Alibaba Cloud
Aliyun Container for Kubernetes

Developer Guide

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Generic conventions

Table -1: Style conventions

Style	Description	Example
	This warning information indicates a situation that will cause major system changes, faults, physical injuries, and other adverse results.	Danger: Resetting will result in the loss of user configuration data.
	This warning information indicates a situation that may cause major system changes, faults, physical injuries, and other adverse results.	Warning: Restarting will cause business interruption. About 10 minutes are required to restore business.
	This indicates warning information, supplementary instructions, and other content that the user must understand.	Notice: Take the necessary precautions to save exported data containing sensitive information.
	This indicates supplemental instructions, best practices, tips, and other content that is good to know for the user.	Note: You can use Ctrl + A to select all files.
>	Multi-level menu cascade.	Settings > Network > Set network type
Bold	It is used for buttons, menus, page names, and other UI elements.	Click OK.
Courier font	It is used for commands.	Run the `cd / d  C :/ windows` command to enter the Windows system folder.
Italics	It is used for parameters and variables.	`bae  log  list -- instanceid` *Instance_ID*
[] or [a|b]	It indicates that it is a optional value, and only one item can be selected.	`ipconfig` *[-all|-t]*

Style	Description	Example
{} or {a|b}	It indicates that it is a required value, and only one item can be selected.	`swich` *{stand | slave}*

Contents

1 Cluster API call method

1.1 Overview

The call to Container Service API interfaces is performed by sending HTTP requests to the server address of the Container Service APIs and adding corresponding request parameters to the requests according to the interface instructions. The system returns the results according to the processing results of the requests.

1. **Common parameters**
2. **Request structure**
3. **Return results**
4. **Signature**

1.2 Common parameters

Public request headers

Public request parameters are the request parameters that each interface must use.

Parameter	Description	Options
`Authorizat  ion`	The authentication information used to verify the validity of a request. Format: `AccessKeyI  d` `: Signature`.	Required
`Content - Length`	The content length of an HTTP request, which is defined in RFC 2616.	Required
`Content - Type`	The content type of an HTTP request, which is defined in RFC 2616.	Required

Parameter	Description	Options
Content - MD5	The Base64-encoded results converted from 128 -bit MD5 hash value of the HTTP message body. We recommend that you add this message to all requests to prevent requests from being tampered.	Required
Date	The construction time of a request. Currently , only the GMT format is supported. If the difference between the construction time and the MNS server time exceeds 15 minutes, invalid request is returned.	Required
Host	The host access value, for example, `diku . aliyuncs . com .`	Required
Accept	The return type required by the client. `applicatio  n / json` and `applicatio  n / xml` are supported.	Required
x - acs - version	The API version. The current version is `2015 - 12 - 15 .`	Required
x - acs - region - id	A region indicates the physical location of an Elastic Compute Service (ECS) instance.	Required
x - acs - signature - nonce	The unique random number used to prevent network replay attacks. Different random numbers must be used for different requests.	Required

Parameter	Description	Options
`x - acs - signature - method`	The method of user signature. Currently only `HMAC - SHA1` is supported.	Required

Examples

```
GET  / clusters   HTTP / 1 . 1
Host :  cs . aliyuncs . com
Accept :  applicatio  n / json
User - Agent :  cs - sdk - python / 0 . 0 . 1  ( Darwin / 15 . 2 . 0
/ x86_64 ; 2 . 7 . 10 )
x - acs - signature - nonce :  f63659d4 - 10ac - 483b - 99da -
ea8fde61ea  e3
Authorizat  ion :  acs  < yourAccess  KeyId >:< yourSignat  ure >
x - acs - signature - version :  1 . 0
Date :  Wed , 16  Dec  2015   11 : 18 : 47   GMT
x - acs - signature - method :  HMAC - SHA1
Content - Type :  applicatio  n / json ; charset = utf - 8
X - Acs - Region - Id :  cn - beijing
Content - Length :  0
```

Public response headers

Each time you send a request to call an interface, the system returns a unique identifier (RequestId), no matter the request is successful or not.

Examples

XML example:

```
<?  xml   version =" 1 . 0 "  encoding =" UTF - 8 "? >
<!— Result   Root   Node -->
< Interface   name + Response >
 | <!— Return   request   tag -->
 | < RequestId > 4C467B38 - 3910 - 447D - 87BC - AC049166F2  16 </
 RequestId >
 | <!— Return   result   data -->
</ Interface   name + Response >
```

JSON example:

```
{
   " RequestId ": " 4C467B38 - 3910 - 447D - 87BC - AC049166F2  16 "
   /*  Response   data  */
```

```
}
```

1.3 Request structure

Service address

The access address of Alibaba Cloud Container Service API is cs.aliyuncs.com.

Communication protocol

The system supports request communication by using the HTTP or HTTPS channel. We recommend that you use the HTTPS channel to send requests for more security.

Request methods

Use HTTP methods such as PUT, POST, GET, and DELETE to send different requests.

Request parameters

Each request must contain the public request parameters and the request parameters unique to specified operations.

Request encoding

Both requests and returned results are encoded by using the UTF-8 character set.

1.4 Return results

After the API service is called, data is returned in a unified format. The returned HTTP status code `2xx` indicates that the call is successful. The returned HTTP status code `4xx` or `5xx` indicates that the call fails. When the call is successful, data can be returned mainly in two formats: XML and JSON. When a request is sent, an external system can pass in a parameter to define the format of the returned data. The default format is XML.

Examples of returned results in this document are formatted for ease of viewing. The actual results returned are not formatted with line breaks or indentation.

1.5 Signature

Introduction

The Access Key ID and Access Key Secret are officially issued to you by Alibaba Cloud (you can apply for and manage them on the Alibaba Cloud official website). The

Access Key ID is used to identify your identity. The Access Key Secret is the key used to encrypt the signature string and verify the signature string on the server side. You must keep the Access Key Secret confidential. Only you and Alibaba Cloud can know it.

Container Service verifies each access request it receives. Therefore, all requests sent to Container Service must contain signature information. Container Service performs symmetric encryption by using the Access Key ID and Access Key Secret to verify the identity of request senders. If the calculated verification code is the same as the one provided, the request is considered as valid. Otherwise, Container Service rejects the request and returns the HTTP 403 error.

You can add the authorization header in the HTTP request to contain the signature information, indicating that the message has been authorized.

Container Service requires to contain the signature in the HTTP header in the format of `Authorizat ion : acs [ Access  Key  ID ]:[ Signature ]`.

The `Signature` calculation method is as follows:

```
Signature  =  base64 ( hmac – sha1 ( VERB  + "\ n "
           +  ACCEPT  + "\ n "
           +  Content – MD5  + "\ n "
           +  Content – Type  + "\ n "
           +  Date  + "\ n "
           +  Canonicali  zedHeaders  + "\ n "
           +  Canonicali  zedResourc  e ))
```

· `VERB` indicates the HTTP method, For example, `PUT`.

· `Accept` indicates the return type required by the client, which can be application/json or application/xml.

· `Content – MD5` indicates the MD5 value of the requested content.

· `Content – Type` indicates the type of the requested content.

· `Date` indicates the operation time, which cannot be null. Currently, only the GMT format is supported. If the difference between the request time and the CAS server time exceeds 15 minutes, CAS considers the request as invalid and returns error 400. For more information, see the 5th section. For example, `Thu , 17  Mar 2012  18 : 49 : 58  GMT`.

· `Canonicali  zedHeaders` indicates a combination of fields started with `x – acs –` in the HTTP request.

- `Canonicali  zedResourc  e` indicates the uniform resource identifier (URI) of the resource in the HTTP request. For example, `/ clusters ?  name = my - clusters & resource = new` .

> 📋 **Note:**
> Conform to the following specifications for `Canonicali  zedHeaders` (headers started with `x - acs -`) before signature verification:

1. Convert the names of all HTTP request headers started with `x - acs -` to lowercase letters. For example, convert `X - ACS - Meta - Name :  TaoBao` to `x - acs - meta - name :  TaoBao` . The names of request headers are case-insensitive according to Alibaba Cloud specifications. However, we recommend that you use the lowercase letters.

2. If the value part of a public request header is too long, replace the `\ t` , `\ n` , `\ r` , and `\ f` separators with spaces.

3. Sort all HTTP request headers that are obtained from the preceding step and compliant with Alibaba Cloud specifications in the lexicographic ascending order.

4. Delete any space at either side of a separator between request header and content. For example, convert `x - acs - meta - name :  TaoBao , Alipay` to `x - acs - meta - name : TaoBao , Alipay` .

