

DHCS Deployment Guide

release v1.0.0

1. Installation Requirements

- 1.1. Hardware Resource Requirements
- 1.2. Software Resources

2. Installation Media

- 2.1. Operating System Images
- 2.2. DHCS Installation Packages

3. Open Ports

4. Installing DHCS

- 4.1. Binary File Installation
 - 4.1.1. Install Ubuntu Operating System
 - 4.1.2. Install OpenSSH (Optional)
 - 4.1.3. Upload Installation Package
 - 4.1.4. Install DHCS
 - 4.1.5. Initialization Wizard
- 4.2. Podman Image Deployment
 - 4.2.1. Environment Preparation
 - 4.2.2. Install Podman
 - 4.2.3. Upload Image Package
 - 4.2.4. Installation Process
 - 4.2.5. Initialization
- 4.3. VMware Workstation Deployment
 - 4.3.1. Import Virtual Machine
 - 4.3.2. Start and Setup
 - 4.3.3. Initial Configuration
- 4.4. VMware ESXi Deployment
 - 4.4.1. Create Virtual Machine
 - 4.4.2. Initial Configuration
 - 4.4.3. Login Information

5. System Login

- 5.1. Login Methods
- 5.2. Login Account
- 5.3. Login Page

6. Troubleshooting

- 6.1. Check Services
- 6.2. Check Processes
- 6.3. Check Ports
- 6.4. Common Issues

7. Advanced Maintenance Mode

- 7.1 Advanced Maintenance Mode

8. offline Podman install

- 8.1. offline Podman installation packages

1. Installation Requirements

DHCS supports the following four deployment scenarios:

- One-click script installation on Ubuntu
- Containerized deployment via Podman
- VMware Workstation virtual machine import
- VMware ESXi virtual machine import

1.1. Hardware Resource Requirements

The minimum hardware resources required for server, Podman, or virtual machine operation are as follows:

Item	Requirements	Remarks
Processor	4 Cores 8 Threads, frequency > 2.8 GHz	X86 Platform
Memory	>= 8 GB	Adjustable based on the scale of managed devices
Disk Storage	>= 500 GB	Adjustable based on the scale of managed devices
Network Card	Gigabit Ethernet Card (Fiber or Copper)	1000 Mbps port or higher
Bandwidth	≥ 3 Mbps	For internet communication

▲ Table 1: Hardware Resources

1.2. Software Resources

The required versions for the operating system and VMware Virtual Machine are as follows:

Item	Requirements	Remarks
OS	Ubuntu 20.04.6 LTS Ubuntu 22.04.5 LTS Ubuntu 24.04.3 LTS	Server edition, Kernel ≥ 4.14 (Check with <code>uname -r</code>)
Virtualization Software	VMware Workstation 15.1.0	
Virtualization Software	VMware ESXi 8.0	

▲ Table 2: Software Resources

2. Installation Media

2.1. Operating System Images

- Ubuntu 20.04.6 LTS
<https://releases.ubuntu.com/20.04.6/ubuntu-20.04.6-live-server-amd64.iso>

- Ubuntu 22.04.5 LTS
<https://releases.ubuntu.com/22.04.5/ubuntu-22.04.5-live-server-amd64.iso>
- Ubuntu 24.04.3 LTS
<https://releases.ubuntu.com/24.04.3/ubuntu-24.04.3-live-server-amd64.iso>

2.2. DHCS Installation Packages

You can download the DHCS deployment installation files from the following links:

- **DHCS for Ubuntu**
 - <http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/dhcs-V1.0.0-ubuntu20.tar.gz>
 - <http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/dhcs-V1.0.0-ubuntu22.tar.gz>
 - <http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/dhcs-V1.0.0-ubuntu24.tar.gz>
- **DHCS for VM/ESXi**
<http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/dhcs-vm-ubuntu24.zip>
- **DHCS for Podman**
<http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/dhcs-V1.0.0-podman.tar.xz>

3. Open Ports

Ensure the following ports on the DHCS server are open in the firewall and accessible via the network:

No.	Service	Port	Description
1	HTTP	80/tcp	Web Management Interface
2	HTTPS	443/tcp	Encrypted Web Management Interface
3	MQTT	883/tcp	Device Communication
4	FRP	7000/tcp	Intranet Penetration Service
5	FRP Proxy	6000-6100/tcp	Device Proxy Port Range

▲ Table 3: Open Ports

4. Installing DHCS

This guide describes four installation methods for DHCS:

- [Binary File Installation](#)
- [Podman Image Deployment](#)
- [VMware Workstation Deployment](#)
- [VMware ESXi Deployment](#)

4.1. Binary File Installation

4.1.1. Install Ubuntu Operating System

The DHCS binary installation package requires one of the following Ubuntu versions:

- Ubuntu 20.04.6 LTS
- Ubuntu 22.04.5 LTS
- Ubuntu 24.04.3 LTS

Please download the corresponding Ubuntu image from Chapter 2 [Installation Media](#), complete the system installation, configure the network, and record the root account password.

4.1.2. Install OpenSSH (Optional)

To facilitate remote management, you can install and enable the SSH service:

1. Update the package list (to ensure the latest version can be downloaded) and install the SSH server:

```
# Update package list
sudo apt update

# Install SSH server
sudo apt install openssh-server -y

# Start SSH service
sudo systemctl start ssh

# Enable auto-start on boot
sudo systemctl enable ssh

# Verify SSH service status
sudo systemctl status ssh
```

If the system firewall (UFW) is enabled, open the SSH port:

```
# Allow SSH connections (default port 22)
sudo ufw allow ssh

# Check firewall status
sudo ufw status
```

4.1.3. Upload Installation Package

- **SCP Method**

First, download the appropriate installation package locally, then use the `scp` command to upload it to a specified directory on the server.

`scp` (Secure Copy) is a secure copy command based on SSH, available on almost all systems with SSH installed (Linux, macOS, Windows 10/11).

```
# Command format: scp <local_file_path> <username>@<server_ip>:<target_path>
scp dhcs-v1.0.2-ubuntu24.tar dhcs@172.16.121.201:/home/dhcs/
```

- **wget Download (Direct Server Download)**

If the server has internet access, you can download the installation package directly on the server:

```
# Navigate to target directory

# Download installation package (replace with actual URL)
wget http://www.hohunet.com/download/dhcs/ubuntu/dhcs-v1.0.2-ubuntu24.tar
```

- **SSH Client Tool Upload**

1. Establish an SSH connection: Use a tool to connect to the target server.
2. Open the file transfer interface:
 - Usually via a toolbar icon or right-click menu to open an SFTP/SCP transfer window.
 - Some tools support dragging and dropping files directly onto the terminal interface for automatic upload.
3. Perform the upload operation:
 - Select the local installation package file in the file transfer interface.
 - Specify the server target directory (e.g., `/home/dhcs/`).
 - Execute the upload.

Note: The specific interface varies slightly between tools, but generally follows the common process: "Connect → Open Transfer Interface → Select File → Upload".

