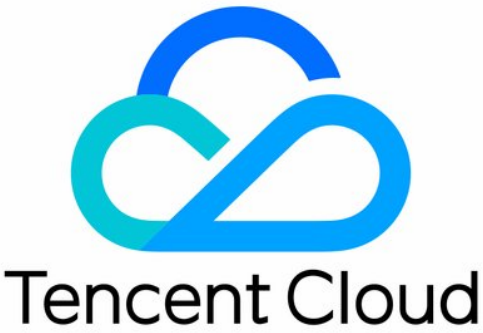
Tencent Kubernetes Engine

Quick Start

Product Introduction



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Quick Start
Deploy Tencent Kubernetes Engine

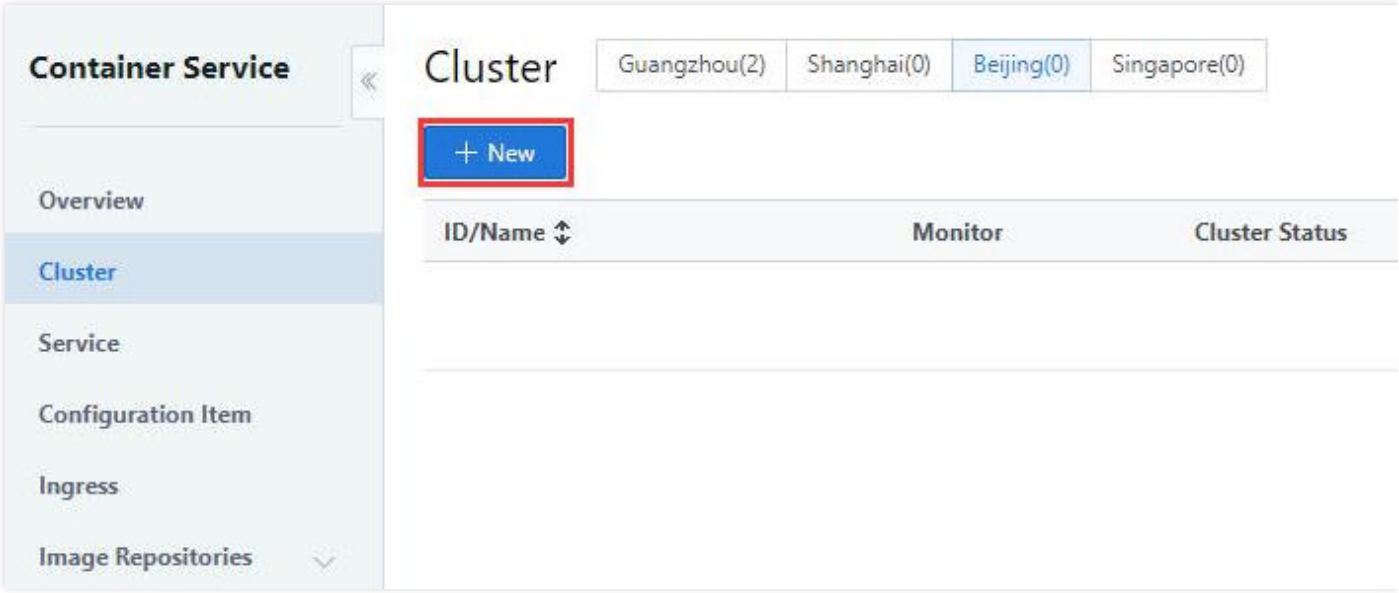
Last updated：2018-09-20 14:18:56

Tencent Kubernetes Engines (TKE) is a container management service with high scalability and high performance. You can easily run applications on a hosted CVM pod cluster. In this tutorial, you will learn how to use TKE to quickly create and manage container cluster, and deploy your service in the cluster in a fast and flexible way.

Step 1: Create a cluster

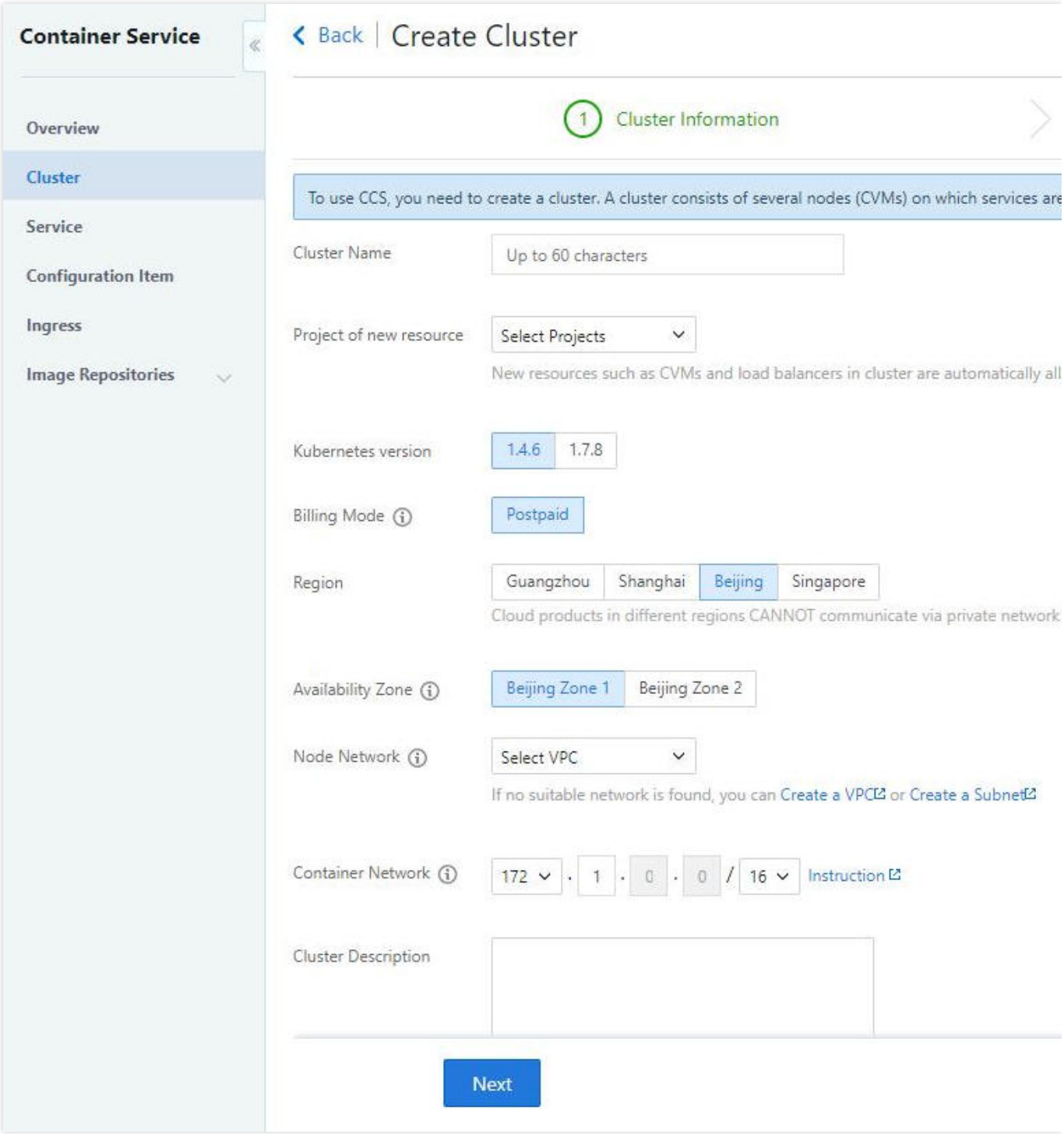
First, you need to create a cluster. A cluster is a collection of cloud resources required by containers to run, including several CVMs, load balancers and other Tencent Cloud resources.

1. Log in to the Tencent TKE Console.
2. Click "Cluster" in the left navigation bar, and click "+ New" in the cluster list page.



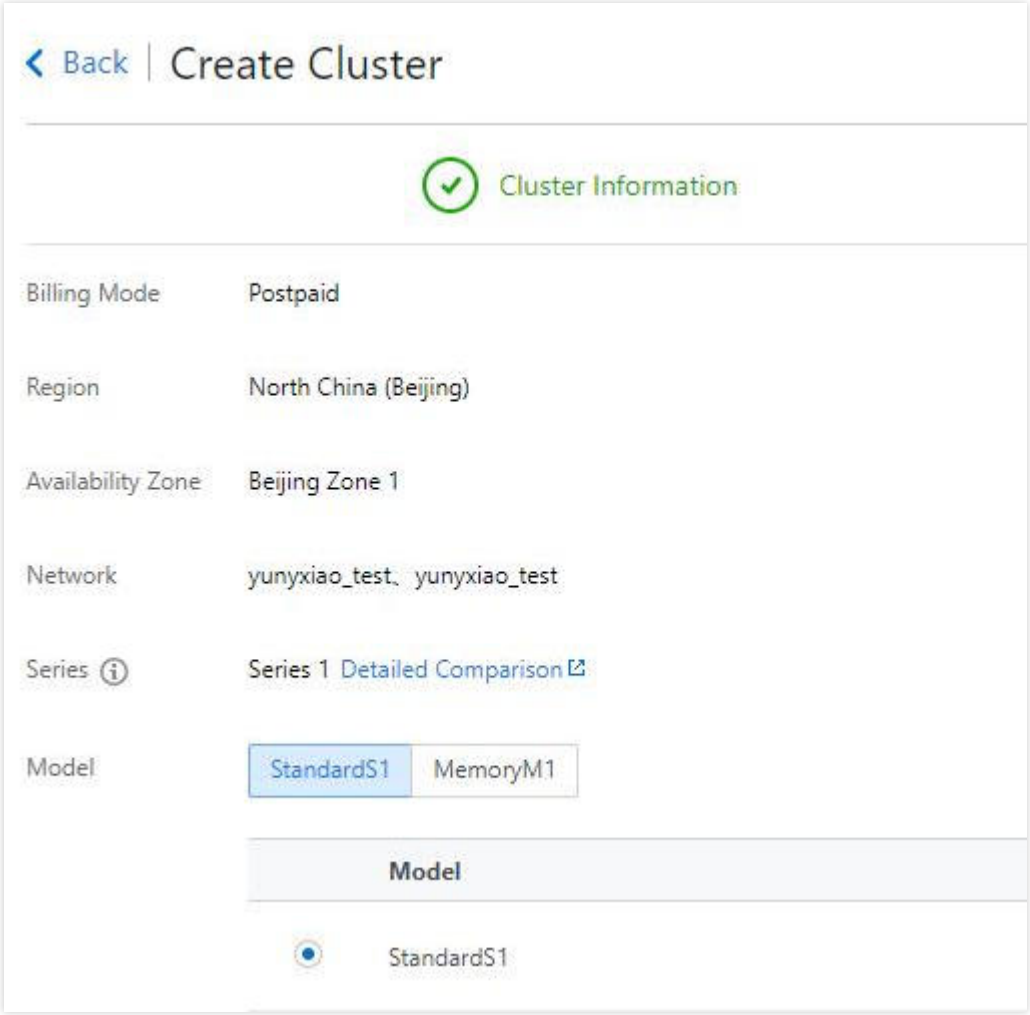
3. Configure the basic cluster information.
   - **Cluster name**: The name of the cluster to be created. It cannot exceed 60 characters.
   - **Billing method**: Two billing methods are supported: Prepaid and Postpaid. For more information, please see Billing Method.
   - **Region**: Select a closest region based on your location. This helps minimize access latency and improve download speed.

