec	Yes	**RemoveNodesSpec** object	Configuration information.
status	No	**TaskStatus** object	Job status.

Table 4-450 RemoveNodesSpec

Parameter	Mandatory	Type	Description
login	Yes	**Login** object	Node login mode.
nodes	Yes	Array of **NodeItem** objects	List of nodes to be operated.

Table 4-451 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-452 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.

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Parameter	Mandatory	Type	Description
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-453 NodeItem

Parameter	Mandatory	Type	Description
uid	Yes	String	Node ID.

Table 4-454 TaskStatus

Parameter	Mandatory	Type	Description
jobID	No	String	Job ID, which is used by the caller to query the job progress.

Response Parameters

Status code: 200

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Table 4-455 Response body parameters

Parameter	Type	Description
apiVersion	String	API version. The value is fixed at **v3**.
kind	String	API type. The value is fixed at **RemoveNodesTask**.
spec	**RemoveNodesSpec** object	Configuration information.
status	**TaskStatus** object	Job status.

Table 4-456 RemoveNodesSpec

Parameter	Type	Description
login	**Login** object	Node login mode.
nodes	Array of **NodeItem** objects	List of nodes to be operated.

Table 4-457 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-458 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.

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Parameter	Type	Description
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-459 NodeItem

Parameter	Type	Description
uid	String	Node ID.

Table 4-460 TaskStatus

Parameter	Type	Description
jobID	String	Job ID, which is used by the caller to query the job progress.

Example Requests

Removing a Node

```
PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/operation/remove

{
  "spec" : {
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "nodes" : [ {
      "uid" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
    }, {
      "uid" : "yyyyyyyy-yyyy-yyyy-yyyy-yyyyyyyyyyyy"
    } ]
  }
}
```

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Example Responses

Status code: 200

The job for removing a node in a specified cluster is successfully delivered.

```
{
  "spec" : {
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "nodes" : [ {
      "uid" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
    }, {
      "uid" : "yyyyyyyy-yyyy-yyyy-yyyy-yyyyyyyyyyyy"
    } ]
  },
  "status" : {
    "jobID" : "2ec9b78d-9368-46f3-8f29-d1a95622a568"
  }
}
```

Status Codes

Status Code	Description
200	The job for removing a node in a specified cluster is successfully delivered.

Error Codes

See **Error Codes**.

4.3.9 Migrating a Node

Function

This API is used to migrate a node from a specified cluster to another cluster. The node can be migrated only between different clusters in the same VPC and project, and the cluster types before and after the migration must be the same.

NOTE

The URL for cluster management is in the format of **https://Endpoint/uri**, where **uri** indicates the resource path for API access.

Constraints

- Data can be migrated only between clusters in the same VPC and project.
- Data cannot be migrated between CCE Turbo clusters and CCE standard clusters.
- Data cannot be migrated between DEC and non-DEC clusters.
- Data cannot be migrated between clusters with IPv6 enabled and clusters without IPv6 enabled.

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- Data can be migrated only to the default node pool of the target cluster.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/operation/migrateto/{target_cluster_id}

Table 4-461 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
target_cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-462 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-463 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	No	String	API version. The value is fixed at **v3**.

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Parameter	Mandatory	Type	Description
kind	No	String	API type. The value is fixed at **MigrateNodesTask**.
spec	Yes	**MigrateNodesSpec** object	Configuration data.
status	No	**TaskStatus** object	Job status.

Table 4-464 MigrateNodesSpec

Parameter	Mandatory	Type	Description
os	Yes	String	Operating system type, which must be accurate to the version number. When **alpha.cce/NodeImageID** is specified, the value of **os** must be the same as the OS of the custom image.
extendParam	No	**MigrateNodeExtendParam** object	Extended parameters for node migration.
login	Yes	**Login** object	Node login mode.
runtime	No	**Runtime** object	Container runtime
nodes	Yes	Array of **NodeItem** objects	List of nodes to be operated.

Table 4-465 MigrateNodeExtendParam

Parameter	Mandatory	Type	Description
maxPods	No	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods.

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Parameter	Mandatory	Type	Description
DockerLVMConfigOverride	No	String	Docker data disk configurations. The disk type of the nodes to be migrated must be the same as that specified during node creation (that is, the value of diskType in DockerLVMConfigOverride must be the same as that specified during node creation). Ensure that the disk types of the nodes selected for a single API call are the same. The following is the default configuration: "DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear" The configuration contains the following fields: • userLV (optional): size of the user space, for example, vgpaas/20%VG. • (Optional) userPath: mount path of the user space, for example, /home/wqt-test. • diskType: specifies the disk type. Currently, only evs, hdd, and ssd are supported. • lvType: type of the logical volume. Currently, the value can be linear or striped. For example, striped. • dockerThinpool: Docker disk size, for example, vgpaas/60%VG. • kubernetesLV: Kubelet space size, for example, vgpaas/20%VG.
alpha.cce/preInstall	No	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)

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Parameter	Mandatory	Type	Description
alpha.cce/postInstall	No	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	No	String	ID of the user image to run the target OS. When **alpha.cce/NodeImageID** is specified, the value of **os** must be the same as the OS of the custom image.

Table 4-466 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-467 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.

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Parameter	Mandatory	Type	Description
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-468 Runtime

Parameter	Mandatory	Type	Description
name	No	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

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Table 4-469 NodeItem

Parameter	Mandatory	Type	Description
uid	Yes	String	Node ID.

Table 4-470 TaskStatus

Parameter	Mandatory	Type	Description
jobID	No	String	Job ID, which is used by the caller to query the job progress.

Response Parameters

Status code: 200

Table 4-471 Response body parameters

Parameter	Type	Description
apiVersion	String	API version. The value is fixed at **v3**.
kind	String	API type. The value is fixed at **MigrateNodesTask**.
spec	**MigrateNodesSpec** object	Configuration data.
status	**TaskStatus** object	Job status.

Table 4-472 MigrateNodesSpec

Parameter	Type	Description
os	String	Operating system type, which must be accurate to the version number. When **alpha.cce/NodeImageID** is specified, the value of **os** must be the same as the OS of the custom image.
extendParam	**MigrateNodeExtendParam** object	Extended parameters for node migration.
login	**Login** object	Node login mode.

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Parameter	Type	Description
runtime	**Runtime** object	Container runtime
nodes	Array of **NodeItem** objects	List of nodes to be operated.

Table 4-473 MigrateNodeExtendParam

Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods.
DockerLVMConfigOverride	String	Docker data disk configurations. The disk type of the nodes to be migrated must be the same as that specified during node creation (that is, the value of diskType in DockerLVMConfigOverride must be the same as that specified during node creation). Ensure that the disk types of the nodes selected for a single API call are the same. The following is the default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` The configuration contains the following fields: • userLV (optional): size of the user space, for example, vgpaas/20%VG. • (Optional) userPath: mount path of the user space, for example, /home/wqt-test. • diskType: specifies the disk type. Currently, only evs, hdd, and ssd are supported. • lvType: type of the logical volume. Currently, the value can be linear or striped. For example, striped. • dockerThinpool: Docker disk size, for example, vgpaas/60%VG. • kubernetesLV: Kubelet space size, for example, vgpaas/20%VG.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)

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Parameter	Type	Description
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	ID of the user image to run the target OS. When **alpha.cce/NodeImageID** is specified, the value of **os** must be the same as the OS of the custom image.

Table 4-474 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-475 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

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Table 4-476 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-477 NodeItem

Parameter	Type	Description
uid	String	Node ID.

Table 4-478 TaskStatus

Parameter	Type	Description
jobID	String	Job ID, which is used by the caller to query the job progress.

Example Requests

- Migrate a node running EulerOS 2.5 to another cluster.

```
PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/operation/migrateto/{target_cluster_id}

{
  "spec" : {
    "os" : "EulerOS 2.5",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "nodes" : [ {
      "uid" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
    }, {
      "uid" : "yyyyyyyy-yyyy-yyyy-yyyy-yyyyyyyyyyyy"
    } ]
  }
}
```

- Migrate a node running EulerOS 2.5 and created using a specified image ID to another cluster.

```
PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/operation/migrateto/{target_cluster_id}

{
  "spec" : {
    "os" : "EulerOS 2.5",
    "extendParam" : {
```

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```
    "alpha.cce/NodeImageID" : "cc697ad7-9563-11e8-8ea7-0255ac106311"
  },
  "login" : {
    "sshKey" : "KeyPair-001"
  },
  "nodes" : [ {
    "uid" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
  }, {
    "uid" : "yyyyyyyy-yyyy-yyyy-yyyy-yyyyyyyyyyyy"
  } ]
 }
}
```

Example Responses

Status code: 200

The job for migrating a node from a specified cluster to another cluster is successfully delivered.

```
{
 "spec" : {
   "os" : "EulerOS 2.5",
   "login" : {
     "sshKey" : "KeyPair-001"
   },
   "runtime" : {
     "name" : "docker"
   },
   "nodes" : [ {
     "uid" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"
   }, {
     "uid" : "yyyyyyyy-yyyy-yyyy-yyyy-yyyyyyyyyyyy"
   } ]
 },
 "status" : {
   "jobID" : "2ec9b78d-9368-46f3-8f29-d1a95622a568"
 }
}
```

Status Codes

Status Code	Description
200	The job for migrating a node from a specified cluster to another cluster is successfully delivered.

Error Codes

See **Error Codes**.

4.4 Node Pool Management

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4.4.1 Creating a Node Pool

Function

This API is used to create a node pool in a specified cluster. This API can be called only when the cluster is in the available, scaling-out, or scaling-in state.

When creating a node pool in a cluster of v1.21, you can bind security groups to the node pool. A maximum of five security groups can be bound to a node pool.

After the security groups of a node pool are updated, the update takes effect only for newly created pods. You are advised to evict the original pods on the node.

NOTE

If there is no cluster, **create one**. The URL for cluster management is in the format of **https://Endpoint/uri**. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools

Table 4-479 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-480 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-481 Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **NodePool**.
apiVersion	Yes	String	API version. The value is fixed at **v3**.
metadata	Yes	**NodePoolMetadata** object	Metadata information of the node pool
spec	Yes	**NodePoolSpec** object	Node pool specifications
status	No	**NodePoolStatus** object	Node pool status

Table 4-482 NodePoolMetadata

Parameter	Mandatory	Type	Description
name	Yes	String	Node pool name. **NOTE** Naming rules: Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.
uid	No	String	UID of the node pool. The value is automatically generated after the object is updated. A user-defined value will not take effect.
annotations	No	Map<String,String>	Annotations of a node pool in key-value pairs. This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.
updateTimestamp	No	String	Update time.
creationTimestamp	No	String	Creation time.

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Table 4-483 NodePoolSpec

Parameter	Mandatory	Type	Description
type	No	String	Node pool type. If this parameter is left blank, the value **vm** is used by default. • **vm**: ECS • **ElasticBMS**: C6 general computing-plus BMS. An example flavor is **c6.22xlarge.2.physical**. • **bms**: BMS
nodeTemplate	Yes	**NodeSpec** object	Detailed parameters of the node pool template.
initialNodeCount	No	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool.
autoscaling	No	**NodePoolNodeAutoscaling** object	Auto scaling parameters
nodeManagement	No	**NodeManagement** object	Node management configuration
podSecurityGroups	No	Array of **SecurityID** objects	Security group configuration. This parameter is available only for CCE Turbo clusters.
customSecurityGroups	No	Array of strings	Custom security group settings for a node pool. New nodes scaled out in a node pool can be bound to a specified security group. • Specifying no security group ID will add the new nodes to the default security group of the worker nodes. • Specifying a valid security group ID will put new nodes in that security group. • When specifying a security group, do not modify the rules of the port on which CCE running depends.

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Table 4-484 NodeSpec

Parameter	Mandatory	Type	Description
flavor	Yes	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	Yes	String	Name of the AZ where the node to be created is located. . .
os	No	String	The OS type of the node. For details about the supported OSs, see [Node OS Description] (node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	Yes	**Login** object	Node login mode.
rootVolume	Yes	**Volume** object	Information about disks on the node
dataVolumes	Yes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.

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Parameter	Mandatory	Type	Description
storage	No	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	No	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	No	**NodeNicSpec** object	NIC of the node
count	No	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	No	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Mandatory	Type	Description
taints	No	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Mandatory	Type	Description

k8sTags	No	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
			• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
			• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
			Example:
			`"k8sTags": {`
			`  "key": "value"`
			`}`

ecsGroupId	No	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.

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Parameter	Mandatory	Type	Description
dedicatedHostId	No	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.
userTags	No	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	No	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Mandatory	Type	Description

initializedConditions	No	Array of strings	Custom initialization flag, which is left blank by default.
			Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
			Example:
			1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
			2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
			`status:`
			`  conditions:`
			`  - type: CCEInitial`
			`    status: 'True'`
			`  - type: CustomedInitial`
			`    status: 'True'`
			1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.

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Parameter	Mandatory	Type	Description
			2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node. • Use only letters and digits. Max. characters: 20. • Max. flags: 2. • The unit of the timeout period is minute (m).
extendParam	No	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	No	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-485 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-486 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.

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Parameter	Mandatory	Type	Description
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-487 Volume

Parameter	Mandatory	Type	Description
size	Yes	Integer	Disk size, in GB. • System disk: 40 to 1024
volumetype	Yes	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	No	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.

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Parameter	Mandatory	Type	Description
cluster_id	No	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	No	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	No	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	No	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-488 VolumeMetadata

Parameter	Mandatory	Type	Description
__system__encrypted	No	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Mandatory	Type	Description
__system__cmkid	No	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-489 Storage

Parameter	Mandatory	Type	Description
storageSelectors	Yes	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Yes	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-490 StorageSelectors

Parameter	Mandatory	Type	Description
name	Yes	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	Yes	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	No	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

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Table 4-491 matchLabels

Parameter	Mandatory	Type	Description
size	No	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	No	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.
metadataEncrypted	No	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	No	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	No	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-492 StorageGroups

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	No	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.

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Parameter	Mandatory	Type	Description
selectorNames	Yes	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Yes	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

Table 4-493 VirtualSpace

Parameter	Mandatory	Type	Description
name	Yes	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	Yes	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	No	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	No	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

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Table 4-494 LVMConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	No	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-495 RuntimeConfig

Parameter	Mandatory	Type	Description
lvType	Yes	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

Table 4-496 NodePublicIP

Parameter	Mandatory	Type	Description
ids	No	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	No	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	No	**NodeEIPSpec** object	EIP configuration.

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Table 4-497 NodeEIPSpec

Parameter	Mandatory	Type	Description
iptype	Yes	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	No	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-498 NodeBandwidth

Parameter	Mandatory	Type	Description
chargemode	No	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.
size	No	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.

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Parameter	Mandatory	Type	Description
sharetype	No	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-499 NodeNicSpec

Parameter	Mandatory	Type	Description
primaryNic	No	**NicSpec** object	Description of the primary NIC.
extNics	No	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-500 NicSpec

Parameter	Mandatory	Type	Description
subnetId	No	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	No	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.

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Parameter	Mandatory	Type	Description
ipBlock	No	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

Table 4-501 Taint

Parameter	Mandatory	Type	Description
key	Yes	String	Key.
value	No	String	Value.
effect	Yes	String	Effect.

Table 4-502 UserTag

Parameter	Mandatory	Type	Description
key	No	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	No	String	Value of the cloud server label.

Table 4-503 Runtime

Parameter	Mandatory	Type	Description
name	No	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

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Table 4-504 NodeExtendParam

Parameter	Mandatory	Type	Description
ecs:performancetype	No	String	ECS flavor types. This field is returned in the response.
maxPods	No	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.

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Parameter	Mandatory	Type	Description
DockerLVMConfigOverride	No	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Mandatory	Type	Description
dockerBaseSize	No	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	No	String	Public key of a node.
alpha.cce/preInstall	No	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	No	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	No	String	This parameter is required when a custom image is used to create a BMS node.

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Parameter	Mandatory	Type	Description
chargingMode	No	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	No	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	No	Integer	Reserved node memory, which is reserved for Kubernetes components.
systemReservedMem	No	Integer	Reserved node memory, which is reserved for system components.
init-node-password	No	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

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Table 4-505 HostnameConfig

Parameter	Mandatory	Type	Description
type	Yes	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Table 4-506 NodePoolNodeAutoscaling

Parameter	Mandatory	Type	Description
enable	No	Boolean	Whether to enable auto scaling.
minNodeCount	No	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.

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Parameter	Mandatory	Type	Description
maxNodeCount	No	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.
scaleDownCooldownTime	No	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	No	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Table 4-507 NodeManagement

Parameter	Mandatory	Type	Description
serverGroupReference	No	String	Cloud server group ID. If this field is specified, all nodes in the node pool will be created in this group. The group ID can be specified only when you create the node pool and cannot be modified. When you specify a cloud server group, the number of nodes in the node pool cannot exceed the group quota.

Table 4-508 SecurityID

Parameter	Mandatory	Type	Description
id	No	String	Security group ID

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Table 4-509 NodePoolStatus

Parameter	Mandatory	Type	Description
currentNode	No	Integer	Total number of nodes in the current node pool (excluding the nodes that are being deleted)
creatingNode	No	Integer	Number of nodes in the creation process in the node pool
deletingNode	No	Integer	Number of nodes being deleted in the current node pool.

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Parameter	Mandatory	Type	Description
phase	No	String	Node pool status. • Null: available (the number of current nodes in the node pool has reached the expected value, and no node scaling is being performed.) • Synchronizing: scaling in progress (the number of current nodes in the node pool does not reach the expected value and no node scaling is being performed.) • Synchronized: pending scaling (the number of current nodes in the node pool does not reach the expected value, or node scaling is being performed.) • SoldOut: The node pool cannot be scaled out. (This field is used in multiple scenarios, for example, resources in the node pool have been sold out or the resource quota is insufficient.) **NOTE** This node pool status has been discarded and is reserved only for compatibility. You are not advised to use it. The replacements are as follows: • Node pool scaling status: You can obtain accurate status of the current node pool based on parameters such as **currentNode**, **creatingNode**, or **deletingNode**. • Node pool scale-out: You can use **conditions** to obtain the detailed status of a node pool. **Scalable** can replace **SoldOut**. • **Deleting**: The object is being deleted. • **Error**: An error occurs.

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Parameter	Mandatory	Type	Description
jobId	No	String	ID of a job executed on the node pool. This field is available only when the node pool is being deleted.
conditions	No	Array of **NodePoolCondition** objects	Node pool status details. For details, see the definition of **Condition**.

Table 4-510 NodePoolCondition

Parameter	Mandatory	Type	Description
type	No	String	Condition type. The options are as follows: • **Scalable**: whether a node pool can be scaled. If the status is **False**, node pool scaling will not be triggered again. • **QuotaInsufficient**: Quotas on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **ResourceInsufficient**: Resources on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **UnexpectedError**: The node pool fails to be scaled out due to unexpected reasons, affecting the node pool scaling status. • **Error**: A node pool error occurs. A common trigger is deletion failure.
status	No	String	Current status of **Condition**. The options are as follows: • "True" • "False"
lastProbeTime	No	String	Time when the status was last checked

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Parameter	Mandatory	Type	Description
lastTransitTime	No	String	Time when the status was last changed
reason	No	String	Reason why the status was last changed
message	No	String	Detailed condition description

Response Parameters

Status code: 201

Table 4-511 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **NodePool**.
apiVersion	String	API version. The value is fixed at **v3**.
metadata	**NodePoolMetadata** object	Metadata of the node pool.
spec	**NodePoolSpec** object	Node pool specifications.
status	**CreateNodePoolStatus** object	Node pool status.

Table 4-512 NodePoolMetadata

Parameter	Type	Description
name	String	Node pool name. **NOTE** Naming rules: Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.
uid	String	UID of the node pool. The value is automatically generated after the object is updated. A user-defined value will not take effect.

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Parameter	Type	Description
annotations	Map<String,String>	Annotations of a node pool in key-value pairs. This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-513 NodePoolSpec

Parameter	Type	Description
type	String	Node pool type. If this parameter is left blank, the value **vm** is used by default. • **vm**: ECS • **ElasticBMS**: C6 general computing-plus BMS. An example flavor is **c6.22xlarge.2.physical**. • **bms**: BMS
nodeTemplate	**NodeSpec** object	Detailed parameters of the node pool template.
initialNodeCount	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool.
autoscaling	**NodePoolNodeAutoscaling** object	Auto scaling parameters
nodeManagement	**NodeManagement** object	Node management configuration
podSecurityGroups	Array of **SecurityID** objects	Security group configuration. This parameter is available only for CCE Turbo clusters.

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Parameter	Type	Description
customSecurityGroups	Array of strings	Custom security group settings for a node pool. New nodes scaled out in a node pool can be bound to a specified security group. • Specifying no security group ID will add the new nodes to the default security group of the worker nodes. • Specifying a valid security group ID will put new nodes in that security group. • When specifying a security group, do not modify the rules of the port on which CCE running depends.

Table 4-514 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.

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Parameter	Type	Description
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description

taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters:
		• **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key.
		• **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.).
		• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"taints": [{`
		`  "key": "status",`
		`  "value": "unavailable",`
		`  "effect": "NoSchedule"`
		`}, {`
		`  "key": "looks",`
		`  "value": "bad",`
		`  "effect": "NoSchedule"`
		`}]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-515 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-516 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-517 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-518 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-519 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-520 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-521 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-522 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-523 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-524 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-525 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-526 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-527 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-528 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-529 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-530 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-531 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-532 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-533 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-534 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-535 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Table 4-536 NodePoolNodeAutoscaling

Parameter	Type	Description
enable	Boolean	Whether to enable auto scaling.
minNodeCount	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.
maxNodeCount	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.

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Parameter	Type	Description
scaleDownCooldownTime	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Table 4-537 NodeManagement

Parameter	Type	Description
serverGroupReference	String	Cloud server group ID. If this field is specified, all nodes in the node pool will be created in this group. The group ID can be specified only when you create the node pool and cannot be modified. When you specify a cloud server group, the number of nodes in the node pool cannot exceed the group quota.

Table 4-538 SecurityID

Parameter	Type	Description
id	String	Security group ID

Table 4-539 CreateNodePoolStatus

Parameter	Type	Description
currentNode	Integer	Total number of nodes in the current node pool (excluding the nodes that are being deleted).
creatingNode	Integer	Number of nodes that are being created in the node pool.
deletingNode	Integer	Number of nodes that are being deleted in the current node pool.

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Parameter	Type	Description
phase	String	Node pool status. Options: • Null: The node pool is available. (The number of nodes in the current node pool has reached the expected value, and no node scaling is being performed.) • **Synchronizing**: The node pool is being scaled. (The number of nodes in the current node pool has not reached the expected value, and no node scaling is being performed.) • **Synchronized**: The node pool scaling is pending. (The number of nodes in the current node pool has not reached the expected value, or node scaling is being performed.) • **SoldOut**: The node pool cannot be scaled out. (This field is used in multiple scenarios, for example, resources in the node pool have been sold out or the resource quota is insufficient.) **NOTE** This node pool status has been deprecated. It is reserved only for compatibility. Do not use it anymore. Use the following instead: • Node pool scaling status: You can obtain the status of the current node pool using parameters such as **currentNode**, **creatingNode**, or **deletingNode**. • Node pool scale-out: You can use **conditions** to obtain the detailed status of a node pool. **Scalable** can replace **SoldOut**. • **Deleting**: The node pool is being deleted. • **Error**: An error occurred in the node pool.
conditions	Array of **NodePoolCondition** objects	Node pool status details. For details, see the definition of **Condition**.

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Table 4-540 NodePoolCondition

Parameter	Type	Description
type	String	Condition type. The options are as follows: • **Scalable**: whether a node pool can be scaled. If the status is **False**, node pool scaling will not be triggered again. • **QuotaInsufficient**: Quotas on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **ResourceInsufficient**: Resources on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **UnexpectedError**: The node pool fails to be scaled out due to unexpected reasons, affecting the node pool scaling status. • **Error**: A node pool error occurs. A common trigger is deletion failure.
status	String	Current status of **Condition**. The options are as follows: • "True" • "False"
lastProbeTime	String	Time when the status was last checked
lastTransitTime	String	Time when the status was last changed
reason	String	Reason why the status was last changed
message	String	Detailed condition description

Example Requests

Create a node pool with the following configurations: The number of nodes is 0. The node pool flavor is 2 vCPUs and 4 GiB of memory. The node OS is EulerOS 2.5. Docker containers are deployed. The sizes of the system disk and data disk of the node are 40 GB and 100 GB, respectively. Both the disks are of the high I/O type.

```
{
  "kind" : "NodePool",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "lc-it-nodepool-79796"
  },
  "spec" : {
    "initialNodeCount" : 0,
    "type" : "vm",
    "autoscaling" : {
      "enable" : false,
      "minNodeCount" : 0,
      "maxNodeCount" : 1,
      "scaleDownCooldownTime" : 0,
```

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```
    "priority" : 0
  },
  "nodeManagement" : {
    "serverGroupReference" : ""
  },
  "nodeTemplate" : {
    "flavor" : "s6.large.2",
    "az" : "*******",
    "os" : "EulerOS 2.5",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "rootVolume" : {
      "volumetype" : "SAS",
      "size" : 40
    },
    "dataVolumes" : [ {
      "volumetype" : "SAS",
      "size" : 100,
      "extendParam" : {
        "useType" : "docker"
      }
    } ],
    "billingMode" : 0,
    "extendParam" : {
      "alpha.cce/preInstall" : "",
      "alpha.cce/postInstall" : "",
      "alpha.cce/NodeImageID" : "",
      "maxPods" : 110
    },
    "nodeNicSpec" : {
      "primaryNic" : {
        "subnetId" : "7e767d10-7548-4df5-ad72-aeac1d08bd8a"
      }
    }
  },
  "podSecurityGroups" : [ {
    "id" : ""
  } ]
 }
}
```

Example Responses

Status code: 201

The job for creating a node pool in a specified cluster is successfully delivered.

```
{
 "kind" : "NodePool",
 "apiVersion" : "v3",
 "metadata" : {
   "name" : "lc-it-nodepool-79796",
   "uid" : "99addaa2-69eb-11ea-a592-0255ac1001bb"
 },
 "spec" : {
   "type" : "vm",
   "nodeTemplate" : {
     "flavor" : "s6.large.2",
     "az" : "*******",
     "os" : "EulerOS 2.5",
     "login" : {
       "sshKey" : "KeyPair-001"
     },
     "rootVolume" : {
       "volumetype" : "SAS",
       "size" : 40
     },
     "dataVolumes" : [ {
```

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```
      "volumetype" : "SAS",
      "size" : 100,
      "extendParam" : {
        "useType" : "docker"
      }
    } ],
    "publicIP" : {
      "eip" : {
        "bandwidth" : { }
      }
    },
    "nodeNicSpec" : {
      "primaryNic" : {
        "subnetId" : "7e767d10-7548-4df5-ad72-aeac1d08bd8a"
      }
    },
    "billingMode" : 0,
    "extendParam" : {
      "alpha.cce/NodeImageID" : "",
      "alpha.cce/postInstall" : "",
      "alpha.cce/preInstall" : "",
      "maxPods" : 110
    },
    "k8sTags" : {
      "cce.cloud.com/cce-nodepool" : "lc-it-nodepool-79796"
    }
  },
  "autoscaling" : {
    "maxNodeCount" : 1
  },
  "nodeManagement" : { }
},
"status" : {
  "phase" : ""
}
}
```


Status Codes

Status Code	Description
201	The job for creating a node pool in a specified cluster is successfully delivered.

Error Codes

See **Error Codes**.

4.4.2 Reading a Specified Node Pool

Function

This API is used to obtain details about a specified node pool.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

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URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}

Table 4-541 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
nodepool_id	Yes	String	Node pool ID.

Request Parameters

Table 4-542 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-543 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **NodePool**.
apiVersion	String	API version. The value is fixed at **v3**.
metadata	**NodePoolMetadata** object	Metadata of the node pool.

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Parameter	Type	Description
spec	**NodePoolSpec** object	Node pool specifications.
status	**NodePoolStatus** object	Node pool status.

Table 4-544 NodePoolMetadata

Parameter	Type	Description
name	String	Node pool name. **NOTE** Naming rules: Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.
uid	String	UID of the node pool. The value is automatically generated after the object is updated. A user-defined value will not take effect.
annotations	Map<String,String>	Annotations of a node pool in key-value pairs. This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-545 NodePoolSpec

Parameter	Type	Description
type	String	Node pool type. If this parameter is left blank, the value **vm** is used by default. • **vm**: ECS • **ElasticBMS**: C6 general computing-plus BMS. An example flavor is **c6.22xlarge.2.physical**. • **bms**: BMS

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Parameter	Type	Description
nodeTemplate	**NodeSpec** object	Detailed parameters of the node pool template.
initialNodeCount	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool.
autoscaling	**NodePoolNodeAutoscaling** object	Auto scaling parameters
nodeManagement	**NodeManagement** object	Node management configuration
podSecurityGroups	Array of **SecurityID** objects	Security group configuration. This parameter is available only for CCE Turbo clusters.
customSecurityGroups	Array of strings	Custom security group settings for a node pool. New nodes scaled out in a node pool can be bound to a specified security group. • Specifying no security group ID will add the new nodes to the default security group of the worker nodes. • Specifying a valid security group ID will put new nodes in that security group. • When specifying a security group, do not modify the rules of the port on which CCE running depends.

Table 4-546 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .

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Parameter	Type	Description
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node

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Parameter	Type	Description
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-547 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-548 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-549 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-550 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-551 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-552 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-553 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-554 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-555 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-556 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-557 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-558 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-559 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-560 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-561 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-562 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-563 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-564 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-565 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-566 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-567 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Table 4-568 NodePoolNodeAutoscaling

Parameter	Type	Description
enable	Boolean	Whether to enable auto scaling.
minNodeCount	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.
maxNodeCount	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.

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Parameter	Type	Description
scaleDownCooldownTime	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Table 4-569 NodeManagement

Parameter	Type	Description
serverGroupReference	String	Cloud server group ID. If this field is specified, all nodes in the node pool will be created in this group. The group ID can be specified only when you create the node pool and cannot be modified. When you specify a cloud server group, the number of nodes in the node pool cannot exceed the group quota.

Table 4-570 SecurityID

Parameter	Type	Description
id	String	Security group ID

Table 4-571 NodePoolStatus

Parameter	Type	Description
currentNode	Integer	Total number of nodes in the current node pool (excluding the nodes that are being deleted)
creatingNode	Integer	Number of nodes in the creation process in the node pool
deletingNode	Integer	Number of nodes being deleted in the current node pool.

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Parameter	Type	Description
phase	String	Node pool status. • Null: available (the number of current nodes in the node pool has reached the expected value, and no node scaling is being performed.) • Synchronizing: scaling in progress (the number of current nodes in the node pool does not reach the expected value and no node scaling is being performed.) • Synchronized: pending scaling (the number of current nodes in the node pool does not reach the expected value, or node scaling is being performed.) • SoldOut: The node pool cannot be scaled out. (This field is used in multiple scenarios, for example, resources in the node pool have been sold out or the resource quota is insufficient.) **NOTE** This node pool status has been discarded and is reserved only for compatibility. You are not advised to use it. The replacements are as follows: • Node pool scaling status: You can obtain accurate status of the current node pool based on parameters such as **currentNode**, **creatingNode**, or **deletingNode**. • Node pool scale-out: You can use **conditions** to obtain the detailed status of a node pool. **Scalable** can replace **SoldOut**. • **Deleting**: The object is being deleted. • **Error**: An error occurs.
jobId	String	ID of a job executed on the node pool. This field is available only when the node pool is being deleted.
conditions	Array of **NodePoolCondition** objects	Node pool status details. For details, see the definition of **Condition**.

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Table 4-572 NodePoolCondition

Parameter	Type	Description
type	String	Condition type. The options are as follows: • **Scalable**: whether a node pool can be scaled. If the status is **False**, node pool scaling will not be triggered again. • **QuotaInsufficient**: Quotas on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **ResourceInsufficient**: Resources on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **UnexpectedError**: The node pool fails to be scaled out due to unexpected reasons, affecting the node pool scaling status. • **Error**: A node pool error occurs. A common trigger is deletion failure.
status	String	Current status of **Condition**. The options are as follows: • "True" • "False"
lastProbeTime	String	Time when the status was last checked
lastTransitTime	String	Time when the status was last changed
reason	String	Reason why the status was last changed
message	String	Detailed condition description

Example Requests

None

Example Responses

Status code: 200

Details about the specified node pool are obtained successfully.

```
{
  "kind" : "NodePool",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "lc-it-nodepool-79796",
    "uid" : "99addaa2-69eb-11ea-a592-0255ac1001bb"
  },
  "spec" : {
    "type" : "vm",
    "nodeTemplate" : {
```

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```
    "flavor" : "s6.large.2",
    "az" : "*******",
    "os" : "EulerOS 2.5",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "rootVolume" : {
      "volumetype" : "SAS",
      "size" : 40
    },
    "dataVolumes" : [ {
      "volumetype" : "SAS",
      "size" : 100,
      "extendParam" : {
        "useType" : "docker"
      }
    } ],
    "publicIP" : {
      "eip" : {
        "bandwidth" : { }
      }
    },
    "nodeNicSpec" : {
      "primaryNic" : {
        "subnetId" : "7e767d10-7548-4df5-ad72-aeac1d08bd8a"
      }
    },
    "billingMode" : 0,
    "extendParam" : {
      "maxPods" : 110
    },
    "k8sTags" : {
      "cce.cloud.com/cce-nodepool" : "lc-it-nodepool-79796"
    }
  },
  "autoscaling" : { },
  "nodeManagement" : { }
 },
 "status" : {
  "phase" : "Deleting",
  "jobId" : "3281fa02-69ee-11ea-a592-0255ac1001bb"
 }
}
```


Status Codes

Status Code	Description
200	Details about the specified node pool are obtained successfully.

Error Codes

See **Error Codes**.

4.4.3 Listing All Node Pools in a Specified Cluster

Function

This API is used to obtain information about all node pools in a specified cluster.

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NOTE

- The URL for cluster management is in the format of **https://Endpoint/uri**. In the URL, **uri** indicates the resource path, that is, the path for API access.
- A node pool is a group of nodes within a cluster that all have the same configuration.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools

Table 4-573 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Table 4-574 Query Parameters

Parameter	Mandatory	Type	Description
showDefaultNodePool	No	String	Whether to display the default node pool. By default, the default node pool is not displayed. If this parameter is set to **true**, the default node pool is displayed.

Request Parameters

Table 4-575 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-576 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed to List.
apiVersion	String	API version. The value is fixed to v3.
items	Array of **NodePoolResp** objects	/

Table 4-577 NodePoolResp

Parameter	Type	Description
kind	String	API type. The value is fixed at **NodePool**.
apiVersion	String	API version. The value is fixed at **v3**.
metadata	**NodePoolMetadata** object	Metadata of the node pool.
spec	**NodePoolSpec** object	Node pool specifications.
status	**NodePoolStatus** object	Node pool status.

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Table 4-578 NodePoolMetadata

Parameter	Type	Description
name	String	Node pool name. **NOTE** Naming rules: Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.
uid	String	UID of the node pool. The value is automatically generated after the object is updated. A user-defined value will not take effect.
annotations	Map<String,String>	Annotations of a node pool in key-value pairs. This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-579 NodePoolSpec

Parameter	Type	Description
type	String	Node pool type. If this parameter is left blank, the value **vm** is used by default. • **vm**: ECS • **ElasticBMS**: C6 general computing-plus BMS. An example flavor is **c6.22xlarge.2.physical**. • **bms**: BMS
nodeTemplate	**NodeSpec** object	Detailed parameters of the node pool template.
initialNodeCount	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool.
autoscaling	**NodePoolNodeAutoscaling** object	Auto scaling parameters

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Parameter	Type	Description
nodeManagement	**NodeManagement** object	Node management configuration
podSecurityGroups	Array of **SecurityID** objects	Security group configuration. This parameter is available only for CCE Turbo clusters.
customSecurityGroups	Array of strings	Custom security group settings for a node pool. New nodes scaled out in a node pool can be bound to a specified security group. • Specifying no security group ID will add the new nodes to the default security group of the worker nodes. • Specifying a valid security group ID will put new nodes in that security group. • When specifying a security group, do not modify the rules of the port on which CCE running depends.

Table 4-580 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.
rootVolume	**Volume** object	Information about disks on the node

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Parameter	Type	Description
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description

taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters:
		• **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key.
		• **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.).
		• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"taints": [{`
		`  "key": "status",`
		`  "value": "unavailable",`
		`  "effect": "NoSchedule"`
		`}, {`
		`  "key": "looks",`
		`  "value": "bad",`
		`  "effect": "NoSchedule"`
		`}]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		"k8sTags": {
		"key": "value"
		}

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-581 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-582 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-583 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-584 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-585 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-586 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-587 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-588 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-589 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-590 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-591 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-592 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-593 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-594 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-595 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-596 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-597 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-598 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-599 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-600 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-601 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Table 4-602 NodePoolNodeAutoscaling

Parameter	Type	Description
enable	Boolean	Whether to enable auto scaling.
minNodeCount	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.
maxNodeCount	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.

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Parameter	Type	Description
scaleDownCooldownTime	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Table 4-603 NodeManagement

Parameter	Type	Description
serverGroupReference	String	Cloud server group ID. If this field is specified, all nodes in the node pool will be created in this group. The group ID can be specified only when you create the node pool and cannot be modified. When you specify a cloud server group, the number of nodes in the node pool cannot exceed the group quota.

Table 4-604 SecurityID

Parameter	Type	Description
id	String	Security group ID

Table 4-605 NodePoolStatus

Parameter	Type	Description
currentNode	Integer	Total number of nodes in the current node pool (excluding the nodes that are being deleted)
creatingNode	Integer	Number of nodes in the creation process in the node pool
deletingNode	Integer	Number of nodes being deleted in the current node pool.

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Parameter	Type	Description
phase	String	Node pool status. • Null: available (the number of current nodes in the node pool has reached the expected value, and no node scaling is being performed.) • Synchronizing: scaling in progress (the number of current nodes in the node pool does not reach the expected value and no node scaling is being performed.) • Synchronized: pending scaling (the number of current nodes in the node pool does not reach the expected value, or node scaling is being performed.) • SoldOut: The node pool cannot be scaled out. (This field is used in multiple scenarios, for example, resources in the node pool have been sold out or the resource quota is insufficient.) **NOTE** This node pool status has been discarded and is reserved only for compatibility. You are not advised to use it. The replacements are as follows: • Node pool scaling status: You can obtain accurate status of the current node pool based on parameters such as **currentNode**, **creatingNode**, or **deletingNode**. • Node pool scale-out: You can use **conditions** to obtain the detailed status of a node pool. **Scalable** can replace **SoldOut**. • **Deleting**: The object is being deleted. • **Error**: An error occurs.
jobId	String	ID of a job executed on the node pool. This field is available only when the node pool is being deleted.
conditions	Array of **NodePoolCondition** objects	Node pool status details. For details, see the definition of **Condition**.