5. Separate all headers and contents with the `\ n` separator to form the final CanonicalizedHeaders.

> 📋 **Note:**
> The format specification for `Canonicali  zedResourc  e` : `Canonicali  zedResourc  e` indicates the standard description of the resource you want to access. Sort sub-resources and query in the lexicographically ascending order

and separate them by using the `&` separator to generate a sub-resource string (all

parameters after `?`) .

```
http :// cs . aliyuncs . com / clusters ? name = my - clusters &
resource = new
```

The `Canonicali  zedResourc  e` format is:

```
/ clusters ?  name = my - clusters & resource = new
```

Signature example

Overview

The following example shows the signature process.

In the example, the Access Key ID and Access Key Secret are `access_key  _id` and

`access_key  _secret` respectively. We recommend that you use your own API call

program to calculate the signature string in the following example. Then, compare

your signature string with the example result.

The request example is as follows:

```
POST   http :// cs . aliyuncs . com / clusters ? param1 = value1 &
param2 = value2   HTTP / 1 . 1
Accept - Encoding :  identity
Content - Length :  210
Content - MD5 :  6U4ALMkKSj  0PYbeQSHqg  mA ==
x - acs - version :  2015 - 12 - 15
Accept :  applicatio  n / json
User - Agent :  cs - sdk - python / 0 . 0 . 1  ( Darwin / 15 . 2 . 0
/ x86_64 ; 2 . 7 . 10 )
x - acs - signature - nonce :  fbf6909a - 93a5 - 45d3 - 8b1c -
3e03a79167  99
x - acs - signature - version :  1 . 0
Date :  Wed , 16  Dec   2015   12 : 20 : 18   GMT
x - acs - signature - method :  HMAC - SHA1
Content - Type :  applicatio  n / json ; charset = utf - 8
X - Acs - Region - Id :  cn - beijing
Authorizat  ion :  acs  < yourAccess  KeyId >:< yourSignat  ure >
{" password ": " Just $****"," instance_t  ype ": " ecs . m2 . medium
"," name ": " my - test - cluster - 9708 ****"," size ":  1 ,"
network_mo  de ": " vpc "," data_disk_  category ": " cloud ","
data_disk_  size ":  10 ," ecs_image_  id ": " m - 253l **** l "}
```

Request construction process

Calculate `Content - Length` and `Content - MD5`

`Content - Length` : The length of the body content.

📋 **Note:**

No space or line break is at the beginning of the example body.

```
body : {" password ": " Just $****"," instance_t  ype ": " ecs . m2
. medium "," name ": " my - test - cluster - 9708 ****"," size ":
1 ," network_mo  de ": " vpc "," data_disk_  category ": " cloud ","
data_disk_  size ":  10 ," ecs_image_  id ": " m - 253ll ****"}
Content - Length :  210
```

`Content - MD5` : **The MD5 calculation process.**

```
body : {" password ": " Just $****"," instance_t  ype ": " ecs . m2
. medium "," name ": " my - test - cluster - 9708 ****"," size ":
1 ," network_mo  de ": " vpc "," data_disk_  category ": " cloud ","
data_disk_  size ":  10 ," ecs_image_  id ": " m - 253ll ****"}
# Calculate   the   MD5   value   of   the   body .
 md5 ( body ): e94e002cc9  0a4a3d0f61  b790487aa0  98
# Convert   the   MD5   value   to   a   byte   array .  Convert
 every   two   hexadecima l   symbols   of   the   MD5   value   to
 a   byte .
# For   example , e9 ->  1111111111  1111111111  1111111010  01  ->
 - 23
 bytes ( md5 ( body )): {[- 23 ], [ 78 ], [ 0 ], [ 44 ], [- 55 ], [ 10
], [ 74 ], [ 61 ], [ 15 ], [ 97 ], [- 73 ], [- 112 ], [ 72 ], [ 122
], [- 96 ], [- 104 ]}
# Convert   the   obtained   byte   array   to   a   Base64   string
 .
 base64 ( bytes ( md5 ( body ))): 6U4ALMkKSj  0PYbeQSHqg  mA ==
 Content - MD5 :  6U4ALMkKSj  0PYbeQSHqg  mA ==
```

Process `Canonicali  zedHeaders`

```
# List   all   headers   started   with  ' x - acs -'.
 x - acs - version :  2015 - 12 - 15
 x - acs - signature - nonce :  ca480402 - 7689 - 43ba - acc4 -
 4d2013d9d8  d4
 x - acs - signature - version :  1 . 0
 x - acs - signature - method :  HMAC - SHA1
 X - Acs - Region - Id :  cn - beijing
# Convert   the   request   name   to   lowercase   letters ,  delete
   the   spaces   at   the   beginning   and   end   of   each   line
 ,  and   sort   the   headers   in   the   lexicograp  hically
 ascending   order .  Delete   any   space   at   either   side   of
 a   separator   between   request   header   and   content .
# Note :  No   line   break   is   in   the   last   line .
 x - acs - region - id : cn - beijing
 x - acs - signature - method : HMAC - SHA1
 x - acs - signature - nonce : fbf6909a - 93a5 - 45d3 - 8b1c -
 3e03a79167  99
 x - acs - signature - version : 1 . 0
 x - acs - version : 2015 - 12 - 15
```

Calculate `Canonicali  zedResourc  e`

In the example, the length of `Canonicali  zedResourc  e` **is 27.**

Note:

An \ n line break is at the end of the first line.

```
/ clusters ?  param1 = value1 & param2 = value2
```

Calculate `Signature`

Assemble `SignatureS  tring` . In the example, the length of the signature string is 307. An \ n line break is at the end of all lines except the last line.

```
POST
applicatio  n / json
6U4ALMkKSj  0PYbeQSHqg  mA ==
applicatio  n / json ; charset = utf – 8
Wed , 16  Dec  2015  12 : 20 : 18  GMT
x – acs – region – id : cn – beijing
x – acs – signature – method : HMAC – SHA1
x – acs – signature – nonce : fbf6909a – 93a5 – 45d3 – 8b1c –
3e03a79167  99
x – acs – signature – version : 1 . 0
x – acs – version : 2015 – 12 – 15
/ clusters ?  param1 = value1 & param2 = value2
```

Calculate `Signature`

```
#  Use  Access  Key  Secret  to  encrypt  the  signature
  string . In  the  example , the  accessKeyS  ecret  is
access_key  _secret .
hmac – sha1 ( SignatureS  tring ): fee03d405e  421ebaf514
  adec881038  c4b313584d
#  Convert  the  encrypted  string  to  a  byte  array ,
  similar  to  the  Content – MD5  calculatio  n  method .
#  Convert  the  byte  array  into  a  Base64  string  to
  get  the  final  signature  string .
base64 ( bytes ( hmac – sha1 ( SignatureS  tring ))): ZmVlMDNkND
A1ZTQyMWVi  YWY1MTRhZG  VjODgxMDM4  YzRiMzEzNT  g0ZA ==
Signature : ZmVlMDNkND  A1ZTQyMWVi  YWY1MTRhZG  VjODgxMDM4
YzRiMzEzNT  g0ZA ==
```

Finish

After the preceding processing, add some other header information to construct the final HTTP request as follows:

```
POST  http :// cs . aliyuncs . com / clusters ? param1 = value1 &
param2 = value2  HTTP / 1 . 1
Accept – Encoding :  identity
Content – Length :  210
Content – MD5 :  6U4ALMkKSj  0PYbeQSHqg  mA ==
x – acs – version :  2015 – 12 – 15
Accept :  applicatio  n / json
User – Agent :  cs – sdk – python / 0 . 0 . 1  ( Darwin / 15 . 2 . 0
/ x86_64 ; 2 . 7 . 10 )
x – acs – signature – nonce :  fbf6909a – 93a5 – 45d3 – 8b1c –
3e03a79167  99
x – acs – signature – version :  1 . 0
Date :  Wed , 16  Dec  2015  12 : 20 : 18  GMT
x – acs – signature – method :  HMAC – SHA1
```

```
 Content - Type :  applicatio  n / json ; charset = utf - 8
 X - Acs - Region - Id :  cn - beijing
 Authorizat  ion :  acs  < yourAccess  KeyId >:< yourSignat  ure >
{" password ": " Just $****"," instance_t  ype ": " ecs . m2 . medium
 "," name ": " my - test - cluster - 9708 ****"," size ":  1 ,"
 network_mo  de ": " vpc "," data_disk_  category ": " cloud ","
 data_disk_  size ":  10 ," ecs_image_  id ": " m - 253ll ****"}
```

2 Cluster API list

2.1 Create a Kubernetes cluster

This topic describes how to create a Kubernetes cluster and a specified number of nodes.