- **Availability zone**: Clusters in the same region are interconnected with each other through private network, but the ones in different regions cannot communicate with each other through private network. Users who communicate with each other through private network need to choose the same region.
- **Node network**: The system assigns the IP addresses within the node network address range to the CVMs in the cluster. For more information, please see Network Configuration of Container and Node.
- **Container network**: The system assigns the IP addresses within the container network address range to the containers in the cluster. For more information, please see Network Configuration of Container and Node.
- **Cluster Description**: Information about cluster creation. This information is displayed in **Cluster Information** page.



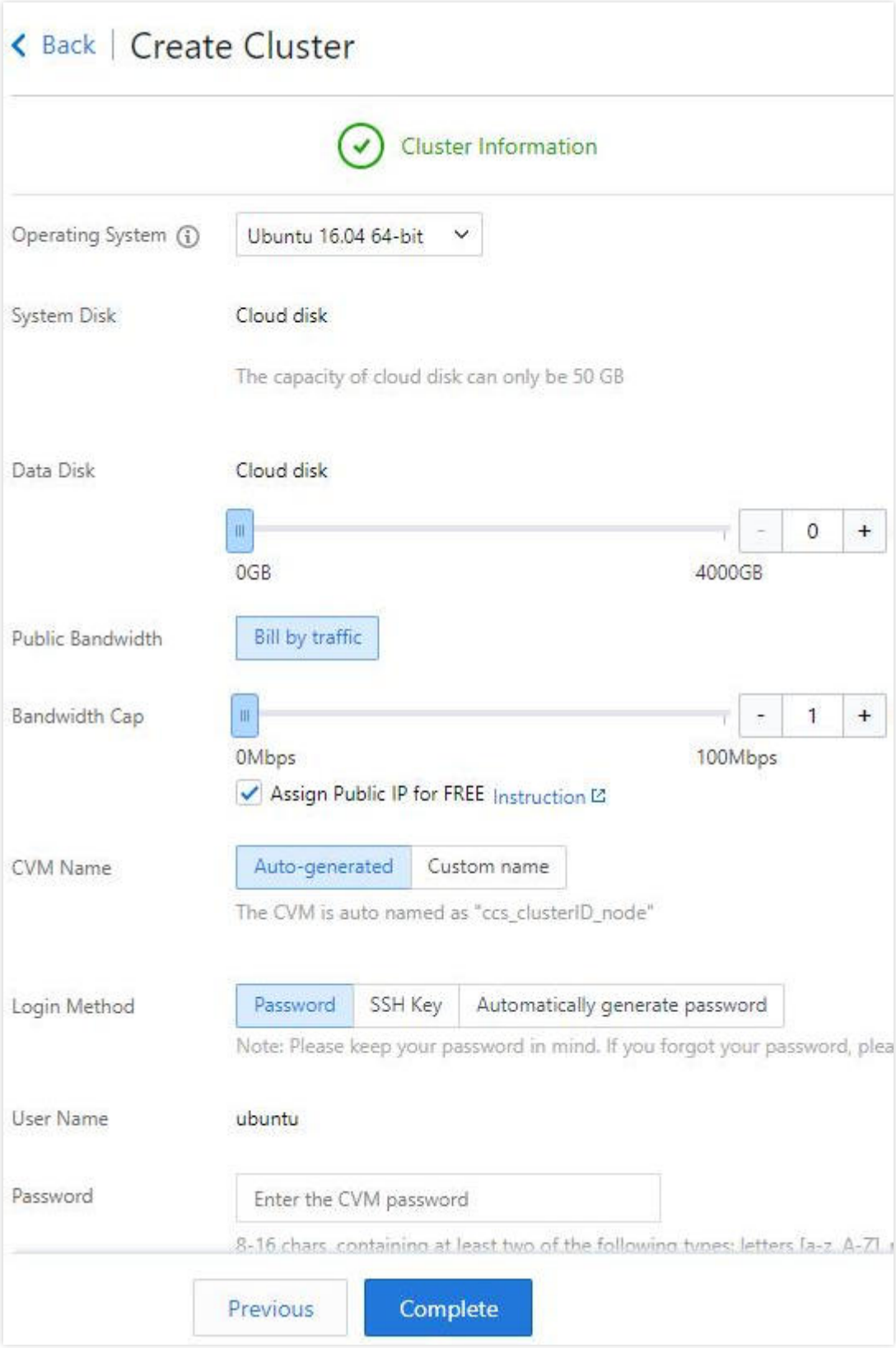
4. Select a model (all models with cloud disks as system disks are supported).
   - **Series**: **Series 1** and **Series 2** are provided. For more information, please see Pod Types.

- **Model**: For more information about the model options, please see Select CVM Configuration Option.

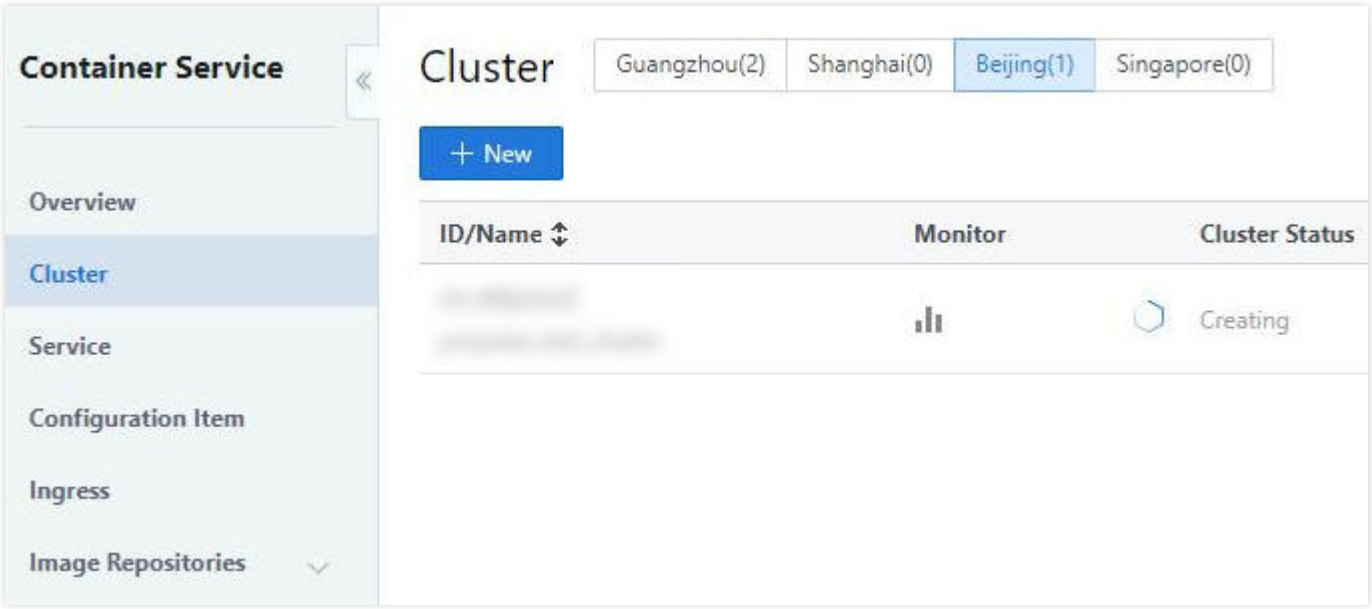


5. Enter CVM configurations and click "Done".
   - **System disk**: Always 50 GB.
   - **Data disk**: Increment is 10 GB. Maximum value is 4,000 GB.
   - **Public bandwidth**: Two billing methods are available. For more information, please see Purchase Network Bandwidth.
   - **Bandwidth**: If you check **Assign public IP for free**, the system assigns a public IP at no cost. If there is no need, set bandwidth value to 0.
   - **Login method**: Three login methods are provided.
     i. **Set password**: Set a password according to instructions.
     ii. **Associate with key immediately**: Key pair is a pair of parameters generated by an algorithm. It is a more secure method to log to CVM than a password. For more information, please see SSH Key.
     iii. **Automatically generated password**: The automatically generated password is sent to you through the internal message.
   - **Security group**: Security group functions as a firewall and is used to control network access settings of CVMs. For more information, please see Configuration of TKE Security Group.

- **Number of CVMs**: Select the number of CVMs.



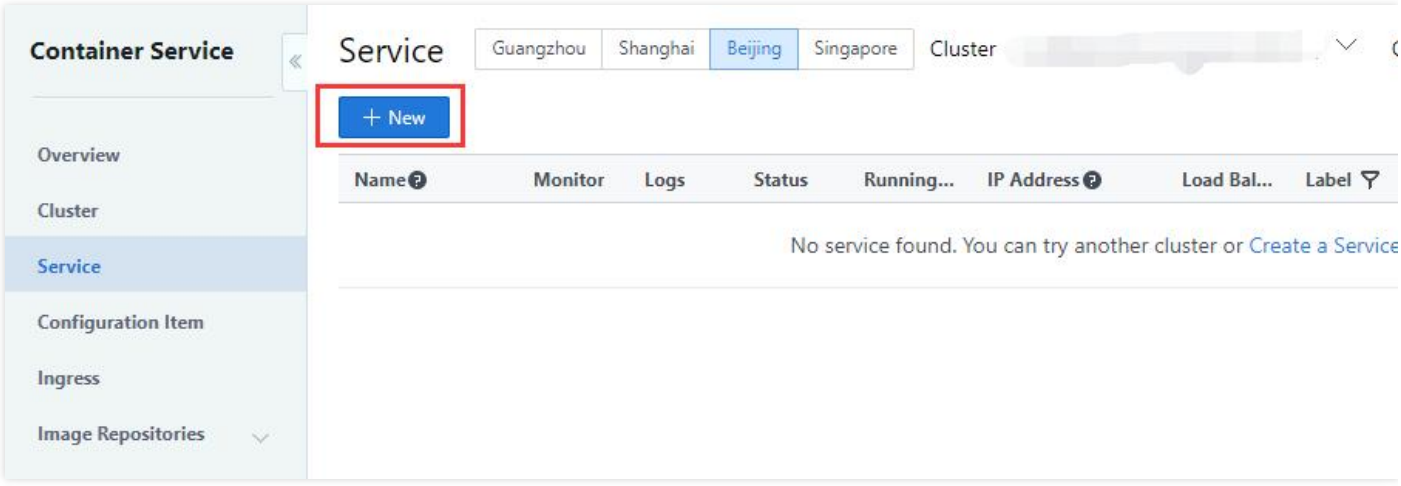
6. The created cluster is displayed in the cluster list.



