HIRSCHMANN IT

A BELDEN BRAND

DAC Installation Guide

Installation Guide
Release 01 06/2022

Technical support
https://hirschmann-it-support.belden.com

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1 Revision History

Revision	Date	Description
2.5	Apr-2022	The 1st published version
2.6	May-2022	Update chapter 4.7 Get Device Code
2.7	Jul-2022	Add default Account Name and Password in chapter 4.8

2 Environment Preparation

2.1 Configuration Requirements

DAC can be installed in the server, but here recommend creating new virtual machine for DAC installation. Server or virtual machine configuration requirements are as below:

1) Stand-alone mode

AP/Clients	Configurations	HDD
50APs + 1000Clients	4 Cores CPU+16GB Memory+1T HDD	Read：1.7GB/s Write：134MB/s
256APs + 5000Clients	8 Cores CPU+16GB Memory+1T HDD	
500APs + 10000Clients	12 Cores CPU+32GB Memory+1T HDD	
1000APs + 20000Clients	24 Cores CPU+32GB Memory+1T HDD	

2) Cluster mode

AP/Clients	Configurations (per server)	HDD
2000APs + 10000Clients	12 Cores CPU+32GB Memory+2T HDD	Read：1.7GB/s Write：134MB/s
6000APs + 30000Clients	24 Cores CPU+32GB Memory+2THDD	

Note:

- Cluster mode require minimum 3pcs servers.
- Server host names must be unique.

2.2 Download Linux

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

Note: DAC only support Ubuntu 16.04.x.

2.3 Create New Virtual Machine

Open VMware ESXi to create new virtual machine, as shown in Figure 2-3-1.

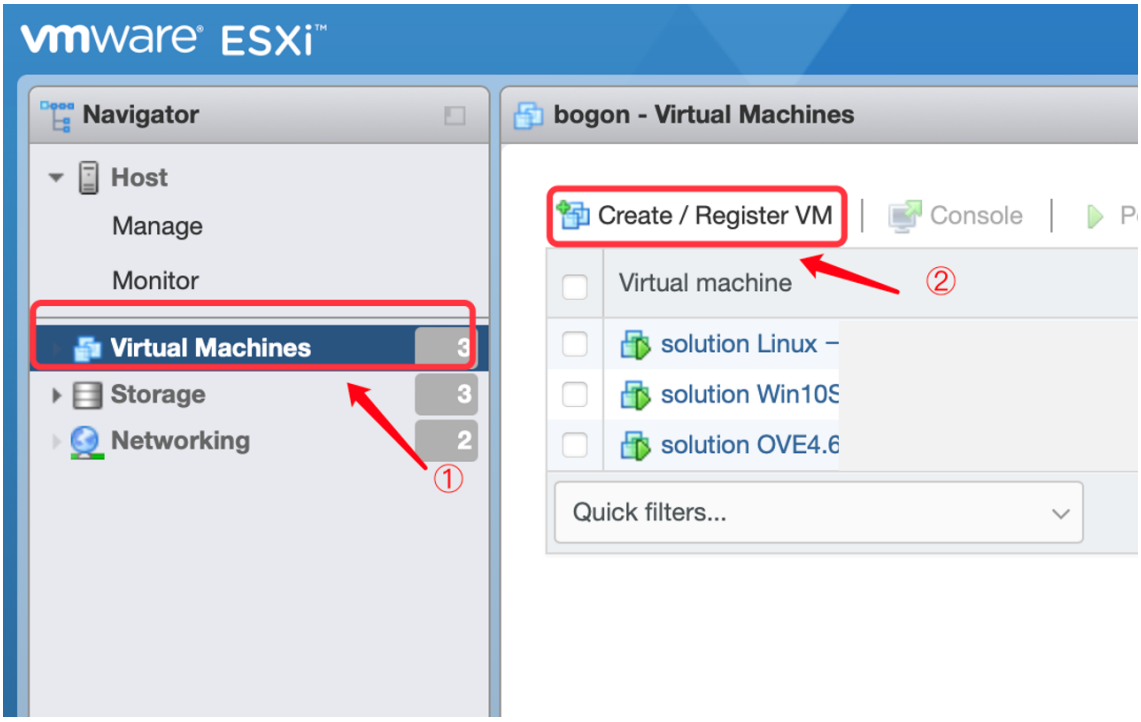

Figure 2-3-1

2.4 Configuring Virtual Machine

Follow the steps below to configure virtual machine, click “Next” for the steps not mentioned.

1) Select “Create a new virtual machine” , click “Next”.

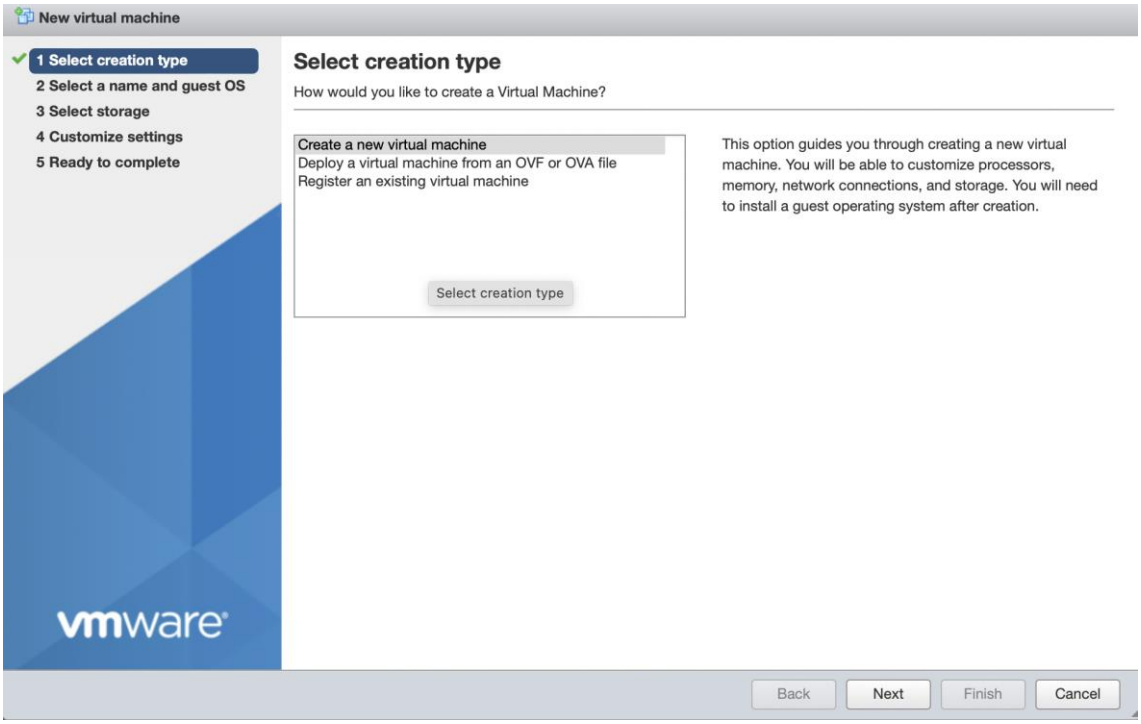

Figure 2-4-1

2) Config as shown in Figure 2-4-2, click “Next”.

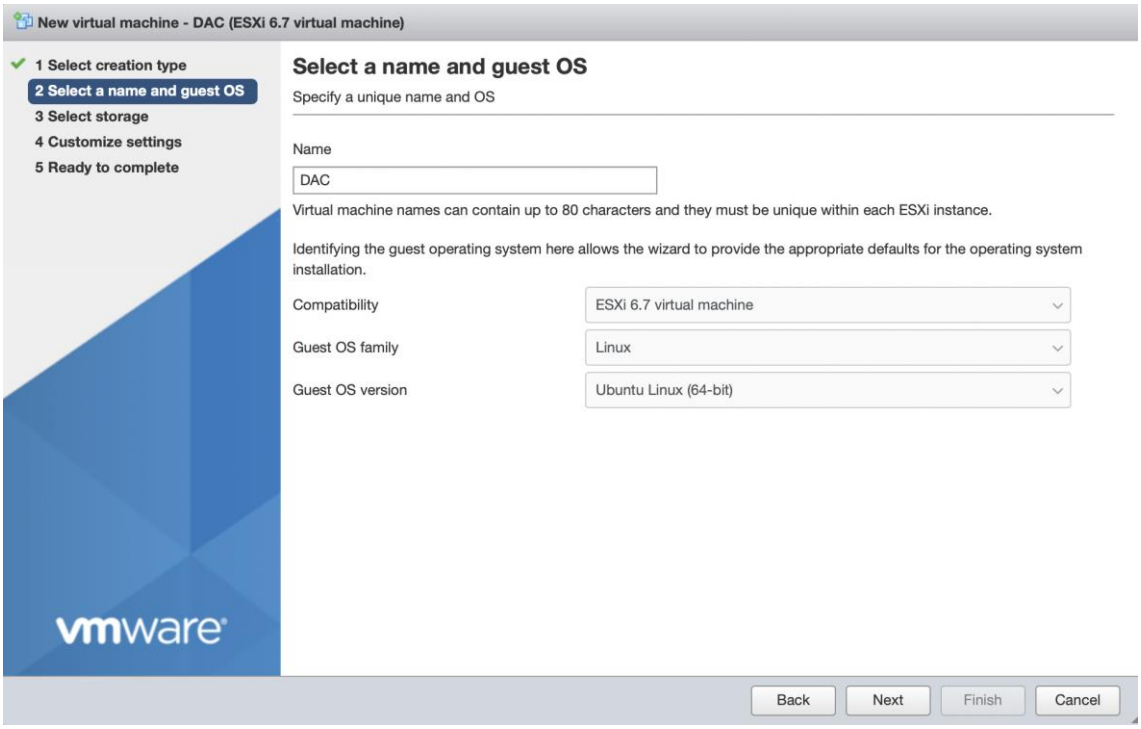

Figure 2-4-2

3) Select the number of cores per processor， memory and hard disk for this virtual machine, refer chapter 2.1 for detailed configuration requirements.