4.1.4. Install DHCS

Step 1: Set System Timezone

```
timedatectl status | grep "Time zone"

sudo timedatectl set-timezone Asia/Shanghai

echo "Asia/Shanghai" | sudo tee /etc/timezone
```

Step 2: Extract and Execute the Installation Script

Navigate to the directory containing the downloaded installation package and execute the following commands to extract it:

```
# Extract the installation package
sudo tar -xvf dhcs-xxxx.tgz

# Enter the extracted directory
cd dhcs-ubuntu24

# Grant execute permission to the installation script
sudo chmod +x dhcs-install.sh

# Execute the installation script
sudo ./dhcs-install.sh
```

Step 3: Verify Installation Result

After installation completes, the following prompt information will be displayed:

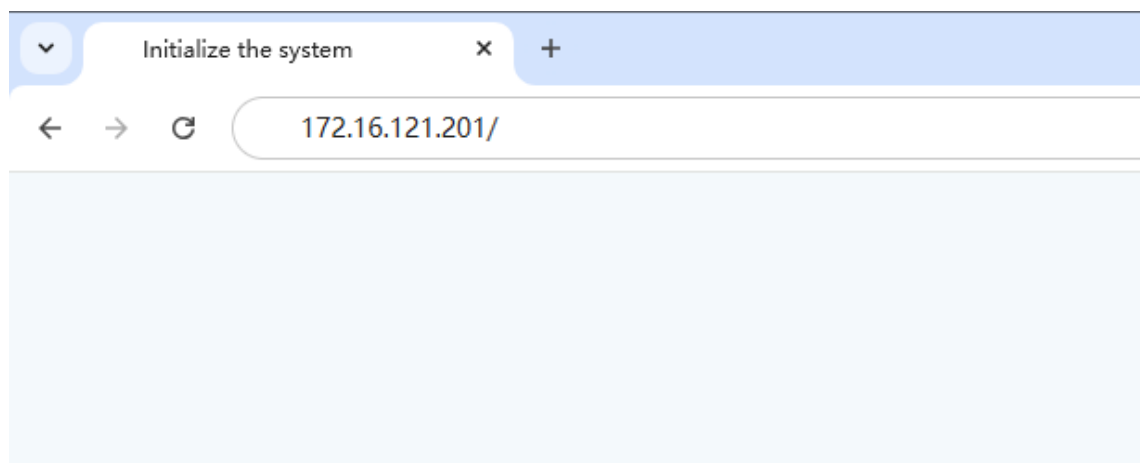
```
Start the AUTH service...
Start the DHCS service...
service installation is complete!
The AUTH/DHCS service can be managed using the following commands.:
start: systemctl start auth/dhcs
stop: systemctl stop auth/dhcs
restart: systemctl restart auth/dhcs
status: systemctl status auth/dhcs
[Thu Nov 27 12:08:09 PM UTC 2025] The execution of install-portal was successful.
DHCS installation completed
HTTP: http://IP|domain
HTTPS: https://IP|domain, Default self-signed certificate, certificate directory:
/etc/nginx/ssl/site
test@ubuntu:~/dhcs-ubuntu24$
```

4.1.5. Initialization Wizard

After DHCS installation is complete, system initialization must be performed via the web page.

1. Access the Initialization Page

Open a browser and enter `http://<server_ip>` to access the initialization interface.



2. Set Basic Information

Configure platform owner, cloud service domain/IP, system language, business mode (tenant/private), etc.

Base Setting

Default Language

English

Company Name ? *

Please input

0 / 50

Cloud Service Domain Name or IP Address *

IP address or Domain name

0 / 50

Model : **Tenancy** ?

Note: "Mode" cannot be modified after the initial setting, please choose carefully according to actual usage.

Next Step

- **Default Language:** Specifies the language in which the user interface is displayed.
- **Company Name:** The owner of the DHCS platform assets, can be displayed to users where necessary.
- **Cloud Service Address:** Used for communication with network devices, e.g., device reporting, establishing management tunnels, etc.
- **Business Mode:** Tenant mode or Private mode. Can only be set for the first time after installation and cannot be modified later.

3. Set Customization Information

Configure platform display name, corporate copyright information, logo, user agreement, etc.

Custom Setting

System Display Name *

Please input0 / 50

Copyright

Please input0 / 100

Privacy Policy [Modify](#)

User Agreement [Modify](#)

Service Agreement [Modify](#)

Login Page Logo (Recommended 72*72 transparent background image)



Browser Icon (Recommended 32*32 transparent background image)



Top-left Logo (Recommended 180*32 transparent background image)



[Previous Step](#)

[Next Step](#)

4. Set Up Email Service

Configure SMTP server information for system notifications, password reset, and other functions.

Whether to enable Email?

Enable Email

☐

SMTP Server Address *

SMTP Server Port *

Username

Password

Send email

Enable SSL/TLS

☐

Enable Auth

☐

[Previous Step](#)

[Next Step](#)

[Skip](#)

Warning

Email notifications require the associated [Email Templates](#) to be enabled for use simultaneously.

5. **Activate System**

Set the superadmin password to complete system activation.

Activate the system

Administrator

superadmin

Password *

Confirm Password *



After logging in, set up the platform ->upload the license to obtain access licenses for more devices.

Previous Step

Confirm

4.2. Podman Image Deployment

4.2.1. Environment Preparation

Podman deployment requires one of the following Ubuntu versions:

- ✨ Ubuntu 20.04.6
- ✨ Ubuntu 22.04.5
- ✨ Ubuntu 24.04.3

4.2.2. Install Podman

Execute the corresponding installation script based on the system version:

```
#!/bin/bash

# Get current Ubuntu version
UBUNTU_VERSION=$(lsb_release -rs)

# Install Podman based on different Ubuntu versions
case $UBUNTU_VERSION in
    "20.04"|"22.04")
        echo "Detected Ubuntu $UBUNTU_VERSION"
        # Add Podman PPA
        . /etc/os-release
```

```

        sudo sh -c "echo 'deb
https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/xU
buntu_${VERSION_ID}/ '/' >
/etc/apt/sources.list.d/devel:kubic:libcontainers:stable.list"
        wget -qO -
https://download.opensuse.org/repositories/devel:/kubic:/libcontainers:/stable/xU
buntu_${VERSION_ID}/Release.key | gpg --dearmor | sudo tee
/etc/apt/trusted.gpg.d/devel_kubic_libcontainers_stable.gpg > /dev/null
        sudo apt-get update -qq
        sudo apt-get install -y podman
        ;;
"24.04")
        echo "Detected Ubuntu $UBUNTU_VERSION"
        # Install Podman using default repositories
        sudo apt-get update -qq
        sudo apt-get install -y podman
        ;;
*)
        echo "Unsupported Ubuntu version: $UBUNTU_VERSION"
        exit 1
        ;;
esac

# Verify installation
podman --version

```

4.2.3. Upload Image Package

Refer to [4.1.3. Upload Installation Package](#) to upload the appropriate installation package to the server.

4.2.4. Installation Process

In the directory containing the software package, execute the following commands to install:

```

# Extract the image package
sudo tar -xzf dhcs-1.0.1-podman.tgz

# Enter the extracted directory
cd dhcs-container/

# Grant execute permission to the installation script
sudo chmod +x dhcs-install-pod.sh

# Execute the installation script
sudo ./dhcs-install-pod.sh

```

Upon completion, the following information will be displayed:

```
dhcs-emqx.jarConfiguration successful
dhcs-portal.jarConfiguration successful
Start the dhcs-broker service
Start the dhcs-proxy service
Start the dhcs-portal service
DHCS installation completed
HTTP: http://IP|domain
HTTPS: https://IP|domain, Default self-signed certificate, certificate directory:
data\etc\nginx\ssl\site
```