Step 2: Create a service

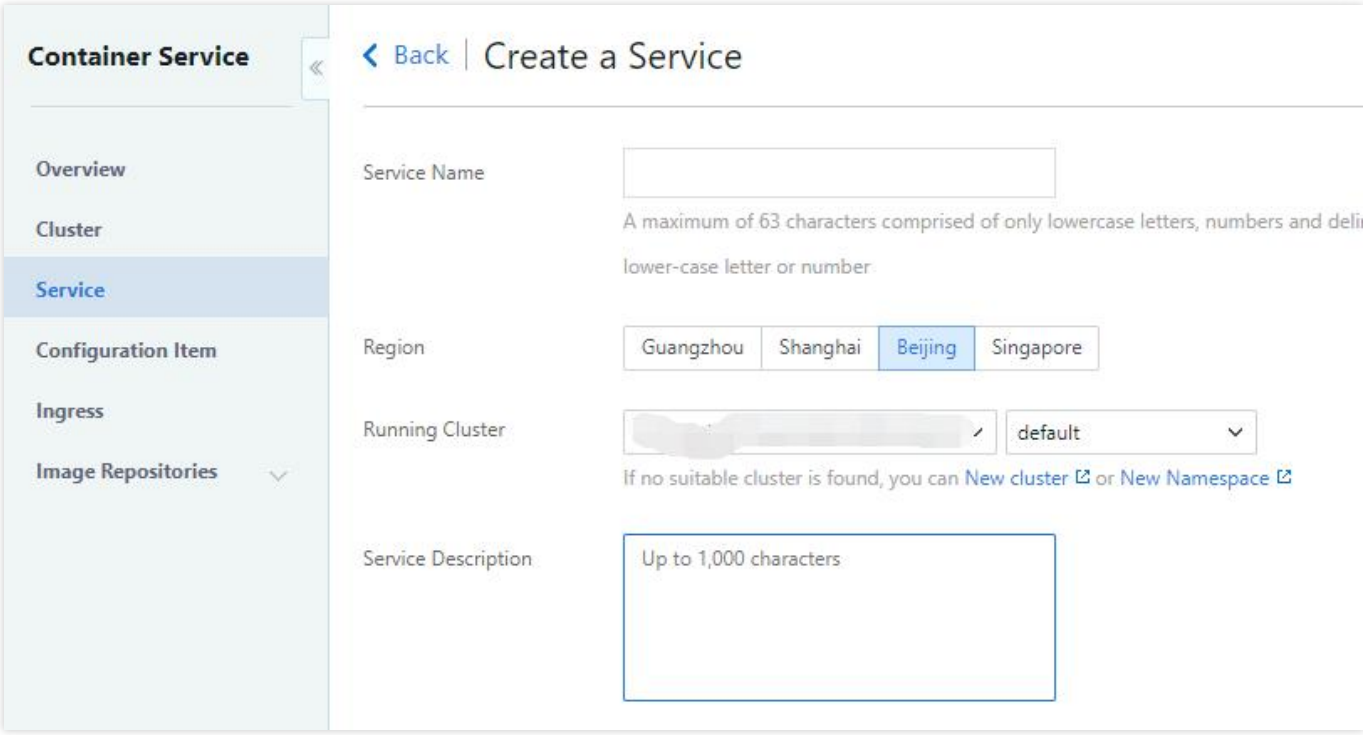
After a cluster is created, you need to create a service. A service is a microservice comprised of multiple containers with the same configuration and rules used to access these containers.

1. Click "Service" in the left navigation bar, and click "+ New" in the service list page.



2. Configure basic service information.
   - **Service name**: The name of the cluster to be created. Name is composed of lowercase letters, numbers and "-". It starts with a lowercase letter and ends with a lowercase letter or a number.
   - **Region**: Select a closest region based on your location.

- **Running cluster**: Select a cluster that runs a service. To run a cluster, you need to select a running cluster with available CVMs in it.
- **Service description**: Information about service creation. This information is displayed in **Service Information** page.

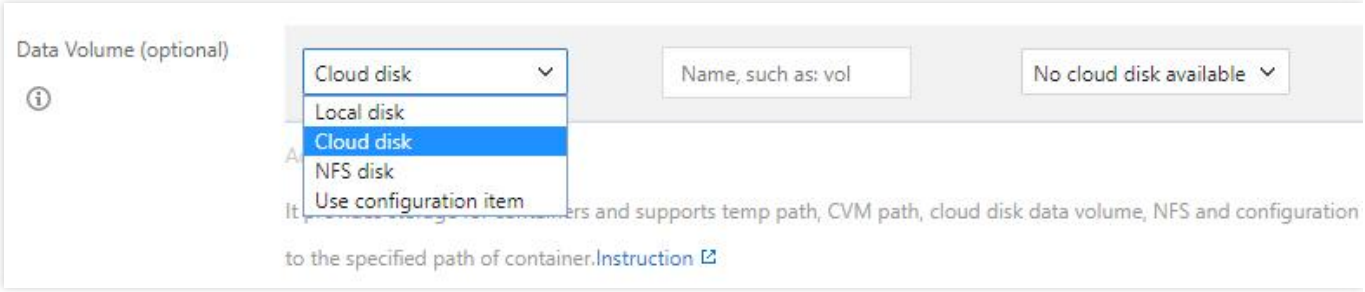


3. Configure data volume.
   Click "Add Data Volume" when you specify a specific path to which a container is mounted.

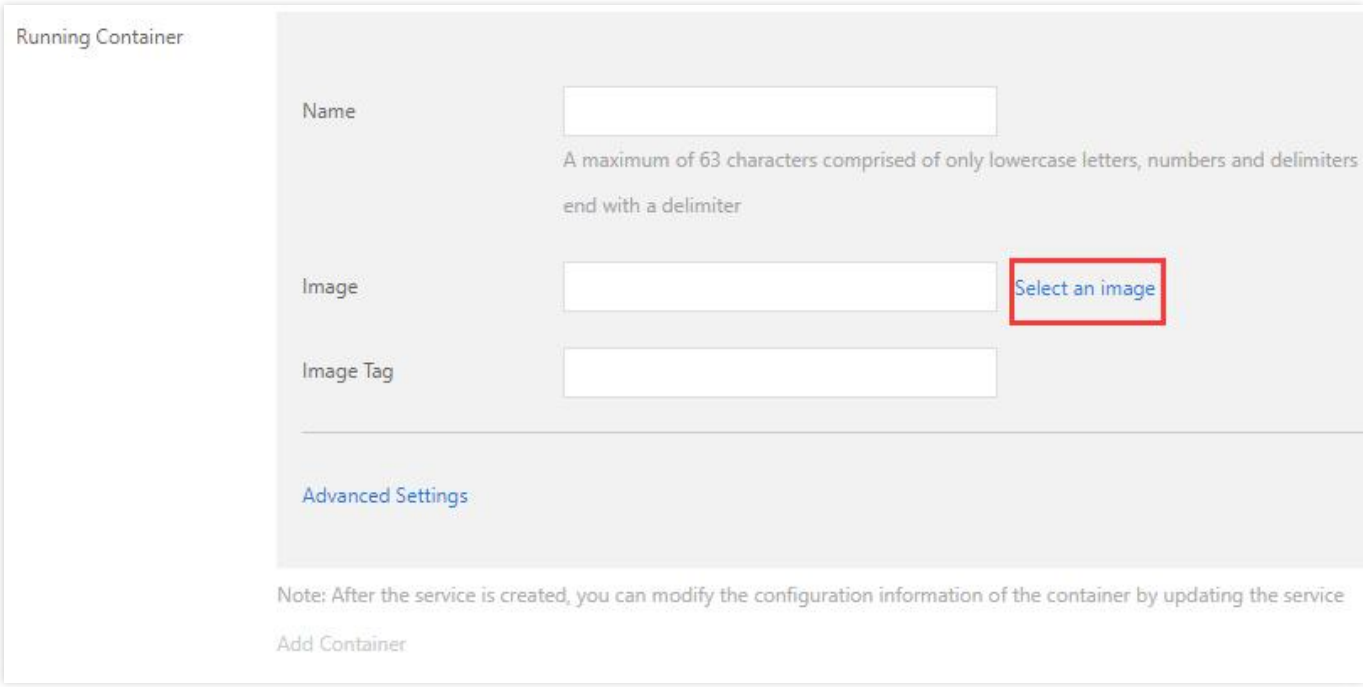
> **Note:**
> If no source path is specified, a temporary path is assigned by default.

- **Type**: Four types of data volumes are supported: local disk, cloud disk, NFS disk, and configuration file. For more information, please see How to Use TKE Data Volume.
- **Name**: The name of data volume.

- **Path**: Specify the path to which a container is mounted.

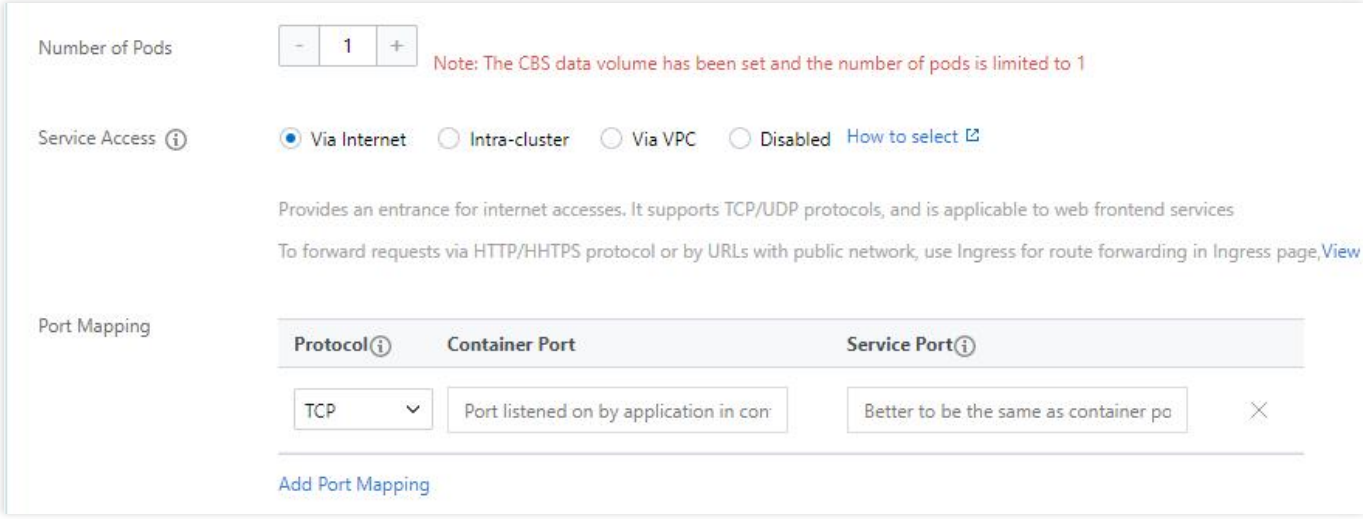


4. Configure a running container.
   - **Name**: The name of the cluster to be created.
   - **Image**: Click "Select an Image" to create a service under My Images, My Favorites, TencentHub Image, DockerHub Image and other images.
   - **Version**: A default version for TKE. If you need to use a different image version, click version display window to select one.



5. Other configurations.
   - **Number of pods**: A pod is composed of one or more relevant containers. You can specify the number of pods by clicking + or -.
   - **Service access method**: The method for accessing a service determines the network attribute of this service. Different access methods offer different network capabilities. For more information about the

four access methods, please see Configuration of Service Access Methods.



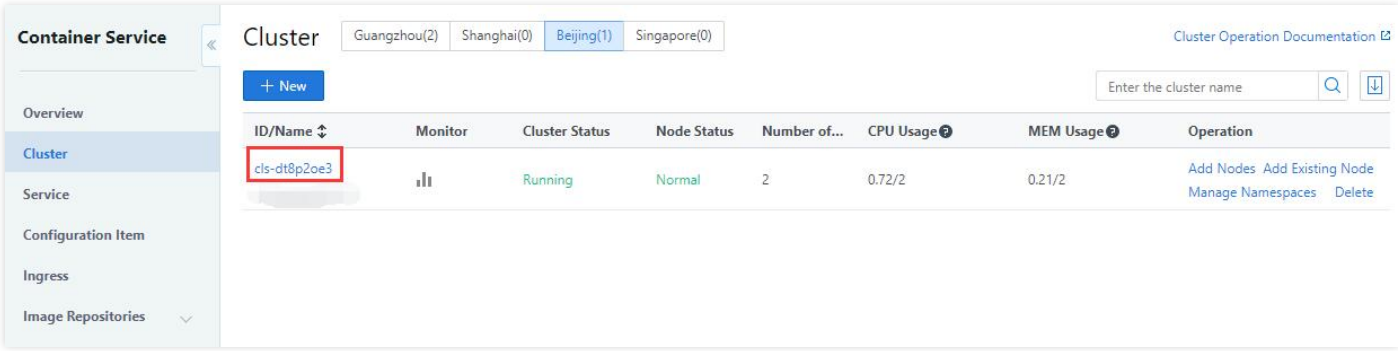
6. Click "Create Service" to complete the creation of service. A created service is displayed in service list.

