



Integrated local and network startup management system

[Get Started](#) 

[Documentation](#)

Local Startup

Support OS startup based on local VHD to enable offline startup

Network Startup

Support PXE network startup to load OS from server

Offline Management

Provide traditional UI to configure server locally

Online Management

Provide web management platform for remote client control

CloudDesktop unifies local and network startup management.

Local Startup

Package OS into VHD virtual disk for offline local startup.

Network Startup

Leverage PXE to load OS from server for diskless startup.

Management

- Traditional UI for local server management
- Web platform for remote client monitoring

CloudDesktop allows flexible management of clients with local or network startup.

Guide

 Cloud Desktop  Less than 1 minute

- [Desktop UI](#)
- [Web UI](#)
- [Reference](#)

Functions List

 [Cloud Desktop](#)  About 2 min  [Get Started](#)  [Functions List](#)

Functions List

Functions	Virtual disk edition	Basic edition	Professional edition	Enterprise edition
Support five system image format: VMWare disk image, Microsoft Virtual PC VHD disk image, Virtual Box VDI disk image, IMG disk image and ISO CD-ROM image	Yes	Yes	Yes	Yes
Support load system image as a virtual disk on server directly, write and save data to disk	Yes	Yes	Yes	Yes
Support load system image and disk of server as a virtual disk, custom the disk letter of client computer	Yes	Yes	Yes	Yes
An integrated resolution of diskless boot with built-in DHCP, PXE, TFTP, Image upload and iSCSI disk function	No	Yes	Yes	Yes

Functions	Virtual disk edition	Basic edition	Professional edition	Enterprise edition
Support diskless boot of Windows XP, Windows Vista, Windows 7, Windows 8.1, Windows 10, Windows Server 2003, Windows Server 2008/R2, Windows Server 2012, Windows Server 2016, Centos and Ubuntu through network	No	Yes	Yes	Yes
Upload client's windows system to server in VHD, VMDK, and VDI image format.	No	Yes	Yes	Yes
Support multiple system images to boot up and display the boot menu	No	Yes	Yes	Yes
Support creation of unlimited profiles on one system image or creation of unlimited restore points on one profile	No	Yes	Yes	Yes
Support write to system image or server's disk in super user directly, save write-back to system image or create restore point after shutdown client computer.	No	Yes	Yes	Yes
Support Read/write cache and SSD two level cache on server, zero write cache on client.	No	Yes	Yes	Yes

Functions	Virtual disk edition	Basic edition	Professional edition	Enterprise edition
Supports setting each client's network configuration and the boot server IP alone	No	Yes	Yes	Yes
Support PNP for various network cards. multiple configurations computers can boot diskless on the same system image	No	Yes	Yes	Yes
Support multiple write-back folders and distribute write-back files automatically.	No	Yes	Yes	Yes
Support fix personal disk of client computer, the data will keep after computer restart.	No	Yes	Yes	Yes
Support multiple network cards load balance of one server	No	Yes	Yes	Yes
Support VHD raw boot Windows 7、 Windows 8.1、 Windows 10、 Windows Server 2003、 Windows Server 2008/R2、 Windows Server 2012、 Windows Server 2016 in client ssd disk	No	No	Yes	Yes
Support multiple servers load balance, fail-over online and sync system image file.	No	No	Yes	Yes

Functions	Virtual disk edition	Basic edition	Professional edition	Enterprise edition
Support roaming personal disk with login name, roaming personal desktop and documents with disk	No	No	No	Yes
Support diskless boot in windows domain, client computer join domain automatically	No	No	No	Yes
Support prohibit access to the USB disk in client computer	No	No	Yes	Yes
Have web remote management interface	No	No	Yes	Yes
Have web centralized remote management function, multiple servers at the same time control	No	No	No	Yes
Application layering technology / super retention mode to completely isolate system and application	No	No	No	Yes

Client Installation

 [Cloud Desktop](#)  [About 2 min](#)  [Quick Start](#)  [Client Installation](#)

Windows Version

PXE Network Boot Partition Requirements:

If the network card PXE uses the old-fashioned boot, before formatting the hard disk to install the operating system, the partition table must be in MBR format. If the network card PXE uses UEFI boot, the hard disk partition table must be in GPT format.

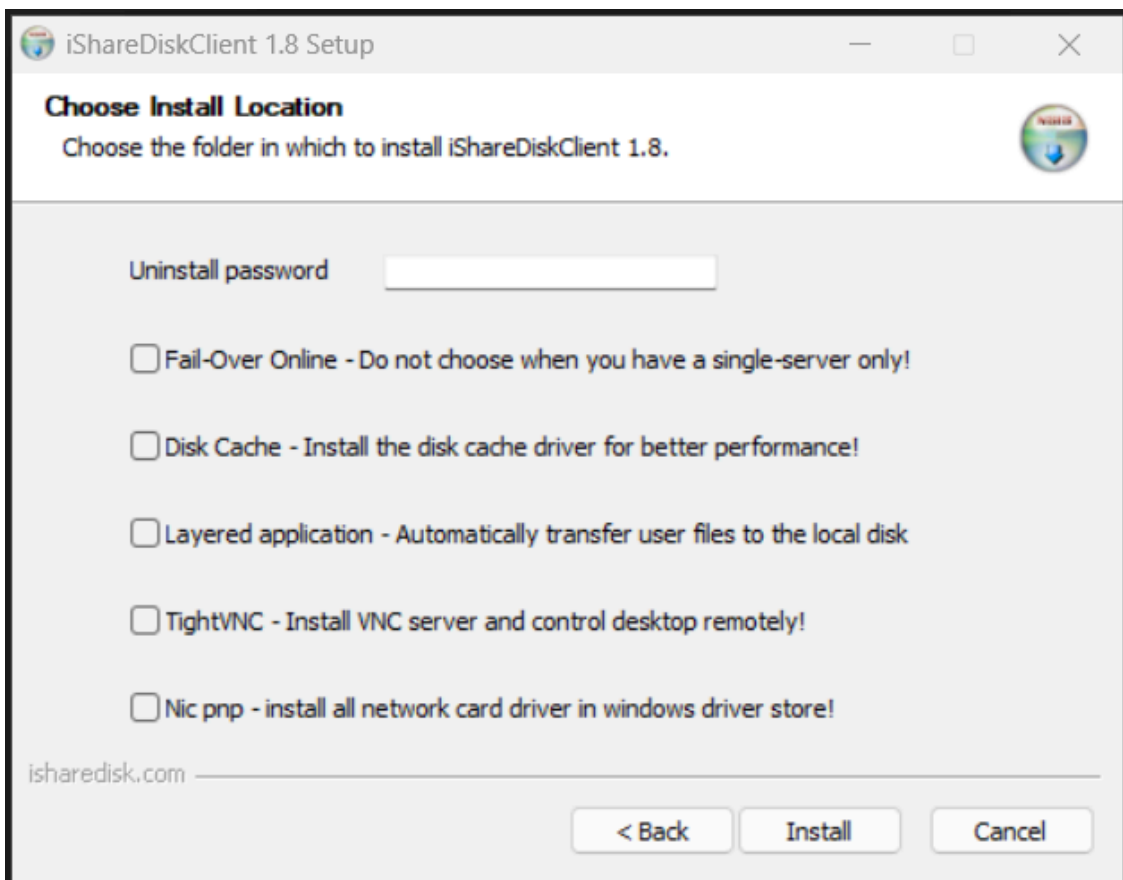
1
2

As long as the PXE network card boot in BIOS and local hard drive boot tip are consistent, e.g. both UEFI, there will be no errors when installing the operating system!

Local VHD Offline Boot Has No Partition Requirements.

Install Client

You can set an uninstalled password to prevent malicious uninstallation. If you need to remotely control the client, please check the installation VNC option.



Install Client Selection

Option Descriptions:

- Uninstall Password: Set an uninstall password to prevent malicious uninstallation.
- Dual-server Hot Backup: When using PXE network boot, two servers can be used for hot backup to improve system stability. (Note: Only supported on Windows 7 systems)
- Disk Cache: Enable disk cache to improve client write-back performance. It is recommended to enable this when using PXE network boot.
- Application Layering: Enable application layering to automatically transfer user files to the local hard disk, making it easier to save user data. This solves the problem of user data loss after image updates in persistent mode.
- TightVNC: Install VNC remote control software to facilitate administrators in remotely maintaining client machines.
- NIC PnP: Pre-install all network card drivers that come with Windows systems to solve the PnP problem of multiple network card models. If there are no multiple network card models, it is not recommended to install to save space.

Client System Configuration Notes:

1. It is recommended not to install antivirus software on the client machine.

2. Turn off the firewall on the server and the client machine. If you cannot turn off the firewall, please open the TCP 3266 port on the server firewall.
3. Make sure that there is only one DHCP server in the LAN, either the built-in DHCP of the cloud desktop or a third-party DHCP with the cloud desktop's PXE file.
4. Restart the client system before uploading. When uploading the system on the client side, please close other applications.
5. Try to control the size of the system disk C drive of the operating system as much as possible, the smaller the better.

Linux Version

PXE Network Boot Partition Requirements: Same as Windows.

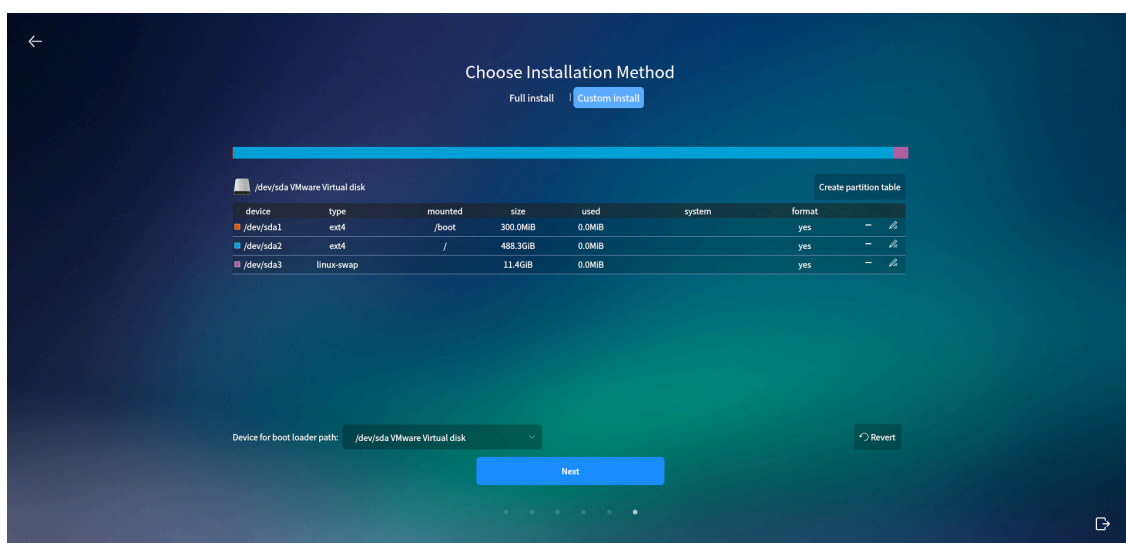
Local VHD Offline Boot Partition Requirements:

There can only be three partitions, and all operating systems can only be installed on one partition and mounted as /.

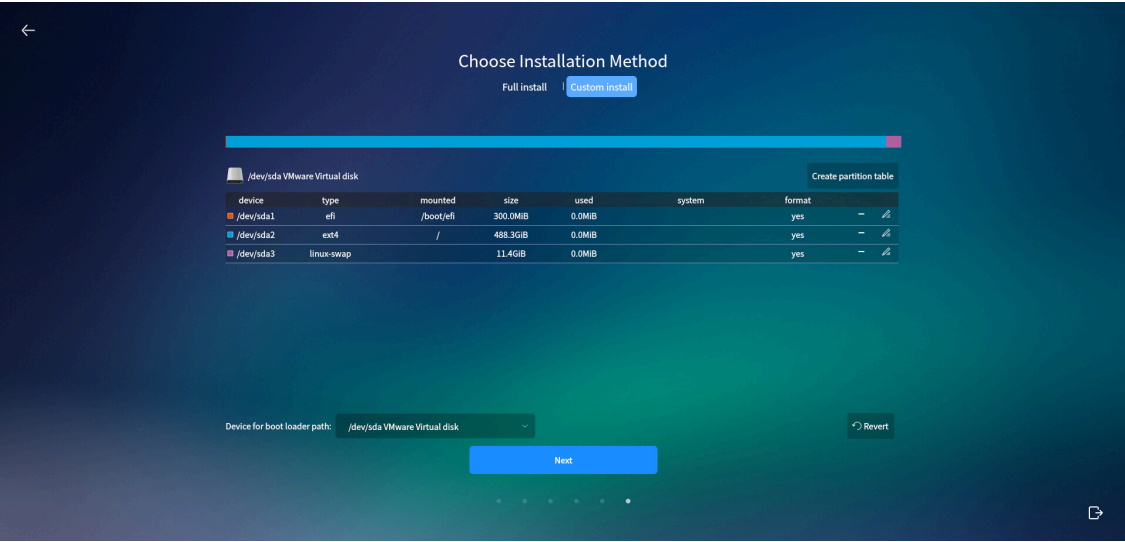
The first partition is Ext4 format, mount point is /boot (legacy mode), Efi format, mount point is /boot/efi (UEFI mode),

The second partition is Ext4 format, mount point is / ,

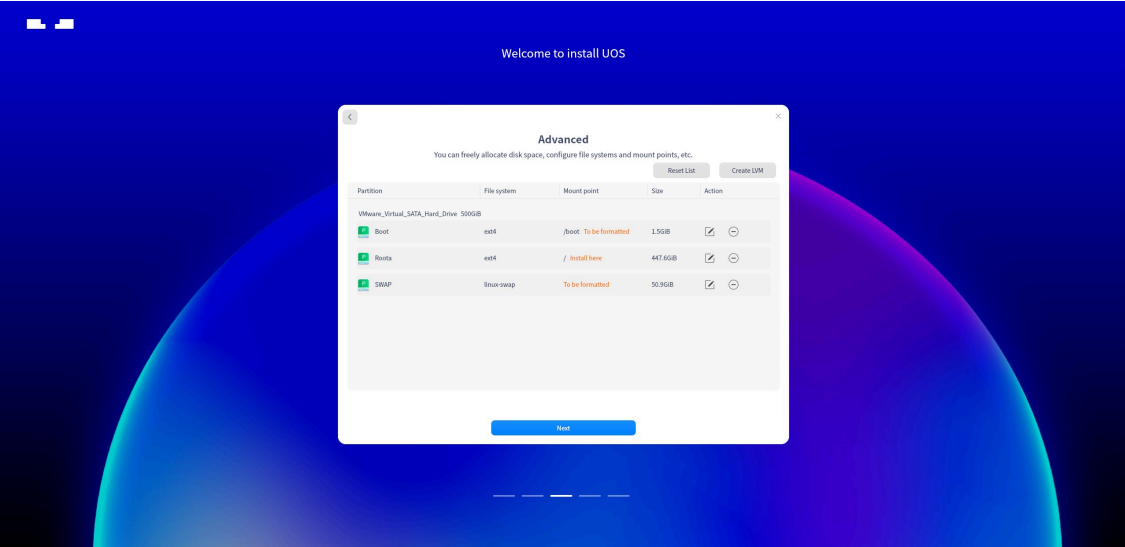
The third partition is swap partition, no mount point.



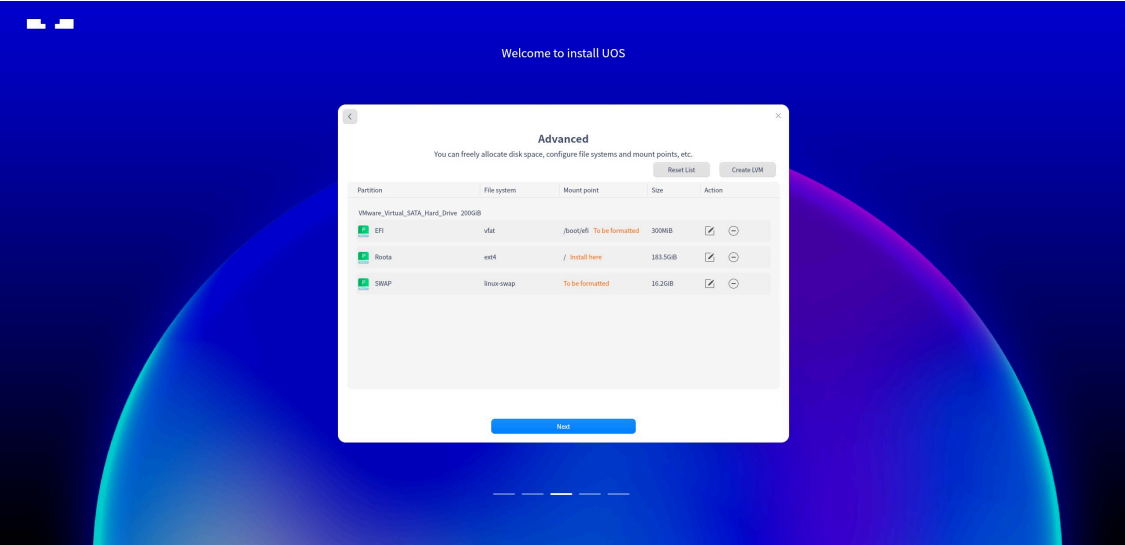
Legacy Mode Partition Requirements



UEFI Mode Partition Requirements



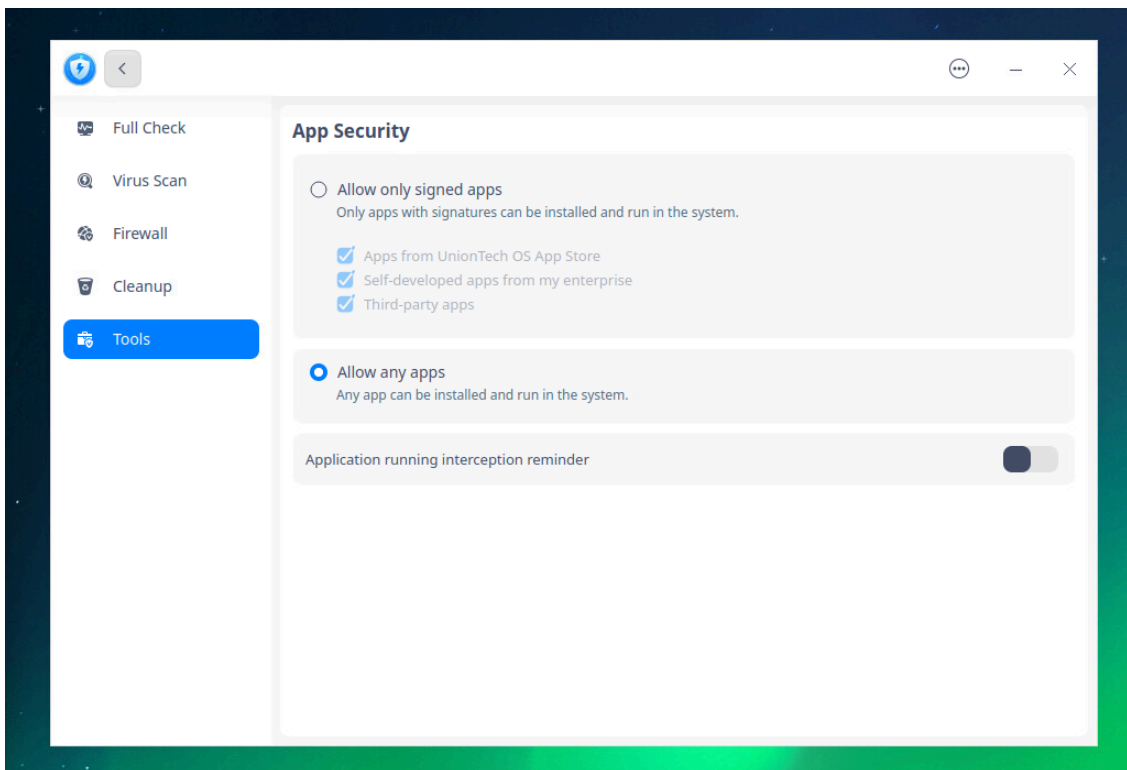
Legacy Mode Partition Requirements



UEFI Mode Partition Requirements

Install Client Requirements

The client needs to connect to the Internet to download and install the required components. Please adjust the network card and connect to the Internet first. Turn off security options, including turning off network firewall, allowing any application to connect to the Internet, allowing installation of applications from any source, allowing execution of any application, turning off application protection and other options.



Allow any apps

Installing the PXE Network Boot Client

1. Extract xxxxIsccsclient.zip
2. Run the installation script

1

```
sudo bash iscsi_install.sh
```

bash

Installing the Local VHD Offline Boot Client

1. Extract xxxxVhdclient.zip

2. Run the installation script

1

```
sudo bash vhd_install.sh
```

bash

Note: Do not install the PXE and VHD clients simultaneously.

Using the PE Tool to Upload the Operating System

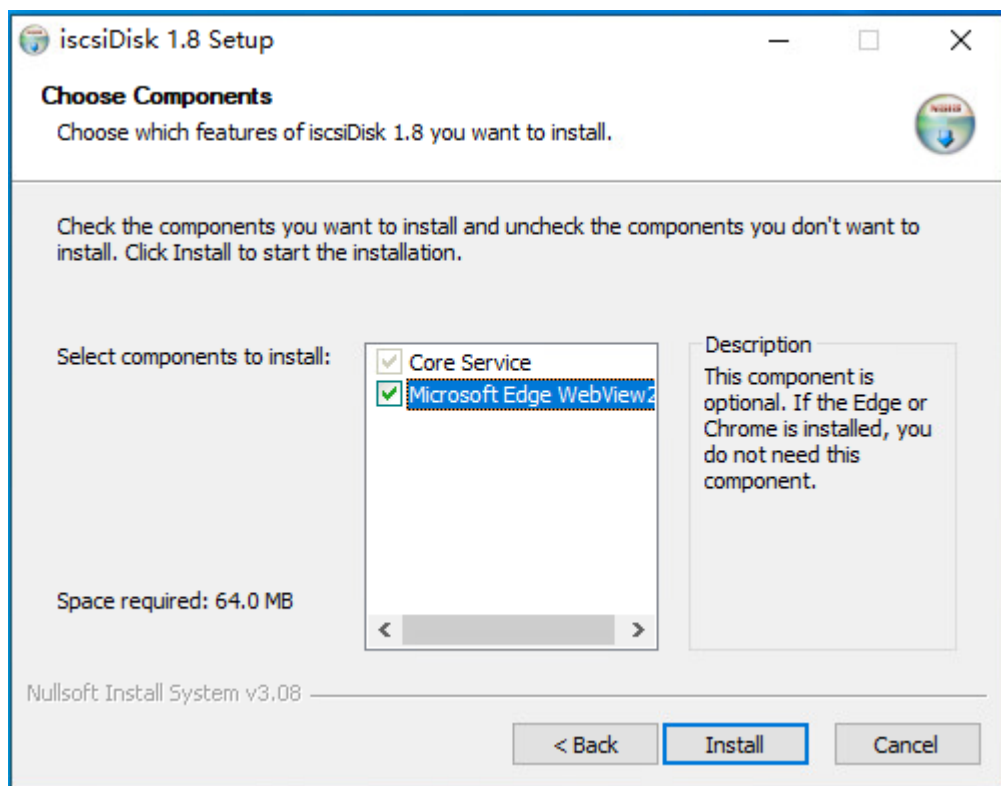
When using the PE tool to upload the operating system, select all partitions.

Server Installation

 Cloud Desktop  Less than 1 minute  [Quick Start](#)  [Server Installation](#)

Windows Version

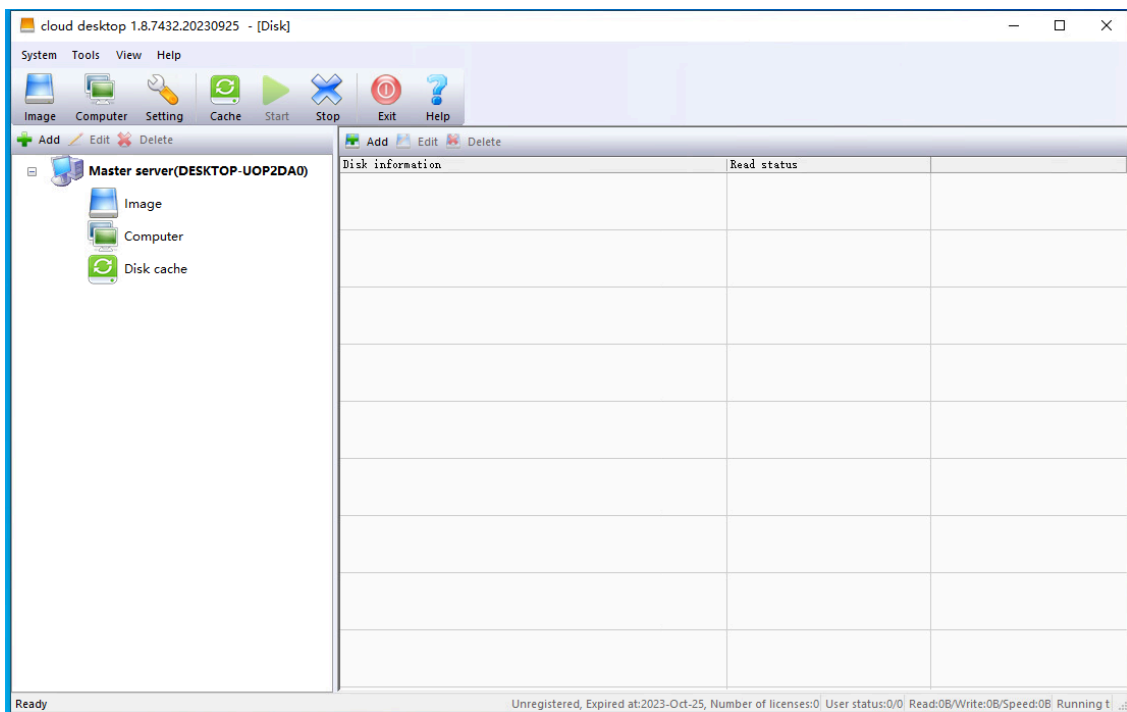
The server installation requires a 64-bit server operating system. To manage locally with the web interface, you need a browser with native ES2015 support, such as Edge or Chrome. You can also use the Edge browser support component that comes with the cloud desktop. You need to connect the server to the Internet for downloading.



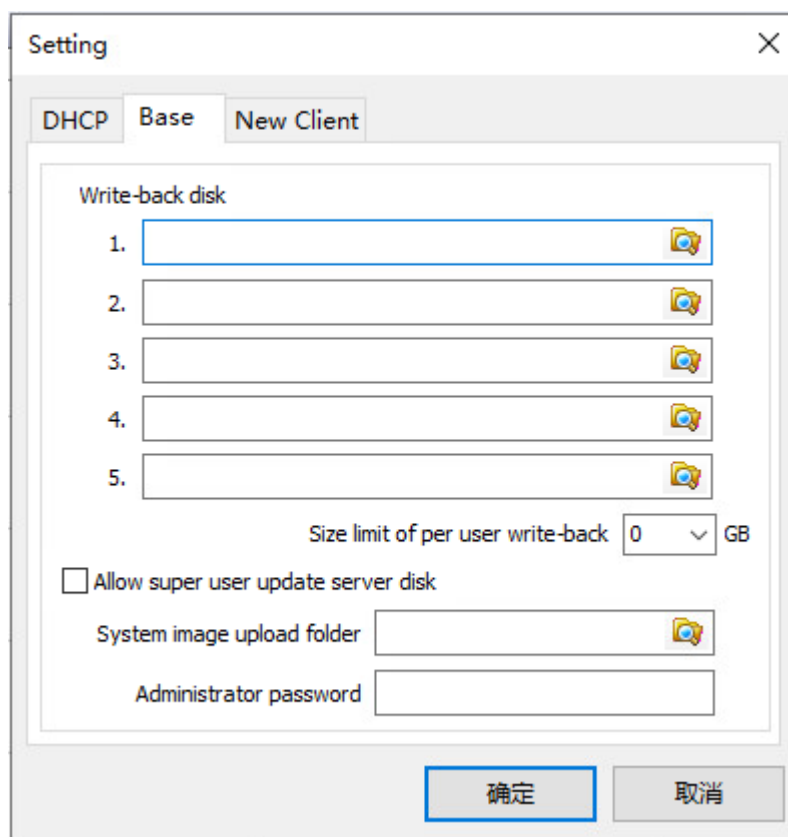
Install Component Selection Interface

Basic Settings

After installation, run the local management interface program to set the management password, image upload directory, whether to enable automatic client addition and DHCP service.



main interface



Basic

Setting

×

DHCP

Base

New Client

☒ Add new client auto

Naming rule

PC-(1-100*3)

...

Type

None

▼

System image

None

▼

Disk

All

▼

PXE mode

Legacy

▼

Time to display list of multi systems

30

second

Personal disk folder

iSCSI cloud disk server IP

确定

取消

Auto Add New User

Setting

×

DHCP

Base

New Client

☒ Enable DHCP TFTP (Diskless boot must need it)

DHCP IP

192.168.10.180

▼

...

Start IP

192 . 168 . 10 . 1

End IP

192 . 168 . 10 . 254

IP Mask

255 . 255 . 255 . 0

Gateway IP

192 . 168 . 10 . 1

First DNS IP

192 . 168 . 10 . 1

Second DNS IP

255 . 255 . 255 . 255

☐ Multi-server load balance auto

☐ Disable client stats

...

确定

取消

DHCP

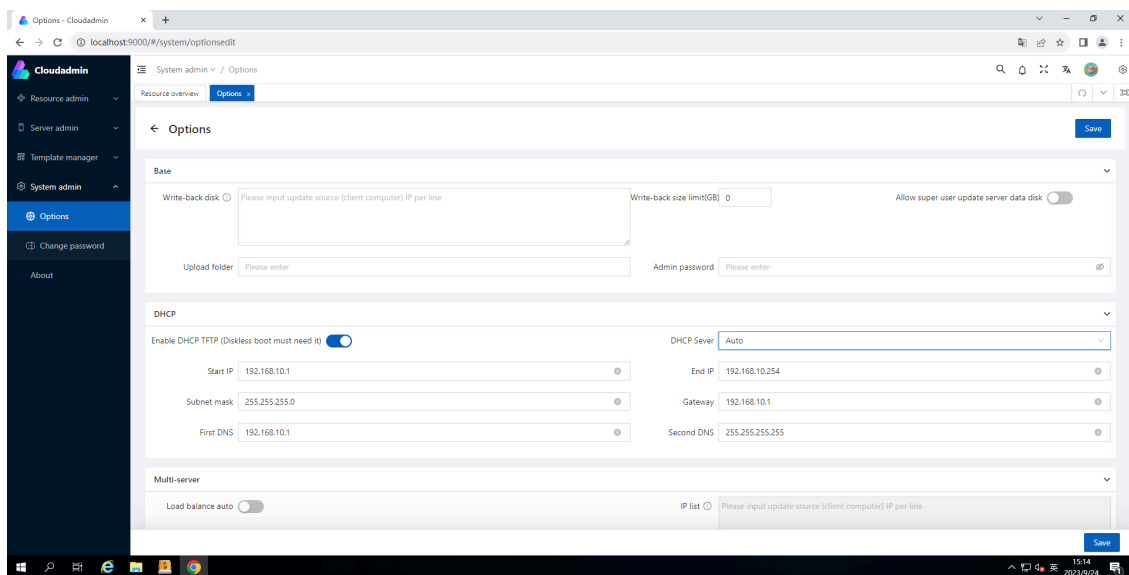
Linux Versions

The server installation requires a 64-bit server operating system. There is no graphical interface locally; everything is accessed through the Edge or Chrome browser remotely.

```
1 # Disable firewall commands bash
2 sudo systemctl stop firewalld
3 sudo systemctl disable firewalld
4
5 # First install command (* replace with correct version)
6 sudo rpm -ivh --nodeps --force ./iscsidisk-1.8-1.*.x86_64.rpm
7
8 # Upgrade install command
9 sudo rpm -Uvh --nodeps --force ./iscsidisk-1.8-1.*.x86_64.rpm
10
11 # Restart OS after install
12 sudo reboot
```

Basic Settings

After installation, use a browser with native ES2015 support like Edge or Chrome, locally or remotely, to open <http://localhost:9000> or <https://localhost:9443> and complete basic setup.



Settings

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Product Introduction

 Cloud Desktop  About 3 min  [Get Started](#)  [Product Introduction](#)

Introduction

CloudDesktop is a system management software integrating local VHD offline startup, PXE network startup and management interfaces.

The software supports packaging operating systems into VHD files for local startup, and also supports PXE network startup. It provides both traditional interface and web management platform to realize centralized management of clients.

Product Introduction

CloudDesktop implements the following core functions:

1. Support packaging operating systems into VHD format virtual disks for local startup, enabling system startup in offline environments.
2. Support PXE network startup to load operating systems from servers, realizing diskless startup.
3. Provide traditional interface for local management of server-side settings.
4. Provide web management platform for administrators to remotely monitor and manage clients.
5. Support Windows, Linux and domestic operating systems with strong compatibility.
6. Realize sharing management of game disks, printers and other resources.
7. Support a variety of advanced features including multi-system startup, personal disks, etc.
8. Support application layering technology to completely isolate system and applications.

Compared with ordinary PXE network startup solutions, **CloudDesktop** has the advantages of offline local startup and improved management functions. It can adapt to more scenarios and greatly simplify management workload.

PXE Network Startup Technology

PXE network startup is the key technology for **CloudDesktop** to batch start clients over the network.

Working Principles:

1. The client NIC requests IP and other information from the DHCP server.
2. The DHCP server returns startup information and TFTP server address.
3. The client downloads the boot file from the TFTP server.
4. Load the boot file and invoke the system image to start the operating system.
5. After startup, the operating system can load drivers and applications.

Advantages of PXE startup:

1. No local storage of operating system, network-loaded, enabling centralized management.
2. Batch quick diskless startup of multiple clients, saving time.
3. All clients have fully consistent operating systems and software environments.
4. No trace after startup, cleaned after shutdown, safe and reliable.
5. Support various Windows systems and Linux systems with strong compatibility.

Local VHD Offline Startup Technology

Local VHD startup is the unique core technology of **CloudDesktop**, which can start the system without a network.

Working Principles:

1. Make the operating system into a VHD format virtual disk file.
2. Copy the VHD file to the client via network or mobile device.

3. The client sets the local VHD disk as the first boot item.
4. Directly start up and load operating system files from the VHD.

Advantages of Local VHD:

1. No network required, enabling completely offline system startup.
2. Fast startup speed, based on local disk speed.
3. Can persistently save user data without loss after shutdown.
4. The client can still start up if the disk fails.
5. The administrator can complete deployment of all clients in seconds by updating the VHD.

Traditional Management Interface

CloudDesktop provides a fully-featured traditional interface to support local management of server-side settings.

It can achieve:

1. Manage client connection sessions.
2. View hardware and performance statistics.
3. Configure DHCP, TFTP and other network service parameters.
4. Upload and manage system images.
5. Allocate client address ranges, etc.
6. Set game disk, printer sharing parameters.
7. View logs and help information, etc.

The traditional interface is simple to operate with direct visualization of server-side settings.

Web Management Platform

CloudDesktop also provides a web management platform for administrators to remotely access via browsers.

Main Functions:

1. Remotely shutdown, restart clients.
2. View client runtime information and image versions.
3. Remotely login client desktops.
4. Batch upload and deploy images.
5. View real-time performance and traffic statistics.
6. Query various log information.
7. Unified configuration of client parameters, etc.

The web management enables centralized monitoring and management of the **CloudDesktop** system, greatly reducing management workload.

Typical Application Scenarios

CloudDesktop is well suited for the following scenarios:

1. Internet cafes and game console management
2. Deployment of computer teaching classrooms
3. Training and exam lab environments
4. Public reading areas
5. Temporary venues and events
6. Standardized desktop deployment within enterprises

By combining PXE network startup and local VHD startup, **CloudDesktop** can effectively adapt to various usage scenarios and greatly simplify client management work and improve stability and efficiency.

Conclusion

CloudDesktop perfectly combines PXE network startup, local VHD offline startup, traditional interface and web management platform. It can efficiently batch deploy clients and realize unified centralized management, simplifying management workload. It also supports Windows and Linux multi-systems with unique technical advantages and extensive application scenarios.

Maintenance Tool

 Cloud Desktop  About 3 min  [Get Started](#)  [Maintenance Tool](#)

Introduction

The Maintenance Tool is a powerful software designed to help you easily manage and maintain local VHD boot systems. This tool supports independent booting from PXE network, USB drive, and local VHD boot menu, offering a variety of practical functions including installing and maintaining local VHD boot systems, uploading operating systems, copying and compressing VHD files, and setting drive letters.

1

The Maintenance Tool is usually released together with the cloud desktop server, located in the ``web\iso`` subdirectory of the server installation directory, in the form of a ``grub2.iso`` file.

Installation

If the computer has a hard drive, you can install the Maintenance Tool on the hard drive to enable local booting. If the computer does not have a hard drive or you do not wish to install it on the hard drive, you can install the Maintenance Tool on a USB drive or boot from the PXE network.

Install on USB Drive

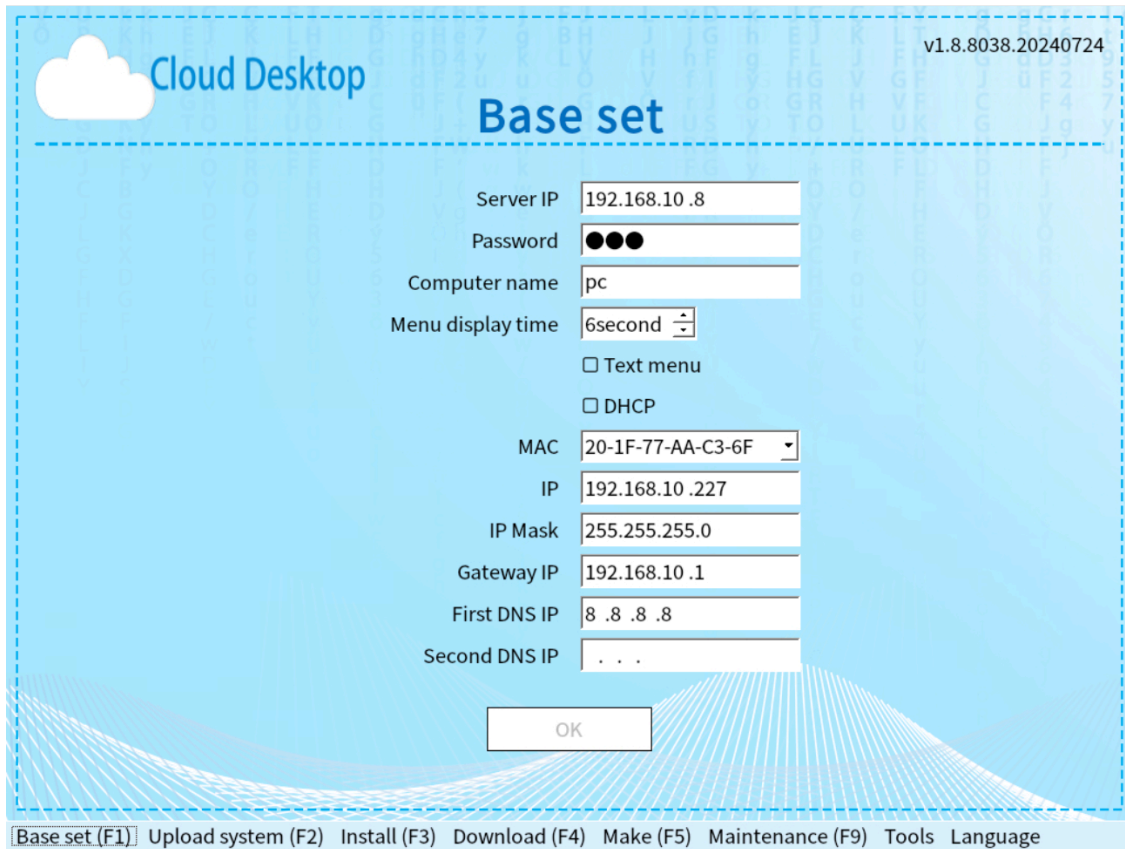
Prepare a blank USB drive, insert it into the computer, run the UltraISO program, open the grub2.iso file located in the web\iso subdirectory of the server installation directory, and burn it to the USB drive. Then, restart the computer and boot from the USB drive.

If the USB drive already has the Ventoy system installed, you can directly copy the grub2.iso file from the web\iso subdirectory of the server installation directory to the root directory of the USB drive. Then, restart the computer and boot from the USB drive.

Install on Hard Drive

Use the USB drive with the Maintenance Tool installed or boot from the PXE network to enter the Maintenance Tool interface. After completing the basic settings, set the hard drive partition parameters in the installation interface and begin the installation. Once the

installation is complete, restart the computer to boot the Maintenance Tool from the hard drive.



Cloud Desktop v1.8.8038.20240724

Base set

Server IP: 192.168.10.8

Password: ●●●

Computer name: pc

Menu display time: 6second

☐ Text menu

☐ DHCP

MAC: 20-1F-77-AA-C3-6F

IP: 192.168.10.227

IP Mask: 255.255.255.0

Gateway IP: 192.168.10.1

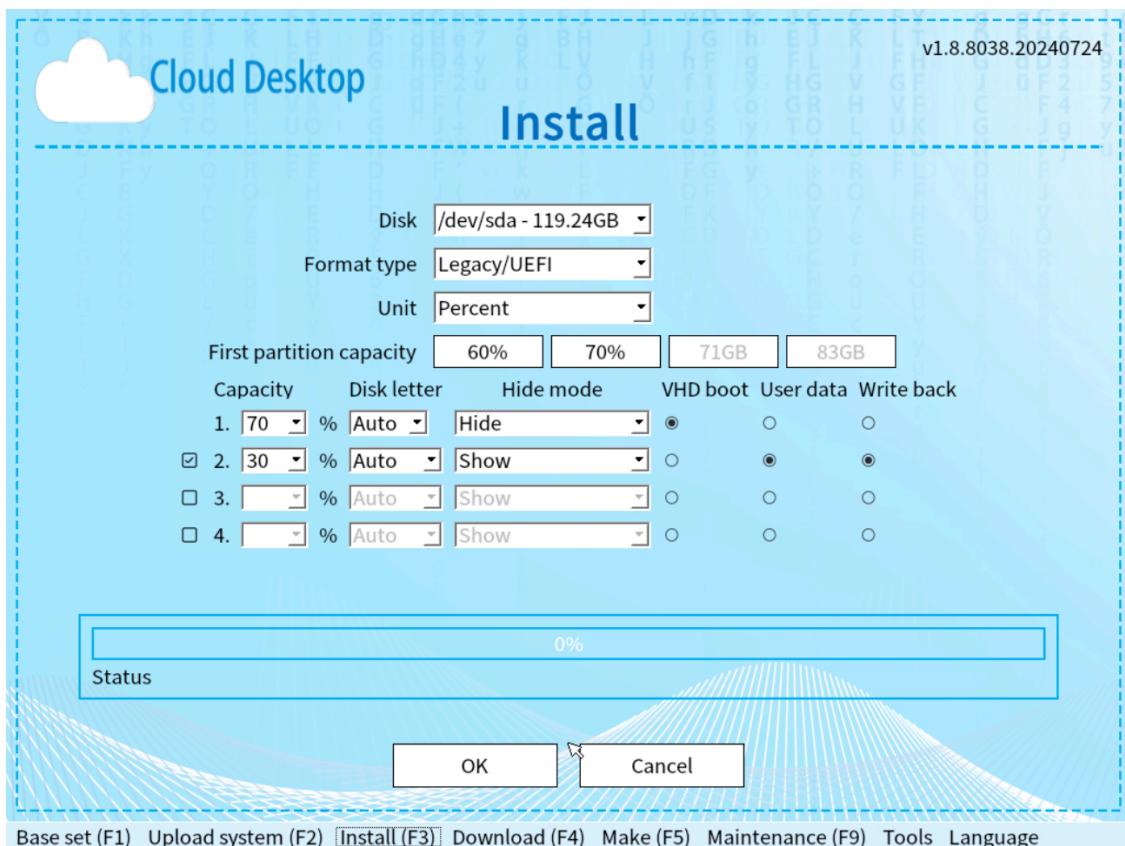
First DNS IP: 8.8.8.8

Second DNS IP: . . .

OK

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools Language

Basic Settings



Cloud Desktop v1.8.8038.20240724

Install

Disk: /dev/sda - 119.24GB

Format type: Legacy/UEFI

Unit: Percent

First partition capacity: 60% 70% 71GB 83GB

	Capacity	Disk letter	Hide mode	VHD boot	User data	Write back
1.	70 %	Auto	Hide	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/> 2.	30 %	Auto	Show	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
<input type="checkbox"/> 3.	%	Auto	Show	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="checkbox"/> 4.	%	Auto	Show	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Status: 0%

OK Cancel

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools Language

Install

Boot

Boot from PXE Network Card

On the cloud desktop server, configure the computer that needs to access the Maintenance Tool to allow PXE boot (cloud boot) and select the maintenance mode. Then, restart the computer and boot from the PXE network card to enter the Maintenance Tool.

Boot from USB Drive

Insert the USB drive with the Maintenance Tool installed into the computer, restart the computer, and boot from the USB drive to enter the Maintenance Tool.

