

## User Manual

## Installation

## DAC-Controller Virtual

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## About this manual

The document “User Manual Installation” contains the following information for the DAC-Controller Virtual:

- ▶ Starting operation
- ▶ Initial setup
- ▶ Installation
- ▶ Uninstallation
- ▶ Troubleshooting

Documentation mentioned in the “User Manual Installation” that is not supplied with your device as a printout can be found as PDF files for downloading at: <https://hirschmann-it-support.belden.com/en-US/downloads>

## Revision history

Revision	Date	Description
2.5	Apr-2022	The 1 <sup>st</sup> published version
2.6	May-2022	Update chapter 4.7 Getting the device code
2.7	Jul-2022	Add default Account Name and Password in chapter 4.8
2.8	Oct-2023	<ol style="list-style-type: none"><li>1. Add restart command in chapter 3.3.</li><li>2. Add Prerequisites in chapter 4.1.</li><li>3. Add system requirements description in chapter 4.2 &amp; chapter 4.3.</li><li>4. Revise the content description in chapter 4.5, chapter 4.6, chapter 4.7, and chapter 5.1.</li><li>5. Add Figure 43 and 44 in chapter 6.1.</li><li>6. Change the image of the stand-alone mode URL method and description in chapter 4.4.</li><li>7. Revise the content description in chapter 6.2 &amp; 6.4.</li></ol>

# Key

The symbols used in this manual have the following meanings:

---

▶	Listing
□	Work step
■	Subheading

---

# 1 Description

## 1.1 General description

The Hirschmann IT Dragonfly Access Point Virtual Controller (DAC) is a software-based WLAN central management solution for all-scale wireless networks from medium-sized institute to large enterprise. It is built and deployed on the Linux OS, the VMWare ESXi or the Microsoft Hyper-V platform.

Together with the broad range of Hirschmann IT brand Wi-Fi 6 AP hardware, it can fulfill the needs of institutes and enterprises with high-density and full-coverage application scenarios.



## 2 Starting operation

### 2.1 Installation on the virtual machine

#### 2.1.1 Prerequisites

DAC can be installed on the server, but Hirschmann IT recommends creating a new virtual machine for DAC installation.

#### 2.1.2 System requirements

The server or virtual machine configuration requirements are as follows:

##### ■ Stand-alone mode

APs/Clients	Configuration	HDD
50 APs + 1000 Clients	4 Cores CPU+16 GB Memory+1 TB HDD	Read: 1.7 Gbit/s Write: 134 Mbit/s
256 APs + 5000 Clients	8 Cores CPU+16 GB Memory+1 TB HDD	
500 APs + 10000 Clients	12 Cores CPU+32 GB Memory+1 TB HDD	
1000 APs + 20000 Clients	24 Cores CPU+32 GB Memory+1 TB HDD	

Table 1: Configuration requirements for stand-alone mode

##### ■ Cluster mode

APs/Clients	Configuration (per server)	HDD
2000 APs + 10000 Clients	12 Cores CPU+32 GB Memory+2 TB HDD	Read: 1.7 Gbit/s
6000 APs + 30000 Clients	24 Cores CPU+32 GB Memory+2 TB HDD	Write: 134 Mbit/s

Table 2: Configuration requirements for cluster mode

#### Note:

1. Cluster mode requires minimum 3 PC servers.
2. Make sure that the server host name is unique.

### 2.1.3 Step-by-step instructions

Download Ubuntu 16.04.x from <https://releases.ubuntu.com/16.04.7/ubuntu-16.04.7-server-amd64.iso>.

**Note:** DAC only supports Ubuntu 16.04.x.

- Open VMware ESXi to create a new virtual machine.

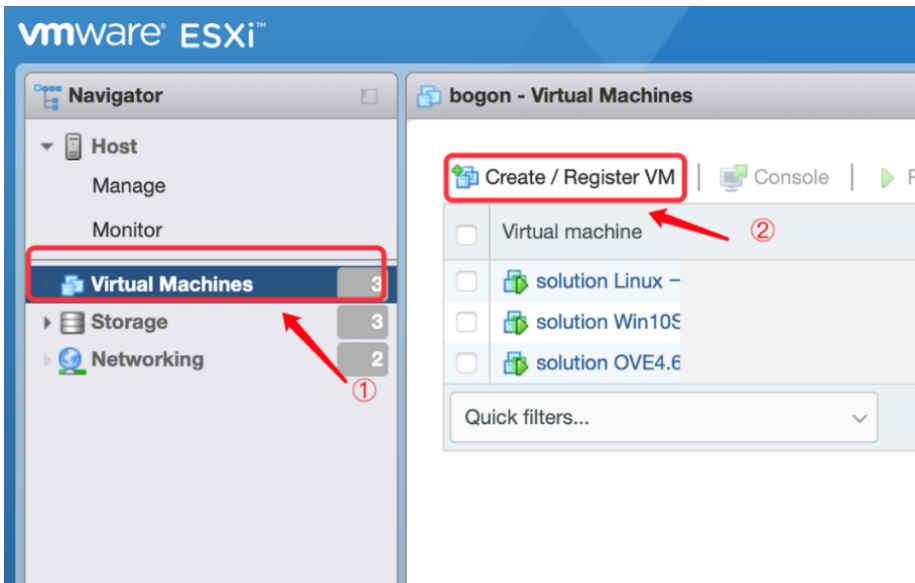


Figure 1: VMware ESXi

- Select “Create a new virtual machine” and click “Next”.

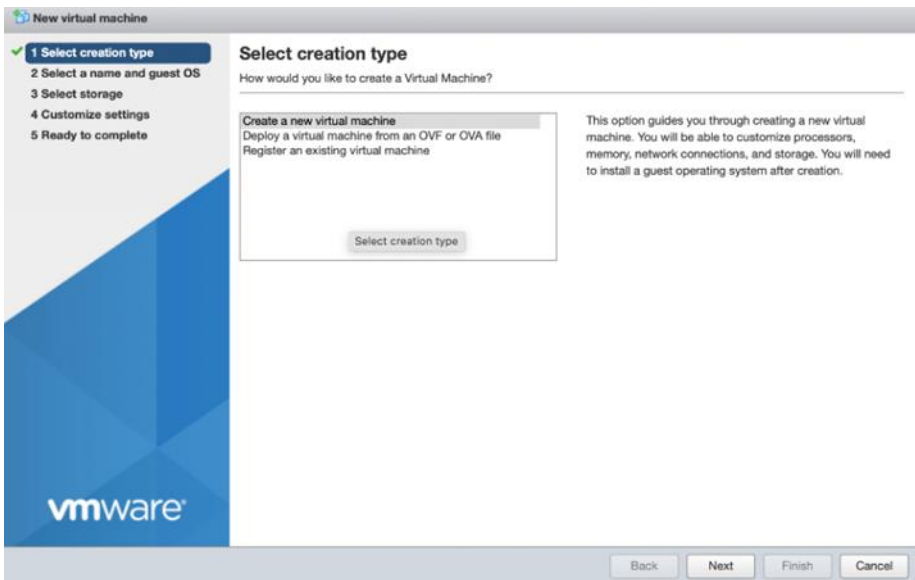


Figure 2: Virtual machine creation

- Set up the configuration and click “Next”.

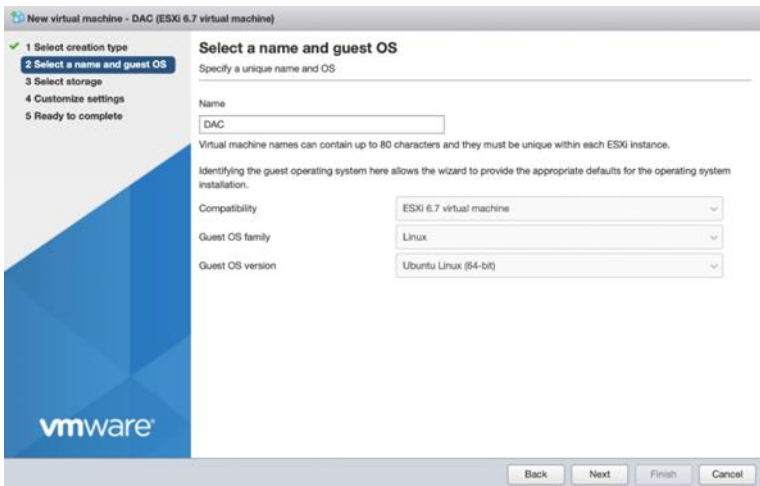


Figure 3: Virtual machine configuration

- Select the number of cores per processor, memory, and hard disk for the virtual machine.