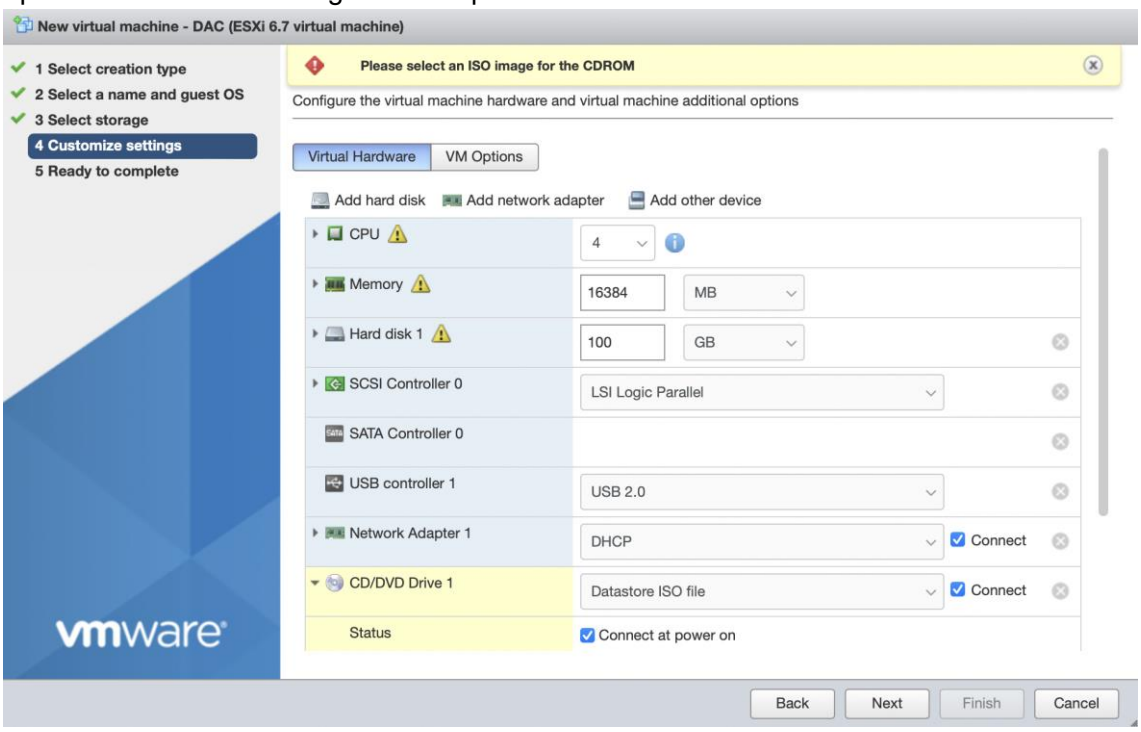

Figure 2-4-3

4) Select “Datastore ISO file” in “CD/DVD Drive1”, create new directory and upload Ubuntu OS file downloaded in chapter 2.2, click “Next”.

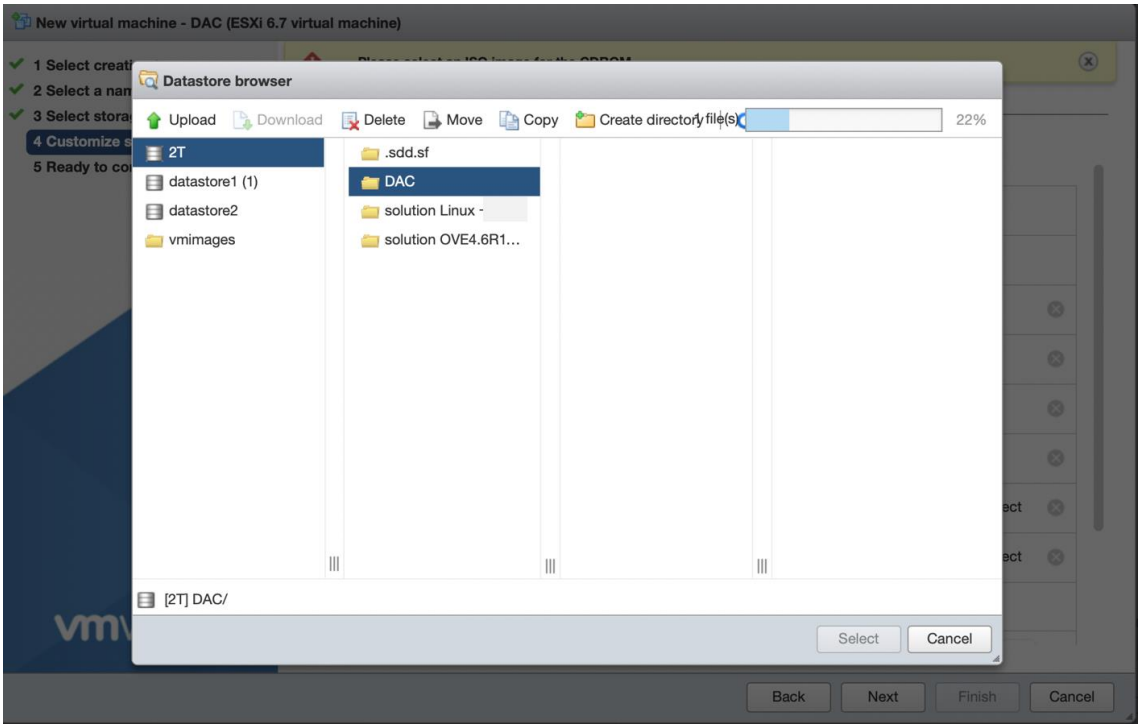

Figure 2-4-4

5) Click “Finish”.

6) Power on the VM, and open browser console.

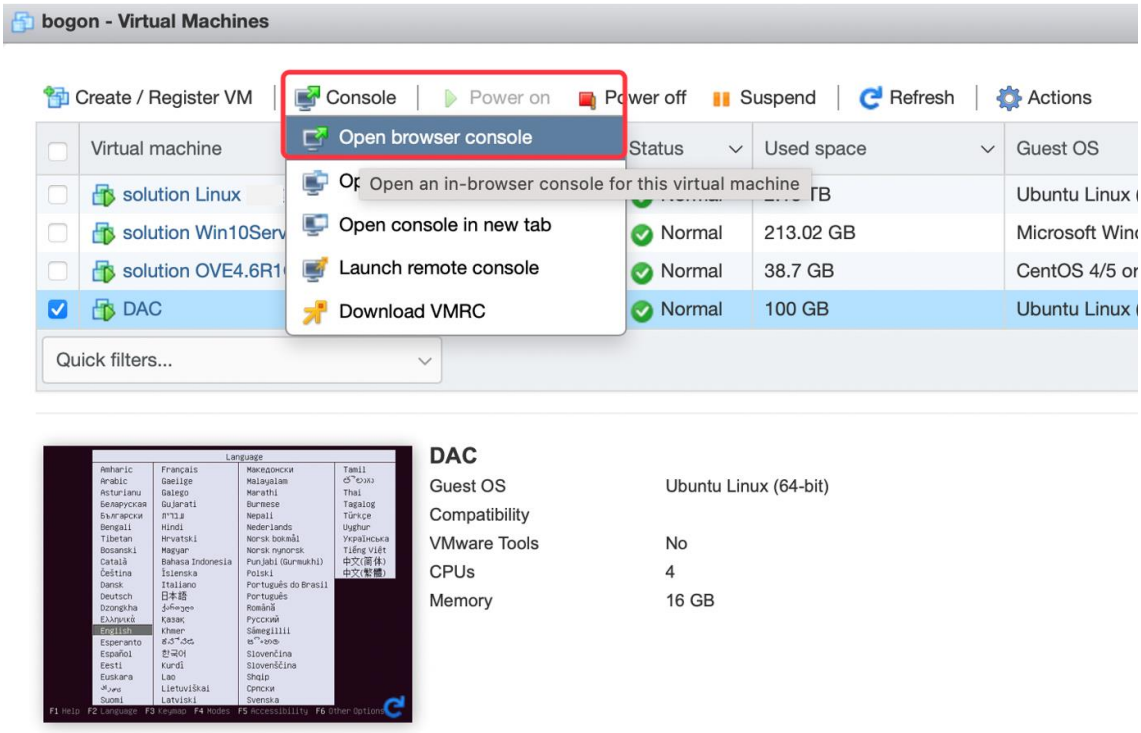

Figure 2-4-5

7) Select “English” and install Ubuntu Server.

8) Select “Language and Location”, do not detect keyboard layout, then config the keyboard and the

network，Set up users and passwords，do not encrypt your home directory.