Boot from Hard Drive


Boot from the hard drive with the Maintenance Tool installed. In the boot menu, select the "tools" option or press the "H" hotkey to directly enter the Maintenance Tool. You can also boot into the operating system locally, then on the cloud desktop server, select the online computer, choose maintenance mode, and restart to automatically enter the Maintenance Tool.

Frontend Features Introduction

The frontend interface of the Maintenance Tool offers a variety of practical features, including installing and maintaining local VHD boot systems, uploading operating systems, copying and compressing VHD files, and setting drive letters. Below is a detailed introduction to these features.

Download Images and Generate Boot Menu

Within the Maintenance Tool, you can use the "Download" feature to download operating system image files from the server or other clients. After downloading the images, you can find them in the "Generate Boot" section. Select the corresponding image to generate the boot menu.

 Cloud Desktop

v1.8.8038.20240724

Download image

Download from

Server

IP

192.168.10.8

System image

All

Disk

/mnt/sda2 - 83.47GB

☐ Overwrite existing file

Status

0%


OK

Cancel

Refresh

Base set (F1) Upload system (F2) Install (F3) **Download (F4)** Make (F5) Maintenance (F9) Tools Language

Download Image

 Cloud Desktop

v1.8.8038.20240724

Make image boot

Disk

/mnt/sda2 - 83.47GB

Bootable image

Sync server's setting

☐ Keep mode

Status

0%

OK

Cancel

Base set (F1) Upload system (F2) Install (F3) Download (F4) **Make (F5)** Maintenance (F9) Tools Language

Generate Boot

Copy and Compress Images

In the Maintenance Tool, you can use the "Copy" feature to copy system images from the USB drive to the local hard drive, thus avoiding slow download speeds. The "Compress" feature can reduce the size of the temporary file CHILD.VHD in retain mode, preventing the issue of insufficient space in the boot partition.

Cloud Desktop v1.8.8038.20240724

Copy

Copy type

Usb disk

Bootable VHD image


SSD disk

Status

OK Cancel

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools Language

Copy Image

 Cloud Desktop

v1.8.8038.20240724

Compress image

Local disk

/mnt/sda2 - 83.47GB

VHD file

Status

0%

OK

Cancel

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools

Language

Compress Image


Set Client Drive Letters

In the Maintenance Tool, you can use the "Drive Letter" feature to set the drive letters for client disk partitions in the Windows system.



Backend Features Introduction

Once the Maintenance Tool is connected to the server, it enters maintenance mode. In maintenance mode, you can operate the backend features of the computer from the server. These features include installing and updating local VHD boot systems, upgrading the Maintenance Tool, updating the local boot menu, and enabling remote VNC functionality.

 Cloud Desktop

v1.8.8038.20240724

Maintenance mode

Host name	PC-001
IP	192.168.1.1
Nic card	Realtek
CPU	Intel
Mainboard	Intel
Graphic card	RTX

0%

Speed: 0Byte/S , Read size: 0Byte , Write size: 0Byte

Exit

Reboot (F10)

Shutdown (F11)

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools

Language

Maintenance Mode

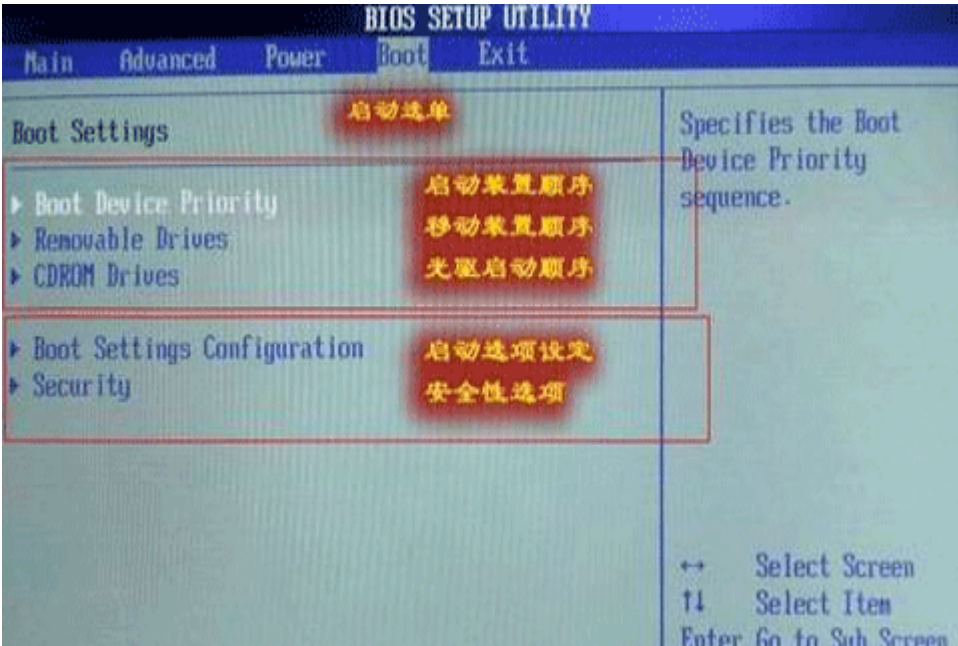
PXE Network Boot

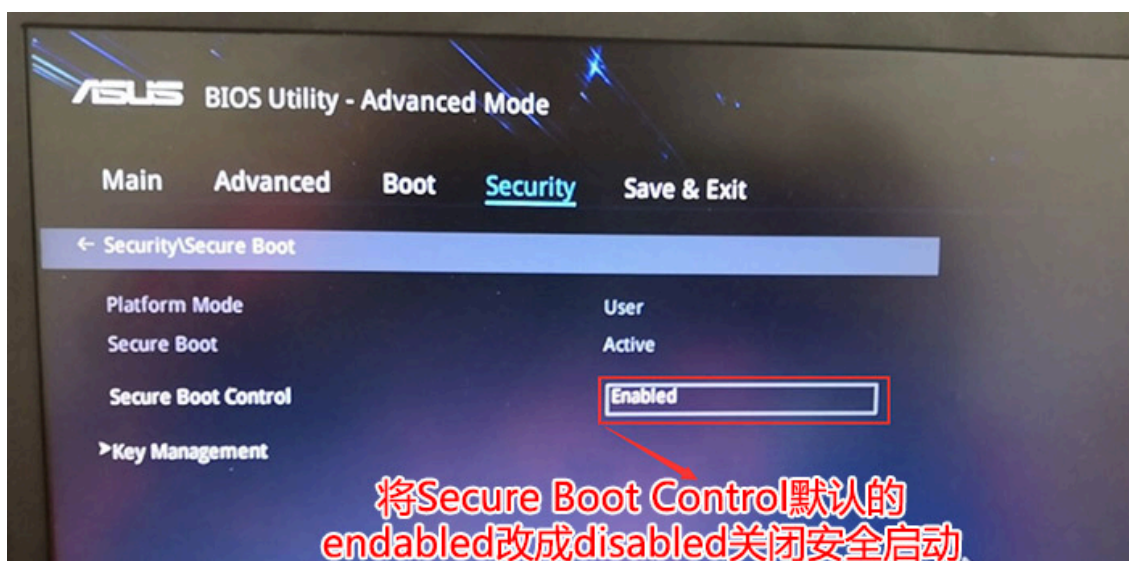
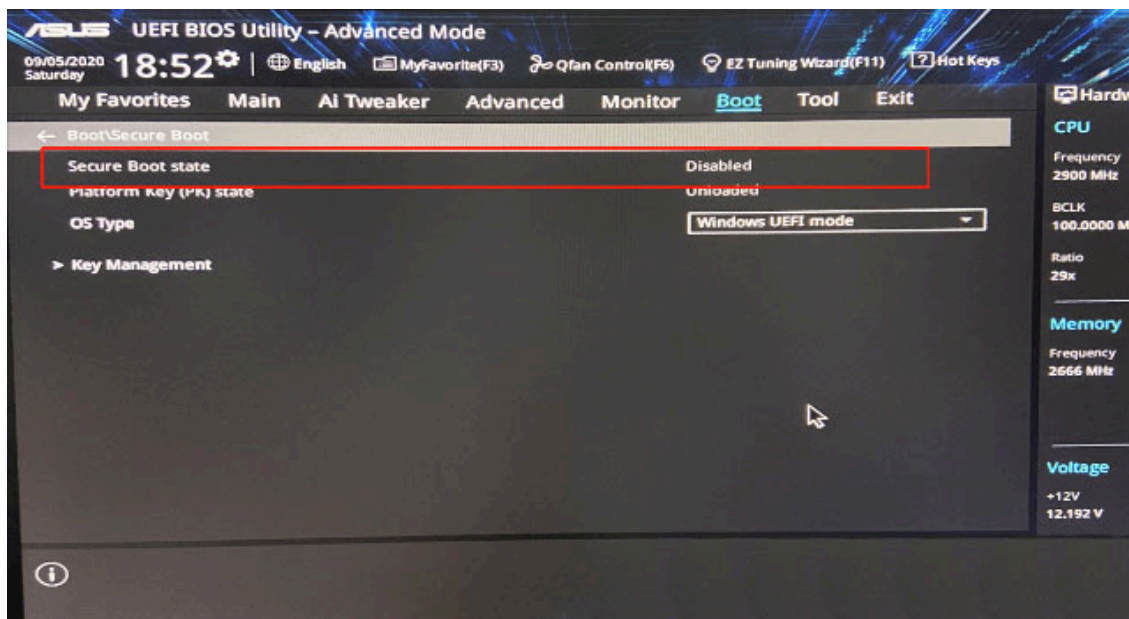
Cloud Desktop Less than 1 minute Quick Start PXE Network Boot

Bios Settings

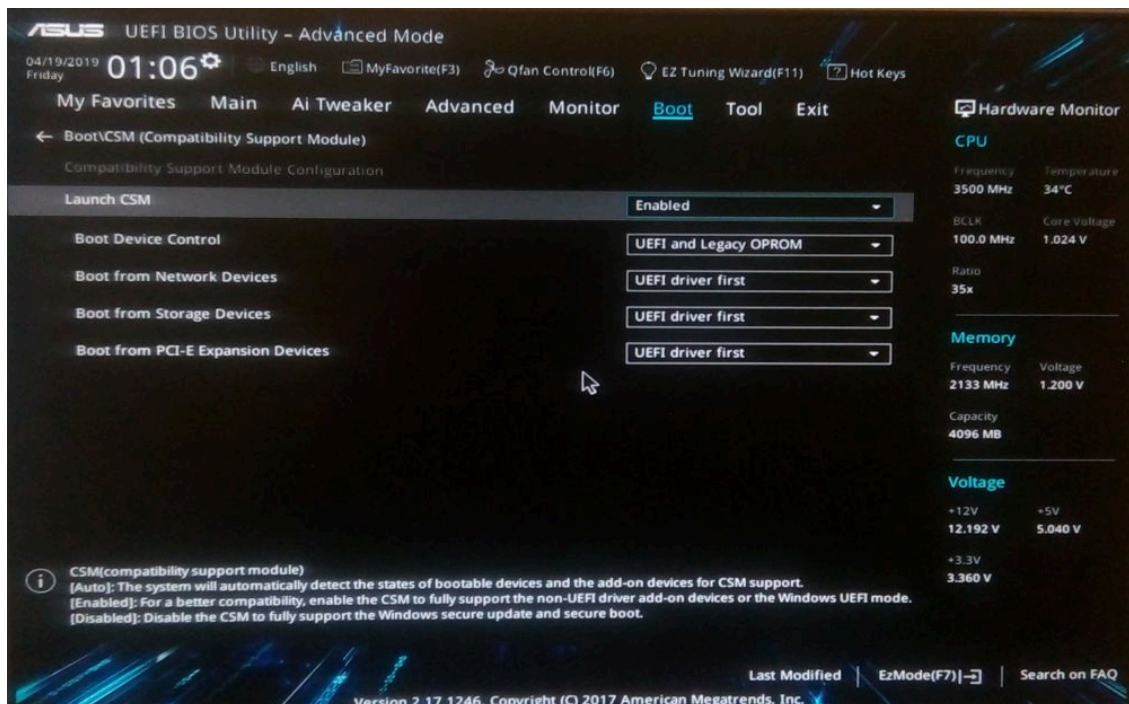
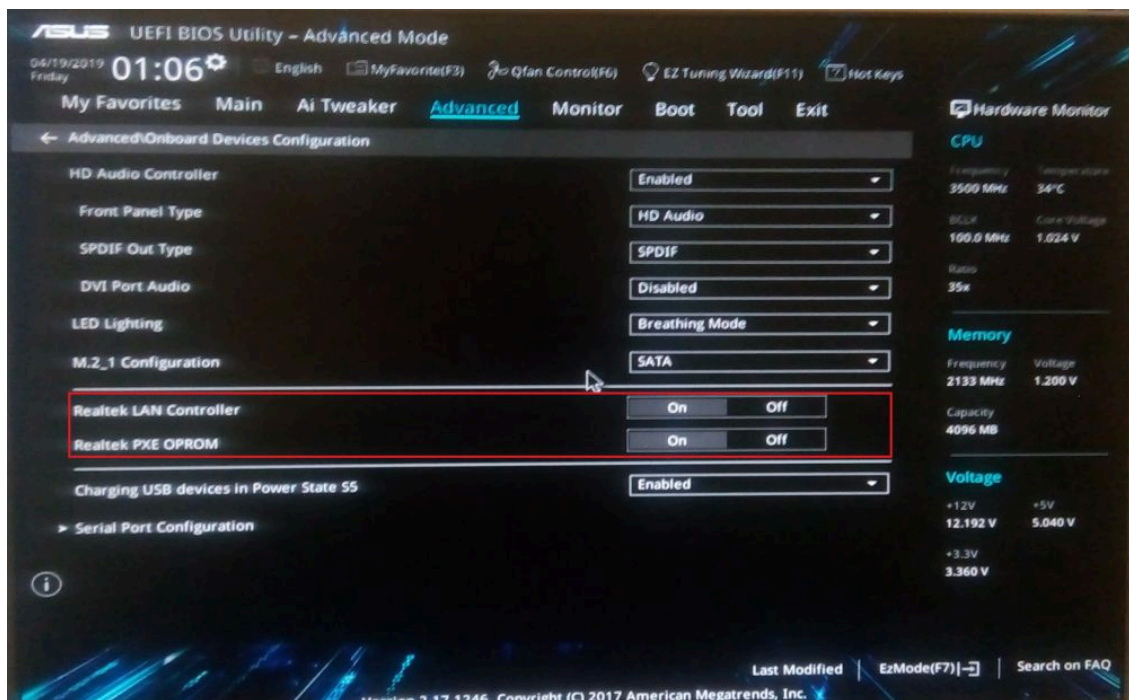
Legacy Mode

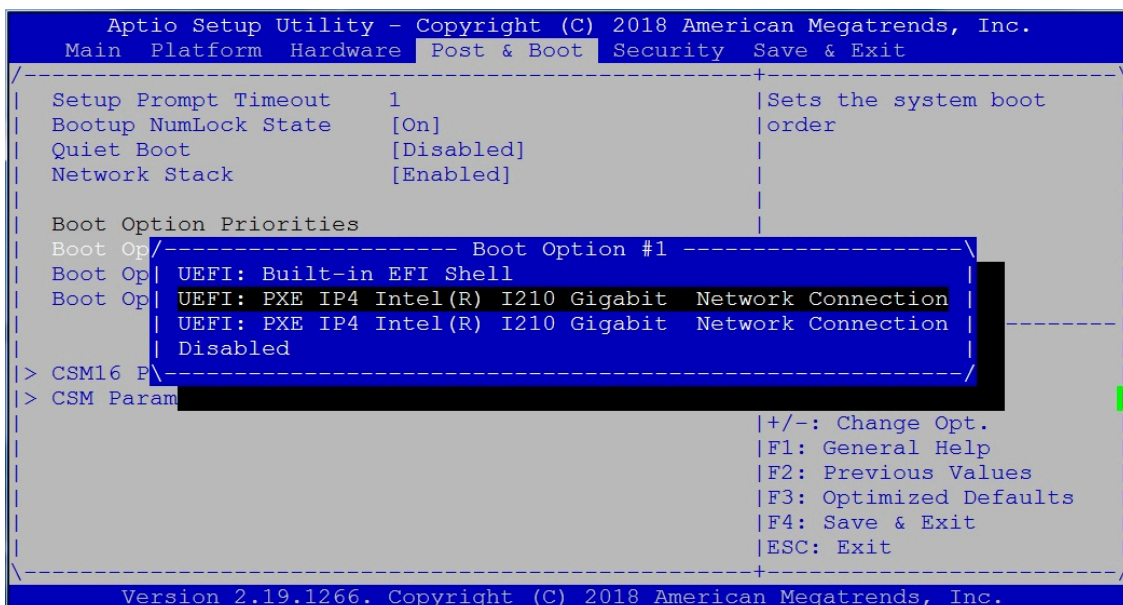
First set the PXE mode to Legacy, then set the boot order to network card first.





Then set the PXE mode to UEFI, then set the boot order to network card first.





PXE Boot Screen

PXE version requires V2.1 or above. If it is a Realtek network card, the network card ROM version requires V2.33 or above.



PXE Network Boot

```
>>Start PXE over IPv4.  
Station IP address is 192.168.251.127  
  
Server IP address is 192.168.251.35  
NBP filename is Rembo-x64UEFI  
NBP filesize is 603648 Bytes  
Downloading NBP file...  
  
Succeed to download NBP file.
```

UEFI PXE Network Boot

Automatic Computer Addition

```
                Please choose an IP for new computer  
  
PC-001 ---- 192.168.1.90 (24)  
PC-002 ---- 192.168.1.91  
PC-003 ---- 192.168.1.92  
PC-004 ---- 192.168.1.93  
PC-005 ---- 192.168.1.94  
PC-006 ---- 192.168.1.95  
PC-007 ---- 192.168.1.96  
PC-008 ---- 192.168.1.97  
PC-009 ---- 192.168.1.98  
PC-010 ---- 192.168.1.99  
PC-011 ---- 192.168.1.100  
PC-012 ---- 192.168.1.101  
PC-013 ---- 192.168.1.102  
PC-014 ---- 192.168.1.103  
PC-015 ---- 192.168.1.104  
PC-016 ---- 192.168.1.105  
PC-017 ---- 192.168.1.106  
PC-018 ---- 192.168.1.107  
PC-019 ---- 192.168.1.108  
PC-020 ---- 192.168.1.109  
PC-021 ---- 192.168.1.110  
PC-022 ---- 192.168.1.111  
PC-023 ---- 192.168.1.112  
PC-024 ---- 192.168.1.113  
edit the name and IP
```

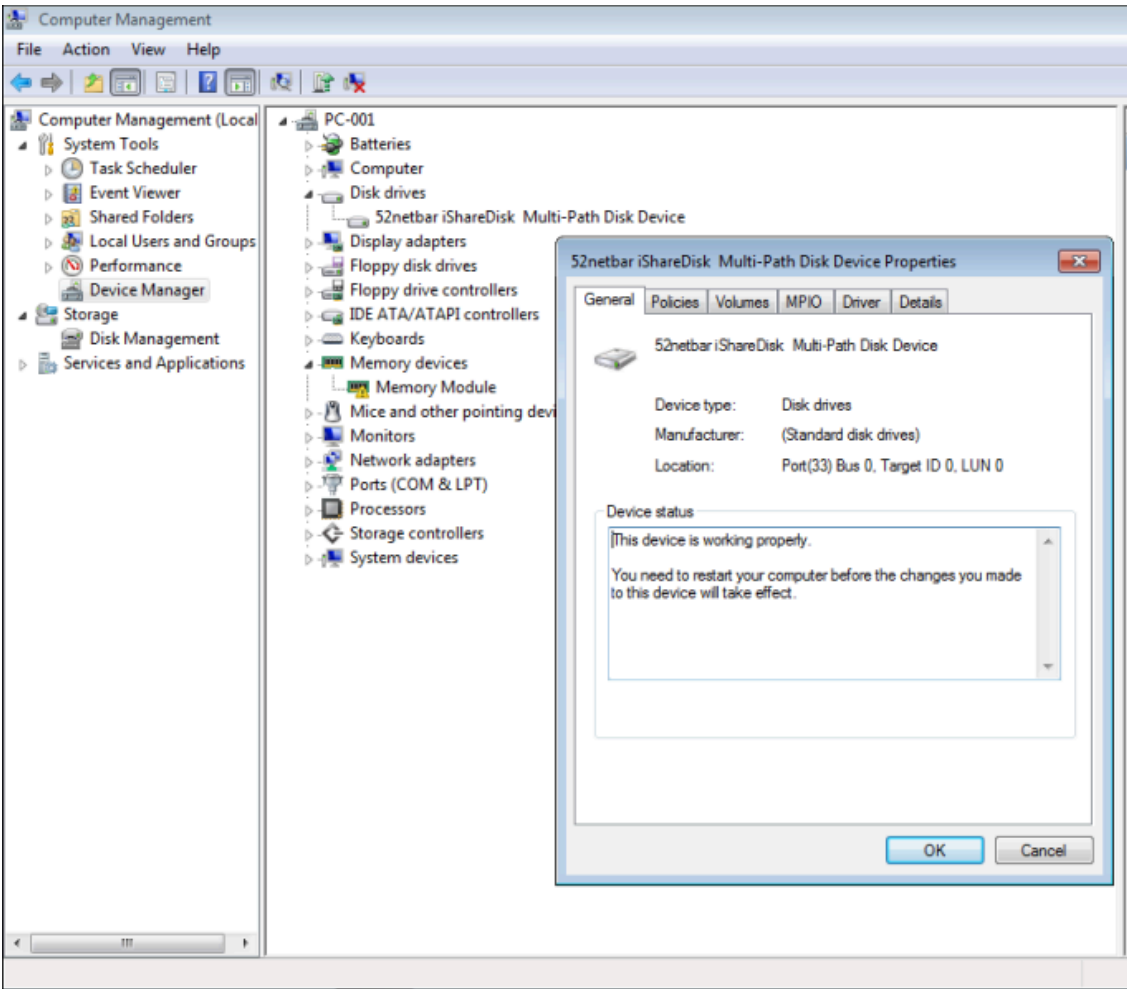
Set New Computer IP

Multi-System Menu Selection



Multi-System Menu

Virtual Disk under PXE Network Boot



PXE Virtual Disk

Get Started

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System Requirement

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Requirement of Server System

Support Windows 8.1、 Windows 10、 Windows Server 2003、 Windows Server 2008/R2、 Windows Server 2012、 Windows Server 2016 and Ubuntu server amd64 version. Windows Server 2008/ R2、 Windows Server 2012 or Windows Server 2016 recommended.

All disk partitions should be formatted as NTFS. When format disks, set "Allocation unit size" as "Default" for Windows system disk, and set "Allocation unit size" as "64K" for other disks.

Requirement of Network

You can use the built-in DHCP and TFTP functionality of cloud desktop, or use a third-party DHCP and TFTP server plus iShareDisk PXE boot files. Support 100MB - 1GB network, 1GBPS network recommended when diskless boot, please use VHD raw boot in 100MBPS network.

Requirement of Client System:

Windows XP, Windows Vista, Windows 7, Windows 8.1, Windows 10, Windows Server 2003, Windows Server 2008/R2, Windows Server 2012, Windows Server 2016、 Centos and Ubuntu etc.

The Windows system drive should be formatted as NTFS and set "Allocation unit size" as "Default".

Requirement of Client Hardware

UEFI or legacy BIOS

Diskless boot require support PXE 2.x network card, or V2.33 above for ROM in Realtek network card.

VHD raw boot require local disk, mSATA, SATA3, PCI-E SSD recommended.

Recommended Hardware Configuration of Server at Diskless boot:

Scale	Configuration
25 Clients	<p>CPU: 2.0G RAM: 8G System Image Disk: SATA-21 250G <i>an image file (SC 512M) compares well with SSD</i> Game Disk: SATA-2 500G2 (Software or hardware raid as required) Write-back Disk of the 1st Client: SATA-2*1 250G Average (one write-back disk for every 35 clients) Main board: Support RAID or HCI Network Card: 1000Mb Ethernet, If possible, please use SSD hard disk as buffer and SAS the write-back disk.</p>
50 Clients	<p>CPU: 2.8G RAM: 16G System Image compares well with SSD Game Disk: SATA-2 500G (Software or hardware raid as required) 80G,3rd SSD Generation: 80G, 3rd generation Write-back Disk of the 1st Client: SATA-2 250G Write-back Disk of the 2nd Client: SATA-2 250G Average (one write-back disk for every 35 clients) Main board: Support RAID or AHCI Network Card: 2 multi-IP or single IP static link aggregation (distribution) If possible, please use SAS as game disk and SAS the write-back disk.</p>

Scale	Configuration
100 Clients	CPU: 2.8 GRAM: 32G System Image Disk: 1 SATA-2 an image file (SC 512M) compares well with SSD Game Disk: SATA-2 500G*3 (Software or hardware raid as required) SSD Disk: 80G 3rd Generation Write-back Disk of the 1st Client: SATA-2 250G Write-back Disk of the 2nd Client: SATA-2 250G Write-back Disk of the 3rd Client: SATA-2 250G Average (one write-back disk for every 35 clients) Main board: Support RAID or AHCI Network Card: Intel 1000Mb Ethernet, 2-3 multiple IP or single IP static link aggregation (distribution) If possible, please use SAS as the game disk and SSD or SAS the write-back disk.
> 100 Clients	Multiple servers is recommended to for load balance.

Port opening requirements

Local policy security: Required open ports (if you need to enable firewall, you can add the server-side exe file to the exception or add the following ports as allowed)

Forward	Port	Protocol	Service	Required	Remarks
Server	67	UDP	DHCP service, assign IP addresses to clients	Yes	Otherwise client PXE boot will fail or local DHCP cannot get IP address
Server	69	UDP	TFTP service, provide boot files for client PXE boot	Yes	Otherwise client PXE boot will fail

Forward	Port	Protocol	Service	Required	Remarks
Server	3260	TCP	iSCSI service, provide disk space to clients	Yes	Otherwise client PXE boot will fail
Server	3265	TCP	Management service, provide traditional GUI management functions	No	Only if launching traditional GUI management locally
Server	3266	TCP	Connection service, receive client connection requests	Yes	Otherwise clients cannot connect to server
Server	9000	TCP	WEB service, provide browser management functions	No	Only if using browser management locally
Server	9443	TCP	WEB service, provide HTTPS browser management functions	No	Only if using browser management locally
Server	8001	TCP	WEB service, provide center server browser management functions	No	Only if using browser management locally
Server	8443	TCP	WEB service, provide center server HTTPS browser management functions	No	Only if using browser management locally

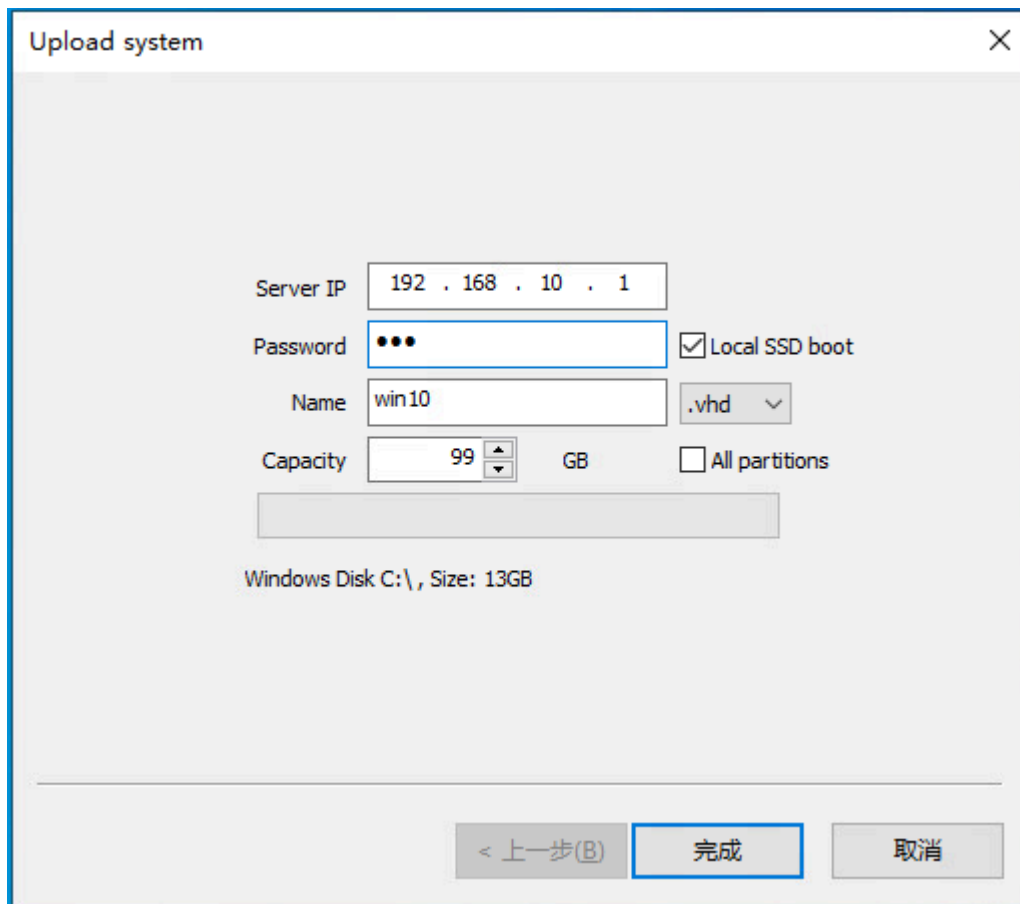
Forward	Port	Protocol	Service	Required	Remarks
Server	5500	TCP	VNC service, receive client reverse VNC connection requests	Yes	If clients and server are across VLANs, not in the same LAN
Client	3267	TCP	P2P service, provide file transfer between clients	Yes	If client P2P transfer is needed, and not needed if in the same LAN
Client	5900	TCP	VNC service, receive server VNC connection requests or initiate reverse VNC connections to port 5500 on server. In cross VLAN environments, must ensure server can ping client. Network firewall must open 5900 or 5500 port.	Yes	If VNC is needed, and not needed if in the same LAN

Upload operation system

 Cloud Desktop  Less than 1 minute  [Quick Start](#)  [Upload operation system](#)

Windows Desktop Version

Run the desktop upload tool, enter the cloud desktop server IP and management password, and you can upload. When you select the "All Partitions" option, it will upload all the non-system partitions on the disk, such as: D: drive.



Upload system

Server IP 192 . 168 . 10 . 1

Password ●●● ☒ Local SSD boot

Name win10 .vhd

Capacity 99 GB ☐ All partitions

Windows Disk C:\, Size: 13GB

< 上一步(B) 完成 取消

Desktop Upload

Maintenance Tool Upload Utility

In the Maintenance Tool, you can use the "Upload System" feature to upload the local system to the server.

Cloud Desktop

v1.8.8038.20240724

Base set

Server IP

192.168.10 .8

Password

●●●

Computer name

pc

Menu display time

6second

☐ Text menu

☐ DHCP

MAC

20-1F-77-AA-C3-6F

IP

192.168.10 .227

IP Mask

255.255.255.0

Gateway IP

192.168.10 .1

First DNS IP

8 .8 .8

Second DNS IP

. . .

OK

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools Language

Basic Settings

Cloud Desktop

v1.8.8038.20240724

Upload system

Disk

/dev/sda - 119.24GB

Partition

Auto

Server IP

192.168.10 .8

Password

●●●

Name

Disk0_20240729031201

Type

.vhd

Capacity

119GB

Operation system

Auto

0%

Disk /dev/sda , Valid Data Size: 0GB

OK

Cancel

Base set (F1) Upload system (F2) Install (F3) Download (F4) Make (F5) Maintenance (F9) Tools Language

Upload System

PE Version

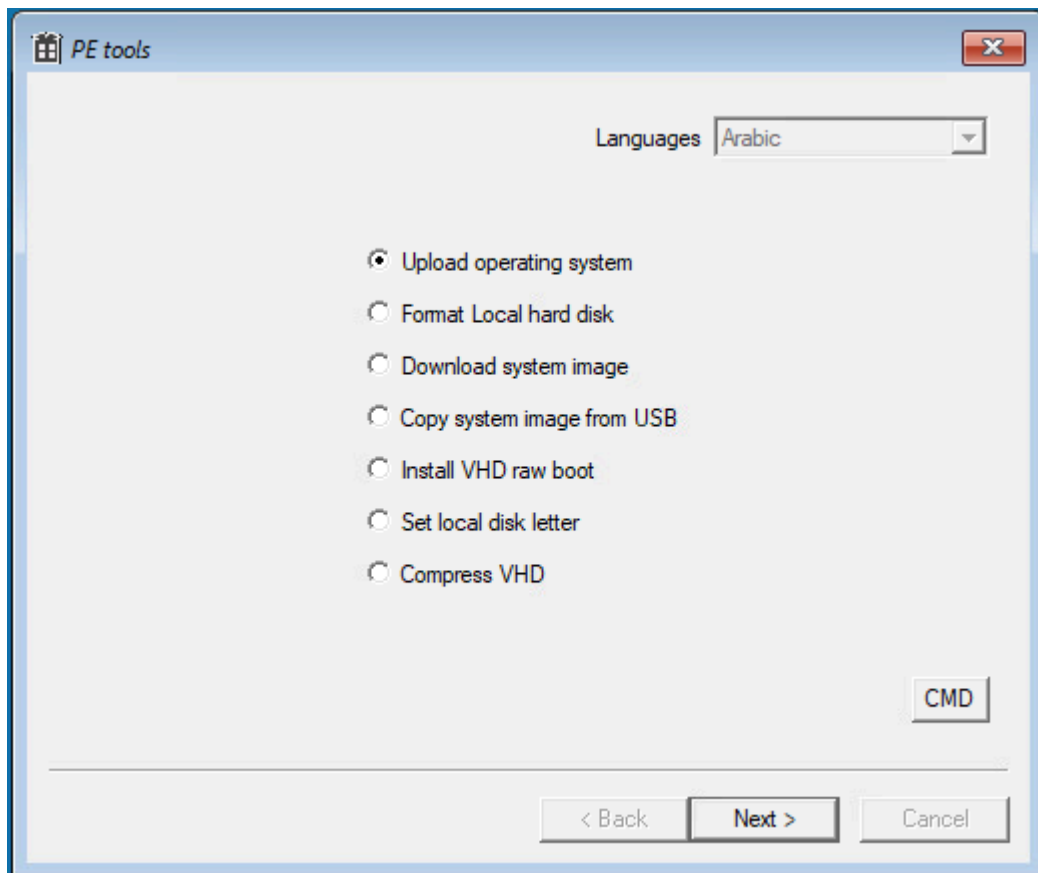
Important Notice

The PE tool required for the upload feature has been fully replaced by the Maintenance Tool.

It is recommended to use the upload feature of the Maintenance Tool. For related documentation, please refer to: [Maintenance Tool](#).

The documentation for the PE tool is for reference only and will no longer be maintained.

Copy or burn the ISO file to a USB drive, boot from the USB drive, and you will see the main interface. The first item is the upload operating system function. Compared with the windows desktop version, it is more secure and has more complete data.



Main Interface

The screenshot shows a window titled "PE tools" with a close button in the top right corner. The window contains the following fields and controls:

- Local disk:** A dropdown menu showing "disk0 (C) - 500GB".
- Server IP:** A text field containing "192 . 168 . 10 . 1".
- Password:** A text field containing three asterisks "***".
- Name:** A text field containing "win10".
- Format:** A dropdown menu showing ".vhd".
- Capacity:** A spinner box set to "500" followed by the unit "GB".
- All partitions:** An unchecked checkbox.
- Operating system:** A dropdown menu showing "Auto".
- Progress bar:** An empty progress bar.
- Status text:** "Windows Disk C:\ , Valid Data Size: 25GB".
- Navigation buttons:** "< Back", "Next >", and "Cancel".

Upload

Upload Linux Systems

Linux and domestic operating systems can only be uploaded through the PE version tool. You need to select the "All Partitions" option and the operating system version.

PE tools

Local disk: disk0 (C) - 500GB

Server IP: 192 . 168 . 10 . 1

Password: ***

Name: ubuntu .vhd

Capacity: 500 GB ☒ All partitions

Operating system: ubuntu (64bit)

Windows Disk C:\ , Valid Data Size: 26GB

< Back Next > Cancel

Upload Ubuntu

Local vhd offline boot

👤 Cloud Desktop ⌚ Less than 1 minute 🗒️ [Quick Start](#) 🔑 [Local vhd offline boot](#)

⚠️ Important Notice

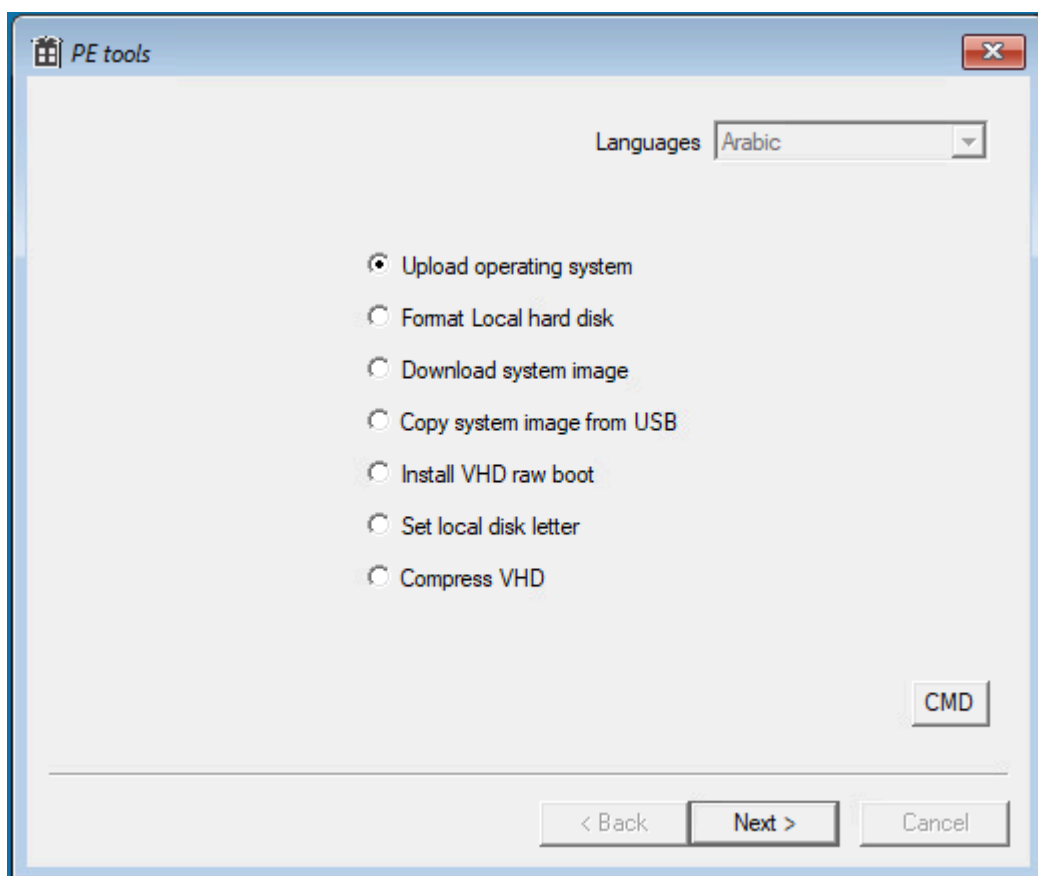
The PE tool required for local VHD offline boot has been fully replaced by the Maintenance Tool.

It is recommended to use the local VHD offline boot feature of the Maintenance Tool. For related documentation, please refer to: [Maintenance Tool](#).

The documentation for the PE tool is for reference only and will no longer be maintained.

Initialize local disk

Copy or burn the ISO file of the PE tool to a USB drive, boot from the USB drive, and you will see the main interface. Use the Format Disk function to initialize the local disk.



Main interface



The image shows a window titled "PE tools" with a close button in the top right corner. The window contains the following controls:

- Boot disk:** A dropdown menu showing "disk0 (CD) - 200GB".
- Legacy/UEFI:** A dropdown menu showing "Legacy/UEFI".
- Capacity:** A column of three dropdown menus with values "70", "30", and "0", each followed by a "%" symbol.
- Client disk letter:** A column of three dropdown menus with values "Auto", "Auto", and "Auto".
- Hide mode:** A column of three dropdown menus with values "Hide", "Show", and "Show".
- VHD boot:** A column of three radio buttons. The first is selected.
- User data:** A column of three radio buttons. The second is selected.
- Write back:** A column of three radio buttons. The second is selected.
- Percent:** A dropdown menu showing "Percent" and an empty text input field.
- Show log:** A checkbox that is currently unchecked.
- Navigation buttons:** "< Back", "Next >", and "Cancel".

Format disk

Download operating system image

After setting the local network card IP, enter the cloud desktop server IP to download the image

 PE tools 

☐ DHCP

MAC

IP



IP Mask

Gateway IP

First DNS IP

Second DNS IP

Set IP

 PE tools 

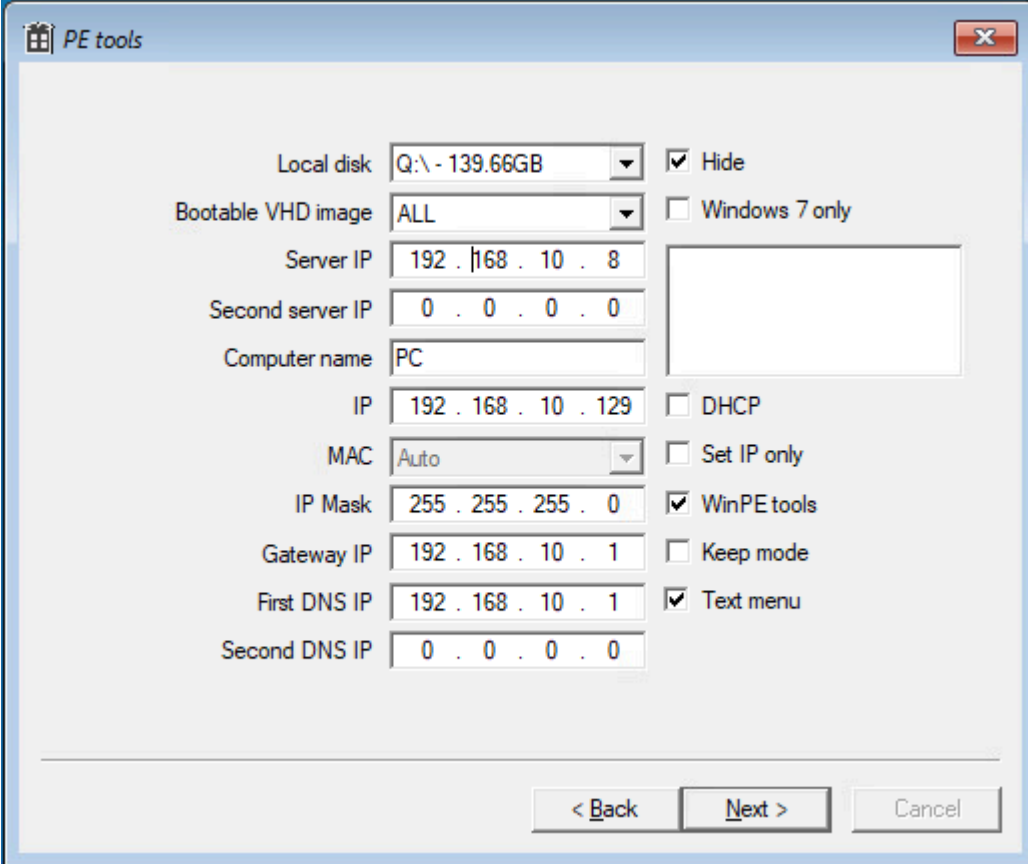
System image

SSD disk ☐ Overwrite existing file

Download image

Install local vhd boot

After installing the downloaded image to the local disk, you can boot it



The screenshot shows a window titled "PE tools" with a standard Windows-style title bar (minimize, maximize, close buttons). The window contains a form with the following fields and options:

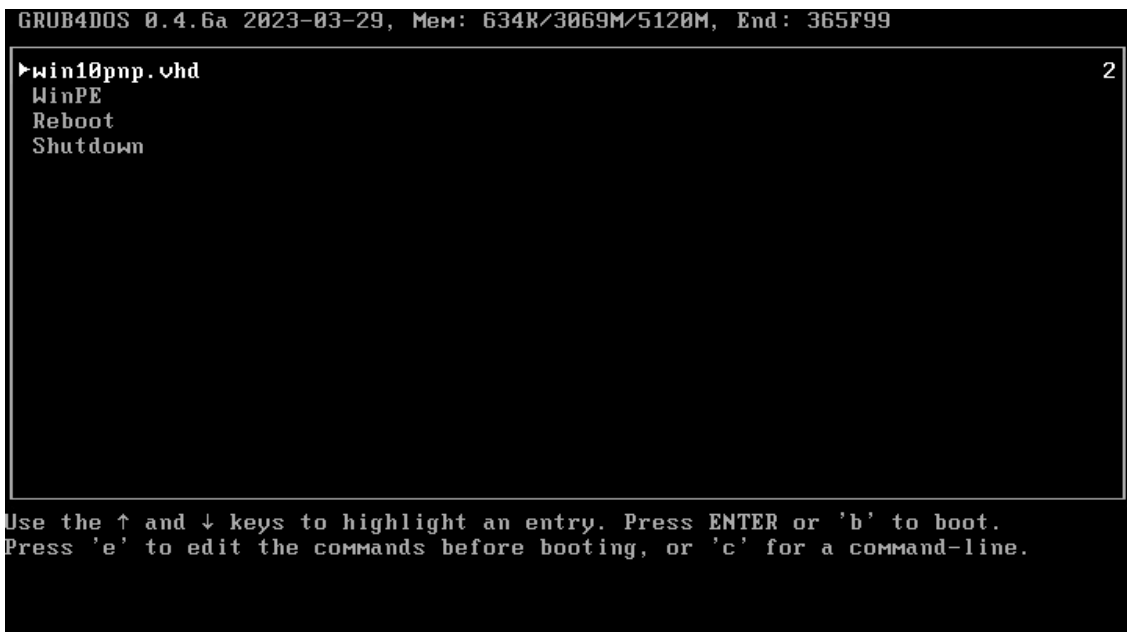
- Local disk:** A dropdown menu showing "Q:\ - 139.66GB".
- Bootable VHD image:** A dropdown menu showing "ALL".
- Server IP:** A text field with "192 . 168 . 10 . 8".
- Second server IP:** A text field with "0 . 0 . 0 . 0".
- Computer name:** A text field with "PC".
- IP:** A text field with "192 . 168 . 10 . 129".
- MAC:** A dropdown menu showing "Auto".
- IP Mask:** A text field with "255 . 255 . 255 . 0".
- Gateway IP:** A text field with "192 . 168 . 10 . 1".
- First DNS IP:** A text field with "192 . 168 . 10 . 1".
- Second DNS IP:** A text field with "0 . 0 . 0 . 0".
- Checkboxes on the right:**
 - ☒ Hide
 - ☐ Windows 7 only
 - ☐ DHCP
 - ☐ Set IP only
 - ☒ WinPE tools
 - ☐ Keep mode
 - ☒ Text menu

At the bottom right, there are three buttons: "< Back", "Next >", and "Cancel".