4.2.5. Initialization

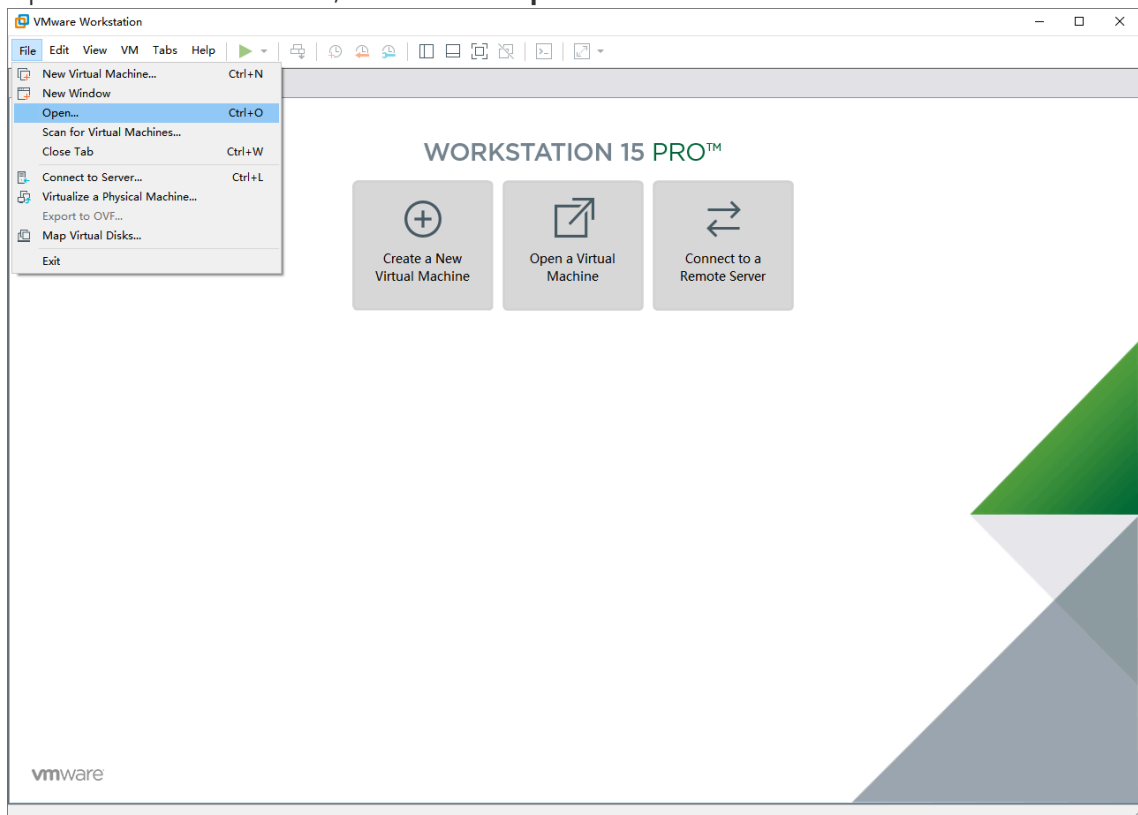
After installation, please refer to [4.1.5 Initialization Wizard](#) to complete system initialization configuration.

4.3. VMware Workstation Deployment

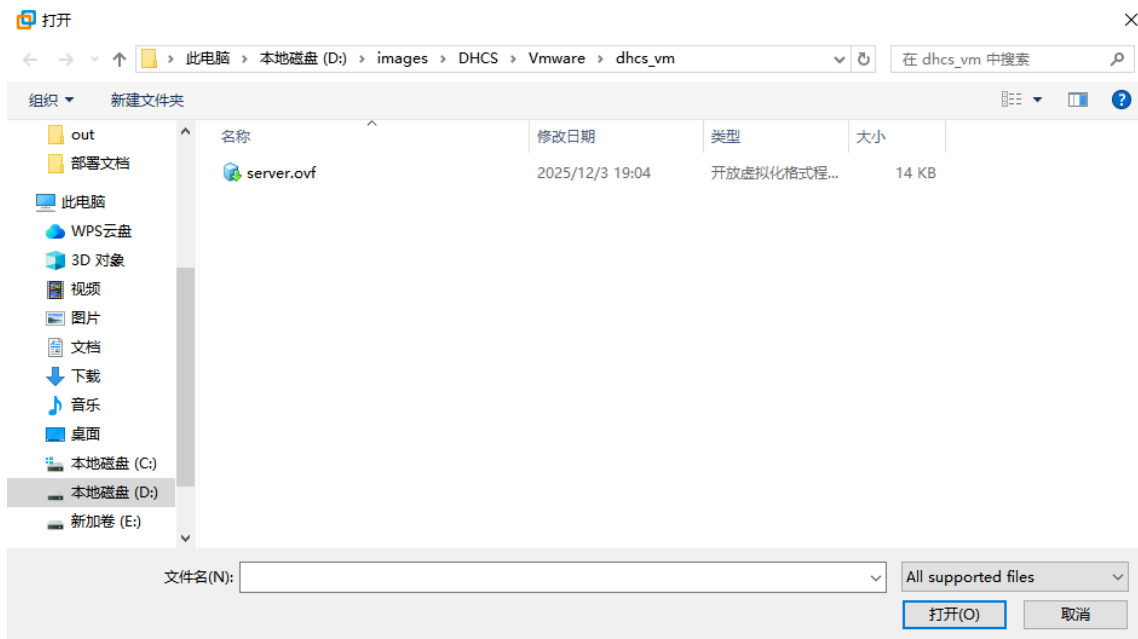
4.3.1. Import Virtual Machine

Currently supports importing DHCS VM images into VMware Workstation 15.1.0. Procedure:

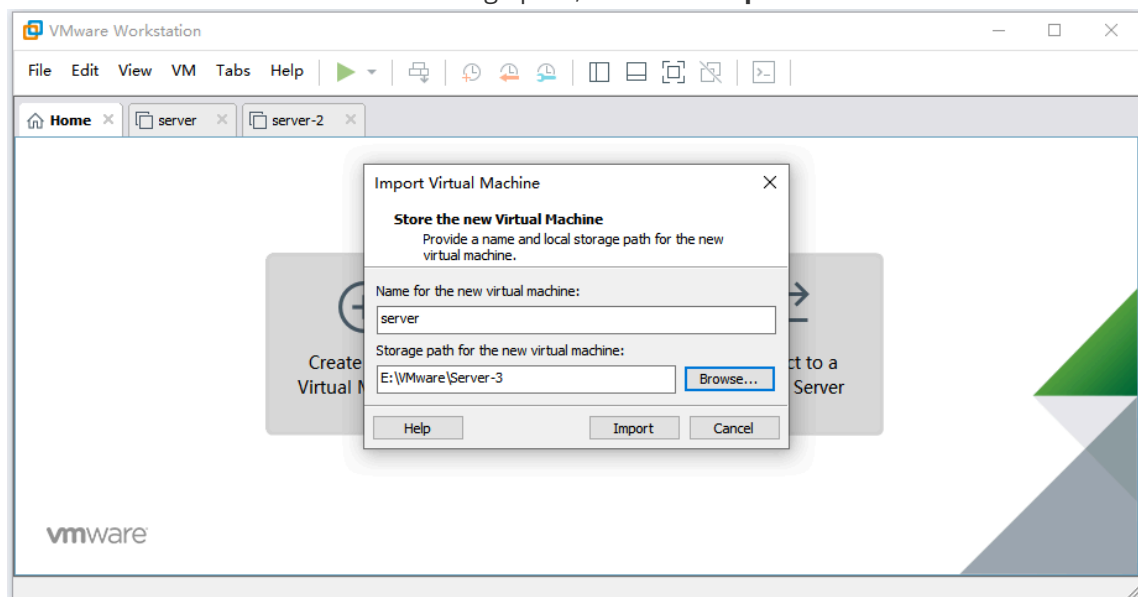
1. Upload and extract the VM image package to the virtual machine server.
Download the required DHCS for VM version from [Installation Media](#), and save the downloaded `dhcs_vm.zip` locally.
2. Open VMware Workstation, select **File** → **Open**.