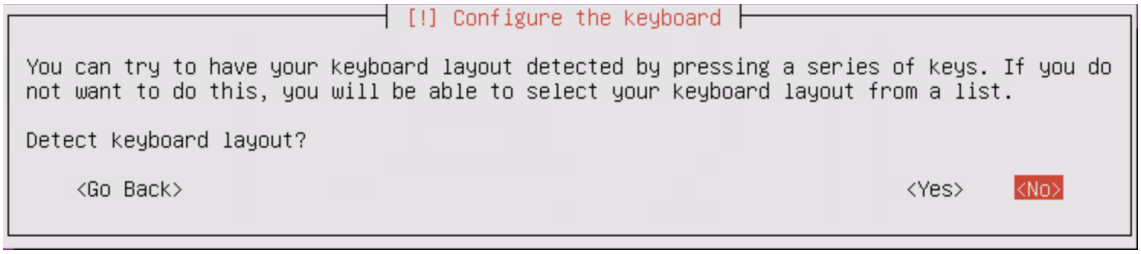

Figure 2-4-6

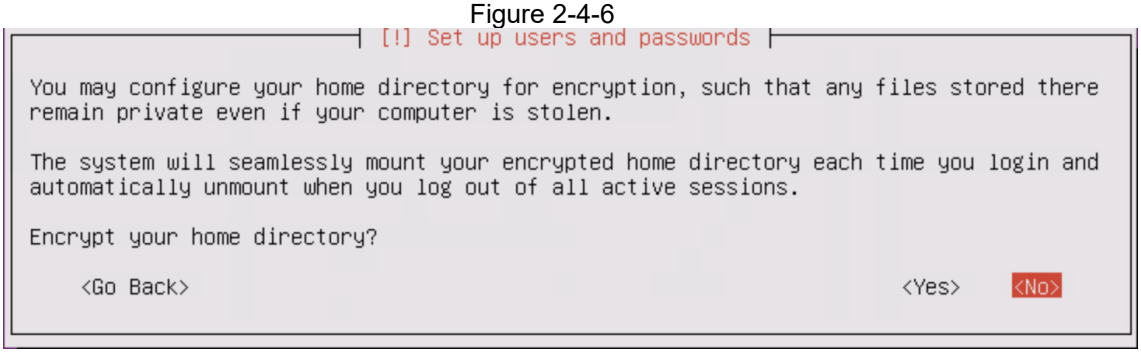

Figure 2-4-7

9) “Partition disks”，as shown in the following figure.

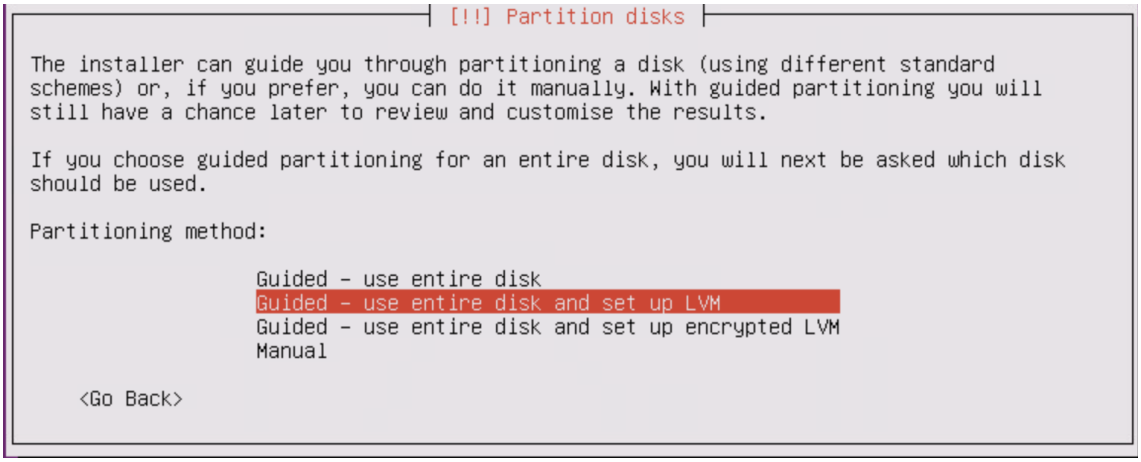

Figure 2-4-8

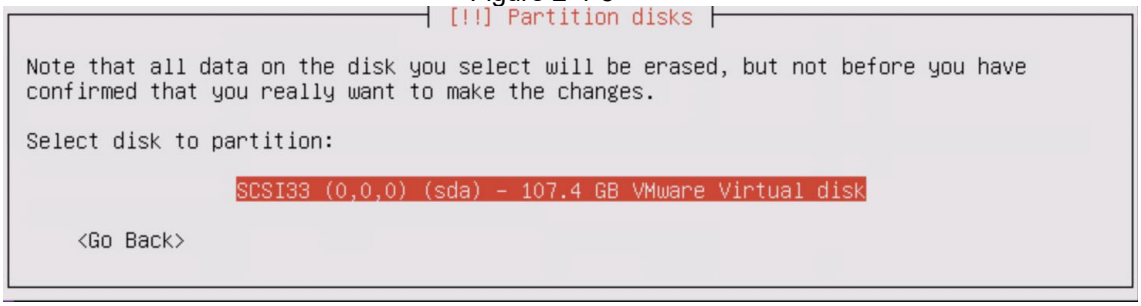

Figure 2-4-9

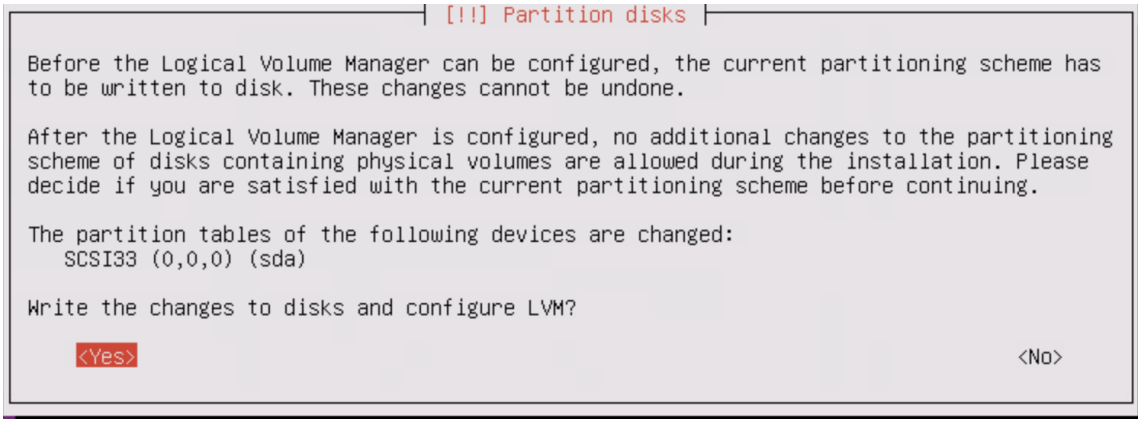

Figure 2-4-10

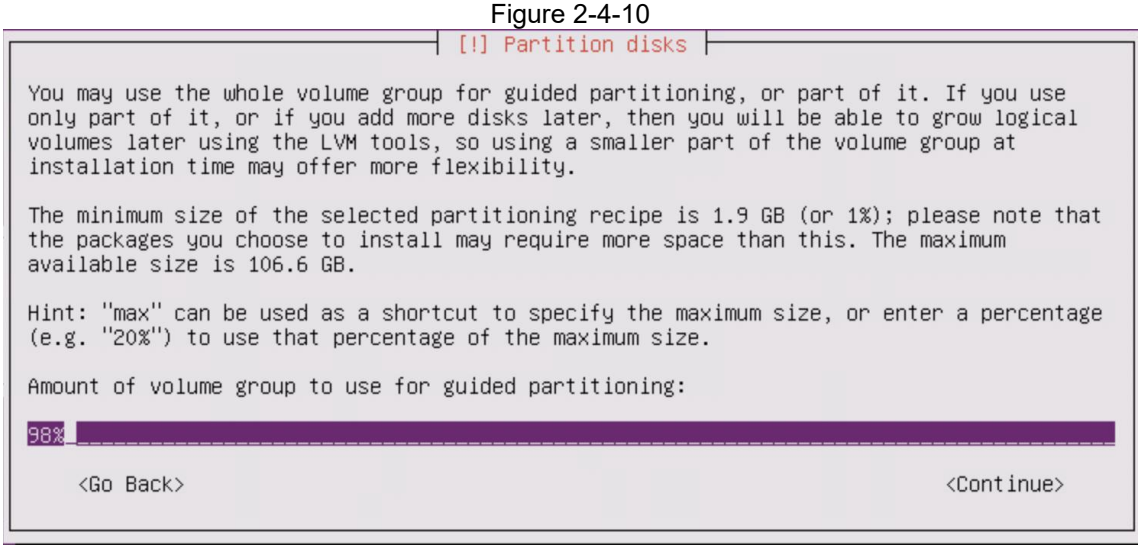

Figure 2-4-11

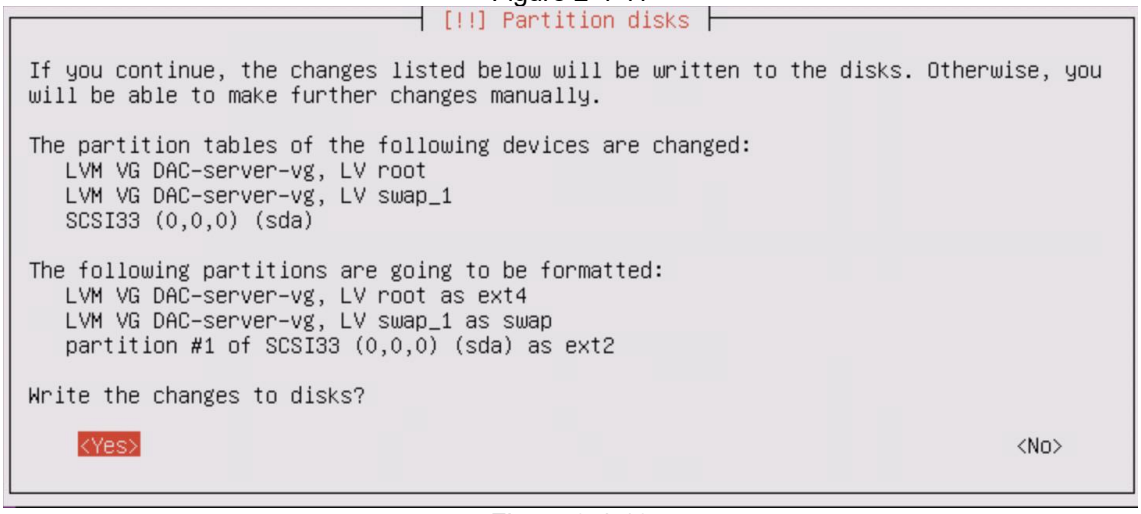

Figure 2-4-12

10) Do not config http proxy information.