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Table 4-606 NodePoolCondition

Parameter	Type	Description
type	String	Condition type. The options are as follows: • **Scalable**: whether a node pool can be scaled. If the status is **False**, node pool scaling will not be triggered again. • **QuotaInsufficient**: Quotas on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **ResourceInsufficient**: Resources on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **UnexpectedError**: The node pool fails to be scaled out due to unexpected reasons, affecting the node pool scaling status. • **Error**: A node pool error occurs. A common trigger is deletion failure.
status	String	Current status of **Condition**. The options are as follows: • "True" • "False"
lastProbeTime	String	Time when the status was last checked
lastTransitTime	String	Time when the status was last changed
reason	String	Reason why the status was last changed
message	String	Detailed condition description

Example Requests

None

Example Responses

Status code: 200

Information about all node pools in the cluster is successfully obtained.

```
{
  "kind" : "List",
  "apiVersion" : "v3",
  "items" : [ {
    "kind" : "NodePool",
    "apiVersion" : "v3",
    "metadata" : {
      "name" : "az1.dc1#s1.large#EulerOS 2.2",
      "uid" : "az1.dc1#s1.large#EulerOS 2.2"
    },
```

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```
  "spec" : {
    "nodeTemplate" : {
      "flavor" : "s1.large",
      "az" : "az1.dc1",
      "os" : "EulerOS 2.2",
      "login" : {
        "sshKey" : "KeyPair-001"
      },
      "rootVolume" : { },
      "publicIP" : {
        "eip" : {
          "bandwidth" : { }
        }
      },
      "billingMode" : 0
    },
    "autoscaling" : {
      "enable" : true,
      "maxNodeCount" : 50
    }
  },
  "status" : {
    "currentNode" : 1
  }
 } ]
}
```


Status Codes

Status Code	Description
200	Information about all node pools in the cluster is successfully obtained.

Error Codes

See **Error Codes**.

4.4.4 Updating a Specified Node Pool

Function

This API is used to update information about a specified node pool. This API can be called only when the cluster is in the Available, Scale Out, or Scale In state.

NOTE

- The URL for cluster management is in the following format: https://Endpoint/uri. uri indicates the resource path, that is, the API access path.
- Currently, only the node pool name can be updated. initialNodeCount, k8sTags, taints, login and userTags under spec are related to the scaling configuration of the node pool. If no value is set for this update, the initial value is used by default.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}

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Table 4-607 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
nodepool_id	Yes	String	Node pool ID.

Request Parameters

Table 4-608 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-609 Request body parameters

Parameter	Mandatory	Type	Description
metadata	Yes	**NodePoolMetadataUpdate** object	Metadata information of the node pool.
spec	Yes	**NodePoolSpecUpdate** object	Node pool specifications.

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Table 4-610 NodePoolMetadataUpdate

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the node pool. **NOTE** Naming rules: • Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.

Table 4-611 NodePoolSpecUpdate

Parameter	Mandatory	Type	Description
nodeTemplate	Yes	**NodeSpecUpdate** object	Detailed parameters of the node pool template.
initialNodeCount	Yes	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool. The default value is **0**.
autoscaling	Yes	**NodePoolNodeAutoscaling** object	Auto scaling parameters. Only pay-per-use node pools support auto scaling.

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Table 4-612 NodeSpecUpdate

Parameter	Mandatory	Type	Description

taints	Yes	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. This parameter is left blank by default. Each taint contains the following parameters:
			• **Key**: Enter 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key.
			• **Value**: Enter 1 to 63 characters with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed.
			• **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**.
			Example:
			"taints": [{
			"key": "status",
			"value": "unavailable",
			"effect": "NoSchedule"
			}, {
			"key": "looks",
			"value": "bad",
			"effect": "NoSchedule"
			}]
			NOTE
			If this parameter is not specified or left empty, the custom taints of the node pool will be deleted.

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Parameter	Mandatory	Type	Description

k8sTags	Yes	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed. This parameter is left blank by default.
			• **Key**: Enter 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain containing a maximum of 253 characters (such as **example.com/my-key**) can be prefixed to a key.
			• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed.
			Example:
			`"k8sTags": {`
			`  "key": "value"`
			`}`
			NOTE
			If this parameter is not specified or left empty, the custom Kubernetes labels of the node pool will be deleted.

userTags	Yes	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE varies depending on regions and cannot exceed 8. This parameter is left blank by default. **NOTE** If this parameter is not specified or left empty, the custom cloud server tags of the node pool will be deleted.

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Parameter	Mandatory	Type	Description

initializedConditions	No	Array of strings	Custom initialization flag, which is left blank by default.
			Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured. Example:
			1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
			2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
			`status:`
			`  conditions:`
			`  - type: CCEInitial`
			`  status: 'True'`
			`  - type: CustomedInitial`
			`  status: 'True'`
			1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
			2. **initializedConditions** allows you to configure a

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Parameter	Mandatory	Type	Description
			timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node. • Use only letters and digits. Max. characters: 20. • Max. flags: 2. • The unit of the timeout period is minute (m).
login	No	**Login** object	Node login mode.

Table 4-613 Taint

Parameter	Mandatory	Type	Description
key	Yes	String	Key.
value	No	String	Value.
effect	Yes	String	Effect.

Table 4-614 UserTag

Parameter	Mandatory	Type	Description
key	No	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	No	String	Value of the cloud server label.

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Table 4-615 Login

Parameter	Mandatory	Type	Description
sshKey	No	String	Name of the key pair used for login.

Table 4-616 UserPassword

Parameter	Mandatory	Type	Description
username	No	String	Login account. Defaults to **root**.
password	Yes	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$%^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-617 NodePoolNodeAutoscaling

Parameter	Mandatory	Type	Description
enable	No	Boolean	Whether to enable auto scaling.
minNodeCount	No	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.

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Parameter	Mandatory	Type	Description
maxNodeCount	No	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.
scaleDownCooldownTime	No	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	No	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Response Parameters

Status code: 200

Table 4-618 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **NodePool**.
apiVersion	String	API version. The value is fixed at **v3**.
metadata	**NodePoolMetadata** object	Metadata of the node pool.
spec	**NodePoolSpec** object	Node pool specifications.
status	**UpdateNodePoolStatus** object	Node pool status.

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Table 4-619 NodePoolMetadata

Parameter	Type	Description
name	String	Node pool name. **NOTE** Naming rules: Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.
uid	String	UID of the node pool. The value is automatically generated after the object is updated. A user-defined value will not take effect.
annotations	Map<String,String>	Annotations of a node pool in key-value pairs. This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-620 NodePoolSpec

Parameter	Type	Description
type	String	Node pool type. If this parameter is left blank, the value **vm** is used by default. • **vm**: ECS • **ElasticBMS**: C6 general computing-plus BMS. An example flavor is **c6.22xlarge.2.physical**. • **bms**: BMS
nodeTemplate	**NodeSpec** object	Detailed parameters of the node pool template.
initialNodeCount	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool.
autoscaling	**NodePoolNodeAutoscaling** object	Auto scaling parameters

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Parameter	Type	Description
nodeManagement	**NodeManagement** object	Node management configuration
podSecurityGroups	Array of **SecurityID** objects	Security group configuration. This parameter is available only for CCE Turbo clusters.
customSecurityGroups	Array of strings	Custom security group settings for a node pool. New nodes scaled out in a node pool can be bound to a specified security group. • Specifying no security group ID will add the new nodes to the default security group of the worker nodes. • Specifying a valid security group ID will put new nodes in that security group. • When specifying a security group, do not modify the rules of the port on which CCE running depends.

Table 4-621 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.
rootVolume	**Volume** object	Information about disks on the node

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Parameter	Type	Description
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use

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Parameter	Type	Description
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-622 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-623 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-624 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-625 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-626 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-627 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-628 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-629 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-630 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-631 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-632 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-633 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-634 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-635 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-636 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-637 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-638 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-639 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-640 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-641 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-642 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Table 4-643 NodePoolNodeAutoscaling

Parameter	Type	Description
enable	Boolean	Whether to enable auto scaling.
minNodeCount	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.
maxNodeCount	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.

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Parameter	Type	Description
scaleDownCooldownTime	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Table 4-644 NodeManagement

Parameter	Type	Description
serverGroupReference	String	Cloud server group ID. If this field is specified, all nodes in the node pool will be created in this group. The group ID can be specified only when you create the node pool and cannot be modified. When you specify a cloud server group, the number of nodes in the node pool cannot exceed the group quota.

Table 4-645 SecurityID

Parameter	Type	Description
id	String	Security group ID

Table 4-646 UpdateNodePoolStatus

Parameter	Type	Description
currentNode	Integer	Total number of nodes in the current node pool (excluding the nodes that are being deleted).
creatingNode	Integer	Number of nodes that are being created in the node pool.
deletingNode	Integer	Number of nodes that are being deleted in the current node pool.

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Parameter	Type	Description
phase	String	Node pool status. Options: • Null: The node pool is available. (The number of nodes in the current node pool has reached the expected value, and no node scaling is being performed.) • **Synchronizing**: The node pool is being scaled. (The number of nodes in the current node pool has not reached the expected value, and no node scaling is being performed.) • **Synchronized**: The node pool scaling is pending. (The number of nodes in the current node pool has not reached the expected value, or node scaling is being performed.) • **SoldOut**: The node pool cannot be scaled out. (This field is used in multiple scenarios, for example, resources in the node pool have been sold out or the resource quota is insufficient.) **NOTE** This node pool status has been deprecated. It is reserved only for compatibility. Do not use it anymore. Use the following instead: • Node pool scaling status: You can obtain the status of the current node pool using parameters such as **currentNode**, **creatingNode**, or **deletingNode**. • Node pool scale-out: You can use **conditions** to obtain the detailed status of a node pool. **Scalable** can replace **SoldOut**. • **Deleting**: The node pool is being deleted. • **Error**: An error occurred in the node pool.
conditions	Array of **NodePoolCondition** objects	Node pool status details. For details, see the definition of **Condition**.

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Table 4-647 NodePoolCondition

Parameter	Type	Description
type	String	Condition type. The options are as follows: • **Scalable**: whether a node pool can be scaled. If the status is **False**, node pool scaling will not be triggered again. • **QuotaInsufficient**: Quotas on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **ResourceInsufficient**: Resources on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **UnexpectedError**: The node pool fails to be scaled out due to unexpected reasons, affecting the node pool scaling status. • **Error**: A node pool error occurs. A common trigger is deletion failure.
status	String	Current status of **Condition**. The options are as follows: • "True" • "False"
lastProbeTime	String	Time when the status was last checked
lastTransitTime	String	Time when the status was last changed
reason	String	Reason why the status was last changed
message	String	Detailed condition description

Example Requests

- Change the number of nodes in the node pool to 1.

```
PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}

{
  "metadata" : {
    "name" : "lc-it-nodepool-3"
  },
  "spec" : {
    "nodeTemplate" : {
      "k8sTags" : { },
      "taints" : [ {
        "key" : "status",
        "value" : "unavailable",
        "effect" : "NoSchedule"
      } ],
      "userTags" : [ ]
    },
    "autoscaling" : {
      "enable" : false,
      "minNodeCount" : 0,
```

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```
    "maxNodeCount" : 0,
    "scaleDownCooldownTime" : 0,
    "priority" : 0
   },
   "initialNodeCount" : 1
  }
}
```

- Modify the key pair.

```
PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}

{
  "metadata" : {
    "name" : "lc-it-nodepool-2"
  },
  "spec" : {
    "nodeTemplate" : {
      "k8sTags" : { },
      "taints" : [ {
        "key" : "status",
        "value" : "unavailable",
        "effect" : "NoSchedule"
      } ],
      "userTags" : [ ],
      "login" : {
        "sshKey" : "KeyPair-IES"
      }
    },
    "autoscaling" : {
      "enable" : false,
      "minNodeCount" : 0,
      "maxNodeCount" : 0,
      "scaleDownCooldownTime" : 0,
      "priority" : 0
    },
    "initialNodeCount" : 1
  }
}
```

Example Responses

Status code: 200

Information about the specified node pool is successfully updated.

```
{
  "kind" : "NodePool",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "lc-it-nodepool-3",
    "uid" : "1deef848-690d-11ea-a11b-0255ac1001b7"
  },
  "spec" : {
    "initialNodeCount" : 1,
    "type" : "vm",
    "nodeTemplate" : {
      "flavor" : "Sit3.xlarge.2",
      "az" : "******",
      "os" : "EulerOS 2.5",
      "login" : {
        "sshKey" : "KeyPair-001"
      },
      "rootVolume" : {
        "volumetype" : "SAS",
        "size" : 40
      },
      "dataVolumes" : [ {
        "volumetype" : "SAS",
        "size" : 100,
```

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```
      "extendParam" : {
        "useType" : "docker"
      }
    } ],
    "publicIP" : {
      "eip" : {
        "bandwidth" : { }
      }
    },
    "nodeNicSpec" : {
      "primaryNic" : {
        "subnetId" : "7e767d10-7548-4df5-ad72-aeac1d08bd8a"
      }
    },
    "billingMode" : 0,
    "extendParam" : {
      "maxPods" : 110
    },
    "k8sTags" : {
      "cce.cloud.com/cce-nodepool" : "lc-it-nodepool-3"
    }
  },
  "autoscaling" : { },
  "nodeManagement" : { }
 },
 "status" : {
  "phase" : ""
 }
}
```


Status Codes

Status Code	Description
200	Information about the specified node pool is successfully updated.

Error Codes

See **Error Codes**.

4.4.5 Deleting a Node Pool

Function

This API is used to delete a specified node pool.

NOTE

The URL for cluster management is in the format of https://Endpoint/uri. In the URL, **uri** indicates the resource path, that is, the path for API access.

URI

DELETE /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}

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Table 4-648 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
nodepool_id	Yes	String	Node pool ID.

Request Parameters

Table 4-649 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-650 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **NodePool**.
apiVersion	String	API version. The value is fixed at **v3**.
metadata	**NodePoolMetadata** object	Metadata of the node pool.
spec	**NodePoolSpec** object	Node pool specifications.

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Parameter	Type	Description
status	DeleteNodePoolStatus object	Node pool status.

Table 4-651 NodePoolMetadata

Parameter	Type	Description
name	String	Node pool name. **NOTE** Naming rules: Enter 1 to 50 characters, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed. • You cannot create node pools named DefaultPool.
uid	String	UID of the node pool. The value is automatically generated after the object is updated. A user-defined value will not take effect.
annotations	Map<String,String>	Annotations of a node pool in key-value pairs. This parameter is used only for query and cannot be input through a request. Entered data of this parameter is invalid.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-652 NodePoolSpec

Parameter	Type	Description
type	String	Node pool type. If this parameter is left blank, the value **vm** is used by default. • **vm**: ECS • **ElasticBMS**: C6 general computing-plus BMS. An example flavor is **c6.22xlarge.2.physical**. • **bms**: BMS
nodeTemplate	NodeSpec object	Detailed parameters of the node pool template.

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Parameter	Type	Description
initialNodeCount	Integer	Initial number of nodes for the node pool. When queried, the value is the number of target nodes in the node pool.
autoscaling	**NodePoolNodeAutoscaling** object	Auto scaling parameters
nodeManagement	**NodeManagement** object	Node management configuration
podSecurityGroups	Array of **SecurityID** objects	Security group configuration. This parameter is available only for CCE Turbo clusters.
customSecurityGroups	Array of strings	Custom security group settings for a node pool. New nodes scaled out in a node pool can be bound to a specified security group. • Specifying no security group ID will add the new nodes to the default security group of the worker nodes. • Specifying a valid security group ID will put new nodes in that security group. • When specifying a security group, do not modify the rules of the port on which CCE running depends.

Table 4-653 NodeSpec

Parameter	Type	Description
flavor	String	Node specifications. For details about the node specifications supported by CCE, see **Node Flavor Description**.
az	String	Name of the AZ where the node to be created is located. . .

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Parameter	Type	Description
os	String	The OS type of the node. For details about the supported OSs, see [Node OS Description](node-os.xml). **NOTE** • The system automatically selects the supported OS based on the cluster version. If the current cluster does not support the OS, an error will be reported. • If **alpha.cce/NodeImageID** in **extendParam** is specified during node creation, you do not need to configure this parameter. • This parameter is mandatory when creating a node pool.
login	**Login** object	Node login mode.
rootVolume	**Volume** object	Information about disks on the node
dataVolumes	Array of **Volume** objects	Data disk parameters of the node. Currently, you can add the second data disk for your node on the CCE console. This data disk is used by the container runtime and kubelet. Do not uninstall this disk. Otherwise, the node will become unavailable. For DeC nodes, the parameter description is the same as that for **rootVolume**.
storage	**Storage** object	Disk initialization management parameter. This parameter is complex to configure. For details, see **Attaching Disks to a Node**. If this parameter retains its default, disks are managed based on the DockerLVMConfigOverride (discarded) parameter in extendParam. This parameter is supported by clusters of version 1.15.11 and later. **NOTE** If a node specification involves local disks and EVS disks at the same time, do not retain the default value of this parameter to prevent unexpected disk partitions.
publicIP	**NodePublicIP** object	EIP of a node. **NOTE** This parameter is not supported when you add a node to a node pool.
nodeNicSpec	**NodeNicSpec** object	NIC of the node

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Parameter	Type	Description
count	Integer	Number of nodes to be created in a batch. The value must be a positive integer greater than or equal to 1 and less than or equal to the defined limit. This parameter can be left blank when it is used for a node pool.
billingMode	Integer	Node billing mode. • **0**: pay-per-use
taints	Array of **Taint** objects	You can add taints to created nodes to configure anti-affinity. A maximum of 20 taints can be added. Each taint contains the following parameters: • **Key**: A key must contain 1 to 63 characters starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain name can be used as the prefix of a key. • **Value**: A value must start with a letter or digit and can contain a maximum of 63 characters, including letters, digits, hyphens (-), underscores (_), and periods (.). • **Effect**: Available options are **NoSchedule**, **PreferNoSchedule**, and **NoExecute**. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. Example: `"taints": [{ "key": "status", "value": "unavailable", "effect": "NoSchedule" }, { "key": "looks", "value": "bad", "effect": "NoSchedule" }]`

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Parameter	Type	Description

k8sTags	Map<String,String>	Defined in key-value pairs. A maximum of 20 key-value pairs are allowed.
		• **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key
		• **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query.
		Example:
		`"k8sTags": {`
		`  "key": "value"`
		`}`

ecsGroupId	String	ECS group ID. If this parameter is configured, nodes will be created in the specified ECS group. **NOTE** This configuration does not take effect when a node pool is created. To ensure that all nodes in a node pool are in the same ECS group, configure **nodeManagement** in the node pool.
dedicatedHostId	String	ID of the DeH to which the node is scheduled. **NOTE** This parameter is not supported when you add a node during node pool creation.

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Parameter	Type	Description
userTags	Array of **UserTag** objects	Cloud server tag. The key of a tag must be unique. The maximum number of custom tags supported by CCE depends on the region and cannot exceed 8. When creating a node, you can specify the initial value for this parameter and this field is not returned during query. In using node pools, the initial value can be specified in the node template and this field is returned during query. In other scenarios, this field is not returned during query. **NOTE** Use only letters, Unicode characters, digits, special characters(-,_). Max characters: 36
runtime	**Runtime** object	Container runtime: • Clusters of v1.25 or earlier: **docker**. • Clusters of v1.25 or later: Container runtime varies with the OS. For nodes running EulerOS 2.5 or EulerOS 2.8, the default container runtime is **docker**. For nodes running other OSs, the default container runtime is **containerd**.

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Parameter	Type	Description

initializedConditions	Array of strings	Custom initialization flag, which is left blank by default.
		Before CCE nodes are initialized, **node.cloudprovider.kubernetes.io/uninitialized** is added to the nodes to prevent pods from being scheduled to these nodes. When creating a node, you can configure the **initializedConditions** parameter to control the taint removal time. By default, the timeout period is not configured.
		Example:
		1. Create a node and add parameter "initializedConditions": ["CCEInitial", "CustomedInitial"].
		2. After custom initialization is complete, CCE will call a Kubernetes API (for example, **PATCH /v1/nodes/{node_ip}/status**) to update the node **conditions** by adding two labels of types **CCEInitial** and **CustomedInitial** and setting the status to **True**, as shown in the following:
		`status:`
		`  conditions:`
		`  - type: CCEInitial`
		`    status: 'True'`
		`  - type: CustomedInitial`
		`    status: 'True'`
		1. CCE polls **status.Conditions** of nodes to check whether there are conditions of types **CCEInitial** and **CustomedInitial**. If such conditions exist and the status is **True**, the node initialization is complete and the initialization taint is removed.
		2. **initializedConditions** allows you to configure a timeout period during node creation. For example, "initializedConditions": ["CCEInitial:15m", "CustomedInitial:15m"] indicates that the timeout period is 15 minutes. After the timeout period is reached, the initialization conditions will be automatically ignored and the initialization taint will be removed when CCE polls the node.
		● Use only letters and digits. Max. characters: 20.
		● Max. flags: 2.
		● The unit of the timeout period is minute (m).

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Parameter	Type	Description
extendParam	**NodeExtendParam** object	Extended parameters for creating a node.
hostnameConfig	**HostnameConfig** object	Kubernetes node name configuration parameter, which is supported by clusters of v1.23.6-r0 to v1.25 or clusters of v1.25.2-r0 or later versions.

Table 4-654 Login

Parameter	Type	Description
sshKey	String	Name of the key pair used for login.

Table 4-655 UserPassword

Parameter	Type	Description
username	String	Login account. Defaults to **root**.
password	String	If a username and a password are used to create a node, this field is shielded in the response body. A password must meet the following complexity requirements: • Contains 8 to 26 characters. • Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters (!@$ %^-_=+[{}]:,./?~#*) • Cannot contain the username or the username spelled backwards. The **password** field must be salted during node creation. For details, see **Adding a Salt in the password Field When Creating a Node**.

Table 4-656 Volume

Parameter	Type	Description
size	Integer	Disk size, in GB. • System disk: 40 to 1024

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Parameter	Type	Description
volumetype	String	Disk type. For details about possible values, see the description of the **root_volume** parameter in the API used to create an ECS. • **SAS**: high I/O SAS disk • **SSD**: ultra-high I/O SSD disk • **SATA**: common I/O SATA disk SATA disks have been removed from EVS. You can find them attached only on existing nodes.
extendParam	Map<String,Object>	Extended disk parameters, defined in **extendparam** in the API used to create an ECS.
cluster_id	String	ID of the storage pool used by the ECS system disk. This field is used only for DeC clusters, which functions as **dssPoolID**, that is, the ID of the DSS storage pool.
cluster_type	String	Storage class of the cloud server system disk. The value is always **dss**. This field is used only for DeC clusters.
hw:passthrough	Boolean	• Pay attention to this field if your ECS is SDI-compliant. If the value of this field is **true**, an SCSI disk will be created. • If the node pool type is **ElasticBMS**, this field must be set to **true**. • If a node specification involves local disks and EVS disks at the same time, set the disk initialization parameters. For details, see **Attaching Disks to a Node**.
metadata	**VolumeMetadata** object	EVS disk encryption information. This field is mandatory only when you need to encrypt the system disk or data disks of the node to be created.

Table 4-657 VolumeMetadata

Parameter	Type	Description
__system__encrypted	String	Whether the EVS disk is encrypted. The value **0** indicates that the EVS disk is not encrypted, and the value **1** indicates that the EVS disk is encrypted. If this parameter is not specified, EVS disks will not be encrypted by default.

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Parameter	Type	Description
__system__cmkid	String	CMK ID, which indicates encryption in **metadata**. This field is used with **__system__encrypted**.

Table 4-658 Storage

Parameter	Type	Description
storageSelectors	Array of **StorageSelectors** objects	Disk selection. Matched disks are managed according to **matchLabels** and **storageType**.
storageGroups	Array of **StorageGroups** objects	A storage group consists of multiple storage devices. It is used to divide storage space.

Table 4-659 StorageSelectors

Parameter	Type	Description
name	String	Selector name, used as the index of **selectorNames** in **storageGroup**. Therefore, the name of each selector must be unique.
storageType	String	Specifies the storage type. Currently, only **evs** (EVS volumes) and **local** (local volumes) are supported. The local storage does not support disk selection. All local disks will form a VG. Therefore, only one storageSelector of the local type is allowed.
matchLabels	**matchLabels** object	Matching field of an EVS volume. The **size**, **volumeType**, **metadataEncrypted**, **metadataCmkid** and **count** fields are supported.

Table 4-660 matchLabels

Parameter	Type	Description
size	String	Matched disk size. If this parameter is left unspecified, the disk size is not limited. Example: 100
volumeType	String	EVS disk type. **SSD**, **GPSSD**, **SAS**, **ESSD**, and **SATA** are supported.

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Parameter	Type	Description
metadataEncrypted	String	Disk encryption identifier. **0** indicates that the disk is not encrypted, and **1** indicates that the disk is encrypted.
metadataCmkid	String	Customer master key ID of an encrypted disk. The value is a 36-byte string.
count	String	Number of disks to be selected. If this parameter is left blank, all disks of this type are selected.

Table 4-661 StorageGroups

Parameter	Type	Description
name	String	Name of a virtual storage group, which must be unique. **NOTE** • If **cceManaged** is set to **true**, the name must be set to **vgpass**. • If the data disk is used as a temporary storage volume, the name must be **vg-everest-localvolume-ephemeral**. • If the data disk is used as a persistent storage volume, the name must be **vg-everest-localvolume-persistent**.
cceManaged	Boolean	Storage space for Kubernetes and runtime components. Only one group can be set to **true**. If this parameter is left blank, the default value **false** is used.
selectorNames	Array of strings	This parameter corresponds to **name** in **storageSelectors**. A group can match multiple selectors, but a selector can match only one group.
virtualSpaces	Array of **VirtualSpace** objects	Detailed management of space configuration in a group.

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Table 4-662 VirtualSpace

Parameter	Type	Description
name	String	Name of a virtualSpace. • **Kubernetes**: Kubernetes space configuration. **lvmConfig** needs to be configured. • **runtime**: runtime space configuration. **runtimeConfig** needs to be configured. • **user**: user space configuration. **lvmConfig** needs to be configured.
size	String	Size of a virtualSpace. The value must be an integer in percentage. Example: 90%. **NOTE** The sum of the percentages of all virtualSpaces in a group cannot exceed 100%.
lvmConfig	**LVMConfig** object	LVM configurations, applicable to **kubernetes** and **user** spaces. Note that one virtual space supports only one config.
runtimeConfig	**RuntimeConfig** object	runtime configurations, applicable to the **runtime** space. Note that one virtual space supports only one config.

Table 4-663 LVMConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.
path	String	Path to which the disk is attached. This parameter takes effect only in user configuration. The value is an absolute path. Digits, letters, periods (.), hyphens (-), and underscores (_) are allowed.

Table 4-664 RuntimeConfig

Parameter	Type	Description
lvType	String	LVM write mode. **linear** indicates the linear mode. **striped** indicates the striped mode, in which multiple disks are used to form a strip to improve disk performance.

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Table 4-665 NodePublicIP

Parameter	Type	Description
ids	Array of strings	IDs of existing EIPs. The quantity cannot be greater than the number of nodes to be created. **NOTE** If **ids** has been set, you do not need to set **count** and **eip**.
count	Integer	Number of EIPs to be dynamically created. **NOTE** **count** and **eip** must be set at the same time.
eip	**NodeEIPSpec** object	EIP configuration.

Table 4-666 NodeEIPSpec

Parameter	Type	Description
iptype	String	EIP type, specified in **publicip.type** in the API for assigning an EIP.
bandwidth	**NodeBandwidth** object	Bandwidth parameters of the EIP

Table 4-667 NodeBandwidth

Parameter	Type	Description
chargemode	String	Bandwidth billing mode. • If this field is not specified, the billing is based on bandwidth. - If the field is null, the billing is based on bandwidth. • If the field value is **traffic**, the billing is based on traffic. • If the value is out of the preceding options, the cloud server will fail to be created. **NOTE** • Billed by bandwidth: The billing will be based on the data transmission rate (in Mbps) of public networks. This billing mode is recommended if your bandwidth usage is higher than 10%. • Billed by traffic: The billing is based on the total amount of data (in GB) transmitted over the public network. This mode is available only when you are creating a pay-per-use node. This billing mode is recommended if your bandwidth usage is lower than 10%.

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Parameter	Type	Description
size	Integer	Bandwidth size, specified in **bandwidth.size** in the API for assigning an EIP.
sharetype	String	Bandwidth sharing type. Value options: **PER** (exclusive bandwidth)

Table 4-668 NodeNicSpec

Parameter	Type	Description
primaryNic	**NicSpec** object	Description of the primary NIC.
extNics	Array of **NicSpec** objects	Extension NIC **NOTE** This parameter is not supported when you add a node to a node pool.

Table 4-669 NicSpec

Parameter	Type	Description
subnetId	String	Network ID of the subnet to which a NIC belongs. If **subnetId** is not specified when a primary NIC is creating, the cluster subnet will be used. If **subnetList** is also configured for a node pool, the **subnetList** field is used for adding subnets to the node pool. When creating an extension NIC, you must specify **subnetId**.
fixedIps	Array of strings	The IP address of the primary ENI is specified using **fixedIps**. The number of IP addresses cannot be greater than the number of created nodes. Either **fixedIps** or **ipBlock** can be specified. fiexdIps cannot be specified for extension ENIs.
ipBlock	String	CIDR format of the primary NIC IP range. The IP address of the created node falls in this range. **fixedIps** and **ipBlock** cannot be specified at the same time.

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Table 4-670 Taint

Parameter	Type	Description
key	String	Key.
value	String	Value.
effect	String	Effect.

Table 4-671 UserTag

Parameter	Type	Description
key	String	Key of the cloud server label. The value cannot start with **CCE-** or **__type_baremetal**.
value	String	Value of the cloud server label.

Table 4-672 Runtime

Parameter	Type	Description
name	String	Container runtime. Default value: • Clusters earlier than v1.25: The default value is **docker**. • Clusters of v1.25 or later: The default container runtime varies depending on the OS. For nodes running EulerOS 2.5, the default container runtime is **docker**; for nodes running other OSs, the default container runtime is **containerd**.

Table 4-673 NodeExtendParam

Parameter	Type	Description
ecs:performancetype	String	ECS flavor types. This field is returned in the response.

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Parameter	Type	Description
maxPods	Integer	Maximum number of pods that can be created on a node, including the default system pods. Value range: 16 to 256. This limit prevents the node from being overloaded of pods. The number of pods that can be created on a node is determined by multiple parameters. For details, see **Maximum Number of Pods That Can Be Created on a Node**.
DockerLVMConfigOverride	String	Docker data disk configuration item. (This parameter has been discarded. Use the **storage** field instead.) Example default configuration: `"DockerLVMConfigOverride":"dockerThinpool=vgpaas/90%VG;kubernetesLV=vgpaas/10%VG;diskType=evs;lvType=linear"` By default, if no VD disk is available, an error occurs because the data disk fails to be found. Set **diskType** based on the actual drive letter type. The following fields are included: • **userLV** (optional): size of the user space, for example, **vgpaas/20%VG**. • **userPath** (optional): mount path of the user space, for example, **/home/wqt-test**. • **diskType**: disk type. Currently, only **evs**, **hdd**, and **ssd** are supported. • **lvType**: type of a logic volume. The value can be **linear** or **striped**. • **dockerThinpool**: Docker space size, for example, **vgpaas/60%VG**. • **kubernetesLV**: kubelet space size, for example, **vgpaas/20%VG**.

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Parameter	Type	Description
dockerBaseSize	Integer	Available disk space of a single container on a node, in GB. If this parameter is left blank or is set to **0**, the default value is used. In Device Mapper mode, the default value is **10**. In OverlayFS mode, the available space of a single container is not limited by default, and the **dockerBaseSize** setting takes effect only on EulerOS nodes in the cluster of the new version. For details about how to allocate the space for the container runtime, see **Data Disk Space Allocation**. When Device Mapper is used, you are advised to set **dockerBaseSize** to a value less than or equal to 80 GB. If the value is too large, the container runtime may fail to be started due to long initialization. If there are special requirements for the container disk space, you can mount an external or local storage device.
publicKey	String	Public key of a node.
alpha.cce/preInstall	String	Pre-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/postInstall	String	Post-installation script. **NOTE** The input value must be Base64-encoded. (Command: echo -n "Content to be encoded" | base64)
alpha.cce/NodeImageID	String	This parameter is required when a custom image is used to create a BMS node.
chargingMode	Integer	Billing mode of a node. This parameter has been deprecated. Use the **billingMode** parameter in **NodeSpec**.
agency_name	String	Name of an agency An agency is created by a tenant administrator on Identity and Access Management (IAM) to provide temporary credentials for CCE nodes to access cloud servers. This parameter is returned only when it is transferred during node creation.
kubeReservedMem	Integer	Reserved node memory, which is reserved for Kubernetes components.

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Parameter	Type	Description
systemReservedMem	Integer	Reserved node memory, which is reserved for system components.
init-node-password	String	Node password. If this parameter is used as a response parameter, asterisks (*) will be displayed.

Table 4-674 HostnameConfig

Parameter	Type	Description
type	String	Configuration type of the Kubernetes node name. The default value is **privateIp**. • **privateIp**: The Kubernetes node is named after its IP address. • **cceNodeName**: The Kubernetes node is named after the CCE node. **NOTE** • For a node which is configured using **cceNodeName**, the name is the same as the Kubernetes node name and the ECS name. The node name cannot be changed. If the ECS name is changed on the ECS console, the node name will retain unchanged after ECS synchronization. • For a node which is configured using **cceNodeName**, to avoid a conflict between Kubernetes nodes, the system automatically adds a suffix to each node name. The suffix is in the format of **A hyphen (-)** *Five random characters*. The value of the random characters is a lowercase letter or a digit ranging from 0 to 9.

Table 4-675 NodePoolNodeAutoscaling

Parameter	Type	Description
enable	Boolean	Whether to enable auto scaling.
minNodeCount	Integer	Minimum number of nodes allowed if auto scaling is enabled. The value cannot be greater than the maximum number of nodes allowed by the cluster specifications.
maxNodeCount	Integer	Maximum number of nodes allowed if auto scaling is enabled. This value must be greater than or equal to the value of **minNodeCount** and cannot exceed the maximum number of nodes in the cluster specifications.

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Parameter	Type	Description
scaleDownCooldownTime	Integer	Interval between two scaling operations, in minutes. During this period, nodes added after a scale-up will not be deleted.
priority	Integer	Weight of a node pool. A node pool with a higher weight has a higher priority during scaling.

Table 4-676 NodeManagement

Parameter	Type	Description
serverGroupReference	String	Cloud server group ID. If this field is specified, all nodes in the node pool will be created in this group. The group ID can be specified only when you create the node pool and cannot be modified. When you specify a cloud server group, the number of nodes in the node pool cannot exceed the group quota.

Table 4-677 SecurityID

Parameter	Type	Description
id	String	Security group ID

Table 4-678 DeleteNodePoolStatus

Parameter	Type	Description
currentNode	Integer	Total number of nodes in the current node pool (excluding the nodes that are being deleted).
creatingNode	Integer	Number of nodes that are being created in the node pool.
deletingNode	Integer	Number of nodes that are being deleted in the current node pool.

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Parameter	Type	Description
phase	String	Node pool status. Options: • Null: The node pool is available. (The number of nodes in the current node pool has reached the expected value, and no node scaling is being performed.) • **Synchronizing**: The node pool is being scaled. (The number of nodes in the current node pool has not reached the expected value, and no node scaling is being performed.) • **Synchronized**: The node pool scaling is pending. (The number of nodes in the current node pool has not reached the expected value, or node scaling is being performed.) • **SoldOut**: The node pool cannot be scaled out. (This field is used in multiple scenarios, for example, resources in the node pool have been sold out or the resource quota is insufficient.) **NOTE** This node pool status has been deprecated. It is reserved only for compatibility. Do not use it anymore. Use the following instead: • Node pool scaling status: You can obtain the status of the current node pool using parameters such as **currentNode**, **creatingNode**, or **deletingNode**. • Node pool scale-out: You can use **conditions** to obtain the detailed status of a node pool. **Scalable** can replace **SoldOut**. • **Deleting**: The node pool is being deleted. • **Error**: An error occurred in the node pool.
jobId	String	ID of a job executed on the node pool.
conditions	Array of **NodePoolCondition** objects	Node pool status details. For details, see the definition of **Condition**.

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Table 4-679 NodePoolCondition

Parameter	Type	Description
type	String	Condition type. The options are as follows: • **Scalable**: whether a node pool can be scaled. If the status is **False**, node pool scaling will not be triggered again. • **QuotaInsufficient**: Quotas on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **ResourceInsufficient**: Resources on which node pool scaling depends are insufficient, affecting the node pool scaling status. • **UnexpectedError**: The node pool fails to be scaled out due to unexpected reasons, affecting the node pool scaling status. • **Error**: A node pool error occurs. A common trigger is deletion failure.
status	String	Current status of **Condition**. The options are as follows: • "True" • "False"
lastProbeTime	String	Time when the status was last checked
lastTransitTime	String	Time when the status was last changed
reason	String	Reason why the status was last changed
message	String	Detailed condition description

Example Requests

None

Example Responses

Status code: 200

The job for deleting the node pool is successfully delivered.

```
{
  "kind" : "NodePool",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "lc-it-nodepool-79796",
    "uid" : "99addaa2-69eb-11ea-a592-0255ac1001bb"
  },
  "spec" : {
    "type" : "vm",
    "nodeTemplate" : {
```

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```
    "flavor" : "s6.large.2",
    "az" : "*******",
    "os" : "EulerOS 2.5",
    "login" : {
      "sshKey" : "KeyPair-001"
    },
    "rootVolume" : {
      "volumetype" : "SAS",
      "size" : 40
    },
    "dataVolumes" : [ {
      "volumetype" : "SAS",
      "size" : 100,
      "extendParam" : {
        "useType" : "docker"
      }
    } ],
    "publicIP" : {
      "eip" : {
        "bandwidth" : { }
      }
    },
    "nodeNicSpec" : {
      "primaryNic" : {
        "subnetId" : "7e767d10-7548-4df5-ad72-aeac1d08bd8a"
      }
    },
    "billingMode" : 0,
    "extendParam" : {
      "maxPods" : 110
    },
    "k8sTags" : {
      "cce.cloud.com/cce-nodepool" : "lc-it-nodepool-79796"
    }
  },
  "autoscaling" : { },
  "nodeManagement" : { }
},
"status" : {
  "phase" : "Deleting",
  "jobId" : "3281fa02-69ee-11ea-a592-0255ac1001bb"
}
}
```


Status Codes

Status Code	Description
200	The job for deleting the node pool is successfully delivered.

Error Codes

See **Error Codes**.

4.5 Storage Management

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4.5.1 Creating a PVC (to be discarded)

Function

This API is used to create a PersistentVolumeClaim (PVC) in a specified namespace. A PVC is a request for PersistentVolume (PV). The PV carries details of real cloud storage such as EVS disks, SFS file systems, and OBS buckets. This API is to be deprecated. Use the corresponding Kubernetes PVC API instead.

NOTE

The URL for storage management is in the format of **https://{clusterid}.Endpoint/uri**. In the URL, *{clusterid}* indicates the cluster ID, and *uri* indicates the resource path, that is, the path for API access. If *https://Endpoint/uri* is used, the **X-Cluster-ID** parameter in the request header must be specified.

URI

POST /api/v1/namespaces/{namespace}/cloudpersistentvolumeclaims

Table 4-680 Path Parameters

Parameter	Mandatory	Type	Description
namespace	Yes	String	Namespace where the PVC is located. Constraints: • Custom namespace. You must create a namespace in the cluster before using it. • The namespace provided by the system is namespace **default**. • Namespaces **kube-system** and **kube-public** cannot be used.

Request Parameters

Table 4-681 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.
X-Cluster-ID	No	String	Cluster ID. This field is mandatory when the URL format **https://Endpoint/uri** is used. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Table 4-682 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version. The value is fixed at **v1**.
kind	Yes	String	API type. The value is fixed at **PersistentVolumeClaim**.
metadata	Yes	**PersistentVolumeClaimMetadata** object	Cluster object metadata, which is a collection of attributes.
spec	Yes	**PersistentVolumeClaimSpec** object	Detailed description of the cluster object. CCE creates or updates objects by defining or updating **spec**.
status	No	**PersistentVolumeClaimStatus** object	PVC status. The request to create a PVC does not need to carry this parameter.

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Table 4-683 PersistentVolumeClaimMetadata

Parameter	Mandatory	Type	Description
name	Yes	String	PVC name. Enter 1 to 253 characters starting and ending with a letter or digit. Only lowercase letters, digits, hyphens (-), and periods (.) are allowed. PVC names must be unique in a namespace.
labels	No	String	PVC labels, in the format of key-value pairs. • **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key • **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string.

Table 4-684 PersistentVolumeClaimSpec

Parameter	Mandatory	Type	Description
volumeID	Yes	String	ID of an existing storage volume. • If an SFS, EVS, or SFS Turbo volume is used, set this parameter to the ID of the volume. • If an OBS bucket is used, set this parameter to the OBS bucket name.

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Parameter	Mandatory	Type	Description
storageType	Yes	String	Cloud storage class. This parameter is used together with **volumeID**. That is, **volumeID** and **storageType** must be configured at the same time. • **bs**: EVS • **nfs**: SFS • **obs**: OBS • **efs**: SFS Turbo
accessModes	Yes	Array of strings	Access mode of the volume. Only the first value in all selected options is valid. • **ReadWriteOnce**: The volume can be mounted as read-write by a single node. **NOTE** This function is supported only when the cluster version is v1.13.10 and the storage-driver version is 1.0.19. • **ReadOnlyMany** (default): The volume can be mounted as read-only by many nodes. • **ReadWriteMany**: The volume can be mounted as read-write by many nodes.
storageClassName	No	String	Storage class name of the PVC.
volumeName	No	String	Name of the PV bound to the PVC.
resources	No	**ResourceRequirements** object	Resource requests and limits.
volumeMode	No	String	PV type specified by the PVC.

Table 4-685 ResourceRequirements

Parameter	Mandatory	Type	Description
limits	No	Map<String,String>	Resource limits. This parameter is invalid during creation.

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Parameter	Mandatory	Type	Description
requests	No	Map<String,String>	Resource requests. This parameter is invalid during creation.

Table 4-686 PersistentVolumeClaimStatus

Parameter	Mandatory	Type	Description
accessModes	No	Array of strings	Access mode of the PV.
capacity	No	String	Actual resources and capacity of the PV.
phase	No	String	Current status of the PVC.

Response Parameters

Status code: 201

Table 4-687 Response body parameters

Parameter	Type	Description
apiVersion	String	API version. The value is fixed at **v1**.
kind	String	API type. The value is fixed at **PersistentVolumeClaim**.
metadata	**PersistentVolumeClaimMetadata** object	Cluster object metadata, which is a collection of attributes.
spec	**PersistentVolumeClaimSpec** object	Detailed description of the cluster object. CCE creates or updates objects by defining or updating **spec**.
status	**PersistentVolumeClaimStatus** object	PVC status. The request to create a PVC does not need to carry this parameter.

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Table 4-688 PersistentVolumeClaimMetadata

Parameter	Type	Description
name	String	PVC name. Enter 1 to 253 characters starting and ending with a letter or digit. Only lowercase letters, digits, hyphens (-), and periods (.) are allowed. PVC names must be unique in a namespace.
labels	String	PVC labels, in the format of key-value pairs. • **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key • **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string.

Table 4-689 PersistentVolumeClaimSpec

Parameter	Type	Description
volumeID	String	ID of an existing storage volume. • If an SFS, EVS, or SFS Turbo volume is used, set this parameter to the ID of the volume. • If an OBS bucket is used, set this parameter to the OBS bucket name.
storageType	String	Cloud storage class. This parameter is used together with **volumeID**. That is, **volumeID** and **storageType** must be configured at the same time. • **bs**: EVS • **nfs**: SFS • **obs**: OBS • **efs**: SFS Turbo

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Parameter	Type	Description
accessModes	Array of strings	Access mode of the volume. Only the first value in all selected options is valid. • **ReadWriteOnce**: The volume can be mounted as read-write by a single node. **NOTE** This function is supported only when the cluster version is v1.13.10 and the storage-driver version is 1.0.19. • **ReadOnlyMany** (default): The volume can be mounted as read-only by many nodes. • **ReadWriteMany**: The volume can be mounted as read-write by many nodes.
storageClassName	String	Storage class name of the PVC.
volumeName	String	Name of the PV bound to the PVC.
resources	**ResourceRequirements** object	Resource requests and limits.
volumeMode	String	PV type specified by the PVC.

Table 4-690 ResourceRequirements

Parameter	Type	Description
limits	Map<String,String>	Resource limits. This parameter is invalid during creation.
requests	Map<String,String>	Resource requests. This parameter is invalid during creation.

Table 4-691 PersistentVolumeClaimStatus

Parameter	Type	Description
accessModes	Array of strings	Access mode of the PV.
capacity	String	Actual resources and capacity of the PV.
phase	String	Current status of the PVC.

Example Requests

Specifying an EVS volume ID and creating a PVC

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```
POST /api/v1/namespaces/default/cloudpersistentvolumeclaims

{
  "apiVersion" : "v1",
  "kind" : "PersistentVolumeClaim",
  "metadata" : {
    "name" : "csms-dev-create",
    "namespace" : "default"
  },
  "spec" : {
    "volumeID" : "86b29e16-23db-11e7-9c83-fa163ec08232",
    "storageType" : "bs",
    "accessModes" : [ "ReadWriteMany" ]
  }
}
```

Example Responses

Status code: 201

The job for creating a PVC is successfully delivered.

