

Ubiquitous Cloud Native Service

Getting Started

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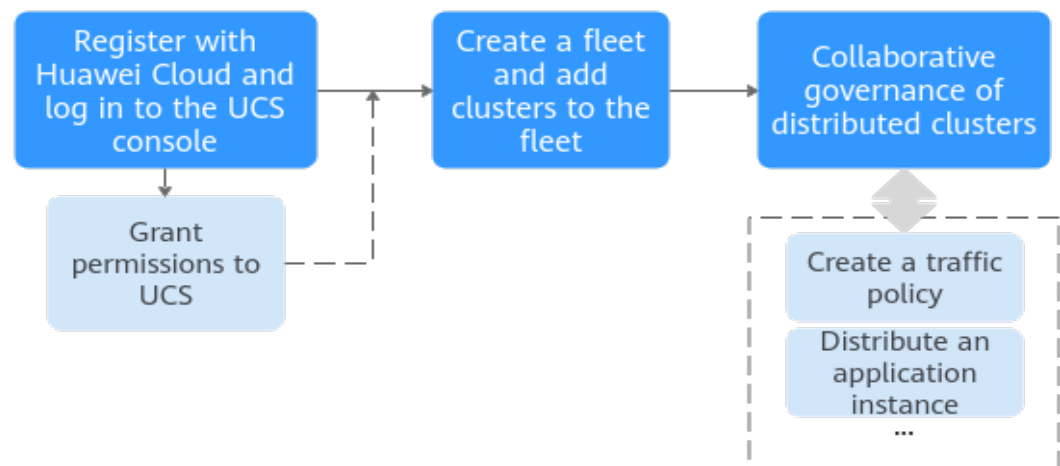
1 Introduction

This section describes how to use Ubiquitous Cloud Native Service (UCS) to help you quickly get started with UCS.

Procedure

To use UCS, do as follows:

Figure 1-1 Procedure



- Step 1** You have registered with Huawei Cloud and logged in to the UCS console.
- Step 2** Create a fleet and add clusters to the fleet. For details, see [Quickly Connecting an Attached Cluster](#).
- Step 3** You can use the UCS console to manage, monitor, and troubleshoot your distributed clusters. All in one place with consistent experience. Supported functions:
- Create a traffic policy. For details, see [Creating a Traffic Policy](#).

----End

2 Preparations

Registering with Huawei Cloud

If you already have a Huawei Cloud account, skip this part. If you do not have a Huawei Cloud account, perform the following operations to create one:

1. Visit <https://www.huaweicloud.com/intl/en-us/> and click **Register**.
2. On the page displayed, register an account as prompted.

After the registration is successful, the system redirects you to your personal information page.

Obtaining Resource Permissions

To support Cloud Container Engine (CCE) clusters, UCS requires the permissions for accessing CCE. When you log in to the UCS console for the first time, the UCS automatically requests the permission to better serve you.

After you agree to delegate the permissions, an agency named **ucs_admin_trust** will be created for UCS in Identity and Access Management (IAM). The system account **op_svc_ucs** will be delegated the Tenant Administrator role to perform operations on other cloud service resources. Tenant Administrator has the permissions on all cloud services except IAM, which calls the cloud services on which UCS depends. For details, see [Delegating Resource Access to Another Account](#).

CAUTION

UCS may fail to run as expected if the Tenant Administrator role is not assigned. Therefore, do not delete or modify the **ucs_admin_trust** agency when using UCS.

If a misoperation is performed, see [How Do I Restore System Agency ucs_admin_trust I Deleted?](#)

(Optional) Creating a DNS Record Set

UCS distributes your service traffic by resolving domain names using the DNS service. To use a domain name to access a cluster, you need to add a DNS record set for the domain name on the DNS console.

For details about how to add a record set, see [Configuring Record Sets for a Website](#).

 **NOTE**

You need to register the domain name via the domain name registrar.

Step 1 Log in to the management console.

Step 2 Hover on the upper left corner to display **Service List** and choose **Networking > Domain Name Service**.

Step 3 In the navigation pane, choose **Public Zones**.

Step 4 (Optional) In the upper right corner of the page, click **Create Public Zone**.

After you register a domain name with Huawei Cloud, a public zone will be automatically created. You can jump to [Step 6](#).

Step 5 (Optional) Set **Name** to **example.com**.

Step 6 Click the zone name **example.com** to access the record sets page.