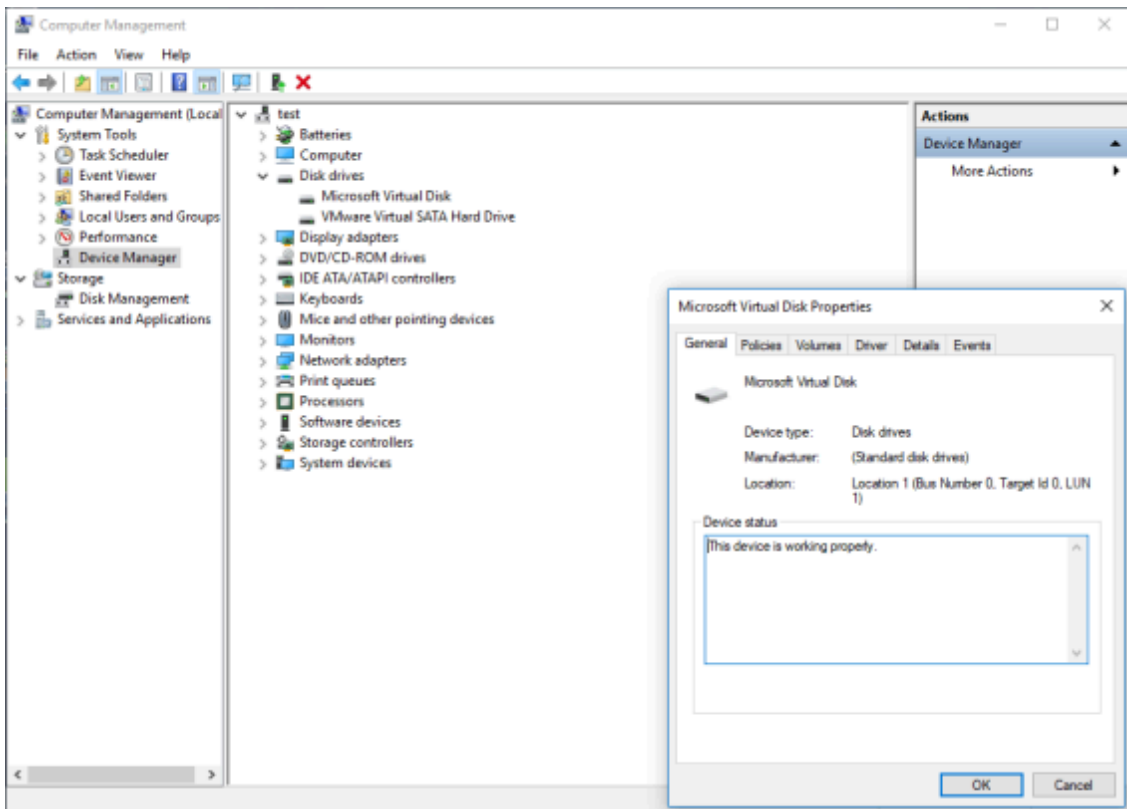
Install local vhd boot

Boot from local vhd

Remove the USB drive with the PE tool, set the local disk to boot, and you can boot the VHD system image



System Image Selection for Booting



vhd virtual disk

Dell OptiPlex 7060 Workstation legacy PXE Network Boot Setting Method

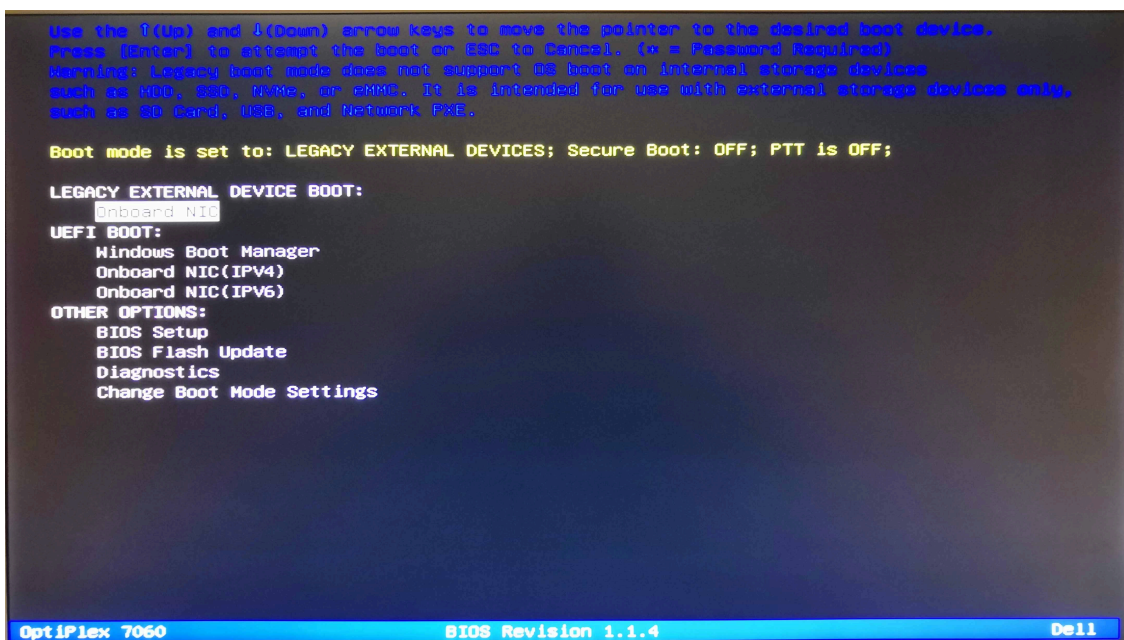
👤 Cloud Desktop ⌚ Less than 1 minute 📖 Reference

📌 Dell OptiPlex 7060 Workstation legacy PXE Network Boot Setting Method

Setting Method

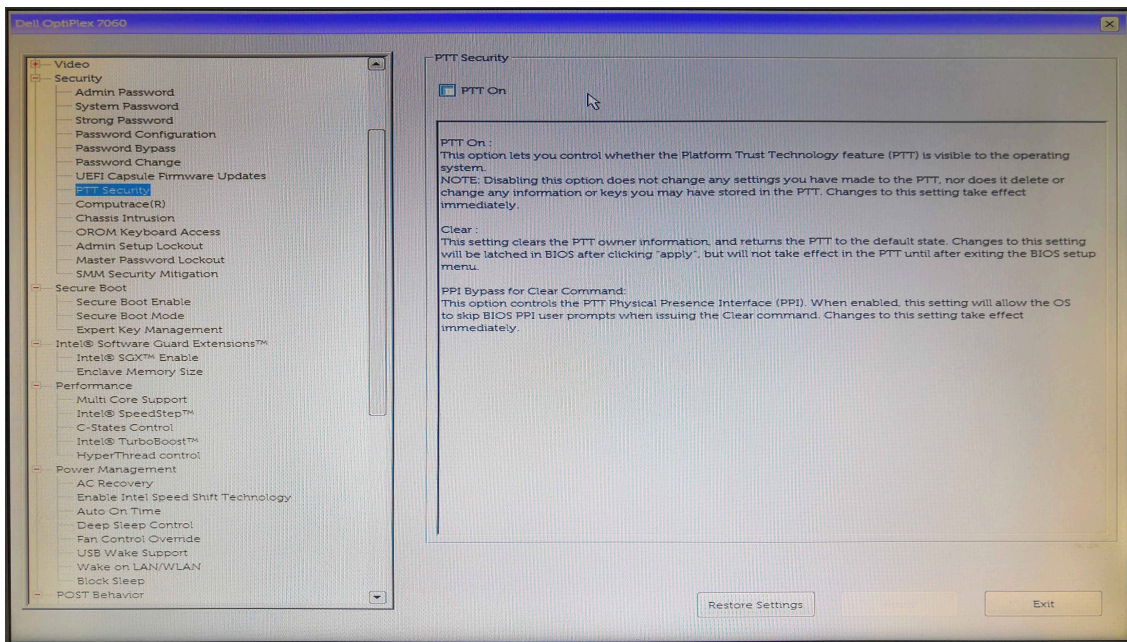
Dell 7060 workstation, hard disk, SSD, NVME and other built-in storage boot only support UEFI mode, SD card, USB, network card and other external storage can support Legacy mode boot.

Boot by pressing F12, enter BIOS Setup



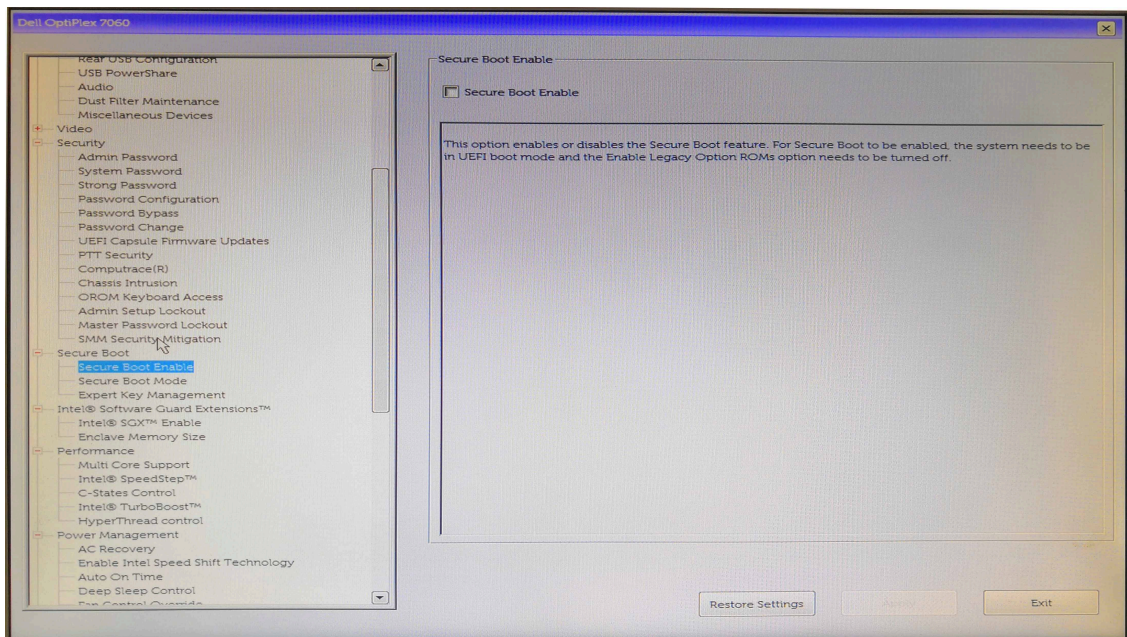
Boot interface

1. Turn off PTT security



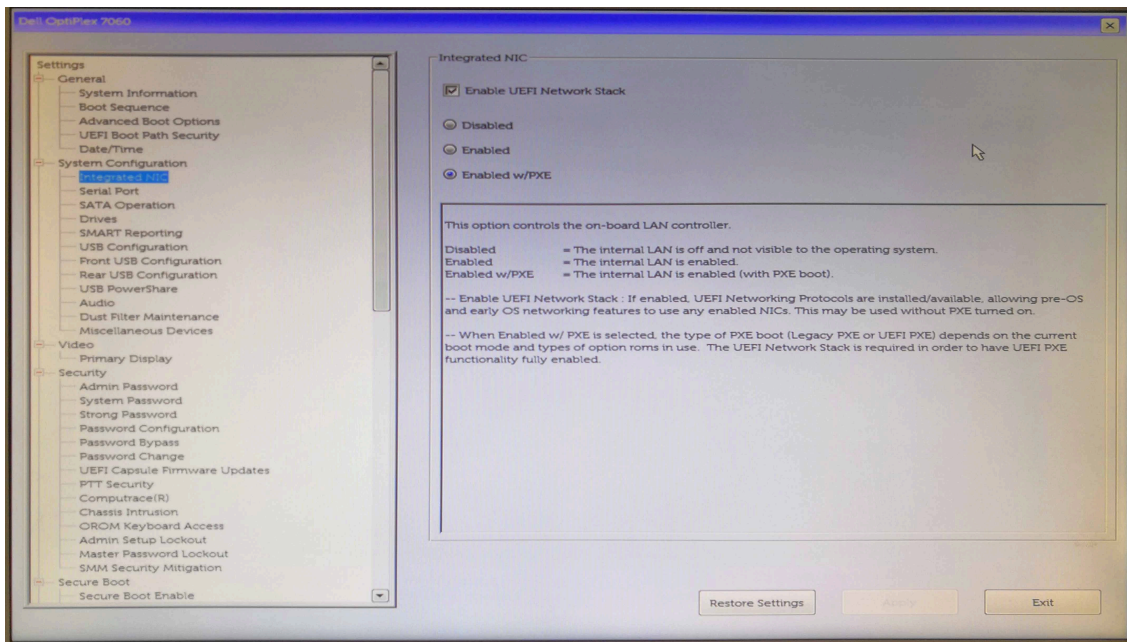
Turn off PTT security

2. Turn off Secure Boot Enable



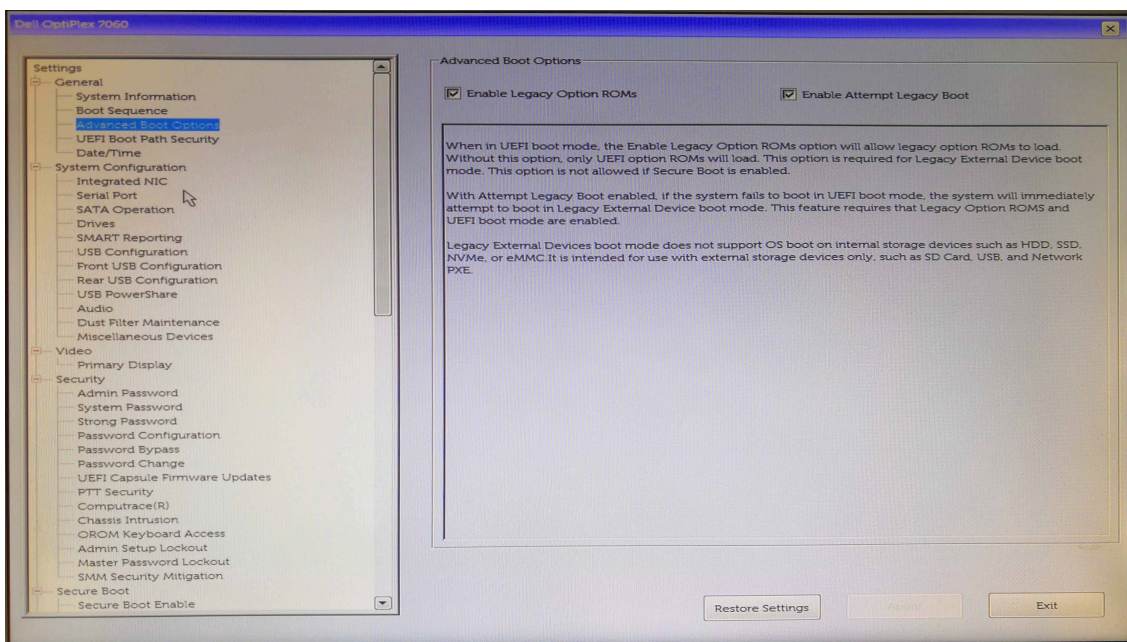
Turn off Secure Boot Enable

3. Turn on network card pxe function



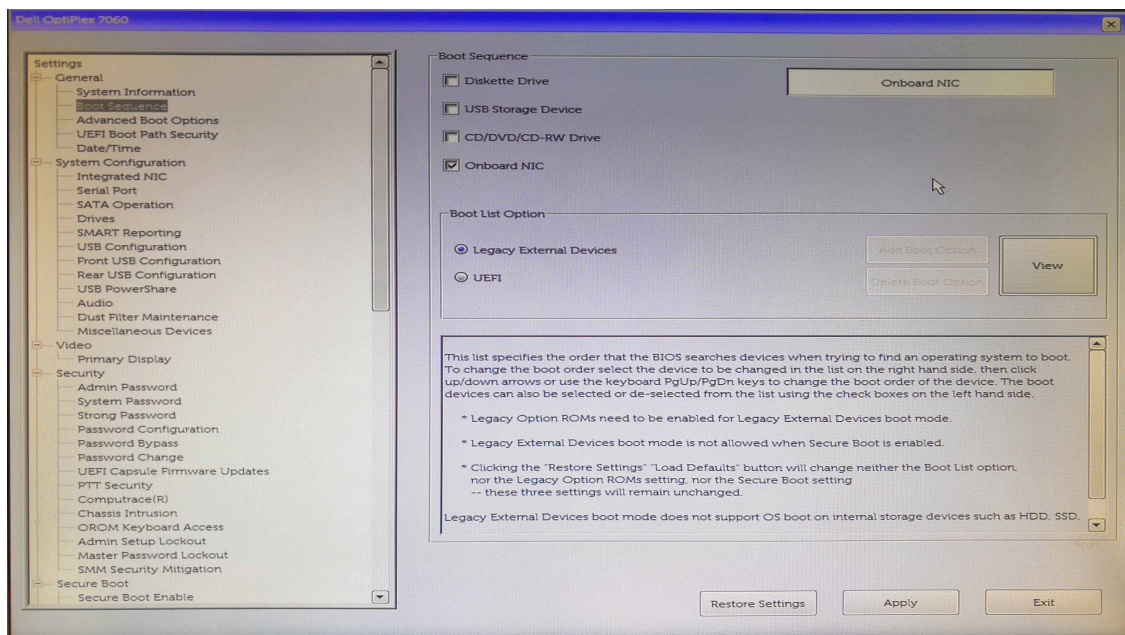
Network card pxe

4. Turn on pxe boot option



Network card pxe

5. Adjust network card boot order



Boot order

Version History

 Cloud Desktop  About 5 min  [Reference](#)  [Version History](#)

Feature Update Log (2025.7.2)

Added application layering/super retention mode: During local VHD boot, supports automatic monitoring of system disk changes, automatically transferring newly added file data and registry entries to the personal configuration partition on the local disk, and preserving users' personal files and registry configurations during image update processes.

Optimization Log (2025.5.16)

Optimized the display speed of the computer list in the web interface when displaying a large number of computers on a single page.

Fixed a bug where the verification calculation error during disk compression caused the update to fail.

Fixed a bug where the gateway was lost during diskless booting.

Feature Update Log (2025.3.14)

Added support for NDIS-compatible NICs in PXE network boot for Windows 11 24H2.

Feature Update Log (2024.12.16)

Added functionality to unlock the client screen from the server and clear the client screen lock password. Also, added a feature to disable client screen lock.

Introduced a feature to keep mode settings based on disk configurations.

Implemented blacklists and whitelists for client process execution and domain access.

Upgrade log(2024.10.03)

PXE network card boot now supports Secure Boot. New boot modes: SECUREBOOT SNPONLY and SECUREBOOT IPXE.

Upgrade log (2024.07.30)

Added new version maintenance tool, greatly optimizing the installation and maintenance of local startups.

For details, please see <http://localhost:9000/help/en/demo/maintance.html>

Fix Log (2024.3.16)

Fixed a bug where there were redundant offline disks in Disk Management when booting Windows 10 with a data disk via PXE, and also resolved the bug causing CRITICAL_PROCESS_DIED blue screen.

Fixed a bug where data loss occurred during local P2P updates, resulting in incomplete images and causing a black screen during local boot.

Optimized the speed of downloading images across switches for PE tools.

Fix log (2023.12.05)

Fixed the issue of unable to set system page file when diskless booting and the issue of system memory overflow causing blue screen.

Upgrade log (2023.10.31)

Added help document <http://localhost:9000/help/>

Upgrade Log (2023.9.14)

The web interface has added a lot of templates, which can batch set the properties of computers

The local boot interface has added a graphical boot interface

Fix Log (2023.6.15)

Fixed the access denied and read-only access functions of USB 3.0 flash drive

Fix Log (2023.05.18)

Fixed the disk cache module, server-side secondary file cache and client-side write-back secondary file cache slow write speed bug.

Fix Log (2023.04.10)

Fixed the bug that Windows 10 22h2 and above cannot boot without disk and network card pnp

Fixed the bug that network wake-up must enable DHCP module.

Upgrade Log (2023.3.16)

Added the function of restoring and verifying child.vhd in restore mode when booting locally from vhd, avoiding the possibility of VHD_BOOT_INITIALIZATION_FAILED blue screen.

Fix Log (2023.2.21)

Fixed the bug that the local disk drive letter cannot be fixed when plugging in a USB flash drive when the client boots locally.

Fix Log (2023.2.14)

Fixed the bug that the icon in the notification area at the bottom right corner of the desktop becomes transparent in restore mode when booting locally. (Personal profile transfer function needs to be enabled)

Function Addition Log (2023.2.6)

Added UEFI PXE boot mode PURE, which supports Intel® B660 and above pure UEFI BIOS, without CSM (Compatibility Support Module).

Upgrade Log (2023.1.30)

Added custom client desktop watermark function. (Set from web interface, need to update)

Upgrade Fix Log (2023.1.28)

1. Fixed the problem of network disconnection caused by network card resetting continuously 10 minutes before offline boot.
2. Fixed the bug that the client cannot replace the boot when merging and upgrading without version number image (first deployment).
3. Fixed the bug that after modifying the computer name of the local boot client from the server side, it will automatically restore when restarting and shutting down.

V1.8 Feature List: (Release Date: 2017.7)

Added support for Windows 10 diskless boot.

Added support for UEFI BIOS diskless boot.

Added VHD offline boot function.

Added non-restore system image, retention mode.

Added support for PXE network boot in domain environment.

Roaming personal disk can be system disk and boot without disk, added roaming personal restore point.

Added shared cloud disk and iSCSI cloud disk.

V1.7 Feature List: (Release Date: 2014.9.8)

Added Ubuntu diskless boot and server-side linux version.

Added roaming personal disk function, allowing roaming personal disk by login name.

Optimized memory cache allocation startup speed, client write-back cache zero write-back.

Added various boot modes such as client boot menu

V1.6 Feature List: (Release Date: 2013-10-1)

Server-side added multi-server management and image synchronization function.

Supports diskless boot of client linux system

Added client write-back file size limit function

V1.5 Feature List: (Release Date: 2013-3-1)

Server-side updated disk cache module, faster speed, higher efficiency, and can serve other menu update programs.

Server-side added custom DHCP binding IP, gateway and other parameters for each client

Added client disk cache.

V1.4 Feature List: (Release Date: 2012-9-18)

Added server load balancing and dual-server hot backup function. When one server fails to stop service, another server can take over immediately without restarting the client.

Added super user update data disk function. Super users can directly update data disks without saving write-back data. Used for installing a large number of software on clients, etc.

V1.3 Feature List: (Release Date: 2012-6-30)

Optimized network card PNP driver during client startup, increased adaptability to various hardware environments, and accelerated operating system startup speed.

Optimized server read-write cache algorithm, changed from original per-disk and per-user

allocation to unified allocation and scheduling, which improved speed and increased cache utilization efficiency. And added timed refresh cache function to make up for the shortcomings of manual refresh cache.

Added one-to-many configuration and restore point function, which can be more flexible when there are more client hardware configurations. And each time data is saved, a restore point can be created, confirm that the saved data is correct, and then merge it into the base disk, greatly improving security.

Redesigned a new write-back file format to replace the original vhd format that is not suitable for write-back, greatly reducing the server write-back pressure, improving the client response speed and overall load capacity.

Added batch add user and import user functions, which is convenient for creating a large number of user information when deploying diskless for the first time.

Added disable PXE network boot and use compatible PXE boot mode, which is convenient for deploying multiple servers in the same LAN and compatible with old network cards (non-PXE2.1 mode).

Added multiple system simultaneous boot function, more suitable for complex application environment.

V1.2 Feature List: (Release Date: 2012-1-13)

Added support for multiple write-back directories, the system automatically assigns user write-back to each write-back directory, reducing the requirements of the system write-back disk. The server can achieve the effect of disk array through multiple write-back disks.

V1.1 Feature List: (Release Date: 2011-10-18)

Added DHCP, TFTP, PXE, iPXE and image upload functions to realize a one-stop solution for diskless boot based on iSCSI protocol.

The client added network card PNP tool and system image upload tool.

Added remote boot (requires network card support) and adding client by scanning LAN function.

Added manual refresh server cache function, which is convenient for manually forcing refresh when automatic update cache fails.

Added separate start and stop function for a virtual disk.

Added server disk and client disk drive letter correspondence function, by customizing the drive letter of the client virtual disk, it is convenient to uniformly manage the game software path.

Added support for IMG and VDI disk formats, supporting five kinds of virtual disk formats.

V1.0 Feature List: (Release Date: 2011-6-22)

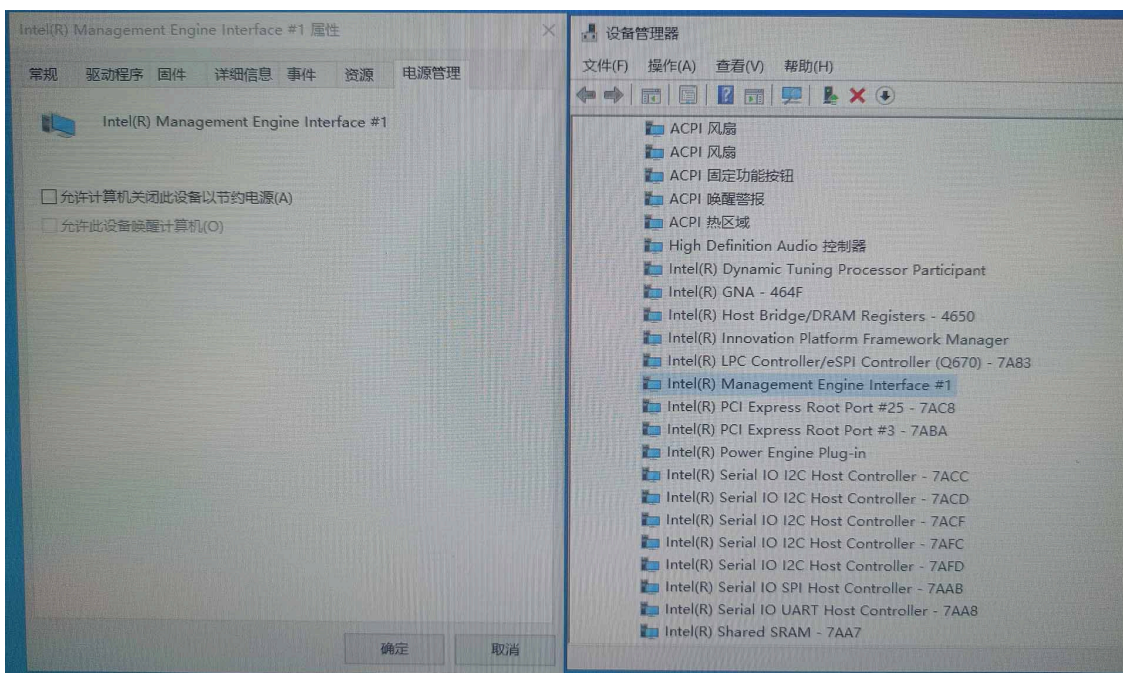
The system fully implements the Target (targeter) function of the iSCSI protocol, which can cooperate with the Windows full series operating system to present the hard disk or partition on the server as a virtual disk on the client. The client can perform any read and write operations on the virtual disk, run program software, format and partition operations. The client reloads the virtual disk and restores to the state of the server disk.

Frequently Asked Questions

👤 Cloud Desktop ⌚ About 2 min 📄 Reference 🔑 Frequently Asked Questions

Local VHD Offline Boot Issues

- After booting locally from VHD, I have already turned off the hibernation function, but the computer still goes black and cannot be awakened. How can I solve this problem?



intel management engine interface

Please turn off the "Allow the computer to turn off this device to save power" option for "intel management engine interface".

PXE Network Boot Issues

- Q: My network card ROM boots to ipxe's "Initialising devices" and stops. How can I solve this?

Please edit the user and set it directly to "Use compatible PXE boot". Note that this mode will start slower, but it does not affect the speed after entering the window system.

- Q: Why does the image I made blue screen after PXE network boot?

There are several situations that will cause this phenomenon

1. Network card driver version error or not installed roll blue screen.

2. The client has installed anti-virus software, such as nod32, etc.
3. The client is not installed, please reinstall and upload again.
4. After installing the ISD client, you need to restart the machine before uploading the image.

- Q: How much virtual memory should be set for the client machine?

The client virtual memory is recommended to set the size to avoid insufficient virtual memory. The larger the client memory, the better. Example: minimum 4096 maximum 4096

- Q: What are the port requirements and network port security settings for PXE network boot?

First of all, cloud desktop will use the following ports: 67 (DHCP), 69 (TFTP), 3260 (iSCSI), 3265 (management port). If you have a firewall or anti-virus software installed on your server, you need to make sure these ports are open.

- Q: Why does data go wrong after saving the image?

Saving the image requires such operations:

1. First right-click on the client you want to operate in the user list on the server side, click the "Super User" command, and then turn on the corresponding client
2. After installing the software or updating the game, turn off the client, and then click the "Super User" command on the server again. The system will automatically prompt to save the write-back data.

- Q: How to upgrade from an old version?

Please go to the official website to download the new version, you must stop the service before installation.

- Q: What is the working mode of ssd cache?

After ssd is full, the data read later continues to cache, but ssd file size does not change, only the content is still changing.

- Q: Can I use my own cache with supercache?

You can't use cloud desktop cache icachex with supercache together, they can be used separately.

- Q: How to reduce boot read traffic more effectively?

You can consider from several aspects

1. System difference, different OS versions will have a lot of difference in read traffic.
2. System optimization, system optimization is necessary to a certain extent. Example: Turn off system pre-read, etc.

- Q: I changed servers how do I keep my original settings?
Back up the set file from the original server, note that if some disk paths are different between the two servers, you need to reset them.
- Q: I uploaded an image file and encountered network transmission failure. How can I solve it? There are several situations that will cause this phenomenon
 1. The server disk space where the image file is stored is insufficient.
 2. Network problem, network disconnection, network card does not support sending large packets.
- Q: Why do some machines with the same configuration and same image package fail to enter the system after Windows scrolling?
There are generally two reasons for this phenomenon:
 1. There is an IP conflict with DHCP assigned IP in LAN.
 2. The write-back disk is full.
- Q: Client boot dhcp after appearing PRESS A KEY TO REBOOT ?
 1. No image file specified for booting or image package damaged.
 2. Unable to load the set boot ip after booting.
 3. Other DHCP interference, such as routers and switches.
 4. The motherboard's bios has a problem and needs to be upgraded.

Reference

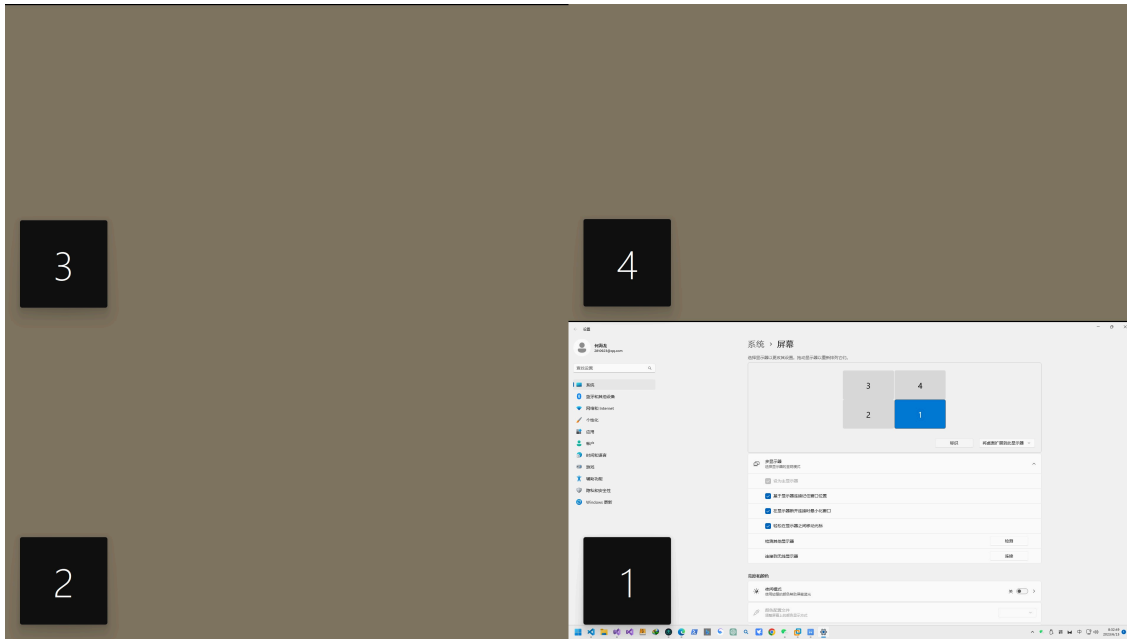
 Cloud Desktop  Less than 1 minute

- [Local VHD Image Update Guide](#)
- [Methods for upgrading clients](#)
- [How to make a Bios and UEFI dual boot system image](#)
- [Dell OptiPlex 7060 Workstation legacy PXE Network Boot Setting Method](#)
- [UEFI PXE Secure Boot](#)
- [Screen Resolution Settings Instructions](#)
- [Frequently Asked Questions](#)
- [Version History](#)

Screen Resolution Settings Instructions

 Cloud Desktop  Less than 1 minute  Reference  [Screen Resolution Settings Instructions](#)

Screen Example



Screen of four monitors

Settings Instructions

You can use the right-click pop-up menu in the icon at the bottom right corner of the client screen to directly save this complex setting to the server, and you will get the following setting. If you don't have this condition, you can also manually enter it on the server side.

1:1:1920*1080*32*59*0*0*0*100;2:2:1920*1080*32*60*-1920*0*0*100;3:2:1920*1080*32*60*0*-1084*0*100;4:2:1920*1080*32*60*-1920*-1080*0*100;

The following explains the meaning of this setting value

; Symbol separates the settings of four monitors

1:1:1920*1080*32*59*0*0*0*100;

2:2:1920*1080*32*60*-1920*0*0*100;

3:2:1920*1080*32*60*0*-1084*0*100;

4:2:1920*1080*32*60*-1920*-1080*0*100;

Each line has the same meaning, so we only explain the first line

1:1:1920*1080*32*59*0*0*0*100;

1 - Monitor serial number

1 - Monitor mode: DISPLAYMODE_NONE - 0 : None, DISPLAYMODE_PRIMARY - 1 : Primary monitor mode, DISPLAYMODE_EXT - 2 : Extended mode secondary monitor mode, DISPLAYMODE_COPY - 3 : Copy mode secondary monitor mode, DISPLAYMODE_DISABLE - 4 : Secondary monitor mode with only one monitor mode (disabled), DISPLAYMODE_NOMONITOR - 5 : No monitor plugged in mode.

1920*1080*32*59*0*0*0*100 represents the specific settings of this monitor screen:
Resolution width*Resolution height*Color depth*Refresh rate*Monitor upper left corner X coordinate*Monitor upper left corner Y coordinate*Rotation direction*Current zoom ratio

UEFI PXE Secure Boot

👤 Cloud Desktop ⌚ Less than 1 minute 📖 Reference 🔑 UEFI PXE Secure Boot

Settings in server

- Set pxe boot mode to SECUREBOOT SNPONLY or SECUREBOOT IPXE.

Computer

Personal disk

Profiles

Hardware

Base

Advance

Update option

Information

☐ DHCP when boot from local drive

DHCP IP

Auto

Server IP

.

.

.

IP Mask

.

.

.

Gateway IP

.

.

.

First DNS IP

.

.

.

Second DNS IP

.

.

.

Boot mode

Enable diskless boot

Write-back disk

Auto

Screen resolution

Default printer

None

PXE mode

SECUREBOOT SNPONLY

USB disk

Access allowed

Cache

0

MB

Default IME

None

File cache

0

GB

Windows key

确定

取消

UEFI SECURE BOOT snponly

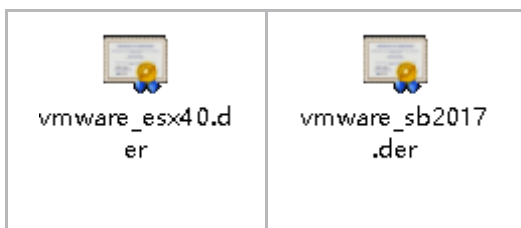
- If the above PXE boot options are not available, Please download the signed [snponly.efi](#) file and copy the snponly.efi file to the cloud desktop server installation directory, for example, C:\Program Files\iscsidiskServer\



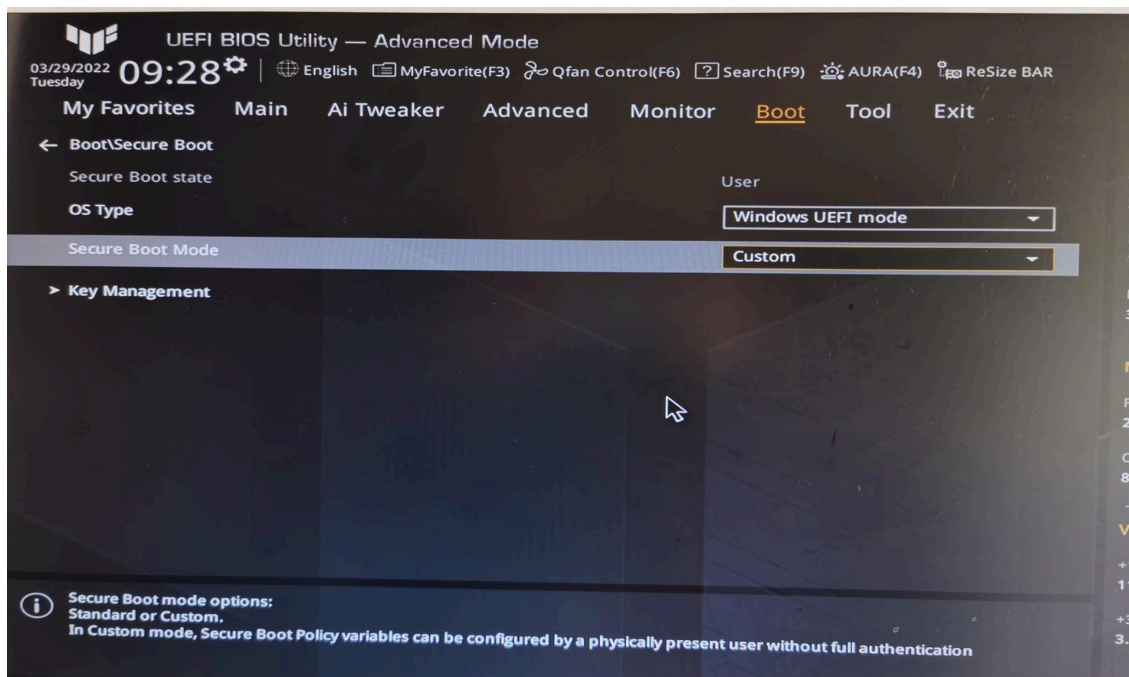
- Restart the iscsidisk service and edit the computer's pxe boot mode to uefi snponly.

Setting in client computer

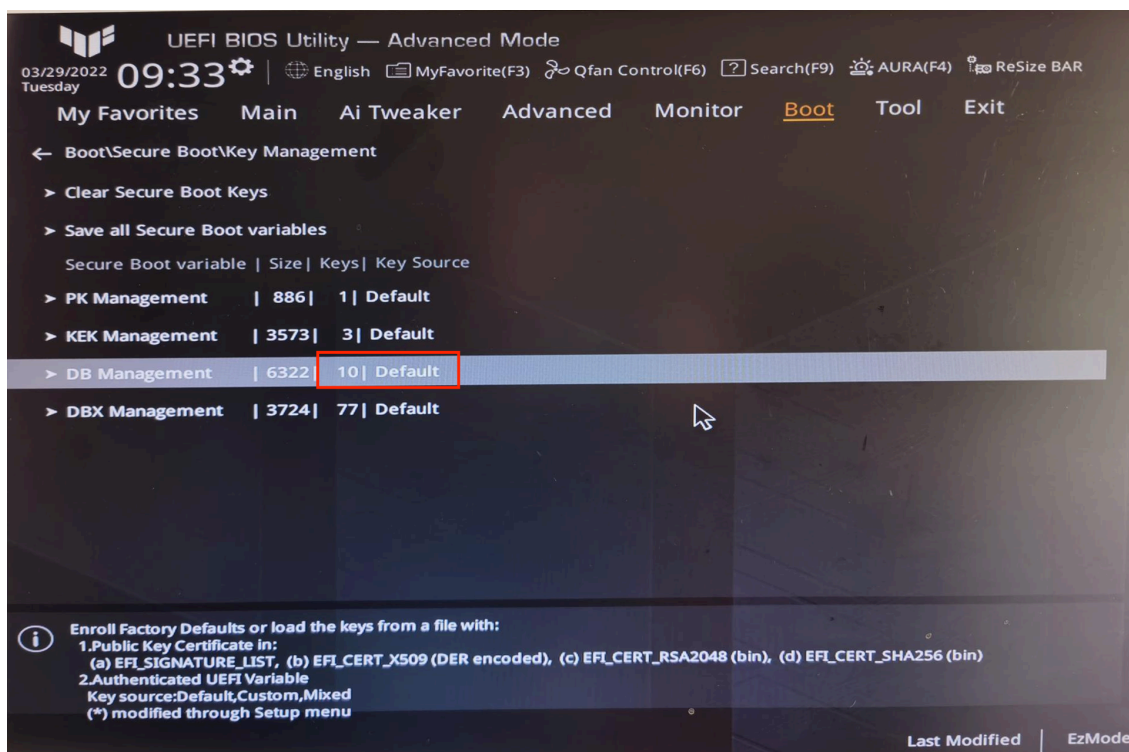
- If the server is already set to SECUREBOOT SNPONLY or SECUREBOOT IPXE boot mode, you can directly secure boot. No other settings are required.
- If the above server PXE boot options are not available, register the VMware certificate in UEFI firmware.
Download and copy [vmware_esx40.der](#) and [vmware_sb2017.der](#) to usb and reboot client computer into BIOS.



- Enable Secure Boot, select OS Type to "Windows UEFI mode"



- Enter Key Management, DB Management, to add your certificate "vmware_esx40.der", "vmware_sb2017.der".