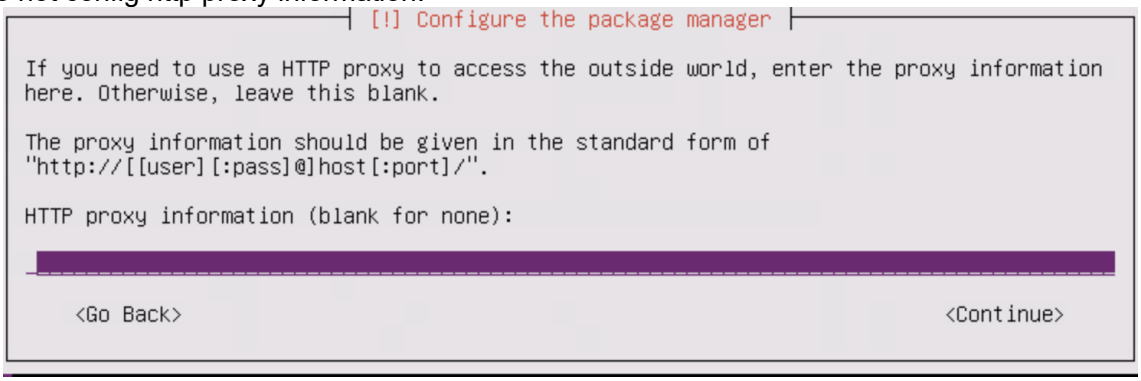

Figure 2-4-13

11) Select “No automatic updates”.

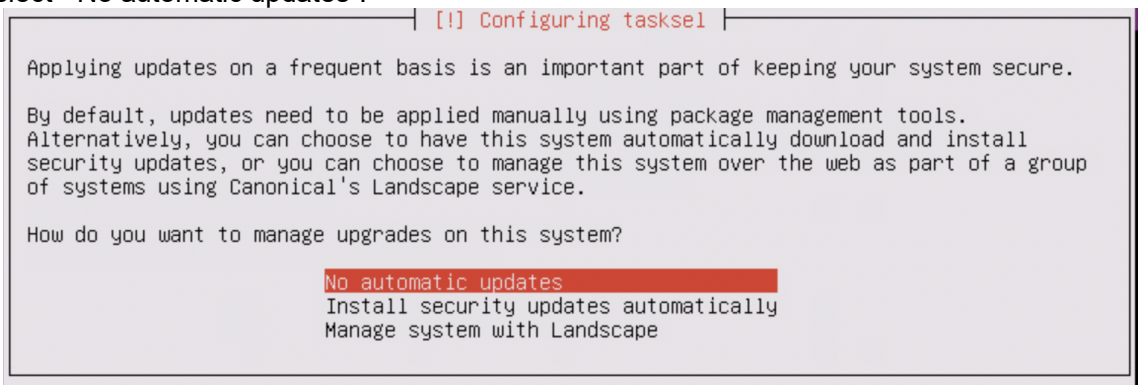

Figure 2-4-14

12) Select “OpenSSH-server” using space key.

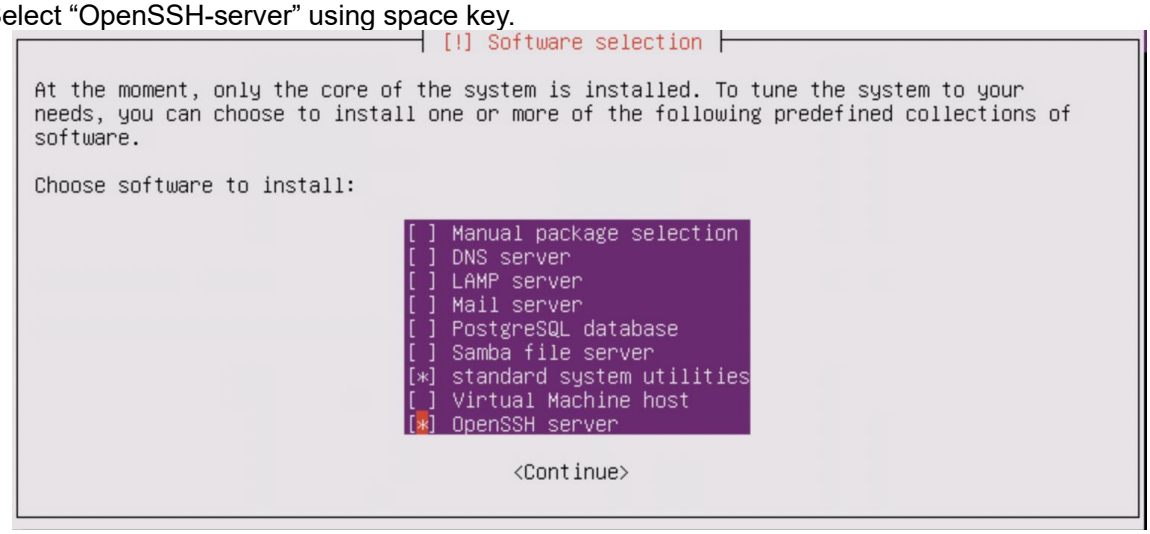

Figure 2-4-15

13) Then select “Yes”.

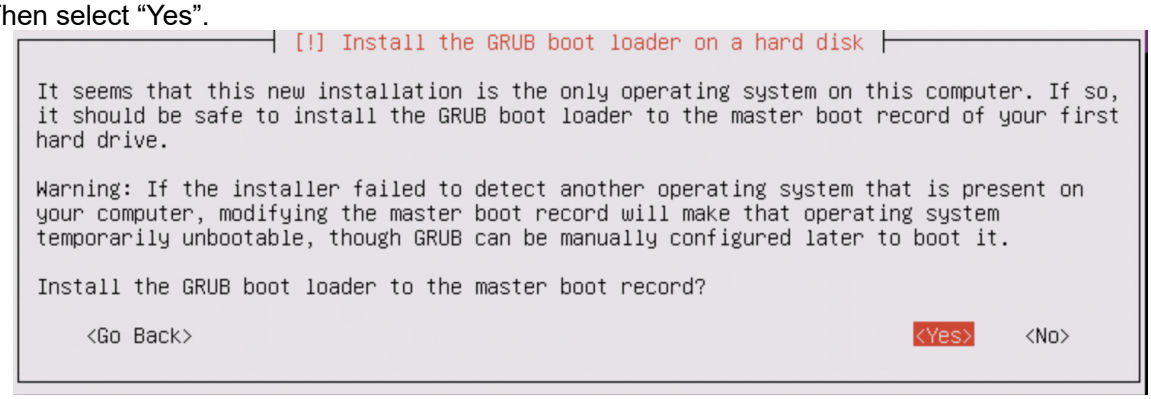

Figure 2-4-16

14) Continue to restart.

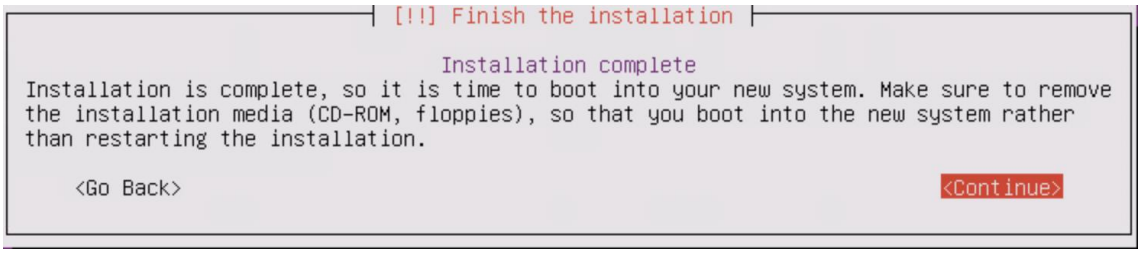

Figure 2-4-17

2.5 Install Ubuntu System

The virtual machine will automatically install the Ubuntu system, wait for the Ubuntu system installed successfully and login to the virtual machine with the username and password in chapter 2.4.

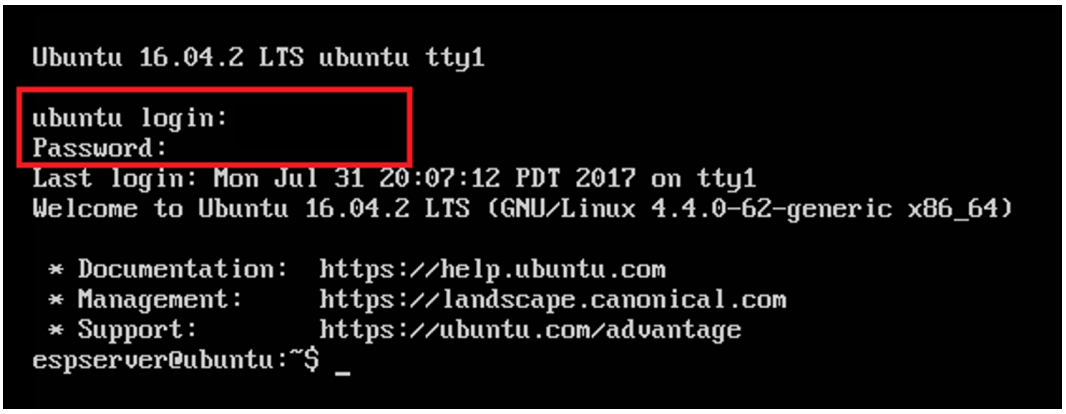

Figure 2-5-1

3 DAC Software Packages Preparation

3.1 Get Administrator Privileges

1) Enter “sudo su” in virtual machine;

2) Input virtual machine password;

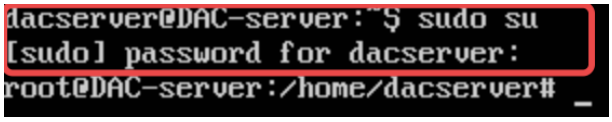

Figure 3-1-1

3) Set root user password, use command “sudo passowrd”;