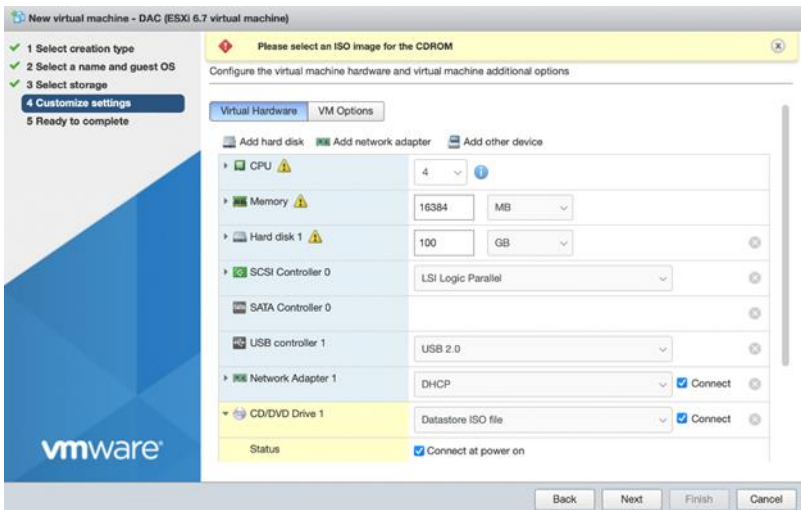


Figure 4: Virtual machine hardware setting

- Select “Datastore ISO file” in “CD/DVD Drive1” and create a new directory.
- Upload the downloaded Ubuntu OS file and click “Next”.

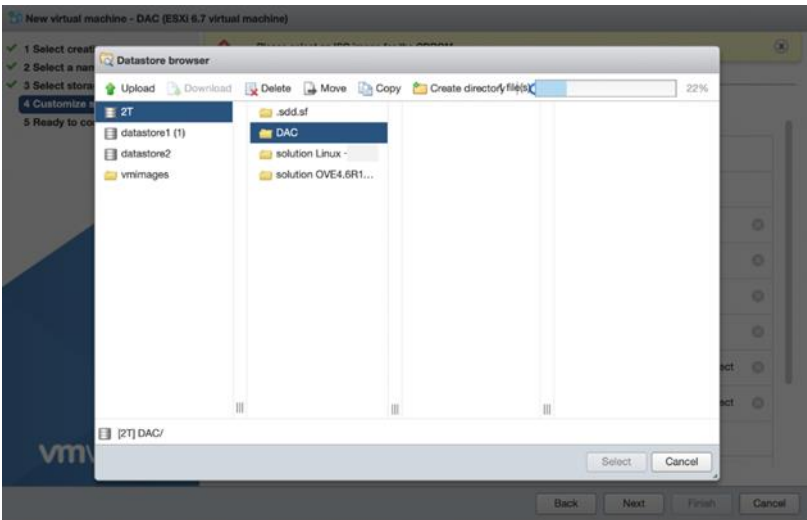


Figure 5: Virtual machine new directory creation

- Click “Finish”.
- Power on the virtual machine and open the browser console.

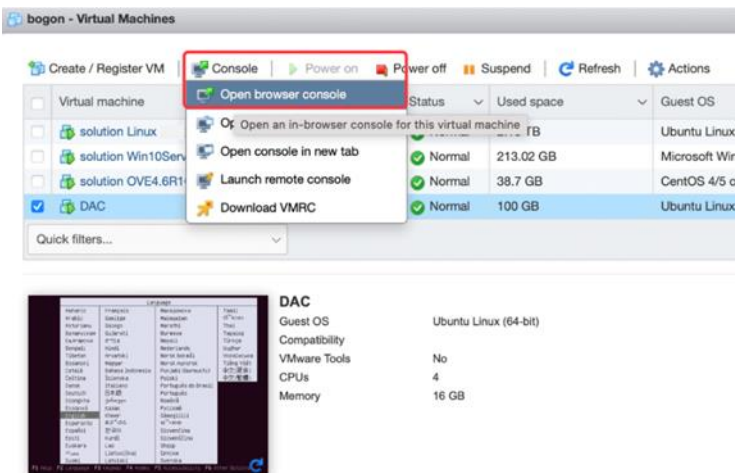


Figure 6: Virtual machine browser console

- Select “English” and install the Ubuntu server.
- Select “No” for “Detect keyboard layout”, on the “Configure the keyboard” page.

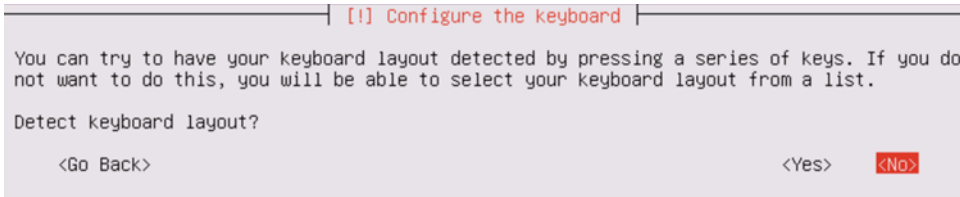


Figure 7: Keyboard configuration

- Select “No” for “Encrypt your home directory” on the “Set up users and passwords” page.



Figure 8: Home directory encryption

- Set up the partition disk as shown below.