DB Management

Save To File

Set New Key

Append Key

Delete key

Ok

Cancel

Management

ables

Append Key

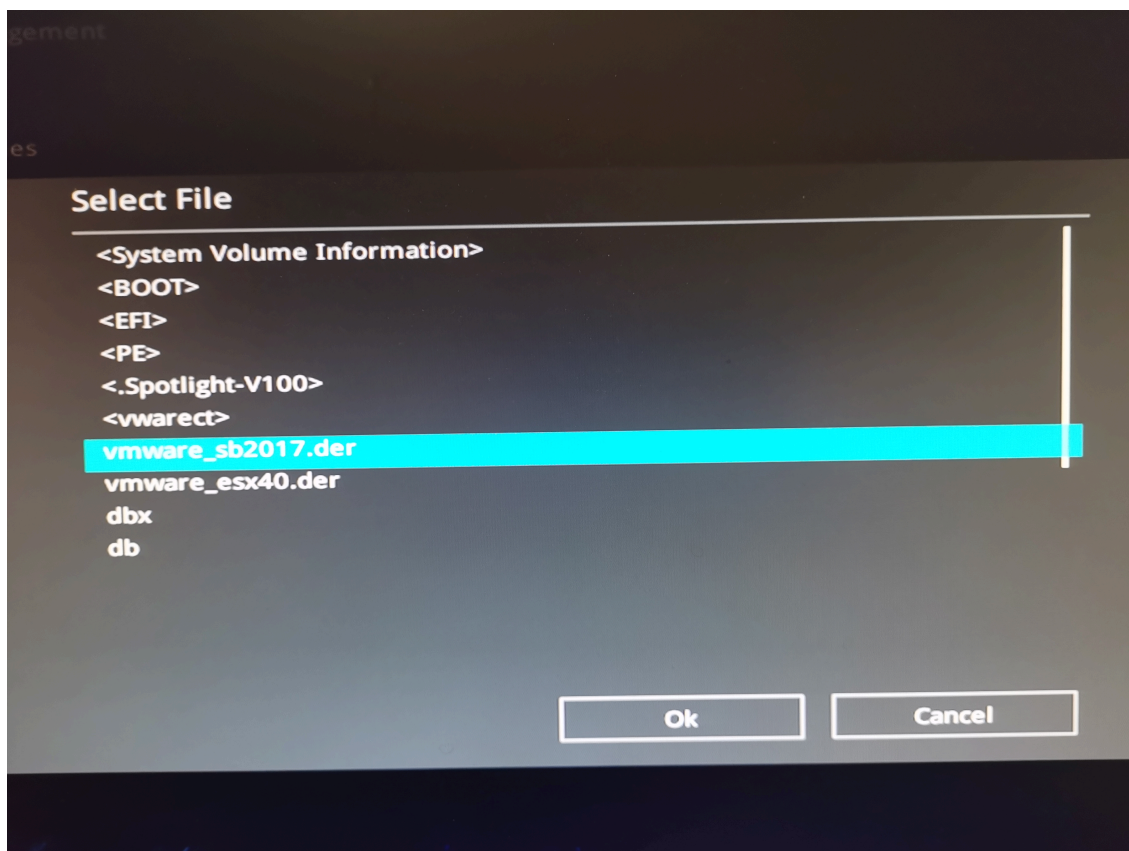
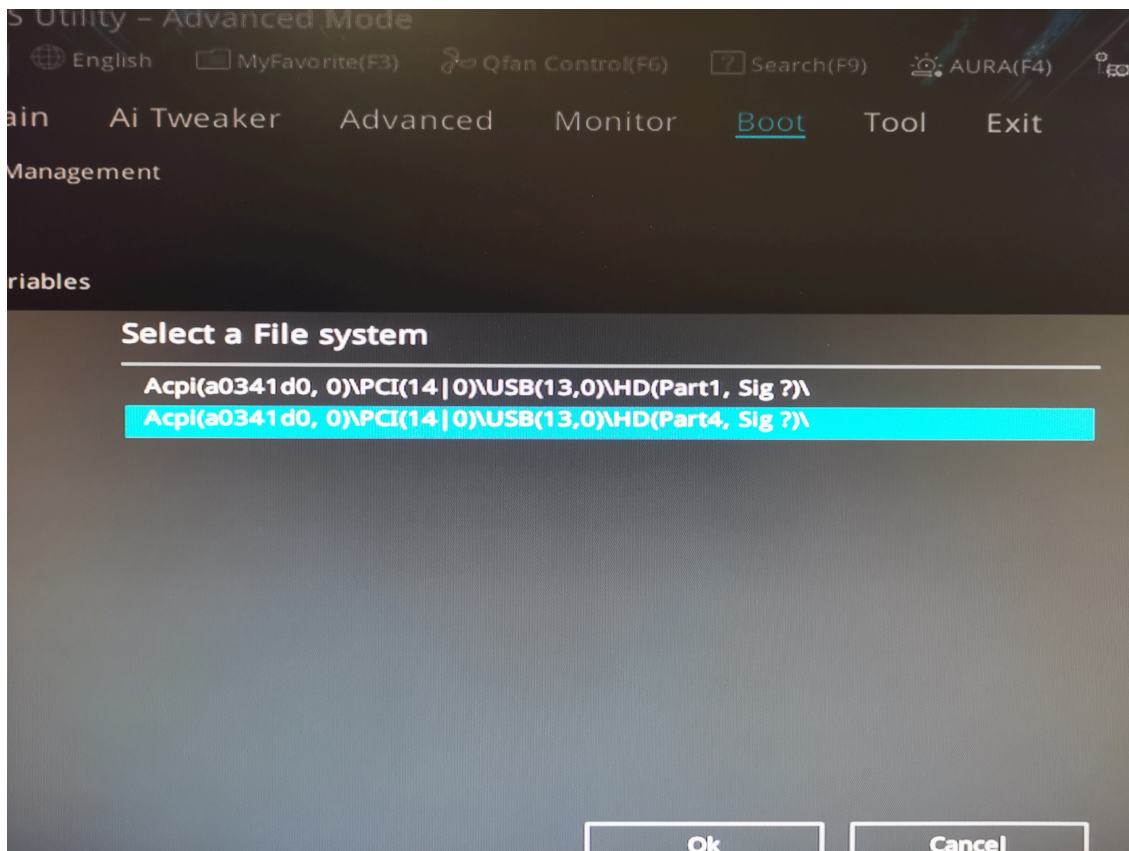
Press 'Yes' to load factory default 'db'
or 'No' to load it from a
file on external media

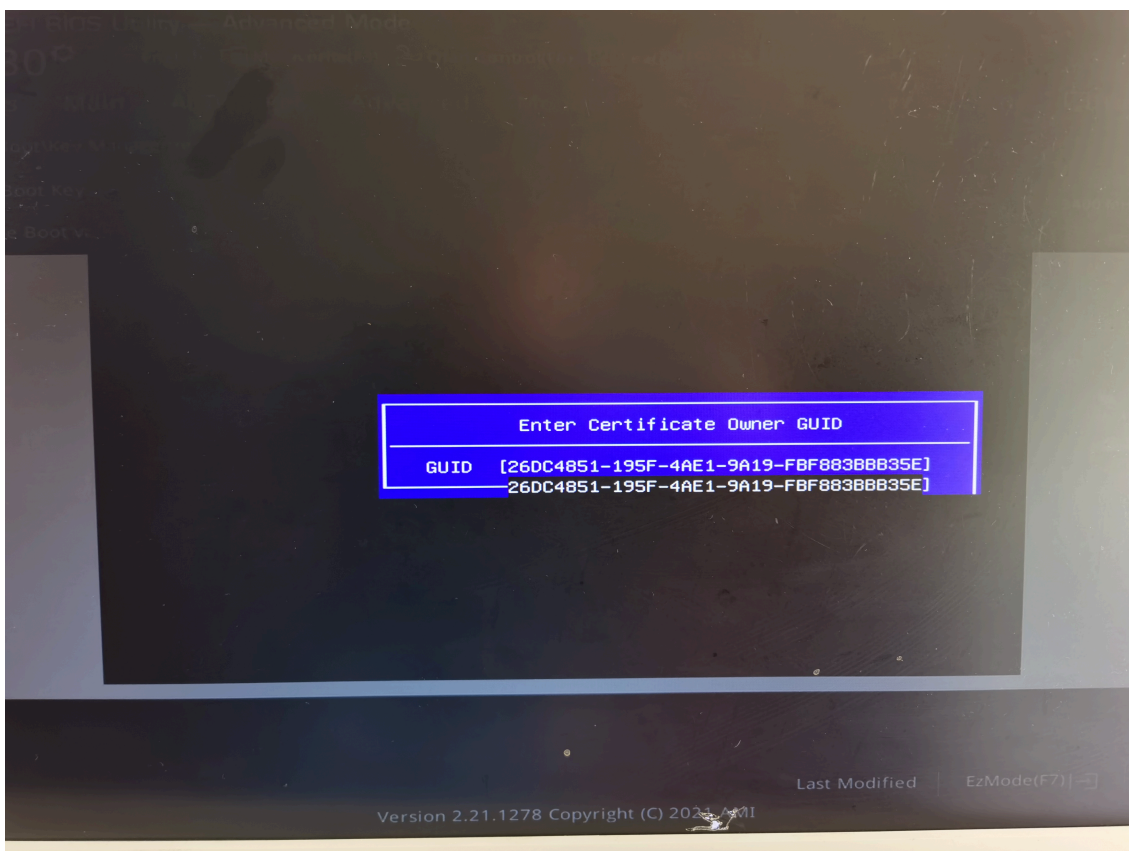
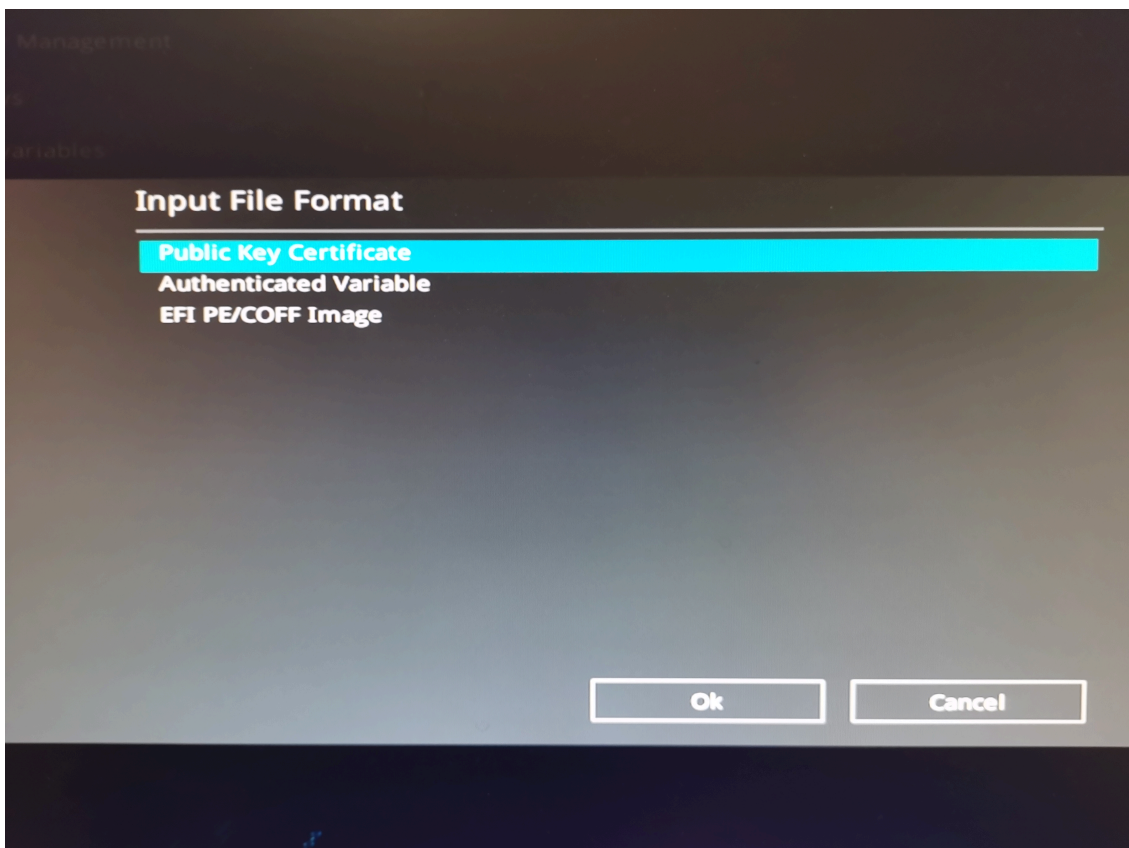
Yes

No

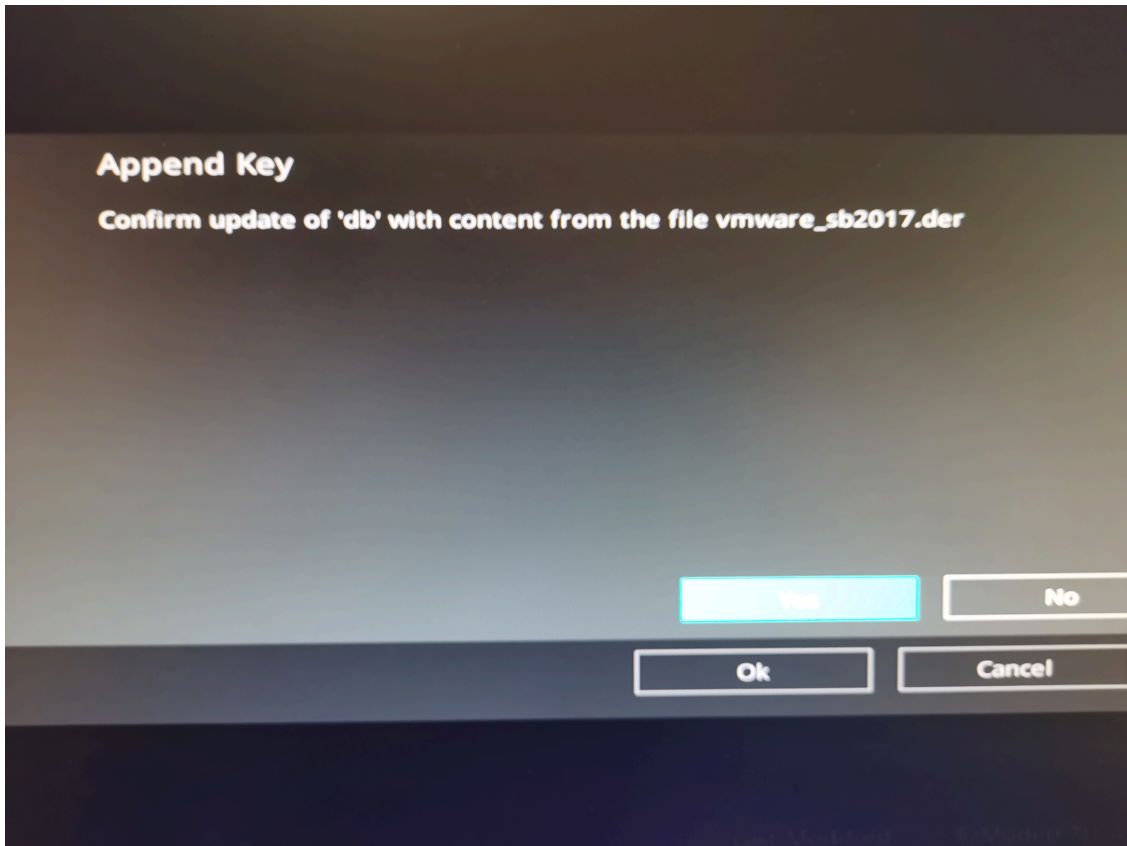
Ok

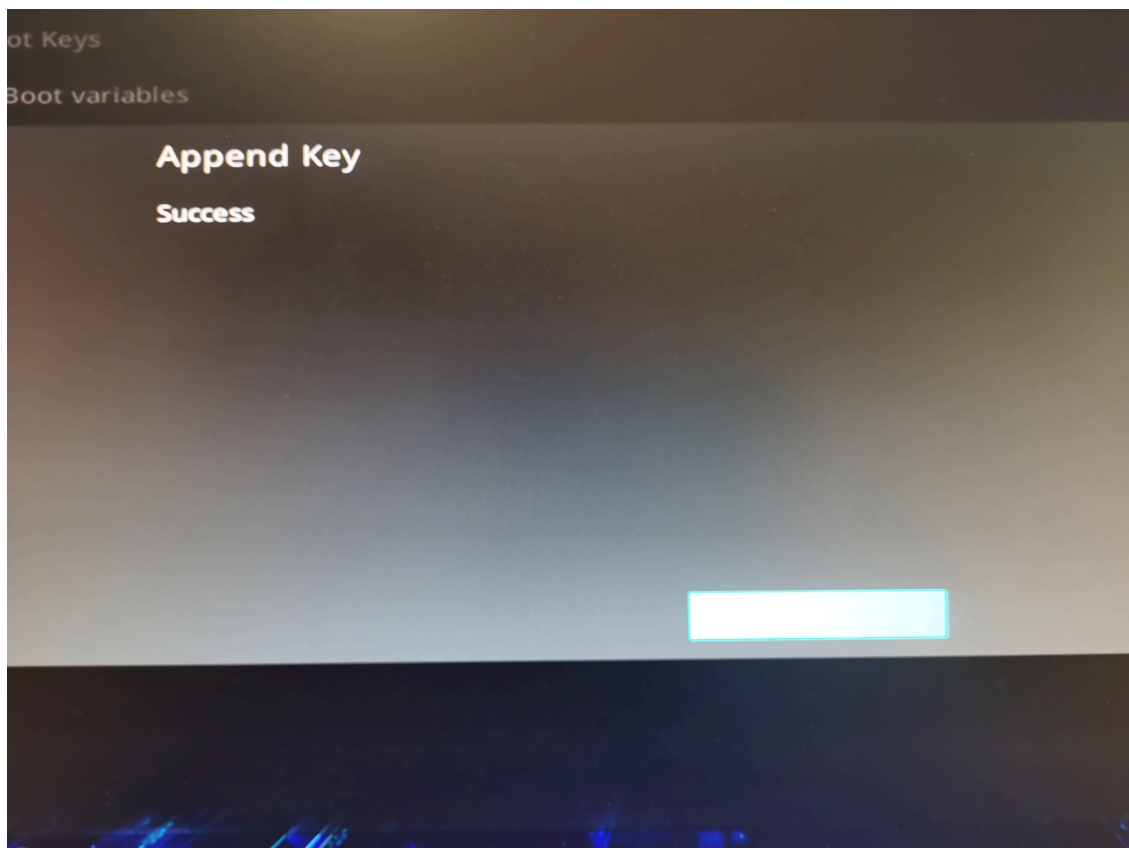
Cancel



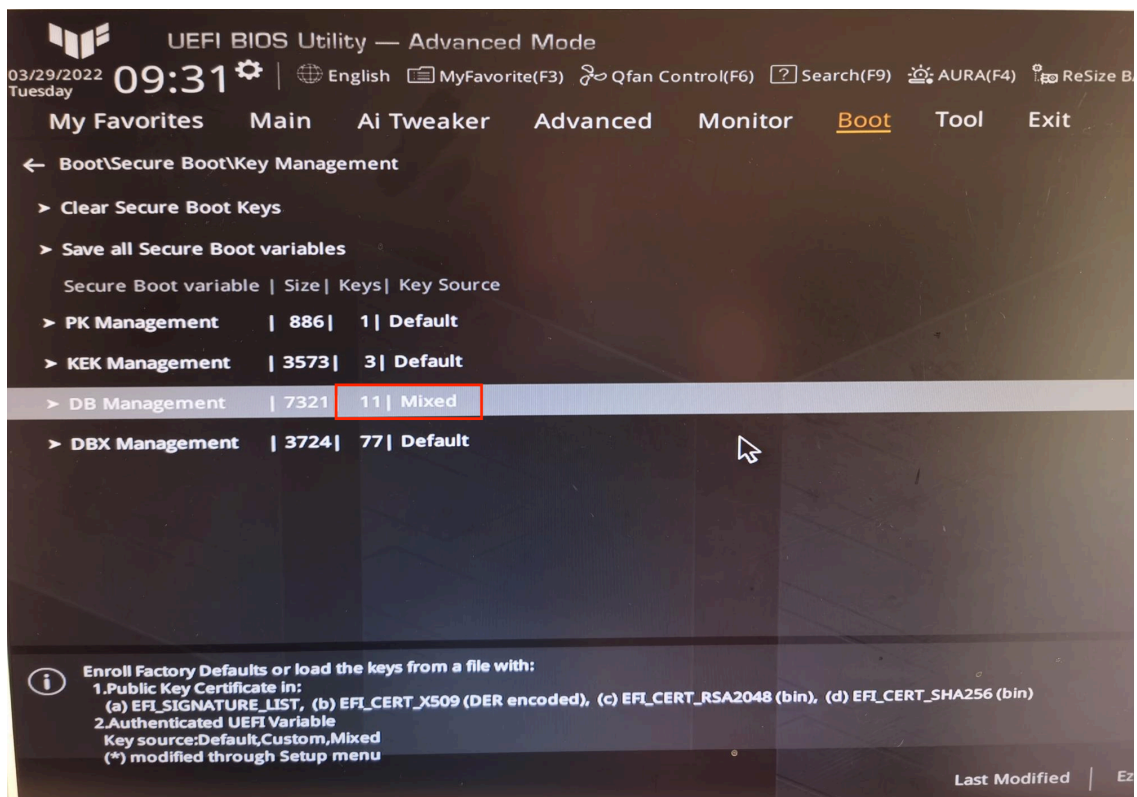


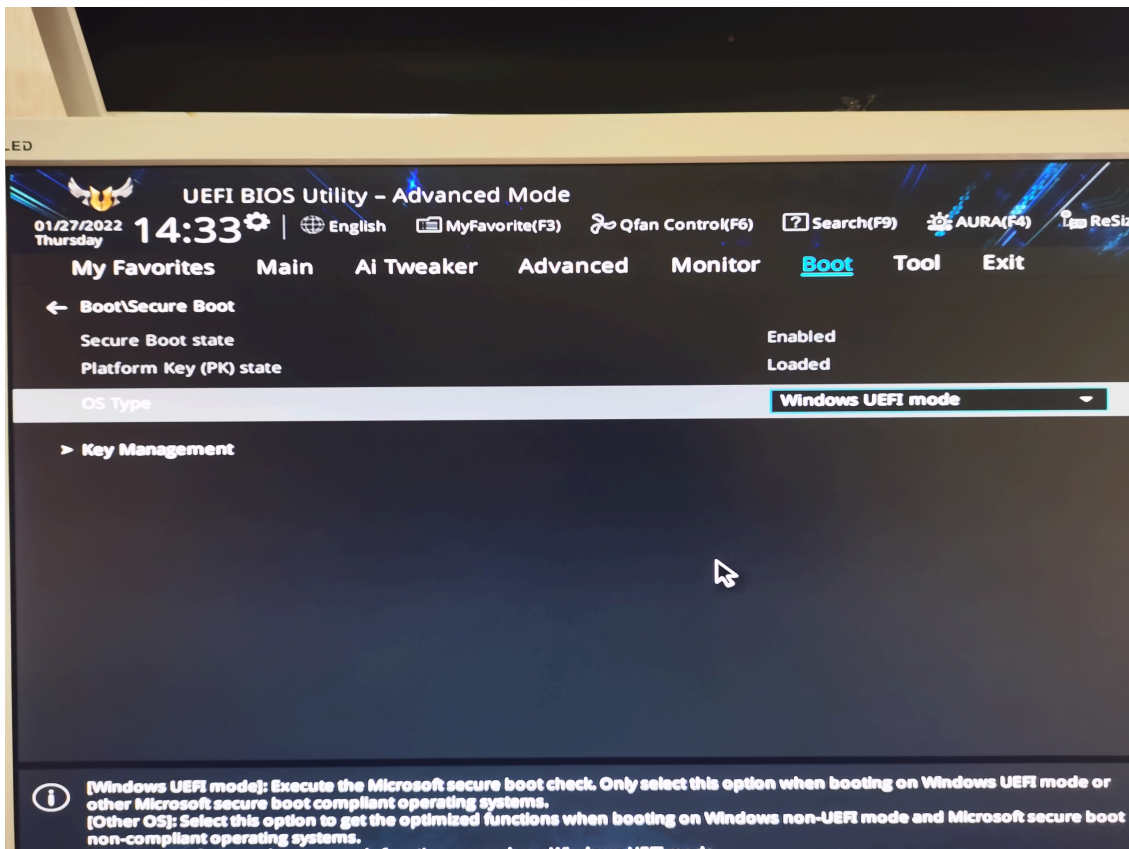
!Note: You may be asked for a SignatureOwner GUID when you enroll the VMware certificate. Secure Boot will function correctly no matter what GUID you use, but VMware suggests using the GUID a3d5e95b-0a8f-4753-8735-445afb708f62 in order to identify VMware as the owner of the certificate. (https://kb.vmware.com/s/article/2148532?lang=en_US)



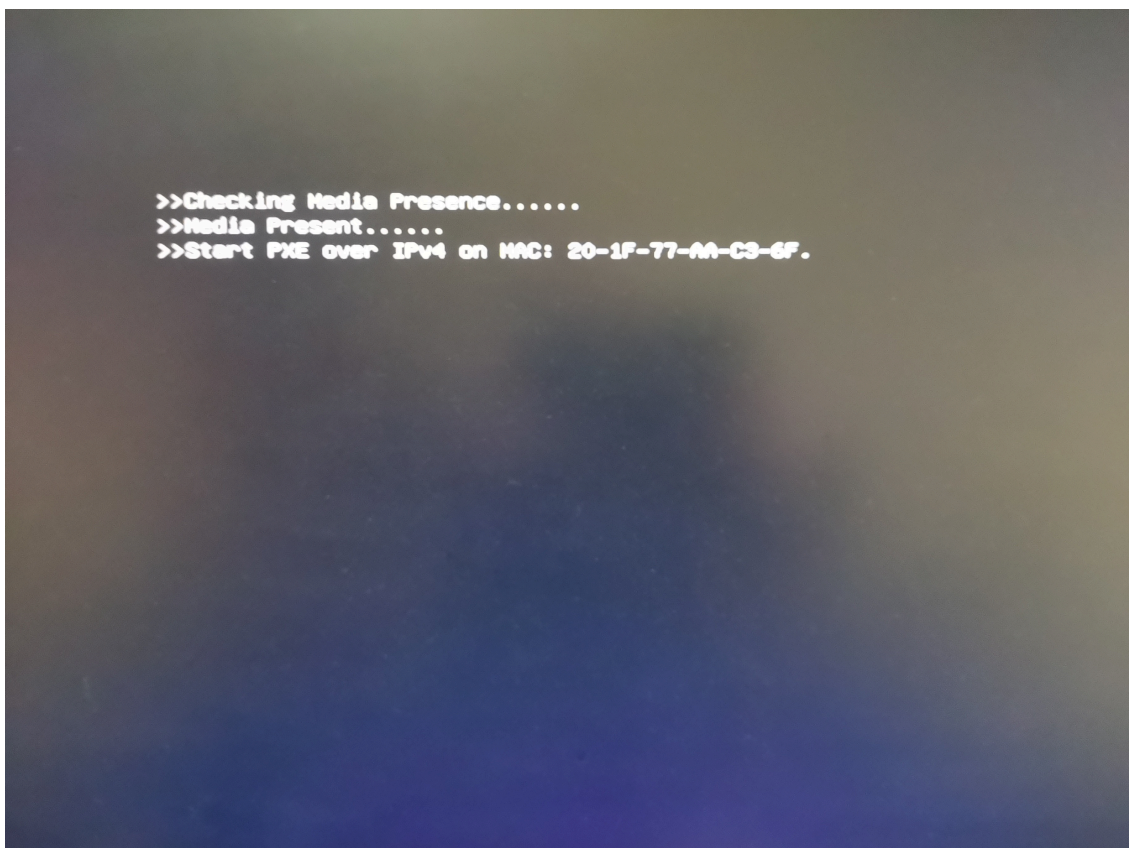


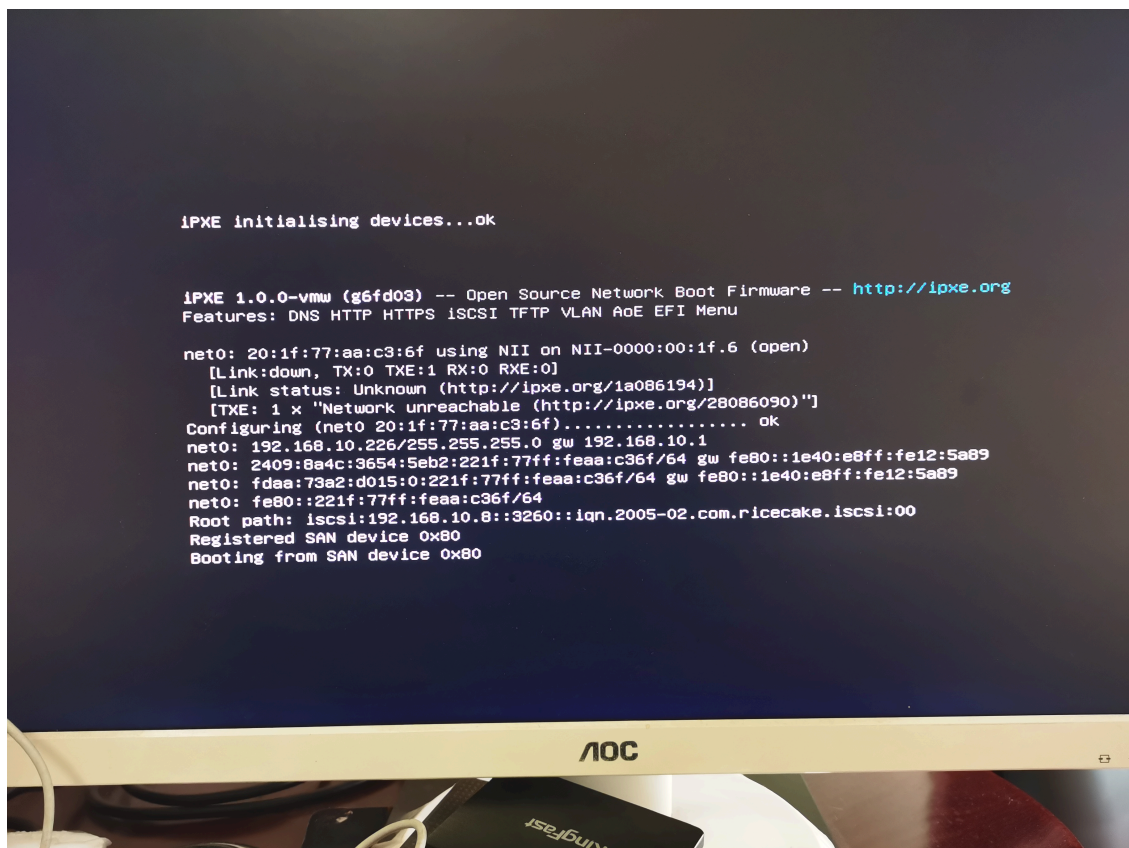
- Last save bios and confirm Secure boot state is enable.



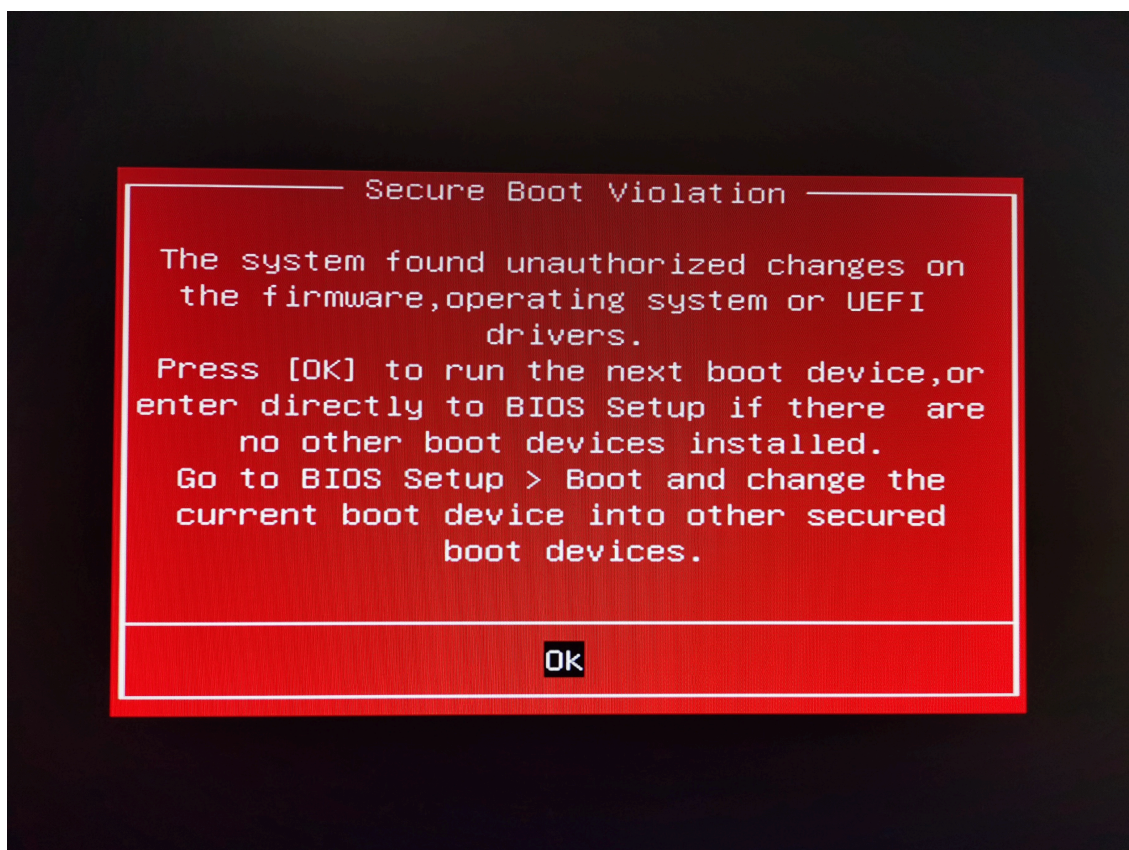


- Please use GPT system image to test uefi pxe secure boot





- If you see this warning, please check that the above steps are set up correctly.

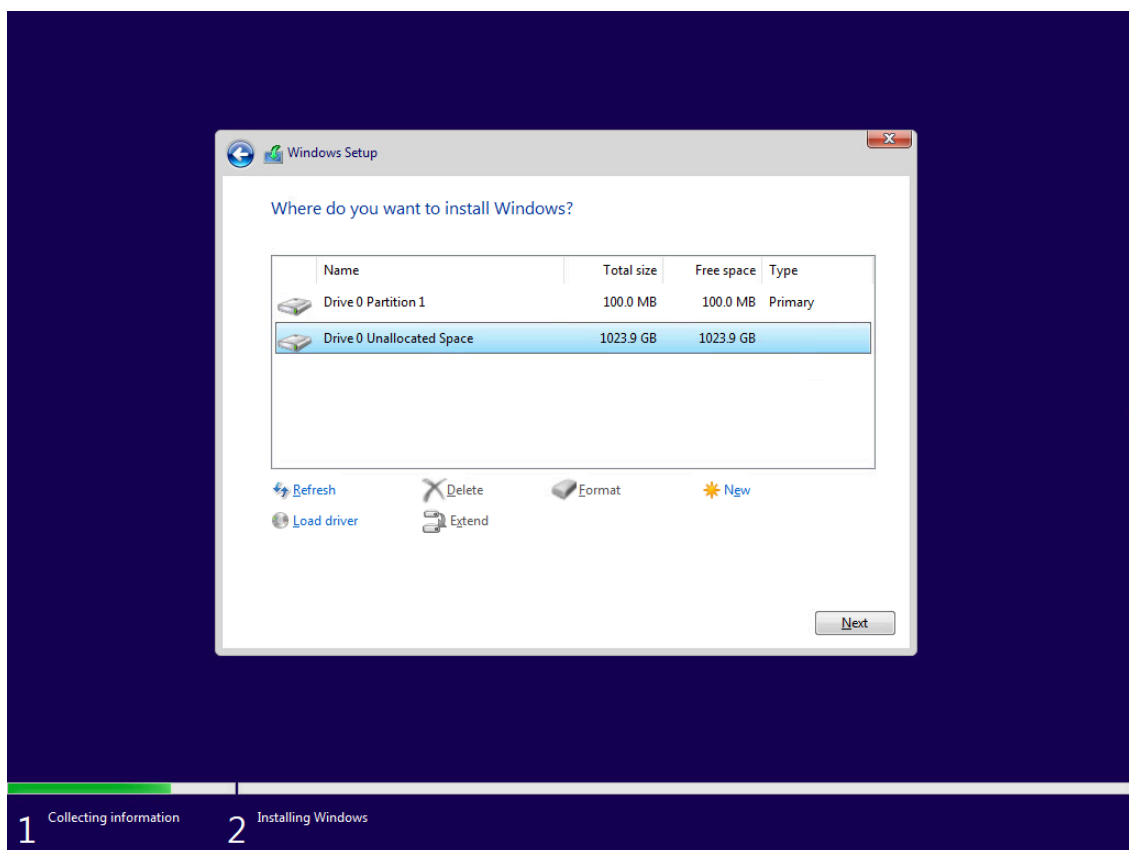


How to make a Bios and UEFI dual boot system image

👤 Cloud Desktop ⌚ Less than 1 minute 📖 Reference 💡 How to make a Bios and UEFI dual boot system image

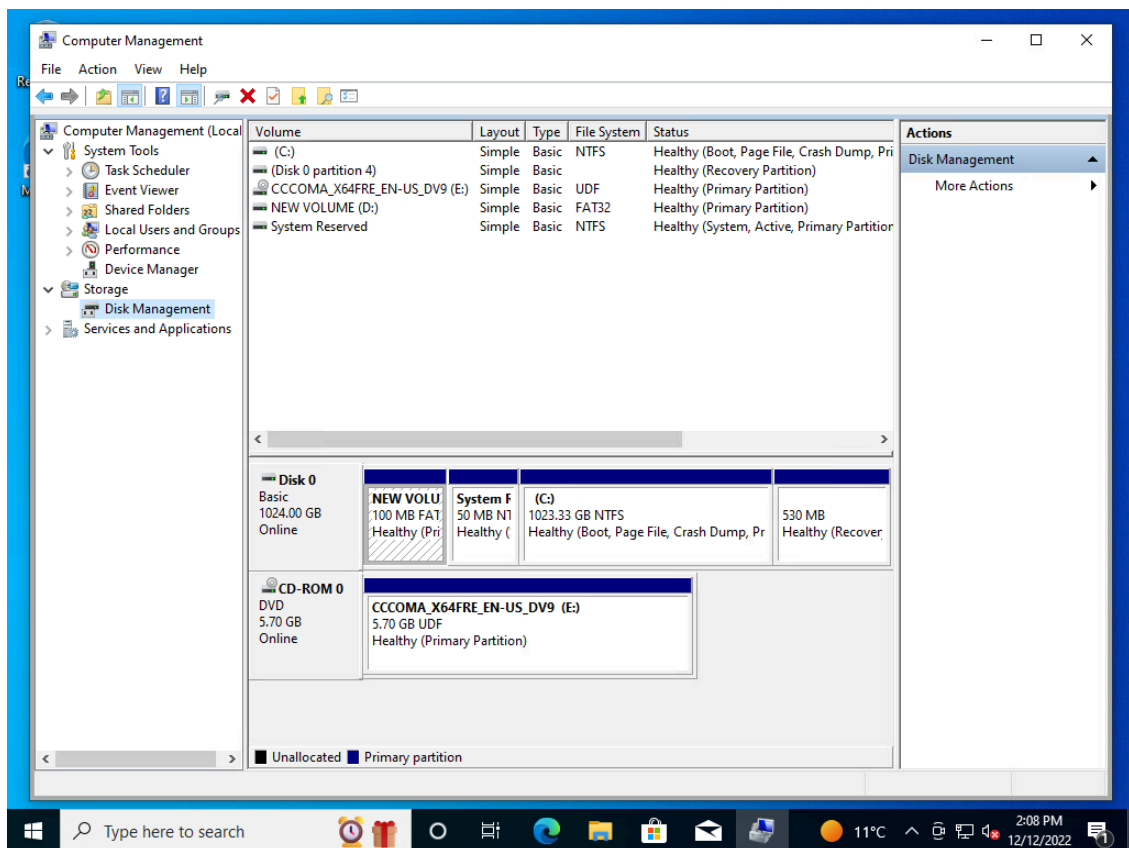
How to make

- Boot the computer using the traditional bios old-fashioned mode, and install the windows10 operating system
The partition type must be MBR, and the partition layout must have a FAT32 partition



Install windows10 operating system

- Format the first partition after installing the system as FAT32



Partition view after installing the operating system

- Boot the system using the Cloud Desktop VHD Offline Boot Client Initialization Tool, and execute the command
bcdboot E:\windows /s D: /f UEFI

```
Administrator: X:\windows\system32\cmd.exe
X:\windows\system32>diskpart
Microsoft DiskPart version 10.0.22000.1
Copyright (C) Microsoft Corporation.
On computer: MININT-SJNCS8B
DISKPART> list vol

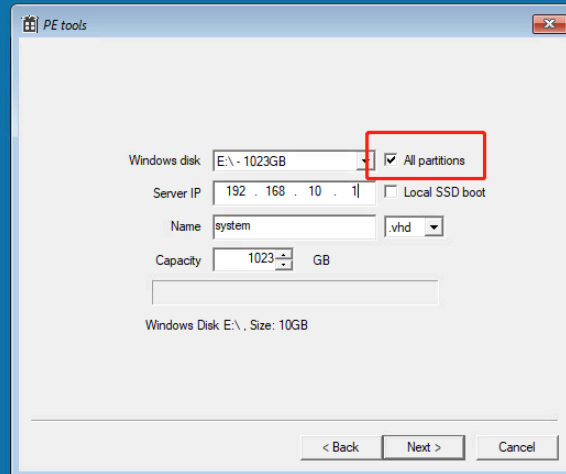
Volume ### Ltr Label      Fs      Type        Size     Status       Info
-----
Volume 0    G  DVD_ROM    UDF      DVD-ROM     438 MB    Healthy
Volume 1    D  NEW VOLUME FAT32     Partition  100 MB    Healthy
Volume 2    C  System Rese NTFS     Partition   50 MB    Healthy
Volume 3    E                        NTFS     Partition  1023 GB   Healthy
Volume 4    F                        NTFS     Partition   530 MB   Healthy      Hidden

DISKPART> exit
Leaving DiskPart...
X:\windows\system32>bcdboot E:\windows /s D: /f UEFI
Boot files successfully created.
X:\windows\system32>
```

bcdboot

Here is a detailed reference for the command <http://woshub.com/how-to-repair-deleted-efi-partition-in-windows-7/>

- Boot the computer using uefi mode to test.
- After passing the test, install the diskless client and upload. Please note that you must upload all partitions



The image shows a configuration window titled "PE tools" with a close button in the top right corner. The window contains several input fields and checkboxes. The "Windows disk" field is set to "E:\ - 1023GB". To its right, the checkbox "All partitions" is checked and highlighted with a red rectangle. Below this, the "Server IP" field is set to "192 . 168 . 10 . 1" and the "Local SSD boot" checkbox is unchecked. The "Name" field is set to "system" and the file type dropdown is set to ".vhd". The "Capacity" field is set to "1023" GB. At the bottom, there are three buttons: "< Back", "Next >", and "Cancel".

Windows disk: E:\ - 1023GB ☒ All partitions

Server IP: 192 . 168 . 10 . 1 ☐ Local SSD boot

Name: system .vhd

Capacity: 1023 GB

Windows Disk E:\, Size: 10GB

< Back Next > Cancel

Upload all partitions

Methods for upgrading clients

 Cloud Desktop  About 1 min  Reference  Methods for upgrading clients

Upgrade on the client

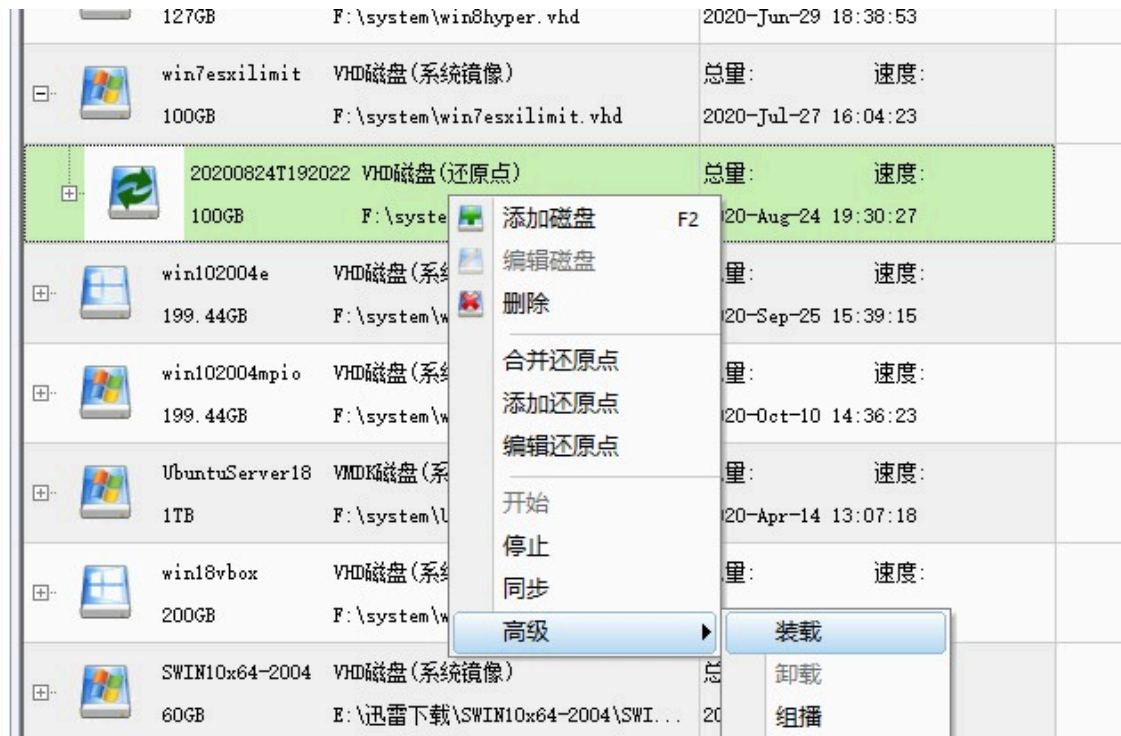
- After entering the super user, use the latest installation package installclient.exe to overwrite the installation. **Do not uninstall and then install without restarting.**
 - After the super user is updated, use a USB flash drive to copy the latest version of c:\program files\iscsidisk\iSCSIInstall.exe out.
 - For network pxe boot, just shut down the super user's machine, exit the super user on the server, and it will prompt to save the restore point.
 - For local vhd offline boot, exit the super user and enter the normal user, the old version of the client will prompt to upload, upload the restore point.
-

Note: If the old version of the client fails to upload, you can try to use the new version of the client to upload. The replacement method is as follows:

- After entering a terminal with administrator privileges, first use the command "taskkill /F /IM iSCSIInstall.exe" to kill all client processes.
 - Then replace it with the new version of the client that was copied out in the super user.
 - Start the client background service "sc start iSCSIBoot"
 - The client will prompt to upload again, and now you can use the latest version of the client to upload the restore point.
-

Upgrade on the server

- Select the image or restore point you want to update, right-click, and use the "Mount" command



Mount

- After a while, a disk will open. If not, go to disk management and find it, add a drive letter
- Open the new disk and find E:\program files\iscsidisk\ client installation directory
- Copy the new version of iSCSIInstall.exe to this directory and close the file explorer
- Then unmount the disk in disk management.
- When prompted to save, create a restore point, and then test the client machine. Confirm that there is no problem before merging.