3.2 Allow Root User SSH Remote Login

1) Enter “vi /etc/ssh/sshd_config” in virtual machine, enter “i” to enter edit mode;

2) Update PermitRootLogin prohibit-password to PermitRootLogin yes, enter ″Esc″ exit edit mode;

3) Enter ″wq″ to save the update;

4) Enter ″/etc/init.d/ssh restart″ in virtual machine to active above setup;

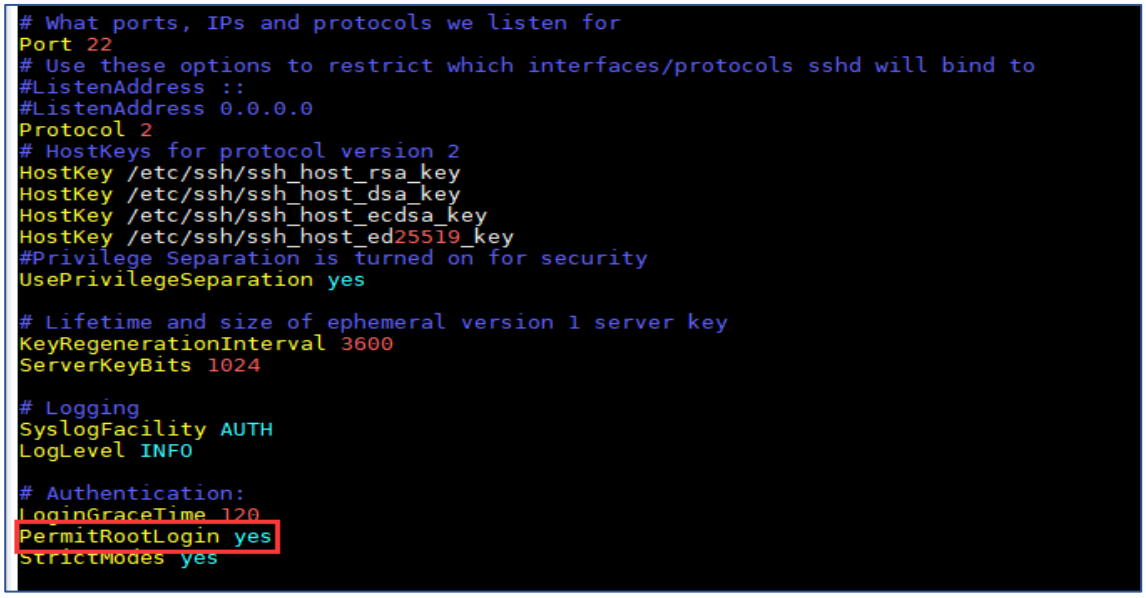

Figure 3-2-1

3.3 Add Domain Name Resolution

1) Enter ″vi /etc/network/interfaces″ in virtual machine，enter ″i″ to enter edit mode.

2) Config network information as shown in Figure 3-3-1, don't change the iface number.

3) Add dns-nameservers 8.8.8.8, enter "Esc" to exit edit mode.

4) Enter "wq" to save the update.

5) Enter "/etc/init.d/networking" restart in virtual machine to active above setup.

6) Type "ping www.google.com" to check above configuration, as shown in Figure 3-3-2.

```
# 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 3-3-1

```
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 3-3-2

3.4 Download DAC Installation Package

Download DAC installation package from https://hirschmann-it-support.belden.com/en/downloads/dragonfly-wireless. The Login page is shown in Figure 3-4-1. For first login, you may need to register an account.

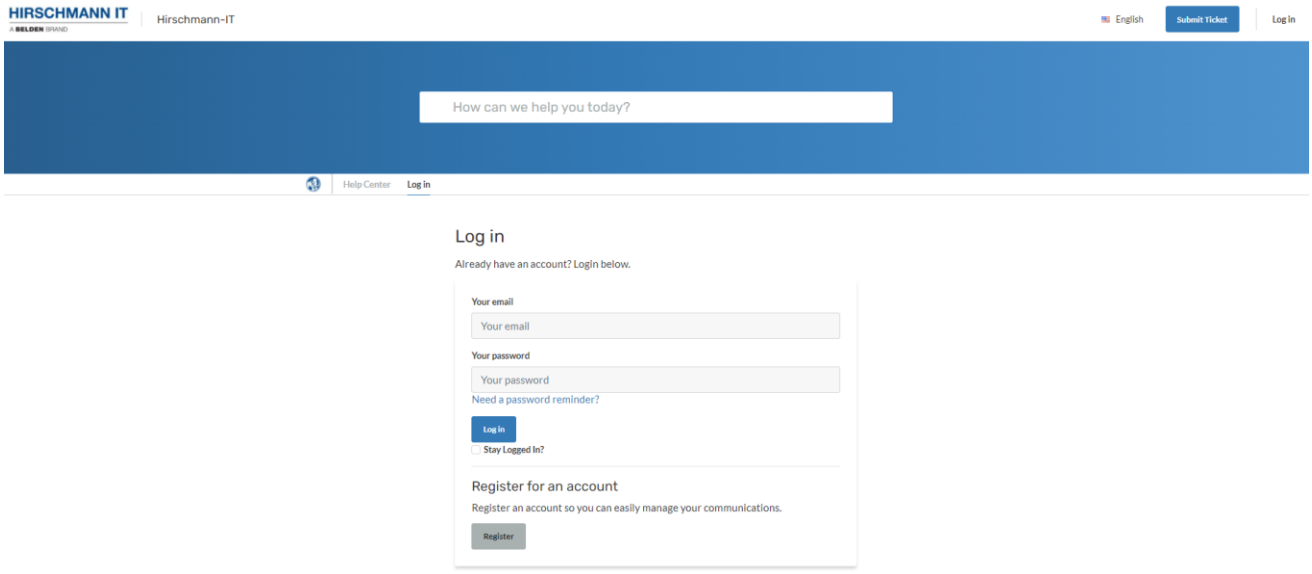

Figure 3-4-1

3.5 Upload Installation Package to Virtual Machine

1) Run WinSCP in Server, enter virtual machine information as shown in Figure 3-5-1.

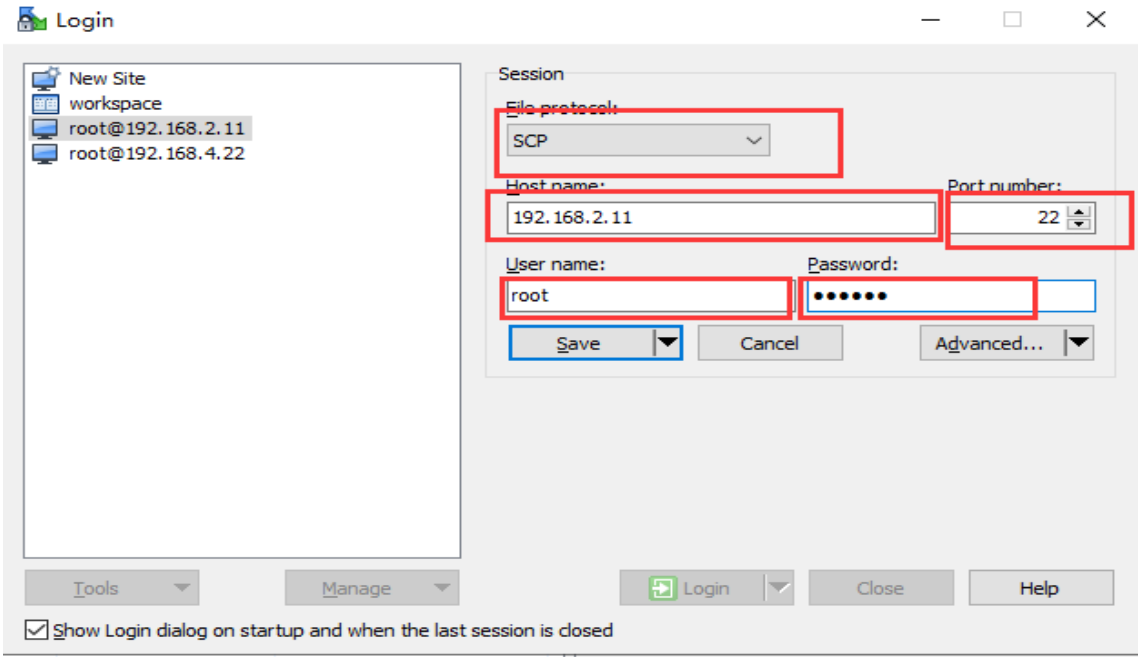

Figure 3-5-1

2) Select target directory, Figure 3-5-2 is for Windows system and Figure 3-5-3 is for Linux system.