```
{
  "kind" : "PersistentVolumeClaim",
  "apiVersion" : "v1",
  "metadata" : {
    "name" : " csms-dev-create ",
    "namespace" : "default",
    "selfLink" : "/api/v1/namespaces/default/persistentvolumeclaims/db-mysql-0",
    "uid" : "86b29e16-23db-11e7-9c83-fa163ec08232",
    "resourceVersion" : "1793115",
    "creationTimestamp" : "2017-04-18T02:05:42Z"
  },
  "spec" : {
    "volumeName" : "csms-dev-create ",
    "accessModes" : [ "ReadWriteMany" ],
    "resources" : {
      "requests" : {
        "storage" : "1Gi"
      }
    }
  },
  "status" : {
    "phase" : "Pending",
    "accessModes" : [ "ReadWriteMany" ]
  }
}
```

Status Codes

Status Code	Description
201	The job for creating a PVC is successfully delivered.

Error Codes

See **Error Codes**.

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4.5.2 Deleting a PVC (to be discarded)

Function

This API is used to delete a PVC from a specified namespace. Using this API, you can determine whether to retain the cloud storage volume associated with the PVC. This API has been deprecated. Use the corresponding Kubernetes PV API instead.

NOTE

The URL for storage management is in the format of **https://{clusterid}.Endpoint/uri**. In the URL, *{clusterid}* indicates the cluster ID, and *uri* indicates the resource path, that is, the path for API access. If *https://Endpoint/uri* is used, the **X-Cluster-ID** parameter in the request header must be specified.

URI

DELETE /api/v1/namespaces/{namespace}/cloudpersistentvolumeclaims/{name}

Table 4-692 Path Parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Name of the PVC to be deleted.
namespace	Yes	String	Namespace where the PVC is located.

Table 4-693 Query Parameters

Parameter	Mandatory	Type	Description
deleteVolume	No	String	Whether to delete associated backend cloud storage volume after the PVC is deleted. The value can be **true** (delete) or **false** (not delete). The value defaults to **false**.
storageType	No	String	Cloud storage type. This parameter is used together with deleteVolume. That is, **deleteVolume** and **storageType** must be configured at the same time. • **bs**: EVS • **nfs**: SFS • **obs**: OBS • **efs**: SFS Turbo

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Request Parameters

Table 4-694 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.
X-Cluster-ID	No	String	Cluster ID. This field is mandatory when the URL format **https://Endpoint/uri** is used. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Response Parameters

Status code: 200

Table 4-695 Response body parameters

Parameter	Type	Description
apiVersion	String	API version. The value is fixed at **v1**.
kind	String	API type. The value is fixed at **PersistentVolumeClaim**.
metadata	**PersistentVolumeClaimMetadata** object	Cluster object metadata, which is a collection of attributes.
spec	**PersistentVolumeClaimSpec** object	Detailed description of the cluster object. CCE creates or updates objects by defining or updating **spec**.
status	**PersistentVolumeClaimStatus** object	PVC status. The request to create a PVC does not need to carry this parameter.

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Table 4-696 PersistentVolumeClaimMetadata

Parameter	Type	Description
name	String	PVC name. Enter 1 to 253 characters starting and ending with a letter or digit. Only lowercase letters, digits, hyphens (-), and periods (.) are allowed. PVC names must be unique in a namespace.
labels	String	PVC labels, in the format of key-value pairs. • **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: example.com/my-key • **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string.

Table 4-697 PersistentVolumeClaimSpec

Parameter	Type	Description
volumeID	String	ID of an existing storage volume. • If an SFS, EVS, or SFS Turbo volume is used, set this parameter to the ID of the volume. • If an OBS bucket is used, set this parameter to the OBS bucket name.
storageType	String	Cloud storage class. This parameter is used together with **volumeID**. That is, **volumeID** and **storageType** must be configured at the same time. • **bs**: EVS • **nfs**: SFS • **obs**: OBS • **efs**: SFS Turbo

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Parameter	Type	Description
accessModes	Array of strings	Access mode of the volume. Only the first value in all selected options is valid. • **ReadWriteOnce**: The volume can be mounted as read-write by a single node. **NOTE** This function is supported only when the cluster version is v1.13.10 and the storage-driver version is 1.0.19. • **ReadOnlyMany** (default): The volume can be mounted as read-only by many nodes. • **ReadWriteMany**: The volume can be mounted as read-write by many nodes.
storageClassName	String	Storage class name of the PVC.
volumeName	String	Name of the PV bound to the PVC.
resources	**ResourceRequirements** object	Resource requests and limits.
volumeMode	String	PV type specified by the PVC.

Table 4-698 ResourceRequirements

Parameter	Type	Description
limits	Map<String,String>	Resource limits. This parameter is invalid during creation.
requests	Map<String,String>	Resource requests. This parameter is invalid during creation.

Table 4-699 PersistentVolumeClaimStatus

Parameter	Type	Description
accessModes	Array of strings	Access mode of the PV.
capacity	String	Actual resources and capacity of the PV.
phase	String	Current status of the PVC.

Example Requests

None

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Example Responses

None

Status Codes

Status Code	Description
200	The job for deleting a PVC is successfully delivered.

Error Codes

See **Error Codes**.

4.6 Add-on Management

4.6.1 Installing an Add-on Instance

Function

This API is used to install an add-on instance by using an add-on template.

URI

POST /api/v3/addons

Request Parameters

Table 4-700 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-701 Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **Addon** and cannot be changed. Any user-defined value is invalid.
apiVersion	Yes	String	API version. The value is fixed at **v3** and cannot be changed. Any user-defined value is invalid.
metadata	Yes	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	Yes	**InstanceRequestSpec** object	Detailed description of add-on installation or upgrade.

Table 4-702 AddonMetadata

Parameter	Mandatory	Type	Description
uid	No	String	Unique ID
name	No	String	Add-on name
alias	No	String	Add-on alias
labels	No	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	No	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	No	String	Updated at
creationTimestamp	No	String	Created at

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Table 4-703 InstanceRequestSpec

Parameter	Mandatory	Type	Description
version	No	String	Version of the add-on to install or upgrade, for example, **1.0.0**. • Installation: This parameter is optional. If not specified, the latest version supported by the cluster is used. • Upgrade: This parameter is mandatory. The version number must be specified.
clusterID	Yes	String	Cluster ID.
values	Yes	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). During the add-on upgrade, you need to specify all the installation parameters. If the parameters are not specified, the default values in the add-on template are used. The current add-on installation parameters can be obtained through the API for querying add-on instances.
addonTemplateName	Yes	String	Name of the add-on template to be installed, for example, **coredns**.

Response Parameters

Status code: 201

Table 4-704 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.

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Parameter	Type	Description
spec	**InstanceSpec** object	Detailed description of the add-on instance.
status	**AddonInstanceStatus** object	Add-on instance status.

Table 4-705 AddonMetadata

Parameter	Type	Description
uid	String	Unique ID
name	String	Add-on name
alias	String	Add-on alias
labels	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	String	Updated at
creationTimestamp	String	Created at

Table 4-706 InstanceSpec

Parameter	Type	Description
clusterID	String	Cluster ID.
version	String	Add-on template version, for example, **1.0.0**.
addonTemplateName	String	Add-on template name, for example, **coredns**.
addonTemplateType	String	Add-on template type.
addonTemplateLogo	String	URL for obtaining the add-on template logo.

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Parameter	Type	Description
addonTemplateLabels	Array of strings	Labels of the add-on template.
description	String	Add-on template description.
values	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). Set the parameters accordingly.

Table 4-707 AddonInstanceStatus

Parameter	Type	Description
status	String	Statuses of add-on instances. Options: • **running**: All of the add-on instances are running and the add-on is running properly. • **abnormal**: The add-on instances are abnormal and the add-on cannot be used. Click the add-on name to view exceptions. • **installing**: The add-on is being installed. • **installFailed**: Installing the add-on failed. In this case, uninstall the add-on and then reinstall it. • **upgrading**: The add-on is being upgraded. • **upgradeFailed**: Upgrading the add-on failed. In this case, upgrade the add-on again or uninstall the add-on and reinstall it. • **deleting**: The add-on is being deleted. • **deleteFailed**: Deleting the add-on failed. In this case, uninstall the add-on again. • **deleteSuccess**: Deleting the add-on succeeded. • **available**: Only some instances of the add-on are running. This indicates that some functions of the add-on are available. • **rollbacking**: The add-on is being rolled back. • **rollbackFailed**: Rolling back the add-on failed. In this case, roll back the add-on again or uninstall the add-on and reinstall it. • **unknown**: The add-on chart instance does not exist.
Reason	String	Cause of the add-on installation failure.

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Parameter	Type	Description
message	String	Installation error details.
targetVersions	Array of strings	Versions to which the current add-on version can be upgraded.
currentVersion	**Versions** object	Information about the current add-on version.
isRollbackable	Boolean	Whether the add-on version can be rolled back to the source version.
previousVersion	String	The add-on version before upgrade or rollback

Table 4-708 Versions

Parameter	Type	Description
version	String	Add-on version.
input	Object	Add-on installation parameters.
stable	Boolean	Whether the add-on version is a stable release.
translate	Object	Translation information used by the GUI.
supportVersions	Array of **SupportVersions** objects	Cluster versions that support the add-on.
creationTimestamp	String	Creation time.
updateTimestamp	String	Update time.

Table 4-709 SupportVersions

Parameter	Type	Description
clusterType	String	Cluster type that supports the add-on.
clusterVersion	Array of strings	Cluster versions that support the add-on. The value is a regular expression.

Example Requests

Install the coredns add-on of version 1.17.15. The add-on specification is 2500 QPS, and the number of add-on instances is 2.

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```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "metadata" : {
    "annotations" : {
      "addon.install/type" : "install"
    }
  },
  "spec" : {
    "clusterID" : "1b2ec02d-a3b2-11ec-b0d0-0255ac100099",
    "version" : "1.17.15",
    "addonTemplateName" : "coredns",
    "values" : {
      "basic" : {
        "cluster_ip" : "10.247.3.10",
        "image_version" : "1.17.15",
        "platform" : "linux-amd64",
        "swr_addr" : "<Replace_SWR_address>",
        "swr_user" : "hwofficial",
        "rbac_enabled" : true
      },
      "flavor" : {
        "name" : 2500,
        "replicas" : 2,
        "resources" : [ {
          "limitsCpu" : "500m",
          "limitsMem" : "512Mi",
          "name" : "coredns",
          "requestsCpu" : "500m",
          "requestsMem" : "512Mi"
        } ]
      },
      "custom" : {
        "stub_domains" : { },
        "upstream_nameservers" : [ ],
        "cluster_id" : "1b2ec02d-a3b2-11ec-b0d0-0255ac100099",
        "tenant_id" : "0504201b6c80256b2f08c0099f0c8fe4"
      }
    }
  }
}
```

Example Responses

Status code: 201

OK

```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "b748aaea-a984-11ec-987b-0255ac1000bc",
    "name" : "coredns",
    "alias" : "coredns",
    "creationTimestamp" : "2022-03-22T02:06:41Z",
    "updateTimestamp" : "2022-03-22T02:06:41Z"
  },
  "spec" : {
    "clusterID" : "1b2ec02d-a3b2-11ec-b0d0-0255ac100099",
    "version" : "1.17.15",
    "addonTemplateName" : "coredns",
    "addonTemplateType" : "helm",
    "addonTemplateLogo" : "",
    "addonTemplateLabels" : [ "ServiceDiscovery" ],
    "description" : "CoreDNS is a DNS server that chains plugins and provides Kubernetes DNS Services",
    "values" : {
      "basic" : {
        "cluster_ip" : "10.247.3.10",
```

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```
      "image_version" : "1.17.15",
      "platform" : "linux-amd64",
      "rbac_enabled" : true,
      "swr_addr" : "",
      "swr_user" : "hwofficial"
    },
    "custom" : {
      "cluster_id" : "1b2ec02d-a3b2-11ec-b0d0-0255ac100099",
      "stub_domains" : { },
      "tenant_id" : "0504201b6c80256b2f08c0099f0c8fe4",
      "upstream_nameservers" : [ ]
    },
    "flavor" : {
      "name" : 2500,
      "replicas" : 2,
      "resources" : [ {
        "limitsCpu" : "500m",
        "limitsMem" : "512Mi",
        "name" : "coredns",
        "requestsCpu" : "500m",
        "requestsMem" : "512Mi"
      } ]
    }
  }
},
"status" : {
  "status" : "installing",
  "Reason" : "",
  "message" : "",
  "targetVersions" : null,
  "currentVersion" : {
    "version" : "1.17.15",
    "input" : {
      "basic" : {
        "cluster_ip" : "10.247.3.10",
        "image_version" : "1.17.15",
        "platform" : "linux-amd64",
        "swr_addr" : "",
        "swr_user" : "hwofficial"
      },
      "parameters" : {
        "custom" : {
          "stub_domains" : "",
          "upstream_nameservers" : ""
        },
        "flavor1" : {
          "name" : 2500,
          "replicas" : 2,
          "resources" : [ {
            "limitsCpu" : "500m",
            "limitsMem" : "512Mi",
            "name" : "coredns",
            "requestsCpu" : "500m",
            "requestsMem" : "512Mi"
          } ]
        },
        "flavor2" : {
          "name" : 5000,
          "replicas" : 2,
          "resources" : [ {
            "limitsCpu" : "1000m",
            "limitsMem" : "1024Mi",
            "name" : "coredns",
            "requestsCpu" : "1000m",
            "requestsMem" : "1024Mi"
          } ]
        },
        "flavor3" : {
          "name" : 10000,
```


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```
          "replicas" : 2,
          "resources" : [ {
            "limitsCpu" : "2000m",
            "limitsMem" : "2048Mi",
            "name" : "coredns",
            "requestsCpu" : "2000m",
            "requestsMem" : "2048Mi"
          } ]
        },
        "flavor4" : {
          "name" : 20000,
          "replicas" : 4,
          "resources" : [ {
            "limitsCpu" : "2000m",
            "limitsMem" : "2048Mi",
            "name" : "coredns",
            "requestsCpu" : "2000m",
            "requestsMem" : "2048Mi"
          } ]
        }
      }
    },
    "stable" : true,
    "translate" : {
      "en_US" : {
        "addon" : {
          "changeLog" : "Supported CCE clusters of v1.21.",
          "description" : "CoreDNS is a DNS server that chains plugins and provides Kubernetes DNS Services"
        },
        "description" : {
          "Parameters.custom.stub_domains" : "The target nameserver may itself be a Kubernetes service. For instance, you can run your own copy of dnsmasq to export custom DNS names into the ClusterDNS namespace, a JSON map using a DNS suffix key (e.g. \"acme.local\") and a value consisting of a JSON array of DNS IPs.",
          "Parameters.custom.upstream_nameservers" : "If specified, then the values specified replace the nameservers taken by default from the node's /etc/resolv.conf. Limits:a maximum of three upstream nameservers can be specified, A JSON array of DNS IPs.",
          "Parameters.flavor1.description" : "Concurrent domain name resolution ability - External domain name: 2500 qps, Internal domain name: 10000 qps",
          "Parameters.flavor1.name" : 2500,
          "Parameters.flavor2.description" : "Concurrent domain name resolution ability - External domain name: 5000 qps, Internal domain name: 20000 qps",
          "Parameters.flavor2.name" : 5000,
          "Parameters.flavor3.description" : "Concurrent domain name resolution ability - External domain name: 10000 qps, Internal domain name: 40000 qps",
          "Parameters.flavor3.name" : 10000,
          "Parameters.flavor4.description" : "Concurrent domain name resolution ability - External domain name: 20000 qps, Internal domain name: 80000 qps",
          "Parameters.flavor4.name" : 20000
        },
        "key" : {
          "Parameters.custom.stub_domains" : "stub domain",
          "Parameters.custom.upstream_nameservers" : "upstream nameservers"
        }
      },
      "fr_FR" : {
        "addon" : {
          "changeLog" : "Prise en charge du cluster 1.21.",
          "description" : "Un serveur DNS qui enchaîne les plug-ins et fournit des services DNS Kubernetes."
        },
        "description" : {
          "Parameters.custom.stub_domains" : "Le serveur de noms cible peut lui-même être un service Kubernetes. Par exemple, vous pouvez exécuter votre propre copie de dnsmasq pour exporter des noms DNS personnalisés dans l'espace de noms ClusterDNS, une carte JSON à l'aide d'une clé de suffixe DNS (par exemple, «acme.local») et une valeur constituée d'un tableau JSON d'adresses IP DNS.",
          "Parameters.custom.upstream_nameservers" : "Si spécifié, les valeurs spécifiées remplacent les serveurs de noms pris par défaut dans le fichier /etc/resolv.conf du nœud. Limites: un maximum de trois serveurs de noms en amont peuvent être spécifiés, un tableau JSON d'adresses IP DNS.",
          "Parameters.flavor1.description" : "Capacité de résolution de nom de domaine simultanée - Nom de
```

```
domaine externe: 2500 qps, Nom de domaine interne: 10000 qp",
            "Parameters.flavor1.name" : 2500,
            "Parameters.flavor2.description" : "Capacité de résolution de nom de domaine simultanée - Nom de
domaine externe: 5000 qps, Nom de domaine interne: 20000 qp",
            "Parameters.flavor2.name" : 5000,
            "Parameters.flavor3.description" : "Capacité de résolution de nom de domaine simultanée - Nom de
domaine externe: 10000 qps, Nom de domaine interne: 40000 qp",
            "Parameters.flavor3.name" : 10000,
            "Parameters.flavor4.description" : "Capacité de résolution de nom de domaine simultanée - Nom de
domaine externe: 20000 qps, Nom de domaine interne: 80000 qp",
            "Parameters.flavor4.name" : 20000
          },
          "key" : {
            "Parameters.custom.stub_domains" : "domaine stub",
            "Parameters.custom.upstream_nameservers" : "serveurs de noms en amont"
          }
        },
        "zh_CN" : {
          "addon" : {
            "changeLog" : "",
            "description" : ""
          },
          "description" : {
            "Parameters.custom.stub_domains" : "",
            "Parameters.custom.upstream_nameservers" : "",
            "Parameters.flavor1.description" : "",
            "Parameters.flavor1.name" : 2500,
            "Parameters.flavor2.description" : "",
            "Parameters.flavor2.name" : 5000,
            "Parameters.flavor3.description" : "",
            "Parameters.flavor3.name" : 10000,
            "Parameters.flavor4.description" : "",
            "Parameters.flavor4.name" : 20000
          },
          "key" : {
            "Parameters.custom.stub_domains" : "",
            "Parameters.custom.upstream_nameservers" : ""
          }
        }
      },
      "supportVersions" : null,
      "creationTimestamp" : "2021-12-14T13:43:15Z",
      "updateTimestamp" : "2022-01-11T14:32:10Z"
    }
  }
}
```


Status Codes

Status Code	Description
201	OK

Error Codes

See **Error Codes**.

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4.6.2 Listing Add-on Templates

Function

This API is used to query add-on templates.

URI

GET /api/v3/addontemplates

Table 4-710 Query Parameters

Parameter	Mandatory	Type	Description
addon_template_name	No	String	Add-on name or alias for search. If this parameter is not specified, all the add-ons will be searched.

Request Parameters

Table 4-711 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-712 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.

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Parameter	Type	Description
items	Array of **AddonTemplate** objects	List of add-on templates.

Table 4-713 AddonTemplate

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**Templatespec** object	Detailed description of the add-on template.

Table 4-714 AddonMetadata

Parameter	Type	Description
uid	String	Unique ID
name	String	Add-on name
alias	String	Add-on alias
labels	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	String	Updated at
creationTimestamp	String	Created at

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Table 4-715 Templatespec

Parameter	Type	Description
type	String	Template type. The value is **helm** or **static**.
require	Boolean	Whether the add-on is mandatory.
labels	Array of strings	Group to which the template belongs.
logoURL	String	URL of the logo image.
readmeURL	String	Add-on details and usage description.
description	String	Description
versions	Array of **Versions** objects	Template version details.

Table 4-716 Versions

Parameter	Type	Description
version	String	Add-on version.
input	Object	Add-on installation parameters.
stable	Boolean	Whether the add-on version is a stable release.
translate	Object	Translation information used by the GUI.
supportVersions	Array of **SupportVersions** objects	Cluster versions that support the add-on.
creationTimestamp	String	Creation time.
updateTimestamp	String	Update time.

Table 4-717 SupportVersions

Parameter	Type	Description
clusterType	String	Cluster type that supports the add-on.
clusterVersion	Array of strings	Cluster versions that support the add-on. The value is a regular expression.

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Example Requests

None

Example Responses

Status code: 200

OK


```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "items" : [ {
    "kind" : "Addon",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "coredns",
      "name" : "coredns",
      "alias" : "coredns",
      "creationTimestamp" : "2018-11-04T16:15:56Z",
      "updateTimestamp" : "2022-01-11T14:32:10Z"
    },
    "spec" : {
      "type" : "helm",
      "require" : true,
      "labels" : [ "ServiceDiscovery" ],
      "logoURL" : "",
      "description" : "CoreDNS is a DNS server that chains plugins and provides Kubernetes DNS Services",
      "versions" : [ {
        "version" : "1.13.6",
        "input" : {
          "basic" : {
            "cluster_ip" : "10.247.3.10",
            "ipv6" : false,
            "platform" : "linux-amd64",
            "swr_addr" : "100.125.16.65:20202",
            "swr_user" : "hwofficial"
          },
          "parameters" : {
            "custom" : {
              "stub_domains" : "",
              "upstream_nameservers" : ""
            },
            "flavor1" : {
              "name" : 2500,
              "replicas" : 2,
              "resources" : [ {
                "limitsCpu" : "500m",
                "limitsMem" : "512Mi",
                "name" : "coredns",
                "requestsCpu" : "500m",
                "requestsMem" : "512Mi"
              } ]
            },
            "flavor2" : {
              "name" : 5000,
              "replicas" : 2,
              "resources" : [ {
                "limitsCpu" : "1000m",
                "limitsMem" : "1024Mi",
                "name" : "coredns",
                "requestsCpu" : "1000m",
                "requestsMem" : "1024Mi"
              } ]
            },
            "flavor3" : {
              "name" : 10000,
```


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```
            "replicas" : 2,
            "resources" : [ {
              "limitsCpu" : "2000m",
              "limitsMem" : "2048Mi",
              "name" : "coredns",
              "requestsCpu" : "2000m",
              "requestsMem" : "2048Mi"
            } ]
          },
          "flavor4" : {
            "name" : 20000,
            "replicas" : 4,
            "resources" : [ {
              "limitsCpu" : "2000m",
              "limitsMem" : "2048Mi",
              "name" : "coredns",
              "requestsCpu" : "2000m",
              "requestsMem" : "2048Mi"
            } ]
          }
        }
      },
      "stable" : true,
      "translate" : {
        "en_US" : {
          "addon" : {
            "changeLog" : "Support for clusters with new version",
            "description" : "CoreDNS is a DNS server that chains plugins and provides Kubernetes DNS
Services"
          },
          "description" : {
            "Parameters.custom.stub_domains" : "The target nameserver may itself be a Kubernetes service.
For instance, you can run your own copy of dnsmasq to export custom DNS names into the ClusterDNS
namespace, a JSON map using a DNS suffix key (e.g. \"acme.local\") and a value consisting of a JSON array
of DNS IPs.",
            "Parameters.custom.upstream_nameservers" : "If specified, then the values specified replace the
nameservers taken by default from the node's /etc/resolv.conf. Limits:a maximum of three upstream
nameservers can be specified, A JSON array of DNS IPs.",
            "Parameters.flavor1.description" : "Concurrent domain name resolution ability - External domain
name: 2500 qps, Internal domain name: 10000 qps",
            "Parameters.flavor1.name" : 2500,
            "Parameters.flavor2.description" : "Concurrent domain name resolution ability - External domain
name: 5000 qps, Internal domain name: 20000 qps",
            "Parameters.flavor2.name" : 5000,
            "Parameters.flavor3.description" : "Concurrent domain name resolution ability - External domain
name: 10000 qps, Internal domain name: 40000 qps",
            "Parameters.flavor3.name" : 10000,
            "Parameters.flavor4.description" : "Concurrent domain name resolution ability - External domain
name: 20000 qps, Internal domain name: 80000 qps",
            "Parameters.flavor4.name" : 20000
          },
          "key" : {
            "Parameters.custom.stub_domains" : "stub domain",
            "Parameters.custom.upstream_nameservers" : "upstream nameservers"
          }
        },
        "fr_FR" : {
          "addon" : {
            "changeLog" : "Prise en charge des clusters avec une nouvelle version",
            "description" : "Un serveur DNS qui enchaîne les plug-ins et fournit des services DNS Kubernetes."
          },
          "description" : {
            "Parameters.custom.stub_domains" : "Le serveur de noms cible peut lui-même être un service
Kubernetes. Par exemple, vous pouvez exécuter votre propre copie de dnsmasq pour exporter des noms
DNS personnalisés dans l'espace de noms ClusterDNS, une carte JSON à l'aide d'une clé de suffixe DNS (par
exemple, «acme.local») et une valeur constituée d'un tableau JSON d'adresses IP DNS.",
            "Parameters.custom.upstream_nameservers" : "Si spécifié, les valeurs spécifiées remplacent les
serveurs de noms pris par défaut dans le fichier /etc/resolv.conf du nœud. Limites: un maximum de trois
serveurs de noms en amont peuvent être spécifiés, un tableau JSON d'adresses IP DNS.",
```

```
            "Parameters.flavor1.description" : "Capacité de résolution de nom de domaine simultanée - Nom
de domaine externe: 2500 qps, Nom de domaine interne: 10000 qp",
            "Parameters.flavor1.name" : 2500,
            "Parameters.flavor2.description" : "Capacité de résolution de nom de domaine simultanée - Nom
de domaine externe: 5000 qps, Nom de domaine interne: 20000 qp",
            "Parameters.flavor2.name" : 5000,
            "Parameters.flavor3.description" : "Capacité de résolution de nom de domaine simultanée - Nom
de domaine externe: 10000 qps, Nom de domaine interne: 40000 qp",
            "Parameters.flavor3.name" : 10000,
            "Parameters.flavor4.description" : "Capacité de résolution de nom de domaine simultanée - Nom
de domaine externe: 20000 qps, Nom de domaine interne: 80000 qp",
            "Parameters.flavor4.name" : 20000
          },
          "key" : {
            "Parameters.custom.stub_domains" : "domaine stub",
            "Parameters.custom.upstream_nameservers" : "serveurs de noms en amont"
          }
        },
        "zh_CN" : {
          "addon" : {
            "changeLog" : "",
            "description" : ""
          },
          "description" : {
            "Parameters.custom.stub_domains" : "",
            "Parameters.custom.upstream_nameservers" : "",
            "Parameters.flavor1.description" : "",
            "Parameters.flavor1.name" : 2500,
            "Parameters.flavor2.description" : "",
            "Parameters.flavor2.name" : 5000,
            "Parameters.flavor3.description" : "",
            "Parameters.flavor3.name" : 10000,
            "Parameters.flavor4.description" : "",
            "Parameters.flavor4.name" : 20000
          },
          "key" : {
            "Parameters.custom.stub_domains" : "",
            "Parameters.custom.upstream_nameservers" : ""
          }
        }
      },
      "supportVersions" : [ {
        "clusterType" : "VirtualMachine",
        "clusterVersion" : [ "v1.13.*" ]
      }, {
        "clusterType" : "BareMetal",
        "clusterVersion" : [ "v1.13.*" ]
      }, {
        "clusterType" : "ARM64",
        "clusterVersion" : [ "v1.13.*" ]
      } ],
      "creationTimestamp" : "2021-03-18T12:51:05Z",
      "updateTimestamp" : "2021-03-18T12:51:05Z"
    } ]
  }
 } ]
}
```


Status Codes

Status Code	Description
200	OK

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Error Codes

See **Error Codes**.

4.6.3 Updating an Add-on Instance

Function

This API is used to update an add-on instance.

URI

PUT /api/v3/addons/{id}

Table 4-718 Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Add-on instance ID.

Request Parameters

Table 4-719 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-720 Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **Addon** and cannot be changed. Any user-defined value is invalid.

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Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version. The value is fixed at **v3** and cannot be changed. Any user-defined value is invalid.
metadata	Yes	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	Yes	**InstanceRequestSpec** object	Detailed description of add-on installation or upgrade.

Table 4-721 AddonMetadata

Parameter	Mandatory	Type	Description
uid	No	String	Unique ID
name	No	String	Add-on name
alias	No	String	Add-on alias
labels	No	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	No	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	No	String	Updated at
creationTimestamp	No	String	Created at

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Table 4-722 InstanceRequestSpec

Parameter	Mandatory	Type	Description
version	No	String	Version of the add-on to install or upgrade, for example, **1.0.0**. • Installation: This parameter is optional. If not specified, the latest version supported by the cluster is used. • Upgrade: This parameter is mandatory. The version number must be specified.
clusterID	Yes	String	Cluster ID.
values	Yes	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). During the add-on upgrade, you need to specify all the installation parameters. If the parameters are not specified, the default values in the add-on template are used. The current add-on installation parameters can be obtained through the API for querying add-on instances.
addonTemplateName	Yes	String	Name of the add-on template to be installed, for example, **coredns**.

Response Parameters

Status code: 200

Table 4-723 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.

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Parameter	Type	Description
spec	**InstanceSpec** object	Detailed description of the add-on instance.
status	**AddonInstanceStatus** object	Add-on instance status.

Table 4-724 AddonMetadata

Parameter	Type	Description
uid	String	Unique ID
name	String	Add-on name
alias	String	Add-on alias
labels	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	String	Updated at
creationTimestamp	String	Created at

Table 4-725 InstanceSpec

Parameter	Type	Description
clusterID	String	Cluster ID.
version	String	Add-on template version, for example, **1.0.0**.
addonTemplateName	String	Add-on template name, for example, **coredns**.
addonTemplateType	String	Add-on template type.
addonTemplateLogo	String	URL for obtaining the add-on template logo.

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Parameter	Type	Description
addonTemplateLabels	Array of strings	Labels of the add-on template.
description	String	Add-on template description.
values	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). Set the parameters accordingly.

Table 4-726 AddonInstanceStatus

Parameter	Type	Description
status	String	Statuses of add-on instances. Options: • **running**: All of the add-on instances are running and the add-on is running properly. • **abnormal**: The add-on instances are abnormal and the add-on cannot be used. Click the add-on name to view exceptions. • **installing**: The add-on is being installed. • **installFailed**: Installing the add-on failed. In this case, uninstall the add-on and then reinstall it. • **upgrading**: The add-on is being upgraded. • **upgradeFailed**: Upgrading the add-on failed. In this case, upgrade the add-on again or uninstall the add-on and reinstall it. • **deleting**: The add-on is being deleted. • **deleteFailed**: Deleting the add-on failed. In this case, uninstall the add-on again. • **deleteSuccess**: Deleting the add-on succeeded. • **available**: Only some instances of the add-on are running. This indicates that some functions of the add-on are available. • **rollbacking**: The add-on is being rolled back. • **rollbackFailed**: Rolling back the add-on failed. In this case, roll back the add-on again or uninstall the add-on and reinstall it. • **unknown**: The add-on chart instance does not exist.
Reason	String	Cause of the add-on installation failure.

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Parameter	Type	Description
message	String	Installation error details.
targetVersions	Array of strings	Versions to which the current add-on version can be upgraded.
currentVersion	**Versions** object	Information about the current add-on version.
isRollbackable	Boolean	Whether the add-on version can be rolled back to the source version.
previousVersion	String	The add-on version before upgrade or rollback

Table 4-727 Versions

Parameter	Type	Description
version	String	Add-on version.
input	Object	Add-on installation parameters.
stable	Boolean	Whether the add-on version is a stable release.
translate	Object	Translation information used by the GUI.
supportVersions	Array of **SupportVersions** objects	Cluster versions that support the add-on.
creationTimestamp	String	Creation time.
updateTimestamp	String	Update time.

Table 4-728 SupportVersions

Parameter	Type	Description
clusterType	String	Cluster type that supports the add-on.
clusterVersion	Array of strings	Cluster versions that support the add-on. The value is a regular expression.

Example Requests

Update the everest add-on to version 2.1.30.

```
{
  "kind" : "Addon",
```

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```
 "apiVersion" : "v3",
 "metadata" : {
   "annotations" : {
     "addon.upgrade/type" : "upgrade"
   }
 },
 "spec" : {
   "clusterID" : "*****",
   "version" : "2.1.30",
   "addonTemplateName" : "everest",
   "values" : {
     "basic" : {
       "bms_url" : "*****",
       "driver_init_image_version" : "2.1.30",
       "ecsEndpoint" : "*****",
       "everest_image_version" : "2.1.30",
       "evs_url" : "*****",
       "iam_url" : "*****",
       "ims_url" : "*****",
       "obs_url" : "*****",
       "platform" : "linux-amd64",
       "sfs30_url" : "*****",
       "sfs_turbo_url" : "*****",
       "sfs_url" : "*****",
       "supportHcs" : false,
       "swr_addr" : "*****",
       "swr_user" : "hwofficial",
       "rbac_enabled" : true,
       "cluster_version" : "v1.23"
     },
     "flavor" : {
       "description" : "High avaiable",
       "name" : "HA",
       "replicas" : 2,
       "resources" : [ {
         "limitsCpu" : "250m",
         "limitsMem" : "2000Mi",
         "name" : "everest-csi-controller",
         "requestsCpu" : "250m",
         "requestsMem" : "1500Mi"
       }, {
         "limitsCpu" : "500m",
         "limitsMem" : "300Mi",
         "name" : "everest-csi-driver",
         "requestsCpu" : "100m",
         "requestsMem" : "300Mi"
       } ],
       "category" : [ "CCE", "Turbo" ]
     },
     "custom" : {
       "cluster_id" : "*****",
       "csi_attacher_detach_worker_threads" : "60",
       "csi_attacher_worker_threads" : "60",
       "default_vpc_id" : "*****",
       "disable_auto_mount_secret" : false,
       "enable_node_attacher" : true,
       "flow_control" : { },
       "multiAZEnabled" : false,
       "over_subscription" : "80",
       "project_id" : "*****",
       "volume_attaching_flow_ctrl" : "0"
     }
   }
 }
}
```


Example Responses

Status code: 200

OK


```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "******",
    "name" : "everest",
    "alias" : "everest",
    "creationTimestamp" : "2023-07-03T10:57:43Z",
    "updateTimestamp" : "2023-07-03T11:24:05Z"
  },
  "spec" : {
    "clusterID" : "******",
    "version" : "2.1.30",
    "addonTemplateName" : "everest",
    "addonTemplateType" : "helm",
    "addonTemplateLogo" : "******",
    "addonTemplateLabels" : [ "Storage" ],
    "description" : "",
    "values" : {
      "basic" : {
        "bms_url" : "******",
        "cluster_version" : "v1.23",
        "driver_init_image_version" : "2.1.30",
        "ecsEndpoint" : "******",
        "everest_image_version" : "2.1.30",
        "evs_url" : "******",
        "iam_url" : "******",
        "ims_url" : "******",
        "obs_url" : "******",
        "platform" : "linux-amd64",
        "rbac_enabled" : true,
        "sfs30_url" : "******",
        "sfs_turbo_url" : "******",
        "sfs_url" : "******",
        "supportHcs" : false,
        "swr_addr" : "******",
        "swr_user" : "hwofficial"
      },
      "custom" : {
        "cluster_id" : "******",
        "cluster_version" : "v1.23.8-r0",
        "csi_attacher_detach_worker_threads" : "60",
        "csi_attacher_worker_threads" : "60",
        "default_vpc_id" : "******",
        "disable_auto_mount_secret" : false,
        "enable_node_attacher" : false,
        "flow_control" : { },
        "multiAZEnabled" : false,
        "over_subscription" : "80",
        "project_id" : "******",
        "volume_attaching_flow_ctrl" : "0"
      },
      "flavor" : {
        "category" : [ "CCE", "Turbo" ],
        "description" : "Has only one instance",
        "name" : "Single",
        "replicas" : 1,
        "resources" : [ {
          "limitsCpu" : "250m",
          "limitsMem" : "600Mi",
          "name" : "everest-csi-controller",
          "requestsCpu" : "250m",
          "requestsMem" : "600Mi"
        }, {
          "limitsCpu" : "100m",
          "limitsMem" : "300Mi",
          "name" : "everest-csi-driver",
          "requestsCpu" : "100m",
```


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```
        "requestsMem" : "300Mi"
      } ]
    },
    "systemAutoInject" : {
      "cluster" : {
        "clusterID" : "******",
        "clusterNetworkMode" : "vpc-router",
        "clusterVersion" : "v1.23.8-r0"
      },
      "user" : {
        "projectID" : "******"
      }
    }
  }
},
"status" : {
  "status" : "upgrading",
  "Reason" : "addon upgrading",
  "message" : "",
  "targetVersions" : null,
  "isRollbackable" : false,
  "currentVersion" : {
    "version" : "2.1.30",
    "input" : {
      "basic" : {
        "bms_url" : "******",
        "driver_init_image_version" : "2.1.30",
        "ecsEndpoint" : "******",
        "everest_image_version" : "2.1.30",
        "evs_url" : "******",
        "iam_url" : "******",
        "ims_url" : "******",
        "obs_url" : "******",
        "platform" : "******",
        "sfs30_url" : "******",
        "sfs_turbo_url" : "******",
        "sfs_url" : "******",
        "supportHcs" : false,
        "swr_addr" : "******",
        "swr_user" : "hwofficial"
      },
      "parameters" : {
        "common" : {
          "defaultVPCId" : 1234567
        },
        "custom" : {
          "cluster_id" : "",
          "csi_attacher_detach_worker_threads" : "60",
          "csi_attacher_worker_threads" : "60",
          "default_vpc_id" : "",
          "disable_auto_mount_secret" : false,
          "enable_node_attacher" : false,
          "flow_control" : { },
          "multiAZEnabled" : false,
          "over_subscription" : "80",
          "project_id" : "",
          "volume_attaching_flow_ctrl" : "0"
        },
        "flavor1" : {
          "description" : "High avaiable",
          "name" : "HA",
          "replicas" : 2,
          "resources" : [ {
            "limitsCpu" : "250m",
            "limitsMem" : "1500Mi",
            "name" : "everest-csi-controller",
            "requestsCpu" : "250m",
            "requestsMem" : "600Mi"
          }, {
```

```
            "limitsCpu" : "500m",
            "limitsMem" : "300Mi",
            "name" : "everest-csi-driver",
            "requestsCpu" : "100m",
            "requestsMem" : "300Mi"
           } ]
          },
          "flavor2" : {
           "description" : "Has only one instance",
           "name" : "Single",
           "replicas" : 1,
           "resources" : [ {
            "limitsCpu" : "250m",
            "limitsMem" : "600Mi",
            "name" : "everest-csi-controller",
            "requestsCpu" : "250m",
            "requestsMem" : "600Mi"
           }, {
            "limitsCpu" : "100m",
            "limitsMem" : "300Mi",
            "name" : "everest-csi-driver",
            "requestsCpu" : "100m",
            "requestsMem" : "300Mi"
           } ]
          },
          "flavor3" : {
           "description" : "custom resources",
           "name" : "custom-resources",
           "replicas" : 2,
           "resources" : [ {
            "limitsCpu" : "250m",
            "limitsMem" : "2000Mi",
            "name" : "everest-csi-controller",
            "requestsCpu" : "250m",
            "requestsMem" : "1500Mi"
           }, {
            "limitsCpu" : "500m",
            "limitsMem" : "300Mi",
            "name" : "everest-csi-driver",
            "requestsCpu" : "100m",
            "requestsMem" : "300Mi"
           } ]
          }
         }
        },
        "stable" : true,
        "translate" : {
         "en_US" : {
          "addon" : {
           "changeLog" : "",
           "description" : ""
          },
          "description" : {
           "Parameters.flavor1.description" : "Deploy the add-on with two instances, delivering high
availability but requiring more compute resources.",
           "Parameters.flavor1.name" : "HA",
           "Parameters.flavor2.description" : "Deploy the add-on with one instance.",
           "Parameters.flavor2.name" : "Standalone",
           "Parameters.flavor3.name" : "Custom"
          }
         },
         "fr_FR" : {
          "addon" : {
           "changeLog" : "",
           "description" : ""
          },
          "description" : {
           "Parameters.flavor1.description" : "Déployez avec deux instances, haute disponibilité.",
           "Parameters.flavor1.name" : "HA",
```

```
          "Parameters.flavor2.description" : "Déployez avec une seule instance.",
          "Parameters.flavor2.name" : "Célibataire",
          "Parameters.flavor3.name" : "Douane"
        }
      },
      "zh_CN" : {
        "addon" : {
          "changeLog" : "",
          "description" : ""
        },
        "description" : {
          "Parameters.flavor1.description" : "Dual-instance deployment features high availability but requires more compute resources.",
          "Parameters.flavor1.name" : "High availability",
          "Parameters.flavor2.description" : "Single-instance deployment",
          "Parameters.flavor2.name" : "Single instance",
          "Parameters.flavor3.description" : "Custom resource specifications for deployment",
          "Parameters.flavor3.name" : "Custom"
        }
      }
    },
    "supportVersions" : null,
    "creationTimestamp" : "2023-05-12T16:10:05Z",
    "updateTimestamp" : "2023-05-12T16:10:05Z"
  }
 }
}
```


Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.6.4 Rolling Back an Add-on Instance

Function

Roll back the add-on instance version to the source version. Only when the **status.isRollbackable** parameter is set to **true**, and the add-on instance is in the **running**, **available**, **abnormal**, **upgradeFailed**, or **rollbackFailed** state, the version can be rolled back to the source version.

URI

POST /api/v3/addons/{id}/operation/rollback

Table 4-729 Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Add-on instance ID

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Request Parameters

Table 4-730 Request header parameters

Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-731 Request body parameters

Parameter	Mandatory	Type	Description
clusterID	Yes	String	Cluster ID

Response Parameters

Status code: 200

Table 4-732 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**InstanceSpec** object	Detailed description of the add-on instance.
status	**AddonInstanceStatus** object	Add-on instance status.

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Table 4-733 AddonMetadata

Parameter	Type	Description
uid	String	Unique ID
name	String	Add-on name
alias	String	Add-on alias
labels	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	String	Updated at
creationTimestamp	String	Created at

Table 4-734 InstanceSpec

Parameter	Type	Description
clusterID	String	Cluster ID.
version	String	Add-on template version, for example, **1.0.0**.
addonTemplateName	String	Add-on template name, for example, **coredns**.
addonTemplateType	String	Add-on template type.
addonTemplateLogo	String	URL for obtaining the add-on template logo.
addonTemplateLabels	Array of strings	Labels of the add-on template.
description	String	Add-on template description.
values	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). Set the parameters accordingly.

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Table 4-735 AddonInstanceStatus

Parameter	Type	Description
status	String	Statuses of add-on instances. Options: • **running**: All of the add-on instances are running and the add-on is running properly. • **abnormal**: The add-on instances are abnormal and the add-on cannot be used. Click the add-on name to view exceptions. • **installing**: The add-on is being installed. • **installFailed**: Installing the add-on failed. In this case, uninstall the add-on and then reinstall it. • **upgrading**: The add-on is being upgraded. • **upgradeFailed**: Upgrading the add-on failed. In this case, upgrade the add-on again or uninstall the add-on and reinstall it. • **deleting**: The add-on is being deleted. • **deleteFailed**: Deleting the add-on failed. In this case, uninstall the add-on again. • **deleteSuccess**: Deleting the add-on succeeded. • **available**: Only some instances of the add-on are running. This indicates that some functions of the add-on are available. • **rollbacking**: The add-on is being rolled back. • **rollbackFailed**: Rolling back the add-on failed. In this case, roll back the add-on again or uninstall the add-on and reinstall it. • **unknown**: The add-on chart instance does not exist.
Reason	String	Cause of the add-on installation failure.
message	String	Installation error details.
targetVersions	Array of strings	Versions to which the current add-on version can be upgraded.
currentVersion	**Versions** object	Information about the current add-on version.
isRollbackable	Boolean	Whether the add-on version can be rolled back to the source version.
previousVersion	String	The add-on version before upgrade or rollback

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Table 4-736 Versions

Parameter	Type	Description
version	String	Add-on version.
input	Object	Add-on installation parameters.
stable	Boolean	Whether the add-on version is a stable release.
translate	Object	Translation information used by the GUI.
supportVersions	Array of **SupportVersions** objects	Cluster versions that support the add-on.
creationTimestamp	String	Creation time.
updateTimestamp	String	Update time.

Table 4-737 SupportVersions

Parameter	Type	Description
clusterType	String	Cluster type that supports the add-on.
clusterVersion	Array of strings	Cluster versions that support the add-on. The value is a regular expression.

Example Requests

```
{
  "clusterID" : "******"
}
```

Example Responses

Status code: 200

Add-on instance version is rolled back.