Request information

Request line

```
POST  / clusters   HTTP / 1 . 1
```

Special request header

None. See Public request headers.

Request body

```
{
    " disable_ro  llback ": " whether   to   roll   back   the
  cluster   if   the   cluster   creation   fails "
    " name ": " cluster   name "
    " timeout_mi  ns ": cluster   creation   timeout
    " cluster_ty  pe ": " cluster   type , namely , Kubernetes "
    " region_id ": " region "
    " vpcid ": " Virtual   Private   Cloud  ( VPC ) ID "
    " master_vsw  itch_ids ": " the   IDs   of   VSwitches   on
  Master   nodes . Set   three   VSwitches   that   are   located   in
    different   regions   to   ensure   the   cluster   is   highly
  available ",
    " master_ins  tance_type  s ": " the   type   of   ECS   instances
    that   used   by   the   Master   nodes . Set   three   types   of
    ECS   instances "
    " master_cou  nt ": " the   number   of   Master   nodes . Valid
    value : 3 | 5 ."
    " container_  cidr ": " pod   Classless   Inter - Domain   Routing
  ( CIDR ) block "
    " service_ci  dr ": " service   CIDR   block "
    " ssh_flags ": " whether   to   enable   SSH   access   over   the
    Internet "
    " cloud_moni  tor_flags ":" whether   to   install   the   cloud
  monitoring   plugin "
    " login_pass  word ": " password   used   to   log   on   to   the
    node   by   using   SSH . Use   either   this   parameter   or
  the   key_pair ."
    " key_pair ":" key   pair   name . Use   either   this
  parameter   or   login_pass  word ."
    " master_ins  tance_char  ge_type ":" Master   instance   payment
    type   that   includes   PostPaid   and   PrePaid "
    " master_per  iod_unit ":" Subscripti  on   unit   that   which
  includes   month   and   year , and   takes   effect   only   for
    the   PrePaid   payment   type "
```

```
   " master_per    iod ":" Subscripti   on    period    that    takes
effect    only    for    the    PrePaid    payment    type "
   " master_aut   o_renew ":" whether    to    enable    master    node
automatic    renew "
   " master_aut   o_renew_pe   riod ":" Master    node    renew    period
"
   " master_sys   tem_disk_c   ategory ": " Master    node    system
disk    type "
   " master_sys   tem_disk_s   ize ":" Master    system    disk    size "
   " master_dat   a_disk ":" whether    to    mount    data    disk    to
the    Master    node "
   " master_sys   tem_disk_c   ategory ":" Master    node    data    disk
   type "
   " master_sys   tem_disk_s   ize ":" Master    node    data    disk
size "
   " worker_ins   tance_char   ge_type ":" Worker    node    payment
type    that    includes    PrePaid    and    PostPaid "
   " worker_per   iod_unit ":" Subscripti   on    unit    that    includes
   Month    and    Year ,    and    takes    effect    only    for    the
PrePaid    payment    type "
   " worker_per   iod ":" Subscripti   on    period    that    takes
effect    only    for    the    PrePaid    payment    type "
   " worker_aut   o_renew ":" whether    to    enable    worker    node
automatic    renew . Available    values    are    true    and    false ."
   " worker_aut   o_renew_pe   riod ":" Worker    node    renew    period
"
   " worker_ins   tance_type   s ": " Worker    instance    types "
   " worker_vsw   itch_ids ": " IDs    of    VSwitches . You    must
   set    one    VSwitch    at    least ,    and    can    set    five
VSwitches    at    most ",
   " worker_sys   tem_disk_c   ategory ": " Worker    node    system
disk    type "
   " worker_sys   tem_disk_s   ize ": " Worker    node    system    disk
size "
   " worker_dat   a_disk ":" whether    to    mount    data    disks    to
   the    Worker    node "
   " worker_dat   a_disk_cat   egory ":" Worker    node    data    disk
type "
   " worker_dat   a_disk_siz   e ":" Worker    node    data    disk    size
"
   " num_of_nod   es ": " number    of    Worker    nodes "
   " snat_entry ": " whether    to    set    an    SNAT    entry "
   " public_slb ":" whether    to    associate    an    EIP    with    the
   intranet    SLB    instace ",
   " cpu_policy ": " static | none ",
   " node_port_   range ": " the    range    of    the    node    port .
The    default    is    30 , 000    to    65 , 535 ",
   " proxy_mode ": " the    proxy    mode . Valid    value : iptables
| ipvs ",
   " addons ": " the    addon . This    is    an    object    in    the
array    format .",
   " tags ": " the    tag    to    be    add    to    the    cluster . This
   is    an    object    in    the    array    format .",
}
```

Request body description

Name	Type	Required	Description
cluster_type	String	Yes	The cluster type.

Name	Type	Required	Description
key_pair	String	Yes	key pair name. Use either this parameter or `login_pass word` .
login_pass word	String	Yes	SSH logon password. The password must be a string of 8 to 30 characters and contain uppercase letters, lowercase letters, numbers, and symbols. Choose either this parameter or `key_pair` .
master_ins tance_char ge_type	String	Yes	Master node payment type · PrePaid: Subscription. · PostPaid: Pay-As-You-Go. This is the default payment type.
master_ins tance_type s	list	Yes	The types of ECS instances that used by the Master nodes. For more information, see Instance type families.
master_sys tem_disk_c ategory	String	Yes	The type of system disks attached to Master nodes. Available values are: · cloud_efficiency: indicates an Ultra cloud disk. · cloud_ssd: indicates an SSD cloud disk.
master_sys tem_disk_s ize	Int	Yes	The size of a system disk attached to Master nodes, in GiB.
master_vsw itch_ids	list	Yes	The IDs of VSwitches on Master nodes. You must set one VSwitch at least, and can set three VSwitches at most. Set three VSwitches that are located in different regions to ensure the cluster is highly available.
num_of_nod es	Int	Yes	The number of Worker nodes. The value is in the range of 0 to 300.

Name	Type	Required	Description
name	String	Yes	The cluster name. A cluster name can contain uppercase letters, lowercase letters, Chinese characters, numbers, and hyphens (-).
region_id	String	Yes	The ID of the region in which the cluster is located.
snat_entry	bool	Yes	Whether to set an SNAT entry for the container network. · If the existing VPC has the capability to access the Internet, you need to set this parameter to false. · If the existing VPC does not have the capability to access the Internet, setting this parameter to true indicates to set an SNAT entry; setting this parameter to false indicates not to set any SNAT entry and the Internet cannot be accessed.
worker_instance_types	list	Yes	The types of ECS instances used by Worker nodes. For more information, see Instance type families.
worker_system_disk_category	String	Yes	The type of system disks attached to Worker nodes.
worker_system_disk_size	Int	Yes	The size of a system disk attached to Worker nodes, in GiB.
worker_vswitch_ids	list	Yes	The IDs of VSwitches on Worker nodes.

Name	Type	Required	Description
addons	list	No	The addons installed on the Kubernetes cluster. · An addon requires the following parameters: - name: Required. - version: Optional. By default, the latest version is used. - config: Optional. · Network plugin: Select Flannel or Terway. · Log Service plugin: Optional. If you do not install this plugin, the audit logs of the cluster cannot be collected.
container_cidr	String	No	The pod CIDR block, which cannot overlap with the VPC CIDR block If you choose to enable the system to automatically create a VPC, the 172.16.0.0/16 pod CIDR block is used by default.
cloud_monitor_flags	bool	No	Whether to install the cloud monitoring plugin. · true: indicates to install the plugin · false: indicates not to install the plugin
cpu_policy	String	No	The CPU policy. If the Kubernetes cluster is V1.12.6 or later, you can set static or none. The default is none.

Name	Type	Required	Description
disable_ro llback	**bool**	No	Whether to roll back the cluster if the cluster creation fails. · true: indicates not to roll back if the cluster creation fails. · false: indicates to roll back if the cluster creation fails. The default is true. If you select to roll back, resources generated in the creation process will be released. We recommend that you do not select false.
master_aut o_renew	**bool**	No	Whether to enable Master node automatic renew. This parameter setting takes effect only if the value of `master_ins tance_char ge_type` is set to `PrePaid`. Available values are: · true: indicates to enable automatic renew · false: indicates not to enable automatic renew
master_aut o_renew_pe riod	**Int**	No	The automatic renew period. This parameter setting takes effect and becomes required only if you select the PrePaid payment type and enable automatic renew. Available values for different Subscription period units are as follows: · { "1", "2", "3" } for `PeriodUnit = Week` · { "1", "2", "3", "6", "12" } for `PeriodUnit = Month`
master_cou nt	**Int**	No	The number of Master nodes. Valid value: 3|5. The default is 3.