Step 3: View resources

In previous steps, you have created a cluster and a service. In this step, you can view all the resources you created.

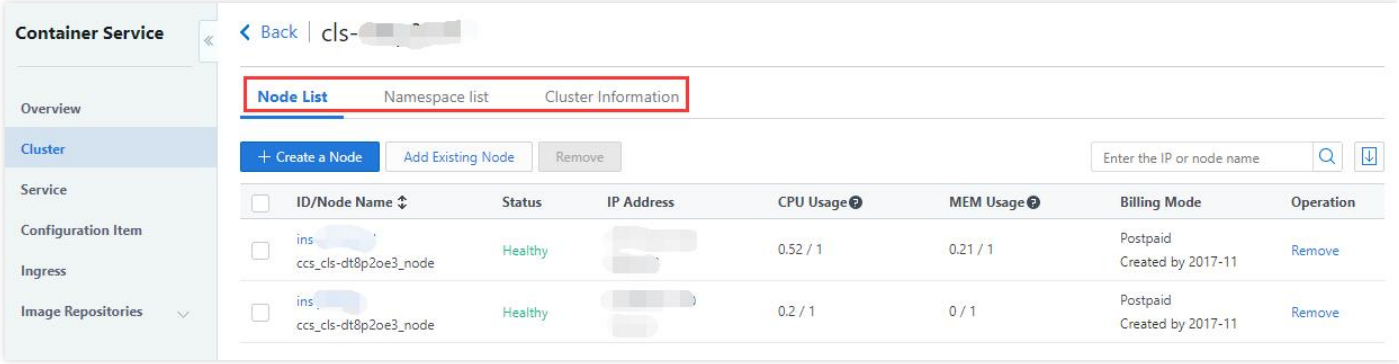
Viewing Cluster

1. Click "Cluster" in the left navigation bar, and click "ID/Name" of a cluster in the cluster list page, such as cls-dt8p2oe3.



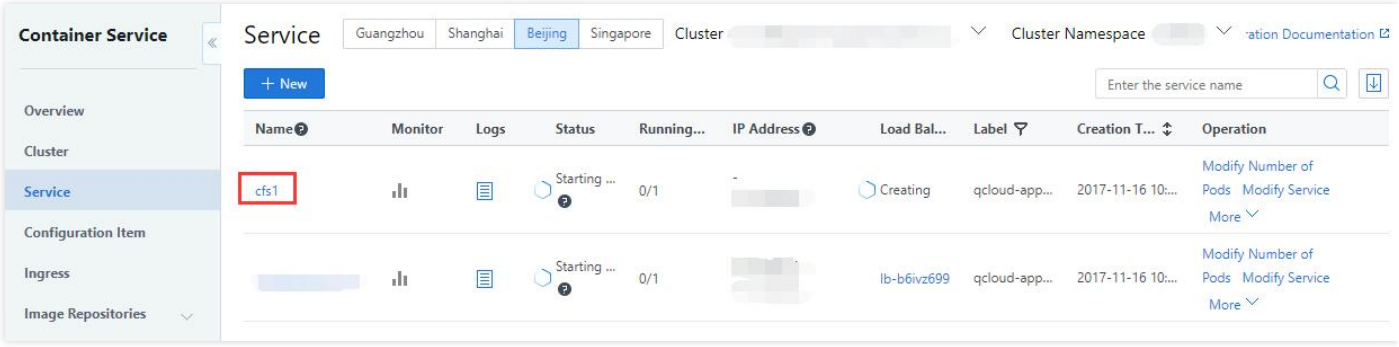
2. **Node list**: A node is a CVM registered in the cluster. You can create a cluster, add an existing cluster, or remove a cluster.
   Namespace list: Namespace is an abstract collection of a group of resources and objects. Click "Namespace List" to create and delete a Namespace.

Cluster information: It displays the basic cluster information.



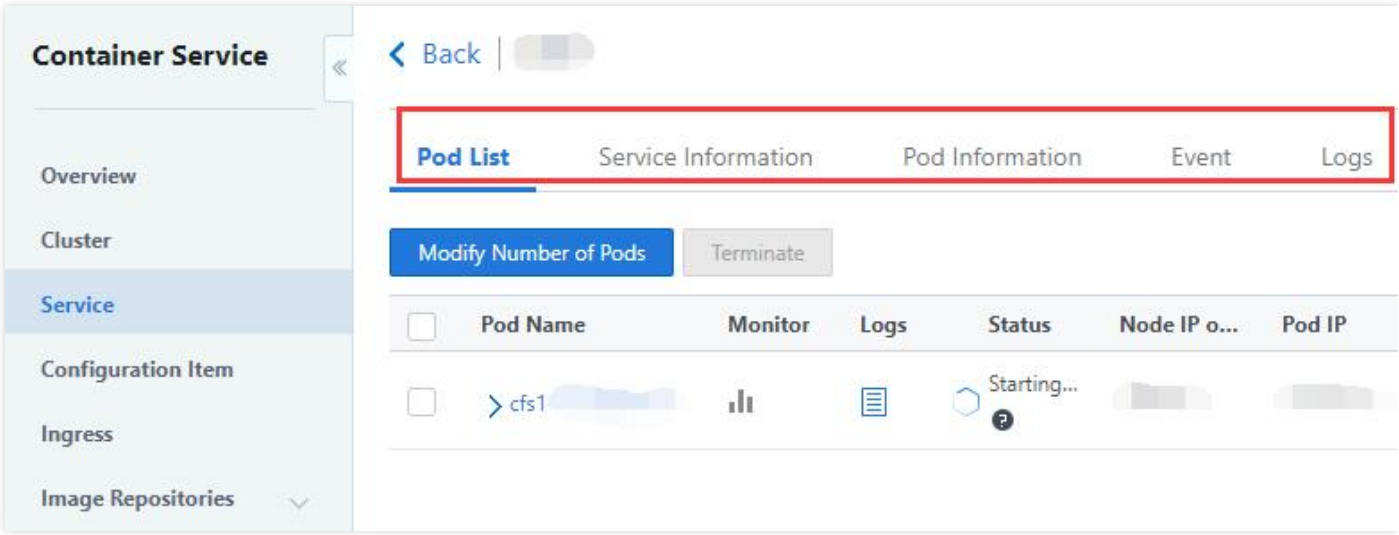
Viewing Service

1. Click "Service" in the left navigation bar, and click "Name" of a service in the service list page, such as cfs1.



2. **Pod list**: A pod is composed of one or more relevant containers. You can specify the number of pods or terminate a pod.
   Service information: It displays the basic service information, configuration information, and port mapping information.
   Pod information: It displays the basic pod information.
   Event: You are redirected to this page when creating a service. It displays the details during the creation

of service.

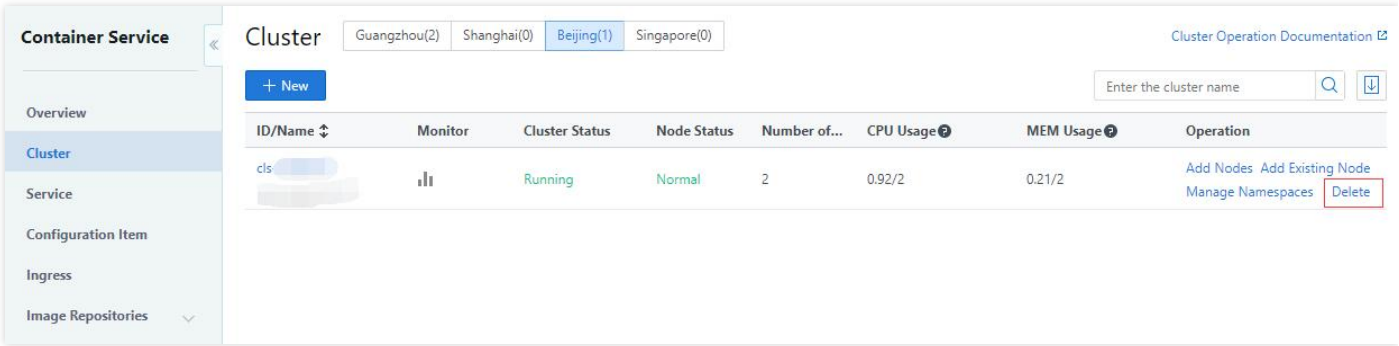


Step 4: Delete a resource

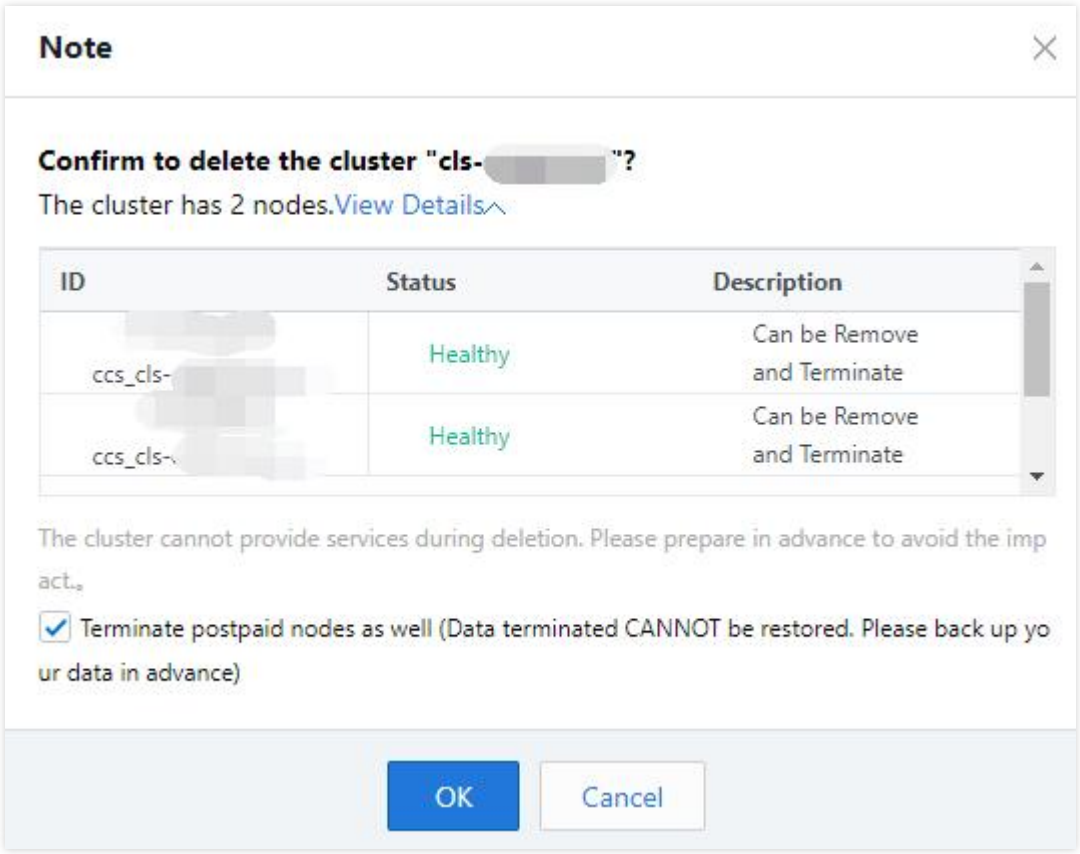
In this tutorial, you have enabled two types of resources: cluster and service. In this step, you can delete all the resources to avoid unnecessary costs.