Local VHD Image Update Guide

 Cloud Desktop  About 3 min  Reference  [Local VHD Image Update Guide](#)

This document introduces how to use the commands on the server to update the local VHD images on the client, as well as the status and options during the update process.

Image Update Overview

Image and Restore Point Update Method

The local VHD image is a virtual hard disk file used for offline booting, which contains data such as the operating system and applications. The restore point is a version of the image file, which can be used to restore or roll back to a certain point in time.

The image and restore point are updated in a block-by-block manner, only updating the changed blocks, which can save time and bandwidth. When updating, a temporary file is created first, copying the same blocks from the local and downloading the different blocks from the server or update source. After the update is completed, the temporary file is renamed to the new version of the file.

Image Update Steps and Status

The new version of the file needs to be installed to the boot loader to start. After installation, you need to restart the computer to take effect.

The image update is divided into three steps:

- Step 1: Create a temporary file, copy and download blocks.
- Step 2: Rename the temporary file and install it to the boot loader.
- Step 3: Restart the computer and complete the update.

The image update has four statuses:

- Unfinished update: Step 1 has not started or has not been completed.
- Waiting for installation: Step 1 is completed, waiting for installation or executing step 2.
- Waiting for restart: Step 2 is completed, waiting for restart or executing step 3.
- Completed update: Step 3 is completed, update is completed, status after restart.

Image Update Commands

The image update commands are divided into two categories:

- **Manual update commands:** One-time commands executed on the server to update the image on the client. The client can also save them when offline, and execute them when online.
- **Automatic update commands:** Setting commands executed on the server to update the image on the client. The client will automatically execute them as long as it meets the update conditions.

Manual Update Commands

There are several manual update commands:

- **Manual update:** Manually execute the next step.
- **Manual update and install:** Manually execute the next step until installation is complete.
- **Manual update and restart:** Manually execute the next step until restart.
- **Manual update and delay restart:** Manually execute the next step until delay restart.

Automatic Update Commands

There are several automatic update commands:

- **Automatic update:** Automatically execute the next step when meeting the update conditions.
- **Automatic update and install:** Automatically execute the next step until installation is complete when meeting the update conditions.
- **Automatic update and restart:** Automatically execute the next step until restart when meeting the update conditions.
- **Automatic update and delay restart:** Automatically execute the next step until delay restart when meeting the update conditions.
- **Forced update:** When meeting the update conditions, lock the screen and perform an update at startup, not allowing users to cancel.
- **Automatic startup and perform an update:** When meeting the update conditions, automatically wake up the computer in shutdown state, lock the screen and perform an update, not allowing users to cancel.

Delay Restart Option

The delay restart option means that after the update is completed, it will restart after a period of time. This allows the client to restart when it is not busy, avoiding affecting user usage.

The delay restart option has two parameters: effective time and idle time. Within the effective time range, if there is no user operation reaching idle time, it will restart.

P2P Update

P2P update is a technology that uses the network connection between clients in a local area network to share and transfer image and restore point files, thereby reducing the traffic demand on the server.

P2P update supports four modes, which can be selected according to different scenarios and needs:

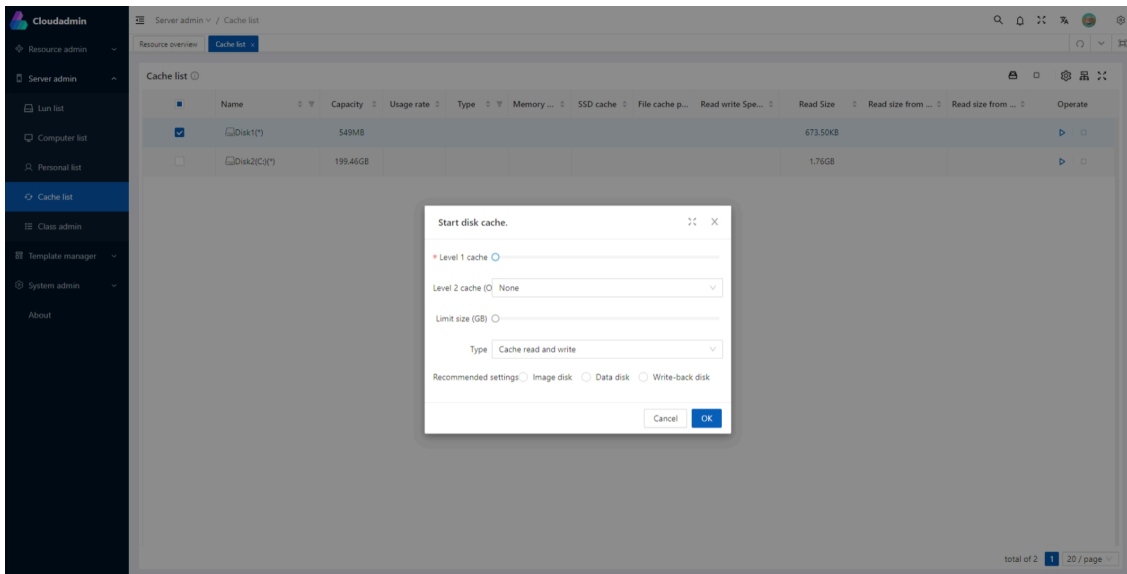
- Update only from server: The client only obtains image and restore point files from the server, and does not use the P2P network.
- Update only from update source: The client only obtains image and restore point files from the specified update source, and does not use the server or other clients.
- Update automatically from server and update source: The client prefers to obtain image and restore point files from the specified update source, and if the update source is unavailable or slow, it obtains them from the server.
- Update automatically from all clients: The client prefers to obtain image and restore point files from other clients in the local area network, and if there are no available clients or they are slow, it obtains them from the server.
- Update automatically from all clients and server: The client obtains image and restore point files from both other clients in the local area network and the server, and automatically adjusts the download speed according to the network condition.

The P2P update source list refers to the specified update source IP addresses that the client looks for when updating in the local area network. The update source list is configured by the user, and can be other clients or dedicated servers.

Cache Management

Cloud Desktop ⌚ Less than 1 minute 🖥️ Web UI 📁 Cache Management

Cache Settings



Cache Settings

Disk cache supports two-level cache. The first-level cache uses memory as cache, and the second-level cache uses local SSD disk as cache.

The first-level cache is mandatory. Please set the memory size to use.

The second-level cache is optional. Please set the SSD disk location and limit size to store the cache files.

The cache methods are cache read (cache the data read from the disk) and cache write (cache the data written to the disk, and delay writing to the disk).

Note: Caching writes to the system disk (C drive) will cause data loss and system damage when shutting down. Please set it carefully.

Recommended settings:

Image Disk: The disk that stores the system image files. It is recommended to only cache reads, and allocate at least 512MB of memory cache for each image.

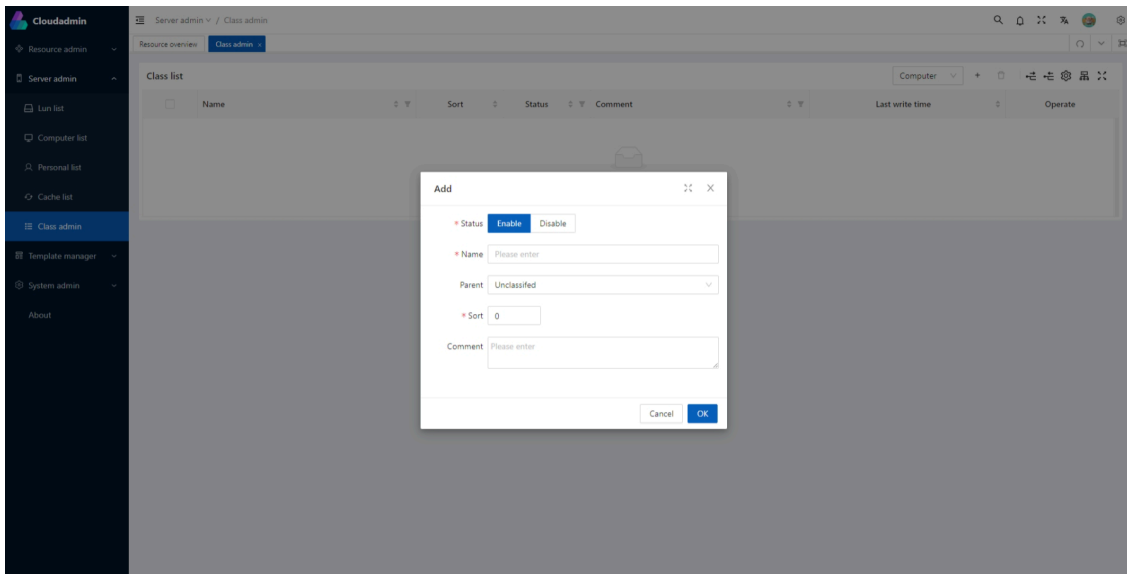
Data Disk: The disk that stores a large amount of data. It is recommended to only cache reads, and allocate the maximum amount of memory cache and second-level cache.

Write-back Disk: The disk where the write-back data is stored. It is recommended to only cache writes, and allocate a small amount of memory cache.

Category Management

 Cloud Desktop  Less than 1 minute  Web UI  Category Management

Category List



Category List

The list shows the name, order, status, and note of the category. You can switch the category of computer, image, and user in the upper right corner of the header.

Add/Edit Category

Status: You can enable or disable it

Name: The displayed name

Parent: The parent category of this category

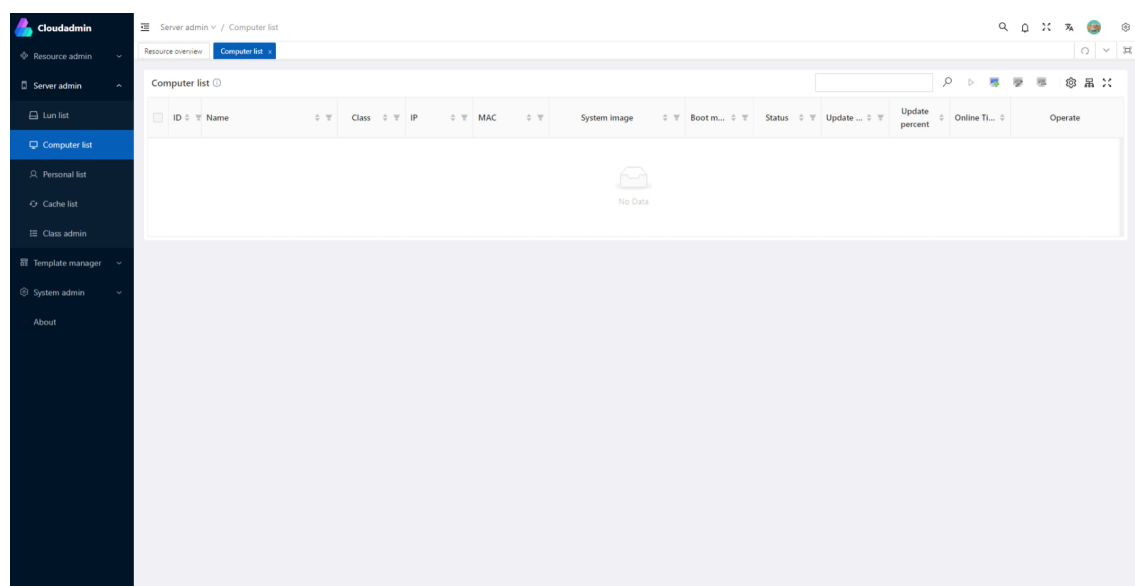
Order: The display order in the category tree

Note: Additional explanation or annotation

Computer Management

Cloud Desktop About 5 min Web UI Computer Management

Computer List



Computer List

The computer list is a display of all the managed computers, showing their names, IP and MAC addresses, and other attributes. You can customize the order, visibility, and width of the columns. You can also define the order of the rows, the sorting category, and other ways to display them.

Add/Edit Computer

Cloudadmin

Server admin / Computer list / idvserverscomputedit

Resource overview Computer list AddComputer x

← Edit Save

Base

Name NewPC859 Comment Please enter

IP 192.168.0.1 MAC Please enter

Class Unclassified Keep mode (diskless boot) Keep mode (local boot)

System disk None x Data disk All x

Advance

Local boot enable DHCP Diskless boot DHCP serv Please enter

Subnet mask Please enter Gateway Please enter

First DNS Please enter Second DNS Please enter

Boot mode Please choose PXE mode Legacy

Write-back disk Please choose Windows key Please enter

Update options

Update mode Please choose Waiting idle time (minutes) Effective time 10:55:29 - 11:55:29

P2p mode Please choose Update source IP list Please input update source (client computer) IP per line

Setting

Screen resolution Please enter USB disk Please choose

Default printer Please choose Default IME Please choose

Memory cache (MB) Please enter Disk cache (GB) Please enter

Watermark

Enable Font Size Color

Transparency Position Content

Personal disk

Source None File Shared folder iSCSI cloud disk

Profiles

Save users profiles to pc Save in super user too Disable save default folders (C:\Users, C:\Program)

Redirect directory to per Please input (original path) = (new name, can be omitted) per line Redirect file to personal Please input (original path) = (new name, can be omitted) per line

Save

Computer Properties

Basic

Name: The custom name of the client computer.

Note: Note information

IP: The IP address of the computer.

Physical Address: The MAC address of the computer's network card.

Category: The category of the client machine, which makes it easy to manage and set in batches.

System Disk: Set the boot image for the current client. When multiple system images are selected, a system boot selection menu will be displayed.

Data Disk: You can optionally mount the server disk partitions you need. When you select all, all the added disks will be automatically mounted.

Preservation Mode (Network Boot) / Preservation Mode (Local Boot): When this option is selected, the client machine will not restore the system image every time it restarts. The personal data of the operating system is preserved.

Advanced

Enable DHCP for local boot: Whether to enable DHCP automatic IP allocation function for network card when booting locally offline VHD.

Network Boot DHCP Server: When booting PXE over network, specify the server network card IP that assigns IP to client machine. The default 0.0.0.0 is to automatically select.

Subnet Mask, Gateway, Preferred DNS, Alternate DNS: The network settings of the client machine. If not set, the global settings will be used.

Boot Mode: Allow network boot, prohibit network boot, must log in before booting, boot from local disk, boot menu, log in after local boot

Network Boot Mode: Legacy, Compatible, Windows10, UEFI, Legacy(VLAN),

Compatible(VLAN), Windows10(VLAN), UEFI(VLAN), UEFI SNPONLY, UEFI IPXE, UEFI SHELL

Write-back Disk: Customize the server write-back disk settings for this computer when booting over network

Windows Key: After setting the Windows key, the client machine will automatically enter the key to register the operating system after booting.

Update Options

Update Mode: Manual Update, Manual Update and Install, Manual Update and Restart, Manual Update and Delayed Restart, Automatic Update, Automatic Update and Install, Automatic Update and Restart, Automatic Update and Delayed Restart, Forced Update, Automatic Update after Booting

P2P Mode: Only update from server, only update from other update sources, automatically update from server and update sources, automatically update from all client machines, automatically update from server and all client machines

Update Source IP List: Set the client machine IP that acts as an update source. One IP per line. Multiple lines indicate multiple update sources.

Configuration

Screen Resolution: The custom screen resolution that is automatically modified after the client machine boots up.

USB Drive: You can disable read/write access to USB drives or read-only access.

Default Printer: You can set which printer is default.

Default Input Method: You can set default input method

Memory Cache / Disk Cache: Set the cache size of all disks on the client machine. You must first install disk cache component on client machine. Memory cache uses client machine's memory as write cache. File cache uses local SSD installed on client machine as secondary cache.

Watermark

Screen watermark is a digital watermark technology that displays an image or text on the screen to identify and track screen content. It can prevent unauthorized screenshots and screen recordings and effectively prevent sensitive information leakage.

There are many ways to set up screen watermarks. Users can customize watermark text content, font size color position transparency etc.

Personal Disk

Personal disk is a fixed disk used to store personal data of client machines. It can have multiple sources. Server files server shared directories and third-party iscsi cloud disks.

Personal Profile

Windows personal profile refers to some files and folders stored on computer that record user's personal settings preferences documents etc. Windows personal profile mainly includes two parts:

- Registry configuration unit. This is a file named NTuser.dat which saves user's registry-based preferences and configurations. Registry configuration unit is loaded by system when user logs in and mapped to HKEY_CURRENT_USER registry entry.
- A set of configuration file folders in file system. These folders are stored in profile directory according to user. These folders contain subfolders and data used by


applications and other system components such as documents desktop start menu etc.

The main working principle is to transfer specified files or directories to hidden directory on local disk. This can effectively separate personal data from system image and realize multiple users using same image. It can let each user have their own independent working environment and also facilitate backup and recovery of user data.

Application Layering/Super Reserve Mode

Application layering/super retention mode: During local VHD boot, supports automatic monitoring of system disk changes, automatically transferring newly added file data and registry entries to the personal configuration partition on the local disk, and preserving users' personal files and registry configurations during image update processes.

- **Enable Application Layering/Super Reserve Mode:** Allows the client to use the application layering/super reserve mode feature. This feature automatically monitors changes to the client's system disk (C drive) and saves the changed files and registry to a local disk or personal disk, ensuring they are not lost after a restart.
- **Enable under Superuser:** Allows the application layering/super reserve mode feature to be enabled even under superuser mode.
- **Disable Registry Layering:** Disables the registry layering feature, enabling only file layering.
- **Storage Drive Letter on Client:** Sets the drive letter on the client where the files and registry changes are saved by the application layering/super reserve mode feature.
- **Custom Save Type:** File/Folder Blacklist, File/Folder Whitelist, Registry Blacklist, Registry Whitelist. Blacklist has a higher priority than whitelist.
- **Application Layering/Super Reserve Mode List:** Configure files and folders to be saved using the add, edit, and delete context menu options.

 **Tip:** The following content provides information on the limitations of application layering. Please avoid related scenarios.

Tips

Limitation Information

The application layering module is implemented as a low-level driver residing in the **Windows system**. To ensure that files or registry information in each layer are visible to the operating system, the driver must ensure that the applications in each layer start after the application layering driver has started. Otherwise, the operating system will not find the files in these layers, causing related applications to fail to start. Based on this reason, application layering has certain limitations and does not support or conditionally supports some application scenarios. Specific limitations include the following:

1. Non-USB Device Drivers

Since the application layering driver belongs to the file system filter driver category, its initialization sequence during the operating system startup occurs after system hardware device initialization. Therefore, **non-USB device drivers** (e.g., virtual disk or virtual graphics card drivers) installed by users on their desktops will not function after a restart because the application layering driver has not started when the device driver initializes, making it unable to locate the driver-related files or registry information in the application layering disk.

2. Antivirus Software

Antivirus software typically involves many low-level drivers, some of which **start earlier than the application layering file system filter driver**. Upon system restart, the antivirus software cannot read the program-related files in the application layering disk, resulting in errors or non-functional antivirus software.

3. Services with boot Startup Type

Windows services have the following startup types: `boot` , `system` , `auto` , `demand` , `disabled` . These are initialized in sequence from `boot` to `disabled` . Since **the application layering driver's service startup type is `system` , which is later than `boot` ,** application layering does not support services with the `boot` startup type. Programs using `boot` type services are typically non-USB device drivers or antivirus software.

4. System Security Patches

When upgrading Windows system security patches involving kernel updates, the kernel files are written to the personalized disk of the application layering. For such kernel patches, **the application layering driver has not started during system boot**, causing the upgrade

program to fail to locate the boot files in the application layering disk after a restart, resulting in an invalid or failed upgrade.

Workarounds

For the above scenarios, the workaround is: **Such applications or Windows patch upgrades should not be performed by users on their desktops. Instead, administrators can pre-install them while editing the image and then distribute it to users.**

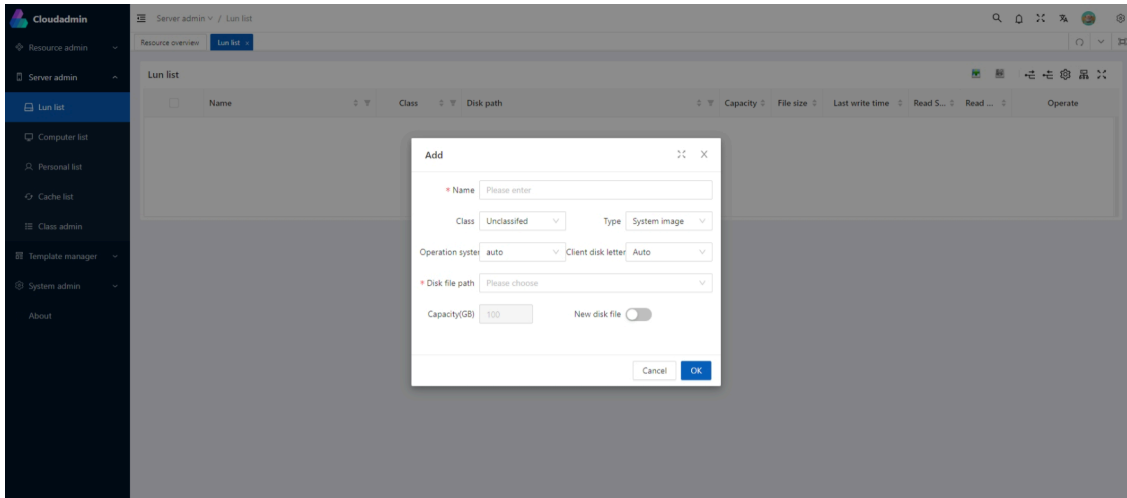
Supported System Versions

The application layering driver is developed based on the `minifilter` framework. Since **versions prior to Windows 7 SP1 do not support some features of the `minifilter` framework**, application layering technology is only supported on **Windows 7 SP1 and later versions**, including Windows 10.

Image Management

 Cloud Desktop  Less than 1 minute  Web UI  Image Management

Image List



Add Image

Images can be uploaded through the client or added directly on the server side. After copying the image file to the server disk, use the add image command in the image management interface to add it.

Name: The name of the image

Category: The custom disk category

Type: Includes data disk and system image

Operating System: The operating system version number installed in the image

Client Drive Letter: The drive letter that the disk shows on the client

Disk File Path: The system image file storage path on the server

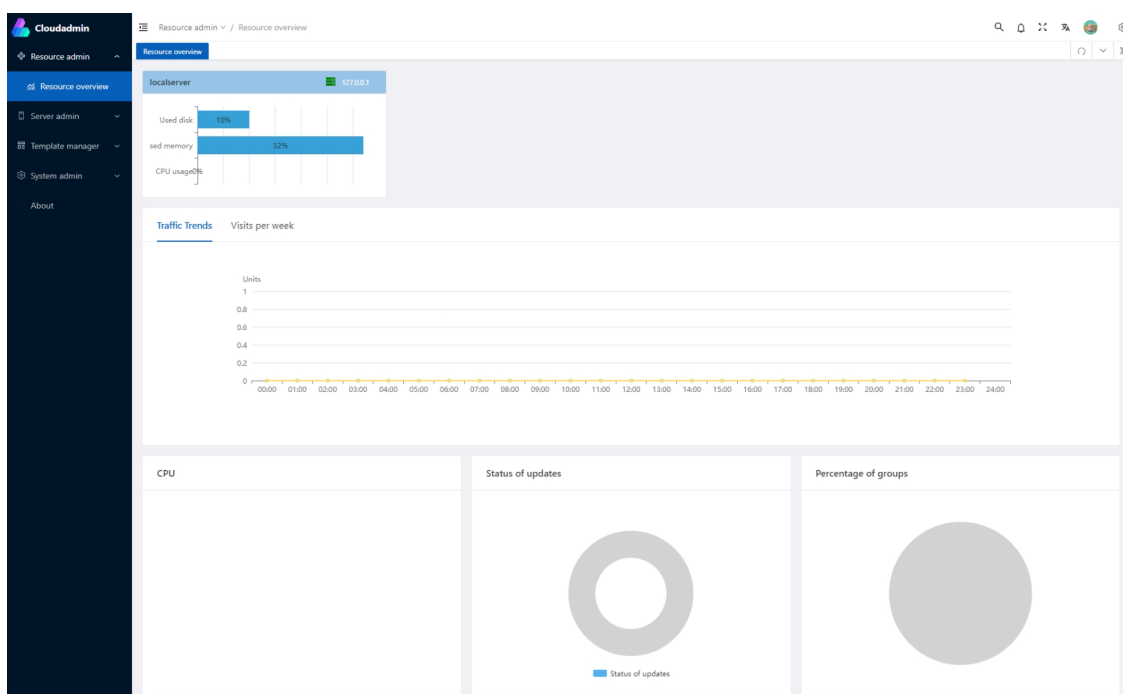
Capacity: Set the capacity of the new disk file.

New Disk File: Create a new image disk file

Main Interface

 Cloud Desktop  Less than 1 minute  Web UI  Main Interface

Overall Presentation



Main Interface

The web interface login portal is <http://localhost:9000> or <https://localhost:9443>

The default password is 123456

The left side is the function navigation, which includes Resource Management, Server Management, Template Management, System Management and About.

Resource Management

Resource Management contains chart information on the hardware status monitoring of the current server, the historical traffic of the client machines, the hardware condition of the client machines and the image update status.

Server Management

Server Management contains Image Management, Client Machine List, Roaming User List, Server Disk Cache List and Category Management.

Template Management

Template Management is the management of templates. Templates are collections of functions that can be applied to computers in batches. They include Image Template, Network Template, Advanced Template, Display Template, Watermark Template, Update Template, Personal Configuration Template, Power On/Off Template, Template Group and Template Sharing.

System Management

System Management is mainly for setting options and changing passwords for the current server.

About

About contains the authorization information of the current server.

Introduction

The server management can be done either by using the traditional interface on the server local desktop or by using the remote web interface. Below are the introductions for both.

Web UI Management Interface

- [Main Interface](#)
- [Settings](#)
- [Image Management](#)
- [Computer Management](#)
- [Cache Management](#)
- [User Management](#)
- [Category Management](#)
- [Template Management](#)

Settings

Cloud Desktop About 2 min Web UI Settings

Settings Options Interface

The screenshot shows the 'Options' configuration page in the Cloudadmin web interface. The left sidebar contains navigation links: Resource admin, Server admin, Template manager, System admin, Options (selected), Change password, and About. The main content area is titled 'Options' and includes a 'Save' button in the top right corner. The configuration is organized into several expandable sections:

- Base:** Includes fields for 'Write-back disk' (with a placeholder 'Please input update source (client computer) IP per line'), 'Write-back size limit(GB)' (set to 0), 'Allow super user update server data disk' (toggle), 'Upload folder' (placeholder 'Please enter'), and 'Admin password' (placeholder 'Please enter').
- DHCP:** Includes 'Enable DHCP TFTP (Diskless boot must need it)' (toggle), 'DHCP Server' (dropdown set to 'Auto'), 'Start IP', 'End IP', 'Subnet mask', 'Gateway', 'First DNS', and 'Second DNS'.
- Multi-server:** Includes 'Load balance auto' (toggle) and 'IP list' (placeholder 'Please input update source (client computer) IP per line').
- Computer:** Includes 'Disable client status' (toggle), 'Time to display menu (Second)' (set to 30), 'Personal disk folder' (placeholder 'Please enter'), and 'Personal iscsi disk server' (placeholder 'Please enter').
- New computer:** Includes 'Add new computer auto' (toggle), 'Class' (dropdown set to 'Unclassified'), 'Data disk' (dropdown set to 'All'), 'Naming rule' (set to 'PC-11-100*3'), 'System disk' (dropdown set to 'None'), and 'PXE mode' (dropdown set to 'Legacy').
- Naming rule:** Includes 'Prefix' (set to 'PC-'), 'Suffix' (placeholder 'Please enter'), 'Start' (set to 1), 'End' (set to 100), 'Width' (set to 3), and a 'Preview' list showing 'PC-001', 'PC-002', 'PC-003', and 'PC-004'.

Settings Options

Basic Settings

Writeback Directory: Used to store the data written by the client machine after PXE network booting, that is, the temporary data written by the client machine to the disk. That is, the so-called writeback (work) directory, which is placed in the writeback subdirectory on the server side by default. You can set multiple writeback directories, and the system will automatically balance the writeback file storage directories of multiple client machines.

Per User Writeback Size Limit: When you need to limit the size of the writeback data written by the client machine, please set it to an appropriate value. When it is too small, the client machine will have a blue screen phenomenon.

Allow Super User to Update Server Disk: When you need to update the files on the server's

disk on the client machine, please select this option. In this mode, you do not need to save the writeback data anymore, and the writeback data will be directly written to the server disk. During the super user's online period, the data disk on the server cannot be accessed.

System Image Upload Directory: The storage directory for client machine image uploads, which is the boot subdirectory on the server side by default.

Administrator Password: The authentication password when the auxiliary server accepts management from the main server.

DHCP Settings

Enable DHCP and TFTP Services: Whether to start DHCP and TFTP functions, which are necessary functions for client machine PXE network booting.

DHCP Server: Specify the IP address of the DHCP service, which will automatically fill in the following settings after specifying.

Start IP and End IP: The start IP and end IP range of DHCP service automatically assigned to new client machines.

Subnet Mask, Gateway, Preferred DNS and Alternate DNS Addresses: The network settings sent by DHCP service to client machines.

Multi-Server Settings

Automatic Load Balancing: When there are multiple servers in the LAN, please set this option. It can achieve dual-server hot backup and load balancing.

IP List: The server list manually added when manually load balancing multiple servers

Computer Settings

Disable Client Machine Status Statistics: Whether to turn off client machine status statistics function

Time to Display Operating System List (Seconds): When there are multiple system images for client machines, a system selection list menu will be displayed when client machines start up. Here you can set the display time of the list.

Personal Disk Directory: The root directory of personal disks in shared directory form.

Personal Cloud Disk Server IP: The IP of a separate iscsi personal disk server.

New Computer Default Settings

Automatically Add New Computers: Whether to allow automatic addition of new client machines. When there is a DHCP request, PXE network boot request, iSCSI connection request or client connection request, if the client does not exist, a new user will be automatically added.

Naming Rules: Set the naming rules for new computers automatically added through DHCP.

Category: The default category of new computers

System Image: The default system image for automatically added new client machines. (You can drag and drop each image up and down to adjust the display order)

Data Disk: The disk list of automatically added new users.

Network Boot Mode: The mode used by new computers for pxe network booting

New Computer Name Naming Rules

New Computer Name Naming Rules: When there is a DHCP request or a client connection request, new computer name generation rules.

Template Management

 Cloud Desktop  About 17 min  Web UI  Template Management

Template Introduction

Template is a technology for managing computer functions, which can help users quickly configure computer function policies, protect computers from malicious software, network attacks, data leakage and other threats. Template has the following characteristics:

- Simple and easy to use: Template provides a graphical interface, users only need to click and select, they can complete the computer function configuration.
- Efficient and flexible: Template supports multiple computer groups to use, users can choose different function policies according to different computer types and purposes. Template also supports undo and reuse, users can modify and restore computer function settings at any time.
- Sharing and collaboration: Template can be shared with other users or departments, users can send template to other people who need to use it through network or other ways. Template can also be organized into template groups, users can put multiple related templates together, convenient for management and use.

Template Function

Template contains the following aspects of function settings:

- Image configuration: Template can set the image parameters of the computer, such as system disk and data disk, restore mode, valid period and available week, etc. Image parameters determine the basic function and performance of the computer.
- Network configuration: Template can set the network parameters of the computer, such as IP address, DNS server, DHCP server, etc. Network parameters determine the network connection and communication of the computer.
- Advanced configuration: Template can set the advanced parameters of the computer, such as U disk access mode, peripheral access permission, input method and cache, etc. Advanced parameters determine the security and reliability of the computer.
- Display configuration: Template can set the display parameters of the computer, such as resolution, color, brightness, multi-monitor combination mode, etc. Display parameters determine the display effect and visual experience of the computer.
- Watermark configuration: Template can set the watermark parameters of the computer, such as watermark content, position, color, etc. Watermark parameters determine the

ownership and attributes of the computer.

- Update configuration: Template can set the update parameters of the computer, such as update mode, update time, P2P mode, etc. Update parameters determine the security and reliability of the computer.
- Personal configuration: Template can set the personal parameters of the computer, such as personal document transfer, etc. Personal parameters determine the appearance and function of the computer.
- Application layering: Template can set the application layering parameters of the computer, such as whether to enable application layering, disable registry layering, client drive letter, file/folder whitelist and blacklist, and registry whitelist and blacklist, etc.
- Switch machine configuration: Template can set the switch machine parameters of the computer, such as boot time, shutdown time, lock screen time, boot batch processing, etc. Switch machine parameters determine the power and resources of the computer.

Template Use

The usage method of this template is as follows:

- Create template: Users can click "New" button to enter template creation interface, input template name and description, then select functions that need to be configured, follow prompts to set up, finally click "Confirm" button to complete template creation.
- Modify template: Users can click "Edit" button to enter template editing interface, select functions that need to be modified, follow prompts to modify them, finally click "Confirm" button to complete template modification.
- Save template: Users can click "Confirm" button to save current template to local or network. Users can customize save location and name, or overwrite original template.
- Share template: Users can create template sharing by clicking "New", share current template with other users or departments. Users can choose sharing mode and status, and add sharing instructions and permissions.
- Organize template: Users can create template group by clicking "New", add current template to an existing or new template group. Users can customize template group name and description, and modify or delete templates in template group. By using template group, users can easily manage and use multiple related templates.
- Apply template: Users can click "Enable" button to apply current or saved template to one or more computer groups and servers.

Image Template

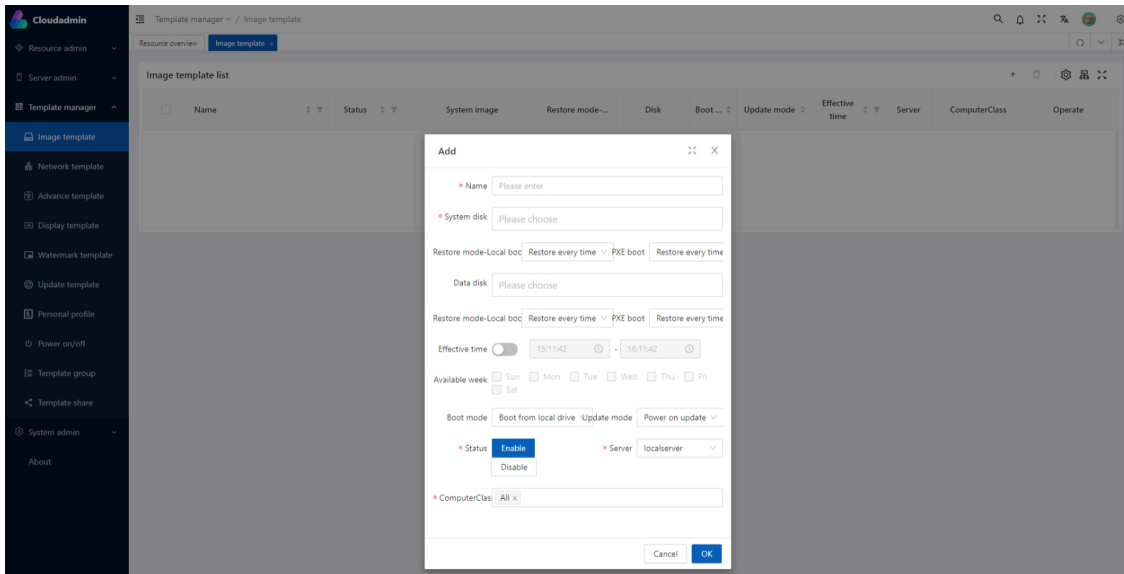


Image Template

Image Template Overview

Image template is a technology for image management, which can help users choose different image files, data disks and restore modes according to different needs to configure computers. Image file refers to disk file containing operating system, software and data; data disk refers to disk partition or disk file used for storing user data; restore mode refers to how image file and data disk are processed when computer switches on and off. Image template has the following characteristics:

- **Flexible and diverse:** Users can choose different image files, data disks and restore modes according to function needs to adapt to different scenario contents and modes. For example, you can choose Windows or Linux system; domestic operating system; you can choose to install different teaching software; you can choose to keep or delete user data; etc.
- **Efficient and convenient:** Users can send image templates to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of image template to automatically apply and revoke image template.
- **Sharing and collaboration:** Users can share their created or used image templates with other users or departments to achieve resource sharing and knowledge inheritance.

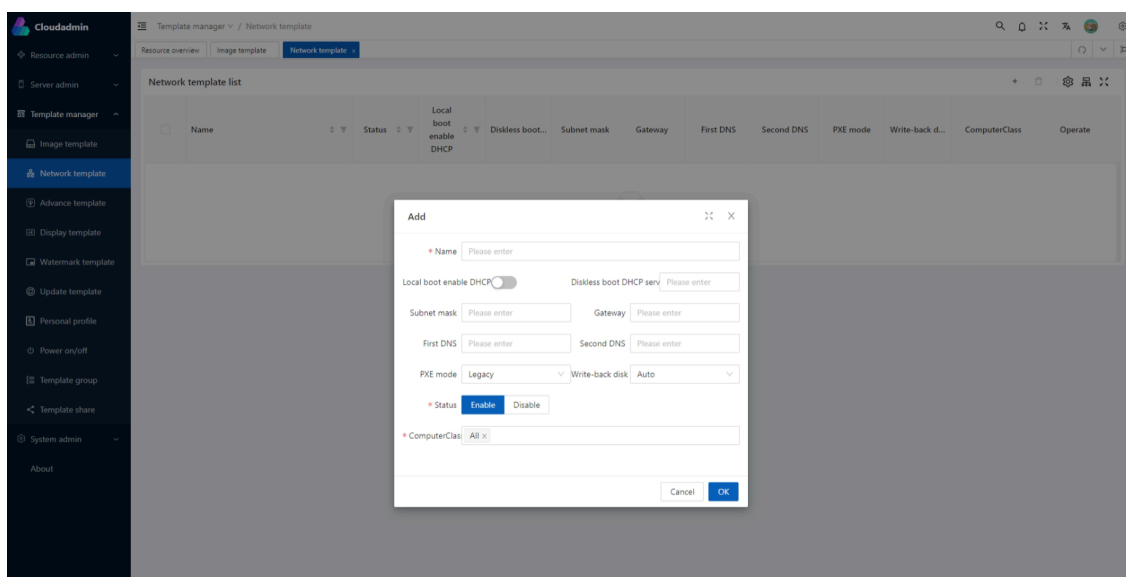
Users can also organize multiple related image templates into image groups for easy management and use.

Image Template Function

Image template includes the following aspects of function settings:

- Image file: Users can choose existing or self-made image files as computer system disk. Image file contains operating system, software and data, etc., which determines the basic function and performance of the computer.
- Data disk: Users can choose whether to allocate a data disk to the computer as a space for storing user data. The content of the data disk is not affected by the image file, and can be kept or deleted.
- Restore mode: Users can choose how to deal with image file and data disk when computer switches on and off, there are several options:
 - Restore every time: The computer will restore the image file to its initial state every time it switches on and off, clearing all modifications and data.
 - Do not restore: The computer does not perform any operation on the image file and data disk when switching on and off, keeping all modifications and data.
 - Restore weekly: The computer restores the image file to its initial state once a week (can be customized), clearing all modifications.
 - Restore monthly: The computer restores the image file to its initial state once a month (can be customized), clearing all modifications.

Network Template



Network Template

Network Template Overview

Network template is a technology for network management, which can help users choose different network parameters according to different needs to configure computers.

Network parameters refer to the subnet mask, gateway, DNS server, etc. of the computer, which determine the network connection and communication of the computer. Network template has the following characteristics:

- Flexible and diverse: Users can choose different network parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose static or dynamic IP address, you can choose different subnet mask and gateway, you can choose different DNS server, etc.
- Efficient and convenient: Users can send network template to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of network template to automatically apply and revoke network template.
- Sharing and collaboration: Users can share their created or used network template with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related network templates into network groups for easy management and use.

Network Template Function

Network template includes the following aspects of function settings:

- Local boot enable DHCP: Users can choose whether to enable DHCP when booting locally, as the network allocation of the computer. It determines the network allocation of the computer, and the allocated dynamic IP will be automatically submitted and updated to the computer list on the server.
- Network boot DHCP server: Users can choose the DHCP server IP bound by the client when booting from the network, as the network allocation of the computer. DHCP server refers to the server used to assign IP addresses, which determines the network allocation of the computer.
- Subnet mask: Users can choose different subnet masks, as the network range of the computer. Subnet mask refers to the binary number used to divide network address and host address, which determines the network range of the computer.
- Gateway: Users can choose different gateways, as the network exit of the computer. Gateway refers to the device used to connect different networks, which determines the

network exit of the computer.

- DNS server: Users can choose different DNS servers, as the network resolution of the computer. DNS server refers to the server used to resolve domain name and IP address, which determines the network resolution of the computer.
- Alternate DNS server: Users can choose different alternate DNS servers, as the network resolution of the computer. Alternate DNS server refers to the server used to resolve domain name and IP address, which determines the network resolution of the computer.
- Network boot mode: Users can choose different network boot modes, as the way of network booting of the computer. Network boot mode refers to the way of network connection when booting up the computer, which determines the network booting of the computer.
- Write-back disk: Specify where on the server data is written back when client boots from network. It determines speed and efficiency of network booting of computer.

Advanced Template

Advanced Template

Advanced Template Overview

Advanced template is a technology for advanced management, which can help users choose different advanced parameters according to different needs to configure computers. Advanced parameters refer to settings such as U disk access mode, peripheral access permission, input method and cache, etc., which determine security and reliability of computer. Advanced template has following characteristics:

- Flexible and diverse: Users can choose different advanced parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose to prohibit or allow U disk access, you can choose to prohibit or allow peripheral access, you can choose to prohibit or allow input method switching, you can choose to prohibit or allow cache, etc.
- Efficient and convenient: Users can send advanced template to other computers through network or other ways to quickly configure and update them. Users can also set valid period and available week of advanced template to automatically apply and revoke advanced template.
- Sharing and collaboration: Users can share their created or used advanced template with other users or departments to achieve resource sharing and knowledge inheritance.

Users can also organize multiple related advanced templates into advanced groups for easy management and use.

Display Template

Display Template

Display Template Overview

Display template is a technology for display management, which can help users choose different display parameters according to different needs to configure computers. Display parameters refer to the resolution, color, brightness, multi-monitor combination mode, etc. of the computer, which determine the display effect and visual experience of the computer. Display template has the following characteristics:

- **Flexible and diverse:** Users can choose different display parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose different resolution and color, you can choose different brightness and contrast, you can choose different multi-monitor combination mode, etc.
- **Efficient and convenient:** Users can send display template to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of display template to automatically apply and revoke display template.
- **Sharing and collaboration:** Users can share their created or used display template with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related display templates into display groups for easy management and use.

Display Template Function

Display template includes the following aspects of function settings:

- **Resolution:** Users can choose different resolution, as the resolution of the computer. Resolution refers to the display resolution of the computer, which determines the display resolution of the computer.
- **Color:** Users can choose different color, as the color of the computer. Color refers to the display color of the computer, which determines the display color of the computer.

- Refresh rate: Users can choose different refresh rate, as the refresh rate of the computer. Refresh rate refers to the display refresh rate of the computer, which determines the display refresh rate of the computer.
- Zoom ratio: Users can choose different zoom ratio, as the zoom ratio of the computer. Zoom ratio refers to the display zoom ratio of the computer, which determines the display zoom ratio of the computer.
- Brightness: Users can choose different brightness, as the brightness of the computer. Brightness refers to the display brightness of the computer, which determines the display brightness of the computer.
- Multi-monitor combination mode: Users can choose different multi-monitor combination mode, as the multi-monitor combination mode of the computer. Multi-monitor combination mode refers to the multi-monitor combination mode of the computer, which determines the multi-monitor combination mode of the computer.