Name	Type	Required	Description
`master_dat a_disk`	**bool**	No	Whether to mount data disks to the Master node. Available values are: · true: indicates to mount data disks · false: indicates not to mount data disks. This is the default .
`master_dat a_disk_cat egory`	**String**	No	Master node data disk type. This parameter setting takes effect only if data disks are mounted to the Master node. Available values are: · cloud: indicates a basic cloud disk · cloud_efficiency: indicates an Ultra cloud disk · cloud_ssd: indicates an SSD cloud disk
`master_dat a_disk_siz e`	**Int**	No	Master node data disk size in GiB. This parameter setting takes effect only if data disks are mounted to the Master node.
`master_per iod`	**Int**	No	Subscription period. This parameter setting takes effect and becomes required only if the value of `morker_ins tance_char ge_type` is set to `PrePaid` . The parameter values for different Subscription period units are as follows: · { "1" , "2" , "3" , "4" } for `PeriodUnit = Week` · { "1" , "2" , "3" , "4" , "5" , "6" , "7" , "8" , "9" , "12" , "24" , "36" ," 48" ," 60" } for `PeriodUnit = Month`

Name	Type	Required	Description
master_period_unit	String	No	If you select the PrePaid payment type, you need to specify a Subscription period that uses either of the following units: · Week: one week is used as the timing unit. · Month: one month is used as the timing unit.
node_port_range	String	No	The range of the node port. The default is 30,000 to 65,535
proxy_mode	String	No	The kube-proxy mode. The modes iptables and ipvs are supported. The default is iptables.
public_slb	bool	No	Whether or not to enable the Internet API server: · true: indicates to enable the Internet API server. This is the default value. · false: indicates not to create the Internet API server. If you select this value, only the intranet API server will be created.
service_cidr	String	No	The service CIDR block that cannot overlap with the VPC CIDR block or the pod CIDR block If you choose to enable the system to automatically create a VPC, the 172.19.0.0/20 service CIDR block is used by default.
ssh_flags	bool	No	Whether to enable SSH access over the Internet. · true: yes · false: no

Name	Type	Required	Description
tags	list	No	The tag to be added to the cluster. · key: tag name. · value: tag value.
timeout_mins	Int	No	The timeout (in minutes) for creating the cluster resource stack. The default value is 60.
vpcid	String	No	VPC ID, which can be empty. If you do not set any VPC, the system automatically creates a VPC that belongs to the CIDR block 192.168.0.0/16. 📋 Note: The vpcid parameter and the vswitchid parameter must be both set to empty or relevant values.
worker_auto_renew	bool	No	Whether to enable Worker node automatic renew. Available values are: · true: indicates to enable automatic renew · false: indicates not to enable automatic renew
worker_auto_renew_period	Int	No	The automatic renew period. This parameter setting takes effect and becomes required only if you select the PrePaid payment type and enable automatic renew. Available values for different Subscription period units are as follows: · { "1", "2", "3" } for `PeriodUnit = Week` · { "1", "2", "3", "6", "12" } for `PeriodUnit = Month`

Name	Type	Required	Description
worker_dat a_disk	**String**	No	Whether to amount data disks. Available values are: · true: indicates to mount data disks to Worker nodes · false: indicates not to mount data disks to Worker nodes
worker_dat a_disk_cat egory	**Int**	No	Data disk type. This parameter setting takes effect only if you mount data disks to the Worker nodes. Available values are: · cloud: indicate a basic cloud disk · cloud_efficiency: indicates an Ultra cloud disk · cloud_ssd: indicates an SSD cloud disk
worker_dat a_disk_siz e	**String**	No	Data disk size in GiB. This parameter setting takes effect only if data disks are mounted to the Worker node.
worker_ins tance_char ge_type	**String**	No	Worker node payment type. The default value is PostPaid. Available values are: · PrePaid: indicates Subscripti on · PostPaid: indicates Pay-As-You-Go

Name	Type	Required	Description
worker_per iod	**Int**	**No**	**Subscription period. This parameter setting takes effect and becomes required only if the value of** `worker_ins tance_char ge_type` **is set to** `PrePaid` **. The parameter values for different Subscription period units are as follows:** · { "1" , "2" , "3" , "4" } for `PeriodUnit = Week` · { "1" , "2" , "3" , "4" , "5" , "6" , "7" , "8" , "9" , "12" , "24" , "36" ," 48" ," 60" } for `PeriodUnit = Month`
worker_per iod_unit	**String**	**No**	**Whether to enable Worker node automatic renew. Available values are:** · **true: indicates to enable automatic renew** · **false: indicates not to enable automatic renew**

Response information

Response line

```
HTTP / 1 . 1   202   Accepted
```

Special response header

None. See **Public response headers**.

Response body

Name	Type	Description
cluster_id	**String**	**The cluster ID.**
request_id	**String**	**The request ID.**

Name	Type	Description
task_id	String	The task ID. It is automatically assigned by the system. You can use it to check the status of a task.

Examples

Request example

```
 POST  / clusters   HTTP / 1 . 1
< Public   response   header >
{
" cluster_ty  pe ":" Kubernetes ",
" name ":" my - test - Kubernetes - cluster ",
" region_id ":" cn - beijing ",
" disable_ro  llback ": true ,
" timeout_mi  ns ": 60 ,
" kubernetes  _version ":" 1 . 12 . 6 - aliyun . 1 ",
" snat_entry ": true ,
" public_slb ": false ,
" cloud_moni  tor_flags ": false ,
" node_cidr_  mask ":" 25 ",
" proxy_mode ":" iptables ",
" tags ":[],
" addons ":[{" name ":" flannel "}, {" name ":" nginx - ingress -
 controller "}],
" node_port_  range ":" 30000 - 32767 ",
" login_pass  word ":" test ****",
" cpu_policy ":" none ",
" master_cou  nt ": 3 ,
" master_vsw  itch_ids ":[" vsw - 2ze48rkq46  4rsdts ****"," vsw -
 2ze48rkq46  4rsdts1 ****"," vsw - 2ze48rkq46  4rsdts1 ****"],
" master_ins  tance_type  s ":[" ecs . sn1 . medium "," ecs . sn1 .
 medium "," ecs . sn1 . medium "],
" master_sys  tem_disk_c  ategory ":" cloud_effi  ciency ",
" master_sys  tem_disk_s  ize ": 40 ,
" worker_ins  tance_type  s ":[" ecs . sn2 . 3xlarge "],
" num_of_nod  es ": 3 ,
" worker_sys  tem_disk_c  ategory ":" cloud_effi  ciency ",
" worker_sys  tem_disk_s  ize ": 120 ,
" vpcid ":" vpc - 2zegvl5eta  h5requ0 ****",
" worker_vsw  itch_ids ":[" vsw - 2ze48rkq46  4rsdts ****"],
" container_  cidr ":" 172 . 20 . XX . XX / 16 ",
" service_ci  dr ":" 172 . 21 . XX . XX / 20 "
}
```

Response example

```
 HTTP / 1 . 1   202   Accepted
< Public   response   header >
{
    " cluster_id ": " cb95aa626a  47740afbf6  aa099b650 ****",
    " request_id ": " 687C5BAA - D103 - 4993 - 884B - C35E4314A1  E1
 ",
    " task_id ": " T - 5a54309c80  282e39ea00  002f "
```

```
}
```

2.2 Create a managed Kubernetes cluster

This topic describes how to create a managed Kubernetes cluster. You must specify the number of Worker nodes for the cluster.

Request information

Request line

```
POST  / clusters   HTTP / 1 . 1
```

Special request header

None. See **Public request headers**.