Figure 9: Partitioning methods



Figure 10: Disk selection

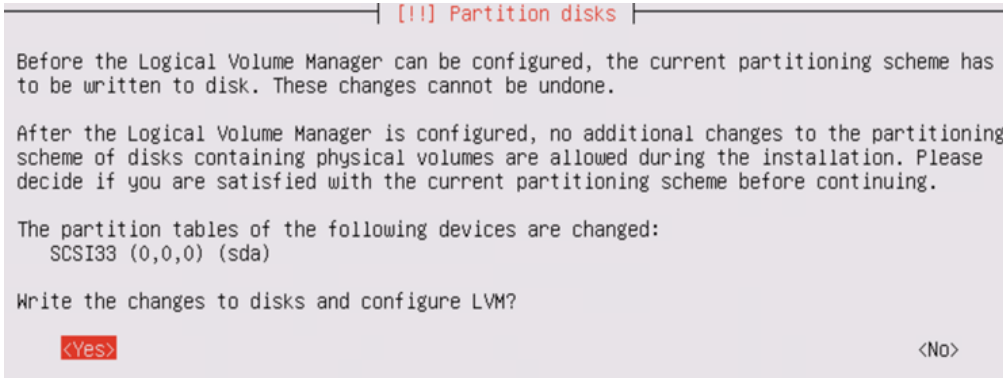


Figure 11: Configuring logical volume manage

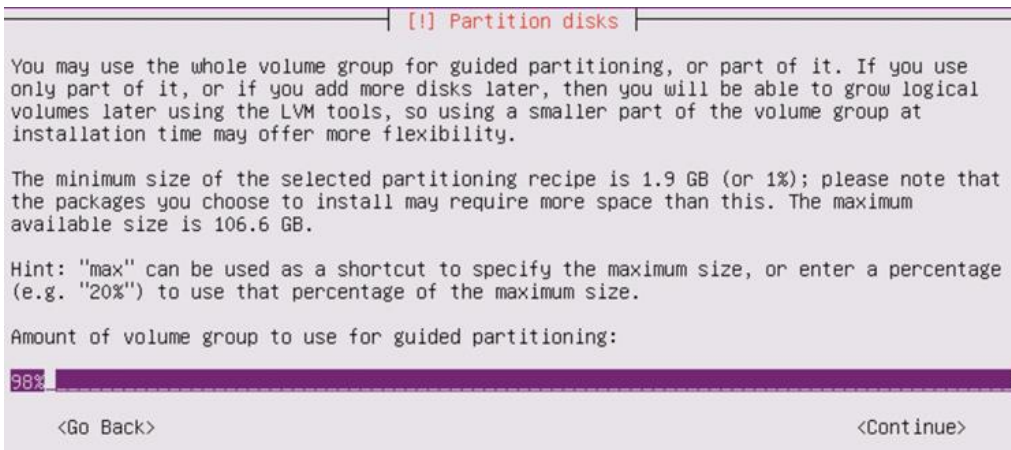


Figure 12: Partition disks volume

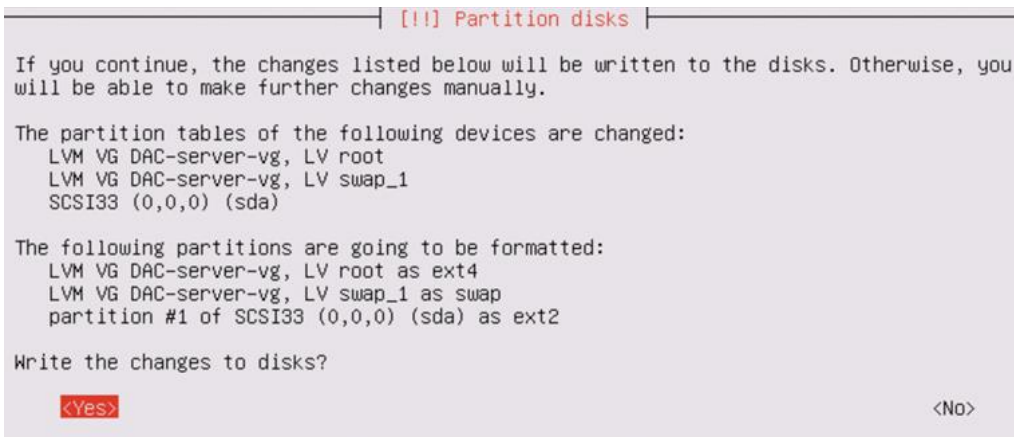


Figure 13: Partition table

- Leave blank for “HTTP proxy information” and select “Continue” on the “Configure the package manager” page.

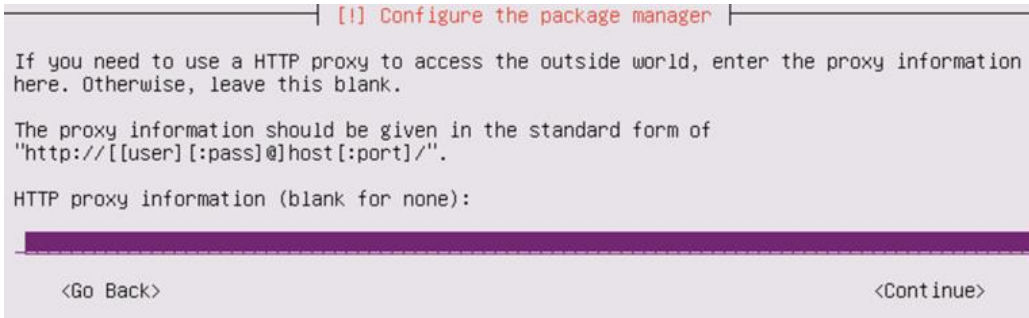


Figure 14: HTTP proxy information

- Select “No automatic updates” on the “Configuring tasksel” page.

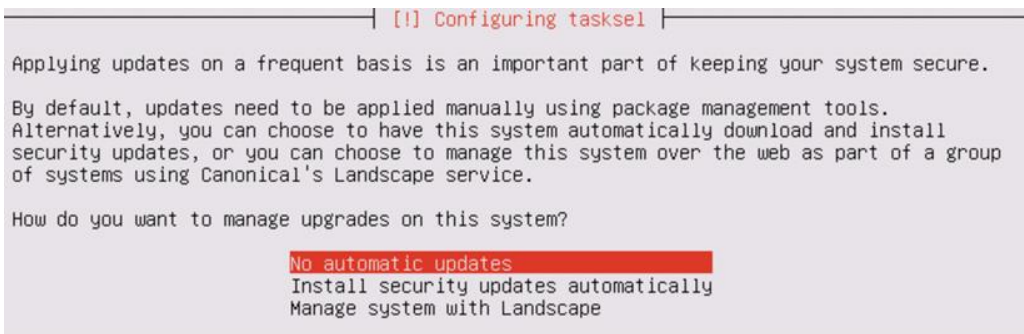


Figure 15: Automatic updates selection

- Select “OpenSSH server” using the space key and select “Continue”.



Figure 16: OpenSSH server selection

- Select “Yes” at the “Install the GRUB boot loader on a hard disk” page.

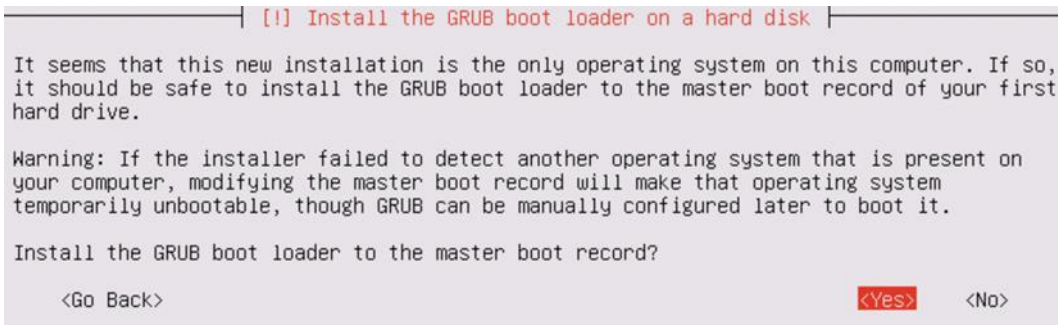


Figure 17: GRUB boot loader

- Select “Continue” to restart.

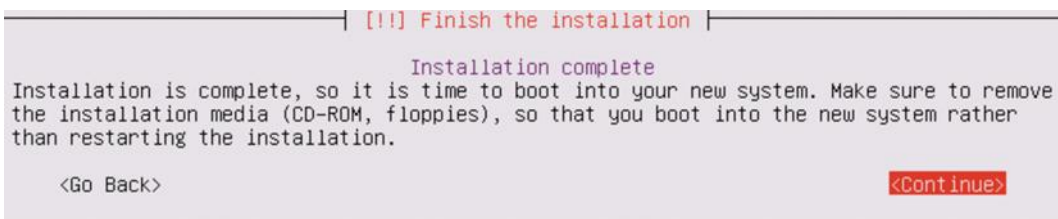


Figure 18: Installation status



## 2.2 Installing the Ubuntu system

The virtual machine automatically installs the Ubuntu system. After the successful installation, login to the virtual machine with the username and password created.

```
Ubuntu 16.04.2 LTS ubuntu tty1
ubuntu login:
Password:
Last login: Mon Jul 31 20:07:12 PDT 2017 on tty1
Welcome to Ubuntu 16.04.2 LTS (GNU/Linux 4.4.0-62-generic x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/advantage
espsver@ubuntu:~$ _
```

Figure 19: Ubuntu system installation

## 3 Initial setup

### 3.1 Basic settings

- Enter `sudo su` in the virtual machine.
- Enter the password for the virtual machine.

```
dacserver@DAC-server:~$ sudo su
[sudo] password for dacserver:
root@DAC-server:~/home/dacserver# _
```

*Figure 20: Virtual machine password window*

- Use the command `passwd` to set the root user password.