Deleting a Cluster

1. Click "Cluster" in the left navigation bar, and click "Delete" on the right side of the cluster list page.



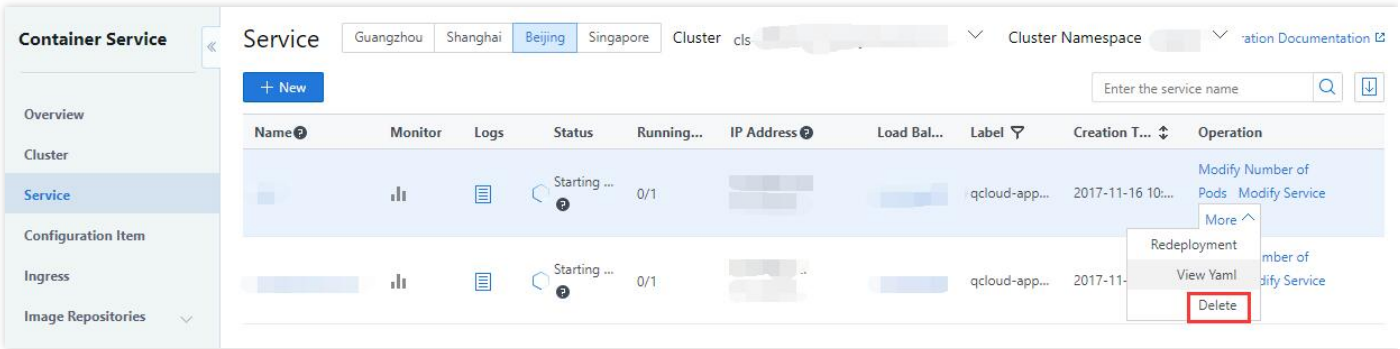
2. Click "OK".



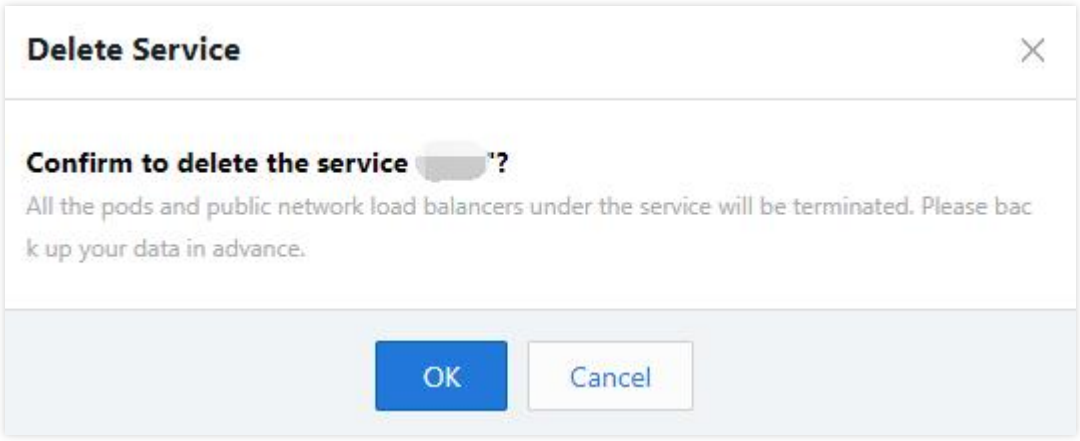
Note:
The cluster cannot provide services during deletion. Please prepare in advance to avoid the impact.

Deleting a Service

1. Click "Service" in the left navigation bar, and click "Delete" in "More" on the right side of the service list page.



2. Click "OK".



More

In this tutorial, you have leant how to configure, deploy and delete services in Tencent TKE. With Tencent TKE, you don't need to install, operate, maintain or expand your cluster management infrastructure. You can enable and disable Docker applications, query full status of the cluster, and use various cloud services by simply calling APIs.

Go to the next tutorial, learn about the basic concepts and operations of Load Balance and Image Registry. You can also create a service quickly using a pod in Quick Start.

Examples
Nginx Services

Last updated：2018-10-09 11:18:36

This document shows how to quickly create an "nginx" service in a container cluster.

Prerequisites

To create an "nginx" service, you must create a cluster first. For more information on how to create a cluster, please see Create Cluster.

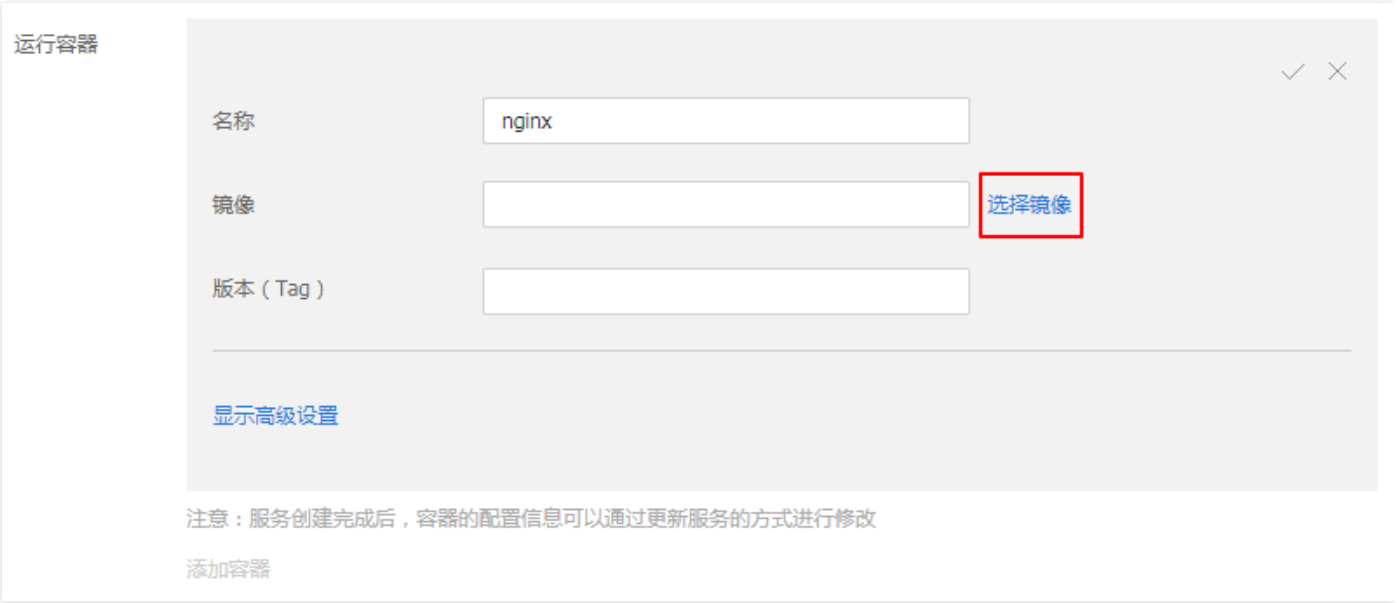
Procedure

1. Log in to TKE Console.
2. Click **Service** in the left navigation bar, and click **+ New** in the service list page.

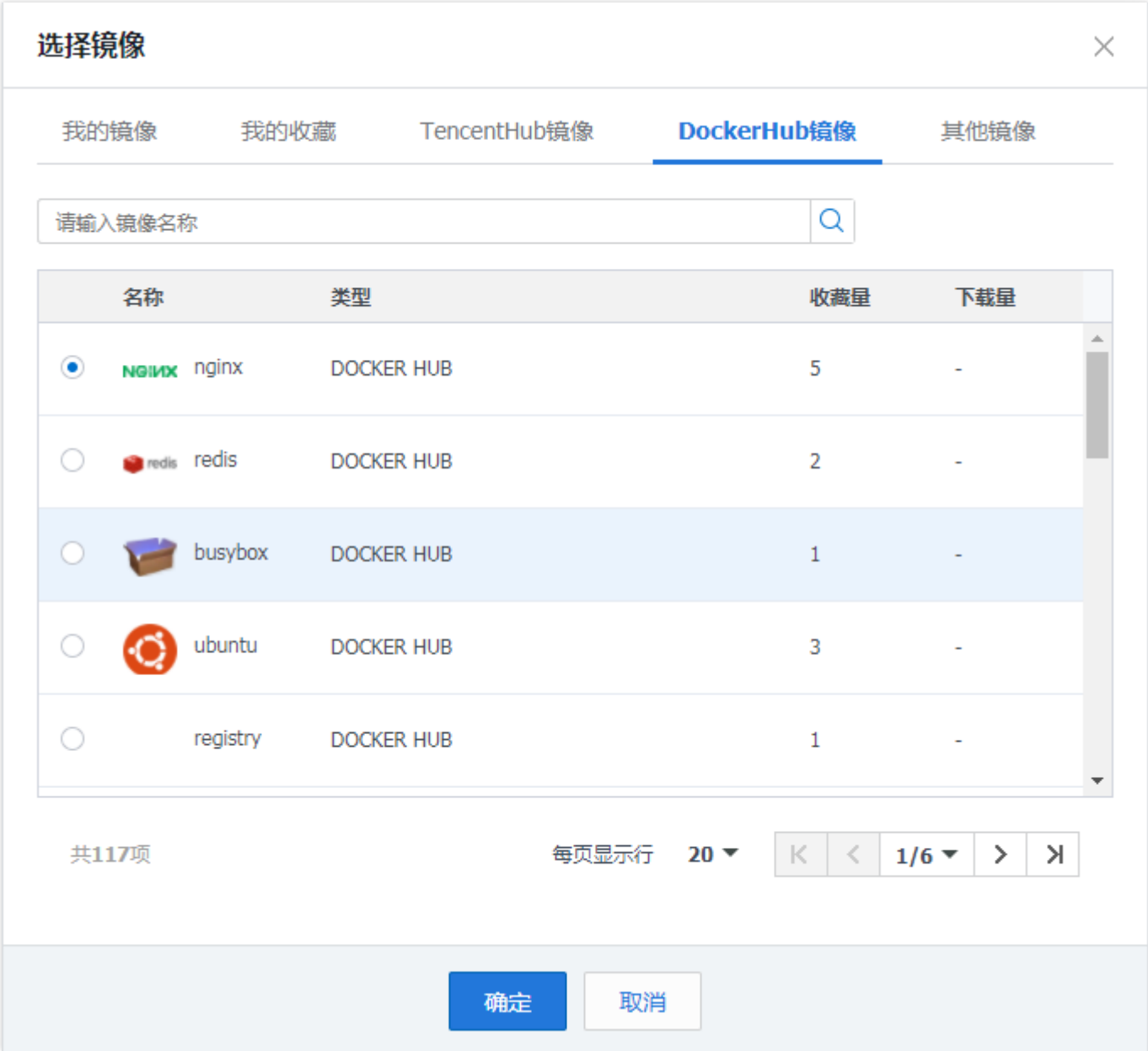
3. Enter basic service information.
   - **Service name**: The name of the service to be created, which is comprised of lowercase letters, numbers and "-". It starts with a lowercase letter and ends with a lowercase letter or a number. In this example, the name is "nginx".
   - **Region**: Select the closest region based on your location.

- **Cluster**: Select an appropriate cluster and Namespace.
- **Service description**: Service information. This information is displayed on the **Service Information** page.

