

Intelligent EdgeFabric

Getting Started

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Contents

1 Overview..... 1

2 Registering and Managing a Node..... 3

3 Creating a Containerized Application..... 6

1 Overview

Intelligent EdgeFabric (IEF) provides you a complete edge computing solution where cloud applications are extended to the edge. By leveraging edge-cloud synergy, you can manage edge nodes and applications remotely while still processing data nearby. In addition, you can perform O&M in the cloud, including edge node monitoring, edge application monitoring, and log collection.

This document describes how to quickly register an edge node with IEF and deliver applications from IEF to the edge node. In this document, an Elastic Cloud Server (ECS) is used as an example to demonstrate how to register an edge node, manage the edge node, and deliver a containerized application to the edge node.

NOTE

Any device that can be connected to IEF and meets the requirements described in [Constraints](#) can be registered as an edge node. For easy operations, an ECS is used as an example.

Preparations

Step 1 Purchase an ECS with a public IP address. For details, see [Purchasing a Custom ECS](#).

For demonstration, you do not need to select high specifications for ECS and public IP address. For example, select **1 vCPUs | 2 GB** for ECS specifications, **1 Mbit/s** for the IP bandwidth, and **CentOS 7.6** for the operating system.

Step 2 Install the container engine on the ECS.

1. Log in to the ECS as user **root**.
2. Run the following commands to download and install the container engine:

```
curl -fsSL get.docker.com -o get-docker.sh
sh get-docker.sh
sudo systemctl daemon-reload
sudo systemctl restart docker
```

3. Run the following command to check the Docker version:

```
docker version
```

If the following information is displayed, the installation is successful.

```
docker version
Client:
```

Version: 17.12.0-ce
API Version: 1.35

----End

2 Registering and Managing a Node

Registering an Edge Node

- Step 1 Log in to the [IEF console](#).
- Step 2 In the navigation pane, choose **Managed Resources > Edge Nodes**. Then, click **Register Edge Node** in the upper right corner.
- Step 3 Configure basic edge node information.

Figure 2-1 Basic edge node information

Service Instance

platinum

Node Name

Description

Enter an edge node description.

0/255

Tags

Tag key

Tag value

You can add 20 more tags.

If you need to deploy NPU or GPU applications, please switch the AI accelerator card type according to your choice. [Edge Node Specifications Requirements](#)

AI Accelerator Card

Not installed

Huawei AI accelerator card

NVIDIA GPU

Bind Device

Device Names	Device to Node Relationship	Remarks	Operation
+ Add Device			

Docker

?

Enable

Listening Address

?

NIC

IP

tls://

lo

:

8883

tls://

docker0

:

8883

+

 Add Listening Address

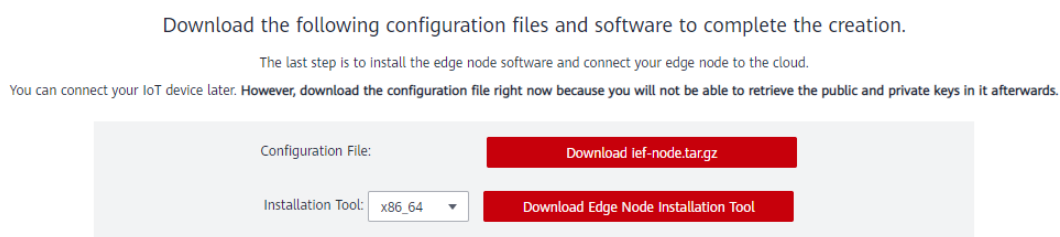
- **Node Name:** name of an edge node, for example, **ief-node**.
- **AI Accelerator Card:** Select **Not installed**.

Retain the default values for other parameters.

Step 4 Select **I have read and agree to the Huawei Cloud Service Level Agreement**. Click **Register** in the lower right corner.

- Using a certificate: Download the configuration file and edge node installation tool.

Figure 2-2 Downloading the edge node installation tool and configuration file



- a. Click **Download *Edge node name.tar.gz***.
- b. Select the CPU architecture of your edge node, and click **Download Edge Node Installation Tool**.

Step 5 In the lower right corner, select **I've finished downloading** and click **Finish**.

The edge node is in the **Unconnected** state because the installation tool downloaded in [Registering an Edge Node](#) has not been installed. For details, see [Managing an Edge Node](#).

Figure 2-3 Unconnected edge node

☐	Name/ID	Node Status	Host Name/Network	Instances (Normal/All)	Created	Edge Software...	Node Tags	Node Source	Operation
☐	ief-node 569d31f4-83de-4699-abc	Unconnected Unconnected Installation Guide	--	0/0	Jul 20, 2021 09:20:23 GMT...	--	--	Custom node	Delete More ▾

-----End

Managing an Edge Node

Managing an edge node is to install the downloaded installation tool and configure the certificate on the edge node. In this way, the edge node can be connected to and managed by IEF.

Step 1 Log in to the edge node as a user with the **sudo** permission.

The edge node is the ECS created in [Overview > Preparations](#).

Step 2 Upload the configuration file and edge node installation tool downloaded in [Registering an Edge Node](#) to a specified directory on the edge node, for example, **/home**.