```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "******",
    "name" : "everest",
    "alias" : "everest",
    "creationTimestamp" : "2023-03-15T02:48:01Z",
    "updateTimestamp" : "2023-03-15T04:18:45Z"
  },
  "spec" : {
```

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```
  "clusterID" : "******",
  "version" : "2.1.16",
  "addonTemplateName" : "everest",
  "addonTemplateType" : "helm",
  "addonTemplateLogo" : "******",
  "addonTemplateLabels" : [ "Storage" ],
  "description" : "Everest is a cloud native container storage system based on CSI, used\rto support cloud
storages services for Kubernetes",
  "values" : {
   "basic" : {
     "base_image" : "euleros",
     "bms_url" : "******",
     "cluster_version" : "v1.25",
     "driver_init_image_version" : "2.1.16",
     "ecsEndpoint" : "******",
     "euleros_version" : "2.2.5",
     "everest_image_version" : "2.1.16",
     "evs_url" : "******",
     "iam_url" : "******",
     "ims_url" : "******",
     "obs_url" : "******",
     "platform" : "linux-amd64",
     "rbac_enabled" : true,
     "sfs30_url" : "******",
     "sfs_turbo_url" : "******",
     "sfs_url" : "******",
     "supportHcs" : false,
     "swr_addr" : "******",
     "swr_user" : "******"
   },
   "custom" : {
     "cluster_id" : "******",
     "cluster_version" : "v1.25.3-r0",
     "csi_attacher_detach_worker_threads" : "60",
     "csi_attacher_worker_threads" : "60",
     "default_vpc_id" : "******",
     "disable_auto_mount_secret" : false,
     "enable_node_attacher" : false,
     "flow_control" : { },
     "multiAZEnabled" : false,
     "over_subscription" : "80",
     "project_id" : "******",
     "volume_attaching_flow_ctrl" : "0"
   },
   "flavor" : {
     "category" : [ "CCE", "Turbo" ],
     "description" : "High avaiable",
     "name" : "HA",
     "replicas" : 2,
     "resources" : [ {
       "limitsCpu" : "250m",
       "limitsMem" : "1500Mi",
       "name" : "everest-csi-controller",
       "requestsCpu" : "250m",
       "requestsMem" : "600Mi"
     }, {
       "limitsCpu" : "500m",
       "limitsMem" : "300Mi",
       "name" : "everest-csi-driver",
       "requestsCpu" : "100m",
       "requestsMem" : "300Mi"
     } ]
   },
   "multiAZPreferred" : {
     "podAntiAffinity" : {
       "preferredDuringSchedulingIgnoredDuringExecution" : [ {
         "podAffinityTerm" : {
           "labelSelector" : {
             "matchExpressions" : [ {
```


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```
              "key" : "app",
              "operator" : "In",
              "values" : [ "everest-csi-controller" ]
            } ]
          },
          "topologyKey" : "topology.kubernetes.io/zone"
        },
        "weight" : 100
      } ]
    }
  },
  "multiAZRequired" : {
    "podAntiAffinity" : {
      "requiredDuringSchedulingIgnoredDuringExecution" : [ {
        "labelSelector" : {
          "matchExpressions" : [ {
            "key" : "app",
            "operator" : "In",
            "values" : [ "everest-csi-controller" ]
          } ]
        },
        "topologyKey" : "topology.kubernetes.io/zone"
      } ]
    }
  },
  "systemAutoInject" : {
    "cluster" : {
      "category" : "CCE",
      "clusterID" : "******",
      "clusterNetworkMode" : "vpc-router",
      "clusterVersion" : "v1.25.3-r0"
    },
    "user" : {
      "projectID" : "******"
    }
  },
  "tolerations" : [ {
    "effect" : "NoExecute",
    "key" : "node.kubernetes.io/not-ready",
    "operator" : "Exists",
    "tolerationSeconds" : 60
  }, {
    "effect" : "NoExecute",
    "key" : "node.kubernetes.io/unreachable",
    "operator" : "Exists",
    "tolerationSeconds" : 60
  } ]
 }
},
"status" : {
 "status" : "rollbacking",
 "Reason" : "Rollback to 4",
 "message" : "",
 "targetVersions" : [ "2.1.18", "2.1.19" ],
 "isRollbackable" : false,
 "previousVersion" : "2.1.19",
 "currentVersion" : {
  "version" : "2.1.16",
  "input" : {
   "basic" : {
    "bms_url" : "******",
    "driver_init_image_version" : "2.1.16",
    "ecsEndpoint" : "******",
    "everest_image_version" : "2.1.16",
    "evs_url" : "******",
    "iam_url" : "******",
    "ims_url" : "******",
    "obs_url" : "******",
    "platform" : "linux-amd64",
```


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```
    "sfs30_url" : "******",
    "sfs_turbo_url" : "******",
    "sfs_url" : "******",
    "supportHcs" : false,
    "swr_addr" : "*******",
    "swr_user" : "******"
  },
  "parameters" : {
    "common" : {
      "defaultVPCId" : 0
    },
    "custom" : {
      "cluster_id" : "",
      "csi_attacher_detach_worker_threads" : "60",
      "csi_attacher_worker_threads" : "60",
      "default_vpc_id" : "",
      "disable_auto_mount_secret" : false,
      "enable_node_attacher" : false,
      "flow_control" : { },
      "multiAZEnabled" : false,
      "over_subscription" : "80",
      "project_id" : "",
      "volume_attaching_flow_ctrl" : "0"
    },
    "flavor1" : {
      "description" : "High avaiable",
      "name" : "HA",
      "replicas" : 2,
      "resources" : [ {
        "limitsCpu" : "250m",
        "limitsMem" : "1500Mi",
        "name" : "everest-csi-controller",
        "requestsCpu" : "250m",
        "requestsMem" : "600Mi"
      }, {
        "limitsCpu" : "500m",
        "limitsMem" : "300Mi",
        "name" : "everest-csi-driver",
        "requestsCpu" : "100m",
        "requestsMem" : "300Mi"
      } ]
    },
    "flavor2" : {
      "description" : "Has only one instance",
      "name" : "Single",
      "replicas" : 1,
      "resources" : [ {
        "limitsCpu" : "250m",
        "limitsMem" : "600Mi",
        "name" : "everest-csi-controller",
        "requestsCpu" : "250m",
        "requestsMem" : "600Mi"
      }, {
        "limitsCpu" : "100m",
        "limitsMem" : "300Mi",
        "name" : "everest-csi-driver",
        "requestsCpu" : "100m",
        "requestsMem" : "300Mi"
      } ]
    },
    "flavor3" : {
      "description" : "custom resources",
      "name" : "custom-resources",
      "replicas" : 2,
      "resources" : [ {
        "limitsCpu" : "250m",
        "limitsMem" : "2000Mi",
        "name" : "everest-csi-controller",
        "requestsCpu" : "250m",
```


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```
            "requestsMem" : "1500Mi"
          }, {
            "limitsCpu" : "500m",
            "limitsMem" : "300Mi",
            "name" : "everest-csi-driver",
            "requestsCpu" : "100m",
            "requestsMem" : "300Mi"
          } ]
        }
      }
    },
    "stable" : true,
    "translate" : {
      "en_US" : {
        "addon" : {
          "changeLog" : "******",
          "description" : "******"
        },
        "description" : {
          "Parameters.flavor1.description" : "******",
          "Parameters.flavor1.name" : "******",
          "Parameters.flavor2.description" : "******",
          "Parameters.flavor2.name" : "******",
          "Parameters.flavor3.name" : "******"
        }
      },
      "zh_CN" : {
        "addon" : {
          "changeLog" : "******",
          "description" : "******"
        },
        "description" : {
          "Parameters.flavor1.description" : "******",
          "Parameters.flavor1.name" : "******",
          "Parameters.flavor2.description" : "******",
          "Parameters.flavor2.name" : "******",
          "Parameters.flavor3.description" : "******",
          "Parameters.flavor3.name" : "******"
        }
      }
    },
    "supportVersions" : null,
    "creationTimestamp" : "2023-02-21T16:29:02Z",
    "updateTimestamp" : "2023-02-22T06:49:50Z"
  }
 }
}
```


Status Codes

Status Code	Description
200	Add-on instance version is rolled back.

Error Codes

See **Error Codes**.

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4.6.5 Deleting an Add-on Instance

Function

This API is used to delete an add-on instance.

URI

DELETE /api/v3/addons/{id}

Table 4-738 Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Add-on instance ID.

Table 4-739 Query Parameters

Parameter	Mandatory	Type	Description
cluster_id	No	String	Cluster ID (deprecated). For details about how to obtain the cluster ID, see **How Do I Obtain Parameters in the API URI**.

Request Parameters

Table 4-740 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

None

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Example Requests

None

Example Responses

Status code: 200

OK

```
success
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.6.6 Querying an Add-on Instance

Function

This API is used to obtain details about an add-on instance.

URI

GET /api/v3/addons/{id}

Table 4-741 Path Parameters

Parameter	Mandatory	Type	Description
id	Yes	String	Add-on instance ID.

Table 4-742 Query Parameters

Parameter	Mandatory	Type	Description
cluster_id	No	String	Cluster ID (deprecated). For details about how to obtain the cluster ID, see **How Do I Obtain Parameters in the API URI**.

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Request Parameters

Table 4-743 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-744 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**InstanceSpec** object	Detailed description of the add-on instance.
status	**AddonInstanceStatus** object	Add-on instance status.

Table 4-745 AddonMetadata

Parameter	Type	Description
uid	String	Unique ID
name	String	Add-on name
alias	String	Add-on alias

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Parameter	Type	Description
labels	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	String	Updated at
creationTimestamp	String	Created at

Table 4-746 InstanceSpec

Parameter	Type	Description
clusterID	String	Cluster ID.
version	String	Add-on template version, for example, **1.0.0**.
addonTemplateName	String	Add-on template name, for example, **coredns**.
addonTemplateType	String	Add-on template type.
addonTemplateLogo	String	URL for obtaining the add-on template logo.
addonTemplateLabels	Array of strings	Labels of the add-on template.
description	String	Add-on template description.
values	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). Set the parameters accordingly.

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Table 4-747 AddonInstanceStatus

Parameter	Type	Description
status	String	Statuses of add-on instances. Options: • **running**: All of the add-on instances are running and the add-on is running properly. • **abnormal**: The add-on instances are abnormal and the add-on cannot be used. Click the add-on name to view exceptions. • **installing**: The add-on is being installed. • **installFailed**: Installing the add-on failed. In this case, uninstall the add-on and then reinstall it. • **upgrading**: The add-on is being upgraded. • **upgradeFailed**: Upgrading the add-on failed. In this case, upgrade the add-on again or uninstall the add-on and reinstall it. • **deleting**: The add-on is being deleted. • **deleteFailed**: Deleting the add-on failed. In this case, uninstall the add-on again. • **deleteSuccess**: Deleting the add-on succeeded. • **available**: Only some instances of the add-on are running. This indicates that some functions of the add-on are available. • **rollbacking**: The add-on is being rolled back. • **rollbackFailed**: Rolling back the add-on failed. In this case, roll back the add-on again or uninstall the add-on and reinstall it. • **unknown**: The add-on chart instance does not exist.
Reason	String	Cause of the add-on installation failure.
message	String	Installation error details.
targetVersions	Array of strings	Versions to which the current add-on version can be upgraded.
currentVersion	**Versions** object	Information about the current add-on version.
isRollbackable	Boolean	Whether the add-on version can be rolled back to the source version.
previousVersion	String	The add-on version before upgrade or rollback

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Table 4-748 Versions

Parameter	Type	Description
version	String	Add-on version.
input	Object	Add-on installation parameters.
stable	Boolean	Whether the add-on version is a stable release.
translate	Object	Translation information used by the GUI.
supportVersions	Array of **SupportVersions** objects	Cluster versions that support the add-on.
creationTimestamp	String	Creation time.
updateTimestamp	String	Update time.

Table 4-749 SupportVersions

Parameter	Type	Description
clusterType	String	Cluster type that supports the add-on.
clusterVersion	Array of strings	Cluster versions that support the add-on. The value is a regular expression.

Example Requests

None

Example Responses

Status code: 200

OK

```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "24b23108-55c0-11e9-926f-0255ac101a31",
    "name" : "gpu-beta",
    "alias" : "gpu",
    "creationTimestamp" : "2019-04-03T03:25:34Z",
    "updateTimestamp" : "2019-04-03T03:25:34Z"
  },
  "spec" : {
    "clusterID" : "0c0e4a63-5539-11e9-95f7-0255ac10177e",
    "version" : "1.0.0",
```

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```
  "addonTemplateName" : "gpu-beta",
  "addonTemplateType" : "helm",
  "addonTemplateLogo" : "",
  "addonTemplateLabels" : [ "Accelerator" ],
  "description" : "A device plugin for nvidia.com/gpu resource on nvidia driver",
  "values" : {
    "basic" : {
      "rbac_enabled" : true,
      "swr_addr" : "100.125.6.246:20202",
      "swr_user" : "hwofficial"
    }
  }
 },
 "status" : {
  "status" : "installing",
  "Reason" : "",
  "message" : "",
  "targetVersions" : null,
  "currentVersion" : {
    "version" : "1.0.0",
    "input" : {
      "basic" : {
        "swr_addr" : "100.125.6.246:20202",
        "swr_user" : "hwofficial"
      },
      "parameters" : { }
    },
    "stable" : true,
    "translate" : {
      "en_US" : {
        "addon" : {
          "changeLog" : "A device plugin for nvidia.com/gpu resource on nvidia driver",
          "description" : "A device plugin for nvidia.com/gpu resource on nvidia driver"
        }
      },
      "zh_CN" : {
        "addon" : {
          "changeLog" : "",
          "description" : ""
        }
      }
    },
    "supportVersions" : null,
    "creationTimestamp" : "2018-10-23T13:14:55Z",
    "updateTimestamp" : "2018-12-07T09:40:24Z"
  }
 }
}
```


Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

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4.6.7 Listing Add-on Instances

Function

This API is used to list all add-on instances in the cluster.

URI

GET /api/v3/addons

Table 4-750 Query Parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain a cluster ID, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-751 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-752 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.

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Parameter	Type	Description
items	Array of **AddonInstance** objects	Add-on instance list.

Table 4-753 AddonInstance

Parameter	Type	Description
kind	String	API type. The value is fixed at **Addon** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**AddonMetadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**InstanceSpec** object	Detailed description of the add-on instance.
status	**AddonInstanceStatus** object	Add-on instance status.

Table 4-754 AddonMetadata

Parameter	Type	Description
uid	String	Unique ID
name	String	Add-on name
alias	String	Add-on alias
labels	Map<String,String>	Add-on labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Add-on annotations in the format of key-value pairs. • For add-on installation, the value is fixed at **{"addon.install/type":"install"}**. • For add-on upgrade, the value is fixed at **{"addon.upgrade/type":"upgrade"}**.
updateTimestamp	String	Updated at
creationTimestamp	String	Created at

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Table 4-755 InstanceSpec

Parameter	Type	Description
clusterID	String	Cluster ID.
version	String	Add-on template version, for example, **1.0.0**.
addonTemplateName	String	Add-on template name, for example, **coredns**.
addonTemplateType	String	Add-on template type.
addonTemplateLogo	String	URL for obtaining the add-on template logo.
addonTemplateLabels	Array of strings	Labels of the add-on template.
description	String	Add-on template description.
values	Map<String,Object>	Add-on template installation parameters (varying depending on the add-on). Set the parameters accordingly.

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Table 4-756 AddonInstanceStatus

Parameter	Type	Description
status	String	Statuses of add-on instances. Options: • **running**: All of the add-on instances are running and the add-on is running properly. • **abnormal**: The add-on instances are abnormal and the add-on cannot be used. Click the add-on name to view exceptions. • **installing**: The add-on is being installed. • **installFailed**: Installing the add-on failed. In this case, uninstall the add-on and then reinstall it. • **upgrading**: The add-on is being upgraded. • **upgradeFailed**: Upgrading the add-on failed. In this case, upgrade the add-on again or uninstall the add-on and reinstall it. • **deleting**: The add-on is being deleted. • **deleteFailed**: Deleting the add-on failed. In this case, uninstall the add-on again. • **deleteSuccess**: Deleting the add-on succeeded. • **available**: Only some instances of the add-on are running. This indicates that some functions of the add-on are available. • **rollbacking**: The add-on is being rolled back. • **rollbackFailed**: Rolling back the add-on failed. In this case, roll back the add-on again or uninstall the add-on and reinstall it. • **unknown**: The add-on chart instance does not exist.
Reason	String	Cause of the add-on installation failure.
message	String	Installation error details.
targetVersions	Array of strings	Versions to which the current add-on version can be upgraded.
currentVersion	**Versions** object	Information about the current add-on version.
isRollbackable	Boolean	Whether the add-on version can be rolled back to the source version.
previousVersion	String	The add-on version before upgrade or rollback

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Table 4-757 Versions

Parameter	Type	Description
version	String	Add-on version.
input	Object	Add-on installation parameters.
stable	Boolean	Whether the add-on version is a stable release.
translate	Object	Translation information used by the GUI.
supportVersions	Array of **SupportVersions** objects	Cluster versions that support the add-on.
creationTimestamp	String	Creation time.
updateTimestamp	String	Update time.

Table 4-758 SupportVersions

Parameter	Type	Description
clusterType	String	Cluster type that supports the add-on.
clusterVersion	Array of strings	Cluster versions that support the add-on. The value is a regular expression.

Example Requests

None

Example Responses

Status code: 200

ok

```
{
  "kind" : "Addon",
  "apiVersion" : "v3",
  "items" : [ {
    "kind" : "Addon",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "8ca259cc-553b-11e9-926f-0255ac101a31",
      "name" : "storage-driver",
      "alias" : "storage-driver",
      "creationTimestamp" : "2019-04-02T11:36:26Z",
      "updateTimestamp" : "2019-04-02T11:36:26Z"
    },
```

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```
  "spec" : {
    "clusterID" : "0c0e4a63-5539-11e9-95f7-0255ac10177e",
    "version" : "1.0.10",
    "addonTemplateName" : "storage-driver",
    "addonTemplateType" : "helm",
    "addonTemplateLogo" : "https://192.149.48.66/cce-addon-southchina-aw1hz2u/storage-driverlogo.svg",
    "addonTemplateLabels" : [ "Storage" ],
    "description" : "A kubernetes FlexVolume Driver used to support cloud storage",
    "values" : {
      "basic" : {
        "addon_version" : "1.0.10",
        "euleros_version" : "2.2.5",
        "obs_url" : "",
        "platform" : "linux-amd64",
        "swr_addr" : "100.125.6.246:20202",
        "swr_user" : "hwofficial"
      },
      "flavor" : {
        "replicas" : 1
      },
      "parameters" : { }
    }
  },
  "status" : {
    "status" : "running",
    "Reason" : "Install complete",
    "message" : "",
    "targetVersions" : null,
    "currentVersion" : {
      "version" : "1.0.10",
      "input" : {
        "basic" : {
          "euleros_version" : "2.2.5",
          "obs_url" : "",
          "swr_addr" : "100.125.6.246:20202",
          "swr_user" : "hwofficial"
        },
        "parameters" : { }
      },
      "stable" : true,
      "translate" : {
        "en_US" : {
          "addon" : {
            "changeLog" : "The plug-in is upgraded to enhance the storage plug-in function.",
            "description" : "A kubernetes FlexVolume Driver used to support cloud storage"
          }
        },
        "zh_CN" : {
          "addon" : {
            "changeLog" : "",
            "description" : ""
          }
        }
      },
      "supportVersions" : null,
      "creationTimestamp" : "2019-03-29T13:45:37Z",
      "updateTimestamp" : "2019-03-29T13:45:37Z"
    }
  }
 } ]
}
```


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Status Codes

Status Code	Description
200	ok

Error Codes

See **Error Codes**.

4.7 Cluster Upgrade

4.7.1 Upgrading a Cluster

Function

Cluster upgrade

NOTE

- Cluster upgrade involves many operations on components. You are advised to upgrade your cluster on the CCE console, a more interactive and intuitive way to reduce operational risks.
- Currently, cluster upgrade APIs are available only upon request.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade

Table 4-759 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-760 Request body parameters

Parameter	Mandatory	Type	Description
metadata	Yes	**UpgradeClusterRequestMetadata** object	Upgrade metadata.
spec	Yes	**UpgradeSpec** object	Upgrade settings.

Table 4-761 UpgradeClusterRequestMetadata

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version. Defaults to **v3**.
kind	Yes	String	Resource type. Defaults to **UpgradeTask**.

Table 4-762 UpgradeSpec

Parameter	Mandatory	Type	Description
clusterUpgradeAction	No	**ClusterUpgradeAction** object	Cluster upgrade settings.

Table 4-763 ClusterUpgradeAction

Parameter	Mandatory	Type	Description
addons	No	Array of **UpgradeAddonConfig** objects	Add-on configuration list.
nodeOrder	No	Map<String,Array<**NodePriority**>>	Upgrade sequence of nodes in the node pool. **NOTE** **key** indicates the node pool ID. Defaults to **DefaultPool**.

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Parameter	Mandatory	Type	Description
nodePoolOrder	No	Map<String,Integer>	Upgrade sequence of a node pool, in key-value pairs. **NOTE** **key** indicates the node pool ID. Defaults to **DefaultPool**. **value** means the priority of a node pool. Defaults to **0**, indicating the lowest priority. A larger value indicates a higher priority.
strategy	Yes	**UpgradeStrategy** object	Upgrade policy.
targetVersion	Yes	String	Target cluster version, for example, v1.23.

Table 4-764 UpgradeAddonConfig

Parameter	Mandatory	Type	Description
addonTemplateName	Yes	String	Add-on name.
operation	Yes	String	Execution action. For current upgrades, the value can be **patch**.
version	Yes	String	Target add-on version.
values	No	Object	Add-on parameter list, in key-value pairs.

Table 4-765 NodePriority

Parameter	Mandatory	Type	Description
nodeSelector	Yes	**NodeSelector** object	Node label selector, which selects a batch of nodes.
priority	Yes	Integer	Priority of this batch of nodes. Defaults to **0**, indicating the lowest priority. A larger value indicates a higher priority.

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Table 4-766 NodeSelector

Parameter	Mandatory	Type	Description
key	Yes	String	Label key.
value	No	Array of strings	Label value list.
operator	Yes	String	Logical operators of labels.

Table 4-767 UpgradeStrategy

Parameter	Mandatory	Type	Description
type	Yes	String	Upgrade policy type. Supports only inPlaceRollingUpdate.
inPlaceRollingUpdate	No	**InPlaceRollingUpdate** object	In-place upgrade settings. Mandatory when the in-place upgrade policy type is specified.

Table 4-768 InPlaceRollingUpdate

Parameter	Mandatory	Type	Description
userDefinedStep	No	Integer	Node upgrade step, from 1 to 40. Recommended: 20.

Response Parameters

Status code: 200

Table 4-769 Response body parameters

Parameter	Type	Description
metadata	**UpgradeClusterResponseMetadata** object	Upgrade task metadata
spec	**UpgradeResponseSpec** object	Upgrade settings

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Table 4-770 UpgradeCluserResponseMetadata

Parameter	Type	Description
uid	String	Upgrade task ID. You can obtain the progress by calling the API for obtaining cluster upgrade task details.

Table 4-771 UpgradeResponseSpec

Parameter	Type	Description
clusterUpgradeAction	**ClusterUpgradeResponseAction** object	Cluster upgrade settings

Table 4-772 ClusterUpgradeResponseAction

Parameter	Type	Description
version	String	Current cluster version
targetVersion	String	Target cluster version, for example, v1.23.
targetPlatformVersion	String	Platform version of the target cluster, which is an internal version of the cluster version and cannot be specified.
strategy	**UpgradeStrategy** object	Upgrade policies
config	Object	Cluster configuration specified during an upgrade

Table 4-773 UpgradeStrategy

Parameter	Type	Description
type	String	Upgrade policy type. Supports only inPlaceRollingUpdate.
inPlaceRollingUpdate	**InPlaceRollingUpdate** object	In-place upgrade settings. Mandatory when the in-place upgrade policy type is specified.

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Table 4-774 InPlaceRollingUpdate

Parameter	Type	Description
userDefinedStep	Integer	Node upgrade step, from 1 to 40. Recommended: 20.

Example Requests

Upgrade the cluster to v1.23 and set the node upgrade step to 20.

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade

{
  "metadata" : {
    "apiVersion" : "v3",
    "kind" : "UpgradeTask"
  },
  "spec" : {
    "clusterUpgradeAction" : {
      "strategy" : {
        "type" : "inPlaceRollingUpdate",
        "inPlaceRollingUpdate" : {
          "userDefinedStep" : 20
        }
      },
      "targetVersion" : "v1.23"
    }
  }
}
```

Example Responses

Status code: 200

Cluster upgrade requested.

```
{
  "metadata" : {
    "uid" : "976a33e2-f545-11ed-87af-0255ac1002c2"
  },
  "spec" : {
    "clusterUpgradeAction" : {
      "version" : "v1.19.16-r20",
      "targetVersion" : "v1.23.8-r0",
      "targetPlatformVersion" : "cce.10",
      "strategy" : {
        "type" : "inPlaceRollingUpdate",
        "inPlaceRollingUpdate" : {
          "userDefinedStep" : 20
        }
      },
      "config" : { }
    }
  }
}
```

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Status Codes

Status Code	Description
200	Cluster upgrade requested.

Error Codes

See **Error Codes**.

4.7.2 Obtaining Cluster Upgrade Task Details

Function

Upgrade task ID, obtained from the **uid** field in the response body after the cluster upgrade API is called.

NOTE

- Cluster upgrade involves many operations on components. You are advised to upgrade your cluster on the CCE console, a more interactive and intuitive way to reduce operational risks.
- Currently, cluster upgrade APIs are available only upon request.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade/tasks/{task_id}

Table 4-775 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
task_id	Yes	String	Upgrade task ID, obtained from the **uid** field in the response body after the cluster upgrade API is called.

Request Parameters

None

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Response Parameters

Status code: 200

Table 4-776 Response body parameters

Parameter	Type	Description
apiVersion	String	API version. Defaults to **v3**.
kind	String	Resource type. Defaults to **UpgradeTask**.
metadata	**UpgradeTaskMetadata** object	Upgrade task metadata.
spec	**UpgradeTaskSpec** object	Upgrade task information.
status	**UpgradeTaskStatus** object	Upgrade task status.

Table 4-777 UpgradeTaskMetadata

Parameter	Type	Description
uid	String	Upgrade task ID.
creationTimestamp	String	Time when a task was created.
updateTimestamp	String	Time when a task is updated.

Table 4-778 UpgradeTaskSpec

Parameter	Type	Description
version	String	Source cluster version.
targetVersion	String	Target cluster version to upgrade to.
items	Object	Additional information about the upgrade task.

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Table 4-779 UpgradeTaskStatus

Parameter	Type	Description
phase	String	Indicates the status of the upgrade task. Init: initializing **NOTE** Queuing: waiting • **Running**: The driver is running. **NOTE** Pause: paused • **Success**: successful. **NOTE** Failed: failed
progress	String	Upgrade task progress.
completionTime	String	End time of the upgrade task.

Example Requests

None

Example Responses

Status code: 200

Cluster upgrade task details obtained.

```
{
  "kind" : "UpgradeTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx",
    "creationTimestamp" : "2022-12-16 13:40:20.75671 +0800 CST",
    "updateTimestamp" : "2022-12-16 13:40:20.756712 +0800 CST"
  },
  "spec" : {
    "version" : "v1.19.16-r4",
    "targetVersion" : "v1.23.5-r0"
  },
  "status" : {
    "phase" : "Init",
    "progress" : "0.00",
    "completionTime" : "2022-12-16 13:40:20.756712 +0800 CST"
  }
}
```

Status Codes

Status Code	Description
200	Cluster upgrade task details obtained.

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Error Codes

See **Error Codes**.

4.7.3 Retrying a Cluster Upgrade Task

Function

Execute the failed cluster upgrade task again.

NOTE

- Cluster upgrade involves many operations on components. You are advised to upgrade your cluster on the CCE console, a more interactive and intuitive way to reduce operational risks.
- Currently, cluster upgrade APIs are available only upon request.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade/retry

Table 4-780 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

None

Example Requests

None

Example Responses

None

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Status Codes

Status Code	Description
200	Cluster upgrade retry requested.

Error Codes

See **Error Codes**.

4.7.4 Suspending a Cluster Upgrade Task (Deprecated)

Function

Suspend the cluster upgrade task.

NOTE

- Cluster upgrade involves many operations on components. You are advised to upgrade your cluster on the CCE console, a more interactive and intuitive way to reduce operational risks.
- Currently, cluster upgrade APIs are available only upon request.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade/pause

Table 4-781 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

None

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Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	Cluster upgrade suspension requested.

Error Codes

See **Error Codes**.

4.7.5 Continuing to Execute a Cluster Upgrade Task (Deprecated)

Function

Resume the suspended cluster upgrade task.

NOTE

- Cluster upgrade involves many operations on components. You are advised to upgrade your cluster on the CCE console, a more interactive and intuitive way to reduce operational risks.
- Currently, cluster upgrade APIs are available only upon request.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade/continue

Table 4-782 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

None

Response Parameters

None

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	Cluster upgrade resumption requested.

Error Codes

See **Error Codes**.

4.7.6 Obtaining a List of Cluster Upgrade Task Details

Function

Obtain a list of cluster upgrade task details.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgrade/tasks

Table 4-783 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

None

Response Parameters

Status code: 200

Table 4-784 Response body parameters

Parameter	Type	Description
apiVersion	String	API version, which defaults to **v3**
kind	String	Resource type
metadata	**UpgradeTaskMetadata** object	Metadata
items	Array of **UpgradeTaskResponseBody** objects	Cluster upgrade tasks

Table 4-785 UpgradeTaskResponseBody

Parameter	Type	Description
apiVersion	String	API version. Defaults to **v3**.
kind	String	Resource type. Defaults to **UpgradeTask**.
metadata	**UpgradeTaskMetadata** object	Upgrade task metadata.
spec	**UpgradeTaskSpec** object	Upgrade task information.
status	**UpgradeTaskStatus** object	Upgrade task status.

Table 4-786 UpgradeTaskMetadata

Parameter	Type	Description
uid	String	Upgrade task ID.
creationTimestamp	String	Time when a task was created.

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Parameter	Type	Description
updateTimestamp	String	Time when a task is updated.

Table 4-787 UpgradeTaskSpec

Parameter	Type	Description
version	String	Source cluster version.
targetVersion	String	Target cluster version to upgrade to.
items	Object	Additional information about the upgrade task.

Table 4-788 UpgradeTaskStatus

Parameter	Type	Description
phase	String	Indicates the status of the upgrade task. Init: initializing **NOTE** Queuing: waiting • **Running**: The driver is running. **NOTE** Pause: paused • **Success**: successful. **NOTE** Failed: failed
progress	String	Upgrade task progress.
completionTime	String	End time of the upgrade task.

Example Requests

None

Example Responses

Status code: 200

The list of cluster upgrade task details is obtained.

```
{
  "kind" : "List",
  "apiVersion" : "v3",
  "metadata" : { },
  "items" : [ {
    "kind" : "UpgradeTask",
```

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```
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "f40cafed-7bf1-4c3b-b619-80113b4bbb18",
    "creationTimestamp" : "2023-11-24 16:41:12.09236 +0800 CST",
    "updateTimestamp" : "2023-11-24 16:44:05.634206 +0800 CST"
  },
  "spec" : {
    "version" : "v1.17.17-r0",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "phase" : "Success",
    "completionTime" : "2023-11-24 16:44:05.634206 +0800 CST"
  }
 }, {
  "kind" : "UpgradeTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "91755b96-5fd8-4a6a-bda1-983de9055996",
    "creationTimestamp" : "2023-11-24 19:54:35.194306 +0800 CST",
    "updateTimestamp" : "2023-11-24 20:14:35.194306 +0800 CST"
  },
  "spec" : {
    "version" : "v1.19.16-r80",
    "targetVersion" : "v1.23.8-r10"
  },
  "status" : {
    "phase" : "Success",
    "completionTime" : "2023-11-24 20:14:35.194306 +0800 CST"
  }
 } ]
}
```


Status Codes

Status Code	Description
200	The list of cluster upgrade task details is obtained.

Error Codes

See **Error Codes**.

4.7.7 Pre-upgrade Check

Function

Pre-upgrade check

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/precheck

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Table 4-789 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-790 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version, which defaults to **v3**
kind	Yes	String	Resource type, which defaults to **PreCheckTask**
spec	Yes	**PrecheckSpec** object	**spec** is an element type of the collection class. The main body of the configuration that needs to be checked before an upgrade is provided in **spec**. CCE checks the configuration based on the spec description.

Table 4-791 PrecheckSpec

Parameter	Mandatory	Type	Description
clusterID	No	String	Cluster ID
clusterVersion	No	String	Cluster version
targetVersion	No	String	Target Version
skippedCheckItemList	No	Array of **skippedCheckItemList** objects	Skipped check items

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Table 4-792 skippedCheckItemList

Parameter	Mandatory	Type	Description
name	No	String	Names of the skipped check items
resourceSelector	No	**resourceSelector** object	Resource tag selector. This parameter is available only for node check, but not for cluster check or add-on check.

Table 4-793 resourceSelector

Parameter	Mandatory	Type	Description
key	Yes	String	Tag key. Options: • **node.uid**: node UID
values	No	Array of strings	Tag values
operator	Yes	String	Logical operator of a tag. Options: • **In**

Response Parameters

Status code: 200

Table 4-794 Response body parameters

Parameter	Type	Description
apiVersion	String	API version
kind	String	Resource type
metadata	**PrecheckClusterResponseMetadata** object	Pre-upgrade check metadata
spec	**PrecheckSpec** object	**spec** is an element type of the collection class. The main body of the configuration that needs to be checked before an upgrade is provided in **spec**. CCE checks the configuration based on the spec description.
status	**PrecheckStatus** object	Pre-upgrade check status of a cluster

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Table 4-795 PrecheckCluserResponseMetadata

Parameter	Type	Description
uid	String	Check the task ID.

Table 4-796 PrecheckSpec

Parameter	Type	Description
clusterID	String	Cluster ID
clusterVersion	String	Cluster version
targetVersion	String	Target Version
skippedCheckItemList	Array of **skippedCheckItemList** objects	Skipped check items

Table 4-797 skippedCheckItemList

Parameter	Type	Description
name	String	Names of the skipped check items
resourceSelector	**resourceSelector** object	Resource tag selector. This parameter is available only for node check, but not for cluster check or add-on check.

Table 4-798 resourceSelector

Parameter	Type	Description
key	String	Tag key. Options: • **node.uid**: node UID
values	Array of strings	Tag values
operator	String	Logical operator of a tag. Options: • **In**

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Table 4-799 PrecheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed** • **Error**
expireTimeStamp	String	Check result expiration time
message	String	Information, which typically indicates the log for execution errors
clusterCheckStatus	**clusterCheckStatus** object	Status of a cluster restrictions check
addonCheckStatus	**addonCheckStatus** object	Status of an add-on check
nodeCheckStatus	**nodeCheckStatus** object	Node check status

Table 4-800 clusterCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

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Table 4-801 addonCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-802 nodeCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
nodeStageStatus	Array of **NodeStageStatus** objects	Node check status

Table 4-803 NodeStageStatus

Parameter	Type	Description
nodeInfo	**NodeInfo** object	Node information
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-804 NodeInfo

Parameter	Type	Description
uid	String	Node UID

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Parameter	Type	Description
name	String	Node name
status	String	Status
nodeType	String	Node type

Table 4-805 PreCheckItemStatus

Parameter	Type	Description
name	String	Check item
kind	String	Check item type. Options: • **Exception**: exceptions that need to be resolved by you • **Risk**: risks that can be skipped after you confirm them
group	String	Check item group. Options: • **LimitCheck**: cluster limit check • **MasterCheck**: master node check • **NodeCheck**: worker node check • **AddonCheck**: add-on check • **ExecuteException**: process error check
level	String	Check item severity. Options: • **Info**: information • **Warning** • **Fatal**: critical
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
message	String	Information
riskSource	**riskSource** object	Risk item
errorCodes	Array of strings	Error code set

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Table 4-806 riskSource

Parameter	Type	Description
configurationRisks	Array of **configurationRisks** objects	Configuration risk
deprecatedAPIRisks	Array of **deprecatedAPIRisks** objects	Deprecated API risk
nodeRisks	Array of **nodeRisks** objects	Node risk
addonRisks	Array of **addonRisks** objects	Add-on risk

Table 4-807 configurationRisks

Parameter	Type	Description
package	String	Component
sourceFile	String	How to Obtain
nodeMsg	String	Node information
field	String	Parameter Value
operation	String	Change an operation type.
originalValue	String	Original Value
value	String	Current Value

Table 4-808 deprecatedAPIRisks

Parameter	Type	Description
url	String	Request path, for example, **/apis/policy/v1beta1/podsecuritypolicies**
userAgent	String	Client information

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Table 4-809 nodeRisks

Parameter	Type	Description
NodeID	String	Worker node ID

Table 4-810 addonRisks

Parameter	Type	Description
addonTemplateName	String	Name of the add-on template
alias	String	Add-on alias

Example Requests

Request body for a cluster pre-upgrade check

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/precheck

{
  "kind" : "PreCheckTask",
  "apiVersion" : "v3",
  "spec" : {
    "clusterID" : "8978deaa-1743-11ee-8e46-0255ac10004c",
    "clusterVersion" : "v1.15.11-r1",
    "targetVersion" : "v1.19.16-r80",
    "skippedCheckItemList" : [ ]
  }
}
```

Example Responses

Status code: 200

Cluster pre-upgrade check succeeded.

```
{
  "kind" : "PreCheckTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "9991b45e-a2be-4b49-aca4-50a25fa6f81e"
  },
  "spec" : {
    "clusterID" : "8978deaa-1743-11ee-8e46-0255ac10004c",
    "clusterVersion" : "v1.15.11-r1",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "phase" : "Init",
    "clusterCheckStatus" : {
      "phase" : "Init"
    },
    "addonCheckStatus" : {
      "phase" : "Init"
    },
    "nodeCheckStatus" : {
      "phase" : "Init"
    }
```

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```
  }
}
```

Status Codes

Status Code	Description
200	Cluster pre-upgrade check succeeded.

Error Codes

See **Error Codes**.

4.7.8 Obtaining Details About a Pre-upgrade Check Task of a Cluster

Function

Obtain details about a pre-upgrade check task of a cluster. The task ID is obtained from the **uid** field in the response body after the cluster check API is called.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/precheck/tasks/{task_id}

Table 4-811 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
task_id	Yes	String	Upgrade task ID, obtained from the **uid** field in the response body after the cluster upgrade API is called.

Request Parameters

None

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Response Parameters

Status code: 200

Table 4-812 Response body parameters

Parameter	Type	Description
apiVersion	String	API version, which defaults to **v3**
kind	String	Resource type, which defaults to **PreCheckTask**
metadata	**PrecheckTaskMetadata** object	Metadata of a pre-upgrade check task
spec	**PrecheckSpec** object	Information of a pre-upgrade check task
status	**PrecheckStatus** object	Status of a pre-upgrade check task

Table 4-813 PrecheckTaskMetadata

Parameter	Type	Description
uid	String	Task ID
creationTimestamp	String	Time when the task was created
updateTimestamp	String	Time when the task was updated

Table 4-814 PrecheckSpec

Parameter	Type	Description
clusterID	String	Cluster ID
clusterVersion	String	Cluster version
targetVersion	String	Target Version
skippedCheckItemList	Array of **skippedCheckItemList** objects	Skipped check items

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Table 4-815 skippedCheckItemList

Parameter	Type	Description
name	String	Names of the skipped check items
resourceSelector	**resourceSelector** object	Resource tag selector. This parameter is available only for node check, but not for cluster check or add-on check.

Table 4-816 resourceSelector

Parameter	Type	Description
key	String	Tag key. Options: • **node.uid**: node UID
values	Array of strings	Tag values
operator	String	Logical operator of a tag. Options: • **In**

Table 4-817 PrecheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed** • **Error**
expireTimeStamp	String	Check result expiration time
message	String	Information, which typically indicates the log for execution errors
clusterCheckStatus	**clusterCheckStatus** object	Status of a cluster restrictions check
addonCheckStatus	**addonCheckStatus** object	Status of an add-on check
nodeCheckStatus	**nodeCheckStatus** object	Node check status

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Table 4-818 clusterCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-819 addonCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-820 nodeCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
nodeStageStatus	Array of **NodeStageStatus** objects	Node check status

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Table 4-821 NodeStageStatus

Parameter	Type	Description
nodeInfo	**NodeInfo** object	Node information
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-822 NodeInfo

Parameter	Type	Description
uid	String	Node UID
name	String	Node name
status	String	Status
nodeType	String	Node type

Table 4-823 PreCheckItemStatus

Parameter	Type	Description
name	String	Check item
kind	String	Check item type. Options: • **Exception**: exceptions that need to be resolved by you • **Risk**: risks that can be skipped after you confirm them
group	String	Check item group. Options: • **LimitCheck**: cluster limit check • **MasterCheck**: master node check • **NodeCheck**: worker node check • **AddonCheck**: add-on check • **ExecuteException**: process error check
level	String	Check item severity. Options: • **Info**: information • **Warning** • **Fatal**: critical

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Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
message	String	Information
riskSource	**riskSource** object	Risk item
errorCodes	Array of strings	Error code set

Table 4-824 riskSource

Parameter	Type	Description
configurationRisks	Array of **configurationRisks** objects	Configuration risk
deprecatedAPIRisks	Array of **deprecatedAPIRisks** objects	Deprecated API risk
nodeRisks	Array of **nodeRisks** objects	Node risk
addonRisks	Array of **addonRisks** objects	Add-on risk

Table 4-825 configurationRisks

Parameter	Type	Description
package	String	Component
sourceFile	String	How to Obtain
nodeMsg	String	Node information
field	String	Parameter Value
operation	String	Change an operation type.