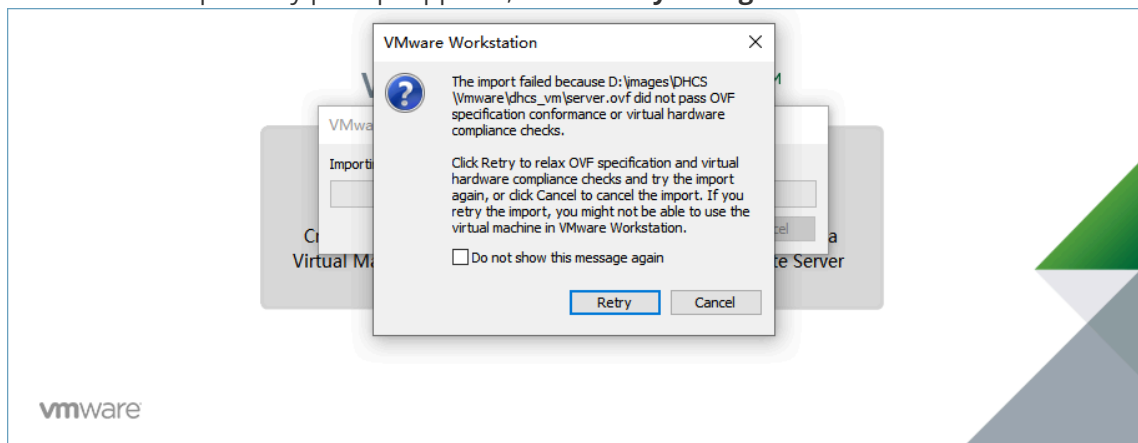
3. Browse to the extraction directory, select the `server.ovf` file, and click **Open**.



4. Set the virtual machine name and storage path, then click **Import**.

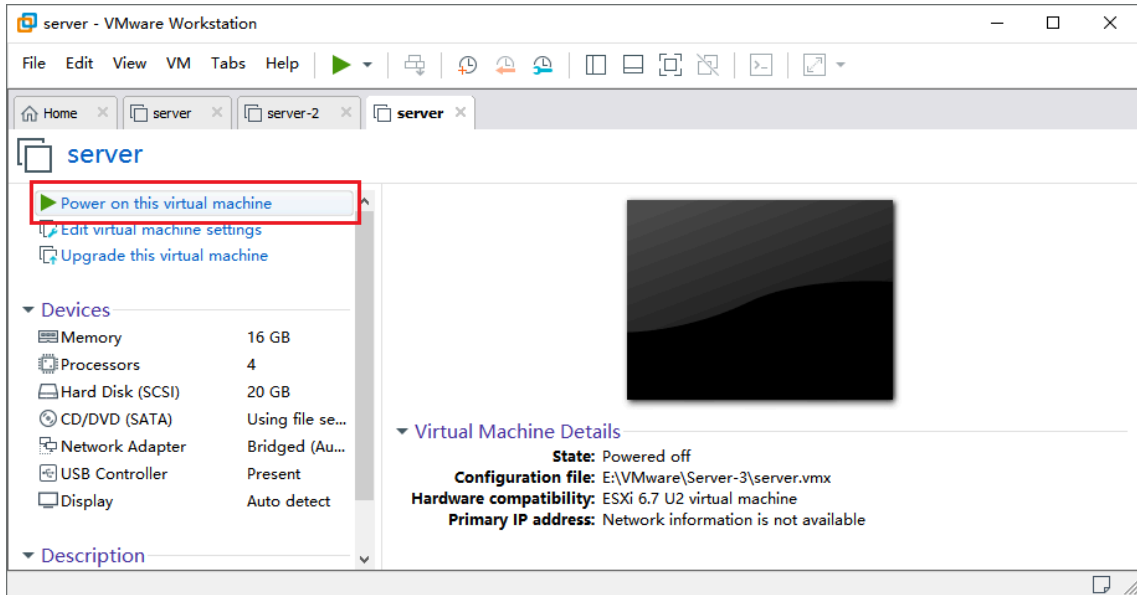


5. If a version compatibility prompt appears, select **Retry and Ignore** to continue.



4.3.2. Start and Setup

1. Start the imported virtual machine.



2. Follow the on-screen prompts to complete initial configuration such as network and timezone.
3. The system will automatically install and start the DHCS service.

4.3.3. Initial Configuration

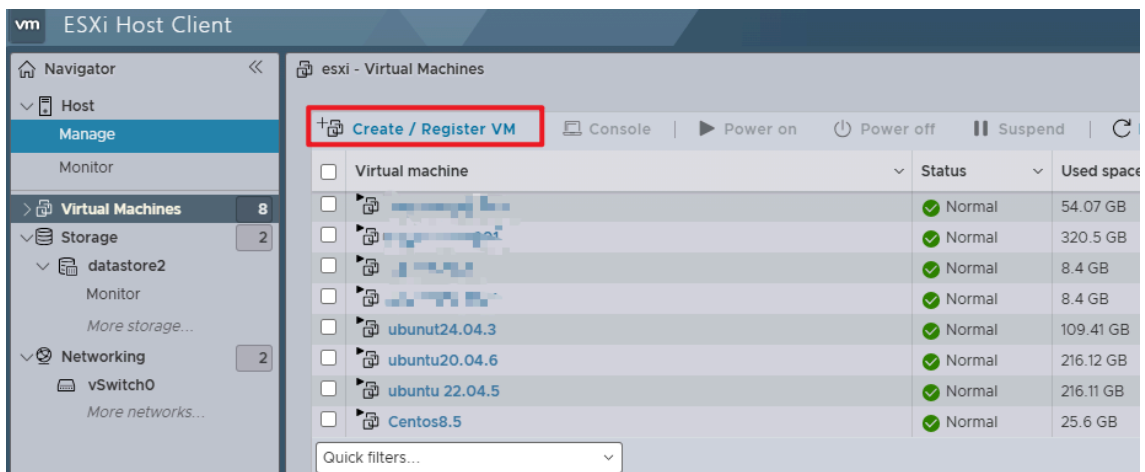
After installation, please refer to [Virtual Machine Initialization](#) to complete system initialization configuration.

4.4. VMware ESXi Deployment

Currently supports importing DHCS VM images into VMware ESXi 8.0. Procedure:

4.4.1. Create Virtual Machine

1. Log in to the ESXi management interface, go to **Virtual Machines**, click **Create / Register VM**.



2. Select creation type

Select the type of virtual machine to create. For DHCS, create from an OVF or OVA file as shown:

The screenshot shows the 'New virtual machine' wizard at step 1, 'Select creation type'. The left sidebar lists steps 1 through 9. The main area is titled 'Select creation type' and asks 'How would you like to create a Virtual Machine?'. There are three options: 'Create a new virtual machine', 'Deploy a virtual machine from an OVF or OVA file' (highlighted with a red box), and 'Register an existing virtual machine'. A descriptive text on the right states: 'This option guides you through the process of creating a virtual machine from an OVF and VMDK files.' At the bottom right are buttons for 'CANCEL', 'BACK', 'NEXT', and 'FINISH'.

3. Select OVF and VMDK files

Enter a name for the virtual machine and upload the virtual machine file downloaded from the installation media.

The screenshot shows the 'New virtual machine - Server-VM' wizard at step 2, 'Select OVF and VMDK files'. The left sidebar shows steps 1 through 9, with step 2 highlighted. The main area is titled 'Select OVF and VMDK files' and asks 'Select the OVF and VMDK files or OVA for the VM you would like to deploy'. It prompts the user to 'Enter a name for the virtual machine.' with a text box containing 'Server-VM'. Below this, a note states: 'Virtual machine names can contain up to 80 characters and they must be unique within each ESXi instance.' A light blue box displays a list of files: 'server.ovf', 'server-disk1.vmdk', and 'server-file1.iso', each with a small icon and a close button. At the bottom right are buttons for 'CANCEL', 'BACK', 'NEXT', and 'FINISH'.

4. Select storage

Select a storage system for the virtual machine.

New virtual machine - Server-VM

1 Select creation type

2 Select OVF and VMDK files

4 Select storage

6 License agreements

7 Deployment options

8 Additional settings

9 Ready to complete

Select storage

Select the storage type and datastore

Standard

Persistent Memory

Select a datastore for the virtual machine's configuration files and all of its virtual disks.