Request body

```
{
    " disable_ro  llback ": " whether   or   not   to   roll   back
 if   the   cluster   fails   to   be   created ",
    " name ": " cluster   name ",
    " timeout_mi  ns ": " timeout   for   creating   the   cluster ",
    " cluster_ty  pe ": " cluster   type , Managed   Kubernetes ",
    " region_id ": " region ",
    " vpcid ": " Virtual   Private   Cloud ( VPC )  ID ",
    " vswitch_id  s ": " IDs   of   VSwitches . You   must   set
 one   VSwitch   at   least , and   can   set   five   VSwitches   at
  most .",
    " container_  cidr ": " pod   Classless   Inter - Domain   Routing
 ( CIDR )",
    " service_ci  dr ": " service   CIDR ",
    " cloud_moni  tor_flags ":" whether   or   not   to   install
 the   cloud   monitoring   plug - in ",
    " login_pass  word ": " password   used   to   log   on   to   the
  node   by   using   SSH . Use   either   this   parameter   or
 the   key_pair .",
    " key_pair ":" key   pair   name . use   either   this
 parameter   or   login_pass  word .",
    " worker_ins  tance_char  ge_type ":" worker   node   payment
 type   PrePaid | PostPaid ",
    " worker_per  iod_unit ":" subscripti  on   unit , which
 includes   month   and   year , and   takes   effect   only   for
 the   prepaid   type .
    " worker_per  iod ":" subscripti  on   period , which   takes
 effect   only   for   the   prepaid   type ",
    " worker_aut  o_renew ":" worker   node   auto   renew   true |
 false ",
    " worker_aut  o_renew_pe  riod ":" worker   node   renew   period
 ",
    " worker_ins  tance_type  s ": " instance   types   of   worker
 nodes ",
    " worker_sys  tem_disk_c  ategory ": " system   disk   type   of
 worker   nodes ",
    " worker_sys  tem_disk_s  ize ": " system   disk   size   of
 worker   nodes ",
```

```
    " worker_dat  a_disk ":" whether    or    not    to    mount    data
disks    true | false ",
    " data_disk_  category ": " data   disk   category ",
    " worker_dat  a_disk_siz  e ":" data   disk   size ",
    " num_of_nod  es ": " number   of   worker   nodes ",
    " snat_entry ": " whether   or   not   to   configure   the
SNATEntry ",
    " public_slb ":" whether   to   associate   an   EIP   with   the
  intranet   SLB   instace ",
    " proxy_mode ": " the   proxy   mode . Valid   value : iptables
| ipvs ",
    " addons ": " the   addon . This   is   an   object   in   the
array   format .",
    " tags ": " the   tag   to   be   add   to   the   cluster . This
  is   an   object   in   the   array   format .",
}
```

Request body explanation

Name	Type	Required	Description
cluster_ty pe	**string**	**Yes**	**The cluster type.**
key_pair	**string**	**Yes**	**key pair name. Use either this parameter or** `login_pass word` **.**
login_pass word	**string**	**Yes**	**SSH logon password. The password must be a string of 8 to 30 characters and contain uppercase letters, lowercase letters, numbers, and symbols. Choose either this parameter or** `key_pair` **.**
name	**string**	**Yes**	**The cluster name. A cluster name can contain uppercase letters, lowercase letters, Chinese characters, numbers, and hyphens (-).**
num_of_nod es	**int**	**Yes**	**The number of Worker nodes. The value is in the range of 0 to 300.**
region_id	**string**	**Yes**	**The ID of the region in which the cluster is located.**

Name	Type	Required	Description
snat_entry	**bool**	Yes	Whether or not to configure the SNAT for VPC. This parameter must be set to true if a VPC is created automatically. Configure the parameter value according to the outbound capability if you select to use an existing VPC to create the cluster.
vswitch_ids	**list**	Yes	The IDs of VSwitches. You must set one VSwitch at least, and can set three VSwitches at most.
worker_system_disk_category	**string**	Yes	The type of system disks attached to Worker nodes.
worker_system_disk_size	**int**	Yes	The size of a system disk attached to Worker nodes, in GiB.
addons	**list**	No	The addons installed on the Kubernetes cluster. · An addon requires the following parameters: - name: Required. - version: Optional. By default, the latest version is used. - config: Optional. · Network plugin: Select Flannel or Terway. · Log Service plugin: Optional. If you do not install this plugin, the audit logs of the cluster cannot be collected.
container_cidr	**string**	No	The pod CIDR block, which cannot overlap with the VPC CIDR block If you choose to enable the system to automatically create a VPC, the 172.16.0.0/16 pod CIDR block is used by default.

Name	Type	Required	Description
cloud_monitor_flags	**bool**	No	Whether to install the cloud monitoring plugin.
disable_rollback	**bool**	No	Whether to install the cloud monitoring plugin. · true: indicates to install the plugin · false: indicates not to install the plugin
proxy_mode	**string**	No	The kube-proxy mode. The modes iptables and ipvs are supported. The default is iptables.
public_slb	**bool**	No	Whether or not to enable the Internet API server: · true: indicates to enable the Internet API server. This is the default value. · false: indicates not to create the Internet API server. If you select this value, only the intranet API server will be created.
service_cidr	**string**	No	The service CIDR block that cannot overlap with the VPC CIDR block or the pod CIDR block If you choose to enable the system to automatically create a VPC, the 172.19.0.0/20 service CIDR block is used by default.
tags	**list**	No	The tag to be added to the cluster. · key: tag name. · value: tag value.
timeout_mins	**int**	No	The timeout (in minutes) for creating the cluster resource stack. The default value is 60.

Name	Type	Required	Description
vpcid	string	No	VPC ID, which can be empty. If you do not set any VPC, the system automatically creates a VPC that belongs to the CIDR block 192.168.0.0/16. 📋 **Note:** **The vpcid parameter and the vswitchid parameter must be both set to empty or relevant values.**
worker_auto_renew	bool	No	Whether to enable Worker node automatic renew. Available values are: · true: indicates to enable automatic renew · false: indicates not to enable automatic renew
worker_auto_renew_period	int	No	The automatic renew period. This parameter setting takes effect and becomes required only if you select the PrePaid payment type and enable automatic renew. Available values for different Subscription period units are as follows: · { "1" , "2" , "3" } for `PeriodUnit = Week` · { "1" , "2" , "3" , "6" , "12" } for `PeriodUnit = Month`
worker_data_disk	string	No	Whether to amount data disks. Available values are: · true: indicates to mount data disks to Worker nodes · false: indicates not to mount data disks to Worker nodes

Name	Type	Required	Description
worker_dat a_disk_cat egory	int	No	Data disk type.
worker_dat a_disk_siz e	string	No	Data disk size
worker_ins tance_char ge_type	string	No	Worker node payment type. · PrePaid: indicates Subscripti on · PostPaid: indicates Pay-As-You-Go
worker_per iod	int	No	Subscription period. This parameter setting takes effect and becomes required only if the value of `worker_ins tance_char ge_type` is set to `PrePaid`. The parameter values for different Subscription period units are as follows: · { "1" , "2" , "3" , "4" } for `PeriodUnit = Week` · { "1" , "2" , "3" , "4" , "5" , "6" , "7" , "8" , "9" , "12" , "24" , "36" ," 48" ," 60" } for `PeriodUnit = Month`
worker_per iod_unit	string	No	Whether to enable Worker node automatic renew. Available values are: · true: indicates to enable automatic renew · false: indicates not to enable automatic renew

Response information

Response line

```
HTTP / 1 . 1   202   Accepted
```

Special response header

None. See Public response headers.

Response body

```
{
" cluster_id ":" string ",
" request_id ":" string ",
" task_id ":" string "
}
```

Examples

Request example

```
 POST  / clusters   HTTP / 1 . 1
< Public   response   header >
{
" name ":" test ",
" cluster_ty  pe ":" my – test – Kubernetes – cluster ",
" disable_ro  llback ": true ,
" timeout_mi  ns ": 60 ,
" kubernetes  _version ":" 1 . 12 . 6 – aliyun . 1 ",
" region_id ":" cn – beijing ",
" snat_entry ": true ,
" cloud_moni  tor_flags ": false ,
" public_slb ": false ,
" node_cidr_  mask ":" 25 ",
" proxy_mode ":" ipvs ",
" tags ":[],
" addons ":[{" name ":" flannel "}, {" name ":" nginx – ingress –
 controller "}],
" worker_ins  tance_type  s ":[" ecs . hfc5 . xlarge "],
" num_of_nod  es ": 3 ,
" worker_sys  tem_disk_c  ategory ":" cloud_effi  ciency ",
" worker_sys  tem_disk_s  ize ": 120 ,
" worker_ins  tance_char  ge_type ":" PostPaid ",
" vpcid ":" vpc – 2zegvl5eta  h5requ09ne  c ",
" container_  cidr ":" 172 . 20 . 0 . 0 / 16 ",
" service_ci  dr ":" 172 . 21 . 0 . 0 / 20 ",
" vswitch_id  s ":[" vsw – 2ze48rkq46  4rsdts1 ****"],
" login_pass  word ":" test @ 19 ****"
}
```

Response example

```
 HTTP / 1 . 1   202   Accepted
< Public   response   header >
{
    " cluster_id ": " cb95aa626a  47740afbf6  aa099b65 ****",
```

```
    " request_id ": " 687C5BAA – D103 – 4993 – 884B – C35E4314A1  E1
  ",
    " task_id ": " T – 5a54309c80  282e39ea00  002f "
}
```

2.3 Obtain the cluster kubeconfig file

This topic describes how to obtain the kubeconfig file that is used to configure access to the Kubernetes cluster. The file contains the identity information of the current user.