4. Select an image. Enter the name of the running container, which is "nginx" here. Click **Select Image**.

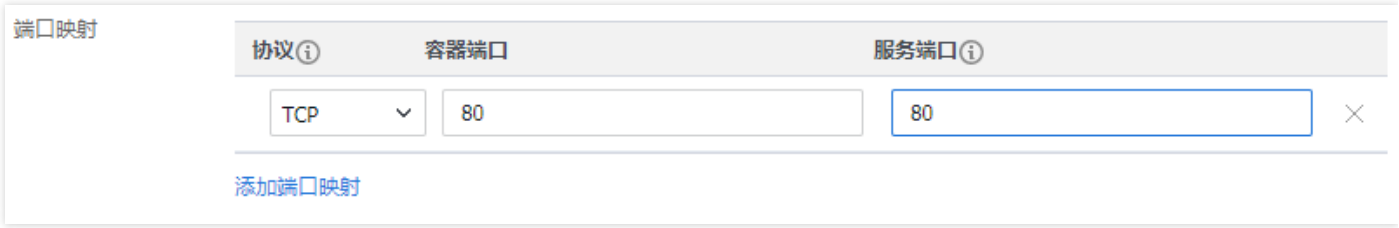


Click **DockerHub Image**, and select "**nginx**". Click **OK**.



Version (Tag): latest. By default, the latest version is used for TKE.

5. Configure port mapping. Set both container port and service port to 80.



6. Click **Create Service** to complete the creation of "nginx" service.

> **Note**: Keep default settings for other options.

Accessing "nginx" Service

1. Click **Service Information** on the service page to check the load balancer ID and load balancer IP.

2. Access "nginx" service by the following ways.
   - Use load balancer IP.
   - Use **domain name**.
     Copy the domain name by clicking **Load Balance** -> **TCP/UDP** in the left navigation bar of the container console to access the service.

- Other services or containers in the cluster can be accessed directly by the service name.

3. Go to "nginx" server's default welcome page.

More "nginx" Settings

For more information, please see Create a Simple Web Service with Tencent Cloud TKE.

Hello World Programs

Last updated：2018-10-09 11:30:03

Description

This document shows how to quickly create an Node.js "hello world" service in a container cluster. For more information about how to build a Docker image, please see Build a Docker Image.

You can view Instructions in "My Image" to learn about how to upload images to Tencent Cloud image warehouse.

Step 1: Write Code to Create an Image

Write Application

1. Create a folder named "hellonode" and add file "server.js" to it.

```
[root@VM_88_88_centos ~]# mkdir hellonode
[root@VM_88_88_centos ~]# cd hellonode/
[root@VM_88_88_centos hellonode]# vim server.js
[root@VM_88_88_centos hellonode]# ls
server.js
```

File "server.js" is shown below:

```
var http = require('http');
var handleRequest = function(request, response) {
console.log('Received request for URL: ' + request.url);
response.writeHead(200);
response.end('Hello World!');
};
var www = http.createServer(handleRequest);
www.listen(8080);
```

2. Test the application "hello world".

```
[root@VM_88_88_centos ~]# node server.js
```

Open a new console and test the application with "curl", or access the application from the browser using "". Port is 8080.

```
[root@VM_88_88_centos ~]# curl 127.0.0.1:8080
Hello World!
```

Here, you have completed the "helloworld" application.

Create Docker Image

For more information about how to create a Docker image, please see Build Docker Image.
Create file "Dockerfile" under the "hellonode" folder:

```
FROM node:4.4
EXPOSE 8080
COPY server.js .
CMD node server.js
```

Build image using the "Docker build" command

```
[root@VM_88_88_centos hellonode]# vim Dockerfile
[root@VM_88_88_centos hellonode]# ls
Dockerfile server.js
[root@VM_88_88_centos hellonode]# docker build -t hello-node:v1 .
Sending build context to Docker daemon 3.072 kB
Step 1 : FROM node:4.4
Trying to pull repository docker.io/library/node ...
4.4: Pulling from docker.io/library/node
......
......
Removing intermediate container 1e8d01dc319f
Successfully built 027232e62e3f
[root@VM_88_88_centos hellonode]# docker images
REPOSITORY TAG IMAGE ID CREATED SIZE
hello-node v1 027232e62e3f 54 minutes ago 647.4 MB
```

Upload Image to Tencent Cloud Image Warehouse

For more information about image operations, please see Image Warehouse Basic Instruction.

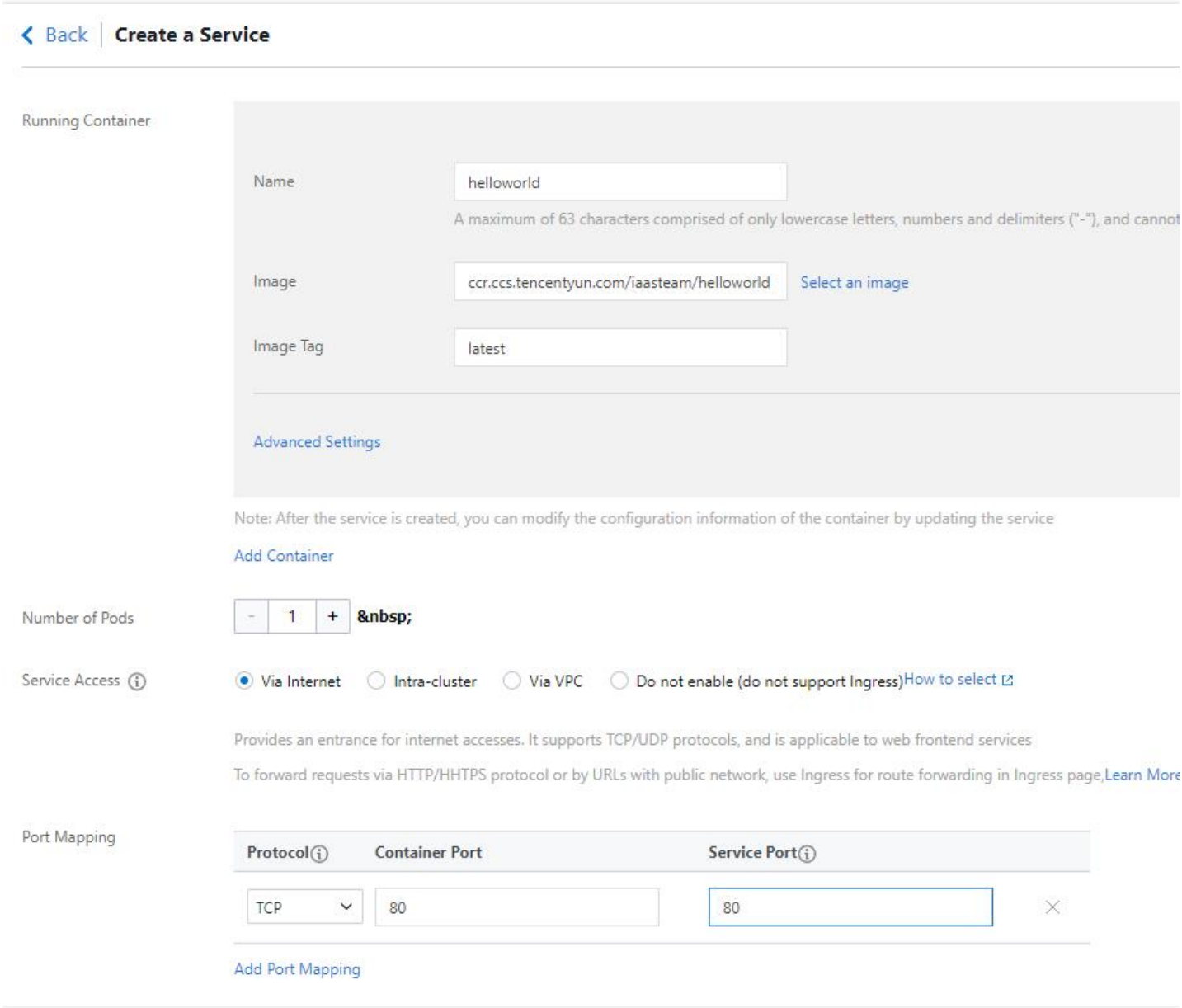
```
[root@VM_3_224_centos hellonode]# sudo docker tag 027232e62e3f ccr.ccs.tencentyun.com/test/helloworld:v1
[root@VM_3_224_centos hellonode]# sudo docker push ccr.ccs.tencentyun.com/test/helloworld:v1
The push refers to a repository [ccr.ccs.tencentyun.com/test/helloworld]
1b8da8805305: Pushed
20a6f9d228c0: Pushed
80c332ac5101: Pushed
04dc8c446a38: Pushed
1050aff7cfff: Pushed
66d8e5ee400c: Pushed
2f71b45e4e25: Pushed
v1: digest: sha256:38b194feeee09abf8ee45e7abca82b9fe494b18b953c771ce8ebefa387107be9 size: 1772
```

Step 2: Create Cluster

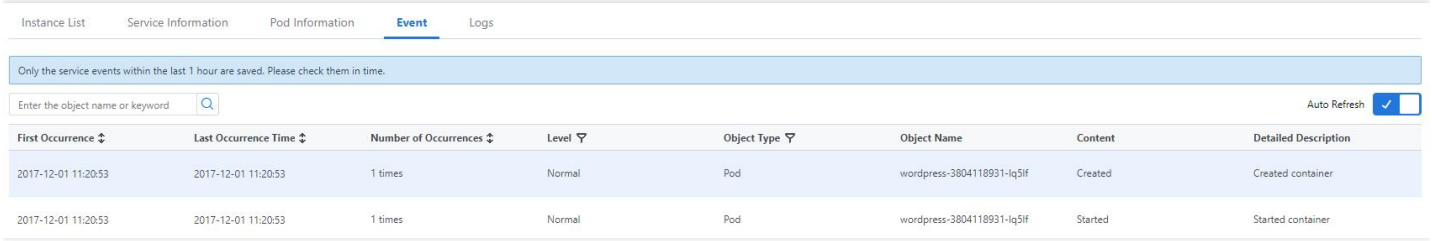
First, you need a cluster where containers can run. If you have no cluster, you need to create one. For more information, please see Create Cluster.