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Parameter	Type	Description
originalValue	String	Original Value
value	String	Current Value

Table 4-826 deprecatedAPIRisks

Parameter	Type	Description
url	String	Request path, for example, **/apis/policy/v1beta1/podsecuritypolicies**
userAgent	String	Client information

Table 4-827 nodeRisks

Parameter	Type	Description
NodeID	String	Worker node ID

Table 4-828 addonRisks

Parameter	Type	Description
addonTemplateName	String	Name of the add-on template
alias	String	Add-on alias

Example Requests

None

Example Responses

Status code: 200

The details about a pre-upgrade check task of a cluster are obtained.

```
{
  "kind" : "PreCheckTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "f61e008c-1600-41c0-9bde-121de5a30660",
    "creationTimestamp" : "2023-11-25 07:20:04.592972 +0000 UTC",
    "updateTimestamp" : "2023-11-25 07:21:05.518966 +0000 UTC"
  },
  "spec" : {
    "clusterVersion" : "v1.19.16-r4",
    "targetVersion" : "v1.23.5-r0"
```

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```
  },
  "status" : {
    "phase" : "Success",
    "expireTimeStamp" : "2023-11-25 08:21:05.518966 +0000 UTC",
    "clusterCheckStatus" : {
      "phase" : "Success",
      "itemsStatus" : [ {
        "name" : "DeprecatedApiCheck",
        "kind" : "Risk",
        "group" : "LimitCheck",
        "level" : "Info",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
      }, {
        "name" : "NodeContainerdPodRestartRisk",
        "kind" : "Risk",
        "group" : "LimitCheck",
        "level" : "Warning",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
      }, {
        "name" : "ResiduePackageVersion",
        "kind" : "Exception",
        "group" : "LimitCheck",
        "level" : "Fatal",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
      } ]
    },
    "addonCheckStatus" : {
      "phase" : "Success",
      "itemsStatus" : [ {
        "name" : "AddonLimit",
        "kind" : "Exception",
        "group" : "AddonCheck",
        "level" : "Warning",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
      }, {
        "name" : "CoreDNSConfLimit",
        "kind" : "Exception",
        "group" : "AddonCheck",
        "level" : "Fatal",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
      } ]
    },
    "nodeCheckStatus" : {
      "phase" : "Success"
    }
  }
}
```


Status Codes

Status Code	Description
200	The details about a pre-upgrade check task of a cluster are obtained.

Error Codes

See **Error Codes**.

4.7.9 Obtaining a List of Pre-upgrade Check Tasks of a Cluster

Function

Obtain a list of pre-upgrade check tasks of a cluster.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/precheck/tasks

Table 4-829 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

Status code: 200

Table 4-830 Response body parameters

Parameter	Type	Description
apiVersion	String	API version, which defaults to **v3**
kind	String	Type
metadata	**Metadata** object	Basic information about the object. Metadata is a collection of attributes.
items	Array of **PrecheckClusterTask** objects	Cluster check tasks

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Table 4-831 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-832 PrecheckClusterTask

Parameter	Type	Description
apiVersion	String	API version, which defaults to **v3**
kind	String	Resource type, which defaults to **PreCheckTask**
metadata	**PrecheckTaskMetadata** object	Metadata of a pre-upgrade check task
spec	**PrecheckSpec** object	Information of a pre-upgrade check task
status	**PrecheckStatus** object	Status of a pre-upgrade check task

Table 4-833 PrecheckTaskMetadata

Parameter	Type	Description
uid	String	Task ID
creationTimestamp	String	Time when the task was created
updateTimestamp	String	Time when the task was updated

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Table 4-834 PrecheckSpec

Parameter	Type	Description
clusterID	String	Cluster ID
clusterVersion	String	Cluster version
targetVersion	String	Target Version
skippedCheckItemList	Array of **skippedCheckItemList** objects	Skipped check items

Table 4-835 skippedCheckItemList

Parameter	Type	Description
name	String	Names of the skipped check items
resourceSelector	**resourceSelector** object	Resource tag selector. This parameter is available only for node check, but not for cluster check or add-on check.

Table 4-836 resourceSelector

Parameter	Type	Description
key	String	Tag key. Options: • **node.uid**: node UID
values	Array of strings	Tag values
operator	String	Logical operator of a tag. Options: • **In**

Table 4-837 PrecheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed** • **Error**

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Parameter	Type	Description
expireTimeStamp	String	Check result expiration time
message	String	Information, which typically indicates the log for execution errors
clusterCheckStatus	**clusterCheckStatus** object	Status of a cluster restrictions check
addonCheckStatus	**addonCheckStatus** object	Status of an add-on check
nodeCheckStatus	**nodeCheckStatus** object	Node check status

Table 4-838 clusterCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-839 addonCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

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Table 4-840 nodeCheckStatus

Parameter	Type	Description
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
nodeStageStatus	Array of **NodeStageStatus** objects	Node check status

Table 4-841 NodeStageStatus

Parameter	Type	Description
nodeInfo	**NodeInfo** object	Node information
itemsStatus	Array of **PreCheckItemStatus** objects	Compliance set by check item

Table 4-842 NodeInfo

Parameter	Type	Description
uid	String	Node UID
name	String	Node name
status	String	Status
nodeType	String	Node type

Table 4-843 PreCheckItemStatus

Parameter	Type	Description
name	String	Check item

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Parameter	Type	Description
kind	String	Check item type. Options: • **Exception**: exceptions that need to be resolved by you • **Risk**: risks that can be skipped after you confirm them
group	String	Check item group. Options: • **LimitCheck**: cluster limit check • **MasterCheck**: master node check • **NodeCheck**: worker node check • **AddonCheck**: add-on check • **ExecuteException**: process error check
level	String	Check item severity. Options: • **Info**: information • **Warning** • **Fatal**: critical
phase	String	Status. Options: • **Init**: initializing • **Running** • **Success** • **Failed**
message	String	Information
riskSource	**riskSource** object	Risk item
errorCodes	Array of strings	Error code set

Table 4-844 riskSource

Parameter	Type	Description
configurationRisks	Array of **configurationRisks** objects	Configuration risk
deprecatedAPIRisks	Array of **deprecatedAPIRisks** objects	Deprecated API risk

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Parameter	Type	Description
nodeRisks	Array of **nodeRisks** objects	Node risk
addonRisks	Array of **addonRisks** objects	Add-on risk

Table 4-845 configurationRisks

Parameter	Type	Description
package	String	Component
sourceFile	String	How to Obtain
nodeMsg	String	Node information
field	String	Parameter Value
operation	String	Change an operation type.
originalValue	String	Original Value
value	String	Current Value

Table 4-846 deprecatedAPIRisks

Parameter	Type	Description
url	String	Request path, for example, **/apis/policy/v1beta1/podsecuritypolicies**
userAgent	String	Client information

Table 4-847 nodeRisks

Parameter	Type	Description
NodeID	String	Worker node ID

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Table 4-848 addonRisks

Parameter	Type	Description
addonTemplateName	String	Name of the add-on template
alias	String	Add-on alias

Example Requests

None

Example Responses

Status code: 200

The list of pre-upgrade check tasks of a cluster is obtained.


```
{
  "kind" : "List",
  "apiVersion" : "v3",
  "metadata" : { },
  "items" : [ {
    "kind" : "PreCheckTask",
    "apiVersion" : "v3",
    "metadata" : {
      "uid" : "10b52d23-080a-4b7d-bf83-64b4687ca786",
      "creationTimestamp" : "2023-12-16 07:07:11.099111 +0000 UTC",
      "updateTimestamp" : "2023-12-16 07:09:10.425622 +0000 UTC"
    },
    "spec" : {
      "clusterVersion" : "v1.23.5-r0",
      "targetVersion" : "v1.23.11-r0"
    },
    "status" : {
      "phase" : "Failed",
      "clusterCheckStatus" : {
        "phase" : "Success",
        "itemsStatus" : [ {
          "name" : "DeprecatedApiCheck",
          "kind" : "Risk",
          "group" : "LimitCheck",
          "level" : "Info",
          "phase" : "Success",
          "message" : "check item succeed",
          "riskSource" : { }
        }, {
          "name" : "BlackLimit",
          "kind" : "Exception",
          "group" : "LimitCheck",
          "level" : "Fatal",
          "phase" : "Success",
          "message" : "check item succeed",
          "riskSource" : { }
        }, {
          "name" : "MasterSSH",
          "kind" : "Exception",
          "group" : "LimitCheck",
          "level" : "Fatal",
          "phase" : "Success",
          "message" : "check item succeed",
          "riskSource" : { }
        }, {
```


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```
        "name" : "ReleaseLimit",
        "kind" : "Exception",
        "group" : "LimitCheck",
        "level" : "Warning",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
       }, {
        "name" : "ClusterNoArm",
        "kind" : "Exception",
        "group" : "LimitCheck",
        "level" : "Warning",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
       } ]
     },
     "addonCheckStatus" : {
      "phase" : "Failed",
      "itemsStatus" : [ {
        "name" : "AddonLimit",
        "kind" : "Exception",
        "group" : "AddonCheck",
        "level" : "Warning",
        "phase" : "Failed",
        "message" : "addon [ CoreDNS,CCE Container Storage (Everest) ] status is abnormal, check and try
again",
        "riskSource" : {
          "addonRisks" : [ {
            "addonTemplateName" : "coredns",
            "alias" : "CoreDNS"
          }, {
            "addonTemplateName" : "everest",
            "alias" : "CCE Container Storage (Everest)"
          } ]
        }
       }, {
        "name" : "CoreDNSConfLimit",
        "kind" : "Exception",
        "group" : "AddonCheck",
        "level" : "Fatal",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
       }, {
        "name" : "EverestLimitHungVersion",
        "kind" : "Risk",
        "group" : "AddonCheck",
        "level" : "Fatal",
        "phase" : "Success",
        "message" : "check item succeed",
        "riskSource" : { }
       } ]
     },
     "nodeCheckStatus" : {
      "phase" : "Success"
     }
    }
   } ]
}
```


Status Codes

Status Code	Description
200	The list of pre-upgrade check tasks of a cluster is obtained.

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Error Codes

See **Error Codes**.

4.7.10 Post-upgrade Check

Function

Post-upgrade check, which is used by the customer to check the cluster status after an upgrade and provide feedback after services are restored. Use this API with the console.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/postcheck

Table 4-849 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-850 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version, which defaults to **v3**
kind	Yes	String	Resource type
spec	Yes	**PostcheckSpec** object	**spec** indicates the configuration confirmed after an upgrade.

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Table 4-851 PostcheckSpec

Parameter	Mandatory	Type	Description
clusterID	No	String	Cluster ID
clusterVersion	No	String	Source cluster version
targetVersion	No	String	Target cluster version

Response Parameters

Status code: 200

Table 4-852 Response body parameters

Parameter	Type	Description
apiVersion	String	API version
kind	String	Resource type
metadata	**PostcheckCluserResponseMetadata** object	Post-upgrade check metadata
spec	**PostcheckSpec** object	Configuration confirmed after a cluster upgrade
status	**status** object	Status confirmed after a cluster upgrade

Table 4-853 PostcheckCluserResponseMetadata

Parameter	Type	Description
uid	String	Task ID

Table 4-854 PostcheckSpec

Parameter	Type	Description
clusterID	String	Cluster ID
clusterVersion	String	Source cluster version
targetVersion	String	Target cluster version

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Table 4-855 status

Parameter	Type	Description
phase	String	Status. Options: • **Success** • **Failed** • **Error**

Example Requests

Post-upgrade check

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/postcheck

{
  "kind" : "PostCheckTask",
  "apiVersion" : "v3",
  "spec" : {
    "clusterID" : "8978deaa-1743-11ee-8e46-0255ac10004c",
    "clusterVersion" : "v1.15.11-r1",
    "targetVersion" : "v1.19.16-r80"
  }
}
```

Example Responses

Status code: 200

Cluster post-upgrade check succeeded.

```
{
  "kind" : "PostCheckTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "e99fedf8-348c-4084-b0fd-81bf187df4e0"
  },
  "spec" : {
    "clusterID" : "8978deaa-1743-11ee-8e46-0255ac10004c",
    "clusterVersion" : "v1.15.11-r1",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "phase" : "Success"
  }
}
```

Status Codes

Status Code	Description
200	Cluster post-upgrade check succeeded.

Error Codes

See **Error Codes**.

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4.7.11 Cluster Backup

Function

Cluster backup

URI

POST /api/v3.1/projects/{project_id}/clusters/{cluster_id}/operation/snapshot

Table 4-856 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

Status code: 200

Table 4-857 Response body parameters

Parameter	Type	Description
uid	String	Task ID
metadata	**SnapshotCluserResponseMetadata** object	Backup metadata

Table 4-858 SnapshotCluserResponseMetadata

Parameter	Type	Description
apiVersion	String	API version, which defaults to **v3.1**
kind	String	Task type

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Example Requests

Example of a cluster upgrade backup request

```
POST /api/v3.1/projects/{project_id}/clusters/{cluster_id}/operation/snapshot
```

Example Responses

Status code: 200

The cluster backup task is created.

```
{
  "uid" : "15376f1b-daa6-4e2d-96a6-e9d5d7caeaa2",
  "metadata" : {
    "kind" : "Snapshot",
    "apiVersion" : "v3.1"
  }
}
```

Status Codes

Status Code	Description
200	The cluster backup task is created.

Error Codes

See **Error Codes**.

4.7.12 Obtaining a List of Cluster Backup Task Details

Function

Obtain a list of cluster backup task details.

URI

GET /api/v3.1/projects/{project_id}/clusters/{cluster_id}/operation/snapshot/tasks

Table 4-859 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

Status code: 200

Table 4-860 Response body parameters

Parameter	Type	Description
apiVersion	String	API version, which defaults to **v3.1**
kind	String	Task type
metadata	**SnapshotTaskMetadata** object	Backup metadata
items	Array of **SnapshotTask** objects	Backup tasks
status	**SnapshotTaskStatus** object	Backup task status

Table 4-861 SnapshotTask

Parameter	Type	Description
kind	String	Task type
apiVersion	String	API version
metadata	**SnapshotTaskMetadata** object	Backup metadata
spec	**SnapshotSpec** object	Backing Up Task Configurations (To Be Deprecated)

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Parameter	Type	Description
status	**SnapshotStatus** object	Backup task status

Table 4-862 SnapshotTaskMetadata

Parameter	Type	Description
uid	String	Task ID
creationTimestamp	String	Time when the task was created
updateTimestamp	String	Time when the task was updated

Table 4-863 SnapshotSpec

Parameter	Type	Description
items	Array of **SnapshotSpecItems** objects	Backup task details

Table 4-864 SnapshotSpecItems

Parameter	Type	Description
id	String	Subtask ID
type	String	Subtask type
status	String	Status
creationTimestamp	String	Time when the task was created
updateTimestamp	String	Time when the task was updated
message	String	Information

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Table 4-865 SnapshotStatus

Parameter	Type	Description
phase	String	Task status
progress	String	Task progress
completionTime	String	Completion time

Table 4-866 SnapshotTaskStatus

Parameter	Type	Description
latestBackupTime	String	Time of the latest backup

Example Requests

None

Example Responses

Status code: 200

The list of cluster backup task details is obtained.

```
{
  "kind" : "List",
  "apiVersion" : "v3.1",
  "metadata" : { },
  "items" : [ {
    "kind" : "SnapshotTask",
    "apiVersion" : "v3.1",
    "metadata" : {
      "uid" : "87d326f9-46b0-486e-a4ba-1f82ec9315ed",
      "creationTimestamp" : "2023-11-25 17:03:46.739012 +0800 CST",
      "updateTimestamp" : "2023-11-25 17:03:46.739027 +0800 CST"
    },
    "spec" : { },
    "status" : {
      "phase" : "Running",
      "progress" : "67",
      "completionTime" : "2023-11-25 17:03:46.739027 +0800 CST"
    }
  } ],
  "status" : {
    "latestBackupTime" : "2023-11-25 17:03:47.980844 +0800 CST"
  }
}
```

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Status Codes

Status Code	Description
200	The list of cluster backup task details is obtained.

Error Codes

See **Error Codes**.

4.7.13 Obtaining the Cluster Upgrade Information

Function

Obtain the cluster upgrade information.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/upgradeinfo

Table 4-867 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

None

Response Parameters

Status code: 200

Table 4-868 Response body parameters

Parameter	Type	Description
kind	String	Type

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Parameter	Type	Description
apiVersion	String	API version
metadata	**Metadata** object	Basic information about the object. Metadata is a collection of attributes.
spec	**UpgradeInfoSpec** object	Upgrade settings
status	**UpgradeInfoStatus** object	Upgrade status

Table 4-869 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-870 UpgradeInfoSpec

Parameter	Type	Description
lastUpgradeInfo	**UpgradeInfoStatus** object	Last cluster upgrade
versionInfo	**UpgradeVersionInfo** object	Version
upgradeFeatureGates	**UpgradeFeatureGates** object	Cluster upgrade feature gates

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Table 4-871 UpgradeVersionInfo

Parameter	Type	Description
release	String	Official version, for example, v1.19.10
patch	String	Patch version, for example, r0
suggestPatch	String	Recommended target patch version, for example, r0
targetVersions	Array of strings	Target versions for the upgrade

Table 4-872 UpgradeFeatureGates

Parameter	Type	Description
supportUpgradePageV4	Boolean	Whether the cluster upgrade console supports v4. This field is used by the CCE console.

Table 4-873 UpgradeInfoStatus

Parameter	Type	Description
phase	String	Status of the upgrade task • **Init**: initializing • **Running** • **Pause** • **Success** • **Failed**
progress	String	Upgrade task progress
completionTime	String	End time of the upgrade task

Example Requests

None

Example Responses

Status code: 200

The cluster upgrade information is obtained.

```
{
  "kind" : "UpgradeInfo",
  "apiVersion" : "v3",
```

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```
 "metadata" : { },
 "spec" : {
  "lastUpgradeInfo" : {
    "phase" : "Success",
    "completionTime" : "2023-11-25 11:18:54.478926 +0800 CST"
  },
  "versionInfo" : {
    "release" : "v1.27.2",
    "patch" : "r0",
    "suggestPatch" : "r0",
    "targetVersions" : [ "v1.27.3-r0" ]
  },
  "upgradeFeatureGates" : {
    "supportUpgradePageV4" : true
  }
 },
 "status" : {
  "phase" : "Success",
  "completionTime" : "2023-11-25 11:18:54.478926 +0800 CST"
 }
}
```


Status Codes

Status Code	Description
200	The cluster upgrade information is obtained.

Error Codes

See **Error Codes**.

4.7.14 Obtaining a Cluster Upgrade Path

Function

Obtain the cluster upgrade path.

URI

GET /api/v3/clusterupgradepaths

Request Parameters

Table 4-874 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-875 Response body parameters

Parameter	Type	Description
apiVersion	String	API version
kind	String	Resource type
metadata	**Metadata** object	Basic information about the object. Metadata is a collection of attributes.
upgradePaths	Array of **UpgradePath** objects	Upgrade paths

Table 4-876 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

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Table 4-877 UpgradePath

Parameter	Type	Description
version	String	Cluster version. For example, v1.19.16-r20 for clusters of v1.19 or earlier, and v1.21 for clusters of v1.21 or later. For details, see CCE Cluster Versions.
platformVersion	String	CCE cluster platform version, which is an internal version under the cluster version (**version**). Platform versions are used to trace iterations in a major cluster version. They are unique within a major cluster version and recounted when the major cluster version changes.The format of **platformVersion** is **cce.X.Y**.- **X**: an internal feature version. When features or OSs in a cluster version are modified or patches are released in the cluster, the value of this parameter increases monotonically from 1.- **Y**: a patch version of an internal feature version. This parameter is only used for updating a software package for a released feature version. The value of this parameter increases monotonically from 0.
targetVersions	Array of strings	Target versions that can be upgraded

Example Requests

None

Example Responses

Status code: 200

The cluster upgrade path is obtained.

```
{
  "kind" : "ClusterUpgradePaths",
  "apiVersion" : "v3",
  "metadata" : { },
  "upgradePaths" : [ {
    "version" : "v1.25",
    "platformVersion" : "cce.5.0",
    "targetVersions" : [ "v1.25.6-r0", "v1.27.3-r0" ]
  }, {
    "version" : "v1.25",
    "platformVersion" : "cce.4.0",
    "targetVersions" : [ "v1.25.6-r0", "v1.27.3-r0" ]
  }, {
    "version" : "v1.23",
    "platformVersion" : "cce.10.0",
    "targetVersions" : [ "v1.23.11-r0", "v1.25.6-r0", "v1.27.3-r0" ]
  }, {
    "version" : "v1.23",
    "platformVersion" : "cce.9.0",
```

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```
    "targetVersions" : [ "v1.23.11-r0", "v1.25.6-r0", "v1.27.3-r0" ]
  } ]
}
```

Status Codes

Status Code	Description
200	The cluster upgrade path is obtained.

Error Codes

See **Error Codes**.

4.7.15 Obtaining the Configuration of Cluster Upgrade Feature Gates

Function

Obtain the configuration of cluster upgrade feature gates.

URI

GET /api/v3/clusterupgradefeaturegates

Request Parameters

Table 4-878 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

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Table 4-879 Response body parameters

Parameter	Type	Description
apiVersion	String	API version
kind	String	Resource type
metadata	**Metadata** object	Basic information about the object. Metadata is a collection of attributes.
upgradeFeatureGates	Map<String,String>	Feature gates information, which is in the format of a key-value pair. • **Key**: can be **DisplayPreCheckDetail** (displaying details about all cluster check items before an upgrade), **EvsSnapshot** (using EVS snapshots to back up clusters), **LabelForSkippedNode** (labeling the nodes skipped during a cluster upgrade), or **UpgradeStrategy** (specifying cluster upgrade policies) • **Value**: can be **Support**, **Disable**, or **Default**, which is determined using default CCE rules.

Table 4-880 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Example Requests

None

Example Responses

Status code: 200

The cluster upgrade path is obtained.

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```
{
  "kind" : "ClusterUpgradeFeatureGates",
  "apiVersion" : "v3",
  "metadata" : { },
  "upgradeFeatureGates" : {
    "DisplayPreCheckDetail" : "Support",
    "EvsSnapshot" : "Support",
    "LabelForSkippedNode" : "Support",
    "UpgradeStrategy" : "Support"
  }
}
```

Status Codes

Status Code	Description
200	The cluster upgrade path is obtained.

Error Codes

See **Error Codes**.

4.7.16 Enabling the Cluster Upgrade Process Booting Task

Function

This API is used to create a cluster upgrade booting task. After the booting task is created by calling this API, start the check through the cluster pre-upgrade check. The upgrade process task is used to control the execution process of the cluster upgrade task. The execution process is as follows: Pre-upgrade check -> Cluster upgrade -> Post-upgrade check.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgradeworkflows

Table 4-881 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-882 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-883 Request body parameters

Parameter	Mandatory	Type	Description
kind	Yes	String	API type. The value is fixed at **WorkFlowTask** and cannot be changed.
apiVersion	Yes	String	API version. The value is fixed at **v3** and cannot be changed.
spec	Yes	**WorkFlowSpec** object	

Table 4-884 WorkFlowSpec

Parameter	Mandatory	Type	Description
clusterID	No	String	Cluster ID, which uniquely identifies a resource. The value is automatically generated after the object is created. A custom value will not take effect.
clusterVersion	No	String	Current version of the cluster to be upgraded
targetVersion	Yes	String	Target version of the cluster

Response Parameters

Status code: 201

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Table 4-885 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **WorkFlowTask** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**Metadata** object	Upgrade process metadata
spec	**WorkFlowSpec** object	Element type of the collection class. The main body of the cluster upgrade process is provided in **spec**. CCE creates or updates objects by defining or updating **spec**.
status	**WorkFlowStatus** object	Element type of the collection class, which is used to record the current status of the cluster upgrade process, including the execution status of each process in the cluster upgrade process.

Table 4-886 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-887 WorkFlowSpec

Parameter	Type	Description
clusterID	String	Cluster ID, which uniquely identifies a resource. The value is automatically generated after the object is created. A custom value will not take effect.
clusterVersion	String	Current version of the cluster to be upgraded

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Parameter	Type	Description
targetVersion	String	Target version of the cluster

Table 4-888 WorkFlowStatus

Parameter	Type	Description
phase	String	Execution status of the cluster upgrade process. Options: **Init**: No task is running in the upgrade process. **Running**: Some tasks in the upgrade process are being executed. **Pending**: A task in the upgrade process fails to be executed. **Success**: All tasks in the upgrade process have been executed. **Cancel**: The upgrade process has been canceled.
pointStatuses	Array of **PointStatus** objects	Execution status of each task in the upgrade process
lineStatuses	Array of **LineStatus** objects	Task execution path of the upgrade process

Table 4-889 PointStatus

Parameter	Type	Description
taskType	String	Cluster upgrade task type. Options: **Cluster**: a cluster upgrade task **PreCheck**: a cluster pre-upgrade check task **Rollback**: a cluster rollback task **Snapshot**: a cluster upgrade snapshot task **PostCheck**: a cluster post-upgrade check task
taskID	String	Upgrade task ID
status	String	Cluster upgrade status. Options: **Init**: The task is in the initial state. **Queuing**: The task is in the execution queue. **Running**: The task is being executed. **Success**: The task has been executed. **Failed**: Executing the task failed.
startTimeStamp	String	Start time of the upgrade task
endTimeStamp	String	End time of the upgrade task
expireTimeStamp	String	Expiration time of the upgrade task (only for pre-upgrade check tasks)

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Table 4-890 LineStatus

Parameter	Type	Description
startPoint	String	Path startpoint
endPoint	String	Path endpoint
critical	String	Whether it is a key path. An upgrade can be canceled only after the key path is executed.

Example Requests

Enable the process of upgrading a cluster to v1.23.

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgradeworkflows

{
  "kind" : "WorkFlowTask",
  "apiVersion" : "v3",
  "spec" : {
    "targetVersion" : "v1.23"
  }
}
```

Example Responses

Status code: 201

The upgrade process is created in the specified cluster.

```
{
  "kind" : "WorkFlowTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "5ddfddfe-87db-11ec-b5e5-0255ac111914"
  },
  "spec" : {
    "clusterID" : "b4b9e60f-8aa2-11ee-af09-0255ac10004f",
    "clusterVersion" : "v1.17.17-r0",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "pointStatuses" : [ {
      "taskType" : "PreCheck"
    }, {
      "taskType" : "Snapshot"
    }, {
      "taskType" : "Cluster"
    }, {
      "taskType" : "PostCheck"
    } ],
    "lineStatuses" : [ {
      "startPoint" : {
        "taskType" : "PreCheck"
      },
      "endPoint" : {
        "taskType" : "Cluster"
      }
    }, {
      "startPoint" : {
        "taskType" : "Cluster"
      },
      "endPoint" : {
```

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```
      "taskType" : "PostCheck"
    }
   } ]
  }
}
```

Status Codes

Status Code	Description
201	The upgrade process is created in the specified cluster.

Error Codes

See **Error Codes**.

4.7.17 Obtaining a List of Upgrade Workflows

Function

Obtain a list of historical cluster upgrade booting tasks.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgradeworkflows

Table 4-891 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-892 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).

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Parameter	Mandatory	Type	Description
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-893 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **List** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
items	**UpgradeWorkFlow** object	

Table 4-894 UpgradeWorkFlow

Parameter	Type	Description
kind	String	API type. The value is fixed at **WorkFlowTask** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**Metadata** object	Upgrade process metadata
spec	**WorkFlowSpec** object	Element type of the collection class. The main body of the cluster upgrade process is provided in **spec**. CCE creates or updates objects by defining or updating **spec**.
status	**WorkFlowStatus** object	Element type of the collection class, which is used to record the current status of the cluster upgrade process, including the execution status of each process in the cluster upgrade process.

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Table 4-895 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-896 WorkFlowSpec

Parameter	Type	Description
clusterID	String	Cluster ID, which uniquely identifies a resource. The value is automatically generated after the object is created. A custom value will not take effect.
clusterVersion	String	Current version of the cluster to be upgraded
targetVersion	String	Target version of the cluster

Table 4-897 WorkFlowStatus

Parameter	Type	Description
phase	String	Execution status of the cluster upgrade process. Options: **Init**: No task is running in the upgrade process. **Running**: Some tasks in the upgrade process are being executed. **Pending**: A task in the upgrade process fails to be executed. **Success**: All tasks in the upgrade process have been executed. **Cancel**: The upgrade process has been canceled.
pointStatuses	Array of **PointStatus** objects	Execution status of each task in the upgrade process
lineStatuses	Array of **LineStatus** objects	Task execution path of the upgrade process

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Table 4-898 PointStatus

Parameter	Type	Description
taskType	String	Cluster upgrade task type. Options: **Cluster**: a cluster upgrade task **PreCheck**: a cluster pre-upgrade check task **Rollback**: a cluster rollback task **Snapshot**: a cluster upgrade snapshot task **PostCheck**: a cluster post-upgrade check task
taskID	String	Upgrade task ID
status	String	Cluster upgrade status. Options: **Init**: The task is in the initial state. **Queuing**: The task is in the execution queue. **Running**: The task is being executed. **Success**: The task has been executed. **Failed**: Executing the task failed.
startTimeStamp	String	Start time of the upgrade task
endTimeStamp	String	End time of the upgrade task
expireTimeStamp	String	Expiration time of the upgrade task (only for pre-upgrade check tasks)

Table 4-899 LineStatus

Parameter	Type	Description
startPoint	String	Path startpoint
endPoint	String	Path endpoint
critical	String	Whether it is a key path. An upgrade can be canceled only after the key path is executed.

Example Requests

None

Example Responses

Status code: 200

The list of historical cluster upgrade booting tasks is obtained.

```
{
  "apiVersion" : "v3",
  "kind" : "List",
  "items" : {
```

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```
  "kind" : "WorkFlowTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "730f5577-38ef-448c-b4a7-c6878fbefdda",
    "creationTimestamp" : "2023-11-24 08:39:15.894417 +0000 UTC",
    "updateTimestamp" : "2023-11-25 02:57:25.718567 +0000 UTC"
  },
  "spec" : {
    "clusterID" : "b4b9e60f-8aa2-11ee-af09-0255ac10004f",
    "clusterVersion" : "v1.17.17-r0",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "phase" : "Cancel",
    "pointStatuses" : [ {
      "taskType" : "PreCheck"
    }, {
      "taskType" : "Snapshot"
    }, {
      "taskType" : "Cluster"
    }, {
      "taskType" : "PostCheck"
    } ],
    "lineStatuses" : [ {
      "startPoint" : {
        "taskType" : "PreCheck"
      },
      "endPoint" : {
        "taskType" : "Cluster"
      }
    }, {
      "startPoint" : {
        "taskType" : "Cluster"
      },
      "endPoint" : {
        "taskType" : "PostCheck"
      }
    } ]
  }
 }
}
```


Status Codes

Status Code	Description
200	The list of historical cluster upgrade booting tasks is obtained.

Error Codes

See **Error Codes**.

4.7.18 Obtaining Details About a Specified Cluster Upgrade Task

Function

This API is used to obtain details about an upgrade booting task based on the task ID.

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URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgradeworkflows/{upgrade_workflow_id}

Table 4-900 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
upgrade_workflow_id	Yes	String	Booting process ID of a cluster upgrade task. For details about how to obtain the ID, see **Obtaining API URI Parameters**.

Request Parameters

Table 4-901 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

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Table 4-902 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **WorkFlowTask** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**Metadata** object	Upgrade process metadata
spec	**WorkFlowSpec** object	Element type of the collection class. The main body of the cluster upgrade process is provided in **spec**. CCE creates or updates objects by defining or updating **spec**.
status	**WorkFlowStatus** object	Element type of the collection class, which is used to record the current status of the cluster upgrade process, including the execution status of each process in the cluster upgrade process.

Table 4-903 Metadata

Parameter	Type	Description
uid	String	Unique ID.
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-904 WorkFlowSpec

Parameter	Type	Description
clusterID	String	Cluster ID, which uniquely identifies a resource. The value is automatically generated after the object is created. A custom value will not take effect.
clusterVersion	String	Current version of the cluster to be upgraded

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Parameter	Type	Description
targetVersion	String	Target version of the cluster

Table 4-905 WorkFlowStatus

Parameter	Type	Description
phase	String	Execution status of the cluster upgrade process. Options: **Init**: No task is running in the upgrade process. **Running**: Some tasks in the upgrade process are being executed. **Pending**: A task in the upgrade process fails to be executed. **Success**: All tasks in the upgrade process have been executed. **Cancel**: The upgrade process has been canceled.
pointStatuses	Array of **PointStatus** objects	Execution status of each task in the upgrade process
lineStatuses	Array of **LineStatus** objects	Task execution path of the upgrade process

Table 4-906 PointStatus

Parameter	Type	Description
taskType	String	Cluster upgrade task type. Options: **Cluster**: a cluster upgrade task **PreCheck**: a cluster pre-upgrade check task **Rollback**: a cluster rollback task **Snapshot**: a cluster upgrade snapshot task **PostCheck**: a cluster post-upgrade check task
taskID	String	Upgrade task ID
status	String	Cluster upgrade status. Options: **Init**: The task is in the initial state. **Queuing**: The task is in the execution queue. **Running**: The task is being executed. **Success**: The task has been executed. **Failed**: Executing the task failed.
startTimeStamp	String	Start time of the upgrade task
endTimeStamp	String	End time of the upgrade task
expireTimeStamp	String	Expiration time of the upgrade task (only for pre-upgrade check tasks)

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Table 4-907 LineStatus

Parameter	Type	Description
startPoint	String	Path startpoint
endPoint	String	Path endpoint
critical	String	Whether it is a key path. An upgrade can be canceled only after the key path is executed.

Example Requests

None

Example Responses

Status code: 200

Details about the cluster upgrade task are obtained.


```
{
  "kind" : "WorkFlowTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "c271e39e-1a6e-4d3d-8fa8-2a36329c68d1",
    "creationTimestamp" : "2023-11-25 06:32:34.923248 +0000 UTC",
    "updateTimestamp" : "2023-11-25 07:49:30.281911 +0000 UTC"
  },
  "spec" : {
    "clusterID" : "b4b9e60f-8aa2-11ee-af09-0255ac10004f",
    "clusterVersion" : "v1.17.17-r0",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "phase" : "Pending",
    "pointStatuses" : [ {
      "taskType" : "PreCheck",
      "taskID" : "f61e008c-1600-41c0-9bde-121de5a30660",
      "status" : "Success",
      "startTimeStamp" : "2023-11-25 07:20:04.592972 +0000 UTC",
      "endTimeStamp" : "2023-11-25 07:21:05.518966 +0000 UTC",
      "expireTimeStamp" : "2023-11-25 08:21:05.518966 +0000 UTC"
    }, {
      "taskType" : "Snapshot"
    }, {
      "taskType" : "Cluster",
      "taskID" : "6d799ff6-3afe-4242-80b4-6f0a0fa746cb",
      "status" : "Failed",
      "startTimeStamp" : "2023-11-25 07:49:30.283459 +0000 UTC",
      "endTimeStamp" : "2023-11-25 07:58:35.507243 +0000 UTC"
    }, {
      "taskType" : "PostCheck"
    } ],
    "lineStatuses" : [ {
      "startPoint" : {
        "taskType" : "PreCheck"
      },
      "endPoint" : {
        "taskType" : "Cluster"
      }
    }, {
      "startPoint" : {
```


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```
      "taskType" : "Cluster"
    },
    "endPoint" : {
      "taskType" : "PostCheck"
    }
  } ]
 }
}
```

Status Codes

Status Code	Description
200	Details about the cluster upgrade task are obtained.

Error Codes

See **Error Codes**.

4.7.19 Updating the Status of a Specified Cluster Upgrade Booting Task

Function

This API is used to update the status of a specified cluster upgrade booting task. This API applies only to the upgrade cancellation process. When this API is called, the status of the upgrade process booting task cannot be **running**, **success**, or **cancel**, and the status of the upgrade subtask cannot be **running**, **init**, **pause**, or **queue**.

URI

PATCH /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/upgradeworkflows/{upgrade_workflow_id}

Table 4-908 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Parameter	Mandatory	Type	Description
upgrade_workflow_id	Yes	String	Booting process ID of a cluster upgrade task. For details about how to obtain the ID, see **Obtaining API URI Parameters**.

Request Parameters

Table 4-909 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-910 Request body parameters

Parameter	Mandatory	Type	Description
status	No	**status** object	Updated workflow status. (Only **Cancel** is supported.)

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Table 4-911 status

Parameter	Mandatory	Type	Description
phase	No	String	Execution status of the cluster upgrade process. Options: **Init**: No task is running in the upgrade process. **Running**: Some tasks in the upgrade process are being executed. **Pending**: A task in the upgrade process fails to be executed. **Success**: All tasks in the upgrade process have been executed. **Cancel**: The upgrade process has been canceled.

Response Parameters

Status code: 200

Table 4-912 Response body parameters

Parameter	Type	Description
kind	String	API type. The value is fixed at **WorkFlowTask** and cannot be changed.
apiVersion	String	API version. The value is fixed at **v3** and cannot be changed.
metadata	**Metadata** object	Upgrade process metadata
spec	**WorkFlowSpec** object	Element type of the collection class. The main body of the cluster upgrade process is provided in **spec**. CCE creates or updates objects by defining or updating **spec**.
status	**WorkFlowStatus** object	Element type of the collection class, which is used to record the current status of the cluster upgrade process, including the execution status of each process in the cluster upgrade process.

Table 4-913 Metadata

Parameter	Type	Description
uid	String	Unique ID.

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Parameter	Type	Description
name	String	Resource name
labels	Map<String,String>	Resource labels in key-value pairs. This is a reserved field and does not take effect.
annotations	Map<String,String>	Resource annotations in the format of key-value pairs.
updateTimestamp	String	Update time.
creationTimestamp	String	Creation time.

Table 4-914 WorkFlowSpec

Parameter	Type	Description
clusterID	String	Cluster ID, which uniquely identifies a resource. The value is automatically generated after the object is created. A custom value will not take effect.
clusterVersion	String	Current version of the cluster to be upgraded
targetVersion	String	Target version of the cluster

Table 4-915 WorkFlowStatus

Parameter	Type	Description
phase	String	Execution status of the cluster upgrade process. Options: **Init**: No task is running in the upgrade process. **Running**: Some tasks in the upgrade process are being executed. **Pending**: A task in the upgrade process fails to be executed. **Success**: All tasks in the upgrade process have been executed. **Cancel**: The upgrade process has been canceled.
pointStatuses	Array of **PointStatus** objects	Execution status of each task in the upgrade process
lineStatuses	Array of **LineStatus** objects	Task execution path of the upgrade process

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Table 4-916 PointStatus

Parameter	Type	Description
taskType	String	Cluster upgrade task type. Options: **Cluster**: a cluster upgrade task **PreCheck**: a cluster pre-upgrade check task **Rollback**: a cluster rollback task **Snapshot**: a cluster upgrade snapshot task **PostCheck**: a cluster post-upgrade check task
taskID	String	Upgrade task ID
status	String	Cluster upgrade status. Options: **Init**: The task is in the initial state. **Queuing**: The task is in the execution queue. **Running**: The task is being executed. **Success**: The task has been executed. **Failed**: Executing the task failed.
startTimeStamp	String	Start time of the upgrade task
endTimeStamp	String	End time of the upgrade task
expireTimeStamp	String	Expiration time of the upgrade task (only for pre-upgrade check tasks)

Table 4-917 LineStatus

Parameter	Type	Description
startPoint	String	Path startpoint
endPoint	String	Path endpoint
critical	String	Whether it is a key path. An upgrade can be canceled only after the key path is executed.

Example Requests

Cancel the upgrade process.

```
PATCH /api/v3/projects/47eb1d64cbeb45cfa01ae20af4f4b563/clusters/
f9960c6b-8e60-11ee-9754-0255ac100b05/operation/upgradeworkflows/
d0b7e319-8172-424c-86ea-543cd23f9756

{
  "status" : {
    "phase" : "Cancel"
  }
}
```

Example Responses

Status code: 200

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The status of the cluster upgrade booting task is updated.


```
{
  "kind" : "WorkFlowTask",
  "apiVersion" : "v3",
  "metadata" : {
    "uid" : "c271e39e-1a6e-4d3d-8fa8-2a36329c68d1",
    "creationTimestamp" : "2023-11-25 06:32:34.923248 +0000 UTC",
    "updateTimestamp" : "2023-11-25 07:49:30.281911 +0000 UTC"
  },
  "spec" : {
    "clusterID" : "b4b9e60f-8aa2-11ee-af09-0255ac10004f",
    "clusterVersion" : "v1.17.17-r0",
    "targetVersion" : "v1.19.16-r80"
  },
  "status" : {
    "phase" : "Cancel",
    "pointStatuses" : [ {
      "taskType" : "PreCheck",
      "taskID" : "f61e008c-1600-41c0-9bde-121de5a30660",
      "status" : "Success",
      "startTimeStamp" : "2023-11-25 07:20:04.592972 +0000 UTC",
      "endTimeStamp" : "2023-11-25 07:21:05.518966 +0000 UTC",
      "expireTimeStamp" : "2023-11-25 08:21:05.518966 +0000 UTC"
    }, {
      "taskType" : "Snapshot"
    }, {
      "taskType" : "Cluster",
      "taskID" : "6d799ff6-3afe-4242-80b4-6f0a0fa746cb",
      "status" : "Failed",
      "startTimeStamp" : "2023-11-25 07:49:30.283459 +0000 UTC",
      "endTimeStamp" : "2023-11-25 07:58:35.507243 +0000 UTC"
    }, {
      "taskType" : "PostCheck"
    } ],
    "lineStatuses" : [ {
      "startPoint" : {
        "taskType" : "PreCheck"
      },
      "endPoint" : {
        "taskType" : "Cluster"
      }
    }, {
      "startPoint" : {
        "taskType" : "Cluster"
      },
      "endPoint" : {
        "taskType" : "PostCheck"
      }
    } ]
  }
}
```


Status Codes

Status Code	Description
200	The status of the cluster upgrade booting task is updated.

Error Codes

See **Error Codes**.

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4.8 Quota Management

4.8.1 Querying Resource Quotas

Function

This API is used to query CCE resource quotas.

URI

GET /api/v3/projects/{project_id}/quotas

Table 4-918 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-919 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

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Table 4-920 Response body parameters

Parameter	Type	Description
quotas	Array of **QuotaResource** objects	Resources

Table 4-921 QuotaResource

Parameter	Type	Description
quotaKey	String	Resource type
quotaLimit	Integer	Quota
used	Integer	Number of created resources
unit	String	Unit
regionId	String	Region ID. This parameter is not returned if not involved.
availabilityZoneId	String	AZ ID. This parameter is not returned if not involved.

Example Requests

None

Example Responses

Status code: 200

The resource quotas are obtained successfully.

```
{
  "quotas" : [ {
    "quotaKey" : "cluster",
    "quotaLimit" : 20,
    "used" : 13,
    "unit" : "count"
  } ]
}
```

Status Codes

Status Code	Description
200	The resource quotas are obtained successfully.

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Error Codes

See **Error Codes**.

4.9 API Versions

4.9.1 Obtaining API Versions

Function

This API is used to query the list of API versions supported by CCE.

URI

GET /

Request Parameters

None

Response Parameters

Status code: 200

Table 4-922 Response body parameters

Parameter	Type	Description
versions	Array of **APIVersionDetail** objects	API version list.

Table 4-923 APIVersionDetail

Parameter	Type	Description
id	String	API version ID. Example: v3
links	Array of **APIVersionLink** objects	URL of the API version.
min_version	String	Microversion. If the APIs of this version support microversions, set this parameter to the supported minimum microversion. If no microversion is supported, leave this parameter blank.

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Parameter	Type	Description
status	String	API version status. Possible values: • **CURRENT**: preferred API version • **SUPPORTED**: old API version that is still supported • **DEPRECATED**: discarded API version that will be deleted
updated	String	Time when the API was released (UTC). For example, if the API version is v3, the value is '2018-09-15 00:00:00Z'.
version	String	Microversion. If the APIs of this version support microversions, set this parameter to the supported maximum microversion. If no microversion is supported, leave this parameter blank.

Table 4-924 APIVersionLink

Parameter	Type	Description
href	String	URL of the API version.
rel	String	Link attributes. **self**: A self link contains a versioned link to the resource. Use these links immediately after linking.

Example Requests

None

Example Responses

Status code: 200

The API version list is queried successfully.

```
{
  "versions" : [ {
    "id" : "v3",
    "links" : [ {
      "href" : "https://cce.region.***.com/v3",
      "rel" : "self"
    } ],
    "min_version" : "",
    "status" : "CURRENT",
    "updated" : "2018-09-15 00:00:00Z",
    "version" : ""
  } ]
}
```

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Status Codes

Status Code	Description
200	The API version list is queried successfully.

Error Codes

See **Error Codes**.

4.10 Tag Management

4.10.1 Adding Resource Tags to a Specified Cluster in Batches

Function

This API is used to add resource tags for a specified cluster in batches.

NOTE

- Each cluster supports a maximum of 20 resource tags.
- This API is idempotent. If the to-be-added tag has the same tag key and tag value as an existing tag, the tag will be added. If the to-be-added tag has the same key but different value as an existing tag, the tag will overwrite the existing one.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/tags/create

Table 4-925 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-926 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-927 Request body parameters

Parameter	Mandatory	Type	Description
tags	Yes	Array of **ResourceTag** objects	List of cluster resource tags to be created. Each cluster supports a maximum of 20 resource tags.

Table 4-928 ResourceTag

Parameter	Mandatory	Type	Description
key	No	String	Key. • Cannot be null. Max characters: 128. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**. • Cannot start with **_sys_**.
value	No	String	Value. • Can be null but not the default. Max characters: 255. • Use letters, digits, and spaces in UTF-8 format. • Can contain the following special characters: **_.:/=+-@**.