Request information

Request line

```
GET  / k8s /: clusterid / user_confi  g
```

Special request header

None. See **Public request headers**.

Response information

Response line

```
HTTP / 1 . 1   200   OK
```

Special response header

None. See **Public response headers**.

Response body

```
{
    " config ": " string "
}
```

Response body explanation

Name	Type	Description
config	String	Kubeconfig file used by the current user to access the cluster.

Example

Request example

```
GET  / k8s / c5b5e80b0b  64a4bf6939  d2d8fbbc5d  ed7 / user_confi  g
  HTTP / 1 . 1
```

```
< Public   request   header >
```

Response example

```
 HTTP / 1 . 1   200   Ok
< Public   response   header >
{
     " config ": " xxxxxxxx "
}
```

2.4 Add existing ECS instances to a Kubernetes cluster

This topic describes how to add existing Elastic Compute Service (ECS) instances to a cluster.

> **Note:**
> The system disk is replaced in the process of adding ECS instances. Therefore, you need to back up the data in advance.

Request information

Request line

```
 POST  / clusters /{ cluster_id }/ attach   HTTP / 1 . 1
```

Request line parameter (URI Param)

Name	Type	Required	Description
cluster_id	String	Yes	Custer ID

Special request header

None. See Public request headers.

Request body

```
{
    " password ": " the   password   used   by   the   root   account
   to   log   on   to   an   ECS   instance ",
    " instances ": " the   IDs   of   the   ECS   instances   that
 you   want   to   add   to   the   target   cluster .",
    " format_dis  k ": " whether   to   format   disks .  Value :
 true | false ",
    " key_pair ": " the   key   pair ",
    " tags ": " the   tag   added   to   the   node .  This   is   an
   object   of   the   array   format ."
}
```

Request body parsing

Name	Type	Required	Description
password	String	Yes	Password of the ECS instance. The password must be a string of 8 to 30 characters and contain uppercase letters, lowercase letters, numbers, and symbols.
instances	Array	Yes	The IDs of the ECS instances that you want to add to the target cluster.
format_dis k	Bool	No	Whether to format a disk.

Name	Type	Required	Description
key_pair	String	No	Set the name of the a key pair. · If you add an ECS instance that runs the Windows OS , ignore this parameter. By default, this parameter is set as null. Any settings of this parameter do not take effect or affect the password. · If you add an ECS instance that runs the Linux OS, you can set this parameter . In addition, the password parameter is initialized as forbidden.
tags	List	No	Add a tag to the node. · key: indicates the tag name. · value: indicates the tag value.

Response information

Response line

```
HTTP / 1 . 1   202   OK
```

Special response header

None. See **Public response headers**.

Response body

```
{
    " list ": [
        {
            " code ": " 200 ",
            " instanceId ": " i - 2zee3oiwcy  oz7kwdo8bt ",
            " message ": " successful "
        },
        {
            " code ": " 200 ",
            " instanceId ": " i - 2ze0lgm3y6  iylcbtcypf ",
            " message ": " successful "
        }
    ],
    " task_id ": " T - 5a544aff80  282e39ea00  0039 "
}
```

Example

Request example

```
 POST  / clusters / Cccfd68c47  4454665ace  07efce924f  75f / attach
 HTTP / 1 . 1
< Public   request   header >
{
    " password ": " Hello1234 ",
    " tags ":[],
    " instances ": [
        " i - xxxx ",
        " i - yyyy "
    ]
}
```

Response sample

```
 HTTP / 1 . 1   202   Accepted
< Public   response   header >
{
    " list ": [
        {
            " code ": " 200 ",
            " instanceId ": " i - xxxx ",
            " message ": " successful "
        },
        {
            " code ": " 200 ",
            " instanceId ": " i - yyyy ",
```

```
            " message ": " successful "
        }
    ],
    " task_id ": " T – 5a544aff80  282e39ea00  0039 "
}
```

2.5 Download the cluster certificate

This topic describes how to download the certificate used by the currently logged on user to access the cluster.

Request information

Request line

```
GET  / clusters /: clusterid / certs
```

Special request header

None. See **Public request headers**.

Response information

Response line

```
HTTP / 1 . 1   200   OK
```

Special response header

None. See **Public response headers**.

Response body

```
{
    " config ": " string "
}
```

Response body description

Name	Type	Description
config	String	Kubeconfig file used by the current user to access the cluster

Examples

Request example

```
GET  / clusters / C5b5e80b0b  64a4bf6939  d2d8fbbc5d  ed7 / certs
HTTP / 1 . 1
```

```
< Public   request   header >
```

Response example

```
 HTTP / 1 . 1   200   Ok
< Public   response   header >
{
     " config ": " xxxxxxxx "
}
```

2.6 View a cluster

View the cluster details according to the cluster ID.

Request Information

Request line (RequestLine)

```
 GET  / clusters /{ cluster_id }  HTTP / 1 . 1
```

Request line parameter (URI Param)

Name	Type	Required	Description
cluster_id	string	Yes	Custer ID

Special request header (RequestHead)

None. See Public request headers.

Request body requestbody

None.

Return information

Response line (ResponseLine)

```
 HTTP / 1 . 1   200   OK
```

Special response header (ResponseHead)

None. See Public response headers.

Response body (ResponseBody)

```
{
    " agent_vers  ion ": " string ",
    " cluster_id ": " string ",
    " created ": " datetime ",
    " external_l  oadbalance  r_id ": " string ",
    " master_url ": " string ",
    " name ": " string ",
```

```
      " network_mo  de ": " string ",
      " region_id ": " string ",
      " security_g  roup_id ": " string ",
      " size ": " numbers ",
      " state ": " string ",
      " updated ": " datetime ",
      " vpc_id ": " string ",
      " vswitch_id ": " string "
 }
```

Response body explanation

Cluster format

Name	Type	Description
agent_vers ion	string	The Agent version.
cluster_id	string	The cluster ID, which is the unique identifier of the cluster.
created	string	The creation time of the cluster.
external_l oadbalance r_id	string	The Server Load Balancer instance ID of the cluster.
master_url	string	The master address of the cluster, which is used to connect to the cluster to perform operations. For more information, see **Access Kubernetes clusters by using SSH**.
name	string	The cluster name, which is specified when you create the cluster and is unique for each account.
network_mo de	string	The network mode of the cluster (Virtual Private Cloud (VPC)).
region_id	string	The ID of the region where the cluster is located.
security_g roup_id	string	The security group ID.
size	string	The number of nodes.
state	string	The cluster status.

Name	Type	Description
updated	**string**	**The last update time.**
vpc_id	**string**	**The VPC ID.**
vswitch_id	**string**	**The VSwitch ID.**

Examples

Request example

```
GET  / clusters / C5b5e80b0b  64a4bf6939  d2d8fbbc5d  ed7   HTTP / 1
. 1
< Public   request   header >
```

Response example

```
HTTP / 1 . 1   200   Ok
< Public   response   header >
{
    " agent_vers  ion ": " 0 . 5 - e56dab3 ",
    " cluster_id ": " c978ca3eaa  cd3409a943  7db07598f1  f69 ",
    " created ": " 2015 - 12 - 11T03 : 52 : 40Z ",
    " external_l  oadbalance  r_id ": " 1518f2b7e4  c - cn - beijing -
 btc - a01 ",
    " master_url ": " https :// 182 . 92 . 245 . 56 : 17589 ",
    " name ": " my - python - cluster - 039de960 ",
    " network_mo  de ": " vpc ",
    " region_id ": " cn - beijing ",
    " security_g  roup_id ": " sg - 25yqjuxhz ",
    " size ":  5 ,
    " state ": " running ",
    " updated ": " 2015 - 12 - 15T15 : 01 : 58Z ",
    " vpc_id ": "",
    " vswitch_id ": ""
}
```

2.7 View all clusters

View all the clusters you have created in Container Service, including swarm clusters and Kubernetes clusters.

Request information

Request line (RequestLine)

```
GET  / clusters   HTTP / 1 . 1
```

Special request header (RequestHead)

None. See Public request headers.

Request body (RequestBody)

None.

Response information

Response line (ResponseLine)

```
HTTP / 1 . 1   200   OK
```

Special response header (ResponseHead)

None. See Public response headers.

Response body (ResponseBody)

```
[
    {
        " agent_vers   ion ": " string ",
        " cluster_id ": " string ",
        " created ": " datetime ",
        " external_l  oadbalance  r_id ": " string ",
        " master_url ": " string ",
        " name ": " string ",
        " network_mo  de ": " string ",
        " region_id ": " string ",
        " security_g  roup_id ": " string ",
        " size ": " numbers ",
        " state ": " string ",
        " updated ": " datetime ",
        " vpc_id ": " string ",
        " vswitch_id ": " string "
    }
]
```

Response body explanation

Cluster format

Name	Type	Description
agent_vers ion	string	The Agent version.
cluster_id	string	The cluster ID, which is the unique identifier of the cluster.
created	string	The creation time of the cluster.
external_l oadbalance r_id	string	The Server Load Balancer instance ID of the cluster.