Name	Capacity	Free	Type	Thin provision	Access
datastore1	318.5 GB	317.08 GB	VMFS6	Supported	Single
datastore2	10.91 TB	9.84 TB	VMFS6	Supported	Single

2 items

CANCEL

BACK

NEXT

FINISH

5. Select deployment options

New virtual machine - Server-VM

1 Select creation type

2 Select OVF and VMDK files

4 Select storage

7 Deployment options

9 Ready to complete

Deployment options

Select deployment options

Network mappings

bridged VM Network

Disk provisioning

☒ Thin ☐ Thick

Power on automatically

☒

CANCEL

BACK

NEXT

FINISH

6. Ready to complete

After confirming the configuration information is correct, click the **Finish** button.

New virtual machine - Server-VM

- 1 Select creation type
- 2 Select OVF and VMDK files
- 4 Select storage
- 7 Deployment options
- 9 Ready to complete

Ready to complete

Review your settings selection before finishing the wizard

Product	Ubuntu 64 位
VM Name	Server-VM
Files	server-disk1.vmdk server-file1.iso
Datastore	datastore2
Provisioning type	Thin
Network mappings	bridged: VM Network
Guest OS Name	Unknown

 Do not refresh your browser while this VM is being deployed.

CANCEL BACK NEXT FINISH

7. Power on the virtual machine

Select the virtual machine to start and click the **Power on** button.

esxi - Virtual Machines

Create / Register VM | Console |  Power on |  Power off |  Suspend |  Refresh |  Ac

☐	Virtual machine	Status	Used space
☐	 [blurred]	✓ Normal	54.07 GB
☐	 [blurred]	✓ Normal	320.5 GB
☐	 [blurred]	✓ Normal	8.4 GB
☐	 [blurred]	✓ Normal	8.4 GB
☐	 ubuntu24.04.3	✓ Normal	109.41 GB
☐	 ubuntu20.04.6	✓ Normal	216.12 GB
☐	 ubuntu 22.04.5	✓ Normal	216.11 GB
☐	 Centos8.5	✓ Normal	25.6 GB
☒	 Server-VM	✓ Normal	0 B

Quick filters...



Server-VM

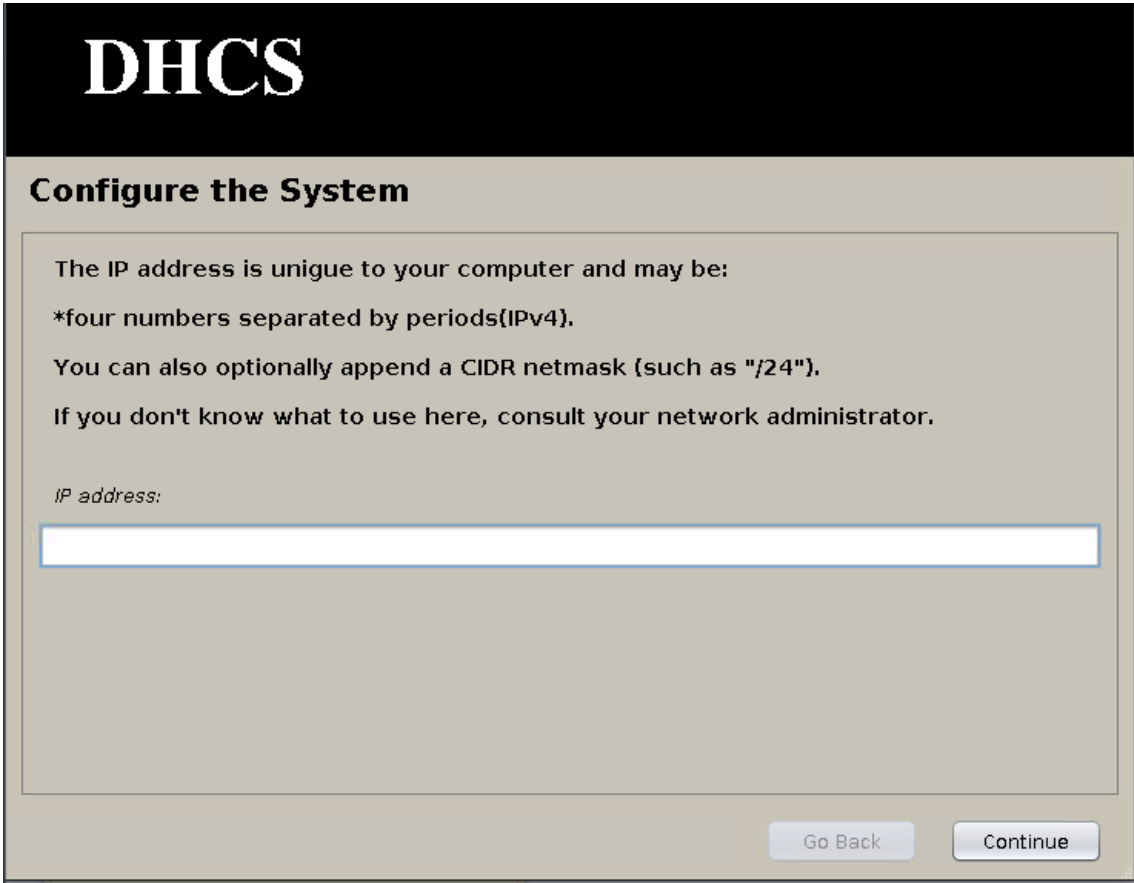
Guest OS	Ubuntu Linux (64-bit)
Compatibility	
VMware Tools	No
CPU	4
Memory	16 GB

After the virtual machine starts, access its console to enter the setup interface.

4.4.2. Initial Configuration

After the virtual machine starts, configure the following information in sequence:

- Configure DHCP IP



DHCS

Configure the System

The IP address is unique to your computer and may be:

- *four numbers separated by periods (IPv4).

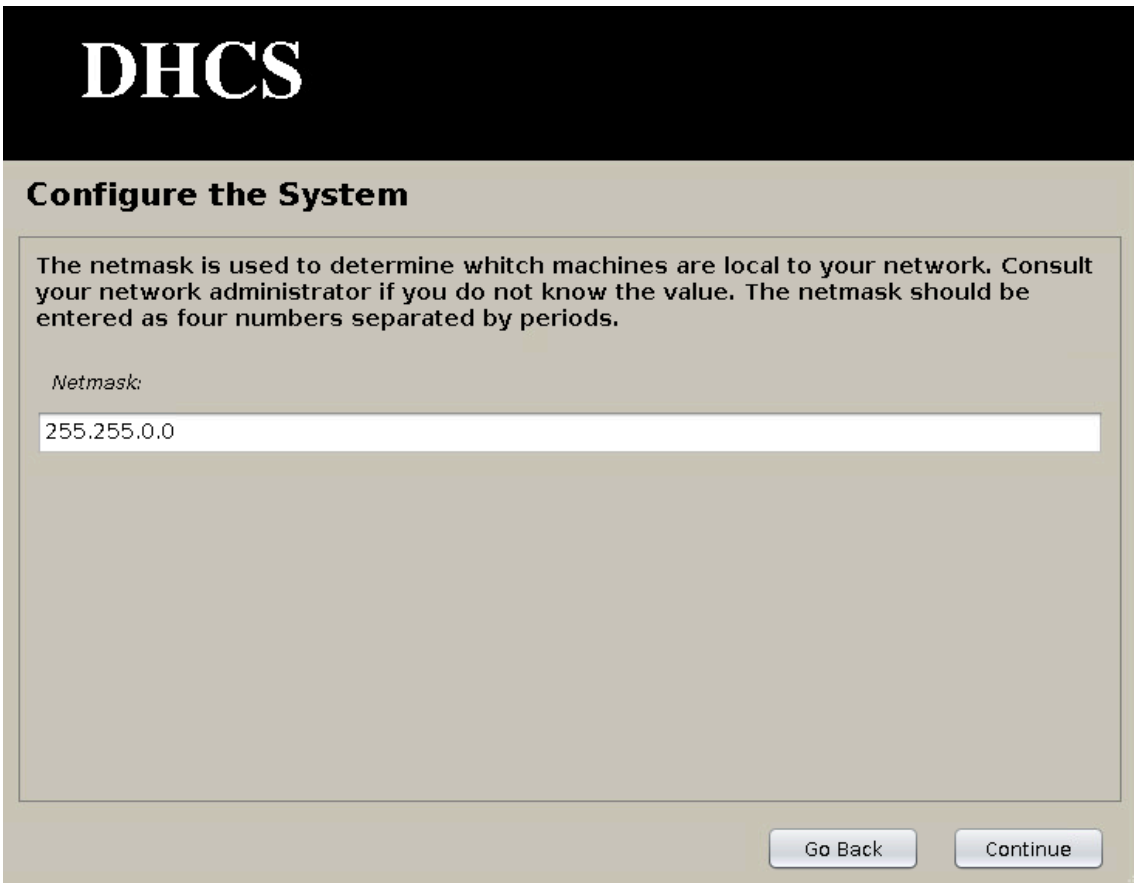
You can also optionally append a CIDR netmask (such as "/24").