Step 3 Run the following command to decompress the installation tool to the **/opt** directory:

```
sudo tar -zxvf edge-installer_1.0.0_x86_64.tar.gz -C /opt
```

Replace *edge-installer_1.0.0_x86_64.tar.gz* with the name of the installation tool downloaded in [Registering an Edge Node](#).

Step 4 Run the following command to decompress the configuration file to the **opt/IEF/Cert** directory:

```
sudo mkdir -p /opt/IEF/Cert; sudo tar -zxvf Edge node name.tar.gz -C /opt/IEF/Cert
```

Replace *Edge node name.tar.gz* with the name of the configuration file downloaded in [Registering an Edge Node](#).

Step 5 Run the following command to manage the edge node:

- Registration using a certificate
cd /opt/edge-installer; sudo ./installer -op=install

Step 6 Verify whether the edge node is managed successfully.

1. Log in to the [IEF console](#).
2. In the navigation pane, choose **Managed Resources > Edge Nodes**.
3. Check the edge node status. If the status is **Running**, the edge node has been managed by IEF.

Figure 2-4 Checking the edge node status



----End

Related Operations

This section describes only the basic operations for registering a node and does not introduce advanced settings. For more details about edge node operations, see [User Guide > Edge Nodes](#).

3 Creating a Containerized Application

After an edge node is registered with and managed by IEF, you can use IEF to deliver applications to the edge node. This section describes how to use IEF to deliver a containerized application to an edge node.

Creating an Edge Application

Step 1 Log in to the [IEF console](#).

Step 2 In the navigation pane, choose **Edge Applications > Containerized Applications**. Then, click **Create Containerized Application** in the upper right corner.

Step 3 Specify basic information.

- **Name:** name of a containerized application.
- **Instances:** number of application instances.
- **Configuration Method:** Select **Custom**.

Figure 3-1 Basic application information

Service Instance

platinum

Creation Mode

Custom

* Name

Instances

—

1

+

Configuration Method

Custom

Application template

Description

Enter a description.

0/255

Tags

You can add 20 more tags.

Step 4 Configure containers.

Click **Use Image** under the target image.

- **My Images:** shows all the images you have created in [SWR](#). For details about how to upload an image, see [Uploading an Image Through a Docker Client](#).
- **Shared Images:** shows the images shared by other users.

After selecting an image, specify container specifications.

- **Image Version:** Select the version of the image to be used to deploy an application.
- **Container Specifications:** Specify CPU, memory, and AI accelerator card quotas.

Figure 3-2 Container configuration

* Container Configuration

nginx

Select Image

Image Name

nginx

Change Image

* Image Version

v3

* Container Name

container-bcd7a79c

Container Specifications

CPU

Request

0.25

cores

Limit

0.25

cores

Memory

Request

512.00

MIB

Limit

512.00

MIB

AI Accelerator Card

Not installed

Huawei AI accelerator card

NVIDIA GPU

Step 5 Click **Next**.

Select the edge node where the application is to be deployed. Leave the other parameters unspecified.

Figure 3-3 Deployment configuration

★ Deployment Object

Manually specifyAutomatically schedule

Edge Node

+ Select Edge Node

Node Name	Node Description
ief-node	--

Advanced Settings

▼

Step 6 Click **Next**.

Leave the parameters unspecified.

Step 7 Click **Next**. Confirm the specifications of the containerized application and click **Create**.

----End

Querying Application O&M Information

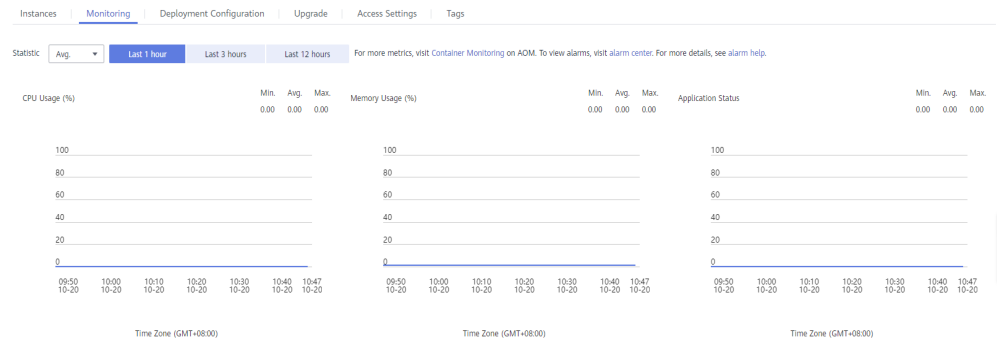
After an application is deployed, you can view the CPU and memory information of the application on the IEF console. You can also go to the **Container Monitoring** page on the AOM console to view additional metrics, or **Alarm Center** on the AOM console to add or view alarms.

Step 1 Log in to the IEF console.

Step 2 In the navigation pane, choose **Edge Applications > Containerized Applications**. Then, click an application name.

Step 3 Click the **Monitoring** tab to view the monitoring details for the application.

Figure 3-4 Application monitoring details



----End

Related Operations

This section describes only the basic operations for creating a containerized application and does not introduce advanced settings. For more details about application operations, see [User Guide > Containerized Applications](#).