Name	Type	Description
master_url	string	The master address of the cluster, which is used to connect to the cluster to perform operations. For more information, see **Connect to a Kubernetes cluster by using kubectl.**
name	string	The cluster name, which is specified when you create the cluster and is unique for each account.
network_mo　de	string	The network mode of the cluster (Virtual Private Cloud (VPC)).
region_id	string	The ID of the region where the cluster is located.
security_g　roup_id	string	The security group ID.
size	string	The number of nodes.
state	string	The cluster status. For more information, see **Cluster lifecycle.**
updated	string	The last update time.
vpc_id	string	The VPC ID.
vswitch_id	string	The VSwitch ID.

Example

Request example

```
 GET  / clusters   HTTP / 1 . 1
< Public   request   header >
```

Response example

```
 HTTP / 1 . 1   200   OK
< Public   response   header >
[
    {
        " agent_vers  ion ": " 0 . 5 - e56dab3 ",
        " cluster_id ": " c978ca3eaa  cd3409a943  7db07598f1  f69 ",
        " created ": " 2015 - 12 - 11T03 : 52 : 40Z ",
```

```
            " external_l  oadbalance  r_id ": " 1518f2b7e4  c - cn -
  beijing - btc - a01 ",
            " master_url ": " https :// 182 . 92 . 245 . 56 : 17589 ",
            " name ": " my - python - cluster - 039de960 ",
            " network_mo  de ": " vpc ",
            " region_id ": " cn - beijing ",
            " security_g  roup_id ": " sg - 25yqjuxhz ",
            " size ":   5 ,
            " state ": " running ",
            " updated ": " 2015 - 12 - 15T15 : 01 : 58Z ",
            " vpc_id ": "",
            " vswitch_id ": ""
      },
      {
            " agent_vers  ion ": " 0 . 5 - e56dab3 ",
            " cluster_id ": " c1eb19e009  3204cbb86c  3a80334d21  29e ",
            " created ": " 2015 - 12 - 15T14 : 26 : 58Z ",
            " external_l  oadbalance  r_id ": " 151a6099de  1 - cn -
  beijing - btc - a01 ",
            " master_url ": " https :// 182 . 92 . 245 . 56 : 11905 ",
            " name ": " my - test - cluster - 002b3f3d ",
            " network_mo  de ": " vpc ",
            " region_id ": " cn - beijing ",
            " security_g  roup_id ": " sg - 25rg2ws9f ",
            " size ":   1 ,
            " state ": " running ",
            " updated ": " 2015 - 12 - 15T14 : 43 : 55Z ",
            " vpc_id ": "",
            " vswitch_id ": ""
      }
 ]
```

2.8 Delete a cluster

This topic describes how to delete a cluster according to the cluster ID and release all node resources.

Request information

Request line

```
DELETE  / clusters /{ cluster_id }  HTTP / 1 . 1
```

Request line parameter (URI Param)

Name	Type	Required	Description
cluster_id	String	Yes	Custer ID

Special request header

None. See Public request headers.

Request body

None.

Response information

Response line

```
HTTP / 1 . 1   202   Accepted
```

Special response header

None. See Public response headers.

Response body

None

Example

Request example

```
DELETE  / clusters / Cccfd68c47  4454665ace  07efce924f  75f   HTTP /
1 . 1
< Public   request   header >
```

Response sample

```
HTTP / 1 . 1   202   Accepted
< Public   response   header >
```

3 Use Container Service through CLI

3.1 View all clusters

This topic describes how to views all the clusters that you have created through Alibaba Cloud Container Service for Kubernetes.

API request and response

Request format

```
aliyun   cs   GET  / clusters
```

Response result

```
[
    {
        " agent_vers   ion ": " string ",
        " cluster_id ": " string ",
        " created ": " datetime ",
        " external_l   oadbalance   r_id ": " string ",
        " master_url ": " string ",
        " name ": " string ",
        " network_mo   de ": " string ",
        " region_id ": " string ",
        " security_g   roup_id ": " string ",
        " size ": " numbers ",
        " state ": " string ",
        " updated ": " datetime ",
        " vpc_id ": " string ",
        " vswitch_id ": " string "
    }
]
```

3.2 View cluster information

This topic describes how to view the cluster details according to the cluster ID. For API descriptions, see View a cluster.

API request and response

Request format

```
aliyun   cs   GET  / clusters /< cluster_id >
```

Response result

```
{
    " agent_vers   ion ": " string ",
    " cluster_id ": " string ",
```

```
    " created ": " datetime ",
    " external_l  oadbalance  r_id ": " string ",
    " master_url ": " string ",
    " name ": " string ",
    " network_mo  de ": " string ",
    " region_id ": " string ",
    " security_g  roup_id ": " string ",
    " size ": " numbers ",
    " state ": " string ",
    " updated ": " datetime ",
    " vpc_id ": " string ",
    " vswitch_id ": " string "
}
```

3.3 Create a Kubernetes cluster

This topic describes how to create a Kubernetes cluster. For more information about the related APIs, see Create a Kubernetes cluster, Create a multi-zone Kubernetes cluster, and Create a multi-zone Kubernetes cluster.

API request and response

Request format

```
aliyun   cs    POST  / clusters  -- header  " Content - Type =
applicatio  n / json " -- body  "$( cat   create . json )"
```

Parameter descriptions:

· -- header : Specify Content - Type as applicatio n / json .

· -- body : This is the body content to be sent to the server. The content can be read from a local file and must be in JSON format. The content of create . json is as follows:

Dedicated Kubernetes cluster

```
{
    " disable_ro  llback ": " disable_ro  llback ": " indicates
 whether   to   roll   back   the   cluster   if   the   cluster
 creation   fails ",
    " name ": " cluster   name ",
    " timeout_mi  ns ": cluster   creation   timeout ,
    " cluster_ty  pe ": " Kubernetes ",
    " region_id ": " region ",
    " vpcid ": " VPC   ID ",
    " master_vsw  itch_ids ": " the   IDs   of   VSwitches   on
 Master   nodes . You   must   set   three   VSwitches   that   are
  located   in   different   zones   to   ensure   high   availabili
 ty ",
    " master_ins  tance_type  s ": " the   types   of   ECS
 instances   used   by   Master   nodes . You   must   set   three
 instance   types .",
    " master_cou  nt ": " the   number   of   Master   nodes . Valid
  values :  3 | 5 ."
```

```
    " container_  cidr ": " pod    Classless    Inter - Domain    Routing
  ( CIDR )  block ",
    " service_ci  dr ": " service    CIDR    block ",
    " ssh_flags ": " enable   SSH    access    over   the   Internet .
 Valid   values :  true  |  false .",
    " cloud_moni  tor_flags ":" install   the   CloudMonit  or
 plugin .  Valid   values :  true  |  false .",
    " login_pass  word ": " password   used   to   log   on   to
 cluster   nodes   by   using   SSH . This   parameter   and   the
 key_pair   parameter   are   mutually   exclusive .",
    " key_pair ":" the   key   pair   used   to   log   on   to
 cluster   nodes   by   using   SSH . This   parameter   and   the
 login_pass  word   parameter   are   mutually   exclusive .",
    " master_ins  tance_char  ge_type ":" the   billing   method   of
  Master   node   instances . Valid   values : PostPaid | PrePaid
 ",
    " master_per  iod_unit ":" Subscripti  on   unit   that   includes
  Month   and   Year . This   parameter   takes   effect   only
 for   the   PrePaid   billing   method ",
    " master_per  iod ":" Subscripti  on   period ,  which   takes
 effect   only   for   the   PrePaid   billing   method ",
    " master_aut  o_renew ":" enable   Master   node   automatic
 renew . Valid   values :  true  |  false .",
    " master_aut  o_renew_pe  riod ":" Master   node   renew   period
 ",
    " master_sys  tem_disk_c  ategory ": " Master   node   system
 disk   type ",
    " master_sys  tem_disk_s  ize ":" Master   node   system   disk
 size ",
    " master_dat  a_disk ":" mount   data   disks   to   the   Master
  node . Valid   values :  true  |  false .",
    " master_dat  a_disk_cat  egory ":" Master   node   data   disk
 type ",
    " master_dat  a_disk_siz  e ":" Master   node   data   disk   size
 ",
    " worker_ins  tance_char  ge_type ":" the   billing   method   of
  Worker   node   instances . Valid   values : PostPaid | PrePaid
 ",
    " worker_per  iod_unit ":" Subscripti  on   unit   that   includes
  Month   and   Year . This   parameter   takes   effect   only
 for   the   PrePaid   billing   method ",
    " worker_per  iod ":" Subscripti  on   period ,  which   takes
 effect   only   for   the   PrePaid   billing   method ",
    " worker_aut  o_renew ":" enable   Worker   node   automatic
 renew . Valid   values :  true  |  false .",
    " worker_aut  o_renew_pe  riod ":" Worker   node   renew   period
 ",
    " worker_ins  tance_type  s ": " Worker   node   instance   types
 . ",
    " worker_vsw  itch_ids ": " the   IDs   of   VSwitches . The
 value   range   of   the   number   of   VSwitches   is   1   to   5
 .",
    " worker_sys  tem_disk_c  ategory ": " Worker   node   system
 disk   type ",
    " worker_sys  tem_disk_s  ize ": " Worker   node   system   disk
 size ",
    " worker_dat  a_disk ":" mount   data   disks   to   the   Worker
  node . Valid   values :  true  |  false .",
    " worker_dat  a_disk_cat  egory ":" Worker   node   data   disk
 type ",
    " worker_dat  a_disk_siz  e ":" Worker   node   data   disk   size
 ",
    " num_of_nod  es ": " the   number   of   Worker   nodes ",
```

```
   " snat_entry ": Configure   an   SNAT   entry . Valid   values
 : true  |  false .
   " public_slb ":" associate   an   EIP   with   the   intranet
 SLB  instance . Valid  values :  true  |  false .",
   " cpu_policy ": " static | none ",
   " node_port_  range ": " value   range   of   node   ports . The
   default  value  range  is  30000  to  32767 ",
   " proxy_mode ": " iptables | ipvs ",
   " addons ": " set  addons . This  is  an  array  object .",
   " tags ": " set  tags  for  the  cluster . This  is  an
 array  object .",
}
```