Watermark Template

Watermark Template

Watermark Template Overview

Watermark template is a technology for watermark management, which can help users choose different watermark parameters according to different needs to configure computers. Watermark parameters refer to the watermark content, position, color, etc. of the computer, which determine the ownership and attributes of the computer. Watermark template has the following characteristics:

- Flexible and diverse: Users can choose different watermark parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose different watermark content and position, you can choose different watermark color and transparency, etc.
- Efficient and convenient: Users can send watermark template to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of watermark template to automatically apply and revoke watermark template.

- Sharing and collaboration: Users can share their created or used watermark template with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related watermark templates into watermark groups for easy management and use.

Watermark Template Function

Watermark template includes the following aspects of function settings:

- Watermark content: Users can choose different watermark content, as the watermark content of the computer. Watermark content refers to the watermark content of the computer, which determines the watermark content of the computer.
- Watermark font: Users can choose different watermark font, as the watermark font of the computer. Watermark font refers to the watermark font of the computer, which determines the watermark font of the computer.
- Watermark size: Users can choose different watermark size, as the watermark size of the computer. Watermark size refers to the watermark size of the computer, which determines the watermark size of the computer.
- Watermark color: Users can choose different watermark color, as the watermark color of the computer. Watermark color refers to the watermark color of the computer, which determines the watermark color of the computer.
- Watermark transparency: Users can choose different watermark transparency, as the watermark transparency of the computer. Watermark transparency refers to the watermark transparency of the computer, which determines the watermark transparency of the computer.
- Watermark position: Users can choose different watermark position, as the watermark position of the computer. Watermark position refers to the watermark position of the computer, which determines the watermark position of the computer.

Update Template

Update Template

Update Template Overview

Update template is a technology for update management, which can help users choose different update parameters according to different needs to configure computers. Update parameters refer to the update mode, update time, P2P mode, etc. of the computer, which determine the security and reliability of the computer. Update template has the following characteristics:

- Flexible and diverse: Users can choose different update parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose different update mode and update time, you can choose different P2P mode, etc.
- Efficient and convenient: Users can send update template to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of update template to automatically apply and revoke update template.
- Sharing and collaboration: Users can share their created or used update template with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related update templates into update groups for easy management and use.

Update Template Function

Update template includes the following aspects of function settings:

- Update mode: Users can choose different update mode, as the update mode of the computer. Update mode refers to the update mode of the computer, which determines the update mode of the computer.
- Waiting idle time: Users can choose different waiting idle time, and only restart to complete the update after the computer idle time reaches the set time.
- Valid period: Users can choose different valid period, and the computer will automatically update within the valid period, and the computer will not automatically update after exceeding the valid period.
- P2P mode: Users can choose different P2P mode, for details please see the reference document¹.
- Update source IP list: When updating with P2P, request the update source IP list, multiple IPs are separated by commas.

Personal Configuration Template

Personal Configuration Template

Personal Configuration Template Overview

Personal configuration template is a technology for personal configuration management, which can help users choose different personal parameters according to different needs to configure computers. Personal parameters refer to the transfer of personal documents of the computer, etc., which determine the appearance and function of the computer.

Personal configuration template has the following characteristics:

- Flexible and diverse: Users can choose different personal parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose different transfer of personal documents, etc.
- Efficient and convenient: Users can send personal configuration template to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of personal configuration template to automatically apply and revoke personal configuration template.
- Sharing and collaboration: Users can share their created or used personal configuration template with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related personal configuration templates into personal configuration groups for easy management and use.

Personal Configuration Template Function

Personal configuration template includes the following aspects of function settings:

- Save user configuration to personal disk: Users can choose whether to save user configuration to personal disk, user configuration usually refers to all files under C:\Users directory, including desktop, documents, pictures, videos, music, etc. It can be transferred as a whole, but compatibility is not very good, it is recommended to only transfer documents.
- Also save under super user: Users can choose whether to also save user configuration to personal disk under super user, if selected, then user configuration will also be saved to personal disk under super user.

- Transfer directory to personal disk list: Users can choose the directory that needs to be transferred to personal disk list, multiple directories are represented by multiple lines.
- Transfer file to personal disk list: Users can choose the file that needs to be transferred to personal disk list, multiple files are represented by multiple lines.

Application Layering Template

Application Layering Template

Application Layering Template Overview

Application layering/super retention mode: During local VHD boot, supports automatic monitoring of system disk changes, automatically transferring newly added file data and registry entries to the personal configuration partition on the local disk, and preserving users' personal files and registry configurations during image update processes.


The application layering template is a technology for application layering management, which allows users to configure computers by selecting different application layering parameters according to various needs. Application layering parameters refer to the application layering settings of the computer, such as whether to enable application layering, disable registry layering, client drive letter, file/folder whitelist and blacklist, and registry whitelist and blacklist. These parameters determine the functionality and effects of application layering on the computer. The application layering template has the following characteristics:

- Flexible and diverse: Users can select different application layering parameters based on functional requirements to adapt to various scenarios and methods. For example, users can choose to enable or disable application layering, disable or enable registry layering, or select different client drive letters, etc.
- Efficient and convenient: Users can send the application layering template to other computers through the network or other means to quickly configure and update them. Users can also set the valid period and available week of the application layering template to automatically apply and revoke it.
- Sharing and collaboration: Users can share their created or used application layering templates with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related application layering templates into application layering groups for easier management and use.

Application Layering Template Function

The application layering template includes the following functional settings:

- **Enable application layering:** Users can choose whether to enable application layering as the application layering functionality of the computer. Once enabled, modifications to the system disk will be saved to the client drive letter and will not be restored after a reboot.
- **Apply layering under superuser:** Users can choose whether to apply layering under the superuser as the application layering functionality of the computer. If selected, application layering will also be applied under the superuser.
- **Disable registry layering:** Users can choose whether to disable registry layering as the registry layering functionality of the computer. Once disabled, modifications to the registry will not be saved to the client drive letter and will be restored after a reboot.
- **Client drive letter:** Users can select different client drive letters as the client drive letter of the computer. The client drive letter determines where modifications to the system disk are saved.
- **File/Folder whitelist and blacklist:** Users can select different file/folder whitelists and blacklists as the file/folder access permissions of the computer. These lists determine the access permissions for files and folders on the system disk.
- **Registry whitelist and blacklist:** Users can select different registry whitelists and blacklists as the registry access permissions of the computer. These lists determine the access permissions for the registry.

 **Tip:** The following content provides information on the limitations of application layering. Please avoid related scenarios.

Tips

Limitation Information

The application layering module is implemented as a low-level driver residing in the **Windows system**. To ensure that files or registry information in each layer are visible to the operating system, the driver must ensure that the applications in each layer start after the application layering driver has started. Otherwise, the operating system will not find the files in these layers, causing related applications to fail to start. Based on this reason, application layering has certain limitations and does not support or conditionally supports some application scenarios. Specific limitations include the following:

1. Non-USB Device Drivers

Since the application layering driver belongs to the file system filter driver category, its initialization sequence during the operating system startup occurs after system hardware device initialization. Therefore, **non-USB device drivers** (e.g., virtual disk or virtual graphics card drivers) installed by users on their desktops will not function after a restart because the application layering driver has not started when the device driver initializes, making it unable to locate the driver-related files or registry information in the application layering disk.

2. Antivirus Software

Antivirus software typically involves many low-level drivers, some of which **start earlier than the application layering file system filter driver**. Upon system restart, the antivirus software cannot read the program-related files in the application layering disk, resulting in errors or non-functional antivirus software.

3. Services with boot Startup Type

Windows services have the following startup types: `boot` , `system` , `auto` , `demand` , `disabled` . These are initialized in sequence from `boot` to `disabled` . Since **the application layering driver's service startup type is `system` , which is later than `boot` ,** application layering does not support services with the `boot` startup type. Programs using `boot` type services are typically non-USB device drivers or antivirus software.

4. System Security Patches

When upgrading Windows system security patches involving kernel updates, the kernel files are written to the personalized disk of the application layering. For such kernel patches, **the application layering driver has not started during system boot**, causing the upgrade

program to fail to locate the boot files in the application layering disk after a restart, resulting in an invalid or failed upgrade.

Workarounds

For the above scenarios, the workaround is: **Such applications or Windows patch upgrades should not be performed by users on their desktops. Instead, administrators can pre-install them while editing the image and then distribute it to users.**

Supported System Versions

The application layering driver is developed based on the `minifilter` framework. Since **versions prior to Windows 7 SP1 do not support some features of the `minifilter` framework**, application layering technology is only supported on **Windows 7 SP1 and later versions**, including Windows 10.

Power On/Off Template

Power On/Off Template

Power On/Off Template Overview

Power on/off template is a technology for power on/off management, which can help users choose different power on/off parameters according to different needs to configure computers. Power on/off parameters refer to the power on time, power off time, lock screen time, power on batch processing, etc. of the computer, which determine the power and resources of the computer. Power on/off template has the following characteristics:

- **Flexible and diverse:** Users can choose different power on/off parameters according to function needs to adapt to different scenario contents and modes. For example, you can choose different power on time and power off time, you can choose different lock screen time and power on batch processing, etc.
- **Efficient and convenient:** Users can send power on/off template to other computers through network or other ways to quickly configure and update them. Users can also set the valid period and available week of power on/off template to automatically apply and revoke power on/off template.

- Sharing and collaboration: Users can share their created or used power on/off template with other users or departments to achieve resource sharing and knowledge inheritance. Users can also organize multiple related power on/off templates into power on/off groups for easy management and use.

Power On/Off Template Function

Power on/off template includes the following aspects of function settings:

- Power on: Users can choose different power on time, execute the command to wake up the client.
- Power off: Users can choose different power off time, execute the command to shut down the client.
- Restart: Users can choose different restart time, execute the command to restart the client.
- Lock screen: Users can choose different lock screen timeout time, execute the command to lock the client.
- Command: Users can choose different time, execute various batch processing.

Power on/off template includes the following aspects of function options:

- Waiting idle time: Users can choose different waiting idle time, and only execute the command after the computer idle time reaches the set time.
- Valid period: Users can choose different valid period, and the computer will automatically execute the command within the valid period, and the computer will not automatically execute the command after exceeding the valid period.
- Repeat rule: Including no repeat, daily repeat, weekly repeat, monthly repeat, users can choose different repeat rules to execute commands.

Template Group

Template Group

Template Group Overview

Template group is a technology for template management, which can help users organize multiple related templates together for easy management and use. Template group has the following characteristics:

- Flexible and diverse: Users can choose different template groups according to function needs to adapt to different scenario contents and modes.
- Efficient and convenient: Users can send template group to other users or departments through network or other ways to quickly configure and update them.
- Sharing and collaboration: Users can share their created or used template group with other users or departments to achieve resource sharing and knowledge inheritance.

Template Group Function

Template group includes the following aspects of function settings:

- Image template: Users can choose different image templates, as the image template of the template group.
- Network template: Users can choose different network templates, as the network template of the template group.
- Advanced template: Users can choose different advanced templates, as the advanced template of the template group.
- Display template: Users can choose different display templates, as the display template of the template group.
- Watermark template: Users can choose different watermark templates, as the watermark template of the template group.
- Update template: Users can choose different update templates, as the update template of the template group.
- Personal configuration template: Users can choose different personal configuration templates, as the personal configuration template of the template group.
- Power on/off template: Users can choose different power on/off templates, as the power on/off template of the template group.

Template Share

Template Share

Template Share Overview

Template share is a technology for template management, which can help users share templates with other users or departments to achieve resource sharing and knowledge inheritance. Template share has the following characteristics:


- Flexible and diverse: Users can choose different ways of sharing templates according to function needs to adapt to different scenario contents and modes.
- Efficient and convenient: Users can send templates to other users or departments through network or other ways to quickly configure and update them.
- Sharing and collaboration: Users can share their created or used templates with other users or departments to achieve resource sharing and knowledge inheritance.

Template Share Function

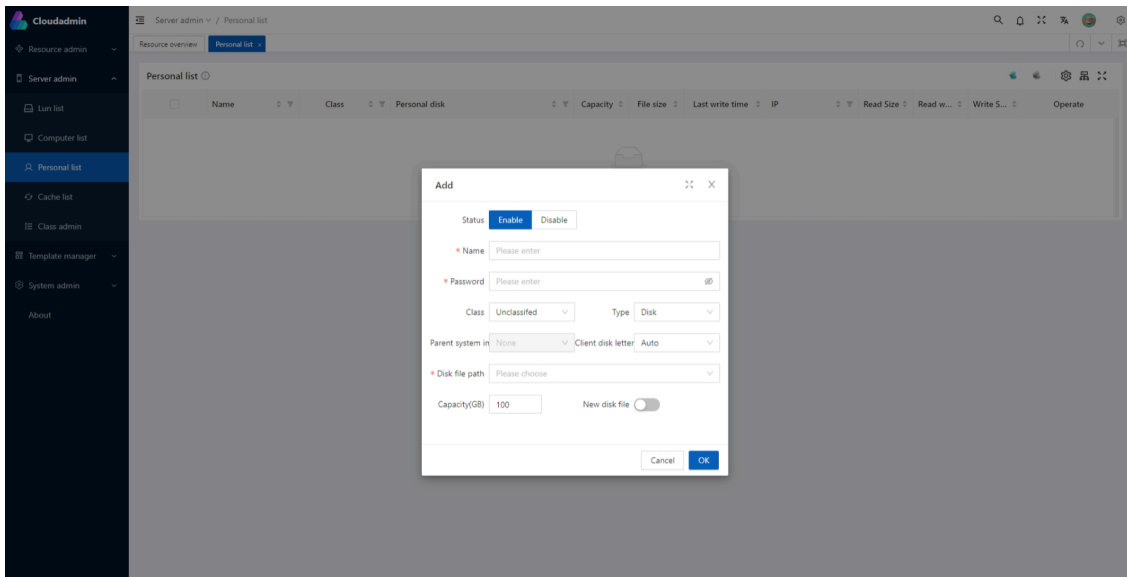
Template share includes the following aspects of function settings:

- Password: Users can set different passwords, as the password for accessing shared templates.
- Template type: Users can choose different types of templates for sharing.
- Template name: Users can choose which templates they want to share.
- Valid period: Users can choose different valid periods, during which templates will be automatically shared, and templates will not be automatically shared after exceeding valid periods.
- Read-only access: Users can choose different read-only access, if selected, then they can only read templates, not modify them.

User Management

 Cloud Desktop  Less than 1 minute  Web UI  User Management

User List



User

User information: Includes login name, personal disk file, capacity, file size, and last login IP.

Read/write status: Includes user's online time, current read/write speed, total read and write amount.

Add/Edit User

Name: The login account of the personal disk

Password: The login password

Category: Custom category

Type: Disk and system image. When it is a system image, it can be booted on multiple computers through PXE network boot. When it is a disk type, it can be mounted as a data disk when booting PXE network or local offline VHD.

Parent system image: When it is a personal restore point, you can specify a public parent system image. This way, it can be used as a personalized restore point and booted on multiple computers through PXE network boot.

Client drive letter: When it is a disk type, you can specify the drive letter

Disk file path: The storage path on the server

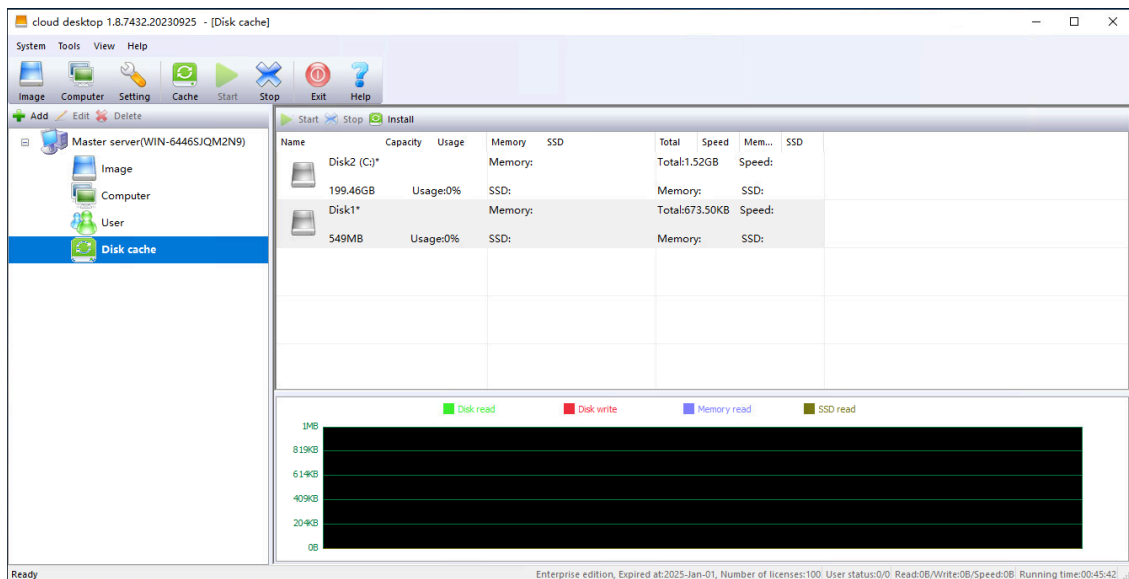
Capacity: The specified capacity when creating a new disk file

Create new disk file: Whether to create a new one

Cache Management

Cloud Desktop Less than 1 minute Desktop UI Cache Management

Disk Cache List



Disk Cache

Cache Settings

The screenshot shows the 'Cache Setting' dialog box. The title bar is 'Cache Setting'. The 'Disk' is set to 'D: 100GB'. The 'Level 1 Cache' section has a 'Memory Size' slider set to '512MB', with a range from '16MB' to '1.19GB'. The 'Level 2 Cache (Optional)' section has an 'SSD Disk' dropdown set to 'None' and a 'Size Limit' of '0 GB'. The 'Cache Type' section has 'Cache Read' and 'Cache Write' checked, and 'Recommend' selected. The 'Image Disk', 'Game Disk', and 'Write-back' options are unselected. The 'OK' and 'Cancel' buttons are at the bottom.

Cache Settings

Disk cache supports two-level cache, the first-level cache uses memory as cache, and the second-level cache uses SSD disk as cache.

The first-level cache is mandatory, please set the memory size to be used.

The second-level cache is optional, please set the SSD disk location and limit size to store the cache file

The cache methods include cache read (cache the data read from the disk) and cache writes (cache the data written to the disk, and delay writing to the disk). Note: Caching writes to the system disk (C drive) will cause data loss and system damage when shutting down. Please set it carefully.

Recommended settings:

Image disk: The disk that stores the system image files, it is recommended to only cache reads, and allocate at least 512MB of memory cache for each image

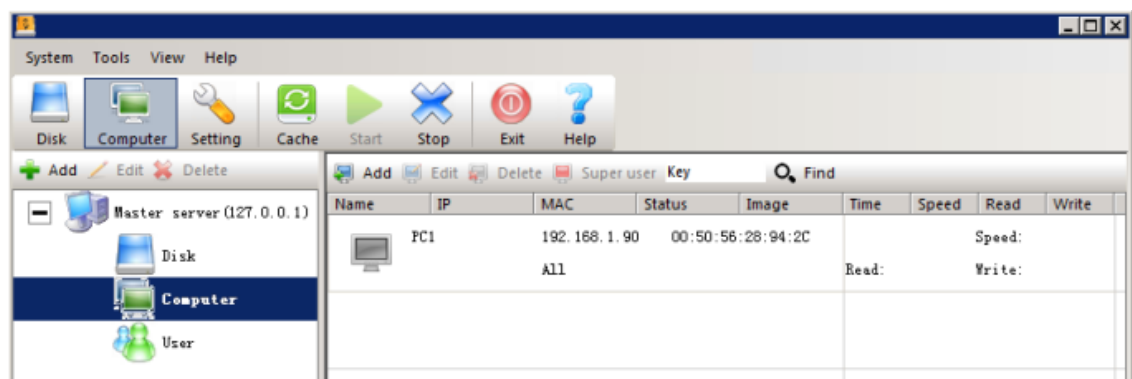
Game disk: The disk that stores a large amount of data, it is recommended to only cache reads, and allocate the maximum amount of memory cache and second-level cache

Writeback disk: The disk where the writeback data is stored, it is recommended to only cache writes, and allocate a small amount of memory cache

Computer Management

Cloud Desktop About 6 min Desktop UI Computer Management

Computer List



The screenshot shows a software window titled "Computer Management" with a menu bar (System, Tools, View, Help) and a toolbar with icons for Disk, Computer, Setting, Cache, Start, Stop, Exit, and Help. On the left is a sidebar with a tree view containing "Master server (127.0.0.1)", "Disk", "Computer" (selected), and "User". The main area displays a table of computer information.

Name	IP	MAC	Status	Image	Time	Speed	Read	Write
PC1	192.168.1.90	00:50:56:28:94:2C					Speed:	
		All					Read:	Write:

Computer

Edit Computer

Computer

Personal disk

Profiles

Application Layer

Hardware

Base

Advance

Update option

Information

Name

win10

Comment

IP

192 . 168 . 10 . 166

MAC

00:E0:4C:03:30:39

Type

None

System image

☒ win11ximah470

☒ win11xima20250625T1!

☒ win10cnpnp20250518

☐ kyliARMpxe

☐ kylinUEFIPXE

☐ uoslangcao

☐ win1022h2esxi

☐ Ubuntu22.04.1

☐ Uos201060UEFIPxe1

☐ kylinlangcao

☐ win1124h2mbr

☐ win10-22h2

☐ Ubuntu22.1

☐ 1-Win7x64-new

Disk

☒ All

☐ Unrestored in diskless boot

☒ Unrestored in local boot

确定

取消

Computer Properties

In the computer list, click "Add" or "Edit" to edit computer properties

- Name: The custom computer name of the client. The naming rules for Windows computer names are: **Length must not exceed 15 characters (recommended to be within 7 Chinese characters), only letters, numbers, and hyphens (-) are allowed, and spaces or special symbols (e.g., !@\$%^&*()) are prohibited. The name must also be unique within the network.**
- Comment: Description of the computer.
- IP: The IP address of the computer.
- Physical address: The MAC address of the computer's network card.
- Type: The type of the client, classified for easy management and batch setting.
- System image: Set the boot image for the current client. When multiple system images are selected, a system boot selection menu will be displayed.
- Hidden system image: When this option is selected, the system image will be hidden from the boot menu.
Non-restore image: When this option is selected, the system image will not be restored when the client restarts. The personal data of the operating system is retained.
- Disk: You can selectively mount the required server disk partitions. When all are selected, all added disks are automatically mounted
- Unrestored in diskless boot: When this option is selected, the system image will not be restored when the client restarts. The personal data of the operating system is retained. (under pxe network boot mode)
- Unrestored in local boot: When this option is selected, the system image will not be restored when the client restarts. The personal data of the operating system is retained. (under local boot mode)

Advanced Settings

The screenshot shows a 'Computer' settings window with a close button (X) in the top right corner. The window has four main tabs: 'Personal disk', 'Profiles', 'Application Layer', and 'Hardware'. The 'Profiles' tab is selected, and within it, the 'Advance' sub-tab is active. Below the tabs, there are three sub-sections: 'Base', 'Advance', and 'Update option'. The 'Advance' sub-section is expanded, showing a list of settings under the 'Information' header. The settings include a checkbox for 'DHCP when boot from local drive' (unchecked), followed by fields for 'DHCP IP' (set to 'Auto'), 'Server IP' (192.168.10.8), 'IP Mask', 'Gateway IP', 'First DNS IP', and 'Second DNS IP'. Other settings include 'Boot mode' (Boot from local drive), 'Write-back disk' (Auto), 'Screen resolution', 'Default printer' (None), 'PXE mode' (Windows 10), 'USB disk' (Access allowed), 'Cache' (0 MB), 'Default IME' (None), 'File cache' (0 GB), and 'Windows key'. At the bottom right, there are two buttons: '确定' (OK) and '取消' (Cancel).

Section	Setting	Value	Unit
Information	DHCP when boot from local drive	<input type="checkbox"/>	
	DHCP IP	Auto	
	Server IP	192.168.10.8	
	IP Mask	.	
	Gateway IP	.	
	First DNS IP	.	
	Second DNS IP	.	
	Boot mode	Boot from local drive	
	Write-back disk	Auto	
	Screen resolution		
	Default printer	None	
	PXE mode	Windows 10	
	USB disk	Access allowed	
	Cache	0	MB
	Default IME	None	
File cache	0	GB	
Windows key			

Advanced Settings

- DHCP when boot from local drive: Set whether the network card of the client uses automatic or manual IP configuration when booting locally. (Supports third-party DHCP)

servers)

- DHCP Server: Select the server IP that responds to the DHCP request of this client. Default 0.0.0.0 for automatic selection.
- Server IP: Set the server IP address the client connects to. If left blank, the client will attempt to connect to the DHCP server IP.
- Subnet Mask, Gateway, Preferred DNS, Alternate DNS: Network settings of the client. If not set, the global settings in "Tools" -> "Settings" will be used.
- Boot Mode: Allow network boot, prohibit network boot, must log in before booting, boot from local disk, boot menu, log in after local boot.
- Write-back Disk: When the client boots via PXE network, the write-back data is saved to the specified disk partition on the server.
- Screen Resolution: The custom screen resolution that is automatically set after the client starts.
- Default Printer: You can set which printer is default.
- PXE Boot Mode: When booting via PXE network card, different modes can be used to meet the requirements of different network cards and BIOS.
- USB Drive: You can prohibit reading and writing USB drives.
- Cache: Set the write-back cache size for all disks of the client. The disk cache component must be installed on the client first.
- Default IME: You can set which input method is default.
- File Cache: Used when the client installs a local SSD as a secondary cache.
- Windows Key: You can set a genuine Windows key for the client, which will be automatically installed when the client starts.

Update Options

The screenshot shows a 'Computer' dialog box with a close button (X) in the top right corner. It has four tabs: 'Personal disk', 'Profiles', 'Application Layer', and 'Hardware'. The 'Update option' tab is selected, and it contains two sub-tabs: 'Base' and 'Advance'. The 'Advance' sub-tab is active, displaying an 'Information' section with the following settings:

- Update mode:** A dropdown menu set to 'Manual update and reboot'.
- Reboot after idle:** A numeric spinner set to '30' followed by the text 'Minute'.
- Effective time:** Two time selection boxes showing '00:00' and '08:00' separated by a hyphen.
- P2p mode:** A dropdown menu set to 'Update from server only'.
- Update source IP list:** A large, empty text area for entering IP addresses.

At the bottom of the dialog are two buttons: '确定' (OK) and '取消' (Cancel).

Update Options

💡 For detailed local VHD image update operations, please refer to the [Local VHD Image Update Guide](#).

- Update Mode: Manual update, manual update and install, manual update and restart, manual update and delayed restart, automatic update, automatic update and install, automatic update and restart, automatic update and delayed restart.
- Idle Time Before Restart: Set the idle time the client waits before restarting, in minutes.
- Effective Period: Set the time period during which the client is allowed to update. Updates are not allowed outside this time period.
- P2P Mode: Update only from server, update only from other sources, automatically update from server and sources, automatically update from all clients, automatically update from server and all clients.
- Update Source IP List: Set the IP addresses of other update sources when the client updates, with each IP address on a separate line.

Personal Disk

The screenshot shows a 'Computer' dialog box with a close button (X) in the top right corner. It has three main tabs: 'Base', 'Advance', and 'Update option'. The 'Base' tab is selected and contains a sub-tab 'Personal disk'. Other sub-tabs under 'Base' are 'Profiles', 'Application Layer', and 'Hardware'. Under the 'Personal disk' sub-tab, there is a checkbox 'Enable personal disk' which is currently unchecked. Below this checkbox is a group box containing several settings: 'Disk file path' with a text field and a folder icon; 'Copy from' with a dropdown menu set to 'None'; 'Capacity' with a spinner box set to '100' and the unit 'GB'; a checked checkbox 'New disk file'; and 'Client disk letter' with a dropdown menu set to 'Auto'. Below the group box is a 'Disable' dropdown menu. At the bottom of the dialog box are two buttons: '确定' (OK) and '取消' (Cancel).

Base	Advance	Update option
Personal disk	Profiles	Application Layer
		Hardware

☐ Enable personal disk

Disk file path

Copy from

Capacity GB

☒ New disk file

Client disk letter

Share folder

Login name

Password

Map disk letter

Personal Disk

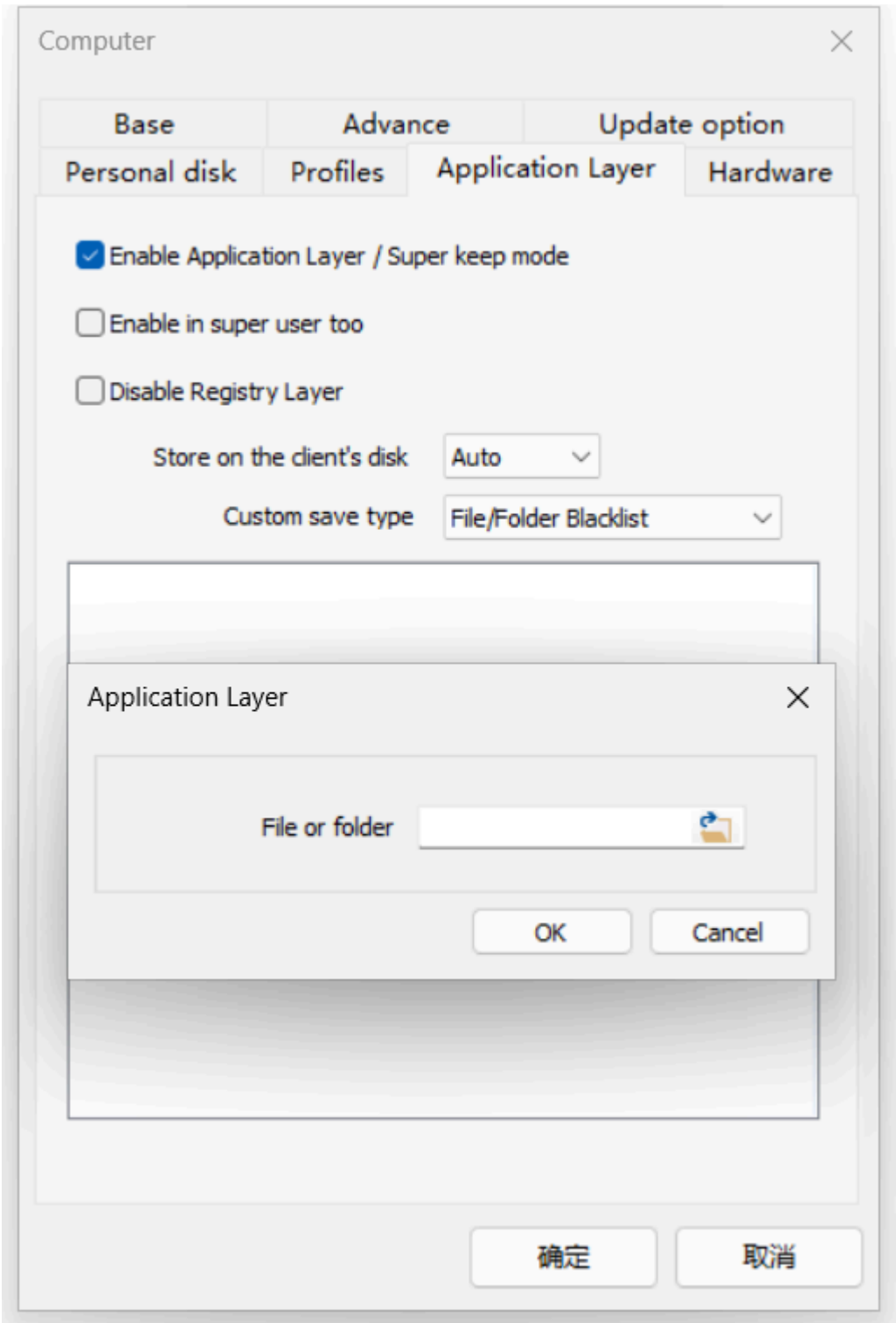
💡 For detailed usage and management of personal disks, please refer to the [Personal Disk Usage and Management Guide](#).

- Enable Personal Disk: Allow the client to use the personal disk feature. The personal disk feature allows the client to create a virtual disk file on a specified server disk, where the client's personal data is stored. This virtual disk file retains data even after a restart.
- Disk File Path: Set the storage path of the personal disk file on the server, which must be a server disk partition.
- Copy: Create a personal disk file from a prepared personal disk template file.
- Capacity: Set the size of the personal disk file.
- New disk file: Create a new personal disk file for the client.
- Client Drive Letter: Set the drive letter of the personal disk file on the client.
- Other types of personal disk settings: Disable, allow mapping of shared directories, allow cloud desktop cloud disk services
- Share folder name: Set the name of the shared folder on the server for personal disk mapping.
- Login user: Set the username for accessing the shared folder.
- Password: Set the password for accessing the shared folder.
- Mapped drive letter: Set the drive letter for the mapped shared folder on the client.



- Save user profiles to personal disk: Allows saving user profiles to a local or personal disk.
- Also save under superuser: Allows saving user profiles even when running as a superuser.
- Prohibit saving to default directories (C:\Users, C:\ProgramData): Prevents saving user profiles in default directories.
- Custom save type: Folder, File
- User profile list: Set files and folders to be saved via add, edit, and delete context menu options.


Application Layering/Super Reserve Mode



Application Layering/Super Reserve Mode

Application layering/super retention mode: During local VHD boot, supports automatic monitoring of system disk changes, automatically transferring newly added file data and registry entries to the personal configuration partition on the local disk, and preserving users' personal files and registry configurations during image update processes.

- **Enable Application Layering/Super Reserve Mode:** Allows the client to use the application layering/super reserve mode feature. This feature automatically monitors changes to the client's system disk (C drive) and saves the changed files and registry to a local disk or personal disk, ensuring they are not lost after a restart.
- **Enable under Superuser:** Allows the application layering/super reserve mode feature to be enabled even under superuser mode.
- **Disable Registry Layering:** Disables the registry layering feature, enabling only file layering.
- **Storage Drive Letter on Client:** Sets the drive letter on the client where the files and registry changes are saved by the application layering/super reserve mode feature.
- **Custom Save Type:** File/Folder Blacklist, File/Folder Whitelist, Registry Blacklist, Registry Whitelist. Blacklist has a higher priority than whitelist.
- **Application Layering/Super Reserve Mode List:** Configure files and folders to be saved using the add, edit, and delete context menu options.

 **Tip:** The following content provides information on the limitations of application layering. Please avoid related scenarios.

Tips

Limitation Information

The application layering module is implemented as a low-level driver residing in the **Windows system**. To ensure that files or registry information in each layer are visible to the operating system, the driver must ensure that the applications in each layer start after the application layering driver has started. Otherwise, the operating system will not find the files in these layers, causing related applications to fail to start. Based on this reason, application layering has certain limitations and does not support or conditionally supports some application scenarios. Specific limitations include the following:

1. Non-USB Device Drivers

Since the application layering driver belongs to the file system filter driver category, its initialization sequence during the operating system startup occurs after system hardware device initialization. Therefore, **non-USB device drivers** (e.g., virtual disk or virtual graphics card drivers) installed by users on their desktops will not function after a restart because the application layering driver has not started when the device driver initializes, making it unable to locate the driver-related files or registry information in the application layering disk.

2. Antivirus Software

Antivirus software typically involves many low-level drivers, some of which **start earlier than the application layering file system filter driver**. Upon system restart, the antivirus software cannot read the program-related files in the application layering disk, resulting in errors or non-functional antivirus software.

3. Services with boot Startup Type

Windows services have the following startup types: `boot` , `system` , `auto` , `demand` , `disabled` . These are initialized in sequence from `boot` to `disabled` . Since **the application layering driver's service startup type is `system` , which is later than `boot` ,** application layering does not support services with the `boot` startup type. Programs using `boot` type services are typically non-USB device drivers or antivirus software.

4. System Security Patches

When upgrading Windows system security patches involving kernel updates, the kernel files are written to the personalized disk of the application layering. For such kernel patches, **the application layering driver has not started during system boot**, causing the upgrade

program to fail to locate the boot files in the application layering disk after a restart, resulting in an invalid or failed upgrade.

Workarounds

For the above scenarios, the workaround is: **Such applications or Windows patch upgrades should not be performed by users on their desktops. Instead, administrators can pre-install them while editing the image and then distribute it to users.**

Supported System Versions

The application layering driver is developed based on the `minifilter` framework. Since **versions prior to Windows 7 SP1 do not support some features of the `minifilter` framework**, application layering technology is only supported on **Windows 7 SP1 and later versions**, including Windows 10.



Boot in domain environment

Cloud Desktop About 2 min Desktop UI Boot in domain environment

Introduction to Windows domain

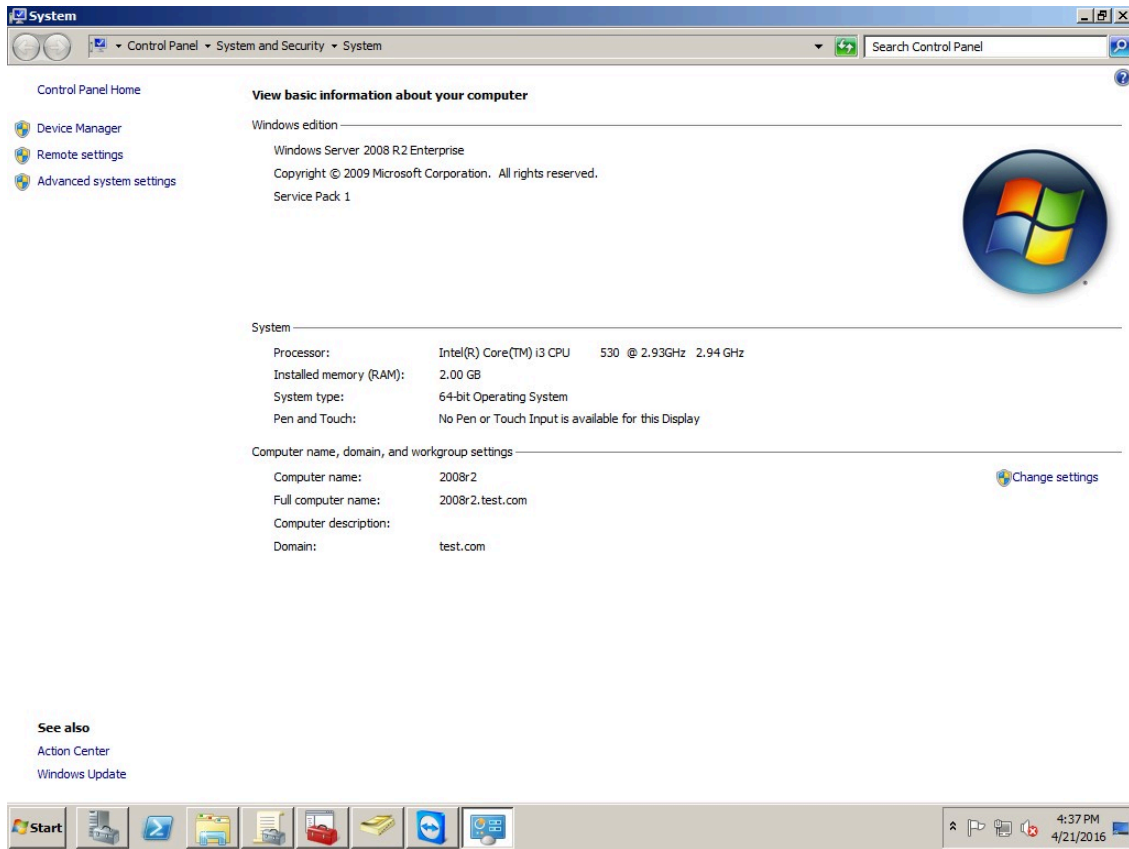
Windows domain is a network management mode that allows network administrators to control and manage a large number of computers and users from one place. Computers and users in the domain are verified and authorized by one or more servers (called domain controllers). Computers and users in the domain have their own accounts and passwords, and can log on to any computer in the domain. The domain can also set and apply various security and configuration options through group policy, as well as achieve resource sharing and access. Domains are usually used for large-scale enterprise, school or government networks, which can improve the security, scalability, redundancy and management efficiency of the network.

To implement Windows domain, the following requirements need to be met:

- You need one or more servers with Windows Server operating system installed, as domain controllers, responsible for managing objects (such as users, computers, organizational units, etc.) and services (such as DNS, DHCP, AD FS, etc.) in the domain.
- You need to install and configure Active Directory Domain Services (AD DS) role on the server, create and maintain the directory database in the domain.
- You need to specify a unique name for the domain, such as example.com , and register the name on the DNS server, so that computers inside and outside the domain can resolve the domain name.
- You need to choose a suitable functional level for the domain, to determine the functions and compatibility that can be used in the domain. The higher the functional level, the more functions can be used, but it also requires all domain controllers to use the same or higher version of Windows Server operating system.
- You need to join the client computers to the domain, so that they can accept the unified management of the domain and use the resources in the domain. Before joining the domain, you need to specify the DNS server address, and enter the domain name and administrator credentials on the client computer.

Installation requirements

The domain controller server is windows server 2008 R2 or above operating system (computer name: "domainserver", domain name: "test.com ") Please note: Do not install DHCP service on the domain controller, workstations use fixed IP.



domainserver

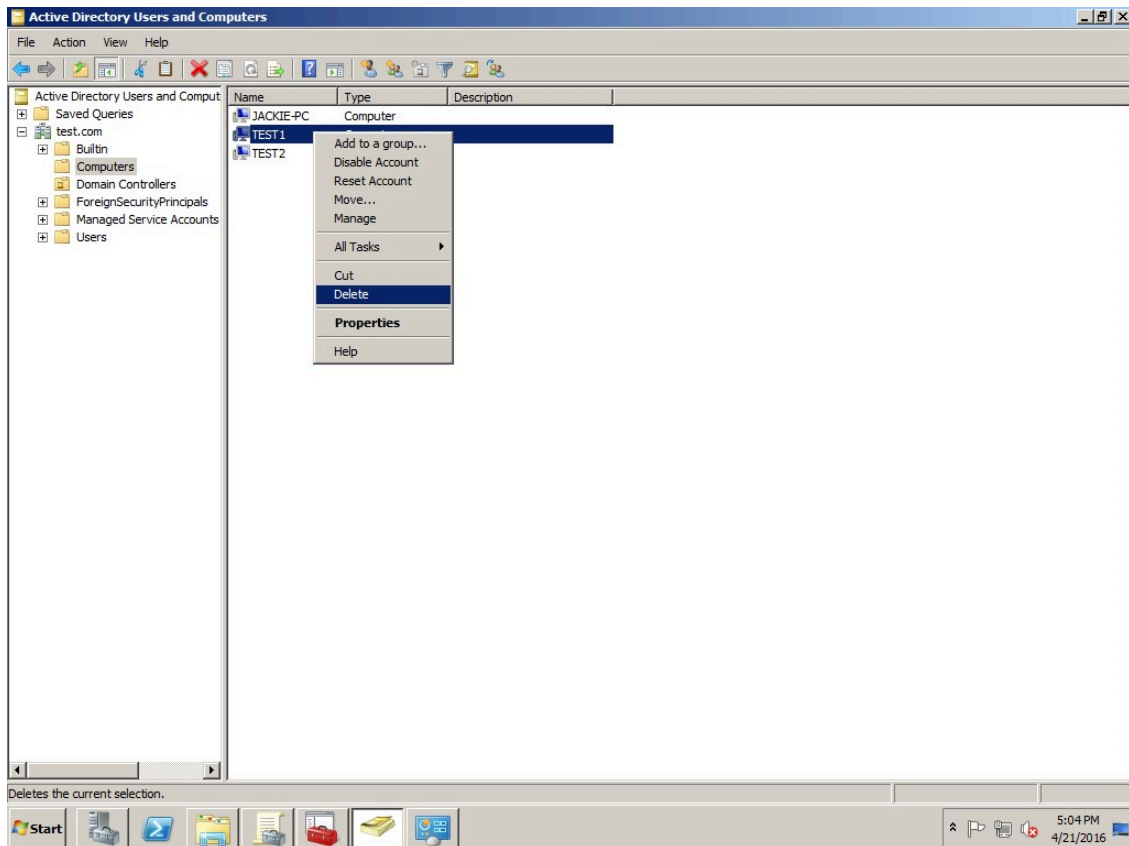
The cloud desktop server is windows server 2008 R2 or above operating system (computer name: "clouddesktopserver"), joined to the domain "test.com ".

The cloud desktop client is windows 7 or above operating system (computer name: "test1"), joined to the domain "test.com ".