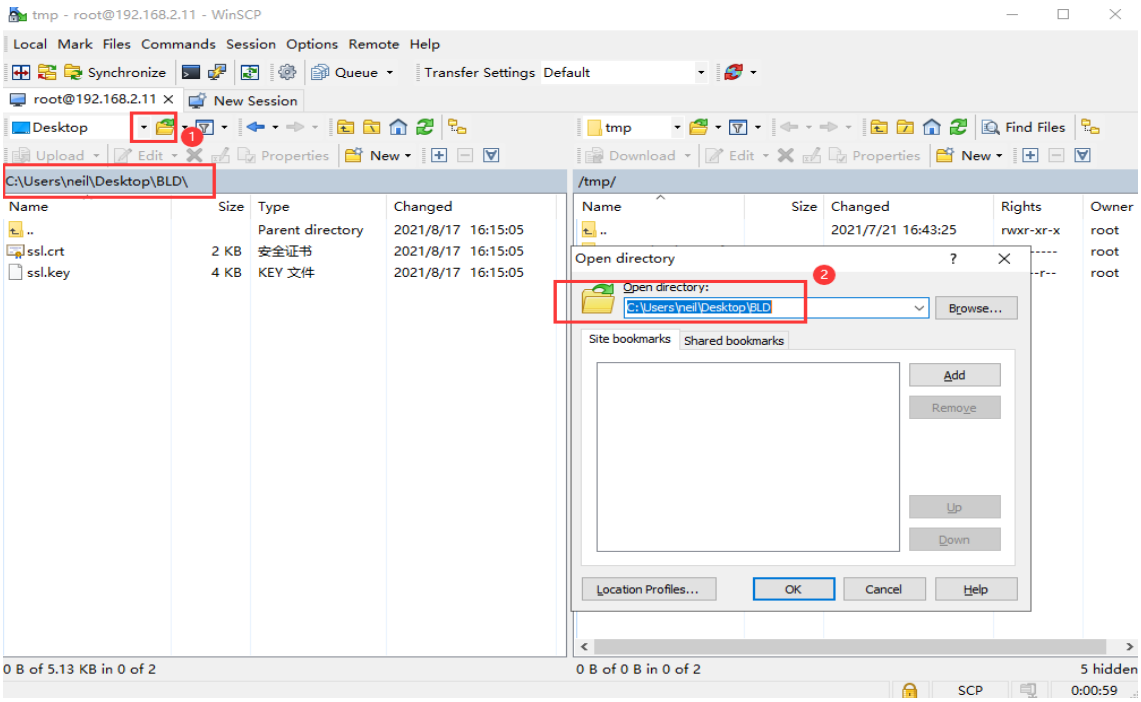

Figure 3-5-2

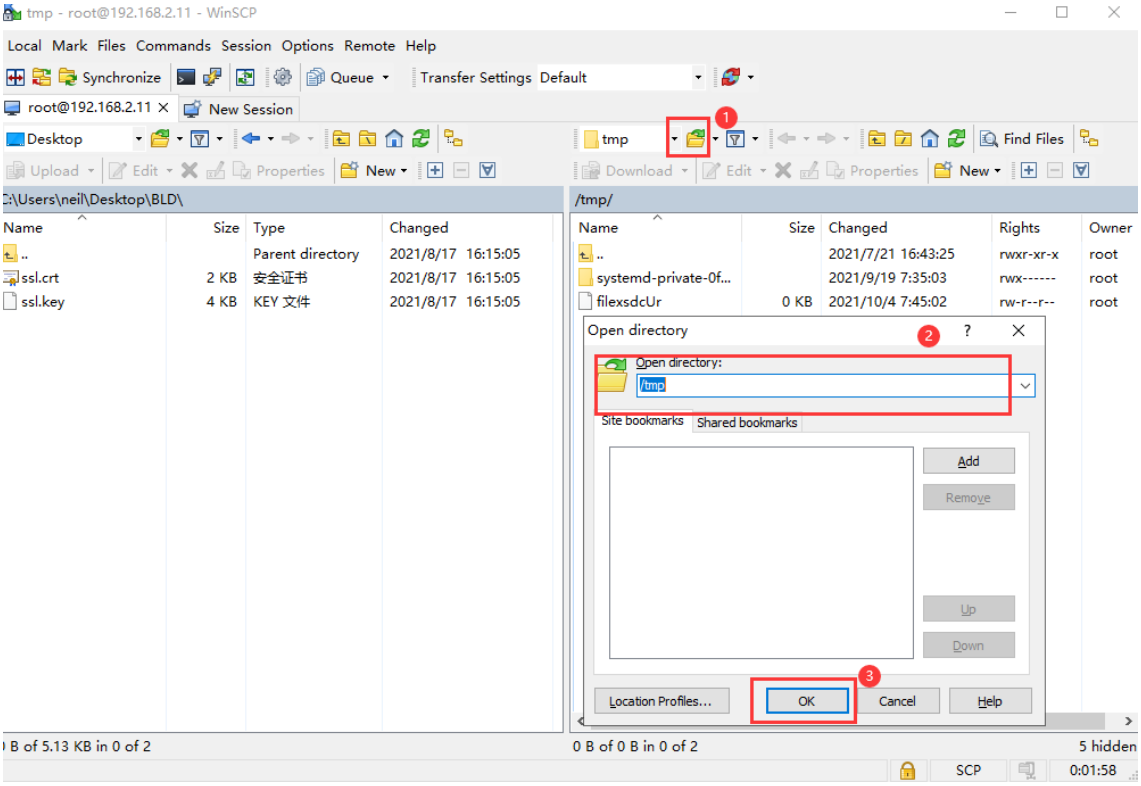

Figure 3-5-3

3) Upload installation package to directory.

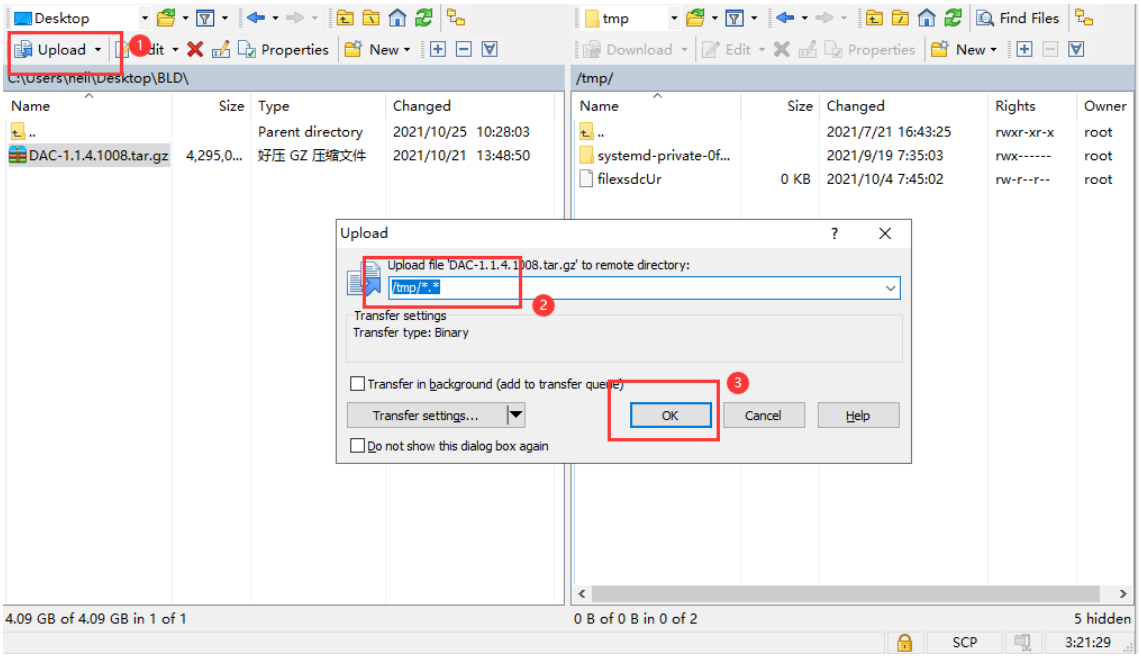

Figure 3-5-4

Note:

- To install WinSCP into the server ahead.

4) Successful status as shown in Figure 3-5-5.

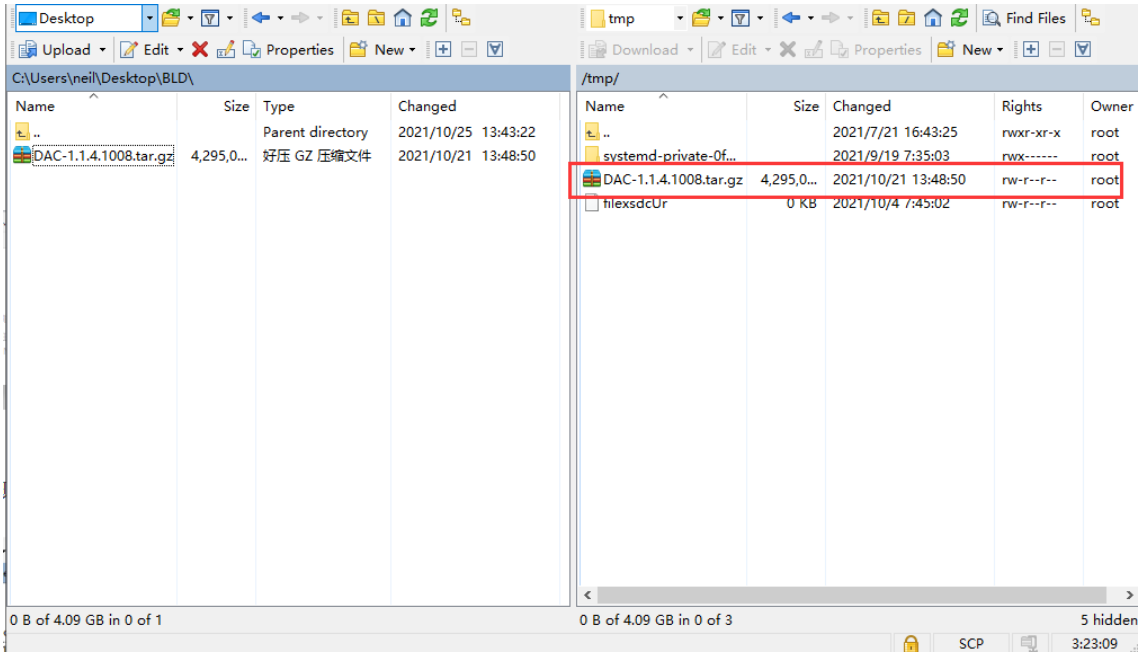

Figure 3-5-5

4 Installation and Uninstallation

4.1 Installation for Stand-Alone Mode

1) Create version directory: mkdir -p /tmp/x.x.x.xxxx.

2) Move uploaded installation package to version directory: mv /tmp/DAC-XXXX.tar.gz /tmp/x.x.x.xxxx.