Managed Kubernetes cluster

```
{
" disable_ro  llback ": " indicates   whether   to   roll   back   the
   cluster   if   the   cluster   creation   fails "
" name ": " cluster   name "
" timeout_mi  ns ": " cluster   creation   timeout "
" cluster_ty  pe ": " Managed   Kubernetes "
" region_id ": " region ."
" vpcid ": " VPC   ID  "
" vswitch_id  s ": " the   IDs   of   VSwitches . The   value   range
   of   the   number   of   VSwitches   is   1   to   5 .",
" container_  cidr ": " pod   CIDR   block "
" service_ci  dr ": " service   CIDR   block "
" cloud_moni  tor_flags ":" whether   to   install   the   cloud
 monitoring   plugin "
" login_pass  word ": " password   used   to   log   on   to   the
 node   by   using   SSH . Use   either   this   parameter   or   the
   key_pair ."
" key_pair ":" key   pair   name . use   either   this   parameter
 or   login_pass  word ."
" worker_ins  tance_char  ge_type ":" Worker   node   payment   type
 that   includes   PrePaid   and   PostPaid "
" worker_per  iod_unit ":" Subscripti  on   unit   that   includes
 Month   and   Year . This   parameter   takes   effect   only   for
   the   PrePaid   payment   type "
" worker_per  iod ":" Subscripti  on   period , which   takes
 effect   only   for   the   PrePaid   payment   type ."
" worker_aut  o_renew ":" whether   to   enable   Worker   node
 automatic   renew . Available   values   are   true   and   false ."
" worker_aut  o_renew_pe  riod ":" Worker   node   renew   period "
" worker_ins  tance_type  s ": " Worker   instance   types "
" worker_sys  tem_disk_c  ategory ": " Worker   node   system   disk
 type "
" worker_sys  tem_disk_s  ize ": " Worker   node   system   disk
 size "
" worker_dat  a_disk ":" whether   to   mount   data   disks   to
 the   worker   node . Available   values   are   true   and   false
 ."
" worker_dat  a_disk_cat  egory ":" data   disk   type "
" worker_dat  a_disk_siz  e ":" data   disk   size "
" num_of_nod  es ": " number   of   worker   nodes "
" snat_entry ": " whether   to   set   an   SNAT   entry "
" public_slb ":" associate   an   EIP   with   the   intranet   SLB
 instance . Valid   values :  true  |  false .",
" proxy_mode ": " iptables | ipvs ",
" addons ": " set   addons . This   is   an   array   object .",
" tags ": " set   tags   for   the   cluster . This   is   an   array
   object .",
}
```

```
                }
```

Serverless Kubernetes cluster

```
{
" cluster_ty  pe ": " Ask ",
" name ": " indicates   the   name   of   a   serverless   Kubernetes
   cluster ",
" region_id ": " indicates   a   region ",
" nat_gatewa  y ":  indicates   whether   to   create   a   NAT
 gateway . Valid   value : true  |  false .
" private_zo  ne ":  indicates   whether   to   enable   PrivatreZo
 ne   for   service   discovery   in   a   VPC .  Valid   value :
 true  |  false .
" vpc_id ": " indicates   the   ID   of   a   VPC ".  If   you   do
 not   set   this   parameter ,  then   the   system   automatica  lly
   creates   a   VPC .
" vswitch_id ": " indicates   a   Vswitch   ID "
}
```

Response result

```
{
    " cluster_id ": " c61cf53052  4474386a7a  b5a1c192 ****"
    " request_id ": " 348D4C9C - 9105 - 4A1B - A86E - B58F0F8755  75 "
    " task_id ": " T - 5ad724ab94  a2b109e800  0004 "
}
```

3.4 Expand a cluster

This topic describes how to increase the number of nodes in the cluster. For API

descriptions, see [Scale out or in a cluster](#).

API request and response

Request format

```
aliyun   cs   PUT  / clusters /< cluster_id > -- header  " Content -
Type = applicatio  n / json " -- body  "$( cat   scale . json )"
```

Parameter descriptions:

· `-- header` : **Specify** `Content - Type` **as** `applicatio  n / json` .

· `-- body` : **This is the body content to be sent to the server. The content can be read**

from a local file and must be in JSON format. The content of `scale . json` **is as**

follows:

Kubernetes cluster

```
{ " disable_ro  llback ": " indicates   whether   to   roll   back
 the   cluster   if   cluster   expansion   fails ",
" timeout_mi  ns ": " timeout   period   for   creating   a   cluster
 ",
" worker_ins  tance_type ": " Worker   instance   type ",
" login_pass  word ": " password   used   to   log   on   to   the
 node   by   using   SSH ",
" num_of_nod  es ": " number   of   Worker   nodes "
}
```

Response result

```
{
    " cluster_id ": " c61cf53052  4474386a7a  b5a1c192a0  d57 ",
    " request_id ": " 348D4C9C - 9105 - 4A1B - A86E - B58F0F8755  75
 ",
    " task_id ": " T - 5ad724ab94  a2b109e800  0004 "
}
```

3.5 Add existing ECS instances to a cluster

This topic describes how to add existing ECS instances to a cluster. For API

descriptions, see Add existing ECS instances to a Kubernetes cluster.

API request and response

Request format

```
aliyun   cs    POST  / clusters /< cluster_id >/ attach  -- header  "
Content - Type = applicatio  n / json " -- body  "$( cat   attach .
json )"
```

Parameter description:

· `-- header` : Specify `Content - Type` as `applicatio  n / json` .

· `-- body` : This is the body content to be sent to the server. The content can be read

from a local file and must be in JSON format. The content of `attach . json` is as

follows:

```
{
     " password ": " password   used   to   log   on   to   the
 ECS   instance   by   using   SSH ",
     " instances ": " ECS   instance   array ",
     " ecs_image_  id ": " image   ID ",
     " release_ei  p_flag ": " whether   to   release   Elastic
 IP ( EIP ) after   you   configure   the   cluster "
```

```
}
```

Response result

```
{
    " list ": [
        {
            " code ": " 200 ",
            " instanceId ": " i – 2zee3oiwcy  oz7kwdo8bt ",
            " message ": " successful "
        },
        {
            " code ": " 200 ",
            " instanceId ": " i – 2ze0lgm3y6  iylcbtcypf ",
            " message ": " successful "
        }
    ],
    " task_id ": " T – 5a544aff80  282e39ea00  0039 "
}
```

3.6 Delete a cluster

This topic describes how to delete a cluster according to the cluster ID, and release all node resources of the cluster. For API descriptions, see Delete a cluster.

API request and response

Request format

```
aliyun   cs   DELETE  / clusters /< cluster_id >
```

Response result

None.