Installation steps

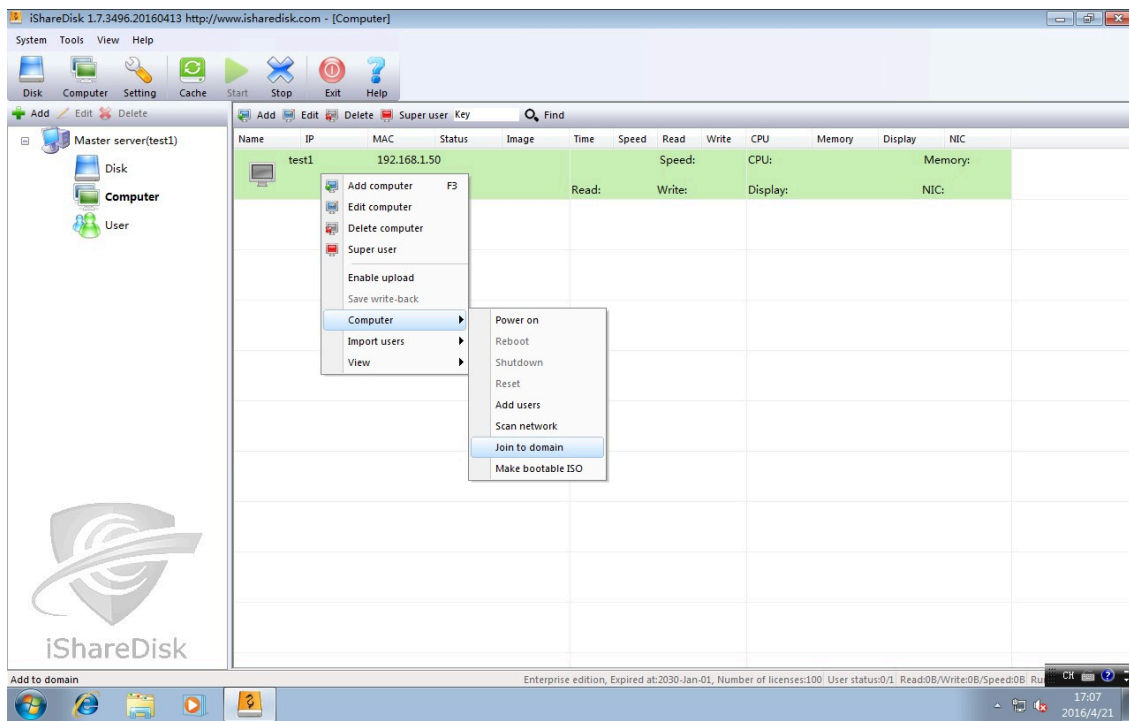
- Please create a domain "test.com " on the server "domainserver", and join the workstation "test1" and server "clouddesktopserver" to the domain. Please log in with a domain administrator on "test1" and "clouddesktopserver".

- Install cloud desktop client on "test1", install cloud desktop server on "clouddesktopserver".
- Upload image to cloud desktop server "clouddesktopserver", and make sure "test1" can boot disklessly.
- Delete computer "test1" from Active Directory on domain server "domainserver".



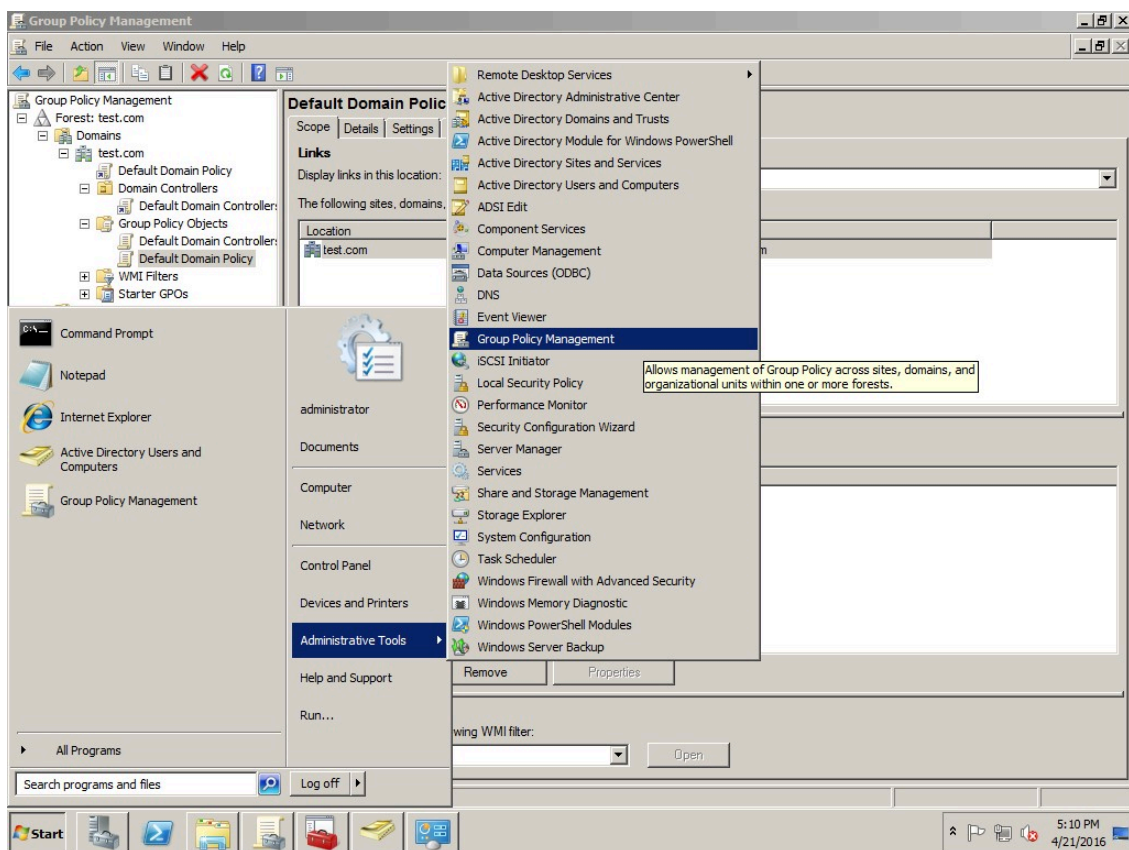
Delete computer

- Use command "Join Domain" on server "clouddesktopserver" to add "test1" and other computers to domain server "domainserver".



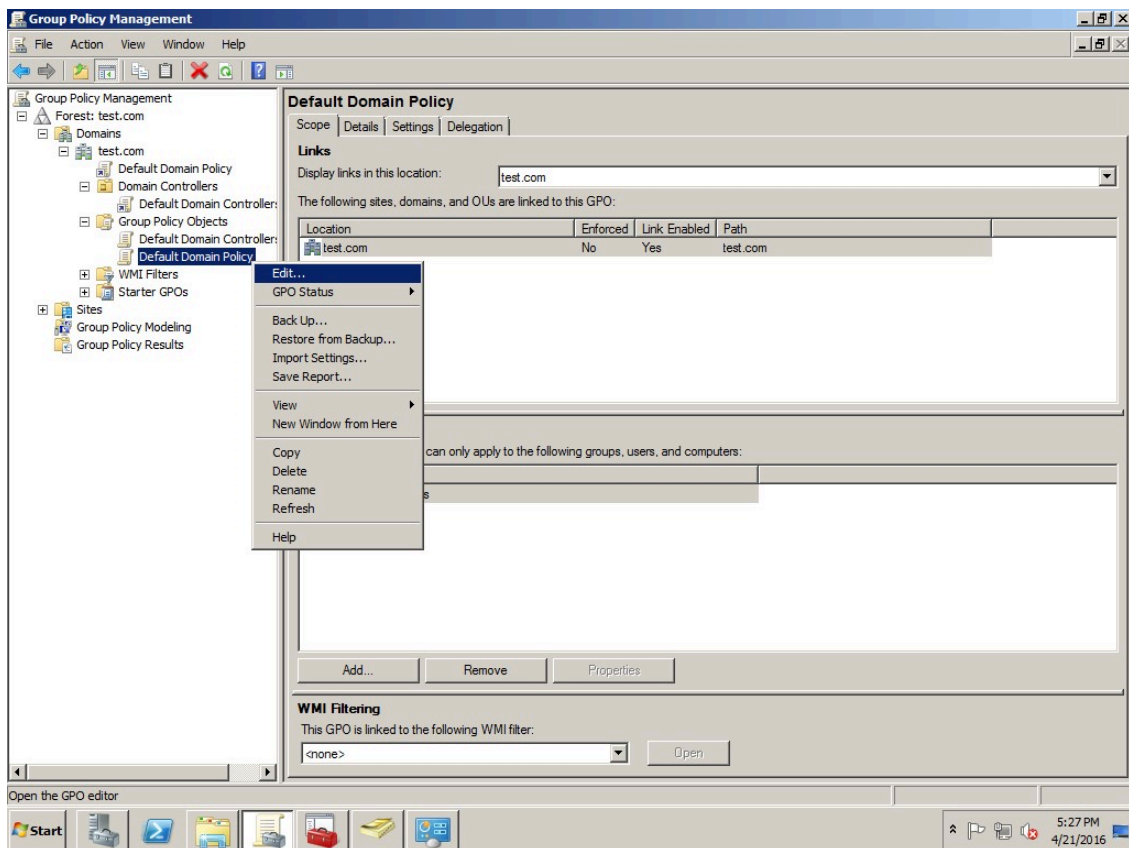
Join Domain

- Disable computer password change on domain server "domainserver".
 - Open "Group Policy Management"



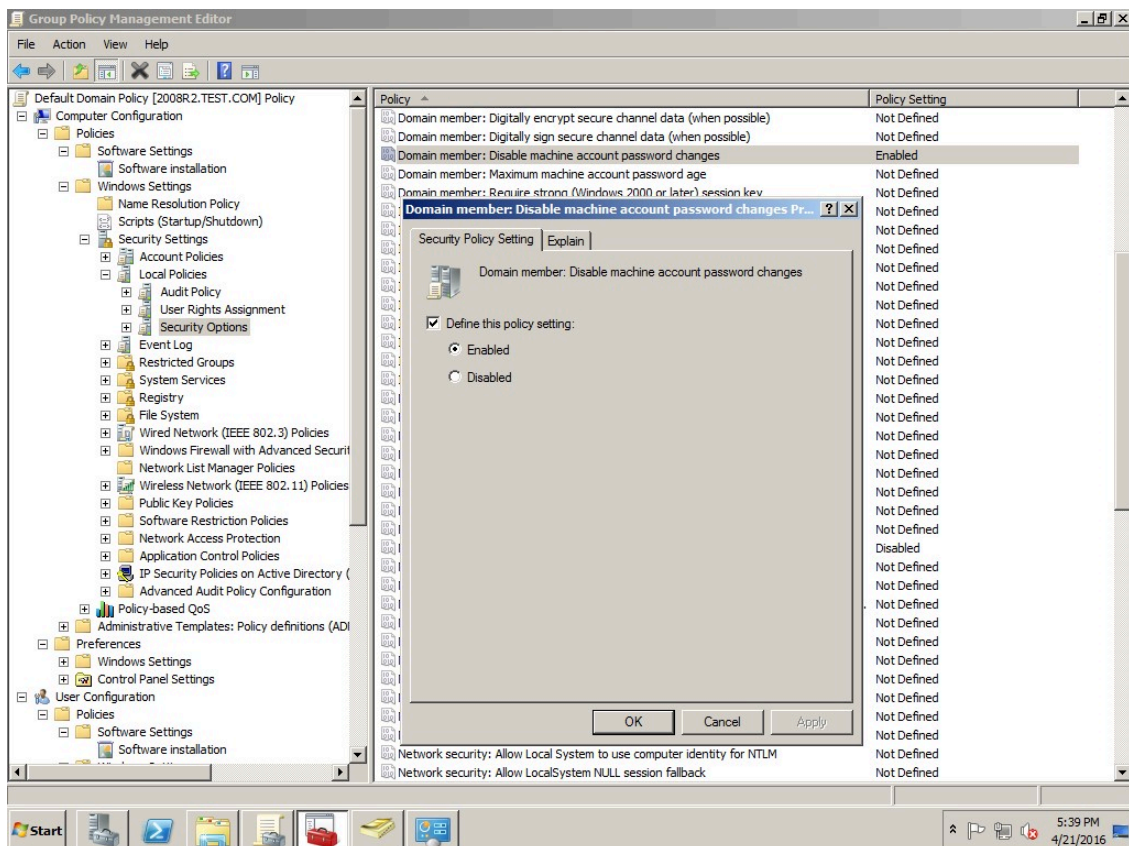
Group Policy

- Edit default domain policy "Default Domain Policy"



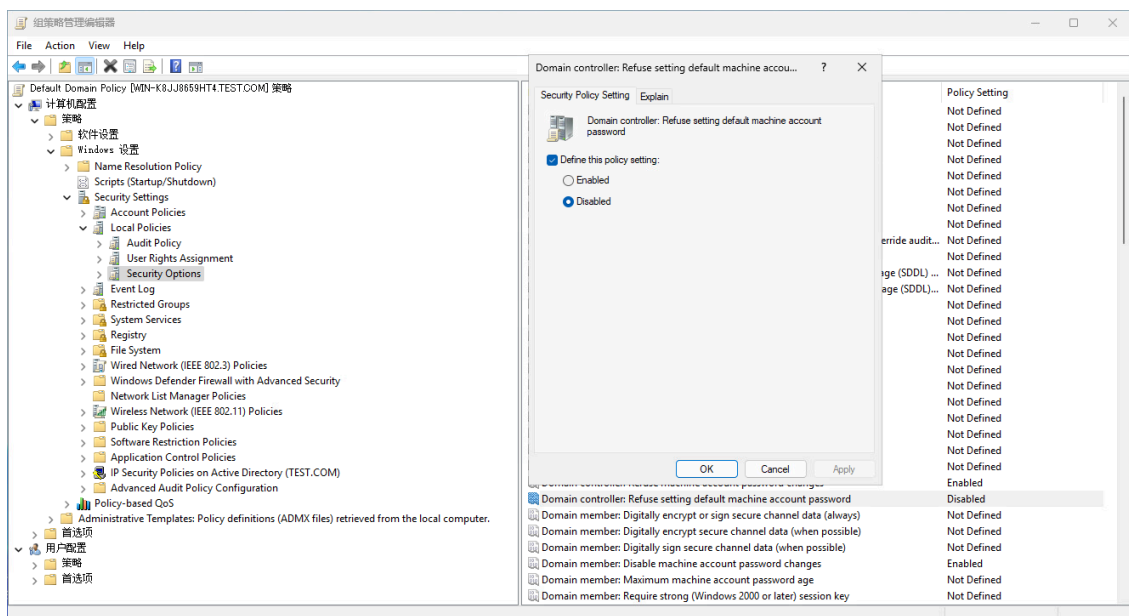
Default Domain Policy

- In Computer Configuration->Policies->Windows Settings->Security Settings->Local Policies->Security Options, enable "Domain controller: Refuse machine account password changes".



Disable machine account password changes

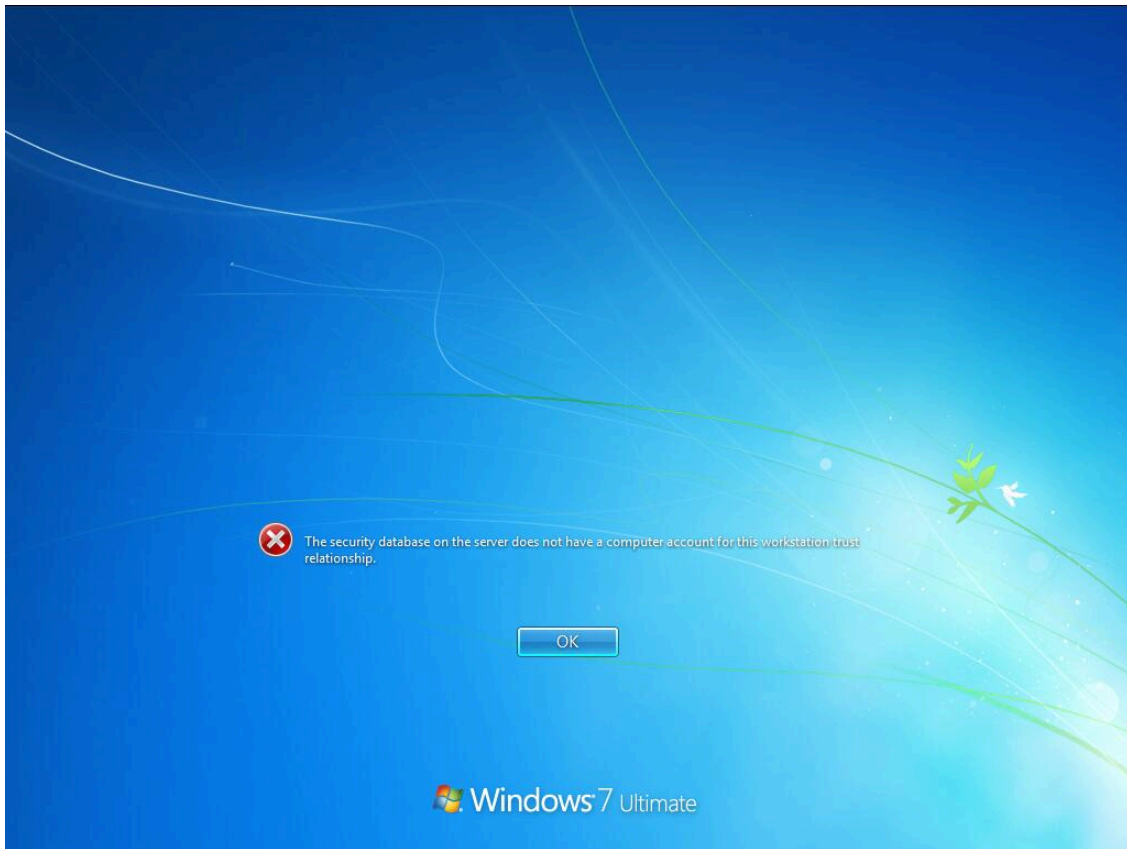
- In Computer Configuration->Policies->Windows Settings->Security Settings->Local Policies->Security Options, enable "Domain controller: Refuse setting default machine account password".(server 2025)



Refuse setting default machine account password

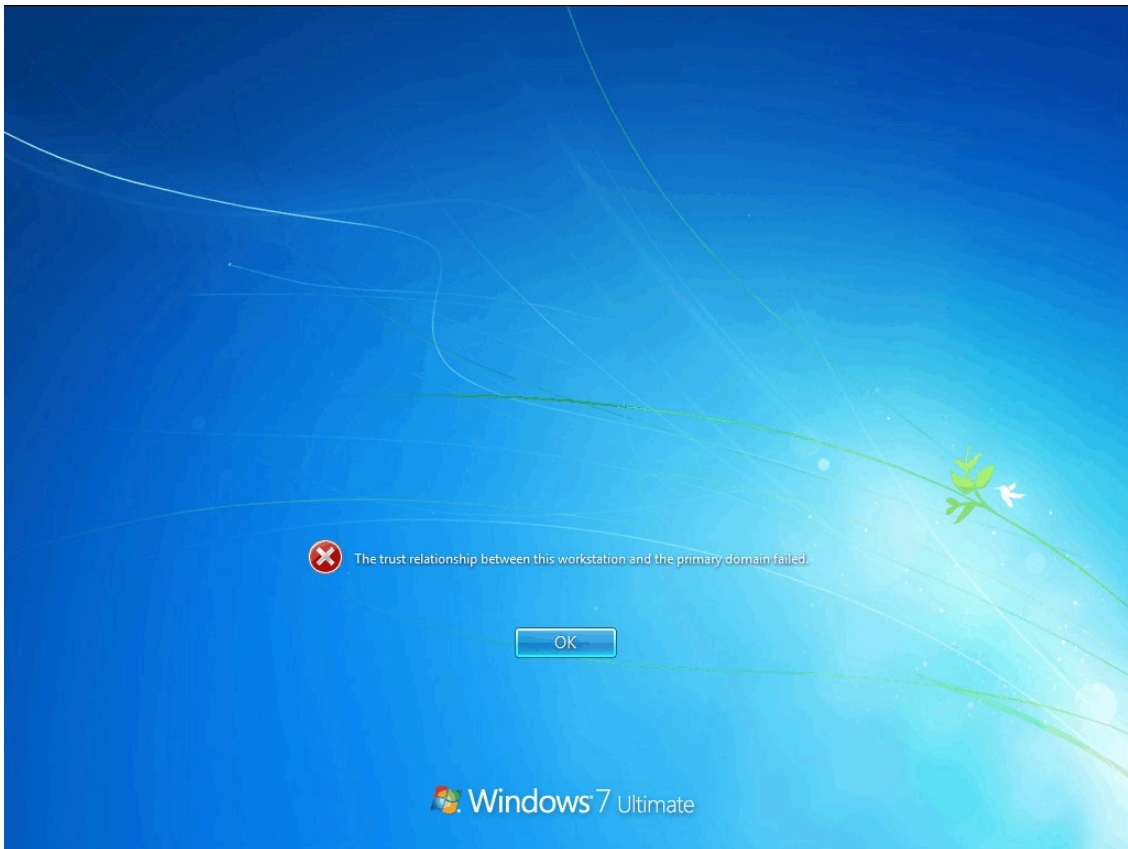
- Installation problem solutions

- Login error after client startup: "The security database on the server does not have a computer account for this workstation trust relationship".
Solution: Add computer to domain server on cloud desktop server.



No trust relationship

- Login error after client startup: "The trust relationship between this workstation and the primary domain failed"
Solution: Delete the computer on the server, add computer to domain server on cloud desktop server.

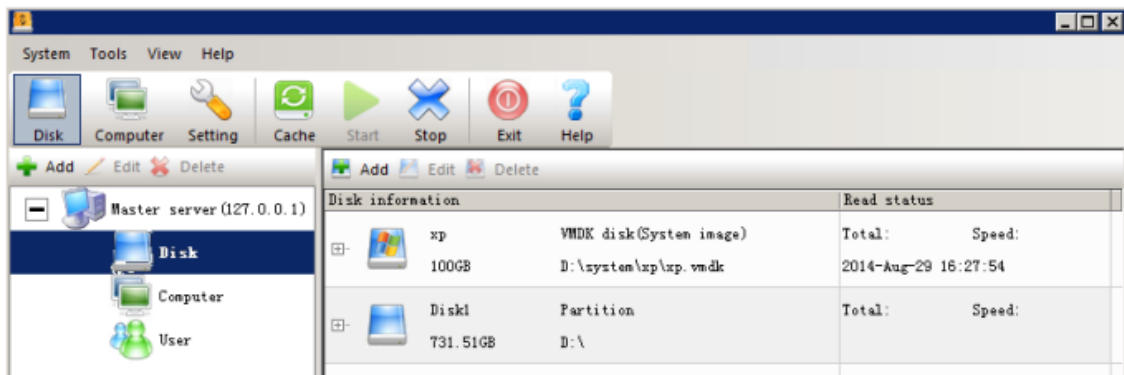


Trust relationship failed

Image Management

 Cloud Desktop  Less than 1 minute  Desktop UI  Image Management

Image List



Image

Edit Image

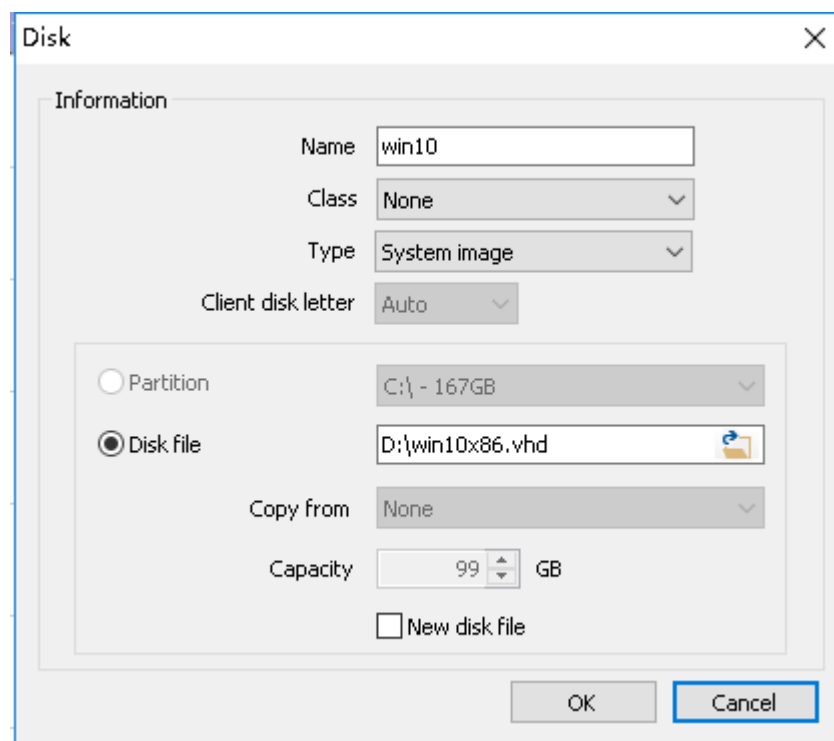


Image Properties

In the disk list, click "Add" or "Edit" to pop up the disk properties setting dialog box:

Name: The name of the disk.

Category: Custom disk classification

Type: Includes a data disk and system image

Client drive letter: The drive letter of the disk displayed on the client

Storage resources:

Partition: Server disk partition.

Disk file: Virtual disk file, system image can only be virtual disk file.

Copy: When creating a new disk file, you can copy from a formatted sample file

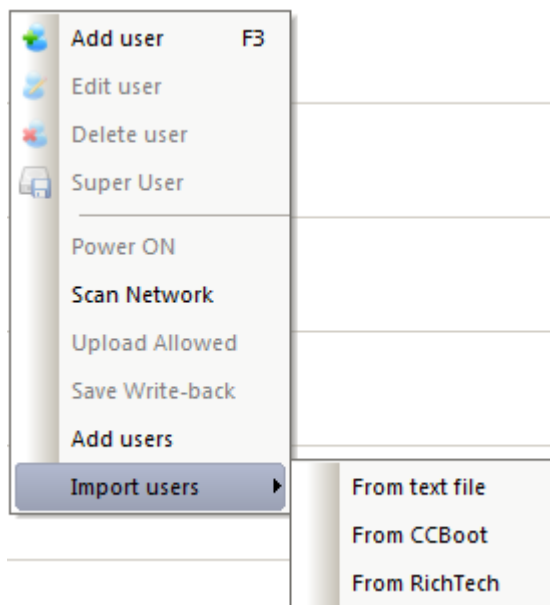
Capacity: Set the capacity of the new disk file.

Create a new disk file: Recreate the disk file

Batch add computers

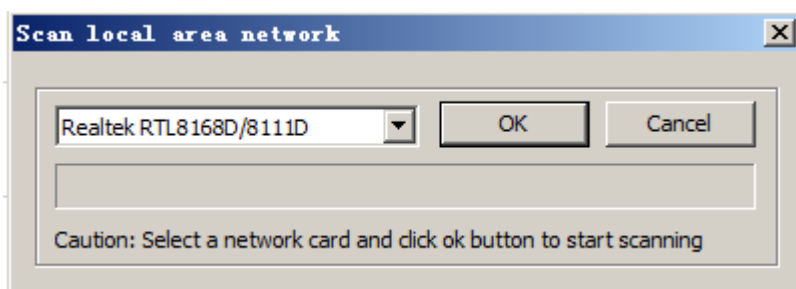
 Cloud Desktop  Less than 1 minute  Desktop UI  Batch add computers

There are many ways to batch add client machines, please operate in the user menu that pops up by right-clicking in the client machine view



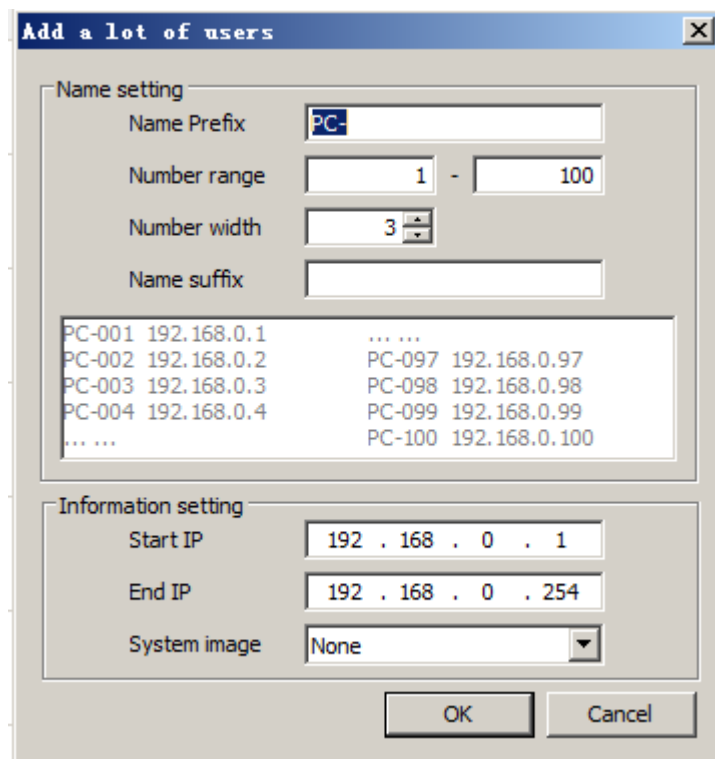
Batch add and import computer command

Method one: Turn on all the client machines first, and then use the scan network function to add client machines



Scan network

Method two: Use the batch add command to batch add users according to certain rules



Batch add rules

1. Specify the name rule of the client machine: set the prefix, middle number and suffix of the machine name
2. Specify the start and end IP of the client machine, and you can generate client machines according to the rules. The disadvantage is that MAC cannot be generated

Method three: Use plain text file to import client machines, assuming there is a plain text file with the following format

Use the import from text file command, you can get the following dialog box

diskless.txt - 记事本		
文件(F) 编辑(E) 格式(O) 查看(V) 帮助(H)		
name	macaddress	ipaddress
A-001	20-CF-30-AE-A6-12	192.168.1.51
A-002	48-5B-39-25-B6-53	192.168.1.52
A-003	48-5B-39-25-C0-B8	192.168.1.53
A-004	48-5B-39-25-B6-6D	192.168.1.54
A-005	48-5B-39-25-B6-10	192.168.1.55
A-006	48-5B-39-25-B6-2B	192.168.1.56
A-007	48-5B-39-25-B6-60	192.168.1.57
A-008	48-5B-39-25-B5-B0	192.168.1.58
A-009	48-5B-39-25-B5-AB	192.168.1.59

Batch add from text file

Importing a text file

Import Settings

Delimiter

☒ Space
☒ TAB

Name Column NO.

1

IP Column NO.

3

MAC Column NO.

2

System image

None

Name	IP	MAC
name	ipaddress	mac
A-001	192.168.1.51	20-CF-30-AE-A6-12
A-002	192.168.1.52	48-5B-39-25-B6-53
A-003	192.168.1.53	48-5B-39-25-C0-B8
A-004	192.168.1.54	48-5B-39-25-B6-6D
A-005	192.168.1.55	48-5B-39-25-B6-10
A-006	192.168.1.56	48-5B-39-25-B6-2B
A-007	192.168.1.57	48-5B-39-25-B6-60

OK

Preview

When your text file format is different, you can specify other separators and column numbers for each data. If the file does not contain computer name and IP information, you can click the button on the right of the column number to specify the auto-generation rule. Click OK to complete the import

Importing a text file

Import Settings

Rule for Name

Name setting

Name Prefix

Number range -

Number width

Name suffix

PC-001
 PC-002 PC-097
 PC-003 PC-098
 PC-004 PC-099
 PC-100

OK Cancel

Adjust rules

Importing a text file

Import Settings

Delimiter ☒ Space ☒ TAB ☒ Co

Name Column NO. >

IP Column NO. >

MAC Column NO. >

System image

Name	IP	MAC
PC-001	192.168.1.1	macadd
PC-002	192.168.1.2	20-CF-3
PC-003	192.168.1.3	48-5B-3
PC-004	192.168.1.4	48-5B-3
PC-005	192.168.1.5	48-5B-3
PC-006	192.168.1.6	48-5B-3
PC-007	192.168.1.7	48-5B-3
PC-008	192.168.1.8	48-5B-3

OK

Adjust columns

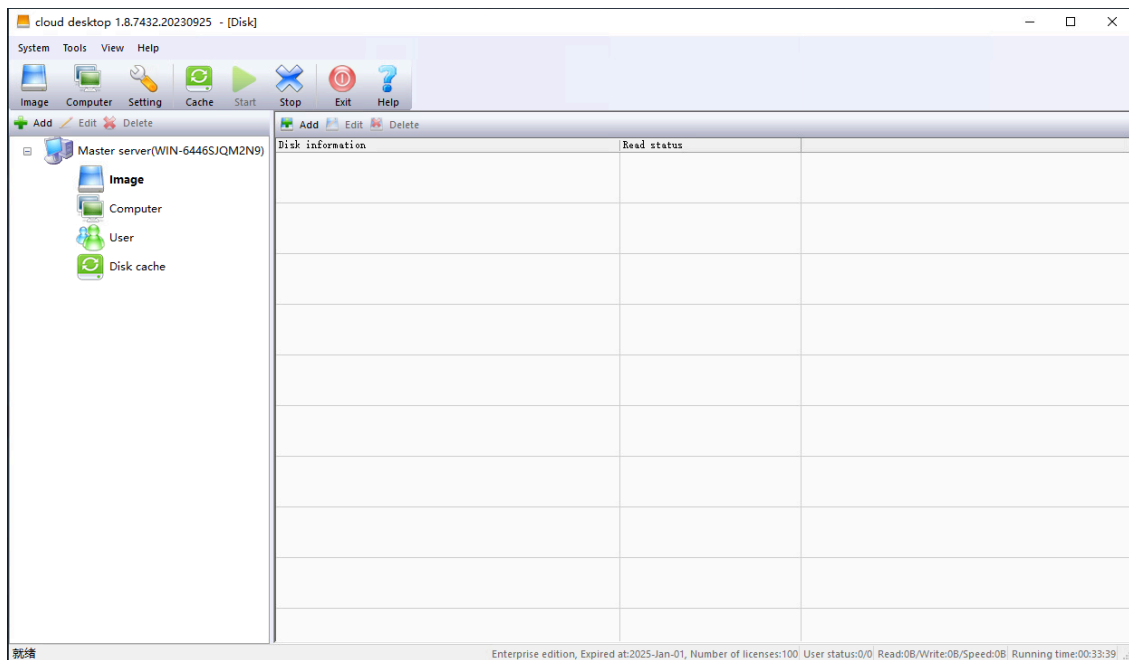
Method four: Use Import from CCBoot command, import CCBoot configuration file AccInfo.ini

Method five: Use Import from Ruiqi command, import Ruiqi configuration file wks.ini

Main interface

 Cloud Desktop  About 2 min  Desktop UI  Main interface

Overall Display



Main Interface

Menu



Menu

System

"System" -> "Disk Cache": Start the server's disk cache.

"System" -> "Start iSCSI": Start DHCP, TFTP, iSCSI virtual disk, and cloud desktop services.

"System" -> "Stop iSCSI": Stop all cloud desktop services, but not the background processes. If you need to install a new version of the server, please overwrite the installation.

"System" -> "Add Auxiliary Server": Add an auxiliary server for multi-server management.

"System" -> "Edit Auxiliary Server": Edit an auxiliary server for multi-server management.

"System" -> "Delete Auxiliary Server": Delete an auxiliary server for multi-server management.

"System" -> "Sync": Sync settings and system images between multiple servers.

"System" -> "Lock": Lock the cloud desktop main interface.

"System" -> "Exit": Close the cloud desktop main interface, but the cloud desktop background service is still running.

Tools

"Tools" -> "Add Disk": Add an iSCSI disk and system image.

"Tools" -> "Edit Disk": Edit the properties of an iSCSI disk and system image.

"Tools" -> "Delete Disk": Delete an iSCSI disk and system image.

"Tools" -> "Add Computer": Manually add a client computer.

"Tools" -> "Edit Computer": View or edit the properties of one or more client computer.

"Tools" -> "Delete Computer": Manually delete the selected one or more client computer.

"Tools" -> "Super User": Switch the status of the client computer, which can be used to save user write-back data.

"Tools" -> "Add Category": Add a category for a computer or a user.

"Tools" -> "Edit Category": Edit a category for a computer or a user.

"Tools" -> "Delete Category": Delete a category for a computer or a user.

"Tools" -> "Settings": Open the server configuration interface.

Toolbar



Toolbar

Click on "Disk" to switch to disk view.

Click on "Computer" to switch to computer view.

Click on "Settings" to configure the server.

Click on "Cache" to start the disk cache management interface.

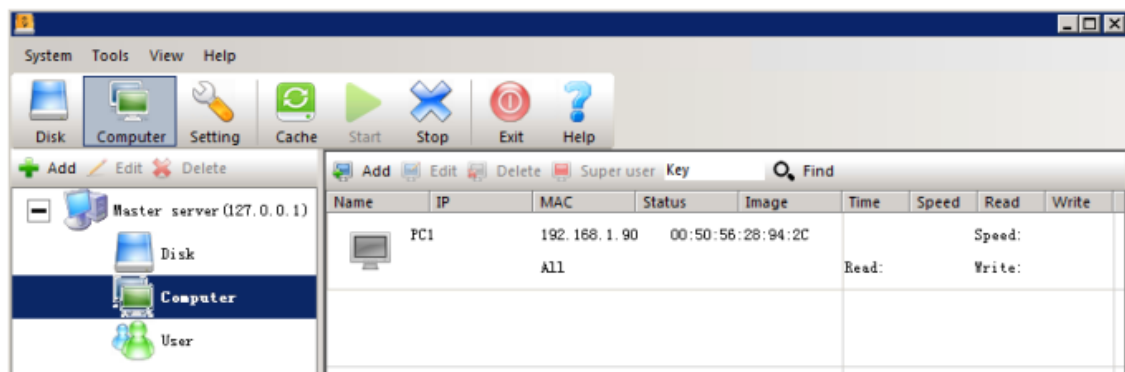
Click on "Start" start iSCSI service, after the service starts, this button is grayed out.

Click on "Stop" stop iSCSI service, after the service stops, this button is grayed out.

Click on "Exit" close the cloud desktop main interface, but the cloud desktop background service is still running.

Click on "Help" open help.

Computer List

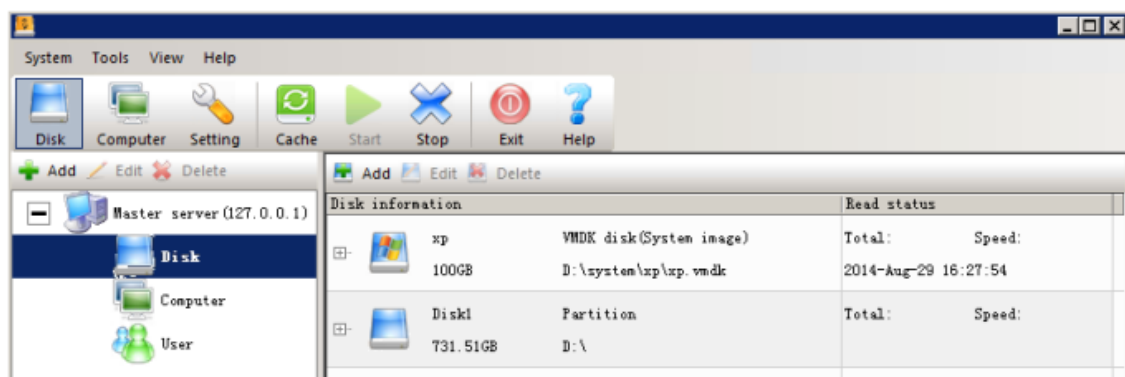


Computer

Computer information: Includes the client machine's name, IP address and MAC, whether to retain write-back data, whether to allow uploading images, and the image and disk combination used.

Read-write status: Includes the client machine's online time, current read-write speed, total read amount and write amount.

Image List



Image

Disk information: Includes disk name, disk type, disk size, disk path.

Read status: Includes total read amount, read speed.

User List

User

User information: Includes login name, personal disk image file, capacity, last login IP

Read-write status: Includes user's online time, current read-write speed, total read amount and write amount

Disk Cache List

Disk Cache

Status Bar

Status Bar

The information bar in the lower right corner shows the number of online users and total users, server read-write total amount and total speed, server online time

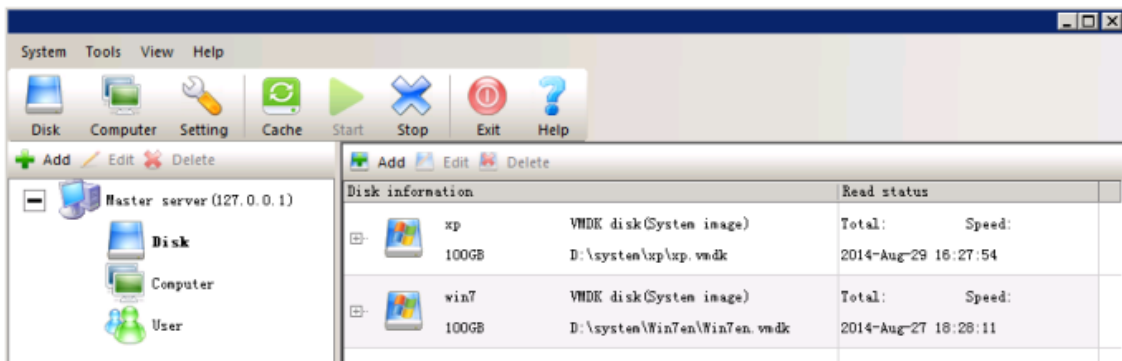
12 Multi-system boot

👤 Cloud Desktop ⌚ Less than 1 minute 🖥️ Desktop UI 🔑 Multi-system boot

Introduction

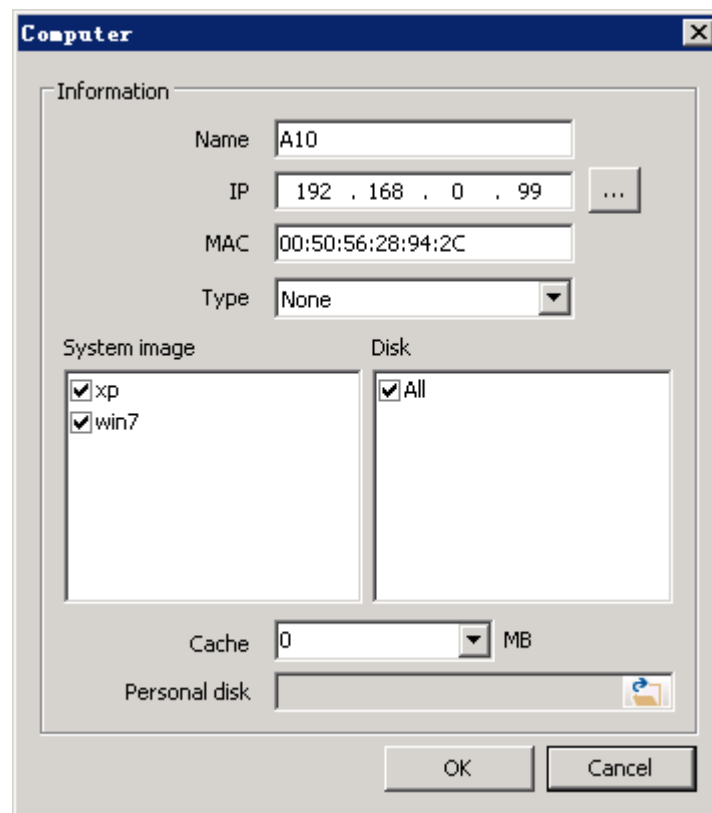
Multi-system boot means multiple operating system images, booting from the same client machine. The client machine displays the system boot menu when it starts, and the client chooses the operating system they need to start (such as XP and Win7), to achieve the function of multiple operating systems booting at the same time.

- Add multiple system images to disk management



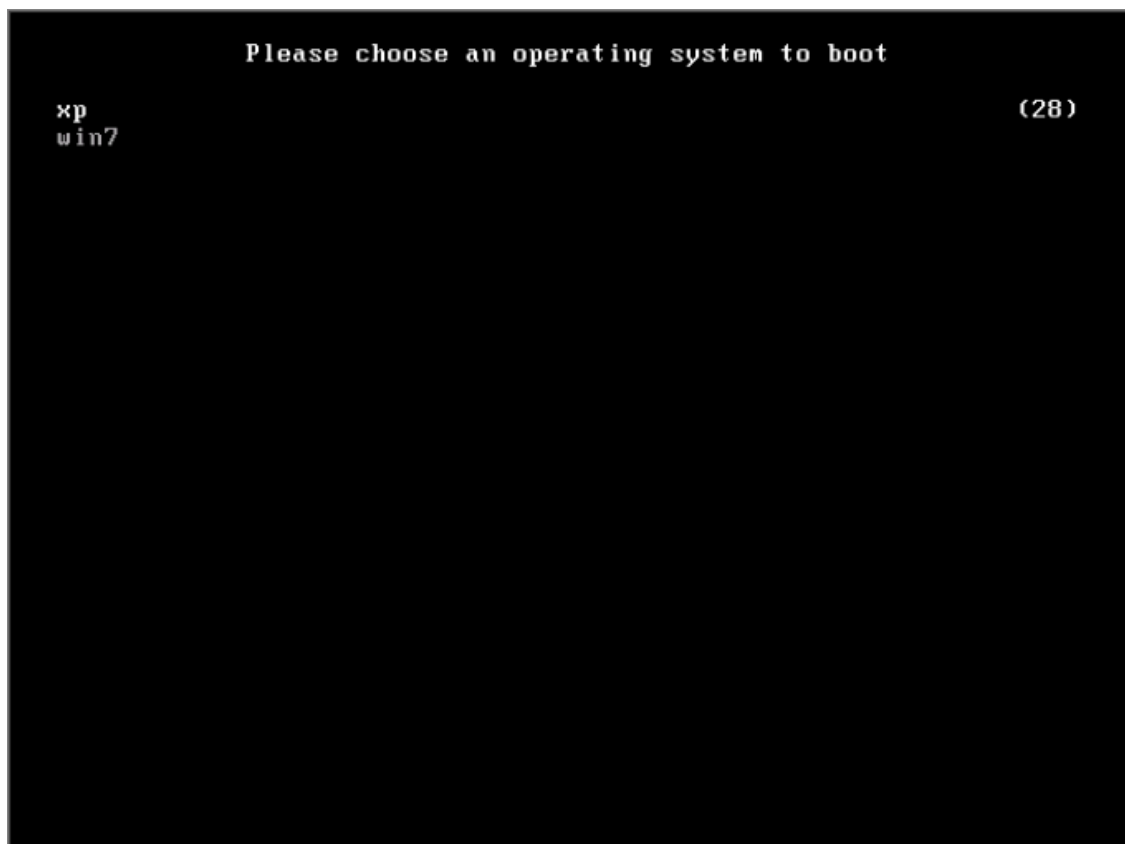
Add multiple images

- Edit computer properties, select multiple system images, you can drag and drop system images to adjust the display order of the multi-system boot menu on the client machine.