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Response Parameters

None

Example Requests

Adding Resource Tags to a Specified Cluster in Batches

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/tags/create

{
  "tags" : [ {
    "key" : "key1",
    "value" : "value1"
  }, {
    "key" : "key2",
    "value" : "value3"
  } ]
}
```

Example Responses

None

Status Codes

Status Code	Description
204	No Content

Error Codes

See **Error Codes**.

4.10.2 Deleting Resource Tags of a Specified Cluster in Batches

Function

This API is used to delete resource tags of a specified cluster in batches.

NOTE

- This API is idempotent. If the tag key of the to-be-deleted tag does not exist, the tag will be deleted.

URI

POST /api/v3/projects/{project_id}/clusters/{cluster_id}/tags/delete

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Table 4-929 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-930 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-931 Request body parameters

Parameter	Mandatory	Type	Description
tags	Yes	Array of **ResourceDeleteTag** objects	List of cluster resource tags to be deleted

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Table 4-932 ResourceDeleteTag

Parameter	Mandatory	Type	Description
key	No	String	The key value of the resource tag • It cannot be null. It can contain a maximum of 128 characters. • It can contain Chinese characters, letters, digits, and spaces in UTF-8 format. • It can contain the following special characters: **_.:/=+-@**. • It cannot start with **_sys_**.

Response Parameters

None

Example Requests

Deleting Resource Tags of a Specified Cluster in Batches

```
POST /api/v3/projects/{project_id}/clusters/{cluster_id}/tags/delete

{
  "tags" : [ {
    "key" : "key1"
  }, {
    "key" : "key2"
  } ]
}
```

Example Responses

None

Status Codes

Status Code	Description
204	No Content

Error Codes

See **Error Codes**.

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4.11 Configuration Management

4.11.1 Obtaining the Parameters That Can Be Configured for a Node Pool

Function

This API is used to obtain the parameters that can be configured in a specified CCE node pool.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}/configuration/detail

Table 4-933 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
nodepool_id	Yes	String	Node pool ID.

Request Parameters

Table 4-934 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Response Parameters

Status code: 200

Table 4-935 Response body parameters

Parameter	Type	Description
kube-apiserver	Array of **PackageOptions** objects	Configuration parameter, which consists of key and value.
{User defined key}	map<string, array>	

Table 4-936 PackageOptions

Parameter	Type	Description
name	String	Parameter name
default	String	Default parameter value. If this parameter is not specified, the default value will take effect. The returned parameter can be of integer, string, or Boolean type.
validAt	String	How the parameter takes effect. Options: • **static**: The parameter takes effect when a node is created and cannot be modified later. • **immediately**: The parameter can be modified when a node is running and takes effect immediately after modification.
empty	Boolean	Whether the configuration item can be empty. Options: • **true**: If this parameter is set to **true**, no value will take effect. • **false**: If this parameter is set to **false**, the default value will take effect.
schema	String	Parameter category
type	String	Parameter type

Example Requests

None

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Example Responses

Status code: 200

The parameters of the specified node pool are obtained.

```
{
  "kube-apiserver" : [ {
    "name" : "default-not-ready-toleration-seconds",
    "key" : "",
    "default" : 300,
    "validAt" : "immediately",
    "role" : "master",
    "empty" : true,
    "accessLevel" : "external",
    "schema" : "kubernetes",
    "type" : "int"
  } ]
}
```

Status Codes

Status Code	Description
200	The parameters of the specified node pool are obtained.

Error Codes

See **Error Codes**.

4.11.2 Obtaining the List of Parameters That Can Be Configured for a Cluster

Function

This API is used to obtain the list of parameters that can be configured for a CCE cluster.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/configuration/detail

Table 4-937 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-938 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-939 Response body parameters

Parameter	Type	Description
kube-apiserver	Array of **PackageOptions** objects	Configuration parameter, which consists of key and value.
{User defined key}	map<string, array>	

Table 4-940 PackageOptions

Parameter	Type	Description
name	String	Parameter name

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Parameter	Type	Description
default	String	Default parameter value. If this parameter is not specified, the default value will take effect. The returned parameter can be of integer, string, or Boolean type.
validAt	String	How the parameter takes effect. Options: • **static**: The parameter takes effect when a node is created and cannot be modified later. • **immediately**: The parameter can be modified when a node is running and takes effect immediately after modification.
empty	Boolean	Whether the configuration item can be empty. Options: • **true**: If this parameter is set to **true**, no value will take effect. • **false**: If this parameter is set to **false**, the default value will take effect.
schema	String	Parameter category
type	String	Parameter type

Example Requests

None

Example Responses

Status code: 200

A list of parameters that can be configured for a cluster is obtained successfully.

```
{
  "kube-apiserver" : [ {
    "name" : "default-not-ready-toleration-seconds",
    "default" : 300,
    "validAt" : "immediately",
    "empty" : true,
    "schema" : "kubernetes",
    "type" : "int"
  } ]
}
```

Status Codes

Status Code	Description
200	A list of parameters that can be configured for a cluster is obtained successfully.

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Error Codes

See **Error Codes**.

4.11.3 Obtaining the Parameters That Can Be Configured for a Node Pool

Function

This API is used to obtain the parameters that can be configured for a node pool.

URI

GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}/configuration

Table 4-941 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
nodepool_id	Yes	String	Node pool ID.

Request Parameters

Table 4-942 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Response Parameters

Status code: 200

Table 4-943 Response body parameters

Parameter	Type	Description
apiVersion	String	API version
kind	String	API type. The value is fixed at **Configuration**.
metadata	**ConfigurationMetadata** object	Configuration metadata
spec	**ClusterConfigurationsSpec** object	Configuration specifications
status	Object	Configuration status

Table 4-944 ConfigurationMetadata

Parameter	Type	Description
name	String	Configuration name
labels	Map<String,String>	A configuration label in a key-value pair. • **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: **example.com/my-key** • **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. Example: "foo": "bar"

Table 4-945 ClusterConfigurationsSpec

Parameter	Type	Description
packages	Array of **packages** objects	Component configuration item details

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Table 4-946 packages

Parameter	Type	Description
name	String	Component name
configurations	Array of **ConfigurationItem** objects	Component configuration items

Table 4-947 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

Example Requests

None

Example Responses

Status code: 200

The parameter configurations of the node pool are obtained successfully.

```
{
  "kind" : "Configuration",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "configuration",
    "labels" : {
      "nodepool_id" : "61de338d-a1f9-11ed-8891-0255ac100036"
    }
  },
  "spec" : {
    "packages" : [ {
      "name" : "kube-apiserver",
      "configurations" : [ {
        "name" : "event-rate-limit-qps",
        "value" : 200
      }, {
        "name" : "support-overload",
        "value" : false
      } ]
    }, {
      "name" : "kube-scheduler",
      "configurations" : [ {
        "name" : "kube-api-qps",
        "value" : 100
      }, {
        "name" : "default-scheduler",
        "value" : "kube-scheduler"
      } ]
    } ]
  },
```

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```
  "status" : { }
}
```

Status Codes

Status Code	Description
200	The parameter configurations of the node pool are obtained successfully.

Error Codes

See **Error Codes**.

4.11.4 Changing the Values of Configuration Parameters of a Node Pool

Function

This API is used to change the values of parameter configurations of a node pool in the CCE cluster.

URI

PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}/configuration

Table 4-948 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.
nodepool_id	Yes	String	Node pool ID.

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Request Parameters

Table 4-949 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-950 Request body parameters

Parameter	Mandatory	Type	Description
apiVersion	Yes	String	API version. The value is fixed at **v3**.
kind	Yes	String	API type. The value is fixed at **Configuration**.
metadata	Yes	**ConfigurationMetadata** object	Configuration metadata
spec	Yes	**ClusterConfigurationsSpec** object	Configuration specifications

Table 4-951 ConfigurationMetadata

Parameter	Mandatory	Type	Description
name	Yes	String	Configuration name

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Parameter	Mandatory	Type	Description
labels	No	Map<String,String>	A configuration label in a key-value pair. • **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: **example.com/my-key** • **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. Example: "foo": "bar"

Table 4-952 ClusterConfigurationsSpec

Parameter	Mandatory	Type	Description
packages	Yes	Array of **packages** objects	Component configuration item details

Table 4-953 packages

Parameter	Mandatory	Type	Description
name	No	String	Component name
configurations	No	Array of **ConfigurationItem** objects	Component configuration items

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Table 4-954 ConfigurationItem

Parameter	Mandatory	Type	Description
name	No	String	Component configuration item name.
value	No	Object	Component configuration item value.

Response Parameters

Status code: 200

Table 4-955 Response body parameters

Parameter	Type	Description
apiVersion	String	API version
kind	String	API type. The value is fixed at **Configuration**.
metadata	**ConfigurationMetadata** object	Configuration metadata
spec	**ClusterConfigurationsSpec** object	Configuration specifications
status	Object	Configuration status

Table 4-956 ConfigurationMetadata

Parameter	Type	Description
name	String	Configuration name

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Parameter	Type	Description
labels	Map<String,String>	A configuration label in a key-value pair. • **Key**: Enter 1 to 63 characters, starting with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed. A DNS subdomain can be prefixed to a key and contain a maximum of 253 characters. Example DNS subdomain: **example.com/my-key** • **Value**: The value can be left blank or contain 1 to 63 characters that start with a letter or digit. Only letters, digits, hyphens (-), underscores (_), and periods (.) are allowed in the character string. Example: "foo": "bar"

Table 4-957 ClusterConfigurationsSpec

Parameter	Type	Description
packages	Array of **packages** objects	Component configuration item details

Table 4-958 packages

Parameter	Type	Description
name	String	Component name
configurations	Array of **ConfigurationItem** objects	Component configuration items

Table 4-959 ConfigurationItem

Parameter	Type	Description
name	String	Component configuration item name.
value	Object	Component configuration item value.

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Example Requests

The following example describes how to update the **system-reserved-mem** and **kube-reserved-mem** parameters in kubelet.

```
/api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}/configuration

{
  "kind" : "Configuration",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "configuration"
  },
  "spec" : {
    "packages" : [ {
      "name" : "kubelet",
      "configurations" : [ {
        "name" : "system-reserved-mem",
        "value" : 600
      }, {
        "name" : "kube-reserved-mem",
        "value" : 800
      } ]
    } ]
  }
}
```

Example Responses

Status code: 200

The parameter configurations of the node pool are updated successfully.

```
{
  "kind" : "Configuration",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "configuration",
    "labels" : {
      "nodepool_id" : "61de338d-a1f9-11ed-8891-0255ac100036"
    }
  },
  "spec" : {
    "packages" : [ {
      "name" : "kube-apiserver",
      "configurations" : [ {
        "name" : "event-rate-limit-qps",
        "value" : 200
      }, {
        "name" : "support-overload",
        "value" : false
      } ]
    }, {
      "name" : "kube-scheduler",
      "configurations" : [ {
        "name" : "kube-api-qps",
        "value" : 100
      }, {
        "name" : "default-scheduler",
        "value" : "kube-scheduler"
      } ]
    } ]
  },
  "status" : { }
}
```

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Status Codes

Status Code	Description
200	The parameter configurations of the node pool are updated successfully.

Error Codes

See **Error Codes**.

4.12 Chart Management

4.12.1 Uploading a Chart

Function

This API is used to upload a chart.

URI

POST /v2/charts

Request Parameters

Table 4-960 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-961 FormData parameters

Parameter	Mandatory	Type	Description
parameters	No	String	Parameter configurations for uploading a chart. The following is an example: "{"override":true,"skip_lint":true,"source":"package"}" • skip_lint: whether lint uploaded chart - override: whether override existed chart - visible: update chart visible
content	Yes	File	Chart package file

Response Parameters

Status code: 201

Table 4-962 Response body parameters

Parameter	Type	Description
id	String	Chart ID
name	String	Chart name
values	String	Chart value
translate	String	Chart translation resources
instruction	String	Chart description
version	String	Chart version
description	String	Chart description
source	String	Chart source
icon_url	String	URL to chart icons
public	Boolean	Whether the chart is public
chart_url	String	URL to the chart
create_at	String	Created at
update_at	String	Updated at

Example Requests

```
POST /v2/charts
```

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```
{
  "parameters" : "{\"override\":true,\"skip_lint\":true,\"source\":\"package\"}",
  "content" : "chart-file.tgz"
}
```

Example Responses

Status code: 201

Created

```
{
  "id" : "e99a7e86-afdd-11eb-aca3-0255ac100b0e",
  "name" : "neo4j",
  "values" : "{\"acceptLicenseAgreement\":\"no\",\"affinity\":{},\"authEnabled\":true,\"clusterDomain
\":\"cluster.local\",\"core\":{\"initContainers\":[],\"numberOfServers\":3,\"persistentVolume\":{\"enabled
\":true,\"mountPath\":\"/data\",\"size\":\"10Gi\"},\"sidecarContainers\":[]},\"defaultDatabase\":\"neo4j
\",\"image\":\"neo4j\",\"imagePullPolicy\":\"IfNotPresent\",\"imageTag\":\"4.0.3-enterprise\",\"name
\":\"neo4j\",\"nodeSelector\":{},\"podDisruptionBudget\":{},\"readReplica\":{\"autoscaling\":{\"enabled
\":false,\"maxReplicas\":3,\"minReplicas\":1,\"targetAverageUtilization\":70},\"initContainers\":
[],\"numberOfServers\":0,\"resources\":{},\"sidecarContainers\":[]},\"resources\":{},\"testImage
\":\"markhneedham/k8s-kubectl\",\"testImageTag\":\"master\",\"tolerations\":[],\"useAPOC\":\"true\"}",
  "translate" : "",
  "instruction" : "README.md",
  "version" : "3.0.1",
  "description" : "DEPRECATED Neo4j is the world's leading graph database",
  "source" : "",
  "icon_url" : "https://info.neo4j.com/rs/773-GON-065/images/neo4j_logo.png",
  "public" : false,
  "chart_url" : "neo4j-3.0.1.tgz",
  "create_at" : "2021-05-08T08:53:13Z",
  "update_at" : "2021-05-08T08:53:13Z"
}
```

Status Codes

Status Code	Description
201	Created

Error Codes

See **Error Codes**.

4.12.2 Obtaining a Chart List

Function

This API is used to obtain the chart list.

URI

GET /v2/charts

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Request Parameters

Table 4-963 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-964 Response body parameters

Parameter	Type	Description
[items]	Array of **ChartResp** objects	Chart list

Table 4-965 ChartResp

Parameter	Type	Description
id	String	Chart ID
name	String	Chart name
values	String	Chart value
translate	String	Chart translation resources
instruction	String	Chart description
version	String	Chart version
description	String	Chart description
source	String	Chart source
icon_url	String	URL to chart icons
public	Boolean	Whether the chart is public

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Parameter	Type	Description
chart_url	String	URL to the chart
create_at	String	Created at
update_at	String	Updated at

Example Requests

None

Example Responses

Status code: 200

OK


```
[ {
  "id" : "1abd3bd6-0258-11ec-b8b0-0255ac100b05",
  "name" : "magento-mysql",
  "values" : "{\"basic\":{\"admin_password\":\"******\",\"admin_username\":\"username\",\"app_name
\":\"magento\",\"mysql_database\":\"magento\",\"mysql_name\":\"mysql\",\"mysql_password\":\"******
\",\"mysql_port\":3306,\"mysql_root_password\":\"******\",\"mysql_user\":\"magento\",\"storage_class\":\"csi-
nas\",\"storage_mode\":\"ReadWriteMany\",\"storage_size\":\"10G\"},\"global\":{\"magento_EIP
\":\"100.100.100.100\",\"magento_EPORT\":32080,\"namespace\":\"default\"},\"image\":{\"magento_image
\":\"example.com/everest/magento:latest\",\"mysql_image\":\"example.com/everest/mysql:5.7.14\"}}",
  "translate" : "",
  "instruction" : "",
  "version" : "1.0.0",
  "description" : "chart description",
  "source" : "",
  "icon_url" : "https://example.com/magento-stack-110x117.png",
  "public" : false,
  "chart_url" : "magento-mysql-1.0.0.tgz",
  "create_at" : "2021-08-20T08:00:29Z",
  "update_at" : "2021-08-20T08:00:29Z"
} ]
```


Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.3 Obtaining a Release List

Function

This API is used to obtain a release list.

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URI

GET /cce/cam/v3/clusters/{cluster_id}/releases

Table 4-966 Path Parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Table 4-967 Query Parameters

Parameter	Mandatory	Type	Description
chart_id	No	String	Chart ID
namespace	No	String	Namespace of the chart

Request Parameters

Table 4-968 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

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Table 4-969 Response body parameters

Parameter	Type	Description
[items]	Array of **ReleaseResp** objects	OK

Table 4-970 ReleaseResp

Parameter	Type	Description
chart_name	String	Chart name
chart_public	Boolean	Whether the chart is public
chart_version	String	Chart version
cluster_id	String	Cluster ID
cluster_name	String	Current name
create_at	String	Created at
description	String	Release description
name	String	Release name
namespace	String	Namespace to which a chart release belongs
parameters	String	Release parameters
resources	String	Resources required by the release
status	String	Release status
status_description	String	Release status description
update_at	String	Updated at
values	String	Release value
version	Integer	Release version

Example Requests

None

Example Responses

Status code: 200

OK

```
[ {
  "chart_name" : "magento-mysql",
```

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```
  "chart_public" : false,
  "chart_version" : "1.0.0",
  "cluster_id" : "a870253f-5dc7-11ee-bf71-0255ac100b03",
  "cluster_name" : "sfs-turbo-test",
  "create_at" : "2023-11-14T20:30:57+08:00",
  "description" : "Initial install underway",
  "name" : "testwww",
  "namespace" : "monitoring",
  "parameters" : "",
  "resources" : "",
  "status" : "PENDING_INSTALL",
  "status_description" : "Initial install underway",
  "update_at" : "2023-11-14T20:30:57+08:00",
  "values" : "{\"basic\":{\"admin_password\":\"******\",\"admin_username\":\"username\",\"app_name
\":\"magento\",\"mysql_database\":\"magento\",\"mysql_name\":\"mysql\",\"mysql_password\":\"******
\",\"mysql_port\":3306,\"mysql_root_password\":\"******\",\"mysql_user\":\"magento\",\"storage_class\":\"csi-
nas\",\"storage_mode\":\"ReadWriteMany\",\"storage_size\":\"10G\"},\"global\":{\"magento_EIP
\":\"100.100.100.100\",\"magento_EPORT\":32080,\"namespace\":\"default\"},\"image\":{\"magento_image
\":\"example.com/everest/magento:latest\",\"mysql_image\":\"example.com/everest/mysql:5.7.14\"}}",
  "version" : 1
} ]
```


Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.4 Updating a Chart

Function

This API is used to update a chart.

URI

PUT /v2/charts/{chart_id}

Table 4-971 Path Parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID

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Request Parameters

Table 4-972 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-973 FormData parameters

Parameter	Mandatory	Type	Description
parameters	No	String	Parameter configurations for uploading a chart. The following is an example: "{"override":true,"skip_lint":true,"source":"package"}"- skip_lint: whether lint uploaded chart - override: whether override existed chart - visible: update chart visible
content	Yes	File	Chart package file

Response Parameters

Status code: 200

Table 4-974 Response body parameters

Parameter	Type	Description
id	String	Chart ID
name	String	Chart name
values	String	Chart value
translate	String	Chart translation resources
instruction	String	Chart description

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Parameter	Type	Description
version	String	Chart version
description	String	Chart description
source	String	Chart source
icon_url	String	URL to chart icons
public	Boolean	Whether the chart is public
chart_url	String	URL to the chart
create_at	String	Created at
update_at	String	Updated at

Example Requests

```
PUT /v2/charts/{chart_id}

{
  "parameters" : "{\"override\":true,\"skip_lint\":true,\"source\":\"package\"}",
  "content" : "chart-file.tgz"
}
```

Example Responses

Status code: 200

OK

```
{
  "id" : "e99a7e86-afdd-11eb-aca3-0255ac100b0e",
  "name" : "neo4j",
  "values" : "{\"acceptLicenseAgreement\":\"no\",\"affinity\":{},\"authEnabled\":true,\"clusterDomain
\":\"cluster.local\",\"core\":{\"initContainers\":[],\"numberOfServers\":3,\"persistentVolume\":{\"enabled
\":true,\"mountPath\":\"/data\",\"size\":\"10Gi\"},\"sidecarContainers\":[]},\"defaultDatabase\":\"neo4j
\",\"image\":\"neo4j\",\"imagePullPolicy\":\"IfNotPresent\",\"imageTag\":\"4.0.3-enterprise\",\"name
\":\"neo4j\",\"nodeSelector\":{},\"podDisruptionBudget\":{},\"readReplica\":{\"autoscaling\":{\"enabled
\":false,\"maxReplicas\":3,\"minReplicas\":1,\"targetAverageUtilization\":70},\"initContainers\":
[],\"numberOfServers\":0,\"resources\":{},\"sidecarContainers\":[]},\"resources\":{},\"testImage
\":\"markhneedham/k8s-kubectl\",\"testImageTag\":\"master\",\"tolerations\":[],\"useAPOC\":\"true\"}",
  "translate" : "",
  "instruction" : "README.md",
  "version" : "3.0.1",
  "description" : "DEPRECATED Neo4j is the world's leading graph database",
  "source" : "",
  "icon_url" : "https://example.com/images/neo4j_logo.png",
  "public" : false,
  "chart_url" : "neo4j-3.0.1.tgz",
  "create_at" : "2021-05-08T08:53:13Z",
  "update_at" : "2021-05-08T08:53:13Z"
}
```

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Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.5 Creating a Release

Function

This API is used to create a release.

URI

POST /cce/cam/v3/clusters/{cluster_id}/releases

Table 4-975 Path Parameters

Parameter	Mandatory	Type	Description
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-976 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

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Table 4-977 Request body parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID
description	No	String	Release description
name	Yes	String	Release name
namespace	Yes	String	Namespace to which a chart release belongs
version	Yes	String	Release version
parameters	No	**ReleaseReqBodyParams** object	Release parameters
values	Yes	**values** object	Release value

Table 4-978 ReleaseReqBodyParams

Parameter	Mandatory	Type	Description
dry_run	No	Boolean	After this function is enabled, only chart parameters are verified, and installation is not performed.
name_template	No	String	Release name template
no_hooks	No	Boolean	Whether to disable hooks during installation
replace	No	Boolean	Whether to replace the release with the same name
recreate	No	Boolean	Whether to rebuild the release
reset_values	No	Boolean	Whether to reset values during an update
release_version	No	Integer	Version of the rollback release
include_hooks	No	Boolean	Enable hooks during an update or deletion.

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Table 4-979 values

Parameter	Mandatory	Type	Description
imagePullPolicy	No	String	Image pull policy
imageTag	No	String	Image tag

Response Parameters

Status code: 201

Table 4-980 Response body parameters

Parameter	Type	Description
chart_name	String	Chart name
chart_public	Boolean	Whether the chart is public
chart_version	String	Chart version
cluster_id	String	Cluster ID
cluster_name	String	Current name
create_at	String	Created at
description	String	Release description
name	String	Release name
namespace	String	Namespace to which a chart release belongs
parameters	String	Release parameters
resources	String	Resources required by the release
status	String	Release status
status_description	String	Release status description
update_at	String	Updated at
values	String	Release value
version	Integer	Release version

Example Requests

```
POST /cce/cam/v3/clusters/{cluster_id}/releases

{
  "name" : "nino21",
  "namespace" : "project01",
```

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```
  "version" : "1.0.0",
  "chart_id" : "3c138b72-7ce4-6d76-7c55-604cdb2ce423",
  "values" : {
    "imageTag" : "v2",
    "imagePullPolicy" : "IfNotPresent"
  },
  "parameters" : {
    "dry_run" : false,
    "no_hooks" : false,
    "replace" : false,
    "name_template" : ""
  }
}
```

Example Responses

Status code: 201

Created

```
{
  "chart_name" : "magento-mysql",
  "chart_public" : false,
  "chart_version" : "1.0.0",
  "cluster_id" : "a870253f-5dc7-11ee-bf71-0255ac100b03",
  "cluster_name" : "sfs-turbo-test",
  "create_at" : "2023-11-14T20:30:57+08:00",
  "description" : "Initial install underway",
  "name" : "testwww",
  "namespace" : "monitoring",
  "parameters" : "",
  "resources" : "",
  "status" : "PENDING_INSTALL",
  "status_description" : "Initial install underway",
  "update_at" : "2023-11-14T20:30:57+08:00",
  "values" : "{\"basic\":{\"admin_password\":\"******\",\"admin_username\":\"username\",\"app_name
\":\"magento\",\"mysql_database\":\"magento\",\"mysql_name\":\"mysql\",\"mysql_password\":\"******
\",\"mysql_port\":3306,\"mysql_root_password\":\"******\",\"mysql_user\":\"magento\",\"storage_class\":\"csi-
nas\",\"storage_mode\":\"ReadWriteMany\",\"storage_size\":\"10G\"},\"global\":{\"magento_EIP
\":\"100.100.100.100\",\"magento_EPORT\":32080,\"namespace\":\"default\"},\"image\":{\"magento_image
\":\"example.com/everest/magento:latest\",\"mysql_image\":\"example.com/everest/mysql:5.7.14\"}}",
  "version" : 1
}
```

Status Codes

Status Code	Description
201	Created

Error Codes

See **Error Codes**.

4.12.6 Deleting a Chart

Function

This API is used to delete a chart.

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URI

DELETE /v2/charts/{chart_id}

Table 4-981 Path Parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID

Request Parameters

Table 4-982 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

None

Example Requests

None

Example Responses

None

Status Codes

Status Code	Description
200	OK

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Error Codes

See **Error Codes**.

4.12.7 Updating a Release

Function

This API is used to update a release.

URI

PUT /cce/cam/v3/clusters/{cluster_id}/namespace/{namespace}/releases/{name}

Table 4-983 Path Parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Release name
namespace	Yes	String	Namespace of the chart
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-984 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Table 4-985 Request body parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID

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Parameter	Mandatory	Type	Description
action	Yes	String	**upgrade** for an upgrade and **rollback** for a rollback
parameters	Yes	**ReleaseReqBodyParams** object	Release parameters
values	Yes	**values** object	Release value

Table 4-986 ReleaseReqBodyParams

Parameter	Mandatory	Type	Description
dry_run	No	Boolean	After this function is enabled, only chart parameters are verified, and installation is not performed.
name_template	No	String	Release name template
no_hooks	No	Boolean	Whether to disable hooks during installation
replace	No	Boolean	Whether to replace the release with the same name
recreate	No	Boolean	Whether to rebuild the release
reset_values	No	Boolean	Whether to reset values during an update
release_version	No	Integer	Version of the rollback release
include_hooks	No	Boolean	Enable hooks during an update or deletion.

Table 4-987 values

Parameter	Mandatory	Type	Description
imagePullPolicy	No	String	Image pull policy
imageTag	No	String	Image tag

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Response Parameters

Status code: 200

Table 4-988 Response body parameters

Parameter	Type	Description
chart_name	String	Chart name
chart_public	Boolean	Whether the chart is public
chart_version	String	Chart version
cluster_id	String	Cluster ID
cluster_name	String	Current name
create_at	String	Created at
description	String	Release description
name	String	Release name
namespace	String	Namespace to which a chart release belongs
parameters	String	Release parameters
resources	String	Resources required by the release
status	String	Release status
status_description	String	Release status description
update_at	String	Updated at
values	String	Release value
version	Integer	Release version

Example Requests

```
PUT /cce/cam/v3/clusters/{cluster_id}/namespace/{namespace}/releases/{name}

{
  "chart_id" : "af4b699e-018c-11ec-b8b0-0255ac100b05",
  "action" : "upgrade",
  "parameters" : {
    "dry_run" : false,
    "name_template" : "string",
    "no_hooks" : false,
    "replace" : false,
    "recreate" : false,
    "reset_values" : false,
    "release_version" : 1,
    "include_hooks" : false
  },
  "values" : {
    "imagePullPolicy" : "IfNotPresent",
    "imageTag" : "v2"
```

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```
  }
}
```

Example Responses

Status code: 200

OK

```
{
  "chart_name" : "magento-mysql",
  "chart_public" : false,
  "chart_version" : "1.0.0",
  "cluster_id" : "a870253f-5dc7-11ee-bf71-0255ac100b03",
  "cluster_name" : "sfs-turbo-test",
  "create_at" : "2023-11-14T20:30:57+08:00",
  "description" : "Initial install underway",
  "name" : "testwww",
  "namespace" : "monitoring",
  "parameters" : "",
  "resources" : "",
  "status" : "PENDING_INSTALL",
  "status_description" : "Initial install underway",
  "update_at" : "2023-11-14T20:30:57+08:00",
  "values" : "{\"basic\":{\"admin_password\":\"******\",\"admin_username\":\"username\",\"app_name
\":\"magento\",\"mysql_database\":\"magento\",\"mysql_name\":\"mysql\",\"mysql_password\":\"******
\",\"mysql_port\":3306,\"mysql_root_password\":\"******\",\"mysql_user\":\"magento\",\"storage_class\":\"csi-
nas\",\"storage_mode\":\"ReadWriteMany\",\"storage_size\":\"10G\"},\"global\":{\"magento_EIP
\":\"100.100.100.100\",\"magento_EPORT\":32080,\"namespace\":\"default\"},\"image\":{\"magento_image
\":\"example.com/everest/magento:latest\",\"mysql_image\":\"example.com/everest/mysql:5.7.14\"}}",
  "version" : 1
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.8 Obtaining a Chart

Function

This API is used to obtain a chart.

URI

GET /v2/charts/{chart_id}

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Table 4-989 Path Parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID

Request Parameters

Table 4-990 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-991 Response body parameters

Parameter	Type	Description
id	String	Chart ID
name	String	Chart name
values	String	Chart value
translate	String	Chart translation resources
instruction	String	Chart description
version	String	Chart version
description	String	Chart description
source	String	Chart source
icon_url	String	URL to chart icons
public	Boolean	Whether the chart is public
chart_url	String	URL to the chart

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Parameter	Type	Description
create_at	String	Created at
update_at	String	Updated at

Example Requests

None

Example Responses

Status code: 200

OK


```
{
  "id" : "e99a7e86-afdd-11eb-aca3-0255ac100b0e",
  "name" : "neo4j",
  "values" : "{\"acceptLicenseAgreement\":\"no\",\"affinity\":{},\"authEnabled\":true,\"clusterDomain
\":\"cluster.local\",\"core\":{\"initContainers\":[],\"numberOfServers\":3,\"persistentVolume\":{\"enabled
\":true,\"mountPath\":\"/data\",\"size\":\"10Gi\"},\"sidecarContainers\":[]},\"defaultDatabase\":\"neo4j
\",\"image\":\"neo4j\",\"imagePullPolicy\":\"IfNotPresent\",\"imageTag\":\"4.0.3-enterprise\",\"name
\":\"neo4j\",\"nodeSelector\":{},\"podDisruptionBudget\":{},\"readReplica\":{\"autoscaling\":{\"enabled
\":false,\"maxReplicas\":3,\"minReplicas\":1,\"targetAverageUtilization\":70},\"initContainers\":
[],\"numberOfServers\":0,\"resources\":{},\"sidecarContainers\":[]},\"resources\":{},\"testImage
\":\"markhneedham/k8s-kubectl\",\"testImageTag\":\"master\",\"tolerations\":[],\"useAPOC\":\"true\"}",
  "translate" : "",
  "instruction" : "README.md",
  "version" : "3.0.1",
  "description" : "DEPRECATED Neo4j is the world's leading graph database",
  "source" : "",
  "icon_url" : "https://info.neo4j.com/rs/773-GON-065/images/neo4j_logo.png",
  "public" : false,
  "chart_url" : "neo4j-3.0.1.tgz",
  "create_at" : "2021-05-08T08:53:13Z",
  "update_at" : "2021-05-08T08:53:13Z"
}
```


Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.9 Deleting a Release

Function

This API is used to delete a release.

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URI

DELETE /cce/cam/v3/clusters/{cluster_id}/namespace/{namespace}/releases/{name}

Table 4-992 Path Parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Release name
namespace	Yes	String	Namespace of the chart
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-993 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

None

Example Requests

None

Example Responses

None

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Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.10 Downloading a Chart

Function

This API is used to download a chart.

URI

GET /v2/charts/{chart_id}/archive

Table 4-994 Path Parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID

Request Parameters

Table 4-995 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

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Table 4-996 Response body parameters

Parameter	Type	Description
-	File	OK

Example Requests

None

Example Responses

Status code: 200

OK

```
"chart-file.tgz"
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.11 Obtaining a Release

Function

This API is used to obtain a release.

URI

GET /cce/cam/v3/clusters/{cluster_id}/namespace/{namespace}/releases/{name}

Table 4-997 Path Parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Release name
namespace	Yes	String	Namespace of the chart
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-998 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-999 Response body parameters

Parameter	Type	Description
chart_name	String	Chart name
chart_public	Boolean	Whether the chart is public
chart_version	String	Chart version
cluster_id	String	Cluster ID
cluster_name	String	Current name
create_at	String	Created at
description	String	Release description
name	String	Release name
namespace	String	Namespace to which a chart release belongs
parameters	String	Release parameters
resources	String	Resources required by the release
status	String	Release status
status_description	String	Release status description
update_at	String	Updated at

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Parameter	Type	Description
values	String	Release value
version	Integer	Release version

Example Requests

None

Example Responses

Status code: 200

OK


```
{
  "chart_name" : "magento-mysql",
  "chart_public" : false,
  "chart_version" : "1.0.0",
  "cluster_id" : "a870253f-5dc7-11ee-bf71-0255ac100b03",
  "cluster_name" : "sfs-turbo-test",
  "create_at" : "2023-11-14T20:30:57+08:00",
  "description" : "Initial install underway",
  "name" : "testwww",
  "namespace" : "monitoring",
  "parameters" : "",
  "resources" : "",
  "status" : "PENDING_INSTALL",
  "status_description" : "Initial install underway",
  "update_at" : "2023-11-14T20:30:57+08:00",
  "values" : "{\"basic\":{\"admin_password\":\"******\",\"admin_username\":\"username\",\"app_name
\":\"magento\",\"mysql_database\":\"magento\",\"mysql_name\":\"mysql\",\"mysql_password\":\"******
\",\"mysql_port\":3306,\"mysql_root_password\":\"******\",\"mysql_user\":\"magento\",\"storage_class\":\"csi-
nas\",\"storage_mode\":\"ReadWriteMany\",\"storage_size\":\"10G\"},\"global\":{\"magento_EIP
\":\"100.100.100.100\",\"magento_EPORT\":32080,\"namespace\":\"default\"},\"image\":{\"magento_image
\":\"example.com/everest/magento:latest\",\"mysql_image\":\"example.com/everest/mysql:5.7.14\"}}",
  "version" : 1
}
```


Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.12 Obtaining Chart Values

Function

This API is used to obtain chart values.

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URI

GET /v2/charts/{chart_id}/values

Table 4-1000 Path Parameters

Parameter	Mandatory	Type	Description
chart_id	Yes	String	Chart ID

Request Parameters

Table 4-1001 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-1002 Response body parameters

Parameter	Type	Description
values	Map<String,Object>	Data in **values.yaml**. The data structure depends on the chart.

Example Requests

None

Example Responses

Status code: 200

OK

```
{
  "values" : {
```

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```
  "basic" : {
    "admin_password" : "******",
    "admin_username" : "username"
  },
  "global" : {
    "magento_EIP" : "127.0.0.1",
    "magento_EPORT" : 32080,
    "namespace" : "demo"
  },
  "image" : {
    "magento_image" : "example.com/demo/magento:latest",
    "mysql_image" : "example.com/demo/mysql:5.7.14"
  }
 }
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

4.12.13 Obtaining Historical Records of a Release

Function

This API is used to obtain historical records of a release.

URI

GET /cce/cam/v3/clusters/{cluster_id}/namespace/{namespace}/releases/{name}/history

Table 4-1003 Path Parameters

Parameter	Mandatory	Type	Description
name	Yes	String	Release name
namespace	Yes	String	Namespace of the chart
cluster_id	Yes	String	Cluster ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

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Request Parameters

Table 4-1004 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-1005 Response body parameters

Parameter	Type	Description
[items]	Array of **ReleaseResp** objects	OK

Table 4-1006 ReleaseResp

Parameter	Type	Description
chart_name	String	Chart name
chart_public	Boolean	Whether the chart is public
chart_version	String	Chart version
cluster_id	String	Cluster ID
cluster_name	String	Current name
create_at	String	Created at
description	String	Release description
name	String	Release name
namespace	String	Namespace to which a chart release belongs
parameters	String	Release parameters

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Parameter	Type	Description
resources	String	Resources required by the release
status	String	Release status
status_description	String	Release status description
update_at	String	Updated at
values	String	Release value
version	Integer	Release version

Example Requests

None

Example Responses

Status code: 200

OK


```
[ {
  "chart_name" : "magento-mysql",
  "chart_public" : false,
  "chart_version" : "1.0.0",
  "cluster_id" : "a870253f-5dc7-11ee-bf71-0255ac100b03",
  "cluster_name" : "sfs-turbo-test",
  "create_at" : "2023-11-14T20:30:57+08:00",
  "description" : "Initial install underway",
  "name" : "testwww",
  "namespace" : "monitoring",
  "parameters" : "",
  "resources" : "",
  "status" : "PENDING_INSTALL",
  "status_description" : "Initial install underway",
  "update_at" : "2023-11-14T20:30:57+08:00",
  "values" : "{\"basic\":{\"admin_password\":\"******\",\"admin_username\":\"username\",\"app_name
\":\"magento\",\"mysql_database\":\"magento\",\"mysql_name\":\"mysql\",\"mysql_password\":\"******
\",\"mysql_port\":3306,\"mysql_root_password\":\"******\",\"mysql_user\":\"magento\",\"storage_class\":\"csi-
nas\",\"storage_mode\":\"ReadWriteMany\",\"storage_size\":\"10G\"},\"global\":{\"magento_EIP
\":\"100.100.100.100\",\"magento_EPORT\":32080,\"namespace\":\"default\"},\"image\":{\"magento_image
\":\"example.com/everest/magento:latest\",\"mysql_image\":\"example.com/everest/mysql:5.7.14\"}}",
  "version" : 1
} ]
```


Status Codes

Status Code	Description
200	OK

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Error Codes

See **Error Codes**.

4.12.14 Obtaining the Quota of a User Chart

Function

This API is used to obtain the quota of a user chart.

URI

GET /v2/charts/{project_id}/quotas

Table 4-1007 Path Parameters

Parameter	Mandatory	Type	Description
project_id	Yes	String	Project ID. For details about how to obtain the value, see **How to Obtain Parameters in the API URI**.

Request Parameters

Table 4-1008 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format).
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a User Token**.

Response Parameters

Status code: 200

Table 4-1009 Response body parameters

Parameter	Type	Description
quotas	**quotas** object	Chart quota

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Table 4-1010 quotas

Parameter	Type	Description
resources	Array of **resources** objects	Resources

Table 4-1011 resources

Parameter	Type	Description
type	String	Resource type
quota	Integer	Resource quota
used	Integer	Used resources

Example Requests

None

Example Responses

Status code: 200

OK

```
{
  "quotas" : {
    "resources" : [ {
      "type" : "Charts",
      "quota" : 200,
      "used" : 2
    } ]
  }
}
```

Status Codes

Status Code	Description
200	OK

Error Codes

See **Error Codes**.

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5 Kubernetes APIs

Description

Kubernetes APIs are resource-based (RESTful) programming interfaces provided through HTTP. It supports query, creation, update, and deletion of various cluster resources using standard HTTP request methods (POST, PUT, PATCH, DELETE, and GET).

CCE allows you to use native **Kubernetes APIs** in the following ways:

- **Calling Kubernetes APIs Through the Cluster API Server**. It is suitable for API calls on scale thanks to its direct connection to the API Server. This is a recommended option.
- **Calling Kubernetes APIs Through API Gateway**. It applies to small-scale API calls. API gateway flow control may be triggered when APIs are called on scale.

Calling Kubernetes APIs Through the Cluster API Server

You can use the API server of a Kubernetes cluster to call Kubernetes-native APIs.

Step 1 Obtain the cluster certificate and API server.

- Method 1: Obtain the certificate by calling the API for **obtaining the cluster certificate**, save the returned information to the **kubeconfig.json** file, and extract the certificate, private key, and API server information. The commands are as follows:

```
# Obtain the certificate and save it as client.crt.
cat ./kubeconfig.json |grep client-certificate-data | awk -F '"' '{print $4}' | base64 -d > ./client.crt
# Obtain the private key and save it as client.key.
cat ./kubeconfig.json |grep client-key-data | awk -F '"' '{print $4}' | base64 -d > ./client.key
# Obtain the API server.
cat ./kubeconfig.json |grep server | awk -F '"' '{print $4}'
```

- Method 2: Query the API server address (private or public network address) on the **Cluster Information** page of the CCE console and download the certificate (**client.crt** and **client.key** files).

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Step 2 Call Kubernetes-native APIs using the cluster certificate.

For example, run the curl command to call an API to view pod information. In the following example, *192.168.0.198:5443* is the IP address of the cluster API server.

```
curl --cacert ./ca.crt --cert ./client.crt --key ./client.key  https://192.168.0.198:5443/api/v1/namespaces/default/pods/
```

For more cluster APIs, see **Kubernetes APIs**.

----End

Calling Kubernetes APIs Through API Gateway

You can call Kubernetes-native APIs through API Gateway using the URL in the format of **https://{*clusterid*}.Endpoint/*uri***. In the URL, *{clusterid}* indicates the cluster ID, and *uri* indicates the resource path, that is, the path for API access.

Table 5-1 URL parameters

Parameter	Description
{clusterid}	Cluster ID. After a cluster is created, call the **API for obtaining a cluster in a specified project** to obtain the cluster ID.
Endpoint	Entry (URL) for a web service, which can be obtained from Endpoints.
uri	Access path of an API for performing an operation. Obtain the value from the URI of the API. For details, see Kubernetes API.

Step 1 Obtain the token of the region where the cluster is located. For details about how to obtain the token, see Obtaining a Token.

Step 2 Obtain the cluster ID using either of the following methods:

- Method 1: Use the API for obtaining cluster information to query the cluster UID.
- Method 2: Query the cluster on the **Cluster Information** page of the CCE console.

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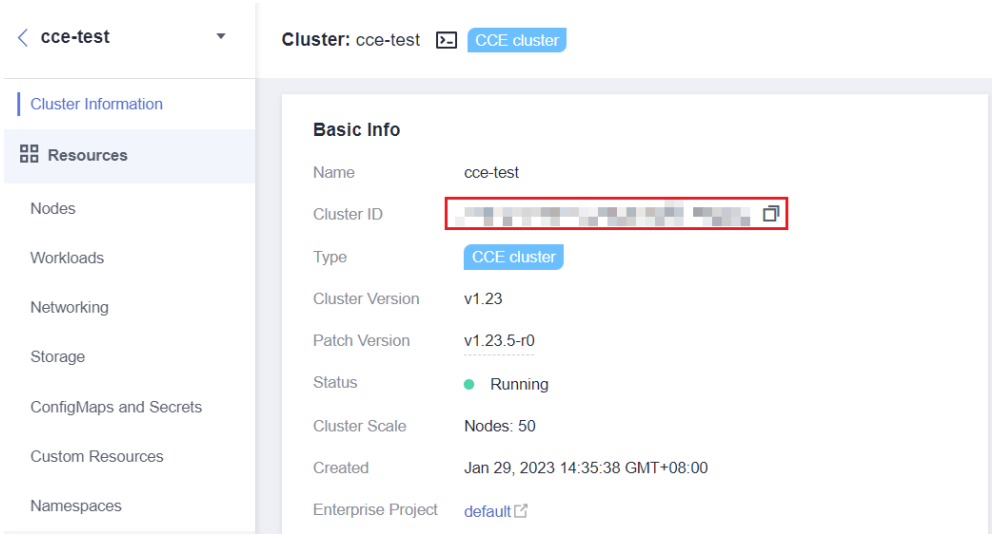

Step 3 Determine the requested URL based on the URL format **https://{*clusterid*}.Endpoint/uri**.

- **{clusterid}**: Obtain the value by using **Step 2**.
- Endpoint: Obtaining the endpoint from the administrator.