## 3.2 Remote login

- Enter the command `vi /etc/ssh/sshd_config` in the virtual machine.
- Type `i` to enter the edit mode.
- Update the `PermitRootLogin` `prohibit-password` to `PermitRootLogin yes`.
- Press the `Esc` key to exit the edit mode.
- Enter `wq` to save the update.
- Enter `/etc/init.d/ssh restart` in the virtual machine to activate the above setup.

```
# What ports, IPs and protocols we listen for
Port 22
# Use these options to restrict which interfaces/protocols sshd will bind to
#ListenAddress ::
#ListenAddress 0.0.0.0
Protocol 2
# HostKeys for protocol version 2
HostKey /etc/ssh/ssh_host_rsa_key
HostKey /etc/ssh/ssh_host_dsa_key
HostKey /etc/ssh/ssh_host_ecdsa_key
HostKey /etc/ssh/ssh_host_ed25519_key
#Privilege Separation is turned on for security
UsePrivilegeSeparation yes

# Lifetime and size of ephemeral version 1 server key
KeyRegenerationInterval 3600
ServerKeyBits 1024

# Logging
SyslogFacility AUTH
LogLevel INFO

# Authentication:
LoginGraceTime 120
PermitRootLogin yes
StrictModes yes
```

Figure 21: Remote login setup

### 3.3 Configuring the network

- In the virtual machine, enter `vi /etc/network/interfaces`.
- Type `i` to enter the edit mode and configure the network information.

**Note:** Do not change the `iface` number as shown in [Figure 22](#).

```
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
# This is an autoconfigured IPv6 interface
auto ens160
iface ens160 inet6 static
address 192.168.10.222
netmask 255.255.255.0
gateway 192.168.10.254
dns-nameservers 8.8.8.8
```

Figure 22: Network configuration page

- Add `dns-nameservers 8.8.8.8`.
- Press the `Esc` key to exit the edit mode.
- Enter `wq` to save the update.
- Enter `reboot` the virtual machine to restart the server and activate the above setup.
- Enter `ping www.baidu.com` to check the above configuration when the server is restarted as shown in [Figure 23](#).

```
root@node1:~# ping www.baidu.com
PING www.a.shifen.com (14.215.177.38) 56(84) bytes of data:
64 bytes from 14.215.177.38: icmp_seq=1 ttl=54 time=36.3 ms
64 bytes from 14.215.177.38: icmp_seq=2 ttl=54 time=36.6 ms
64 bytes from 14.215.177.38: icmp_seq=3 ttl=54 time=36.8 ms
^C
--- www.a.shifen.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2027ms
rtt min/avg/max/mdev = 36.354/36.631/36.854/0.207 ms
```

Figure 23: Check network configuration

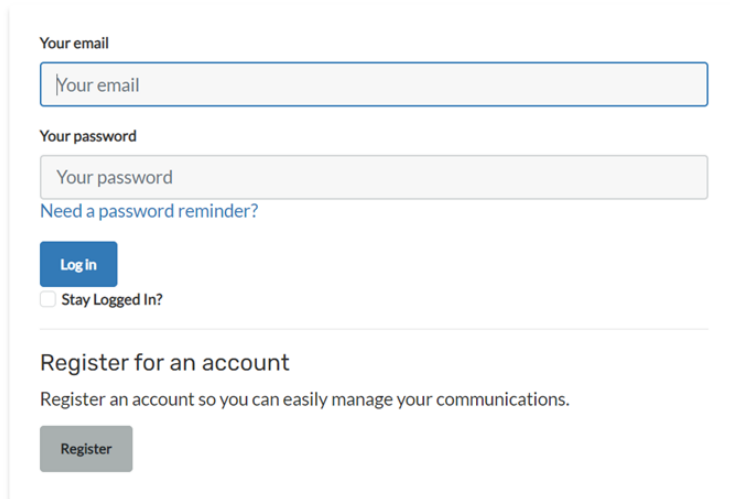
### 3.4 Downloading the installation package

Download the DAC installation package from <https://hirschmann-it-support.belden.com/en/downloads/dragonfly-wireless>.

For the first login, you need to register an account.

#### Log in

Already have an account? Login below.



The screenshot shows a login and registration interface. At the top, it says "Log in" and "Already have an account? Login below." Below this are two input fields: "Your email" and "Your password". The "Your password" field has a link "Need a password reminder?" below it. There is a blue "Log in" button and a checkbox labeled "Stay Logged In?". Below a horizontal line, there is a section titled "Register for an account" with the text "Register an account so you can easily manage your communications." and a grey "Register" button.

Figure 24: Account registration

## 3.5 Uploading the installation package into the virtual machine

- Run WinSCP on Windows and enter the virtual machine information.

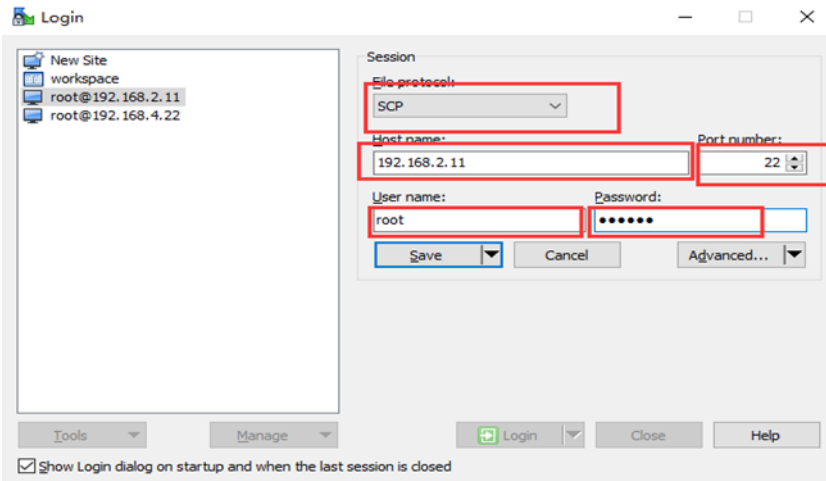


Figure 25: Virtual machine information

- Select the target directory.