If you don't know what to use here, consult your network administrator.

IP address:

Go Back Continue

- Subnet Mask



DHCS

Configure the System

The netmask is used to determine which machines are local to your network. Consult your network administrator if you do not know the value. The netmask should be entered as four numbers separated by periods.

Netmask:

Go Back Continue

- Default Gateway

DHCS

Configure the System

The gateway is an Ip addres (four numbers separated by periods) that indicates the gateway router, also known as the default router. Alltrafc that goes outside your LAN (for instance, to the internet) is sent through this router, in rare circumstances, you may have no router; inthat case, you can leave this blank. If you don't know the proper answer to this question, consult your network administrator.

Gateway:

- DNS Server

DHCS

Configure the System

The name servers are used to look up host names on the network, please enter the P addresses (not host names) of up to 3 name servers, separated by spaces. Do not use commas. The first name server in the list will be the first to be queried, if you don't want to use any nameserver, iust leave this field blank.

Name server addresses:

- System Timezone

DHCS

Configure the System

The timezone setting determines your system's local time and date display. It affects how timestamps are interpreted across the system and applications. Choose the appropriate timezone based on your geographical location to ensure accurate time synchronization. If you're unsure which timezone to select, choose the major city closest to your location or consult your organization's IT policy.

Timezone/UTC(2025-12-05 06:01):

UTC+00:00

London, Dublin, Lisbon

Casablanca

Monrovia

Accra

Go Back

Continue

- After configuration is complete, the system will automatically complete service deployment and restart.

DHCS

Configure the System

System settings.

System settings

4.4.3. Login Information

Service	Username	Password
SSH	dhcs	admin123
Web	superadmin	Set during installation

Table 4: System Default Accounts

5. System Login

5.1. Login Methods

Type	Address
http	http://<ip_or_domain>
https	https://<ip_or_domain>

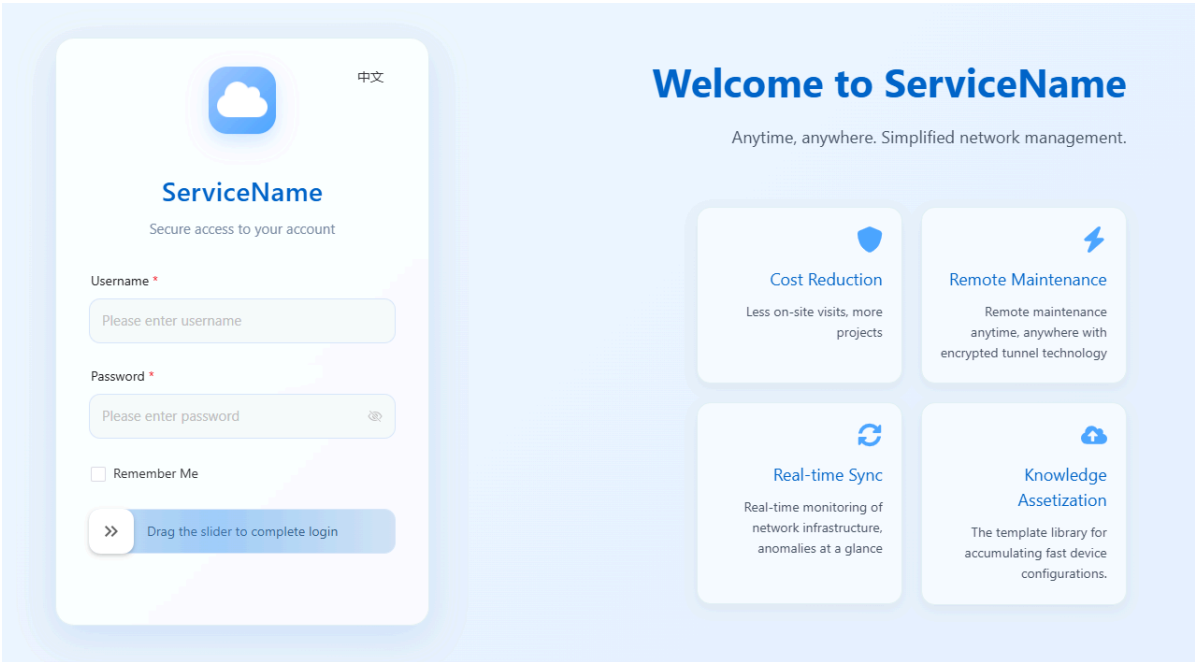
Table 5: Management Interface Access Addresses

5.2. Login Account

Username: `superadmin`

Password: The super administrator password set during the installation process.

5.3. Login Page



6. Troubleshooting

6.1. Check Services

```
# Check related service status
systemctl status emqx
systemctl status dhcs
systemctl status redis
systemctl status mysql
systemctl status influxd
```

6.2. Check Processes

```
# Check each service process
ps aux | grep emqx
ps aux | grep dhcs
ps aux | grep redis
ps aux | grep mysql
ps aux | grep influxd
```

6.3. Check Ports

```
# Verify key port listening status
ss -na | grep :80
ss -na | grep :443
ss -na | grep :883
ss -na | grep :7000
ss -na | grep :6000
```

6.4. Common Issues

Physical machine/virtual machine installations can be fully diagnosed using the commands in this guide.

Note

The troubleshooting approach for container deployments is the same, with the only difference being the specific commands. Use `systemctl status container-dhcs-xxx`, where the exact service name depends on the container package creation.