  For example, the endpoint of CCE in the **Dublin** region is **cce.myhuaweicloud.eu**.
- **uri**: Set this parameter based on the API to be called. For example, if you want to create a Deployment, the request method is POST and the API URI is **/apis/apps/v1/namespaces/*{namespace}*/deployments**, where *{namespace}* indicates the cluster namespace name. In this example, the value is **default**.

  For more APIs, see **Kubernetes APIs**.

Combine the preceding parameters following the URL format **https://{clusterid}.Endpoint/uri**.

The following is an example of the URL for calling the API to view information about all pods:

```
https://07da5*****.cce.ap-southeast-3.myhuaweicloud.com/apis/apps/v1/namespaces/default/deployments
```

Step 4 Use the request method specified by the API and set the request header parameters. If parameters in the body need to be added, add the structure corresponding to the API by referring to **Kubernetes APIs**.

Example curl command to call the API for creating a Deployment using POST and adding the corresponding body:

In this example, the **nginx.json** file is used to create a Deployment named **nginx**. The Deployment uses the **nginx:latest** image and contains two pods. Each pod occupies 100m CPU and 200 MiB memory.

```
curl --location --request POST 'https://07da5*****.cce.ap-southeast-3.myhuaweicloud.com/apis/apps/v1/namespaces/default/deployments' \
--header 'Content-Type: application/json' \
--header 'X-Auth-Token: MIIWvw******' \
--data @nginx.json
```

Header parameters contained in the request are as follows:

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Table 5-2 Request header parameters

Parameter	Mandatory	Type	Description
Content-Type	Yes	String	Message body type (format), for example, application/json.
X-Auth-Token	Yes	String	Requests for calling an API can be authenticated using either a token or AK/SK. If token-based authentication is used, this parameter is mandatory and must be set to a user token. For details, see **Obtaining a Token**.

The content of the **nginx.json** file is as follows:

```
{
   "apiVersion": "apps/v1",
   "kind": "Deployment",
   "metadata": {
      "name": "nginx"
   },
   "spec": {
      "replicas": 2,
      "selector": {
         "matchLabels": {
            "app": "nginx"
         }
      },
      "template": {
         "metadata": {
            "labels": {
               "app": "nginx"
            }
         },
         "spec": {
            "containers": [
               {
                  "image": "nginx:latest",
                  "name": "container-0",
                  "resources": {
                     "limits": {
                        "cpu": "100m",
                        "memory": "200Mi"
                     },
                     "requests": {
                        "cpu": "100m",
                        "memory": "200Mi"
                     }
                  }
               }
            ],
            "imagePullSecrets": [
               {
                  "name": "default-secret"
               }
            ]
         }
      }
```

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```
  }
}
```

----End

Related Documents

- **Accessing a Cluster Using Kubernetes APIs**
- **Kubernetes official SDKs** (including Go, Python, and Java)

Language	Client Library	Sample Program
C	**github.com/kubernetes-client/c**	**Browse**
dotnet	**github.com/kubernetes-client/csharp**	**Browse**
Go	**github.com/kubernetes/client-go/**	**Browse**
Haskell	**github.com/kubernetes-client/haskell**	**Browse**
Java	**github.com/kubernetes-client/java**	**Browse**
JavaScript	**github.com/kubernetes-client/javascript**	**Browse**
Perl	**github.com/kubernetes-client/perl/**	**Browse**
Python	**github.com/kubernetes-client/python/**	**Browse**
Ruby	**github.com/kubernetes-client/ruby/**	**Browse**

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6 Permissions and Supported Actions

You can use Identity and Access Management (IAM) for fine-grained permissions management of your CCE clusters. If your account does not need individual IAM users, you can skip this section.

New IAM users do not have any permissions assigned by default. You need to first add them to one or more groups and attach policies or roles to these groups. Users inherit permissions from the groups to which they are added and can perform specific operations on cloud services based on the assigned permissions.

You can grant users permissions by using . Roles are provided by IAM to define service-based permissions that match users' job responsibilities. Policies define API-based permissions for operations on specific resources under certain conditions, allowing for more fine-grained, secure access control of cloud resources.

NOTE

If you want to allow or deny the access to an API, fine-grained authorization is a good choice.

An account has all of the permissions required to call all APIs, but IAM users must have the required permissions specifically assigned. The required permissions are determined by the actions supported by the API. Only users with the permissions allowing for those actions can call the API successfully. For example, if an IAM user wants to query ECSs using an API, the user must have been granted permissions that allow the **ecs:servers:list** action.

Supported Actions

CCE provides system-defined policies that can be directly used in IAM. You can also create custom policies to supplement system-defined policies for more refined access control. Operations supported by policies are specific to APIs. The following are common concepts related to policies:

- Permissions: statements in a policy that allow or deny certain operations.
- APIs: REST APIs that can be called by a user who has been granted specific permissions.
- Actions: specific operations that are allowed or denied in a custom policy.

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- Dependencies: actions which a specific action depends on. When allowing an action for a user, you also need to allow any existing action dependencies for that user.
- IAM projects/Enterprise projects: the authorization scope of a custom policy. A custom policy can be applied to IAM projects or enterprise projects or both. Policies that contain actions for both IAM and enterprise projects can be used and applied for both IAM and Enterprise Management. Policies that contain actions only for IAM projects can be used and applied to IAM only.

NOTE

The check mark (√) and cross symbol (x) respectively indicate that an action takes effect or does not take effect for the corresponding type of projects.

CCE supports the following actions in custom policies.

Table 6-1 Cluster management actions

Permission	API	Action	IAM Project	Enterprise Project
Obtaining clusters in a project	GET /api/v3/projects/{project_id}/clusters	cce:cluster:list	√	√
Obtaining a cluster	GET /api/v3/projects/{project_id}/clusters/{cluster_id}	cce:cluster:get	√	√
Creating a cluster	POST /api/v3/projects/{project_id}/clusters	cce:cluster:create	√	√
Updating a cluster	PUT /api/v3/projects/{project_id}/clusters/{cluster_id}	cce:cluster:update	√	√
Deleting a cluster	DELETE /api/v3/projects/{project_id}/clusters/{cluster_id}	cce:cluster:delete	√	√
Upgrading a cluster	POST /api/v2/projects/:projectid/clusters/:clusterid/upgrade	cce:cluster:upgrade	√	√
Waking up a cluster	POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/awake	cce:cluster:start	√	√
Hibernating a cluster	POST /api/v3/projects/{project_id}/clusters/{cluster_id}/operation/hibernate	cce:cluster:stop	√	√

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Permission	API	Action	IAM Project	Enterprise Project
Changing the specifications of a cluster	POST /api/v2/projects/{project_id}/clusters/:clusterid/resize	cce:cluster:resize	√	√
Obtaining the certificate of a cluster	POST /api/v3/projects/{project_id}/clusters/{cluster_id}/clustercert	cce:cluster:get	√	√

Table 6-2 Node management actions

Permission	API	Action	IAM Project	Enterprise Project
Obtaining all nodes in a cluster	GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes	cce:node:list	√	√
Obtaining a node	GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/{node_id}	cce:node:get	√	√
Creating a node	POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes	cce:node:create	√	√ **NOTE** If you use enterprise project authorization to create a node, you need to add the global permission of **evs:quota:get**.
Updating a node	PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/{node_id}	cce:node:update	√	√
Deleting a node	DELETE /api/v3/projects/{project_id}/clusters/{cluster_id}/nodes/{node_id}	cce:node:delete	√	√

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Table 6-3 Job management actions

Permission	API	Action	IAM Project	Enterprise Project
Obtaining information about a job	GET /api/v3/projects/{project_id}/jobs/{job_id}	cce:job:get	√	√
Listing all jobs	GET /api/v2/projects/{project_id}/jobs	cce:job:list	√	√
Deleting one or all jobs	DELETE /api/v2/projects/{project_id}/jobs DELETE /api/v2/projects/{project_id}/jobs/{job_id}	cce:job:delete	√	√

Table 6-4 Node pool management actions

Permission	API	Action	IAM Project	Enterprise Project
Obtaining all node pools in a cluster	GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools	cce:nodepool:list	√	√
Obtaining a node pool	GET /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}	cce:nodepool:get	√	√
Creating a node pool	POST /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools	cce:nodepool:create	√	√
Updating a node pool	PUT /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}	cce:nodepool:update	√	√
Deleting a node pool	DELETE /api/v3/projects/{project_id}/clusters/{cluster_id}/nodepools/{nodepool_id}	cce:nodepool:delete	√	√

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Table 6-5 Chart management actions

Permission	API	Action	IAM Project	Enterprise Project
Updating a chart	PUT /v2/charts/{id}	cce:chart:update	√	x
Uploading a chart	POST /v2/charts	cce:chart:upload	√	x
Listing all charts	GET /v2/charts	cce:chart:list	√	x
Obtaining information about a chart	GET /v2/charts/{id}	cce:chart:get	√	x
Deleting a chart	DELETE /v2/charts/{id}	cce:chart:delete	√	x

Table 6-6 Release management actions

Permission	API	Action	IAM Project	Enterprise Project
Updating a release	PUT /v2/releases/{name}	cce:release:update	√	√
Listing all releases	GET /v2/releases	cce:release:list	√	√
Creating a release	POST /v2/releases	cce:release:create	√	√
Obtaining information about a release	GET /v2/releases/{name}	cce:release:get	√	√
Deleting a release	DELETE /v2/releases/{name}	cce:release:delete	√	√

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Table 6-7 Storage management actions

Permission	API	Action	IAM Project	Enterprise Project
Creating a PersistentVolumeClaim	POST /api/v1/namespaces/{namespace}/cloudpersistentvolume-claims	cce:storage:create	√	√
Deleting a PersistentVolumeClaim	DELETE /api/v1/namespaces/{namespace}/cloudpersistentvolume-claims/{name}	cce:storage:delete	√	√
Listing all volumes	GET /storage/api/v1/namespaces/{namespace}/listvolumes	cce:storage:list	√	√

Table 6-8 Add-on management actions

Permission	API	Action	IAM Project	Enterprise Project
Creating an add-on instance	POST /api/v3/addons	cce:addonInstance:create	√	√
Obtaining an add-on instance	GET /api/v3/addons/{id}?cluster_id={cluster_id}	cce:addonInstance:get	√	√
Listing all add-on instances	GET /api/v3/addons?cluster_id={cluster_id}	cce:addonInstance:list	√	√
Deleting an add-on instance	DELETE /api/v3/addons/{id}?cluster_id={cluster_id}	cce:addonInstance:delete	√	√
Updating an add-on instance	PUT /api/v3/addons/{id}	cce:addonInstance:update	√	√

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Table 6-9 Quota management actions

Permission	API	Action	IAM Project	Enterprise Project
Obtaining quota details	GET /api/v3/projects/{project_id}/quotas	cce:quota:get	√	√

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7 Appendix

7.1 Status Code

Table 7-1 describes the status codes.

Table 7-1 Status code

Status Code	Code	Description
100	Continue	The server has received the initial part of the request and the client should continue to send the remaining part. It is issued on a provisional basis while request processing continues. It alerts the client to wait for a final response.
101	Switching Protocols	The requester has asked the server to switch protocols and the server has agreed to do so. The target protocol must be more advanced than the source protocol. For example, the current HTTP protocol is switched to a later version of HTTP.
201	Created	The request has been fulfilled, resulting in the creation of a new resource.
202	Accepted	The request has been accepted for processing, but the processing has not been completed.
203	Non-Authoritative Information	The server successfully processed the request, but is returning information that may be from another source.

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Status Code	Code	Description
204	NoContent	The server has successfully processed the request, but does not return any content. The status code is returned in response to an HTTP OPTIONS request.
205	Reset Content	The server successfully processed the request, but is not returning any content.
206	Partial Content	The server has successfully processed a part of the GET request.
300	Multiple Choices	There are multiple options for the requested resource. For example, this code could be used to present a list of resource characteristics and addresses from which the client such as a browser may choose.
301	Moved Permanently	This and all future requests should be permanently directed to the given URI indicated in this response.
302	Found	The requested resource was temporarily moved.
303	See Other	The response to the request can be found under a different URI, and should be retrieved using a GET or POST method.
304	Not Modified	The requested resource has not been modified. In such case, there is no need to retransmit the resource since the client still has a previously-downloaded copy.
305	Use Proxy	The requested resource is available only through a proxy.
306	Unused	This HTTP status code is no longer used.
400	BadRequest	The request is invalid. The client should modify the request instead of re-initiating it.
401	Unauthorized	The authorization information provided by the client is incorrect or invalid.
402	Payment Required	This status code is reserved for future use.

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Status Code	Code	Description
403	Forbidden	The server has received the request and understood it, but the server is refusing to respond to it. The client should modify the request instead of re-initiating it.
404	NotFound	The requested resource cannot be found. The client should modify the request instead of re-initiating it.
405	MethodNotAllowed	A request method is not supported for the requested resource. The client should modify the request instead of re-initiating it.
406	Not Acceptable	The server cannot fulfill the request based on the content characteristics of the request.
407	Proxy Authentication Required	This code is similar to 401, but indicates that the client must first authenticate itself with the proxy.
408	Request Time-out	The server timed out waiting for the request. The client may re-initiate the request without modifications at any later time.
409	Conflict	The request cannot be processed due to a conflict. This status code indicates that the resource that the client attempts to create already exits, or the request fails to be processed because of the update of the conflict request.
410	Gone	The requested resource cannot be found. The status code indicates that the requested resource has been deleted permanently.
411	Length Required	The server refused to process the request because the request does not specify the length of its content.
412	Precondition Failed	The server does not meet one of the preconditions that the requester puts on the request.

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Status Code	Code	Description
413	Request Entity Too Large	The server refuses to process a request because the request entity is too large. The server may disable the connection to prevent the client from sending requests consecutively. If the server temporarily cannot process the request, the response will contain a Retry-After header field.
414	Request-URI Too Large	The URI provided was too long for the server to process.
415	Unsupported Media Type	The server does not support the media type in the request.
416	Requested range not satisfiable	The requested range is invalid.
417	Expectation Failed	The server fails to meet the requirements of the Expect request-header field.
422	UnprocessableEntity	The request is well-formed but is unable to be processed due to semantic errors.
429	TooManyRequests	The client sends excessive requests to the server within a given time (exceeding the limit on the access frequency of the client), or the server receives excessive requests within a given time (beyond its processing capability). In this case, the client should repeat requests after the time specified in the Retry-After header of the response expires.
500	InternalServerError	The server is able to receive the request but it could not understand the request.
501	Not Implemented	The server does not support the requested function.
502	Bad Gateway	The server acting as a gateway or proxy receives an invalid response from a remote server.
503	ServiceUnavailable	The requested service is invalid. The client should modify the request instead of re-initiating it.
504	ServerTimeout	The server could not return a timely response. The response will reach the client only if the request carries a timeout parameter.

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Status Code	Code	Description
505	HTTP Version not supported	The server does not support the HTTP protocol version used in the request.

7.2 Error Codes

If an error occurs in API calling, no result is returned. Identify the cause based on the error code of each API. If an error occurs in API calling, HTTP status code 4*xx* or 5*xx* is returned. The response body contains the specific error code and information. If you fail to locate the cause of an error, contact customer service and provide the error code, so that we can help you solve the problem as soon as possible.

Format of an Error Response Body

If an error occurs during API calling, an error code and a message will be displayed. The following shows an error response body.

```
{
    "errorMessage": "The format of message is error",
    "errorCode": "CCE.01400001"
}
```

In the preceding information, **errorCode** is an error code, and **errorMessage** describes the error.

Error Code Description

Status Code	Error Code	Error Message	Description	Troubleshooting
400	CCE.01400001	Invalid request.	Invalid request body.	Modify the request body based on the returned message and the CCE API documentation, or contact technical support.
400	CCE.01400002	Subnet not found in the VPC.	No subnet is found in the VPC.	Check whether the subnet in the request body is in the corresponding VPC.

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Status Code	Error Code	Error Message	Description	Troubleshooting
400	CCE.01400003	IPv6 not supported for the subnet.	The subnet does not support IPv6.	Use a subnet that supports IPv6.
400	CCE.01400004	No available flavors for master nodes.	There is no available flavor for the master node.	Change to another available cluster flavor or contact technical support.
400	CCE.01400005	Container network CIDR blocks conflict.	The container CIDR block conflicts with the existing one.	Check the container CIDR block based on the returned message.
400	CCE.01400006	Content type not supported.	The content type is invalid.	Use the supported content type by referring to the CCE API documentation.
400	CCE.01400007	Insufficient cluster quota.	Insufficient cluster quota.	Submit a service ticket to increase the cluster quota.
400	CCE.01400008	Insufficient server quota	Insufficient ECS quota.	Submit a service ticket to increase the ECS quota.
400	CCE.01400009	Insufficient CPU quota.	Insufficient ECS CPU quota.	Submit a service ticket to increase the ECS CPU quota.
400	CCE.01400010	Insufficient memory quota.	Insufficient ECS memory quota.	Submit a service ticket to increase the ECS memory quota.
400	CCE.01400011	Insufficient security group quota.	Insufficient security group quota.	Submit a service ticket to increase the security group quota.
400	CCE.01400012	Insufficient EIP quota.	Insufficient EIP quota.	Submit a service ticket to increase the EIP quota.

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Status Code	Error Code	Error Message	Description	Troubleshooting
400	CCE.01400013	Insufficient volume quota.	Insufficient disk quota.	Submit a service ticket to increase the disk quota based on the returned message.
400	CCE.01400014	Excessive nodes in the cluster.	The number of nodes exceeds the cluster scale.	Submit a service ticket to change the cluster flavor.
400	CCE.01400015	Version not supported.	The cluster version is not supported.	Create a cluster of the supported version based on the returned message.
400	CCE.01400016	Current cluster type does not support this node flavor.	The current cluster type does not support this node flavor.	Use the correct node flavor based on the returned message.
400	CCE.01400017	No available container CIDR block found.	No available container CIDR block is found.	Use a correct container CIDR block based on the returned message.
400	CCE.01400018	This type of OS cannot be created in this CCE version.	The current CCE version does not support this type of OS.	Use a supported OS based on the returned message.
400	CCE.01400019	Insufficient resource tenant quota.	The quota of the resource tenant is insufficient.	Rectify the fault based on the returned message or contact technical support.
400	CCE.01400020	Insufficient VPC quota.	Insufficient VPC quota.	Rectify the fault based on the returned message or contact technical support.
400	CCE.01400021	No available flavors for nodes.	There is no available flavor for the node.	Change to another available node flavor or contact technical support.

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Status Code	Error Code	Error Message	Description	Troubleshooting
400	CCE.01400022	No available node volumes for nodes.	There is no available EVS disk flavor for the node.	Change to another available EVS disk flavor or contact technical support.
400	CCE.02400001	Invalid request.	Invalid request body.	Modify the request body based on the returned message and the CCE API documentation, or contact technical support.
400	CCE.03400001	Invalid request.	Invalid request body.	Modify the request body based on the returned message and the CCE API documentation, or contact technical support.
400	CCE.03400002	Missing access key.	The access key is missing.	Ensure that the version of the installed or upgraded storage add-on is correct, or contact technical support.
401	CCE.01401001	Authorization failed.	Authentication failed.	Rectify the fault based on the returned message or contact technical support.
401	CCE.02401001	Authorization failed.	Authentication failed.	Rectify the fault based on the returned message or contact technical support.
401	CCE.03401001	Authorization failed.	Authentication failed.	Rectify the fault based on the returned message or contact technical support.

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Status Code	Error Code	Error Message	Description	Troubleshooting
403	CCE.01403001	Forbidden.	Access denied.	Rectify the fault based on the returned message or contact technical support.
403	CCE.02403001	Forbidden.	Access denied.	Rectify the fault based on the returned message or contact technical support.
403	CCE.03403001	Forbidden.	Access denied.	Rectify the fault based on the returned message or contact technical support.
404	CCE.01404001	Resource not found.	Resources not found.	Check whether the resource to be accessed has been deleted.
404	CCE.02404001	Resource not found.	Resources not found.	Check whether the resource to be accessed has been deleted.
404	CCE.03404001	Resource not found.	Resources not found.	Check whether the resource to be accessed has been deleted.
409	CCE.01409001	The resource already exists.	The resource already exists.	Delete the resource and try again.
409	CCE.01409002	Resource updated with out-of-date version.	An out-of-date version is used to update the target resource.	Ensure that the target resource version is the latest one or contact technical support.
409	CCE.02409001	The resource already exists.	The resource already exists.	Delete the resource and try again.
409	CCE.03409001	Addon instance has installed.	The add-on instance has been installed.	Delete the add-on instance and install it again.

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Status Code	Error Code	Error Message	Description	Troubleshooting
429	CCE.01429002	Resource locked by other requests.	The resource is locked by another request.	Rectify the fault based on the returned message or contact technical support.
429	CCE.02429001	The throttling threshold has been reached.	The maximum number of requests has been reached.	Reduce the frequency of sending requests or contact technical support.
500	CCE.01500001	Internal error.	Internal error.	Rectify the fault based on the returned message or contact technical support.
500	CCE.02500001	Internal error.	Internal error.	Rectify the fault based on the returned message or contact technical support.
500	CCE.03500001	Internal error.	Internal error.	Rectify the fault based on the returned message or contact technical support.

7.3 Obtaining a Project ID

Scenarios

A project ID is required for some URLs when APIs are called. Therefore, obtain a project ID in advance. Two methods are available:

- **Call an API**
- **Use the console**

Obtaining the Project ID by Calling an API

You can obtain the project ID by calling the IAM API used to query project information based on the specified criteria.

The API for obtaining a project ID is **GET https://{Endpoint}/v3/projects**. **{Endpoint}** indicates the endpoint of IAM, which can be obtained from **Endpoints**. For details about API authentication, see **Authentication**.

The following is an example response. The value of **id** is the project ID.

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```
{
    "projects": [
        {
            "domain_id": "65382450e8f64ac0870cd180d14e684b",
            "is_domain": false,
            "parent_id": "65382450e8f64ac0870cd180d14e684b",
            "name": "project_name",
            "description": "",
            "links": {
                "next": null,
                "previous": null,
                "self": "https://www.example.com/v3/projects/a4a5d4098fb4474fa22cd05f897d6b99"
            },
            "id": "a4a5d4098fb4474fa22cd05f897d6b99",
            "enabled": true
        }
    ],
    "links": {
        "next": null,
        "previous": null,
        "self": "https://www.example.com/v3/projects"
    }
}
```


Obtaining a Project ID from the Console

To obtain a project ID from the console, perform the following operations:

1. Log in to the management console.
2. Hover over the username in the upper right corner and select **My Credentials** from the drop-down list.

   On the **API Credentials** page, view the project ID in the project list.

7.4 Obtaining an Account ID

An account ID (domain-id) is required for some URLs when an API is called. To obtain an account ID, perform the following operations:

1. Sign up and log in to the management console.
2. Click the username in the upper right corner and choose **My Credentials** from the drop-down list.

   On the **API Credentials** page, view the account ID.

7.5 Specifying Add-ons to Be Installed During Cluster Creation

When creating a cluster, you can add a key-value pair to **annotations** of the **metadata** field in the request body to install an add-on in the cluster. The key is **cluster.install.addons/install**, and the value is a JSON array of **AddonTemplate**.

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Table 7-2 Value data structure

Parameter	Mandatory	Type	Description
Value	Yes	JSON array of AddonTemplate string	Add-on to be installed in the cluster. If this parameter is not specified, the coredns and storage-driver add-ons are installed by default for clusters of Kubernetes 1.13 and earlier versions, and the coredns, everest, and npd add-ons are installed by default for clusters of Kubernetes 1.15 and later versions. For details, see **Table 7-3**.

Table 7-3 Data structure of the AddonTemplate field

Parameter	Mandatory	Type	Description
addonTemplateName	Yes	String	Add-on name. The value can be **coredns**, **autoscaler**, **gpu-beta**, or **storage-driver**.
version	No	String	Add-on version. To view the add-on version information, log in to the CCE console, click **Add-ons** in the navigation pane. Click the target add-on name. On the **Version History** tab page, you can view the versions of the add-on. If this parameter is left blank, the latest version is used by default.
values	No	Json Map	Parameters to be set for installing an add-on. • coredns: For details, see **Table 7-4**. • autoscaler: For details, see **Table 7-8**. • gpu-beta: For details, see **Table 7-10**. **NOTE** You do not need to set this parameter when installing the storage-driver add-on.

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Table 7-4 Special key-value pairs of the coredns values parameters

Parameter	Mandatory	Type	Description
flavor	Yes	**flavor** object	Add-on specifications.
custom	Yes	**custom** object	Custom coredns parameters.

Table 7-5 Data structure of the flavor field

Parameter	Mandatory	Type	Description
description	Yes	String	Specification description.
name	Yes	String	Flavor name.
replicas	Yes	Integer	Number of pods.
resources	Yes	**resource** object	Add-on resources.

Table 7-6 Data structure of the resource field

Parameter	Mandatory	Type	Description
name	Yes	String	Resource name.
limitsCpu	Yes	String	CPU quota limit.
limitsMem	Yes	String	Memory quota limit.
requestsCpu	Yes	String	Requested CPU.
requestsMem	Yes	String	Requested memory.

Table 7-7 Data structure of the custom field

Parameter	Mandatory	Type	Description
stub_domains	No	Json Map	JSON map that uses the DNS suffix key (such as acme.local) and the value composed of the JSON array of the DNS IP address.

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Parameter	Mandatory	Type	Description
upstream_nameservers	No	Json Array	The value of this parameter replaces the name server value obtained from **/etc/resolv.conf** of the node by default. Restriction: A maximum of three upstream name servers can be specified.
tenant_id	Yes	String	Project ID.

Table 7-8 Special key-value pairs of the autoscaler values parameters

Parameter	Mandatory	Type	Description
flavor	Yes	**flavor** Object	Add-on specifications.
custom	Yes	**custom** object	Custom autoscaler parameters.

Table 7-9 Data structure of the custom field

Parameter	Mandatory	Type	Description
coresTotal	Yes	Integer	Maximum and minimum number of cores of a cluster. The format is **<min>:<max>**. The autoscaler add-on performs cluster scaling within this range.
maxEmptyBulkDeleteFlag	Yes	Integer	Maximum number of empty nodes that can be deleted at a time.
maxNodesTotal	Yes	Integer	Maximum number of nodes in all node groups. The autoscaler add-on performs cluster scaling within this range.
memoryTotal	Yes	Integer	Maximum and minimum size of memory of a cluster. The format is **<min>:<max>**. The autoscaler add-on performs cluster scaling within this range.
scaleDownDelayAfterAdd	Yes	Integer	Interval for performing scale-down evaluation after a scale-up.

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Parameter	Mandatory	Type	Description
scaleDownDelayAfterDelete	Yes	Integer	Interval for performing scale-down evaluation after nodes are deleted. The default value is **scanInterval**.
scaleDownDelayAfterFailure	Yes	Integer	Interval for performing scale-down evaluation after a scale-down failure.
scaleDownEnabled	Yes	Boolean	Whether to enable cluster scaling down.
scaleDownUnneededTime	Yes	Integer	Time waited to start a scale-down after a node has reached the scale-down threshold.
scaleDownUtilizationThreshold	Yes	Float	Threshold percentage of the total CPU or memory occupied by all pods running on the node to the allocatable resources on the node. When the actual percentage is lower than this threshold, node scale-down is triggered.
scaleUpCpuUtilizationThreshold	Yes	Float	CPU usage threshold for triggering scale-up.
scaleUpMemUtilizationThreshold	Yes	Float	Memory usage threshold for triggering scale-up.
scaleUpUnscheduledPodEnabled	Yes	Boolean	Scale-up is triggered when there are unscheduled pods.
scaleUpUtilizationEnabled	Yes	Boolean	Scale-up is triggered when the resource usage reaches the threshold.
tenant_id	Yes	String	Project ID.
unremovableNodeRecheckTimeout	Yes	Integer	Interval for checking whether a node can be removed.

Table 7-10 Special Key-Value in values of AddonTemplate (GPU-beta)

Parameter	Mandatory	Type	Description
custom	Yes	**custom** object	Customer parameters of gpu-beta.

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Table 7-11 Data structure of the custom field

Parameter	Mandatory	Type	Description
is_driver_from_nvidia	Yes	Boolean	Whether to use the NVIDIA driver. Set this parameter to **true**.
nvidia_driver_download_url	Yes	String	Driver downloading URL.

Table 7-12 Data structure of the spec field

Parameter	Mandatory	Type	Description
type	Yes	String	Cluster type. Possible values: • **VirtualMachine**: The cluster is a hybrid cluster. A hybrid cluster manages a group of node resources based on Kubernetes. It can manage VMs, bare-metal machines, or a combination of both. Kubernetes automatically schedules containers onto available nodes. Before creating a containerized workload, you must have an available cluster. • **ARM64**: The cluster is a Kunpeng cluster. Containers in CCE's Kunpeng clusters can run on Kunpeng servers that use ARM architecture and Kunpeng processors. Kunpeng-accelerated cloud servers are easy to deploy and provide comparable scaling and scheduling performance as x86-based cloud servers.

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Parameter	Mandatory	Type	Description
flavor	Yes	String	Cluster flavor, which cannot be changed after the cluster is created. • **cce.s1.small**: a small-scale CCE cluster with one master node and a maximum of 50 worker nodes • **cce.s1.medium**: a medium-scale CCE cluster with one master node and a maximum of 200 worker nodes • **cce.s2.small**: a small-scale, HA CCE cluster with three master nodes and a maximum of 50 worker nodes • **cce.s2.medium**: a medium-scale, HA CCE cluster with three master nodes and a maximum of 200 worker nodes • **cce.s2.large**: a large-scale, HA CCE cluster with three master nodes and a maximum of 1,000 worker nodes • **cce.s2.xlarge**: an ultra-large-scale, HA CCE cluster with three master nodes and a maximum of 2,000 worker nodes

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Parameter	Mandatory	Type	Description
			NOTE • **s1**: indicates a cluster with one master node. If the master node is faulty, the cluster is unavailable, but running workloads are not affected. • **s2**: indicates a cluster with three master nodes. This is an HA cluster. If one of the master nodes is faulty, the cluster is still available. • **dec**: dedicated hybrid cluster specifications. For example, **cce.dec.s1.small** is a small-scale, single-master, dedicated hybrid cluster (≤ 50 nodes). • For example, **≤ 50 nodes** indicates that the maximum number of nodes that can be managed by the cluster is 50. • A single-master cluster has only one master node. If the master node is down, the cluster will become unavailable and stop serving new workloads. However, existing workloads in the cluster are not affected. • An HA cluster has multiple master nodes. Faults in a single master node will not take the cluster down.
version	No	String	Cluster's baseline Kubernetes version. The latest version is recommended. • You can create clusters of two latest versions on the CCE console. To learn which cluster versions are available, choose **Clusters** in the navigation pane, click **Buy Cluster**, and view the supported cluster versions. • You can call APIs to create clusters of other versions. However, these clusters will be gradually brought offline. For details about the offline policy, see the official CCE announcement. **NOTE** If this parameter is left blank, the cluster of the latest version is created by default.

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Parameter	Mandatory	Type	Description
description	No	String	Cluster description, for example, which purpose the cluster is intended to serve. By default, this parameter is left unspecified. To modify cluster description after the cluster is created, call the **API used to update information about a specified cluster** or go to the cluster details page on the CCE console.
ipv6enable	No	Boolean	Whether the cluster supports IPv6. Clusters of version 1.15 and later support IPv6.
hostNetwork	Yes	**HostNetwork** object	Node networking parameters, including VPC and subnet ID. **hostNetwork** is mandatory because nodes in a cluster communicate with each other by using a VPC.
containerNetwork	Yes	**ContainerNetwork** object	Container networking parameters, including the container network model and container CIDR block.
authentication	No	**Authentication** object	Configurations of the cluster authentication mode.
kubernetesSvcIpRange	No	String	Service CIDR block or the IP address range which the **kubernetes clusterIp** must fall within. This parameter is available only for clusters of v1.11.7 and later.
billingMode	No	Integer	Billing mode of a cluster. Currently, only **pay-per-use** clusters can be created. Value **0** indicates pay-per-use. If this parameter is left unspecified, the default value **0** is used.
masters	No	**MasterSpec** object	Advanced configurations of the master node
extendParam	No	Map<String, String>	Extended fields in the format of key-value pairs. You can configure multi-AZ clusters and dedicated hybrid clusters, and create clusters in specific enterprise projects.

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Request Example


```
{
  "kind" : "Cluster",
  "apiVersion" : "v3",
  "metadata" : {
    "name" : "mycluster",
    "labels" : {
      "foo" : "bar"
    },
    "annotations" : {
      "cluster.install.addons/install" : "[{\"addonTemplateName\":\"autoscaler\",\"version\":\"1.15.11\",\"values
\":{\"flavor\":{\"description\":\"Has only one instance\",\"name\":\"Single\",\"replicas\":1,\"resources\":
[{\"limitsCpu\":\"90m\",\"limitsMem\":\"200Mi\",\"name\":\"autoscaler\",\"requestsCpu\":\"50m
\",\"requestsMem\":\"100Mi\"}]},\"custom\":{\"coresTotal\":32000,\"maxEmptyBulkDeleteFlag
\":10,\"maxNodesTotal\":1000,\"memoryTotal\":128000,\"scaleDownDelayAfterAdd
\":10,\"scaleDownDelayAfterDelete\":10,\"scaleDownDelayAfterFailure\":3,\"scaleDownEnabled
\":false,\"scaleDownUnneededTime\":10,\"scaleDownUtilizationThreshold
\":0.5,\"scaleUpCpuUtilizationThreshold\":1,\"scaleUpMemUtilizationThreshold
\":1,\"scaleUpUnscheduledPodEnabled\":true,\"scaleUpUtilizationEnabled\":true,\"tenant_id
\":\"22a8a02394794b908d256103a5b63c65\",\"unremovableNodeRecheckTimeout\":5}}},
{\"addonTemplateName\":\"coredns\",\"version\":\"1.15.3\",\"values\":{\"flavor\":{\"description\":\"Has two
instances\",\"name\":2500,\"replicas\":2,\"resources\":[{\"limitsCpu\":\"500m\",\"limitsMem\":\"512Mi
\",\"name\":\"coredns\",\"requestsCpu\":\"500m\",\"requestsMem\":\"512Mi\"}]},\"custom\":{\"stub_domains
\":{},\"upstream_nameservers\":[],\"tenant_id\":\"22a8a02394794b908d256103a5b63c65\"}}},
{\"addonTemplateName\":\"gpu-beta\",\"version\":\"1.1.7\",\"values\":{\"custom\":{\"is_driver_from_nvidia
\":true,\"nvidia_driver_download_url\":\"https://us.download.nvidia.com/tesla/396.37/NVIDIA-Linux-
x86_64-396.37.run\"}}},{\"addonTemplateName\":\"storage-driver\",\"version\":\"\"}]"
    }
  },
  "spec" : {
    "type" : "VirtualMachine",
    "flavor" : "cce.s1.small",
    "version" : "v1.15.11",
    "description" : "this is a demo cluster",
    "hostNetwork" : {
      "vpc" : "1cb74d47-8e09-4d14-a065-75f4fc03e5eb",
      "subnet" : "d44c089c-fbdc-49b3-ae8f-7b42c64219cf"
    },
    "containerNetwork" : {
      "mode" : "overlay_l2",
      "cidr" : "172.16.0.0/16"
    },
    "extendParam" : {
      "foo" : "bar"
    }
  }
}
```


7.6 How to Obtain Parameters in the API URI

project_id

project_id indicates the project ID, which can be obtained from the console or APIs. For details, see **Obtaining a Project ID**.

cluster_id

Step 1 Log in to the CCE console. In the navigation pane, choose **Clusters**.

Step 2 Click the name of the created cluster. The cluster details page is displayed. Obtain the cluster ID.

----End

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node_id

Step 1 Log in to the CCE console. In the navigation pane, choose **Clusters**.

Step 2 Click the name of the created cluster, select **Nodes** on the left, and move the cursor to the node name to view the node ID.

----End

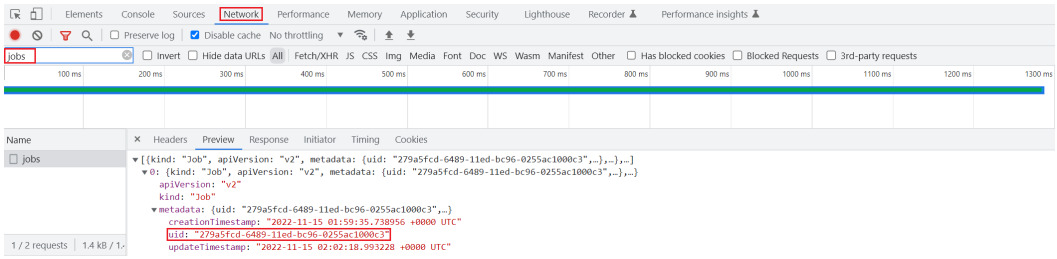
job_id

Step 1 Log in to the CCE console. In the navigation pane, choose **Clusters**. The following uses cluster management as an example to describe how to obtain the **job_id** of the cluster that is being created.

Step 2 Obtain the job ID.

1. If you are using Google Chrome, press **F12**. On the pane displayed on the right, click the **Network** tab.
2. Click **Operation Records** on the CCE console to view details about cluster operation records.
3. Enter **jobs** in the **Filter** text box to filter out the jobs. Select a job from the list on the left and click **Preview**. The **uid** field indicates the job UID.

Figure 7-1 Obtaining the job ID



----End

7.7 Creating a VPC and Subnet

Context

To provide a secure and isolated network environment for CCE, create a VPC before creating a cluster.

If you have already created a VPC, you do not need to create it again.

Creating a VPC

Step 1 On the management console, click **Service List**, and choose **Network** > **Virtual Private Cloud** to launch the VPC console.

Step 2 On the VPC console, click **Create VPC** to create a VPC.

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Step 3 The created VPC is displayed in the list. Click its name and obtain the VPC ID, which will be required in **cluster creation**.

----End

Creating a Subnet

Step 1 On the management console, click **Service List**, and choose **Network** > **Virtual Private Cloud** to launch the VPC console.

Step 2 On the **VPC** console, choose **Virtual Private Cloud** > **Subnets** in the navigation pane, and click **Create Subnet** in the upper right corner.

Step 3 Create a subnet as prompted and click its name to obtain the network ID, which will be required in **cluster creation**.

----End

7.8 Creating a Key Pair

Context

Create a key pair before you create a container cluster. Key pairs are used for user identity authentication upon login to a worker node.

If you have already created a key pair, you do not need to create it again.

Procedure

Step 1 On the management console, click **Service List**, and choose **Compute** > **Elastic Cloud Server** to go to the ECS console.

Step 2 In the navigation pane, choose **Key Pair**.

Step 3 Click **Create Key Pair** and create a key pair as prompted.

Step 4 After the creation is complete, a key file in the **.pem** format is generated and automatically saved to the default directory on your local computer.

----End

7.9 Node Flavor Description

NOTE

Different regions support different node flavors, and node flavors may be changed or sold out. You are advised to log in to the CCE console and check whether the required node flavors are supported on the page for creating nodes.

- **CCE cluster**

  You need to enter the specific flavor name, for example, **c6.large.2**.

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7.10 Adding a Salt in the password Field When Creating a Node

When a node is created through the API, you need to add a salt to the **password** field to safeguard the password. The procedure is as follows:

NOTE

The salt must be set based on the password complexity requirements:

- A string of 8–26 characters.
- Contains at least three of the following character types: uppercase letters, lowercase letters, digits, and special characters !@$%^-_=+[{}]:,./?
- Cannot contain the username or the username spelled backwards.
- Cannot contain the username, the username spelled backwards, or more than two consecutive characters in the username (for Windows ECSs).

Python

To salt a password in the Python 3.7.7 environment, perform the following steps:

NOTE

The **python crypt** package has compatibility issues in macOS. If the package cannot be executed, run it in Linux.

1. Add \ before $ in the salt. Generate a ciphertext password based on the updated salt.
   ```
   python3 -c "import crypt;print(crypt.crypt('******', crypt.mksalt()))"
   ```
2. Encode the value of the **password** field using Base64.
   ```
   echo -n '******' | base64 | tr "\n" " " | sed s/[[:space:]]//g
   ```

Java

To salt a password in the Java environment, perform the following steps:

1. Obtain a random number as the salt.
   ```
   private static String getCharAndNumr(int length) {
       String val = "";
       Random random = new SecureRandom();
       for (int i = 0; i < length; i++) {
           // Indicates whether to output letters or digits.
           String charOrNum = random.nextInt(2) % 2 == 0 ? "char" : "num";
           // Character string
           if ("char".equalsIgnoreCase(charOrNum)) {
               // Indicates whether an upper-case or lower-case letter is obtained.
               int choice = random.nextInt(2) % 2 == 0 ? 65 : 97;
               val += (char) (choice + random.nextInt(26));
           } else if ("num".equalsIgnoreCase(charOrNum)) {// Digit
               val += String.valueOf(random.nextInt(10));
           }
       }
       return val;
   }
   ```
2. Generate a salt.
   ```
   private static String generateSalt() {
       String salt;
   ```

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```
    try {
        salt = "$6$" + getCharAndNumr(16);
    }catch (Exception e){
        salt = defaultSalt;
    }

    return salt;
}
```

3. Generate a ciphertext password based on the salt.

```
public static String getSaltPassword(String password) {
    if(StringUtils.isBlank(password)) {
        throw new BizException("password is empty");
    }

    String salt = generateSalt();

    Crypt crypt = new Crypt();
    return crypt.crypt(password, salt);
}
```

4. Encode the value of the **password** field using Base64.

```
(Base64.getEncoder().encodeToString(AddSaltPasswordUtil.getSaltPassword(cceNodeCreateVo.getPass
word()).getBytes()))
```

5. A complete example is as follows:

```
import java.util.Base64;
import java.util.Random;
import java.security.SecureRandom;

import org.apache.commons.codec.digest.Crypt;
import org.apache.commons.lang.StringUtils;

public class PassWord {

    static String defaultSalt = null;

    public static void main(String[] args) throws Exception {
        System.out.println(Base64.getEncoder().encodeToString(PassWord.getSaltPassword( "Custom
password").getBytes()));
    }


    //Generate a ciphertext password based on the salt.
    public static String getSaltPassword(String password) throws Exception {
        if(StringUtils.isBlank(password)) {
            throw new Exception("password is empty");
        }
        String salt = generateSalt();
        return Crypt.crypt(password, salt);
    }

    //Generate a salt.
    private static String generateSalt() {
        String salt;
        try {
            salt = "$6$" + getCharAndNumr(16);
        }catch (Exception e){
            salt = defaultSalt;
        }
        return salt;
    }

    //Obtain a random number as the salt.
    private static String getCharAndNumr(int length) {
        String val = "";
        Random random = new SecureRandom();
        for (int i = 0; i < length; i++) {
            // Indicates whether to output letters or digits.
            String charOrNum = random.nextInt(2) % 2 == 0 ? "char" : "num";
            // Character string
```

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```
            if ("char".equalsIgnoreCase(charOrNum)) {
                // Indicates whether an upper-case or lower-case letter is obtained.
                int choice = random.nextInt(2) % 2 == 0 ? 65 : 97;
                val += (char) (choice + random.nextInt(26));
            } else if ("num".equalsIgnoreCase(charOrNum)) {// Digit
                val += String.valueOf(random.nextInt(10));
            }
        }
        return val;
    }
}
```

Go

You can use either of the following methods to salt passwords for the Go language:

- **https://github.com/amoghe/go-crypt**
- **https://github.com/GehirnInc/crypt**

7.11 Maximum Number of Pods That Can Be Created on a Node

Calculation of the Maximum Number of Pods on a Node

The maximum number of pods that can be created on a node is calculated based on the cluster type:

- For a cluster using the container tunnel network model, the value depends only on **the maximum number of pods on a node**.
- For clusters using the VPC network model, the value depends on **the maximum number of pods on a node** and **the minimum number of container IP addresses that can be allocated to a node**. It is recommended that the maximum number of pods on a node be less than or equal to the number of container IP addresses that can be allocated to the node. Otherwise, pods may fail to be scheduled.
- For CCE Turbo clusters using the Cloud Native Network 2.0 model, the value depends on **the maximum number of pods on a node** and **the minimum number of ENIs on a CCE Turbo cluster node**. It is recommended that the maximum number of pods on a node be less than or equal to the number of ENIs on the node. Otherwise, pods may fail to be scheduled.