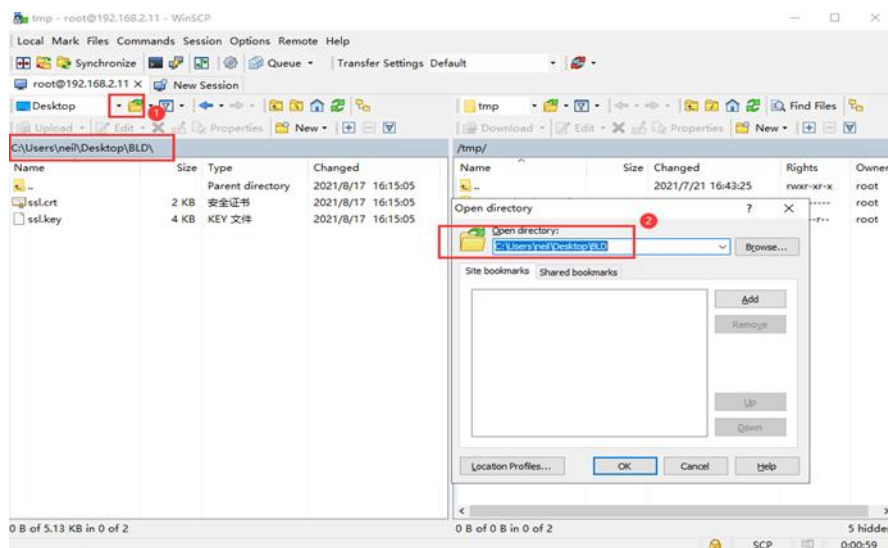


Figure 26: Target directory for the Windows system

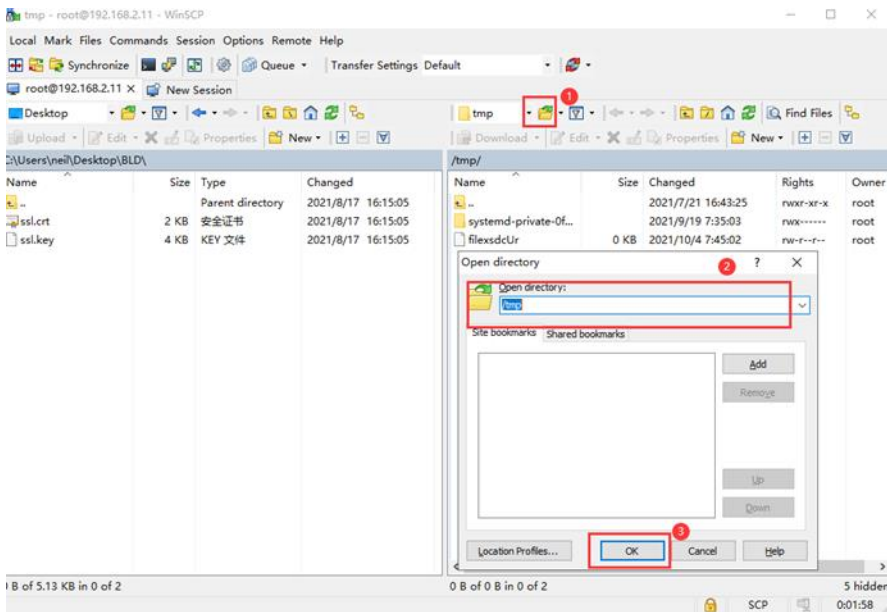


Figure 27: Target directory for the Linux system

□ Upload the installation package to the directory.

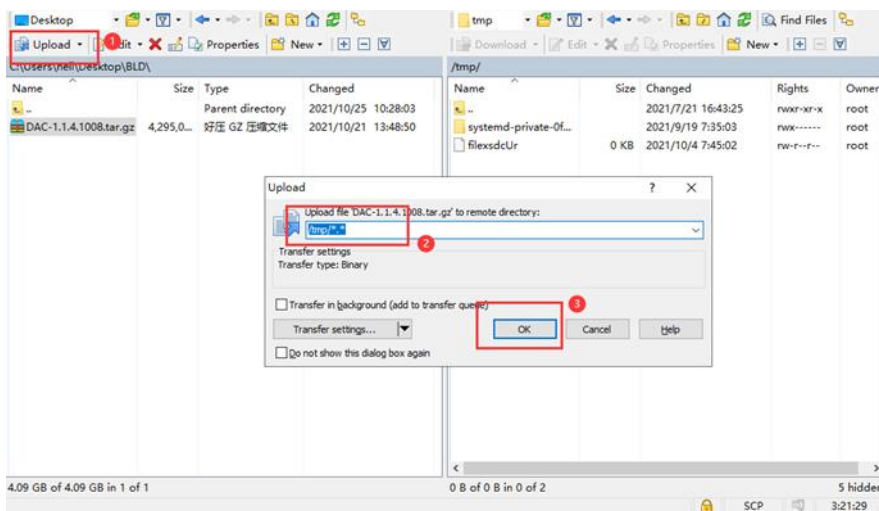


Figure 28: Uploading the installation package

□ The installation package is uploaded successfully.

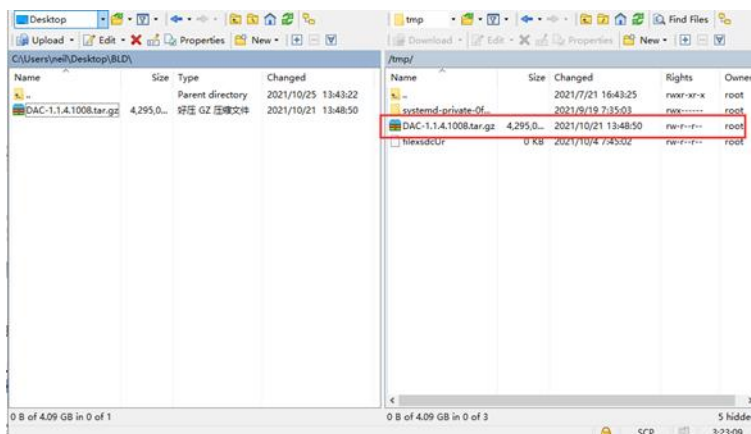


Figure 29: Uploading status

## **4 Installation**

### **4.1 Prerequisites**

The supported installation environments for the DAC are virtual machines and hardware server machines.

Installing the DAC using the docker container is not supported.



## 4.2 Installation for the stand-alone mode

Check the system requirements in [chapter 2.1.2](#) before the installation.

- Create the version directory `mkdir -p /tmp/x.x.x.xxxx.`
- Move the uploaded installation package to the version directory `mv /tmp/DAC-XXXX.tar.gz /tmp/x.x.x.xxxx.`
- Enter the version directory `cd /tmp/x.x.x.xxxx.`
- Unzip the installation package `tar -xzvf DAC-XXXX.tar.gz.`
- Enter the directory `cd /tmp/x.x.x.xxxx/data/package-BLD` and run `./check_md5.sh` to check if the package is unzipped.
- Release the 755 permission of the installation script `sudo chmod 755 ./deployment-all.sh.`
- Run `./deployment-all.sh` and type 1 to start the installation.

```
root@ubuntu:~/data/package-BLD# ./deployment-all.sh
1. Install/Upgrade
2. Uninstall
3. Config New IP
4. Config Nat Network
5. Backup Database
Please input your choice:1
You will Install/Upgrade Plateform!
start uninstall old version
```

Figure 30: Stand-alone mode installation

- Input the installation information.

```
uninstall complete!
Installation code: version101
1. stand alone
2. cluster
Please choose Mode(1/2):1
Enter server IP:192.168.2.44
IP 192.168.2.44 format correct!
===== 192.168.2.44 is up =====
Enter server IPV6 address:
Enter your company info:
Enter your address info:
Enter your phonenumber info:
===== your mode is stand alone=====
===== your server IP is 192.168.2.44=====
===== your server IPV6 address is =====
===== your company name is: =====
===== your address is: =====
===== your phonenumber is: =====
===== the version is: 1.1.4.1008=====
Are we continue?(y/n)
Generating public/private rsa key pair.
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:krFrps0yHjbbhTqaQoRzukaEAEz829B80wM1le6XTTE root@ubuntu
The key's randomart image is:
+----[RSA 2048]-----
  Oo ... E
  .o . . . o
  =o+ B X .
  =o % * S
  oo O + O .
  o.o = * .
  .. + .
+----[SHA256]-----
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
root@192.168.2.44's password:
```

Figure 31: Stand-alone mode installation information

- DAC will be installed automatically.

## 4.3 Installation for the cluster mode

Check the system requirements in [chapter 2.1.2](#) before the installation.

- Specify one server in the cluster as the primary server.
- Run the following commands on each server for the first installation, then reboot the server:

```
sed -
i "s/#DefaultLimitNOFILE=/DefaultLimitNOFILE=65535/g" /etc/systemd/system.conf
```

```
sed -
i "s/#DefaultLimitNOFILE=/DefaultLimitNOFILE=65535/g" /etc/systemd/user.conf
```

- Execute the steps in [chapter 4.2](#) for the primary server.
- Select cluster mode, fill in the cluster information.
- DAC will be installed automatically.

```

1. stand alone
2. cluster
Please choose Mode(1/2):2
Enter First Server IP:192.168.7.201
IP 192.168.7.201 format correct!
192.168.7.201 is up
Enter Second Server IP:192.168.7.202
IP 192.168.7.202 format correct!
192.168.7.202 is up
Enter Third Server IP:192.168.7.203
IP 192.168.7.203 format correct!
192.168.7.203 is up
Enter Virtual IP:192.168.7.208
IP 192.168.7.208 format correct!
192.168.7.208 is up
Enter your company info:
Enter your address info:
Enter your phonenumber info:
-----
your mode is cluster
your first server IP is 192.168.7.201
your second server IP is 192.168.7.202
your third server IP is 192.168.7.203
your VIP is 192.168.7.208
your company name is:
your address is:
your phonenumber is:
the version is: 1.1.4.1008
Are we continue?(y/n)y
Generating public/private rsa key pair.
Your identification has been saved in /root/.ssh/id_rsa.
Your public key has been saved in /root/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:L7evIHIGFLbrgmxnlYsrT1ulwju/ooPy6vHMS9p5w0 root@ubuntull
The key's randomart image is:
----[RSA 2048]-----
.
o o o
+ .
o B = S = .
+ + + +
..E+0 o + +
oo*o= . o +
!+.oo. .
-----[SHA256]-----
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
root@192.168.7.201's password:
Number of key(s) added: 1
Now try logging into the machine, with: "ssh 'root@192.168.7.201'"
and check to make sure that only the key(s) you wanted were added.
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
root@192.168.7.202's password:
Number of key(s) added: 1
Now try logging into the machine, with: "ssh 'root@192.168.7.202'"
and check to make sure that only the key(s) you wanted were added.
/usr/bin/ssh-copy-id: INFO: source of key(s) to be installed: "/root/.ssh/id_rsa.pub"
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
root@192.168.7.203's password:

```

Figure 32: Cluster mode installation

## 4.4 Installation and service check

Installation takes about 30 minutes, depending on the server and the network. After the installation, check whether the required services are available.