Step 7 In the upper right corner of the page, click **Add Record Set** and set parameters as prompted to add an A record set for the domain name.

Step 8 Click **OK**.

----End

3 Quickly Connecting an Attached Cluster

UCS supports registration of Huawei Cloud clusters, local clusters, and attached clusters. This section uses attached clusters as an example to describe how to quickly connect a Kubernetes cluster to UCS through public network access.

NOTICE

- If you are connecting a cluster located outside China to UCS, ensure that this connection and the subsequent actions you will take comply with the local laws and regulations.
 - Ensure that the registered cluster is a Kubernetes cluster that has passed the CNCF Certified Kubernetes Conformance Program and its version is 1.19 or later.
-

Obtaining kubeconfig

Step 1 Log in to the master node in the cluster to be connected.

Step 2 Obtain the cluster kubeconfig file.

```
cat $HOME/.kube/config
```

By default, the kubeconfig file of a self-built cluster is stored in the **\$HOME/.kube/config** directory of the master node. If another kubeconfig file is specified for your cluster, change the directory. For details about the kubeconfig file, see [Organizing Cluster Access Using kubeconfig Files](#).

Step 3 Copy the credential content.

Step 4 Create a YAML file on the local PC, paste the credential content copied in the previous step to the file, and save the file.

----End

Creating a Fleet

Step 1 Log in to the UCS console. In the navigation pane, choose **Fleets**. On the **Fleets** tab page, click **Create Fleet**.

Step 2 Enter the fleet information, as shown in [Figure 3-1](#).

Figure 3-1 Creating a fleet

- **Fleet Name:** Enter a name, starting with a lowercase letter and not ending with a hyphen (-). Only lowercase letters, digits, and hyphens (-) are allowed.
- **Add Cluster:** If you do not select a cluster, an empty fleet will be created. After the fleet is created, add the cluster to the fleet by referring to [Registering a Cluster](#).
- **Description:** description of the fleet to which the cluster is added

Step 3 Click **OK**.

----End

Registering a Cluster

Step 1 Log in to the UCS console. In the navigation pane, choose **Fleets**.

Step 2 Click the **Register Cluster** button in the card view of the target attached cluster.

Step 3 Select a cluster service provider and set cluster parameters as prompted. In this example, only key parameters listed in [Table 3-1](#) are set.

Table 3-1 Parameters for connecting a cluster

Parameter	Description
* Cluster Name	Enter a name for the cluster. Start with a lowercase letter and do not end with a hyphen (-). Use only digits, lowercase letters, and hyphens (-).
* Service Provider	Select a cluster service provider.

Parameter	Description
* Region	Select a region where the cluster is deployed.
* kubeconfig	Upload the kubectl configuration file to complete cluster authentication. The file can be in JSON or YAML format.
* Context	Select the corresponding context. The option list is available after the kubeconfig file is uploaded. By default, the option list is the context specified by the current-context field in the kubeconfig file. If the file does not contain this field, you need to manually select an option from the list.
Fleets	Select the fleet created in Creating a Fleet .

Figure 3-2 Registering a cluster

[Documentation](#)

Register Cluster

Notes:

- When registering clusters to UCS, ensure that you comply with local laws and regulations for all the actions you will take on your clusters.
- Registered clusters must be CNCF-certified Kubernetes offerings of version 1.19 or later.

* Type: Huawei Cloud cluster | Local cluster | **Attached cluster**

Third-party Kubernetes clusters that comply with CNCF standards, such as AWS (EKS), GCP (GKE), and self-managed clusters

* Cluster Name:

* Service Provider:

* Region:

Cluster Label: =

* kubeconfig: [Obtain kubeconfig File](#)

Upload a kubeconfig file (in JSON or YAML format) for cluster authentication.

* Context:

Fleets:

Notes:

- Cannot select a fleet with cluster federation enabled when registering a cluster.
- Register a cluster with UCS before registering it to a fleet with cluster federation enabled.

A fleet manages multiple clusters with unified permissions, security policies, configurations, and orchestration.

Step 4 Click **OK**.

----End

Enabling Network Access

After a cluster is connected, you need to configure a proxy for the cluster to access the network so that the cluster can be taken over by UCS. The following section uses public network access as an example.

Connecting a cluster through a public network is easy, flexible, and cost-effective. If you require high speed, stability, and security while low latency, you can access

the cloud through a private network. For details, see [Registering an Attached Cluster \(Private Access\)](#).

Step 1 On the UCS console, click **Public access** in the card view of the cluster to be accessed to view the detailed public network access process.