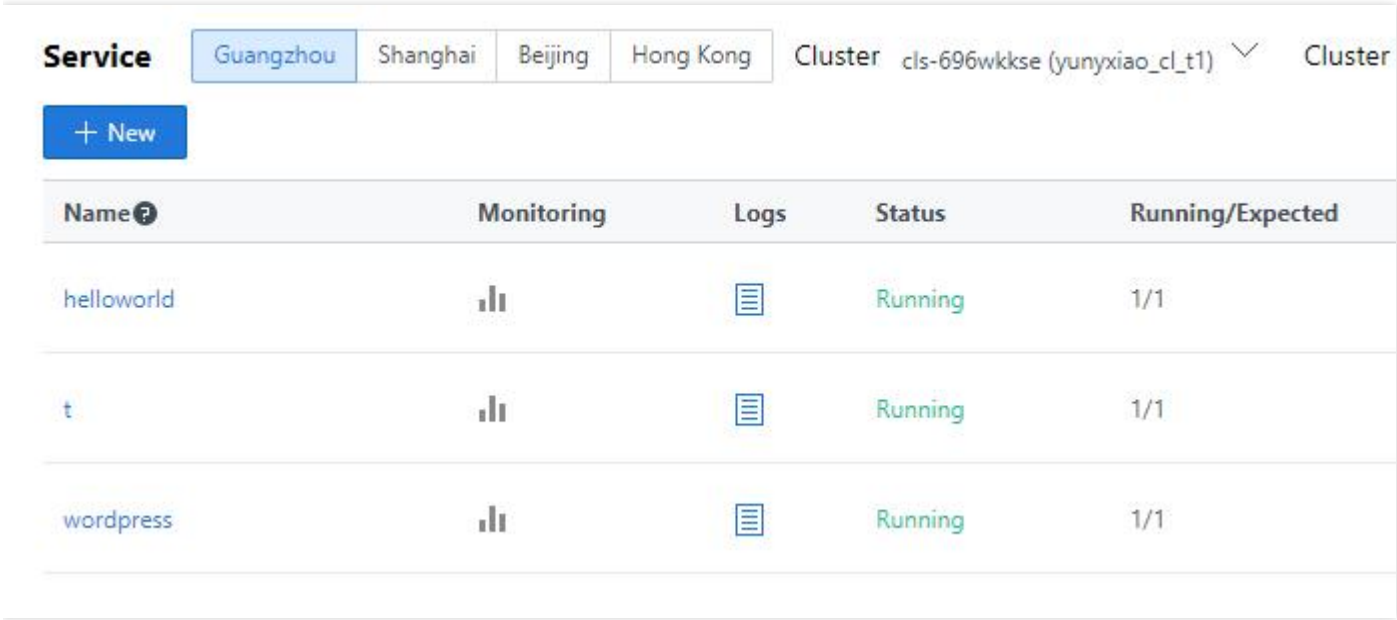
Step 3: Create a Service with the Image

Click the "Create Service" button, choose the cluster to run the service, enter port configuration and click "Create":

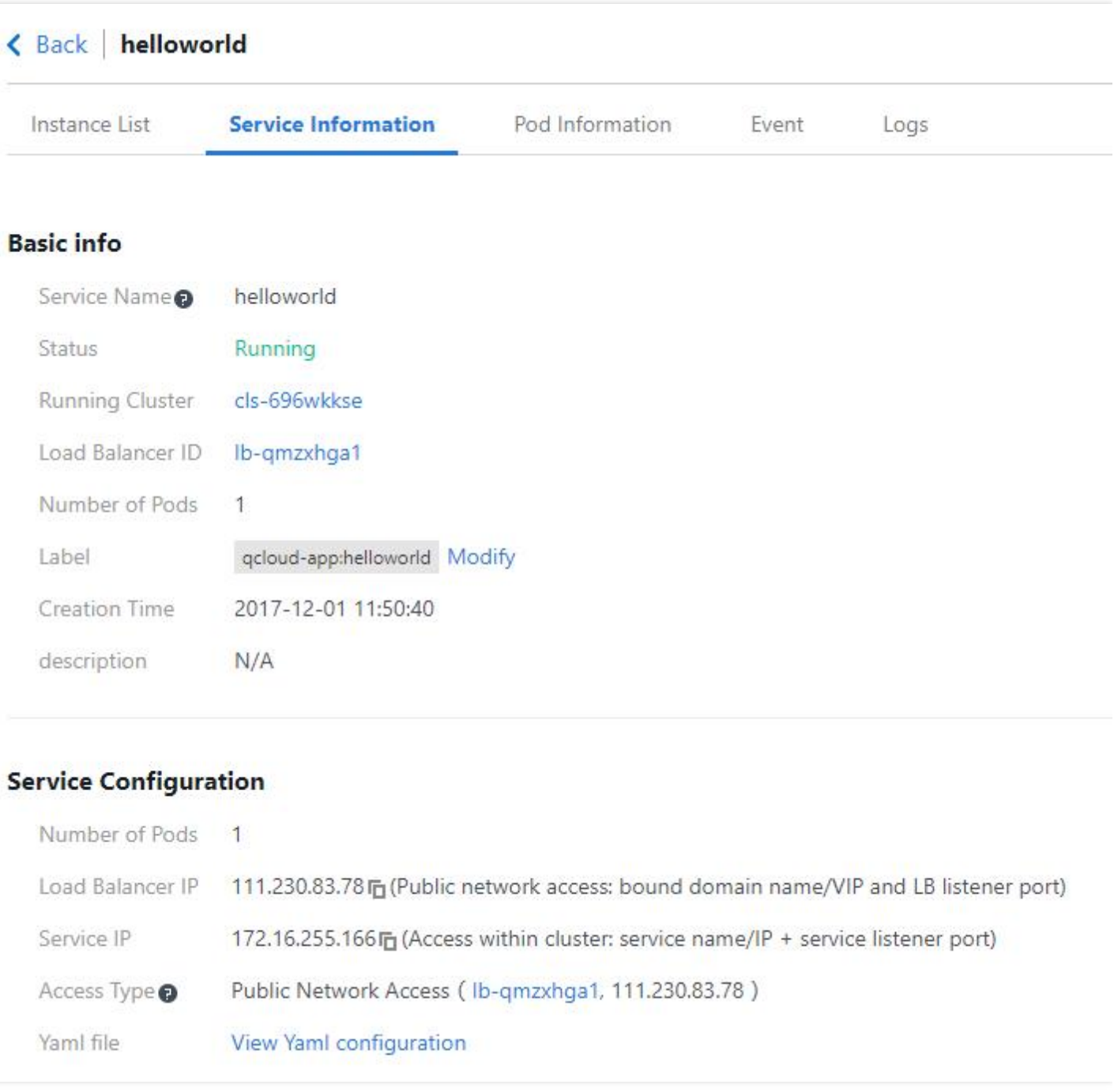


You will be redirected to the event list where you can view the details of the creation process.





When creation is completed, click the service to view its details. You can access the service through its public IP or load balancer domain.



Enter the IP address in the browser, you will see "Hello World!"

WordPress with Single Pod

Last updated：2018-10-09 11:42:08

WordPress is a blogging platform developed with PHP. You can use it as a content management system, or use it to create websites on services that support PHP and MySQL databases.

This document describes how to use the `tutum/wordpress` image to create a publicly accessible WordPress website.

> **Note:**
> The created WordPress with single pod is for testing purpose only. The image includes all operating environments for WordPress, allowing you to pull and create the service directly. However, using WordPress with single pod cannot ensure persistent data storage, so it is recommended that you use the self-built MySQL or Tencent Cloud CDB to store your data. For more information, please see WordPress with CDB.

Prerequisites

You need to create a cluster first. For more information on how to create a cluster, please see Basic Operations of Cluster.

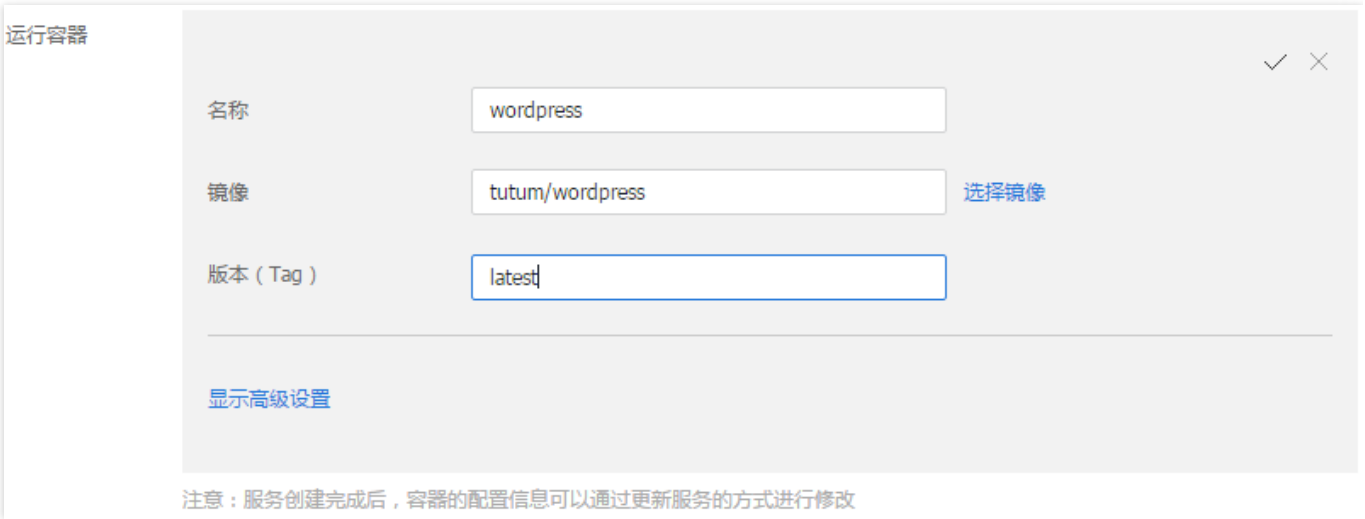
Procedure

1. Log in to the Tencent Cloud TKE console.

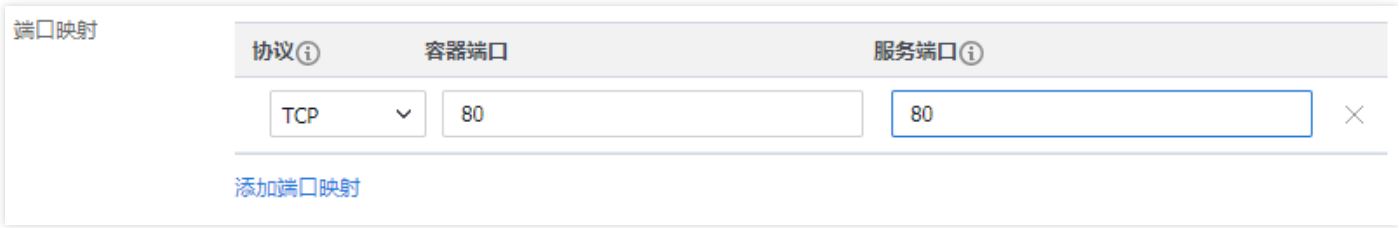
2. Click **Service** in the left navigation bar, and click **+ New** in the service list page.

3. Configure basic service information.
   - **Service Name**: The name of the service to be created, which is comprised of lowercase letters, numbers and "-". It starts with a lowercase letter and ends with a lowercase letter or a number.
   - **Region**: Select the closest region based on your location.
   - **Cluster**: Select a cluster to run your service. You need to select a running cluster with available CVMs in it.
   - **Service description**: Information of the created service. This information is displayed on the **Service Information** page.

4. Image configuration.
   - **Name**: Enter the name of the running container (here is WordPress).
   - **Image**: Enter `tutum/wordpress`.
   - **Version (Tag)**: Enter "latest".