### ■ Stand-alone mode

#### ► Command line

In the remote login tool, enter the command: `docker ps -a`. If the status is **Up**, the service is running normally.

```
root@ubuntu:~# docker ps -a
```

CONTAINER ID	IMAGE	COMMAND	CREATED	STATUS	PORTS	NAMES
19201588983e	clientstatistics:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		clientstatistics
6f17fefa3c9e	cspadmin-portal:1.1.5.2	"tini /bin/sh -c 'ja..."	5 hours ago	Up 5 hours		cspadmin-portal
048c835a40fa	espinfoprovider:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		espinfoprovider
59c7e4dbca5c	message:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		message
183ad030e6b4	rest-esp:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		rest-esp
367b51decd87	scene:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		scene
922c7aaf47b8	terminalcenter:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		terminalcenter
095c334f891f	terminalinfogather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		terminalinfogather
0b6ffbfb8f1dc	dispatch-esp:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		trapdispatch
efdbe2777556	widsapgather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		widsapgather
cdaafde58ce1	widsclientgather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		widsclientgather
332eef80752f	dispatch-esp:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		willdispatch
becd55c21878	wiredclientgather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		wiredclientgather
3595f64d565a	wiredclients:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		wiredclients
93b0b13f68ea	apinfogather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		apinfogather
31efe84411db	aprfinfogather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		aprfinfogather
5604463234b1	apstatusgather:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		apstatusgather
4d5862f2dc24	authbroker:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours	0.0.0.0:2000->2000/udp	authbroker
ef96fa4d1173	clientdetail:1.1.5.2	"/bin/go/microservic..."	5 hours ago	Up 5 hours		

Figure 33: Stand-alone mode command line

## ► URL

Login to the URL `http://XX.XX.XX.XX:7777` (xx.xx.xx.xx is the IP address of the server) to view the service status with the following information:

- Username: admin
- Password: admin

If all the service statuses are green and **OK**, the service is started normally.

**Monit Service Manager**

Monit is running on localhost and monitoring:

System	Status	Load	CPU	Memory	Swap
localhost	OK	[15.98] [19.45] [31.75]	43.3%us 36.7%sy 0.0%ni 7.3%wa	63.5% [9.9 GB]	50.0% [487.5 MB]

Process	Status	Uptime	CPU Total	Memory Total	Read	Write
wrabbimq	OK	10d 22h 44m	0.3%	0.8% [123.5 MB]	122.7 B/s	4.2 B/s
wiredclients	OK	10d 22h 37m	0.3%	0.3% [44.5 MB]	249.8 B/s	249.8 B/s
wiredclientgather	OK	4d 21h 33m	0.5%	0.2% [39.5 MB]	783.8 B/s	591.5 B/s
willdispatch	OK	3d 6h 5m	0.7%	0.3% [45.6 MB]	868.2 B/s	746.6 B/s
widsservice	OK	3d 6h 7m	0.2%	0.1% [21.1 MB]	0.7 B/s	0.7 B/s
widsclientgather	OK	10d 22h 37m	1.1%	0.4% [58.4 MB]	612.1 B/s	521.9 B/s
widsappgather	OK	10d 22h 37m	1.0%	0.4% [60.0 MB]	562.7 B/s	489.2 B/s
vernemq	OK	3d 6h 8m	0.1%	0.7% [111.9 MB]	0 B/s	0 B/s
userservice	OK	10d 22h 39m	0.3%	0.3% [51.2 MB]	200.2 B/s	133.0 B/s
upgradedispatch	OK	3d 6h 4m	0.6%	0.3% [43.4 MB]	568.8 B/s	495.3 B/s
trapdispatch	OK	3d 6h 4m	0.8%	0.3% [46.3 MB]	1001.5 B/s	862.7 B/s
toolservice	OK	18h 23m	0.3%	0.2% [38.2 MB]	232.1 B/s	211.1 B/s
terminalinfogather	OK	2d 8h 40m	0.5%	0.3% [42.9 MB]	787.0 B/s	610.6 B/s
terminalcenter	OK	3d 6h 4m	0.5%	0.2% [25.9 MB]	10.4 B/s	3.9 B/s
systemproperty	OK	2d 2h 44m	0.3%	0.4% [58.7 MB]	310.2 B/s	187.2 B/s
scene	OK	10d 22h 36m	0.3%	0.5% [83.1 MB]	270.2 B/s	215.2 B/s
rest-esp	OK	3d 6h 4m	0.8%	0.7% [109.5 MB]	1.3 kB/s	1.1 kB/s
redis	OK	10d 22h 44m	0.1%	0.2% [39.7 MB]	744.2 B/s	991.0 B/s
postgres	OK	10d 22h 42m	0.0%	1.7% [266.6 MB]	42.0 kB/s	1.2 B/s
ocagent	OK	10d 22h 44m	0.5%	0.3% [42.6 MB]	628.1 B/s	508.7 B/s
nginx	OK	18h 23m	0.0%	0.2% [28.6 MB]	0 B/s	0 B/s
mongo1	OK	10d 22h 39m	0.4%	12.1% [1.9 GB]	9.2 kB/s	6.1 kB/s
message	OK	10d 22h 44m	0.2%	0.1% [24.0 MB]	0 B/s	0 B/s
mail-manager	OK	8d 8h 43m	0.2%	0.2% [31.4 MB]	40.1 B/s	5.2 B/s
license	OK	2d 2h 44m	0.4%	0.4% [66.5 MB]	277.7 B/s	224.9 B/s