Step 2 Download the configuration file of the cluster agent.

 **NOTE**

The agent configuration file contains keys and can be downloaded only once. Keep the file secure.

Step 3 Use kubectl to connect to the cluster, create a YAML file named **agent.yaml** (customizable) in the cluster, and copy the agent configuration in [Step 2](#) and paste it to the YAML file.

vim agent.yaml

Step 4 Run the following command in the cluster to deploy the agent:

kubectl apply -f agent.yaml

Step 5 Check the deployment of the cluster agent.

kubectl -n kube-system get pod | grep proxy-agent

Expected output for successful deployment:

```
proxy-agent-5f7d568f6-6fc4k 1/1 Running 0 9s
```

Step 6 Check the running status of the cluster agent.

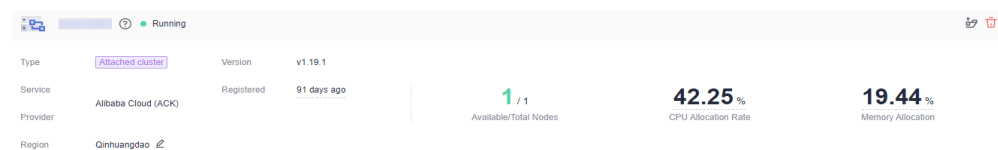
kubectl -n kube-system logs <Agent Pod Name> | grep "Start serving"

Expected log output for normal running:

```
Start serving
```

Step 7 Go to the UCS console and refresh the cluster status. The cluster is in the **Running** status.

Figure 3-3 Cluster in running status



----End

4 Managing Distributed Clusters

4.1 Creating a Traffic Policy

UCS intelligently distributes application requests and supports functions such as traffic splitting, grayscale release, and failover.

Prerequisites

- You have connected a Kubernetes cluster to UCS and enabled network access for the cluster. For details, see [Quickly Connecting an Attached Cluster](#).
- A LoadBalancer Service has been created for the cluster.
- An approved public domain name has been added to Huawei Cloud DNS record set. For details, see [Creating a DNS Record Set](#).

Procedure

Assume that your services are deployed in multiple regions. By default, users in China access your services in the CN North-Beijing4 region, and users in Asia Pacific will be served in the AP-Singapore region to reduce the latency. In this case, you can create a traffic policy to split traffic for applications by region.

- Step 1** Log in to the UCS console.
- Step 2** In the navigation pane, choose **Traffic Distribution**.
- Step 3** Click **Create Traffic Policy** in the upper right corner.
- Step 4** Select the domain name added to the record set and enter the domain name prefix as prompted. If there is no subdomain name, the domain name prefix can be left blank.
- Step 5** Add a scheduling policy. In this example, set only key parameters listed in [Table 4-1](#) and retain the default values for other parameters. To create traffic policies for users in different regions, repeat this step and select different clusters and line types.

Table 4-1 Key parameters of a scheduling policy

Parameter	Description
Cluster	Select a cluster in Running state. All clusters taken over by UCS are displayed.
Namespace	Namespace to which the Service belongs. Defaults to default .
Service	Select a Service. Only LoadBalancer Services can be selected.
Line Type	<ul style="list-style-type: none"> • ISP line: routes visitors to the optimal address based on the carrier networks they use. Defaults to China Telecom/Default regions. You can specify a carrier and region down to province. • Region line: routes visitors to the optimal address based on their geographic locations. Defaults to Chinese Mainland/Default regions. You can select a global region. For Chinese Mainland, the region granularity is province. For Global, the region granularity is country/region.

Figure 4-1 Adding a scheduling policy

Step 6 Click **OK**. Under this traffic policy, users in Asia Pacific will preferentially access the specified line.

Step 7 Check whether the scheduling policy takes effect. For details, see [How Do I Check Whether Record Sets Have Taken Effect?](#)

You can use a device that has connected to the Internet at Asia Pacific and run the following command to check whether the scheduling policy takes effect:

```
nslookup demo.***.com
```

 **NOTE**

If the device OS does not support the **nslookup** command, manually install it first. For example, if you are using a CentOS device, run the **yum install bind-utils** command first.

If the following information is displayed and the IP address of **Address** is the load balancer IP of the target cluster, the scheduling policy takes effect.

```
Server: ***  
Address: *.*.*  
  
Non-authoritative answer:  
Name: demo.***.com  
Address: 124.*.*
```

----End