Number of Container IP Addresses That Can Be Allocated on a Node

If you select **VPC network** for **Network Model** when creating a CCE cluster, you also need to set the number of container IP addresses that can be allocated to each node (alpha.cce/fixPoolMask). If the pod uses the host network (**hostNetwork: true**), the pod does not occupy the IP address of the allocatable container network. For details, see **Container Network vs. Host Network**.

This parameter affects the maximum number of pods that can be created on a node. Each pod occupies an IP address (when the **container network** is used). If the number of available IP addresses is insufficient, pods cannot be created. If the

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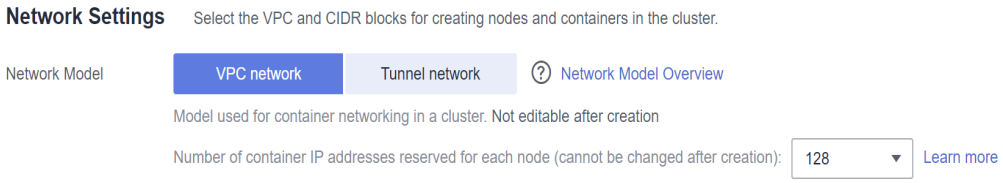
pod uses the host network (**hostNetwork: true**), the pod does not occupy the IP address of the allocatable container network.

Figure 7-2 Specifying the number of allocatable container IP addresses on a node in the VPC network model



By default, a node occupies three container IP addresses (network address, gateway address, and broadcast address). Therefore, the number of container IP addresses that can be allocated to a node equals the number of selected container IP addresses minus 3. For example, in the preceding figure, the number of container IP addresses that can be allocated to a node is 125 (128 – 3).

Maximum Number of Pods on a Node

When creating a node, you can configure the maximum number of pods (maxPods) that can be created on the node. This parameter is a configuration item of kubelet and determines the maximum number of pods that can be created by kubelet.

NOTICE

For nodes in the default node pool (**DefaultPool**), the maximum number of pods cannot be changed after the nodes are created.

After a node in a custom node pool is created, you can modify the **max-pods** parameter in the node pool configuration to change the maximum number of pods on the node.

By default, the maximum number of pods on a node can be adjusted to 256. To increase the deployment density on a node, submit a **service ticket** to increase the maximum number of pods on a node, which can be 512.

Figure 7-3 Specifying the maximum number of pods on a node

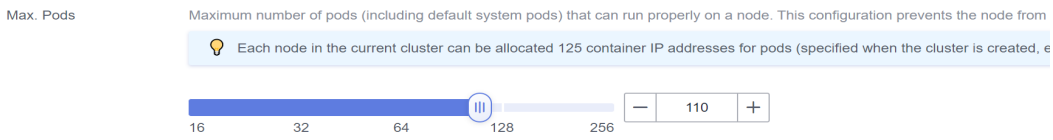


Table 7-13 lists the default maximum number of pods on a node based on node specifications.

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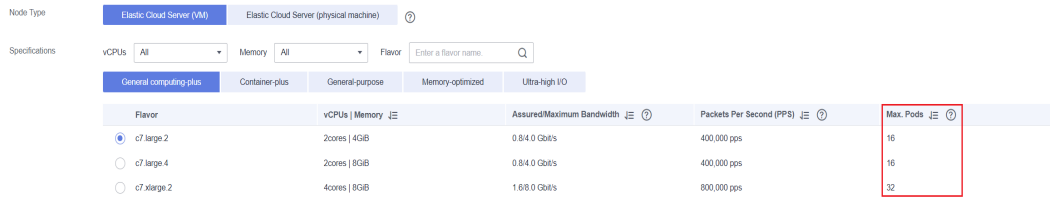
Table 7-13 Default maximum number of pods on a node

Memory	Max. Pods
4 GB	20
8 GB	40
16 GB	60
32 GB	80
64 GB or above	110

Number of Node ENIs (CCE Turbo Clusters)

In a CCE Turbo cluster, ECS nodes use sub-ENIs. The maximum number of pods that can be created on a node depends on the number of ENIs that can be used by the node.

Figure 7-4 Node ENIs



Container Network vs. Host Network

When creating a pod, you can select the container network or host network for the pod.

- Container network (default): **Each pod is assigned an IP address by the cluster networking add-ons, which occupies the IP addresses of the container network**.
- Host network: The pod uses the host network (**hostNetwork: true** needs to be configured for the pod) and occupies the host port. The pod IP address is the host IP address. The pod does not occupy the IP addresses of the container network. To use the host network, you must confirm whether the container ports conflict with the host ports. Do not use the host network unless you know exactly which host port is used by which container.

7.12 Node OS

Mappings Between Cluster Versions and OS Versions

The following table lists the mappings between released cluster versions and OS versions.

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Table 7-14 ECS (VM) OS

OS	Cluster Version	CCE Standard Cluster		CCE Turbo Cluster	Latest Kernel
		VPC Network	Tunnel Network	Cloud Native 2.0 Network	
EulerOS release 2.9	v1.27	√	√	√	4.18.0-147.5.1.6.h1017.eulerosv2r9.x86_64
	v1.25	√	√	√	4.18.0-147.5.1.6.h1017.eulerosv2r9.x86_64
	v1.23	√	√	√	4.18.0-147.5.1.6.h1017.eulerosv2r9.x86_64
	v1.21	√	√	√	4.18.0-147.5.1.6.h1017.eulerosv2r9.x86_64
	v1.19	√	√	√	4.18.0-147.5.1.6.h1017.eulerosv2r9.x86_64
EulerOS release 2.9 (Arm)	v1.27	√	√	√	4.19.90-vhulk2103.1.0.h990.eulerosv2r9.aarch64
	v1.25	√	√	√	4.19.90-vhulk2103.1.0.h990.eulerosv2r9.aarch64
	v1.23	√	√	√	4.19.90-vhulk2103.1.0.h990.eulerosv2r9.aarch64
	v1.21	√	√	√	4.19.90-vhulk2103.1.0.h990.eulerosv2r9.aarch64
	v1.19	√	√	√	4.19.90-vhulk2103.1.0.h990.eulerosv2r9.aarch64

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OS	Cluster Version	CCE Standard Cluster		CCE Turbo Cluster	Latest Kernel
		VPC Network	Tunnel Network	Cloud Native 2.0 Network	
CentOS Linux release 7.6	v1.27	√	√	√	3.10.0-1160.90.1.el7.x86_64
	v1.25	√	√	√	3.10.0-1160.90.1.el7.x86_64
	v1.23	√	√	√	3.10.0-1160.90.1.el7.x86_64
	v1.21	√	√	√	3.10.0-1160.90.1.el7.x86_64
	v1.19.16	√	√	√	3.10.0-1160.90.1.el7.x86_64
Ubuntu 22.04	1.27	√	x	√	5.15.0-86-generic
	1.25	√	x	√	5.15.0-86-generic
	1.23	√	x	√	5.15.0-86-generic

Table 7-15 ECS (PM) OS

OS	Cluster Version	CCE Standard Cluster		CCE Turbo Cluster	Latest Kernel
		VPC Network	Tunnel Network	Cloud Native 2.0 Network	
EulerOS release 2.10	v1.27	√	√	√	4.18.0-147.5.2.15.h1109.eulerosv2r10.x86_64
	v1.25	√	√	√	4.18.0-147.5.2.15.h1109.eulerosv2r10.x86_64
	v1.23	√	√	√	4.18.0-147.5.2.15.h1109.eulerosv2r10.x86_64

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OS	Cluster Version	CCE Standard Cluster		CCE Turbo Cluster	Latest Kernel
		VPC Network	Tunnel Network	Cloud Native 2.0 Network	
	v1.21	√	√	√	4.18.0-147.5.2.15.h1109.eulerosv2r10.x86_64
	v1.19.16	√	√	√	4.18.0-147.5.2.15.h1109.eulerosv2r10.x86_64

Table 7-16 BMS OS

OS	Cluster Version	CCE Standard Cluster		CCE Turbo Cluster	Latest Kernel
		VPC Network	Tunnel Network	Cloud Native 2.0 Network	
EulerOS release 2.9 (restricted use. Submit a service ticket to apply for it.)	v1.27	√	√	x	4.18.0-147.5.1.6.h841.eulerosv2r9.x86_64
	v1.25	√	√	x	4.18.0-147.5.1.6.h841.eulerosv2r9.x86_64
	v1.23	√	√	x	4.18.0-147.5.1.6.h841.eulerosv2r9.x86_64
	v1.21	√	√	x	4.18.0-147.5.1.6.h841.eulerosv2r9.x86_64
	v1.19	√	√	x	4.18.0-147.5.1.6.h841.eulerosv2r9.x86_64

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OS	Cluster Version	CCE Standard Cluster		CCE Turbo Cluster	Latest Kernel
		VPC Network	Tunnel Network	Cloud Native 2.0 Network	
EulerOS release 2.3 (end of maintenance)	v1.27 or later	x	x	x	None
	v1.25	√	√	x	3.10.0-514.41.4.28.h62.x86_64
	v1.23	√	√	x	3.10.0-514.41.4.28.h62.x86_64
	v1.21	√	√	x	3.10.0-514.41.4.28.h62.x86_64
	v1.19	√	√	x	3.10.0-514.41.4.28.h62.x86_64
	v1.17	√	√	x	3.10.0-514.41.4.28.h62.x86_64
	v1.15.11	√	√	x	3.10.0-514.41.4.28.h62.x86_64

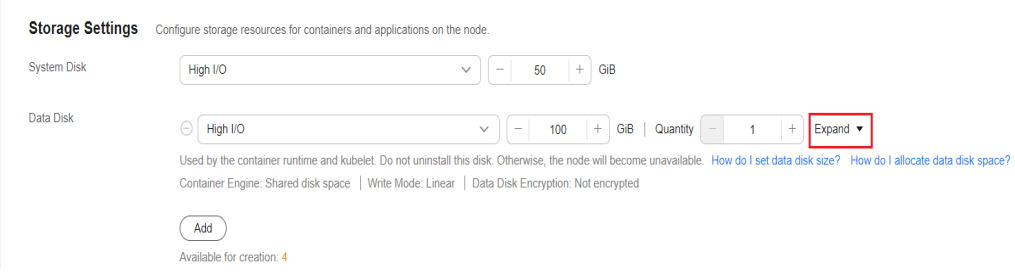
7.13 Data Disk Space Allocation

This section describes how to allocate data disk space to nodes so that you can configure the data disk space accordingly.

Allocating Data Disk Space

When creating a node, configure data disks for the node. You can also click **Expand** and customize the data disk space allocation for the node.

Figure 7-5 Allocating data disk space



- **Space Allocation for Container Engines**

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  - Specified disk space: CCE divides the data disk space for two parts by default. One part is used to store the Docker/containerd working directories, container images, and image metadata. The other is reserved for kubelet and emptyDir volumes. The available container engine space affects image pulls and container startup and running.
    - Container engine and container image space (90% by default): stores the container runtime working directories, container image data, and image metadata.
    - kubelet and emptyDir space (10% by default): stores pod configuration files, secrets, and mounted storage such as emptyDir volumes.
  - Shared disk space: In clusters of v1.21.10-r0, v1.23.8-r0, v1.25.3-r0, or later versions, CCE allows **a container engine (Docker/containerd) and kubelet components to share data disk space**.
- **Space Allocation for Pods**: indicates the basesize of a pod. You can set an upper limit for the disk space occupied by each workload pod (including the space occupied by container images). This setting prevents the pods from taking all the disk space available, which may cause service exceptions. It is recommended that the value is less than or equal to 80% of the container engine space. This parameter is related to the node OS and container storage rootfs and is not supported in some scenarios. For details, see **Mapping Between OS and Container Storage Rootfs**.
- Write Mode
  - **Linear**: A linear logical volume integrates one or more physical volumes. Data is written to the next physical volume when the previous one is used up.
  - **Striped**: available only if there are at least two data disks. A striped logical volume stripes data into blocks of the same size and stores them in multiple physical volumes in sequence. This allows data to be concurrently read and written. A storage pool consisting of striped volumes cannot be scaled-out.

Space Allocation for Container Engines

For a node using a non-shared data disk (100 GiB for example), the division of the disk space varies depending on the container storage Rootfs type **Device Mapper** or **OverlayFS**. For details about the container storage Rootfs corresponding to different OSs, see **Mapping Between OS and Container Storage Rootfs**.

- **Rootfs (Device Mapper)**

  By default, the container engine and image space, occupying 90% of the data disk, can be divided into the following two parts:
  - The **/var/lib/docker** directory is used as the Docker working directory and occupies 20% of the container engine and container image space by default. (Space size of the **/var/lib/docker** directory = **Data disk space x 90% x 20%**)
  - The thin pool is used to store container image data, image metadata, and container data, and occupies 80% of the container engine and container image space by default. (Thin pool space = **Data disk space x 90% x 80%**)

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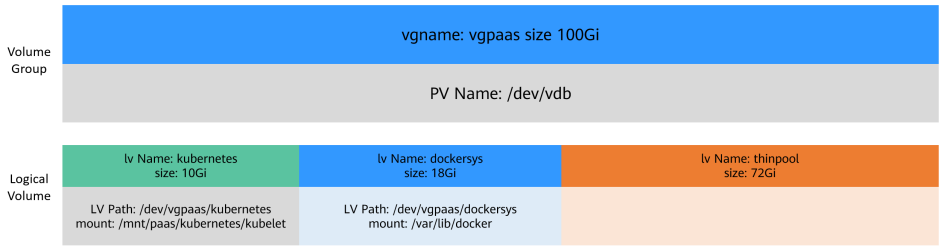
The thin pool is dynamically mounted. You can view it by running the **lsblk** command on a node, but not the **df -h** command.

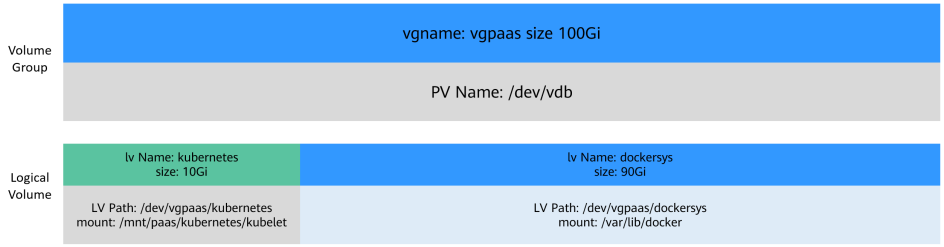
Figure 7-6 Space allocation for container engines of Device Mapper



- **Rootfs (OverlayFS)**

  No separate thin pool. The entire container engine and container image space (90% of the data disk by default) are in the **/var/lib/docker** directory.

Figure 7-7 Space allocation for container engines of OverlayFS



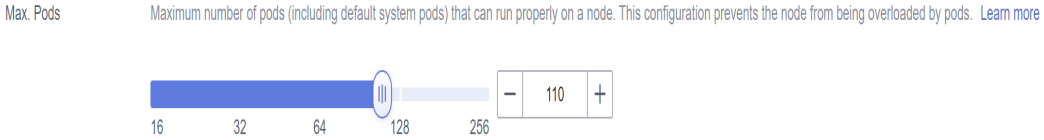
Space Allocation for Pods

The customized pod container space (basesize) is related to the node OS and container storage Rootfs. For details about the container storage Rootfs, see **Mapping Between OS and Container Storage Rootfs**.

- Device Mapper supports custom pod basesize. The default value is 10 GiB.
- In OverlayFS mode, the pod container space is not limited by default.

When configuring **basesize**, consider the maximum number of pods on a node. The container engine space should be greater than the total disk space used by containers. Formula: **the container engine space and container image space (90% by default)** > **Number of containers** x **basesize**. Otherwise, the container engine space allocated to the node may be insufficient and the container cannot be started.

Figure 7-8 Maximum number of pods



For nodes that support **basesize**, when Device Mapper is used, although you can limit the size of the **/home** directory of a single container (to 10 GB by default),

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all containers on the node still share the thin pool of the node for storage. They are not completely isolated. When the sum of the thin pool space used by certain containers reaches the upper limit, other containers cannot run properly.

In addition, after a file is deleted in the **/home** directory of the container, the thin pool space occupied by the file is not released immediately. Therefore, even if **basesize** is set to 10 GB, the thin pool space occupied by files keeps increasing until 10 GB when files are created in the container. The space released after file deletion will be reused but after a while. If **the number of containers on the node multiplied by basesize** is greater than the thin pool space size of the node, there is a possibility that the thin pool space has been used up.

Mapping Between OS and Container Storage Rootfs

Table 7-17 Node OSs and container engines in CCE clusters

OS	Container Storage Rootfs	Customized Basesize
CentOS 7.x	Clusters of v1.19.16 and earlier use Device Mapper. Clusters of v1.19.16 and later use OverlayFS.	Supported when Rootfs is set to Device Mapper and the container engine is Docker. The default value is 10 GiB. Not supported when Rootfs is set to OverlayFS.
EulerOS 2.5	Device Mapper	Supported only when the container engine is Docker. The default value is 10 GiB.
EulerOS 2.9	OverlayFS	Supported only by clusters of v1.19.16, v1.21.3, v1.23.3, or later. There are no limits by default. Not supported if the cluster versions are earlier than v1.19.16, v1.21.3, or v1.23.3.

Table 7-18 Node OSs and container engines in CCE Turbo clusters

OS	Container Storage Rootfs	Customized Basesize
CentOS 7.x	OverlayFS	Not supported.

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OS	Container Storage Rootfs	Customized Basesize
EulerOS 2.9	ECS VMs use OverlayFS. ECS PMs use Device Mapper.	Supported only when Rootfs is set to OverlayFS and the container engine is Docker. The container basesize is not limited by default. Supported when Rootfs is set to Device Mapper and the container engine is Docker. The default value is 10 GiB.

Garbage Collection Policies for Container Images

When the container engine space is insufficient, image garbage collection is triggered.

The policy for garbage collecting images takes two factors into consideration: **HighThresholdPercent** and **LowThresholdPercent**. Disk usage exceeding the high threshold (default: 80%) will trigger garbage collection. The garbage collection will delete least recently used images until the low threshold (default: 70%) is met.

Recommended Configuration for the Container Engine Space

- The container engine space should be greater than the total disk space used by containers. Formula: **Container engine space** > **Number of containers** x **basesize**
- You are advised to create and delete files of containerized services in local storage volumes (such as emptyDir and hostPath volumes) or cloud storage directories mounted to the containers. In this way, the thin pool space is not occupied. emptyDir volumes occupy the kubelet space. Therefore, properly plan the size of the kubelet space.
- You can deploy services on nodes that use the OverlayFS (for details, see **Mapping Between OS and Container Storage Rootfs**) so that the disk space occupied by files created or deleted in containers can be released immediately.

Data Disk Shared Between a Container Engine and kubelet Components

Docker/containerd and kubelet components share the space of a data disk.

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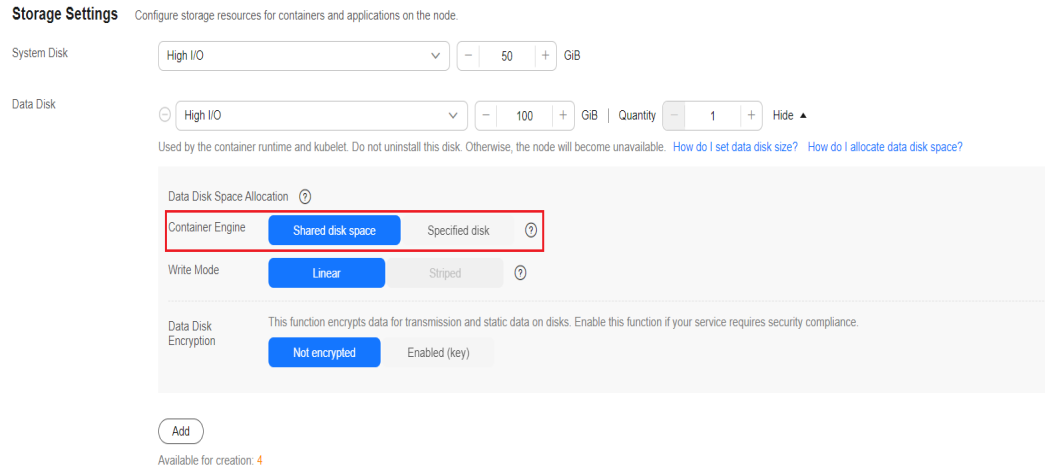
NOTICE

- This function is available only to clusters of v1.21.10-r0, v1.23.8-r0, v1.25.3-r0, or later versions.
- If Rootfs is set to OverlayFS, shared data disks are supported. If Rootfs is set to Device Mapper, shared data disks are not supported.
- If you have installed an NPD add-on in the cluster, upgrade the add-on to v1.18.10 or later. Otherwise, false alarms will be generated.
- If you have installed a log-agent add-on in the cluster, upgrade the add-on to v1.3.0 or later. Otherwise, log collection will be affected.
- If you have installed ICAgent in the cluster, upgrade it to v5.12.140 or later. Otherwise, log collection will be affected.

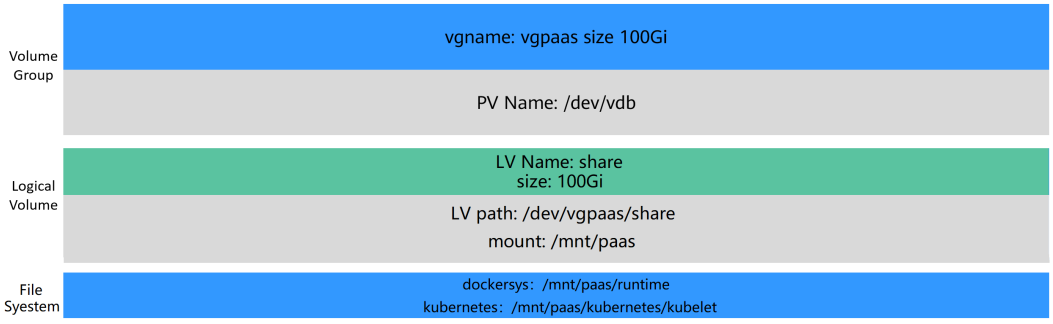
Figure 7-9 Configuration for sharing disk space



For nodes using a shared data disk, the container storage Rootfs is of the **OverlayFS** type. After such a node is created, the data disk space (for example, 100 GiB) will not be divided for the container engines, container images, and kubelet components. The data disk is mounted to **/mnt/paas**, and the storage space is divided using two file systems.

- dockersys: /mnt/paas/runtime
- Kubernetes: /mnt/paas/kubernetes/kubelet

Figure 7-10 Allocating the storage space of a shared data disk



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7.14 Attaching Disks to a Node

Challenges

In disk planning and striped logical disk creation, it is difficult for users to flexibly attach and partition disks when creating a node.

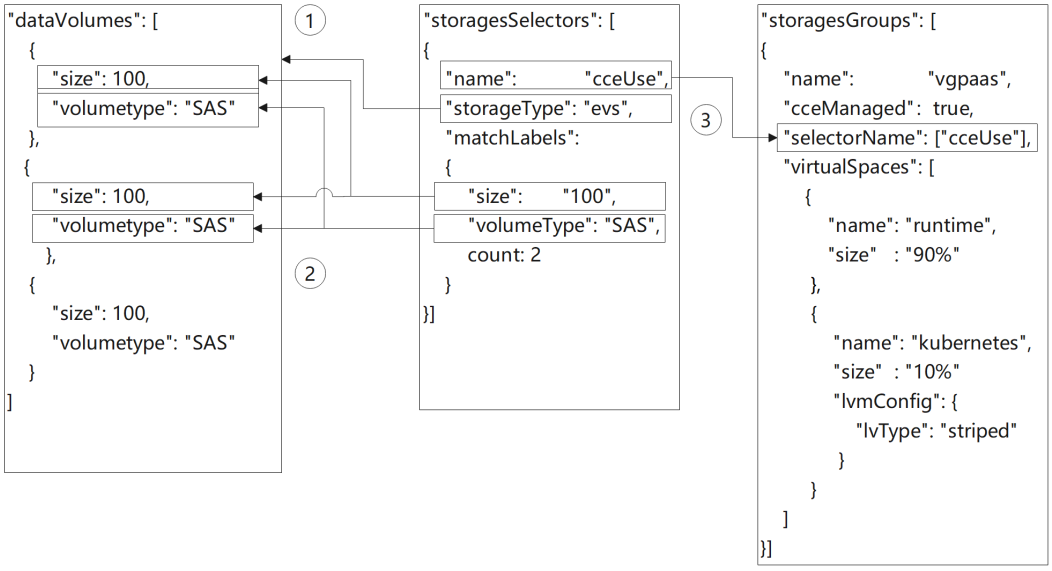
During node creation, the **storage** field selects a data disk based on parameters, such as the disk size and disk type, to prevent failures in node creation, resetting, migration, and management caused by drive letter matching failures.

Solution

This section provides details about the **storage** field used in node creation so that you can implement complex disk selection and partitioning by calling the node creation API.

The **storage** field consists of **storageSelectors** and **storageGroups**. The **storageSelectors** field is responsible for disk selection, and the **storageGroups** field is responsible for disk processing.

The basic logic for field matching is as follows:



1. **storageSelectors** selects an EVS disk or a local disk based on the value of **storageType**.
   a. Local disks do not support exact match. All local disks will be selected as data disks.

      If some local disks need to be reserved, occupy the disks in the pre-installation script. The script is similar to the following:

      ```
      # prepare
      vgName=vg-test
      storageDevice=/dev/vdb
      # vgcreate
      vgcreate ${vgName} ${storageDevice}
      ```

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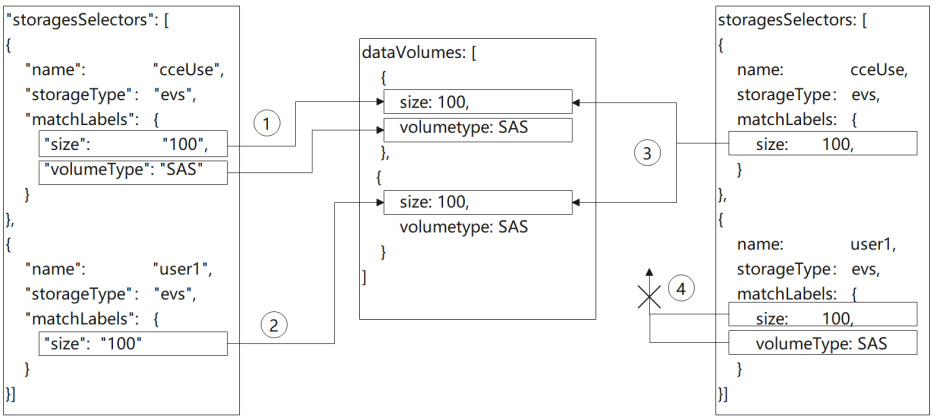
b. EVS disks match the disks created in **dataVolumes** based on the settings of **matchLabels**.

2. Policies have priorities to match **matchLabels**. The **matchLabels** policy nearest to **storageSelectors** has a higher priority and the disk nearest to **dataVolumes** will be preferentially matches. As **matchLabels** uses loose matching, you are advised to place the **matchLabels** policy with a small matching range on the top. For example:



a. In step 1, the first disk in **dataVolumes** is matched by the EVS disk whose size is 100 GiB and storage class is SAS. In step 2, the second disk in **dataVolumes** is matched by the EVS disk whose size is 100 GiB because the first disk has been selected.

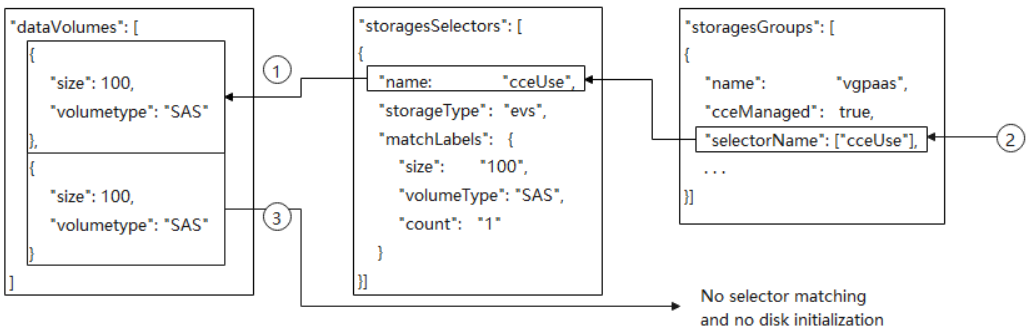
b. In step 3, two disks in **dataVolumes** can be matched because **volumeType** or **count** is not specified in **matchLabels**. In this case, no disk is available for matching in step 4.

3. **storageGroups** associates with **storageSelectors** based on **selectorName**. Finally, two 100 GiB disks are selected. The CCE backend groups the two PVs into a volume group (VG) and divides the VG into two logical volumes (LVs) in the ratio of 9:1. 10% of Kubernetes LVs are partitioned in striped mode. 90% runtime LVs are partitioned in linear mode by default because runtimeConfig is not configured.

Creating a Raw Disk

During node creation on the CCE console, click **Add Data Disk**. Then, click **Expand** next to the newly added data disk and select **Default**. The created disk is a raw disk.

The following figure shows the API calling logic.



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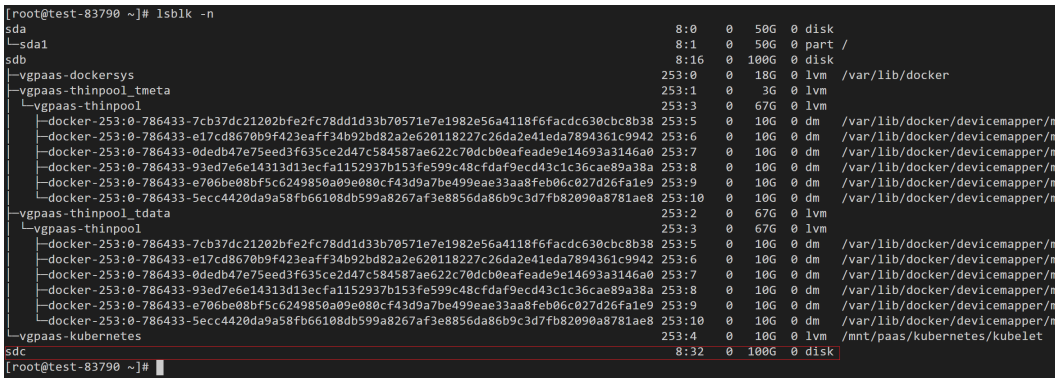
1. The **cceUse** selector matches a 100 GiB data disk.
2. The selected disk is managed by CCE and used as a data disk.
3. The other 100 GiB data disk created in **dataVolumes** is not selected by any selector and is managed by storageGroups. Therefore, this EVS disk will be attached to the node as a raw disk and will not be initialized.

After the node is created, log in to the node and check whether a 100 GiB disk has been attached but not initialized.



The following is an API example:

```
{
   "kind": "Node",
   "apiVersion": "v3",
   "metadata": {
      "name": "test-83790"
   },
   "spec": {
      "flavor": "c3.large.2",
      "az": "eu-west-101a",
      "os": "EulerOS 2.9",
      "dataVolumes": [
         {
            "size": 100,
            "volumetype": "SAS"
         },
         {
            "size": 100,
            "volumetype": "SAS"
         }
      ],
      "billingMode": 0,
      "extendParam": {
         "maxPods": 110
      },
      "nodeNicSpec": {
         "primaryNic": {
            "subnetId": "ca964acf-8468-4735-8229-97940ef6c881"
         }
      },
      "rootVolume": {
         "size": 50,
         "volumetype": "SAS"
      },
      "runtime": {
         "name": "docker"
      },
      "login": {
         "userPassword": {
            "username": "root",
            "password": "******"
```

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```
        }
      },
      "storage": {
        "storageSelectors": [
          {
            "name": "cceUse",
            "storageType": "evs",
            "matchLabels": {
              "size": "100",
              "volumeType": "SAS",
              "count": "1"
            }
          }
        ],
        "storageGroups": [
          {
            "name": "vgpaas",
            "selectorNames": [
              "cceUse"
            ],
            "cceManaged": true,
            "virtualSpaces": [
              {
                "name": "runtime",
                "size": "90%"
              },
              {
                "name": "kubernetes",
                "size": "10%"
              }
            ]
          }
        ]
      },
      "count": 1
    }
}
```

Attaching a Disk to a Specified Path

During node creation on the CCE console, click **Add Data Disk**. Then, click **Expand** next to the newly added data disk, select **Mount Disk**, and set the mount path. In this case, CCE initializes and attaches the disk by default.

The following figure shows the API calling logic.

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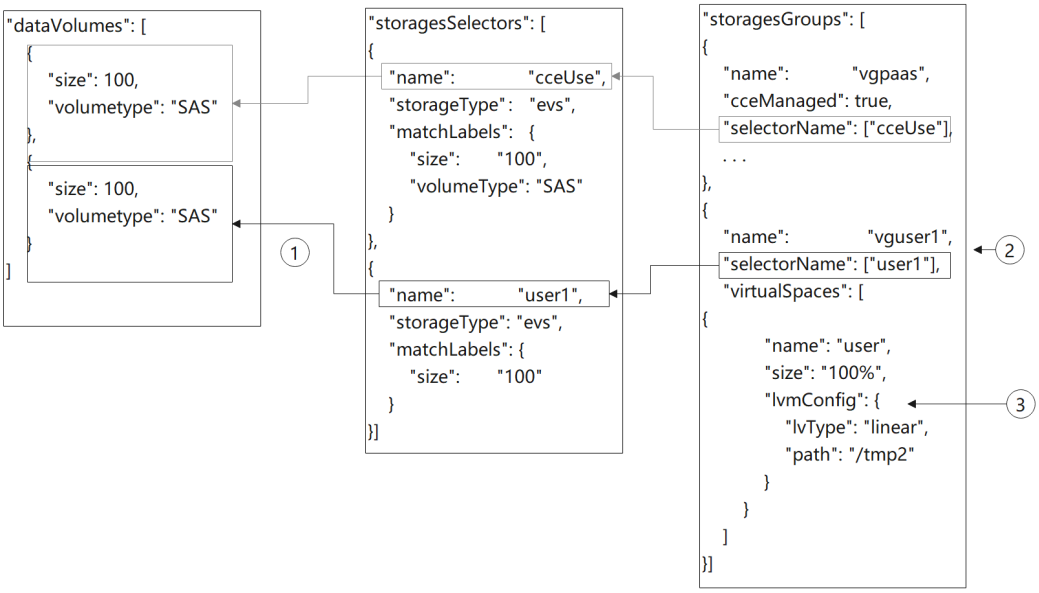

1. The **user1** selector selects a 100 GiB data disk.
2. Create a VG named **vguser1** using LVM.
3. Strip all the space of **vguser1** into an LV named **user** and format the disk in ext4 format. Finally, attach the disk to the **/tmp2** directory.

After the node is created, log in to the node and check whether a 100 GiB disk has been attached and managed by LVM.

```
[root@test-37106 ~]# lsblk -n
sda                                                                                   8:0    0   50G  0 disk
└─sda1                                                                                8:1    0   50G  0 part /
sdb                                                                                   8:16   0  100G  0 disk
├─vgpaas-dockersys                                                                  253:0    0   16G  0 lvm  /var/lib/docker
├─vgpaas-thinpool_tmeta                                                             253:1    0    3G  0 lvm
│ └─vgpaas-thinpool                                                                 253:3    0   59G  0 lvm
│   ├─docker-253:0-917505-3a36be80c1a49db5da9639d222f19ce5983489080a36efdda1f17fa2d0bb7da9 253:6    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-46a876d16929a54d4f5ea97da81c3603c79cd5630be1c1010b476387a5d3c086 253:7    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-93081c85109968299fdca13a077e82252e725a6e37cae7299841db482656b815 253:8    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-513c5bda896de61ac85d917366da4ea4d78ab9f87cd4caae9e465badc0003c62 253:9    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-a6ac0d3ae8bffbd57a92e6812079e503db49942619d5bbc69bb9516b31e15e67 253:10   0   10G  0 dm   /var/lib/docker/devicemapper/
│   └─docker-253:0-917505-f9dfa31cdc3eb514a797c98311372ac8497d9a99581acdfefff0114bdfd8e525 253:11   0   10G  0 dm   /var/lib/docker/devicemapper/
├─vgpaas-thinpool_tdata                                                             253:2    0   59G  0 lvm
│ └─vgpaas-thinpool                                                                 253:3    0   59G  0 lvm
│   ├─docker-253:0-917505-3a36be80c1a49db5da9639d222f19ce5983489080a36efdda1f17fa2d0bb7da9 253:6    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-46a876d16929a54d4f5ea97da81c3603c79cd5630be1c1010b476387a5d3c086 253:7    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-93081c85109968299fdca13a077e82252e725a6e37cae7299841db482656b815 253:8    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-513c5bda896de61ac85d917366da4ea4d78ab9f87cd4caae9e465badc0003c62 253:9    0   10G  0 dm   /var/lib/docker/devicemapper/
│   ├─docker-253:0-917505-a6ac0d3ae8bffbd57a92e6812079e503db49942619d5bbc69bb9516b31e15e67 253:10   0   10G  0 dm   /var/lib/docker/devicemapper/
│   └─docker-253:0-917505-f9dfa31cdc3eb514a797c98311372ac8497d9a99581acdfefff0114bdfd8e525 253:11   0   10G  0 dm   /var/lib/docker/devicemapper/
└─vgpaas-kubernetes                                                                 253:4    0   20G  0 lvm  /mnt/paas/kubernetes/kubelet
sdc                                                                                   8:32   0  100G  0 disk
└─vguser1-user                                                                      253:5    0  100G  0 lvm  /tmp2
[root@test-37106 ~]#
```

The following is an API example. There are two data disks. One is used by CCE, and the other is mounted to the **/tmp2** directory.

```
{
   "kind": "Node",
   "apiVersion": "v3",
   "metadata": {
      "name": "test-37106"
   },
   "spec": {
      "flavor": "c3.large.2",
      "az": "eu-west-101a",
      "os": "EulerOS 2.9",
      "dataVolumes": [
         {
            "size": 100,
            "volumetype": "SAS"
         },
```

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```
        {
            "size": 100,
            "volumetype": "SAS"
        }
    ],
    "billingMode": 0,
    "extendParam": {
        "maxPods": 110
    },
    "nodeNicSpec": {
        "primaryNic": {
            "subnetId": "ca964acf-8468-4735-8229-97940ef6c881"
        }
    },
    "rootVolume": {
        "size": 50,
        "volumetype": "SAS"
    },
    "runtime": {
        "name": "docker"
    },
    "login": {
        "userPassword": {
            "username": "root",
            "password": "*******"
        }
    },
    "storage": {
        "storageSelectors": [
            {
                "name": "cceUse",
                "storageType": "evs",
                "matchLabels": {
                    "size": "100",
                    "volumeType": "SAS",
                    "count": "1"
                }
            },
            {
                "name": "user1",
                "storageType": "evs",
                "matchLabels": {
                    "size": "100",
                    "volumeType": "SAS",
                    "count": "1"
                }
            }
        ],
        "storageGroups": [
            {
                "name": "vgpaas",
                "selectorNames": [
                    "cceUse"
                ],
                "cceManaged": true,
                "virtualSpaces": [
                    {
                        "name": "runtime",
                        "size": "80%"
                    },
                    {
                        "name": "kubernetes",
                        "size": "20%"
                    }
                ]
            },
            {
                "name": "vguser1",
                "selectorNames": [
```

```
                "user1"
            ],
            "virtualSpaces": [
                {
                    "name": "user",
                    "size": "100%",
                    "lvmConfig": {
                        "lvType": "linear",
                        "path": "/tmp2"
                    }
                }
            ]
        }
      ]
    },
    "count": 1
  }
}
```

Creating Striped LVs to Improve Disk Performance

Currently, the striped LV function is supported only by calling an API. The following is an example:

1. **storageSelectors** matches all EVS disks in **dataVolumes** because **matchLabels** is not contained in **storageSelectors**.
2. Create a VG named **vgpaas** using LVM.
3. Strip 90% of the **vgpaas** space into runtime LVs.
4. Strip 10% of the **vgpaas** space into Kubernetes LVs.

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NOTE

- Two or more data disks are required for striping.
- When creating a striped LV, ensure that the types and sizes of the PVs added to the VG are the same. Otherwise, the creation will fail.
- When creating a striped LV, use the striping configuration for both the runtime LV and Kubernetes LV. Otherwise, the creation will fail.

Log in to the node and run the following command to view the striping result:

```
[root@test-83773 ~]# lvdisplay -m | grep -C 10 striped
  LV Size                36.00 GiB
  Current LE             9216
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     512
  Block device           253:0

  --- Segments ---
  Logical extents 0 to 9215:
    Type                striped
    Stripes             2
    Stripe size         64.00 KiB
    Stripe 0:
      Physical volume   /dev/sdb
      Physical extents  0 to 4607
    Stripe 1:
      Physical volume   /dev/sdc
      Physical extents  0 to 4607


--
  LV Size                20.00 GiB
  Current LE             5120
  Segments               1
  Allocation             inherit
  Read ahead sectors     auto
  - currently set to     8192
  Block device           253:4

  --- Segments ---
  Logical extents 0 to 5119:
    Type                striped
    Stripes             2
    Stripe size         64.00 KiB
    Stripe 0:
      Physical volume   /dev/sdb
```

The following is an API example:

```
{
   "kind": "Node",
   "apiVersion": "v3",
```

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```
"metadata": {
    "name": "test-83773"
},
"spec": {
    "flavor": "c3.large.2",
    "az": "eu-west-101a",
    "os": "EulerOS 2.9",
    "dataVolumes": [
        {
            "size": 100,
            "volumetype": "SAS"
        },
        {
            "size": 100,
            "volumetype": "SAS"
        }
    ],
    "billingMode": 0,
    "extendParam": {
        "maxPods": 110
    },
    "nodeNicSpec": {
        "primaryNic": {
            "subnetId": "ca964acf-8468-4735-8229-97940ef6c881"
        }
    },
    "rootVolume": {
        "size": 50,
        "volumetype": "SAS"
    },
    "runtime": {
        "name": "docker"
    },
    "login": {
        "userPassword": {
            "username": "root",
            "password": "******"
        }
    },
    "storage": {
        "storageSelectors": [
            {
                "name": "cceUse",
                "storageType": "evs"
            }
        ],
        "storageGroups": [
            {
                "name": "vgpaas",
                "selectorNames": [
                    "cceUse"
                ],
                "cceManaged": true,
                "virtualSpaces": [
                    {
                        "name": "runtime",
                        "size": "90%",
                        "runtimeConfig": {
                            "lvType": "striped"
                        }
                    },
                    {
                        "name": "kubernetes",
                        "size": "10%",
                        "lvmConfig": {
                            "lvType": "striped"
                        }
                    }
                ]
```


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```
            }
          ]
        },
        "count": 1
    }
}
```

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