Figure 34: URL

## ■ Cluster mode

Enter the command `kubectl get pod` in the remote login tool. If all the service status is **Running**, the service is running normally.

```
root@ubuntu:~# kubectl get pod
NAME                                READY   STATUS    RESTARTS   AGE
apinfogather-bd5896cb7-9zxvs        1/1     Running   0           36m
aprfinfogather-69d9f56bf8-djst8     1/1     Running   0           35m
apservice-7b468b56b7-j2249         1/1     Running   0           35m
apstatusgather-5cdf9c95dc-wsm2p    1/1     Running   0           35m
aptrapservice-5dd89657fc-wvfz7     1/1     Running   0           36m
apupgrade-6b8b5768d7-rzdn9         1/1     Running   0           35m
apwillservice-579f9f665b-q6j5d     1/1     Running   0           36m
ca-bridge-8464965875-p9gff         1/1     Running   0           35m
clientdetail-677f4b87f9-w6mmc      1/1     Running   0           35m
clientevent-b7d96746f-9bsgn        1/1     Running   0           35m
clientname-6897d6c678-hwjvk        1/1     Running   0           35m
clientstatistics-6bb45d6cc5-9f9mr   1/1     Running   0           35m
clienttraffic-66f8774fd9-pp577     1/1     Running   0           35m
config-5fb9595bbf-2k5zq            1/1     Running   0           35m
cspadmin-77d8cb549b-rpk28           1/1     Running   0           38m
cspadmin-call-854f74484-hrwj6       1/1     Running   0           35m
cspadmin-portal-7cd55b4d75-jg2lf    1/1     Running   0           38m
cspadmin-report-86d8bc9f96-fvgbw    1/1     Running   0           38m
datasynchronization-7bcd4c897c-n8csp 1/1     Running   0           35m
dispatch-75bffcf5c5-w7z42           1/1     Running   0           35m
dsp-ad-resource-f5cd6964b-t4cwt      1/1     Running   0           18m
dsp-ad-resource-strategy-7d998d4857-t4htt 1/1     Running   0           18m
dsp-apigateway-6dfc45f7cb-4cdnn     1/1     Running   0           18m
dsp-bidding-5b6846544c-gr7s4        1/1     Running   0           18m
dsp-report-5465f9dd67-bmpwk         1/1     Running   0           18m
dsp-usermanager-7d89c7b797-zjmsv    1/1     Running   0           18m
espinfoprovder-97d4c797c-ng5n2     1/1     Running   0           35m
espversion-6695685958-nflwl        1/1     Running   0           36m
eureka-5b5bf5d7df-7dzcf            1/1     Running   0           18m
guideservice-b56b788c6-x99xv        1/1     Running   0           36m
hamqrcode-5d5555f89d-lnk5l         1/1     Running   0           35m
hamservice-77cfcbbf59-7nfxc        1/1     Running   0           35m
infostatistics-7b8cb4b4dd-tfvfp     1/1     Running   0           35m
jobscheduler-68d6786967-g47mp       1/1     Running   0           35m
license-79fd579fb8-c95g6           1/1     Running   0           36m
mail-manager-58959f48b6-hm5h8       1/1     Running   0           35m
message-796dfd8668-blxzv           1/1     Running   0           35m
nginx-78d978b7ff-8skx4             1/1     Running   0           35m
portal-69f6f6ccc6-s9zdt             1/1     Running   0           35m
portal-esp-584d898b85-vdbx5         1/1     Running   0           35m
reportcspadminservice-6c6d59fcb-2npvd 1/1     Running   0           36m
rest-esp-c749978fc-tpwgt            1/1     Running   0           35m
rfservice-7f5dd89787-pkncx          1/1     Running   0           36m
rtb-bidding-6fcd557b5d-wzbth        1/1     Running   0           18m
scene-69d88cfb8b-ms78z             1/1     Running   0           35m
systemproperty-65f78d778d-pwrfg     1/1     Running   0           35m
terminalidentity-7fc957f5bb-rmbrs   1/1     Running   0           18m
terminalinfogather-669bb6fc94-c785p 1/1     Running   0           35m
toolservice-65d9d7d9cd-xxnsr       1/1     Running   0           35m
trapdispatch-6cf7c4bc4c-hfwmf       1/1     Running   0           35m
upgradedispatch-cfc6d4f49-skvrc      1/1     Running   0           35m
userservice-7c764fc8f8-f6k7d        1/1     Running   0           35m
wechat-6f659c58cf-2wqvz            1/1     Running   0           35m
widsappgather-57d7486894-7b99s      1/1     Running   0           35m
widsclientgather-5cdbf77f76-sgbt4    1/1     Running   0           35m
widsservice-675cc869bd-ws659        1/1     Running   0           36m
willdispatch-8456c57b84-f7hw4       1/1     Running   0           35m
wiredclientgather-5c4d8b6b8b-m5lkt   1/1     Running   0           35m
wiredclients-568d759fd8-n77f2      1/1     Running   0           35m
root@ubuntu:~#
```

Figure 35: Cluster mode command line

## 4.5 Modifying the DAC server IP

The stand-alone server IP can be modified, but the server IP for the cluster mode cannot be modified. The script below can be executed after the normal installation.

- ❑ Execute the `deployment-all.sh` script as shown in [Figure 36](#).
- ❑ Restart the server by entering the command `reboot`.
- ❑ When the server is restarted, check the modified IP address by entering the command `ifconfig`. If the new IP address is shown in the network interface, the IP address was successfully modified.
- ❑ Check if the service is running normally by entering the command `docker ps -a`. If the existing service does not exit, the service is running normally.
- ❑ If the existing service exits, wait about ten minutes and check again. If the service still does not run normally, contact the technical support of Hirschmann IT.

```
root@ubuntu:~/data/package-Taichu# ./deployment-all.sh
1. Install/Upgrade
2. Uninstall
3. Config New IP
4. Config Nat Network
5. Backup Database
Please input your Choice:3
You will Config New IP for Plateform!
Please input your NewIP:192.168.2.45
```

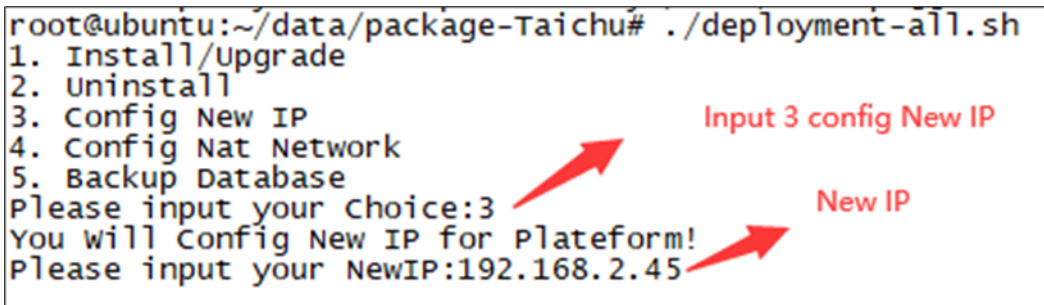


Figure 36: Modifying the DAC server IP

## 4.6 Configuring the DAC public IP

Execute the following steps after normal installation to modify the DAC public IP.

- ❑ Make sure that all the services are running normally, and the public IP is correct.
- ❑ Execute the `deployment-all.sh` script as shown in [Figure 37](#).
- ❑ Check if the service is running normally by entering the command `docker ps -a` if no error is detected during the execution. If the existing service does not exit, the service is running normally.
- ❑ If the existing service exits, wait about ten minutes and check again. If the service still does not run normally, contact the technical support of Hirschmann IT.

```
root@ubuntu:~/data/package-Taichu# ./deployment-all.sh
1. Install/Upgrade
2. Uninstall
3. Config New IP
4. Config Nat Network
5. Backup Database
Please input your Choice:4
You will Config NAT Network for Plateform!
Please input your Public IP:182.150.57.140
IP 182.150.57.140 format correct!
Can you use public network port 443?(y/n)n
If not,please input your public network port which you can use:4433
```

Figure 37: Configuring the DAC public IP

## 4.7 Starting and stopping services

Enter `kubectl apply/delete -f XXX/XX.yaml` to start or stop services.

All the YAML files are stored in the following directories:

- ▶ /opt/micro-esp-playbook
- ▶ /etc/csp/Portal/
- ▶ /etc/csp/docker-cspadmin/
- ▶ /etc/csp/csp-statistic/
- ▶ /etc/csp/csp-email/
- ▶ /etc/csp/aiops-itt/



## 4.8 Getting the device code

Device code is the fingerprint of the DAC server. You need to provide the device code to your supplier for the offline license application.

Get the DAC server device code as shown in [Figure 38](#), and the supplier will generate the license code based on this device code.

Refer to the DAC User Manual to activate the license code.

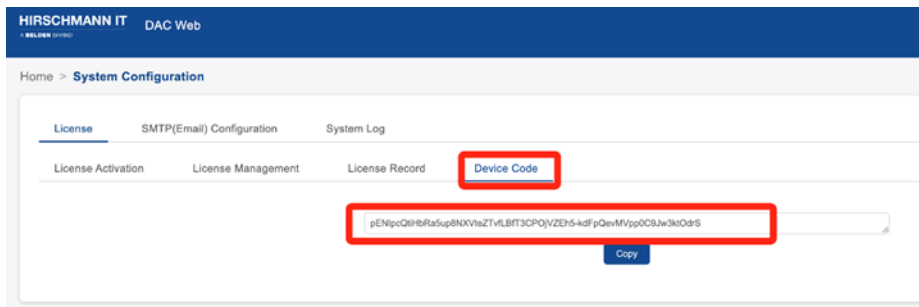


Figure 38: DAC device code generation

## 4.9 Logging in

Open the computer browser and visit `http://XX.XX.XX.XX:8808` (xx.xx.xx.xx is the virtual IP of the cluster mode).