3) Enter version directory: cd /tmp/x.x.x.xxxx.

4) Unzip the installation package: tar -xzvf DAC-XXXX.tar.gz.

5) Enter directory: cd /tmp/x.x.x.xxxx/data/package-BLD and run ./check_md5.sh to check if unzip successfully.

6) Release installation script 755 permissions : sudo chmod 755 ./deployment-all.sh.

7) Run ./deployment-all.sh, enter 1 to start installation.

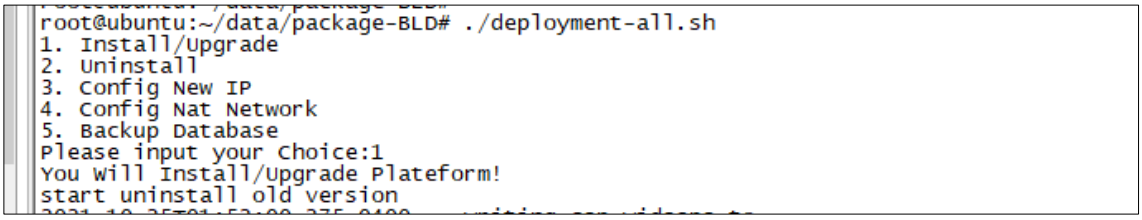

Figure 4-1-1

8) Input installation information in Figure 4-1-2.

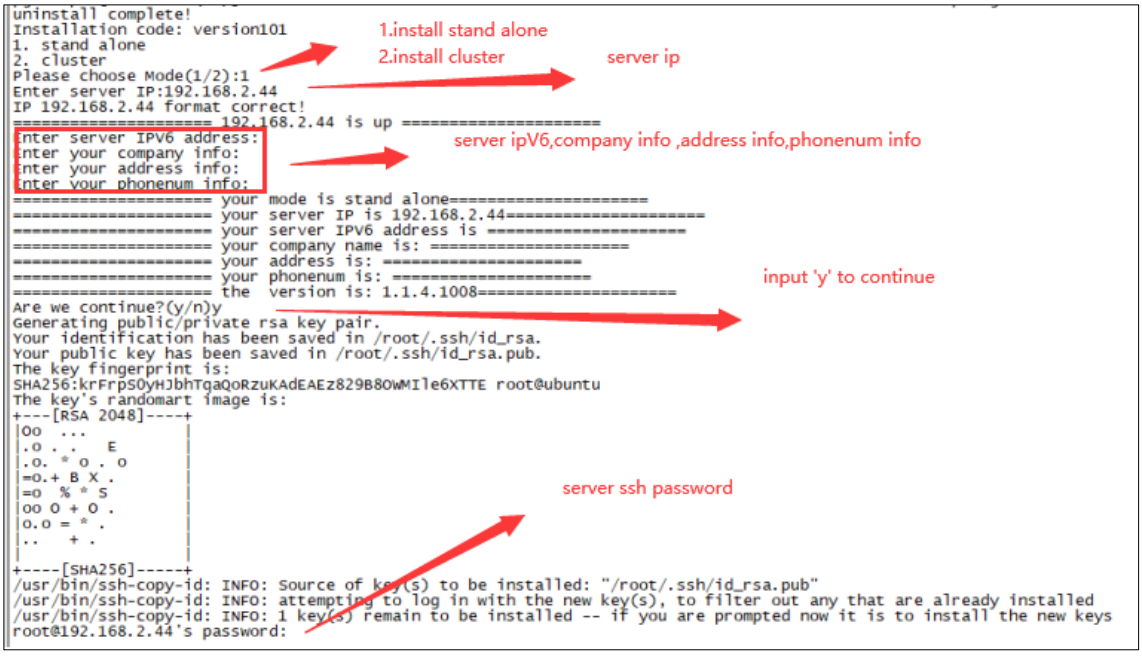

Figure 4-1-2

DAC installation will proceed automatically until it is complete.

4.2 Installation for Cluster Mode

1) Specify one server in the cluster as the primary server.

2) Run the following command in each server for the first installation, then reboot them

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

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

3) Execute Step 1 to Step 7 in chapter 4.1 on the primary server.

4) Select cluster mode, fill the cluster information as shown in Figure 4-2-1 and installation will proceed automatically.

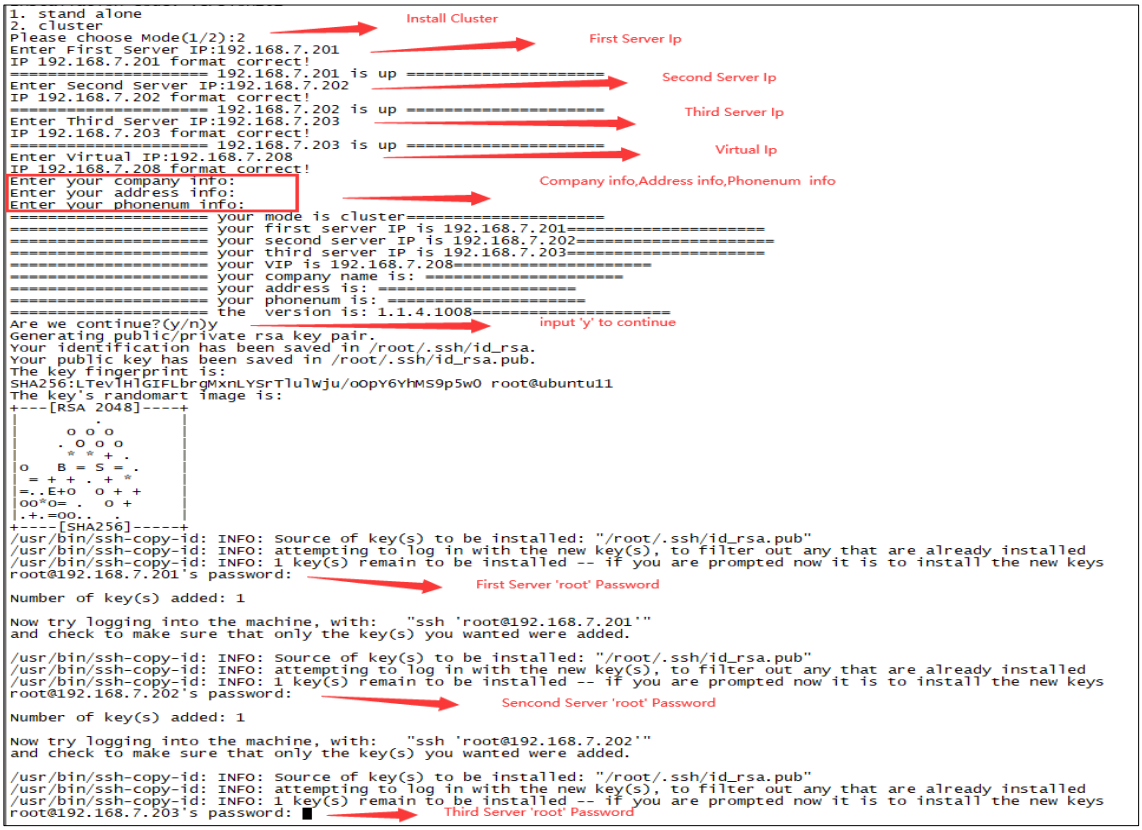

Figure 4-2-1

4.3 Installation and Service Status Check

Installation will take about 30mins dependance on server and network. After installation, need to check whether all services are normal.

1) 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
0b6ffbf8f1dc        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 4-3-1

URL:

Login URL http://XX.XX.XX.XX:7777 (xx.xx.xx.xx is the IP address of the server), user name / password: admin / admin, you can view the service status. All service statuses are green and OK, indicates that the service is started normally.

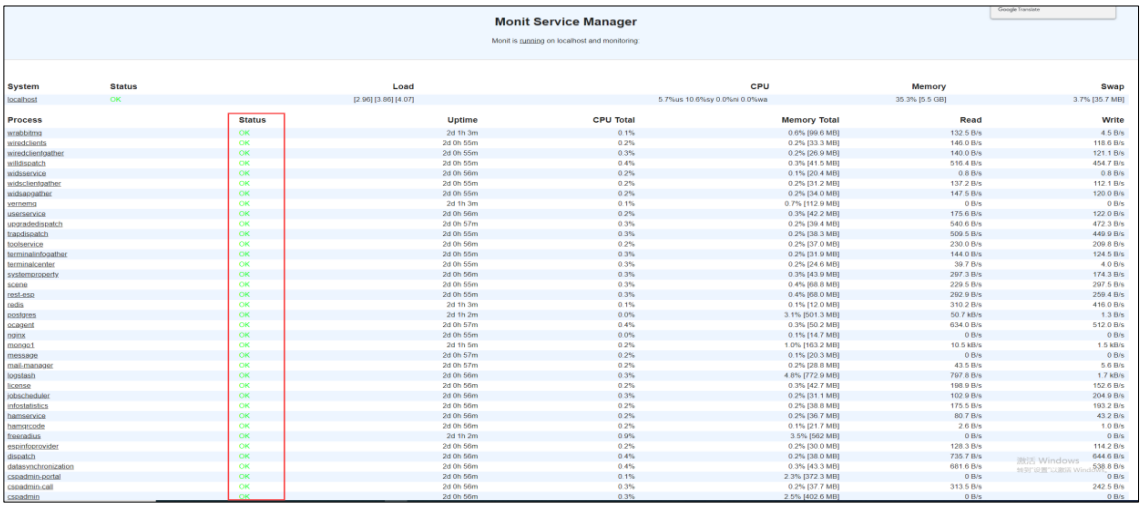

Figure 4-3-2

2) Cluster mode

Enter the command: kubectl get pod in the remote login tool. If the status of the service 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
espinfoprovider-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-77cfbcbf59-7nfxc                   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-6c6d59fbcb-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-hfwnf                 1/1     Running   0          35m
upgradedispatch-cfc6d4f49-skvrc               1/1     Running   0          35m
userservice-7c764fc8f8-f6k7d                  1/1     Running   0          35m
wechat-6f659c58cf-2wqvb                       1/1     Running   0          35m
widsapgather-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 4-3-3

4.4 Modify DAC Server IP

The stand-alone server IP can be modified, not support cluster mode. This script can be executed after the normal installation of the version.