5. Configure port mapping. Set both container port and service port to 80.



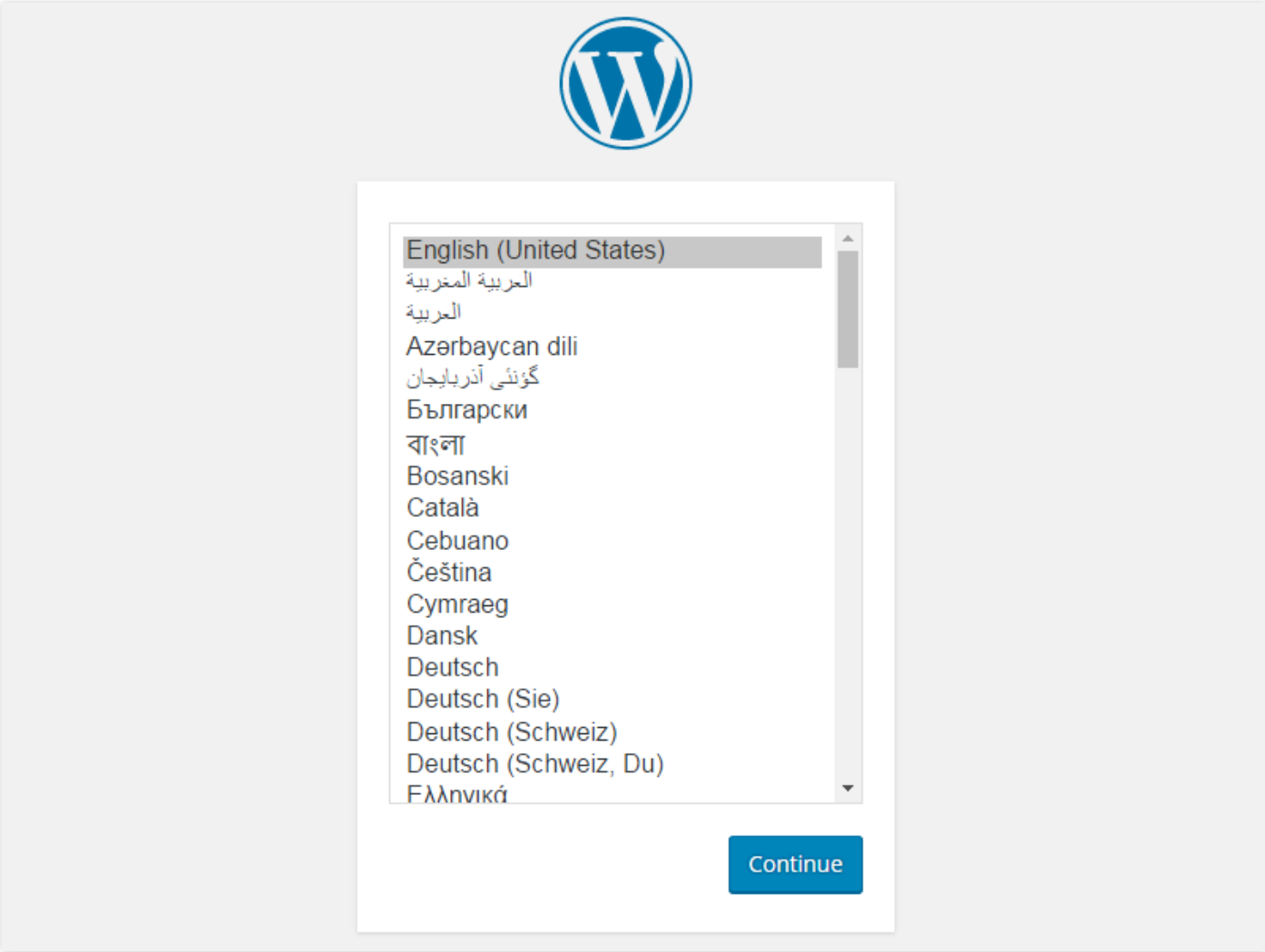
6. Click **Create Service** to complete the creation of the WordPress service.

> **Note**: Keep default settings for other options.

Accessing WordPress Service

1. Click **Service Information** on the service page to check the load balancer IP.

2. Enter the IP in the browser to access the service.



WordPress Featuring CDB

Last updated：2018-10-09 15:30:05

In WordPress with Single Pod, we described how to quickly create a WordPress service. The data of WordPress with single pod is written to the MySQL database running in the same container, which can ensure quick start but may incur an issue, that is, if the container is stopped for some reason, the database and storage-related files will be lost.

This document explains how to configure the MySQL database to make sure that it continue running when the pod/container restarts. Persistent data storage can be achieved by using CDB.

Prerequisites

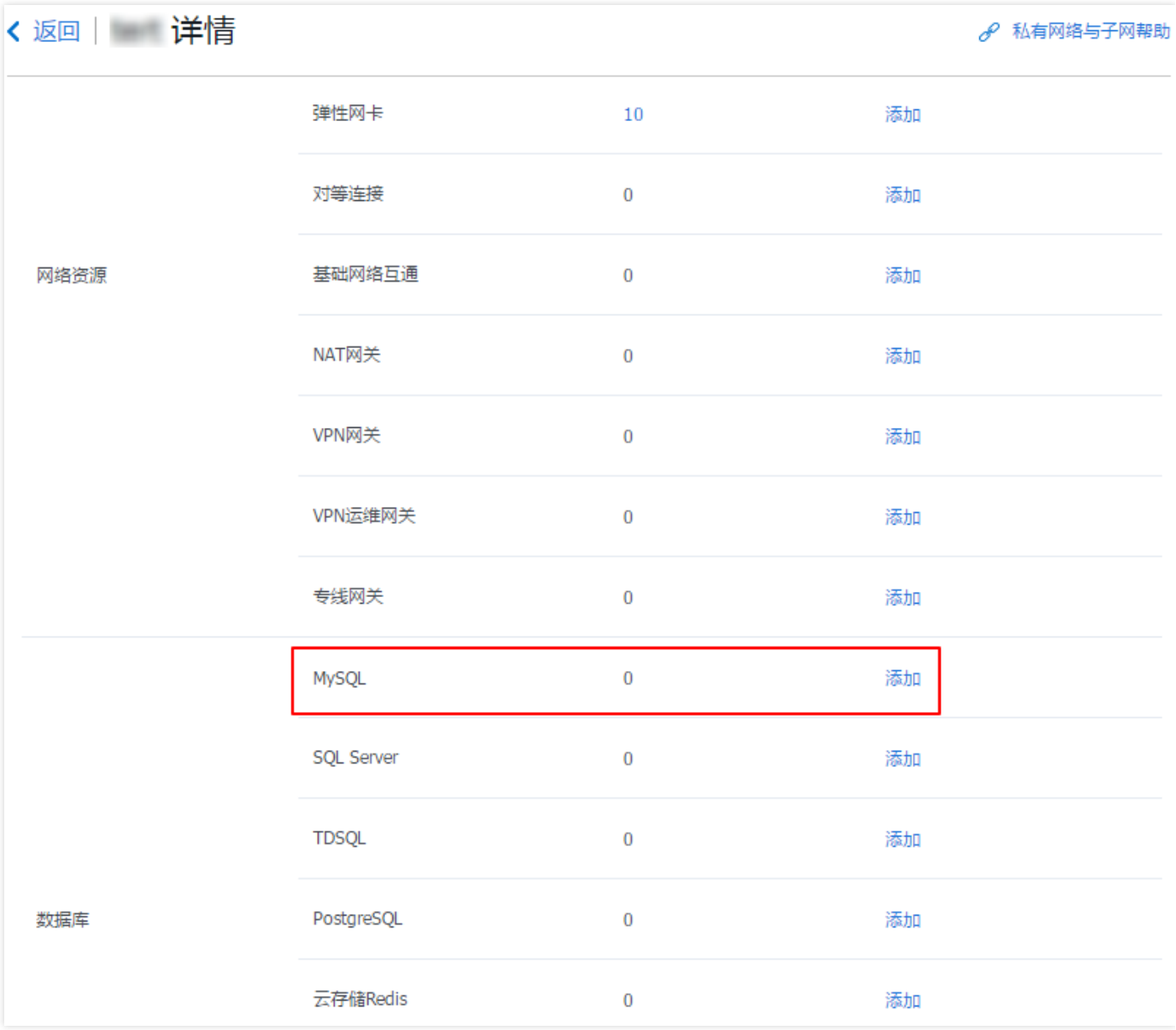
You need to create a cluster first. For more information on how to create a cluster, please see Basic Operations of Cluster.

Procedure

Step 1: Create a CDB

1. Log in to the VPC Console.
2. Click the ID/name (e.g. vpc-xxxxx) on the VPC list page.

3. On the VPC Details page, select **MySQL** in the database directory, and click **Add** on the right.



4. Select the configuration to purchase, and complete the payment. For more information, please see Database MySQL.

5. The purchased MySQL will appear in the MySQL instance list.

6. Initialize the MySQL instance. Click **Initialize** under the **Operation** column on the right side.

7. Configure initialization parameters, and then click **OK** to start initialization.
   - **Supported character set**: Select the character set supported by the MySQL database.
   - **Case-sensitivity of the table name**: Whether the table name is case sensitive. Default is "Yes".
   - **Custom port**: Database access port. Default is 3306.
   - **Root account password**: The default user name for the new MySQL database is "root". This is used to set the password of the root account.

- **Confirm password**: Enter the password again.

8. The status of the target MySQL instance becomes **Running**, which indicates it has been initialized successfully.

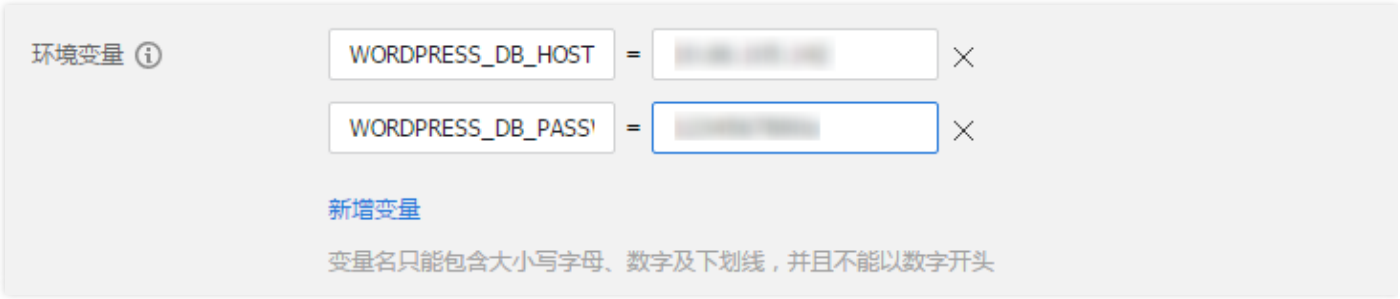
Step 2: Create WordPress service

1. Log in to the Tencent Cloud TKE console.

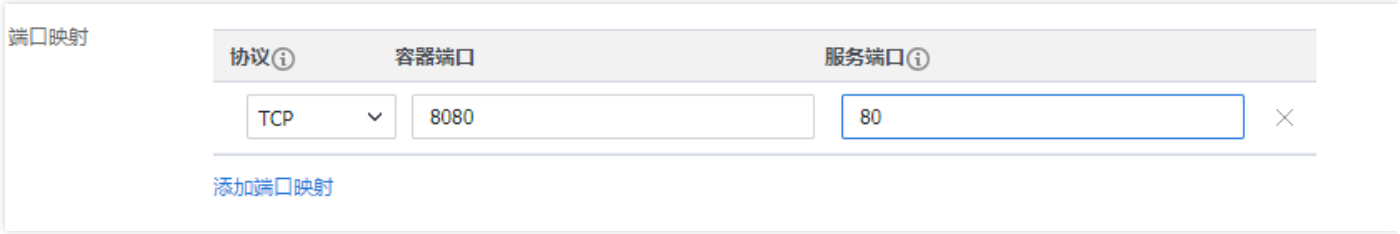
2. Click **Service** in the left navigation bar, and click **New** in the service list page.

3. Configure basic service information.
   - **Service Name**: The name of the service to be created, which is comprised of lowercase letters, numbers and "-". It starts with a lowercase letter and ends with a lowercase letter or a number.
   - **Region**: Select the closest region based on your location.
   - **Cluster**: Select a cluster to run your service. You need to select a running cluster with available CVMs in it.
   - **Service description**: Information of the created service. This information is displayed on the **Service Information** page.

4. Click **Display Advanced Settings** under the running container. In the drop-down list, click **New Variable** under Environment Variables. Enter:
   WORDPRESS_DB_HOST = Address of CDB for MySQL
   WORDPRESS_DB_PASSWORD = Password entered during initialization



5. Configure port mapping. Set both container port and service port to 80.



6. Click **Create Service** to complete the creation of the WordPress service.

Accessing WordPress Service

1. Click **Service Information** on the service page to check the load balancer IP.

2. Enter the IP in the browser to access the service.