Log in to the DAC. The default account name is “admin”, and the password is “Admin@01”.

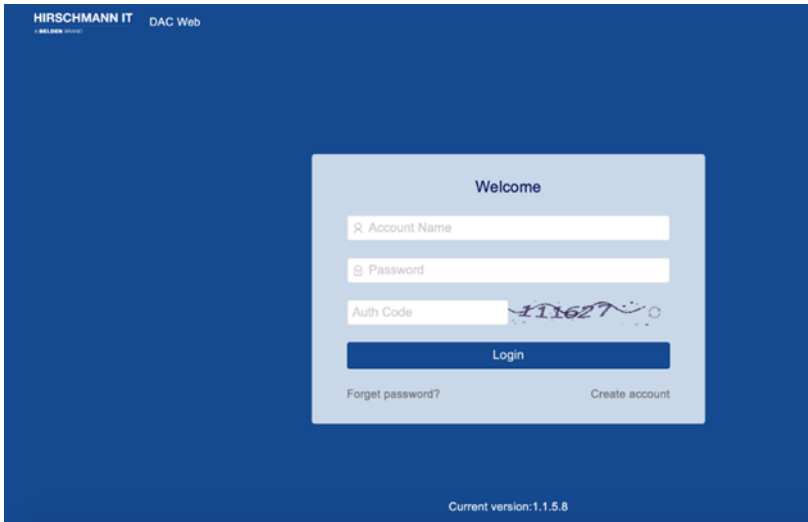


Figure 39: DAC login

## 5 Uninstallation

- ❑ Enter the unzip directory `cd /tmp/x.x.x.xxxx/data/package-BLD.`
- ❑ Run `sudo ./deployment-all.sh` as shown in [Figure 40](#).

```
root@ubuntu:~/data/package-Taichu# ./deployment-all.sh
1. Install/Upgrade
2. Uninstall
3. Config New IP
4. Config Nat Network
5. Backup Database
Please input your choice:2
You will Uninstall Plateform!
```

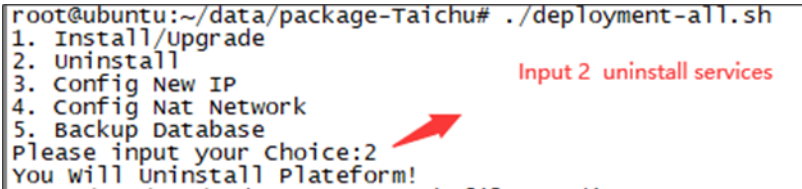


Figure 40: Uninstallation

### 5.1 Backing up and recovering data

#### ■ Data backup

Execute the `deployment-all.sh` script, input 5 for “Backup Database” as shown in [Figure 41](#).

The default directory is `/root/databackup/`.

```
root@ubuntu:~/data/package-Taichu# ./deployment-all.sh
1. Install/Upgrade
2. Uninstall
3. Config New IP
4. Config Nat Network
5. Backup Database
Please input your choice:5
You will Backup Database!
Please input your backup directory:/root/dackup
```




Figure 41: Data backup

#### ■ Data recovery

Execute the `datastore-docker.py` script for data recovery, set the parameter of `python /etc/csp/datastore-docker.py /<datastorepath>` as the directory during the data backup.

**Example:** `python /etc/csp/datastore-python.py /etc/csp/databackup/20230824-000012.tar.gz`

# 6 Troubleshooting

## 6.1 Subnet IP conflict

The DAC for the stand-alone mode uses the 172.17.0.1 subnet and the 172.18.0.1 subnet at the same time. The DAC for the cluster mode uses the 172.17.0.1 subnet only. The subnet IP conflicts are shown in [Figure 42](#).

```
root@ubuntu:/tmp/1.1.5.2/data/package-BLD/csp# ./ipconflictresolve.sh
Before use this script to solve 172.17 or 172.18 subnet conflict,make sure docker service is already installed
1) 172.17 subnet conflict
2) 172.18 subnet conflict
Please choose which subnet conflict(1/2):
```

Figure 42: Subnet IP conflict

- ▶ If the “172.17.0.1” subnet IP conflicts
  - Install the DAC by following the steps in [chapter 4.2](#) for the stand-alone mode or [chapter 4.3](#) for the cluster mode
  - Enter the directory `cd /tmp/x.x.x.xxxx/data/package-BLD/csp`
  - Run `./ipconflictresolve.sh`
  - Select 1 to solve the detected problem as shown in [Figure 43](#)

```
root@DAC-server:~/versions/1.1.5.6002/data/package-BLD/csp# ./ipconflictresolve.sh
Before use this script to solve 172.17 and 172.18 subnet conflict, make sure docker service is already installed
1) 172.17 subnet conflict
2) 172.18 subnet conflict
please choose which subnet conflict(1/2):1
172.17.0.X subnet conflict
change docker default subnet, please input the new subnet you want(e.g:172.17.200.1):10.10.10.1
```

Figure 43: 172.17.0.1 Subnet IP conflict

- ▶ If the “172.18.0.1” subnet IP conflicts
  - Enter the directory: `cd /tmp/x.x.x.xxxx/data/package-BLD/csp`
  - Run `./ipconflictresolve.sh`
  - Select 2 to solve this problem as shown in [Figure 44](#)
  - Install or reinstall the DAC

```
root@DAC-server:~/versions/1.1.5.6002/data/package-BLD/csp# ./ipconflictresolve.sh
Before use this script to solve 172.17 and 172.18 subnet conflict, make sure docker service is already installed
1) 172.17 subnet conflict
2) 172.18 subnet conflict
please choose which subnet conflict(1/2):2
172.18.0.X subnet conflict
please input the new subnet you want(e.g:172.18.200.1):10.20.10.1
```

Figure 44: 172.18.0.1 Subnet IP conflict

## 6.2 Installation failure

The server environment restricts the installation occasionally. If the first installation is unsuccessful, resolve the server environment issue and run the installation command again.

## 6.3 Service failure

If the service cannot be started after the installation, check if the following happens:

- ▶ Ports shown in [Table 3](#) are occupied.
- ▶ The server has insufficient resources.
- ▶ The disk is full.

Port	TCP/UDP	Service	Function
20101	TCP	mongo1	Database port
8883/8888	TCP	vernemq	AP connection port
15672/61613	TCP	rabbitmq	Message queuing port
5432	TCP	postgres	Database port
1812	UDP	freeradius	Authentication service port
1813	UDP	freeradius	Authentication service port
1814	UDP	freeradius	Authentication service port
50051	TCP	freeradius	Authentication service port
443	TCP	nginx	Web page port
8808	TCP	nginx	Web page port
8060	TCP	nginx	Web page port
8081	TCP	nginx	Web page port
8099	TCP	nginx	Web page port
8443	TCP	nginx	Web page port
8282	TCP	hamrcode	QR service port
2000	UDP	authbroker	Authentication service port

*Table 3: Ports and their functions*

## 6.4 Cannot access the page

After restarting the virtual machine, the page cannot be accessed occasionally. Check if the service status is **Up** or **Running**. Wait about 10 minutes. When the required services are normal, the page can be accessed.

## 7 User documentation

The full user documentation for the DAC-Controller Virtual consists of the following documents:

- ▶ User Manual Installation
- ▶ User Manual Configuration Guide

You can find the documents as PDF files for downloading at:

<https://catalog.belden.com>



# A Further support

## Technical questions

For technical questions, please contact any Hirschmann IT dealer in your area or Hirschmann IT directly.

A list of local telephone numbers and email addresses for technical support directly from Hirschmann IT is available at <https://hirschmann-it-support.belden.com>

This site also includes a free of charge knowledge base and a software download section.

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