Issue 1: Web Management Interface Unreachable

Troubleshooting Steps:

1. Check DHCS Service Status

```
systemctl status dhcs
```

```
root@iZbp16ashh6h628o3tr2niZ:/data/dhcs# systemctl status dhcs
● dhcs.service - dhcs
   Loaded: loaded (/usr/lib/systemd/system/dhcs.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-12-27 14:27:56 CST; 1h 18min ago
     Process: 3383512 ExecStart=/bin/bash -c nohup /bin/java -jar dhcs-portal.jar -Xmx1g -Xms512m > /dev/null
    Main PID: 3383515 (java)
       Tasks: 164 (limit: 8650)
      Memory: 1.2G (peak: 1.2G)
         CPU: 10min 36.488s
        CGroup: /system.slice/dhcs.service
                └─3383515 /bin/java -jar dhcs-portal.jar -Xmx1g -Xms512m
```

2. Check Nginx Proxy Service

```
systemctl status nginx
```

```
root@iZbp16ashh6h628o3tr2niZ:/data/dhcs# systemctl status nginx
● nginx.service - OpenResty Server
   Loaded: loaded (/usr/lib/systemd/system/nginx.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-12-20 18:49:35 CST; 6 days ago
     Process: 3334842 ExecReload=/usr/share/openresty/nginx/sbin/nginx -c /etc/nginx/nginx.conf -s reload (code=exited,
    Main PID: 26494 (nginx)
       Tasks: 7 (limit: 8650)
      Memory: 94.2M (peak: 279.7M)
         CPU: 3min 40.494s
        CGroup: /system.slice/nginx.service
                └─ 26494 "nginx: master process /usr/share/openresty/nginx/sbin/nginx -c /etc/nginx/nginx.conf"
                  └─2254375 "nginx: worker process is shutting down"
                    └─2849036 "nginx: worker process is shutting down"
                      └─3334044 "nginx: worker process"
                        └─3334045 "nginx: worker process"
                          └─3334046 "nginx: worker process"
```

3. View DHCS Logs

```
tail -f /data/dhcs/logs/sys-info.log
tail -f /data/dhcs/logs/sys-error.log
```

```
dhcs@dhcs:~/dhcs-ubuntu24$ tail -f /data/dhcs/logs/sys-info.log
09:22:08.304 [main] INFO org.jboss.threads - [clinit,55] - JBoss Threads version 3.5.0.Final
09:22:08.533 [main] INFO o.s.b.w.e.u.UndertowWebServer - [start,121] - Undertow started on port 8020 (http) with context path '/dhcs'
09:22:08.536 [main] INFO o.s.s.q.SchedulerFactoryBean - [startScheduler,729] - Starting Quartz Scheduler now
09:22:08.537 [main] INFO o.q.c.QuartzScheduler - [start,547] - Scheduler quartzScheduler_$_NON_CLUSTERED started.
09:22:08.576 [main] INFO c.h.DHCSApplication - [logStarted,56] - Started DHCSApplication in 20.929 seconds (process running for 22.915)
09:44:38.399 [XNIO-1 task-3] INFO io.undertow.servlet - [log,372] - Initializing Spring DispatcherServlet 'dispatcherServlet'
09:44:38.400 [XNIO-1 task-3] INFO o.s.w.s.DispatcherServlet - [initServletBean,532] - Initializing Servlet 'dispatcherServlet'
09:44:38.407 [XNIO-1 task-3] INFO o.s.w.s.DispatcherServlet - [initServletBean,554] - Completed initialization in 7 ms
09:46:02.569 [schedule-pool-9] INFO sys-user - [run,52] - [172.16.121.1][superadmin][Success][登录成功]
09:47:35.768 [schedule-pool-28] INFO sys-user - [run,52] - [172.16.121.1][superadmin][Success][登录成功]
```

4. View Nginx Error Logs

```
tail -f /var/log/nginx/error.log
```

```
dhcs@dhcs:~/dhcs-ubuntu24$ tail -f /var/log/nginx/error.log
2026/01/05 09:21:54 [info] 26313#26313: *3 client 127.0.0.1:53428 connected to 0.0.0.0:1883
2026/01/05 09:21:54 [info] 26313#26313: *3 proxy 127.0.0.1:55070 connected to 127.0.0.1:1886
2026/01/05 09:22:08 [info] 26313#26313: *5 client 127.0.0.1:40546 connected to 0.0.0.0:1883
2026/01/05 09:22:08 [info] 26313#26313: *5 proxy 127.0.0.1:40038 connected to 127.0.0.1:1886
2026/01/05 09:22:08 [info] 26313#26313: *7 client 127.0.0.1:40548 connected to 0.0.0.0:1883
2026/01/05 09:22:08 [info] 26313#26313: *7 proxy 127.0.0.1:40052 connected to 127.0.0.1:1886
2026/01/05 09:22:09 [info] 26313#26313: *9 client 127.0.0.1:40552 connected to 0.0.0.0:1883
2026/01/05 09:22:09 [info] 26313#26313: *9 proxy 127.0.0.1:40054 connected to 127.0.0.1:1886
2026/01/05 09:22:09 [info] 26315#26315: *11 client 127.0.0.1:40566 connected to 0.0.0.0:1883
2026/01/05 09:22:09 [info] 26315#26315: *11 proxy 127.0.0.1:40064 connected to 127.0.0.1:1886
```

Issue 2: Remote Tunnel Unable to Connect

Troubleshooting Steps:

1. Check FRP Service Status

```
systemctl status frps
```

```

root@iZbp16ashh6h628o3tr2niZ:/data/dhcs# systemctl status frps
● frps.service - FRP Server Service
   Loaded: loaded (/usr/lib/systemd/system/frps.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-12-20 18:51:40 CST; 6 days ago
     Main PID: 33981 (frps)
        Tasks: 7 (limit: 8650)
      Memory: 7.9M (peak: 14.3M)
         CPU: 30.154s
    CGroup: /system.slice/frps.service
            └─33981 /data/frps/frps -c /data/frps/frps.toml

```

2. Check if FRP Authentication Tokens Match

```

# View token
cat /data/frps/frps.toml

```

```

dhcs@dhcs:~/dhcs-ubuntu24$ cat /data/frps/frps.toml
bindPort = 7000
#log.to = "/data/frps/log/frps.log"
#log.level = "debug"
#log.maxDays = 3
webServer.addr = "0.0.0.0"
webServer.port = 5002
webServer.user = "admin"
webServer.password = "Shra12#$"
auth.token = "JmYjZZA1vfkQCvgqnvLw70E5HWAKr04D"
dhcs@dhcs:~/dhcs-ubuntu24$

```

ID	Name	Key	Value	Included	Remark	Create Time	Operate
4	验证码开关	sys.account.captchaEnabled	true	Yes	Whether to enable the verific...	2025-01-05 18:56:59	
6	用户登录-黑名单列表	sys.login.blackIPList	;	Yes	Set up a blacklist for login IP ...	2025-01-05 18:56:59	
103	服务API地址	sys.dhcs.api	https://172.16.121.201/api	Yes	服务端地址	2025-01-05 18:56:59	
105	微信告警模板ID	sys.mp.alarmpTempld	["zh-cn":"","en-us":"",""]	Yes	Wechat notice template	2025-03-10 11:36:42	
106	邮件发送配置	sys.mail.config	{}	Yes		2025-03-10 11:36:42	
108	短信发送接口	sys.sms.send.url		Yes	Bulk SMS Sending Interface	2025-03-10 11:36:42	
109	隧道地址配置	sys.frps.proxy	["ip":"","port":"",""]	Yes		2025-03-10 11:36:42	
113	短信签名	sys.msg.sign	["ip":"","port":"","token":"","secret":"",""]	Yes		2025-05-07 08:17:01	
121	短信验证码账号	sys.code.account		Yes		2025-06-03 06:34:03	
122	短信通知账号	sys.notice.account	["appid":"","secret":"",""]	Yes		2025-06-03 06:34:52	

Ensure the authentication token in the `frps.toml` configuration matches the token in the DHCS platform under **System Settings** → **Advanced Settings** → **Parameter Configuration** → **Tunnel Address Configuration**. Also, verify that the IP or domain configured is accessible from the devices.