1) Modify server IP, and the IP configured in the /etc/network/interfaces, save and to restart the server.

2) After the Mongo database is restarted, check if the server IP has been modified.

3) Execute deployment-all.sh script, follow the steps in Figure 4-4-1.

4) If no error is reported during execution, docker ps -a | grep exit does not exit the service and the page access is normal, means the modification is successful. To restart the server if there is any error.

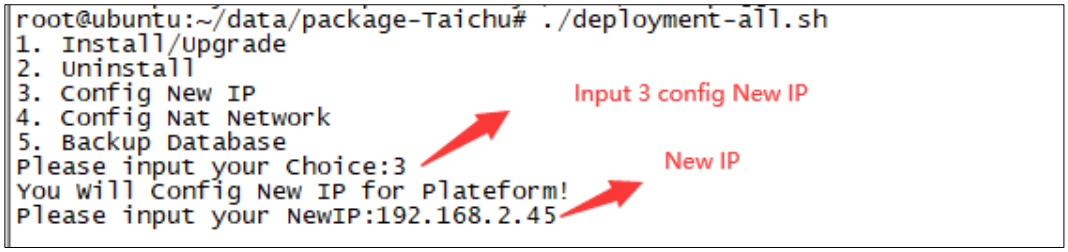

Figure 4-4-1

4.5 Configure DAC Public IP

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

1) To confirm all services is running normally, and public IP is correct.

2) Execute deployment-all.sh script, follow the steps in Figure 4-5-1.

3) If no error is reported during execution, docker ps -a | grep exit does not exit the service, means the modification is successful.

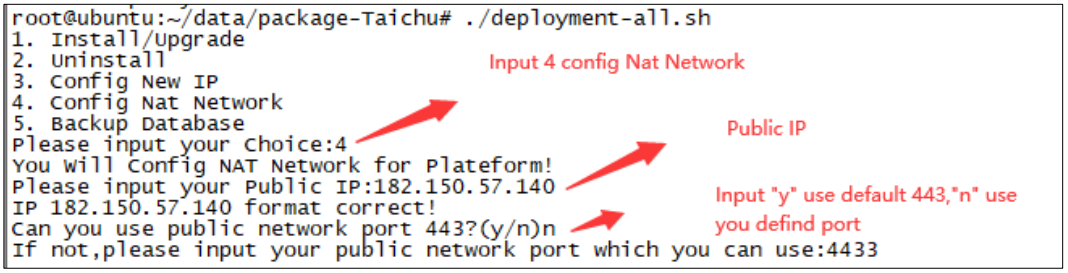

Figure 4-5-1

4.6 Start/Stop Service

Enter “**kubectl apply/delete -f XXX/XX.yaml”**, to start or stop some services.

All yaml files are stored in /opt/micro-esp-playbook、/etc/csp/advertisement/advertisement-yaml/、/etc/csp/csp-report/、/etc/csp/Portal/、/etc/csp/docker-cspadmin/、/etc/csp/csp-statistic/、/etc/csp/csp-email/、/etc/csp/aiops-itt/.

4.7 Get Device Code

Device code is the fingerprint of the DAC server, which is required to provide to your supplier for offline license application. To get DAC server device code in following page, the supplier will generate license code based on this device code.

Refer DAC User Manual to active the license code.

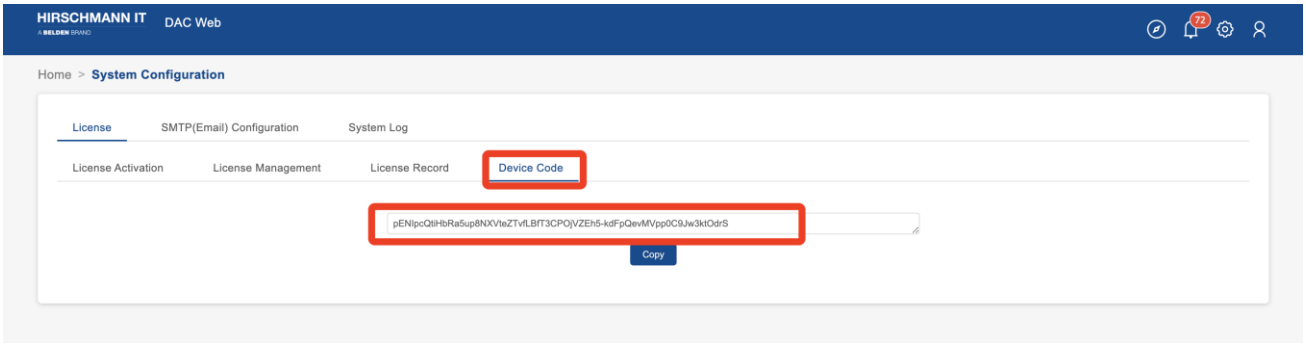

Figure 4-7-1

4.8 Login DAC

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 as shown in Figure 4-8-1.

Default Account Name is **admin**, Password is **Admin@01**.


HIRSCHMANN IT
A BELDEN BRAND
DAC Web
Welcome
Account Name
Password
Auth Code
Login
Forget password?
Create account
Current version:1.1.5.8

Figure 4-8-1

4.9 Uninstallation

1) Enter unzip directory: cd /tmp/x.x.x.xxxx/data/package-BLD.

2) Run script: sudo ./deployment-all.sh.

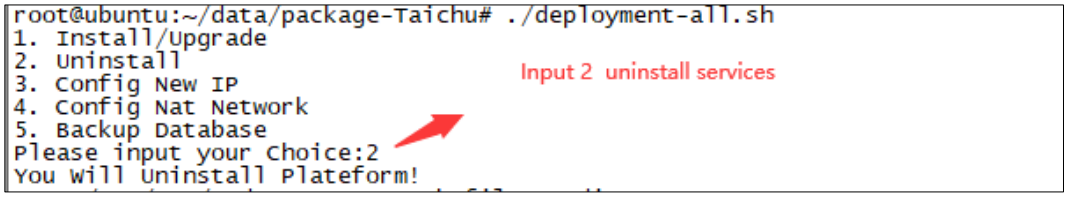

Figure 4-9-1

4.10 Data Backup and Recovery

1) Data backup

Execute **deployment-all.sh script**， choice 5 to backup database and default directory is **/root/databackup/**.

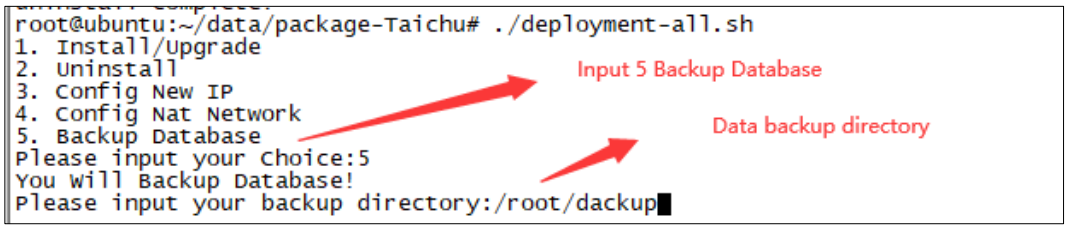

Figure 4-10-1

2) Data recovery

Execute the script datarestore.sh for data recovery， bash /etc/csp/datarestore. sh parameter 1.

Note: Parameter 1 is the directory during data backup. Example: bash / etc / csp / datarestore sh /etc/csp/databackup/data-2019-12-11_ 14:32.

4.11 DAC Upgrade

1) Refer to 3.4, to download target DAC version.

2) Backup data, as show in Figure 4-10-1.

3) Upload installation package to virtual machine.

4) Refer to 4.1 or 4.2, to finish installation.

5) Data recovery.

5 Trouble Shooting

5.1 Subnet IP Conflict

1) If 172.17.0.1 subnet IP had confiict after installation.

Enter directory: **cd /tmp/x.x.x.xxxx/data/package-BLD/csp** and run ./ipconflictresolve.sh

Select 1 to solve this problem as shown in Figure 5-1-1.

2) If 172.18.0.1 subnet IP had confiict after installation.

Enter directory: cd /tmp/x.x.x.xxxx/data/package-BLD/csp and run ./ipconflictresolve.sh

Select 2 to solve this problem as shown in Figure 5-1-1.

Then reinstall DAC to use new subnet IP address.

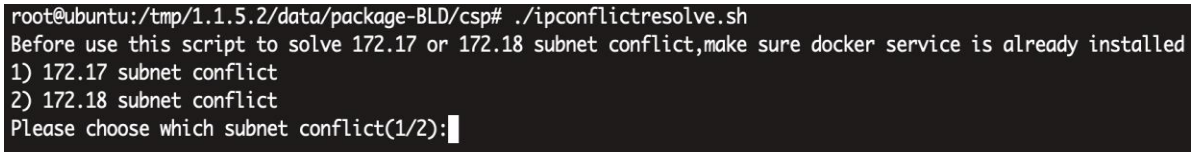

Figure 5-1-1

5.2 Installation Failure

The installation is restricted by the server environment. Occasionally. If the first installation fails, can run the installation command again after the first installation.

5.3 Service Failure

If the service cannot be started after installation, please check whether the following ports are occupied, and whether the server has insufficient resources, if 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	hamqrcode	QR service port
2000	UDP	authbroker	Authentication service port

5.4 Cannot Access the Page

After restarting the virtual machine, the page cannot be accessed sometimes. Firstly, to check whether the service status is Up or Running. Then waiting until all services are normal, the page can be accessed.