Refer to [Enabling Advanced Settings](#)

Issue 3: Device Unable to Connect to Platform

Troubleshooting Steps:

1. Check EMQX Service Status

```

systemctl status emqx

```


Normal status as shown below:

```
root@izbp16ashh6h628o3tr2niZ:/data/auth# systemctl status emqx
● emqx.service - EMQX Broker
   Loaded: loaded (/usr/lib/systemd/system/emqx.service; enabled; preset: enabled)
   Active: active (running) since Sun 2025-12-21 10:48:38 CST; 6 days ago
     Process: 39876 ExecStart=/data/emqx/bin/emqx start (code=exited, status=0/SUCCESS)
    Main PID: 39999 (run_erl)
      Tasks: 42 (limit: 8650)
     Memory: 224.8M (peak: 292.2M)
        CPU: 2h 17min 10.775s
      CGroup: /system.slice/emqx.service
              └─39999 /data/emqx/erts-14.2.5.2/bin/run_erl -daemon //data/emqx/data/emqx_erts_pipes/emqx@127.0.0.1/ /data/emqx/log
                  40022 emqx -spp true -A 4 -IoT 4 -SDio 8 -C multi_time_warp -c true -pc unicode -e 262144 -zdbbl 8192 -Q 1048576
                  40271 erl_child_setup 1048576
                  40312 /data/emqx/lib/os_mon-2.9.1/priv/bin/memsup
                  40313 /data/emqx/lib/os_mon-2.9.1/priv/bin/cpu_sup
                  40351 /data/emqx/erts-14.2.5.2/bin/inet_gethost 4
                  40352 /data/emqx/erts-14.2.5.2/bin/inet_gethost 4
```

2. Check Device Authentication Service

```
systemctl status auth
```

Normal status as shown below:

```
root@izbp16ashh6h628o3tr2niZ:/data/auth# systemctl status auth
● auth.service - auth
   Loaded: loaded (/usr/lib/systemd/system/auth.service; enabled; preset: enabled)
   Active: active (running) since Sat 2025-12-27 10:55:38 CST; 5h 8min ago
     Process: 3243131 ExecStart=/bin/bash -c nohup /bin/java -jar dhcs-emqx.jar -Xmx1g -Xms512m > /dev/null 2>&1 & echo $! > /var/
    Main PID: 3243133 (java)
      Tasks: 89 (limit: 8650)
     Memory: 355.0M (peak: 362.9M)
        CPU: 32min 45.956s
      CGroup: /system.slice/auth.service
              └─3243133 /bin/java -jar dhcs-emqx.jar -Xmx1g -Xms512m
```

3. View Authentication Service Logs

```
tail -f /data/auth/logs/sys-info.log
tail -f /data/auth/logs/sys-error.log
```

```
dhcs@dhcs:~/dhcs-ubuntu24$ tail -f /data/auth/logs/sys-info.log
09:21:39.936 [main] INFO c.h.EmqxApplication - [logStartupProfileInfo,660] - The following 1 profile is active: "druid"
09:21:42.943 [main] INFO io.undertow.servlet - [log,372] - Initializing Spring embedded WebApplicationContext
09:21:43.118 [main] INFO c.a.d.s.b.a.DruidDataSourceAutoConfigure - [dataSource,68] - Init DruidDataSource
09:21:45.166 [main] INFO c.a.d.p.DruidDataSource - [init,1002] - {dataSource-1} inited
09:21:50.928 [main] INFO io.undertow - [start,120] - starting server: Undertow - 2.3.17.Final
09:21:50.953 [main] INFO org.xnio - [<clinit>,95] - XNIO version 3.8.16.Final
09:21:50.965 [main] INFO org.xnio.nio - [<clinit>,58] - XNIO NIO Implementation Version 3.8.16.Final
09:21:51.027 [main] INFO org.jboss.threads - [<clinit>,55] - JBoss Threads version 3.5.0.Final
09:21:51.133 [main] INFO c.h.EmqxApplication - [logStarted,56] - Started EmqxApplication in 12.334 seconds (process running for 15.3)
09:21:54.915 [XNIO-1 task-2] INFO io.undertow.servlet - [log,372] - Initializing Spring DispatcherServlet 'dispatcherServlet'
```

4. View EMQX Service Logs

```
tail -f /data/emqx/logs/emqx.log.1
```

```
dhcs@dhcs:~/dhcs-ubuntu24$ tail -f /data/emqx/logs/emqx.log.1
2026-01-05T09:21:20.935807+00:00 [warning] msg: alarm_is_activated, message: <<"resource down: #{error => not_added_yet,status => discon
nected}">>, name: <<"action:http:mqtt_Connection_WH_D:connector:http:mqtt_Connection_WH_D">>
2026-01-05T09:21:22.235477+00:00 [warning] tag: AUTHN/WEBHOOK, msg: start_resource_failed, reason: econnrefused, resource_id: <<"emqx_authn
http:4">>
2026-01-05T09:21:22.235957+00:00 [warning] msg: alarm_is_activated, message: <<"resource down: Connection refused">>, name: <<"emqx_authn
http:4">>
2026-01-05T09:21:35.917774+00:00 [warning] tag: CONNECTOR/WEBHOOK, msg: start_resource_failed, reason: econnrefused, resource_id: <<"con
nector:http:mqtt_Connection_WH_D">>
2026-01-05T09:21:37.245319+00:00 [warning] tag: AUTHN/WEBHOOK, msg: start_resource_failed, reason: econnrefused, resource_id: <<"emqx_authn
http:4">>
2026-01-05T09:21:50.948222+00:00 [warning] tag: CONNECTOR/WEBHOOK, msg: start_resource_failed, reason: econnrefused, resource_id: <<"con
nector:http:mqtt_Connection_WH_D">>
2026-01-05T09:21:51.501953+00:00 [warning] tag: AUTHN, clientid: super.authn|mode=3,method=hmacsha256,timestamp=1767604911, msg: authenti
cation_failure, peername: 127.0.0.1:53412, username: super.hohunet, reason: not_authorized
2026-01-05T09:21:52.251190+00:00 [warning] msg: alarm_is_deactivated, name: <<"emqx_authn_http:4">>
2026-01-05T09:22:06.004817+00:00 [warning] msg: alarm_is_deactivated, name: <<"connector:http:mqtt_Connection_WH_D">>
2026-01-05T09:22:06.015977+00:00 [warning] msg: alarm_is_deactivated, name: <<"action:http:mqtt_Connection_WH_D:connector:http:mqtt_Conn
ection_WH_D">>
```

Container Deployment Notes

If deployed via Podman, use the following commands to check container service status:

```
# View container running status
podman ps
```

```
# View container logs
podman logs <container_name>
```

7. Advanced Maintenance Mode

7.1 Advanced Maintenance Mode

Use the `dhcs-mode` tool when you need to reset the superadmin password or adjust the system operation mode.

```
dhcs@dhcs:~$ dhcs-mode

Please select an operation:
1) Reset the superadmin password
2) Advanced Model (The advanced mode allows for the maintenance of system
settings information after logging in as a superuser)
3) Standard Model (This mode is adopted during the regular operation)
4) Exit
Please entry option(1-4): 1
The password for the superadmin account has been reset to the default password
'admin@123'. Please login to the system immediately to change the password.
```

- Option 1: Resets the superadmin password to `admin@123`. Change it immediately after login.
- Option 2: Enables Advanced Mode, opening the system advanced settings page.
- Option 3: Switches back to Standard Operation Mode.

8. offline Podman install

8.1. offline Podman installation packages

ubuntu 20.04.6 LTS

<http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/podman-offline-ubuntu20.04.tar.gz>

ubuntu 22.04.5 LTS

<http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/podman-offline-ubuntu22.04.tar.gz>

ubuntu 24.04.3 LTS

<http://hohunet.oss-cn-shenzhen.aliyuncs.com/DHCS/podman-offline-ubuntu24.04.tar.gz>

Download the offline installation package for the corresponding system and upload it to the server:

```
# Unzip the offline installation package
tar -xvf podman-offline-ubuntu24.04.tar.gz
# Go to the offline installation package directory
cd podman-offline-ubuntu24.04
# Install the required deb
sudo dpkg -i *.deb
# Verify the Podman installation
podman --version
```