Set multiple images

- When the client machine starts, a multi-system boot selection menu will appear



Multi-image boot

Dual-server hot backup and load balancing

 Cloud Desktop  About 2 min  Desktop UI  Dual-server hot backup and load balancing

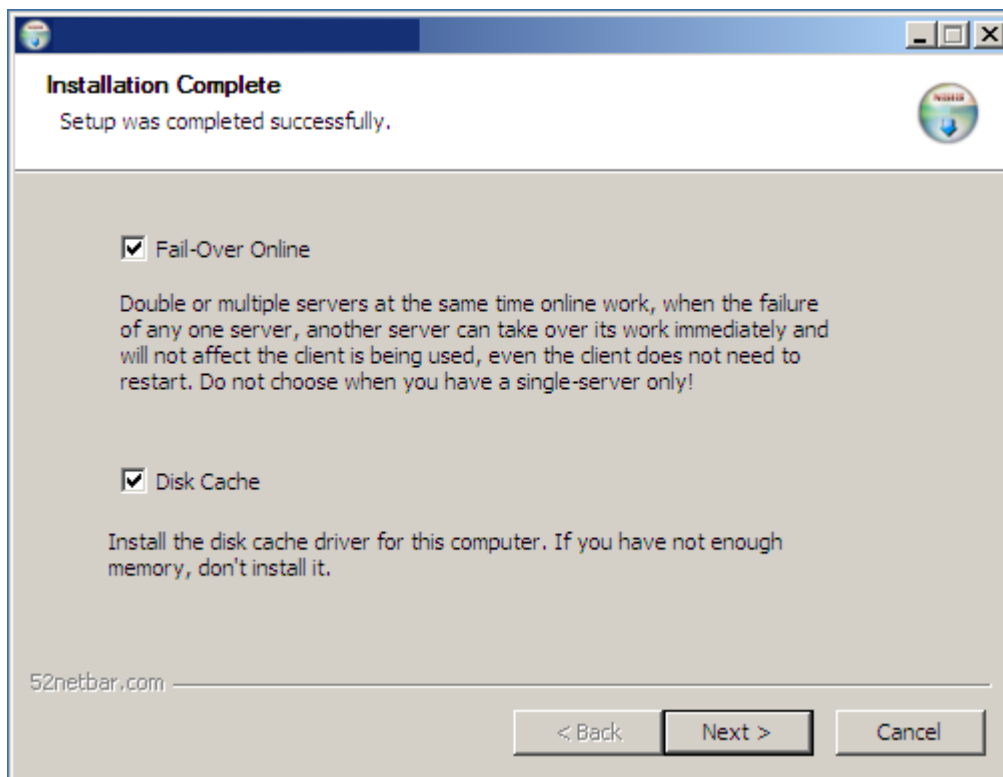
Function introduction

Dual-server hot backup is to achieve two or more servers working online at the same time, when any one of the servers fails, another server can immediately take over its work, and will not affect the clients in use, even the clients do not need to restart. Dual-server hot backup can achieve zero-gap connection, and the client can hardly feel any change. It can also be set that one server is the primary server and the other is the backup server. The primary server is responsible for processing the client's requests, and the backup server is responsible for monitoring the status of the primary server and taking over the service when the primary server fails. Dual-server hot backup can improve the reliability and availability of diskless boot, and avoid client failure due to single point of failure. **Note: For single server, please do not select this option. This feature only supports Windows 7 clients!**

Load balancing means using multiple servers to provide PXE network boot service, and distributing client requests through load balancing devices or software, so that each server bears similar load. Load balancing can improve the performance and efficiency of diskless boot, and avoid client response slow or failure due to server overload.

Client installation options

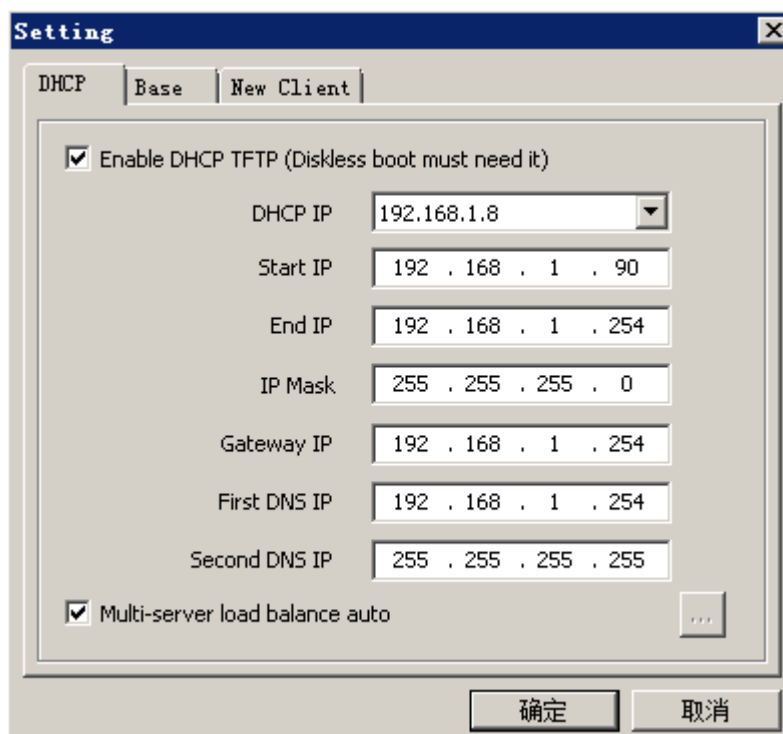
When installing the client, select the "Dual-server hot backup" option, other options are the same as general installation. **Note: Not installing "Dual-server hot backup" on the client does not affect the load balancing of multiple servers!**



Installation options

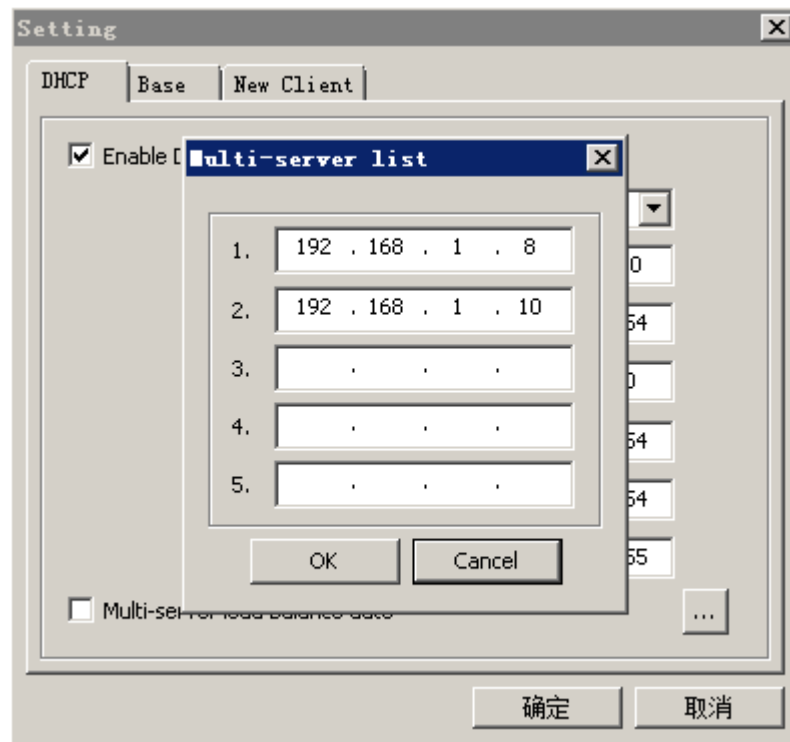
Server-side settings

In the settings of both servers, add the same clients (machine name, IP, image path, game disk drive letter are the same, write-back path can be different). You can also set up one server first, and copy the "set" suffix configuration file to another one. Then set as follows:



Automatic load balancing

Automatic load balancing: Check "Multi-server automatic load balancing"



Manual load balancing

Manual load balancing: Manually set and add each server IP, click the "..." button, and add each server IP in turn.

Single server with multiple network cards, multiple write-back disks settings

Set up each network card's IP in the operating system, and the diskless system automatically assigns two network cards to connect different clients. At the same time, after setting multiple write-back directories, it automatically balances the write-back size of each directory. It is recommended that the write-back disk is a separate disk hardware, and it is a hard disk with the fastest random write speed, such as: NVMe protocol PCIe SSD solid state drive.



Write-back disk settings

Manual implementation of load balancing (old-fashioned method)

Assuming there are 10 machines A01 - A10. There are two servers Server A, Server B. It can be set that Server A allows 5 machines to boot, Server B allows another 5 to boot. To achieve manual load balancing. The computer lists of both servers are as follows:

System Tools View Help					
Disk Computer Setting Cache Start Stop Exit Help					
+ Add Edit Delete					
Master server (127.0.0.1)					
Disk Computer User					
Add Edit Delete Super user Key Find					
Name	IP	MAC	Status	Image	
A01	192.168.0.90		Forbid boot	xp, All	
A02	192.168.0.91			xp, All	
A03	192.168.0.92		Forbid boot	xp, All	
A04	192.168.0.93			xp, All	
A05	192.168.0.94		Forbid boot	xp, All	
A06	192.168.0.95			xp, All	
A07	192.168.0.96		Forbid boot	xp, All	
A08	192.168.0.97			xp, All	
A09	192.168.0.98		Forbid boot	xp, All	
A10	192.168.0.99			xp, All	

Server A

SystemToolsViewHelp

DiskComputerSettingCacheStartStopExitHelp

+ AddEditDelete

Master server (127.0.0.1)

DiskComputerUser

AddEditDeleteSuper userKeyFind

Name	IP	MAC	Status	Image
A01	192.168.0.90			xp, All
A02	192.168.0.91		Forbid boot	xp, All
A03	192.168.0.92			xp, All
A04	192.168.0.93		Forbid boot	xp, All
A05	192.168.0.94			xp, All
A06	192.168.0.95		Forbid boot	xp, All
A07	192.168.0.96			xp, All
A08	192.168.0.97		Forbid boot	xp, All
A09	192.168.0.98			xp, All
A10	192.168.0.99		Forbid boot	xp, All

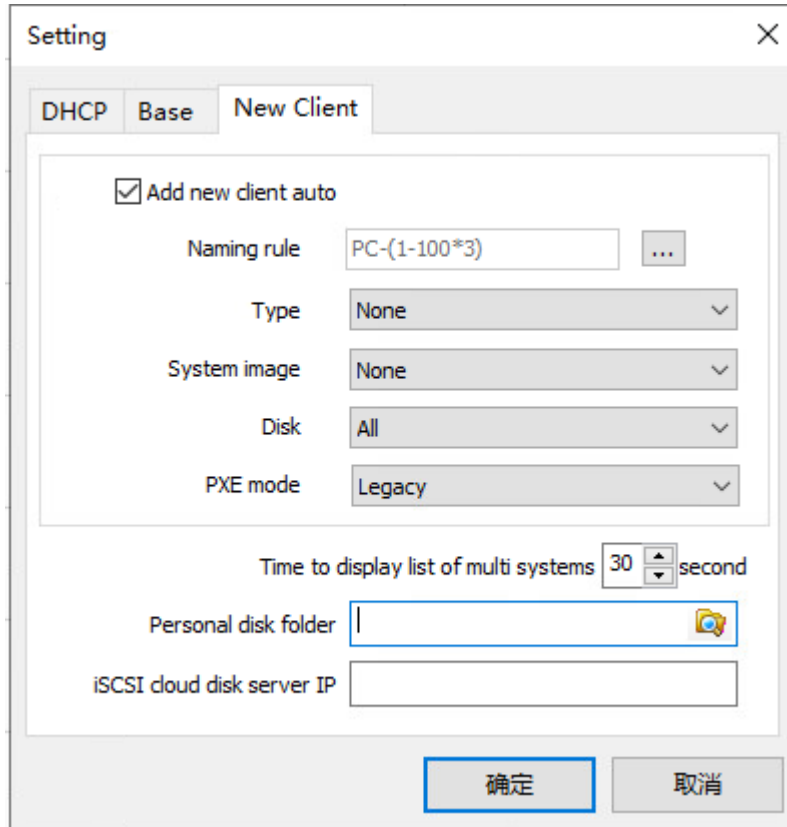
Server B

Personal disk

 Cloud Desktop  About 1 min  Desktop UI  Personal disk

Fixed personal disk

- Set the fixed personal disk root directory for each client machine



Setting

DHCP Base **New Client**

☒ Add new client auto

Naming rule PC-(1-100*3) ...

Type None

System image None

Disk All

PXE mode Legacy

Time to display list of multi systems 30 second

Personal disk folder

iSCSI cloud disk server IP

确定 取消

Personal disk root directory

- Set the personal disk path in the personal disk settings->advanced of the computer

Computer

Base

Advance

Update option

Personal disk

Profiles

Application Layer

Hardware

☐ Enable personal disk

Disk file path

Copy from

Capacity

☒ New disk file

Client disk letter

None

100 GB

Auto

Disable

Share folder

Login name

Password

Map disk letter

Auto

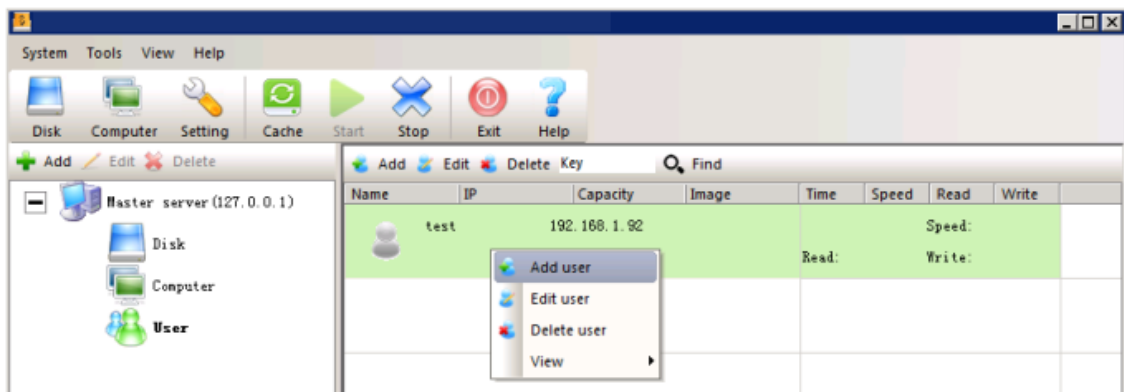
确定

取消

Fixed personal disk settings

Roaming personal disk

- Add personal users in the user list view



Add personal user

- Personal information includes: username, password, category and roaming personal disk settings

User

Information

☐ Disable

Name: test

Password: ●●●

Class: None

Type: Disk

Parent system image: None

Disk file path: D:\100G.vhd

Copy from: None

Capacity: 0 GB

☐ New disk file

Client disk letter: Auto

OK Cancel

Edit personal user

Name: Boot login account

Password: Boot login password

Category: Custom classification

Type: It can be a disk, system image, restore point, support roaming diskless boot.

Parent system image: When it is a restore point, the parent system image must be set.

Disk file path: The path where the disk file is saved

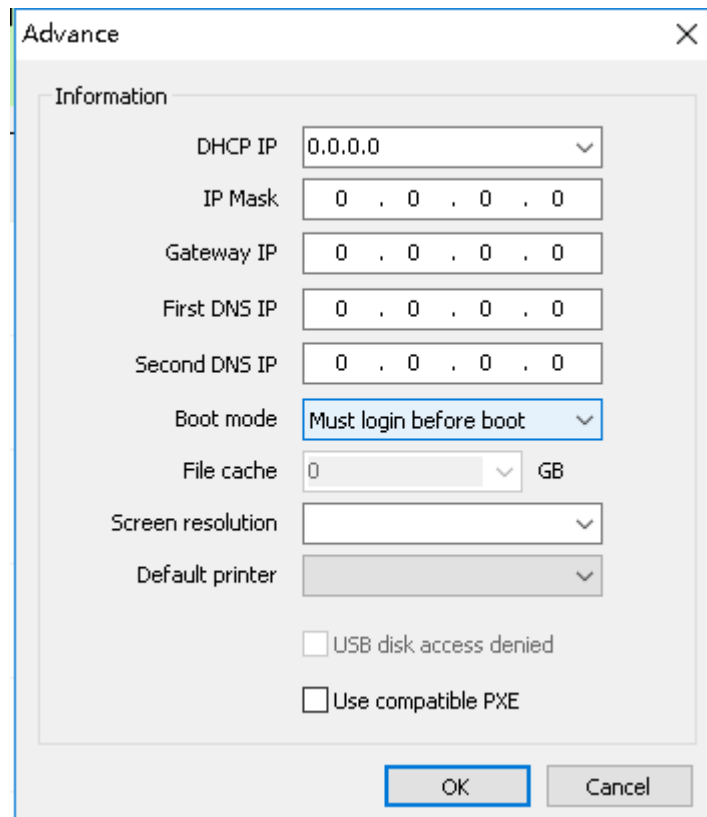
Copy: The formatted disk to be copied when creating a new disk

Capacity: The capacity of the new disk

Create new disk file: Whether to create a new disk file

Client machine drive letter: The specified drive letter of the virtual disk on the client machine

- Set the computer boot mode to must log in or display boot menu



The screenshot shows a window titled "Advance" with a close button (X) in the top right corner. Inside the window is a section labeled "Information" containing several configuration fields:

- DHCP IP: 0.0.0.0 (dropdown menu)
- IP Mask: 0 . 0 . 0 . 0 (text input)
- Gateway IP: 0 . 0 . 0 . 0 (text input)
- First DNS IP: 0 . 0 . 0 . 0 (text input)
- Second DNS IP: 0 . 0 . 0 . 0 (text input)
- Boot mode: Must login before boot (dropdown menu, highlighted with a blue border)
- File cache: 0 (text input) GB (text label)
- Screen resolution: (empty dropdown menu)
- Default printer: (empty dropdown menu)

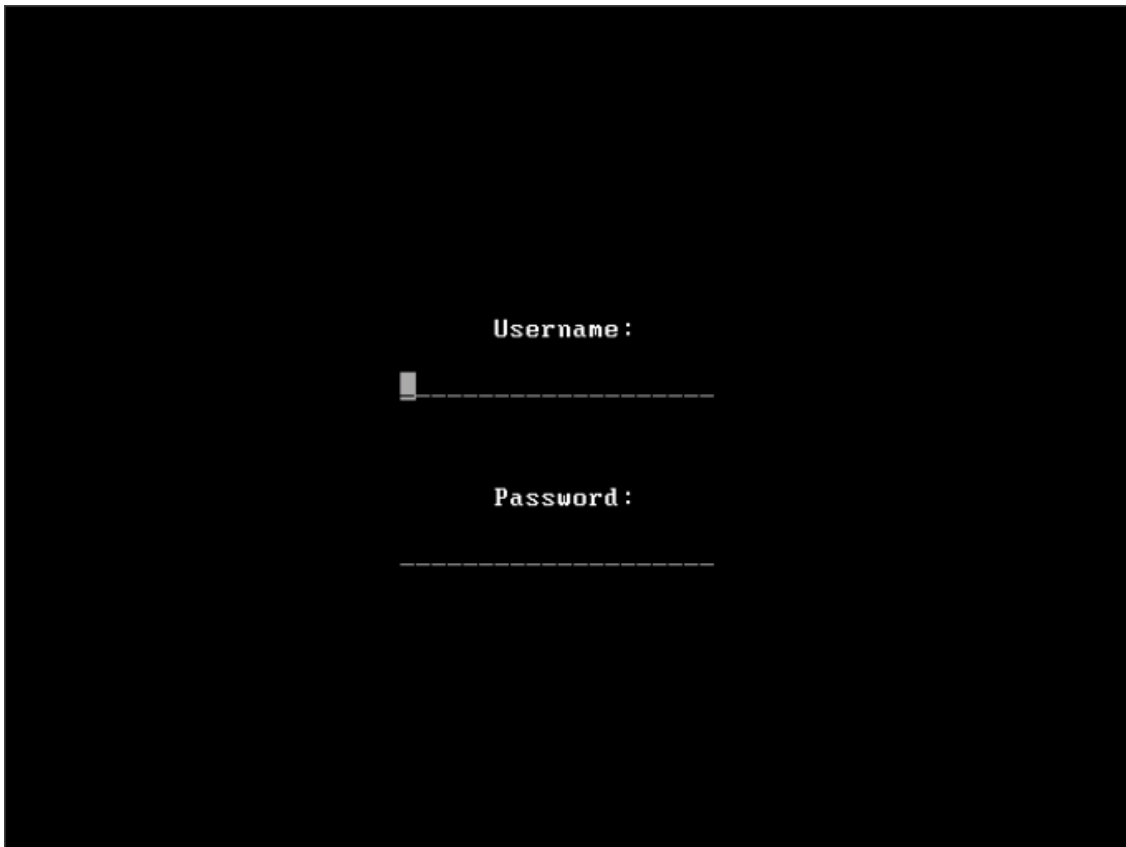
Below these fields are two checkboxes:

- ☐ USB disk access denied
- ☐ Use compatible PXE

At the bottom right of the window are two buttons: "OK" (highlighted with a blue border) and "Cancel".

Must log in before booting

- The client machine will display the following login interface every time it PXE network boots

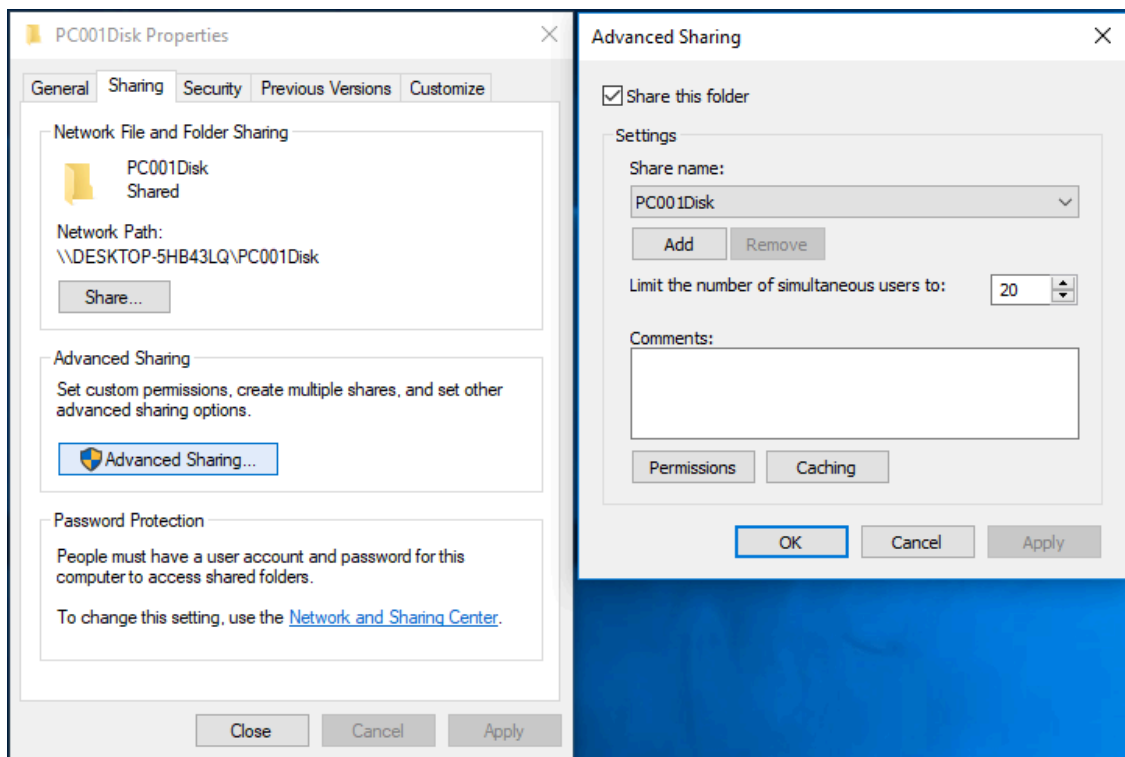


Personal disk login

Shared cloud disk

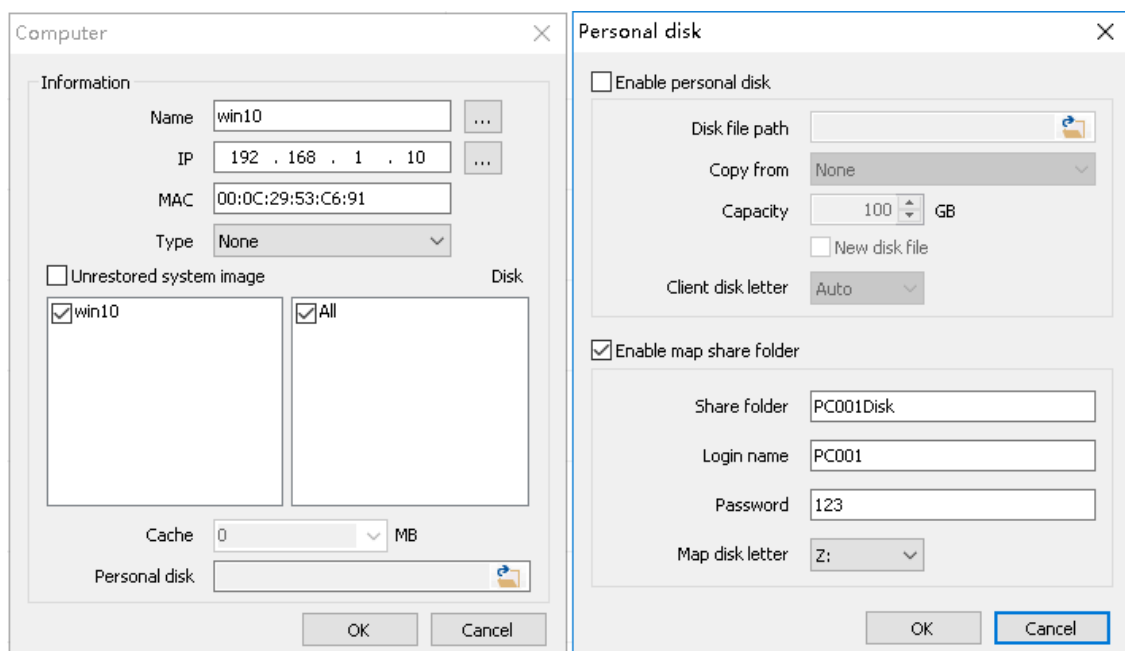
Shared cloud disk is to map the shared directory of the cloud desktop server to the client machine disk, such as: server directory "D:\PC001Disk", shared as "PC001Disk", login name "PC001", password "123", mapped to "Z:" on the client machine.

Server share settings are as follows:



Server share settings

Cloud desktop computer settings are as follows:

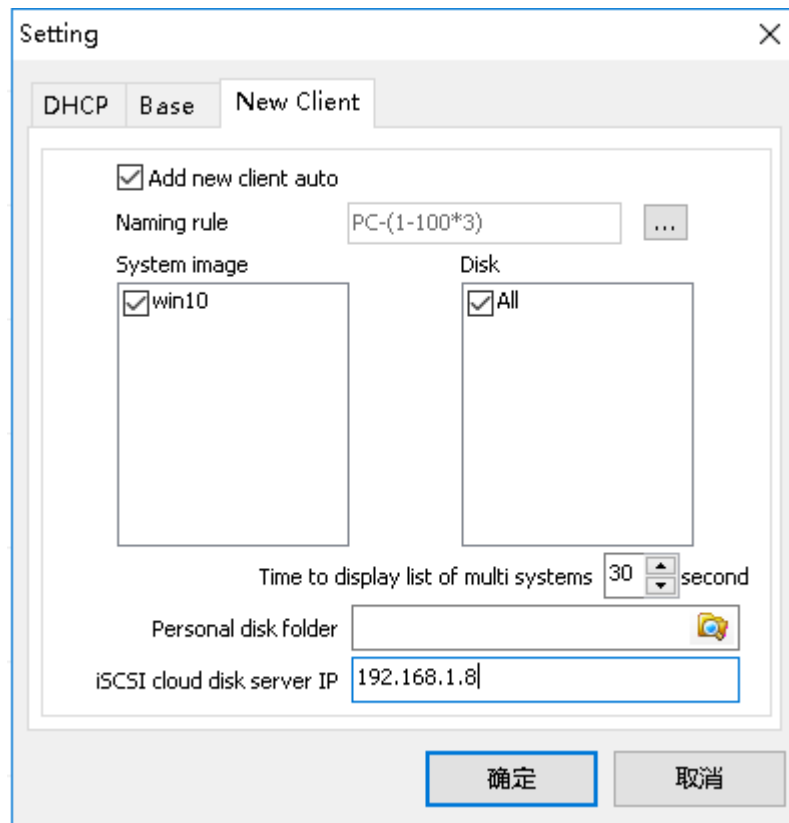


Shared cloud disk settings

iSCSI cloud disk

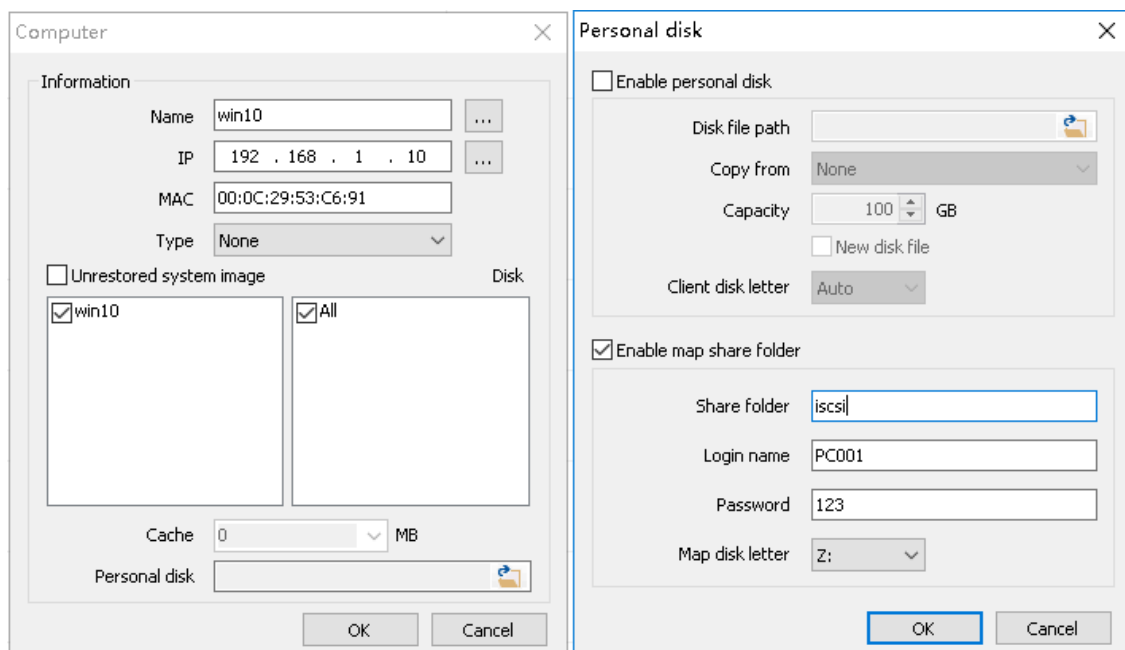
iSCSI cloud disk server must be an independent server that supports iSCSI protocol, such as cloud desktop server or NAS.

- Set the third-party iSCSI cloud disk server IP to 192.168.1.8



iSCSI server IP settings

- Set the login information on the computer, account PC001, password 123, mapped to Z:



iSCSI cloud disk settings

Network card pnp

 Cloud Desktop  About 2 min  Desktop UI  Network card pnp

Introduction

Network card PNP is the plug and play function of the network card, which can automatically identify and install the corresponding drivers for different models of network cards.

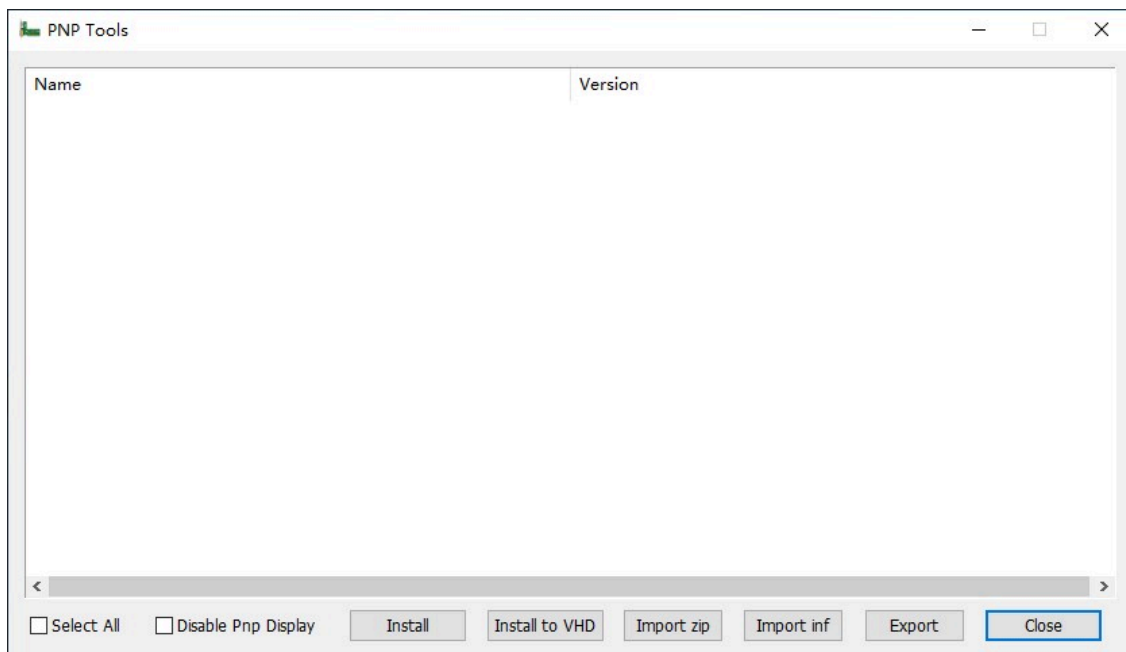
Single package multi-configuration means using one image file (package) to support client computers with different hardware configurations.

The advantages of network card PNP function and single package multi-configuration are:

- It can save hardware costs, reduce the maintenance and replacement of hard disks;
- It can simplify management, unify the update and maintenance of operating system and applications;
- It can improve security, prevent data leakage and virus infection;
- It can improve stability, ensure the normal operation of clients;
- It can improve flexibility, support various network cards and hardware configurations, and adapt to different network environments.

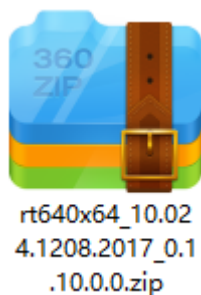
Method 1 for making driver packages

- On computer A that has already installed the network card and graphics card drivers, run iscsiPnpTool.exe, click the "export" button, and export the installed drivers. You will get a driver package similar to the realtek network card driver
rt640x64_10.024.1208.2017_0.1.10.0.0.zip



PnpTool





- On the diskless boot superuser computer B, run iscsiPnpTool.exe again, click the "import zip" button, and import the driver package that was just exported.



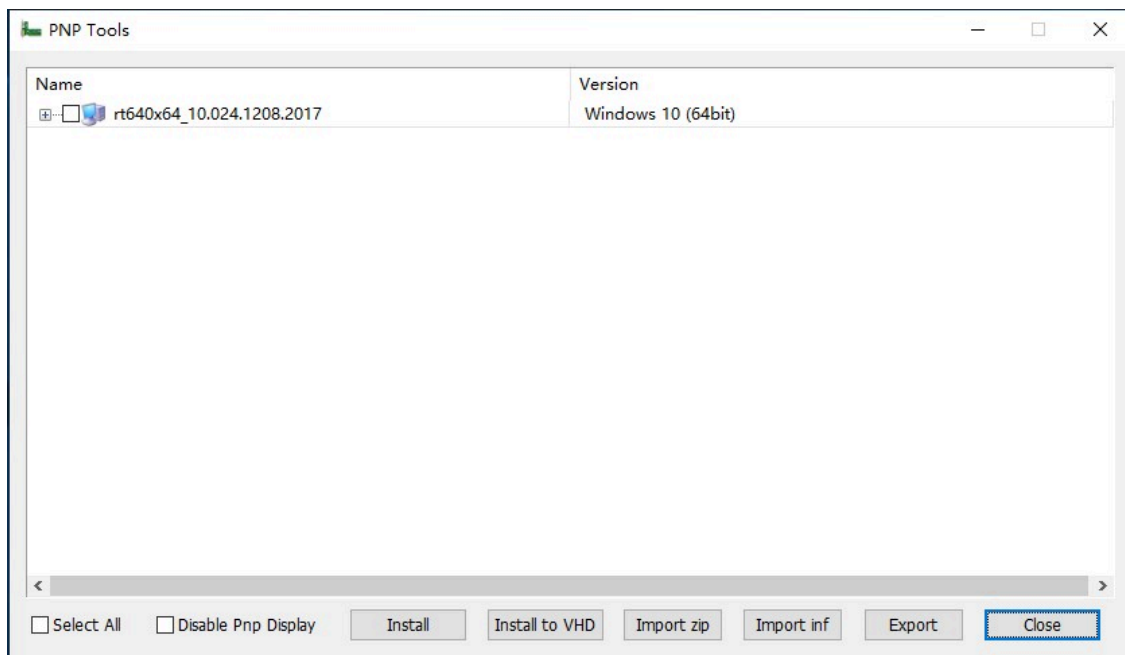
Driver package

Method 2 for making driver packages

- Copy the network card and graphics card driver installation packages to the diskless boot superuser computer B, run iscsiPnpTool.exe, click the "import inf" button and import them directly.

 rt640x64.cat	2018/1/19 5:49	安全目录	1,065 KB
 rt640x64.inf	2018/1/19 1:40	安装信息	2,022 KB
 rt640x64.PNF	2018/12/29 16:36	预编译的安装信息	1,455 KB
 rt640x64.sys	2018/1/19 5:49	系统文件	1,001 KB

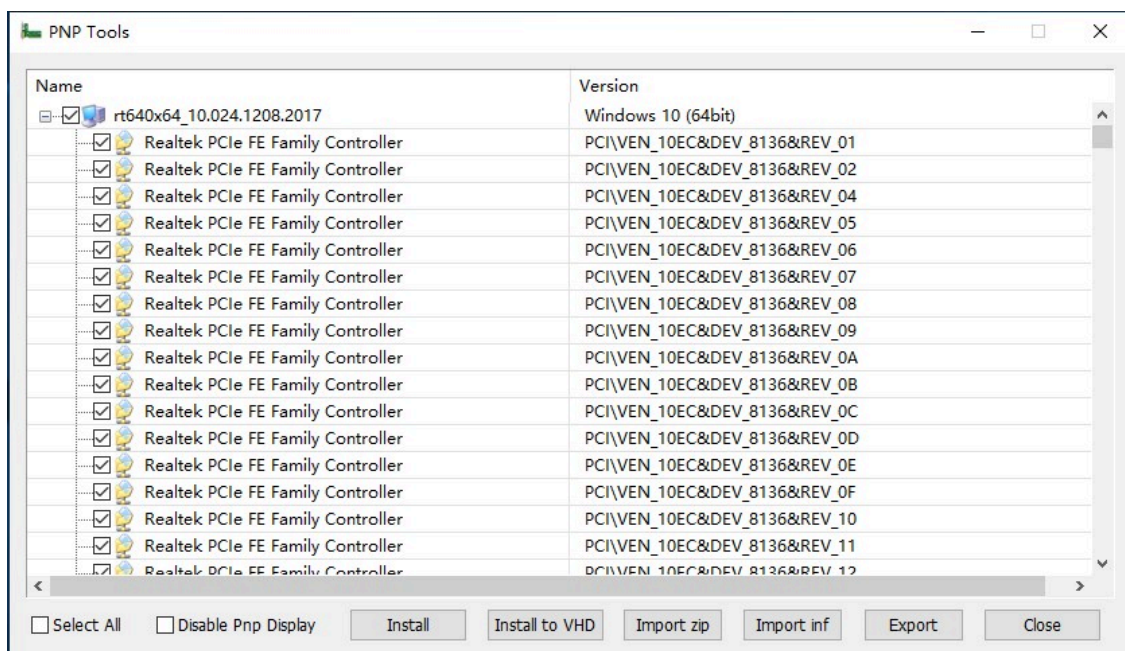
inf driver package



Import inf

Method 1 for installing driver packages

- On the diskless boot superuser computer B, run iscsiPnpTool.exe, select the drivers you need to install, click the "install" button, install the driver package, and save the superuser.



Install driver package

Method 2 for installing driver packages

- Copy iscsiPnpTool.exe to the server and run it. Select the drivers you need to install, click the "install to VHD" button, and install the driver package to a separate vhd system image, such as: win10.vhd

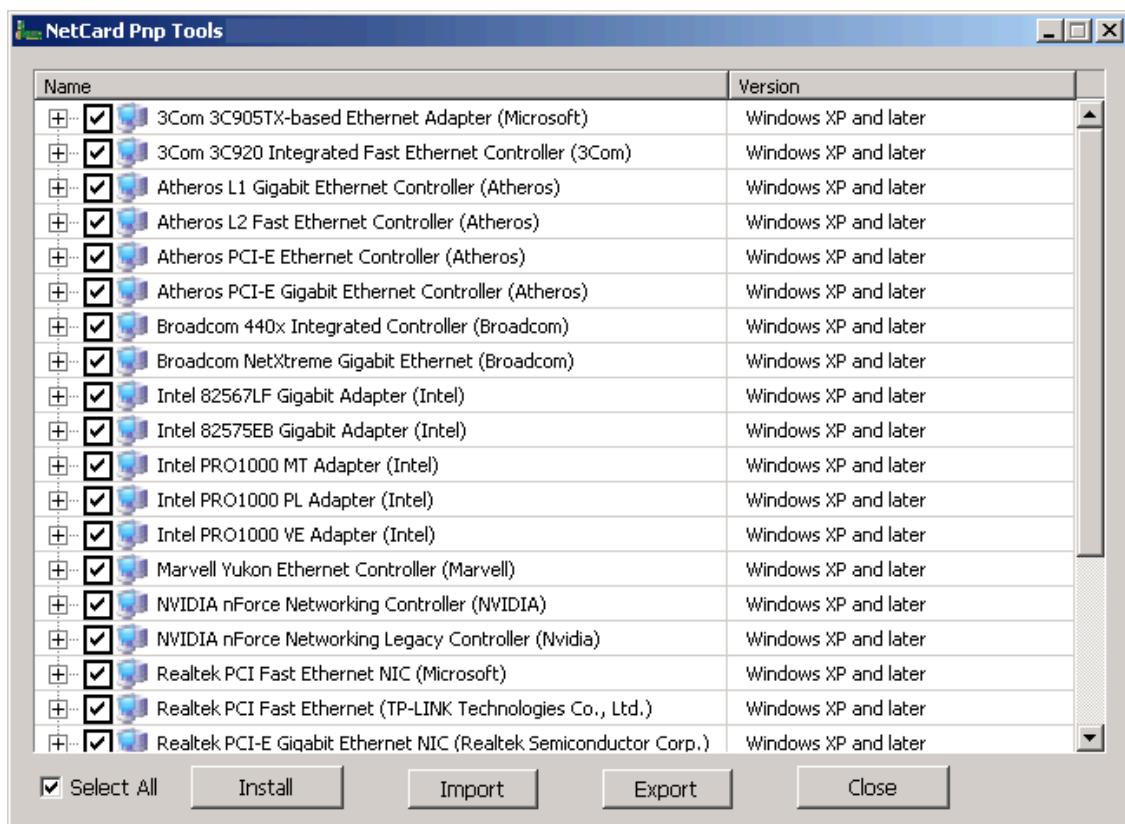


Install driver package on server

Single package multi-configuration method

Primary disk preparation works: change the power mode to standard mode, change the disk to IDE standard channel

Use network card PNP tool to collect network card drivers of various configuration machines



Install network card driver

- On the computer with a new network card installed, use the "Export" command to get the driver package files for various network cards.
- Copy the network card driver package files to the computer with an old network card installed, use the "Import" and "Install" commands to install the drivers for various network cards, and you can achieve network card PNP.
- If the computer that installs the new network card driver is disk booting, please re-upload the windows system. If it is a super user, shut down and save the write-back.

Desktop UI

 Cloud Desktop  Less than 1 minute

Introduction

The server management can be done either by using the traditional interface on the server local desktop or by using the remote web interface. Below are the introductions for both.

Desktop UI Management Interface

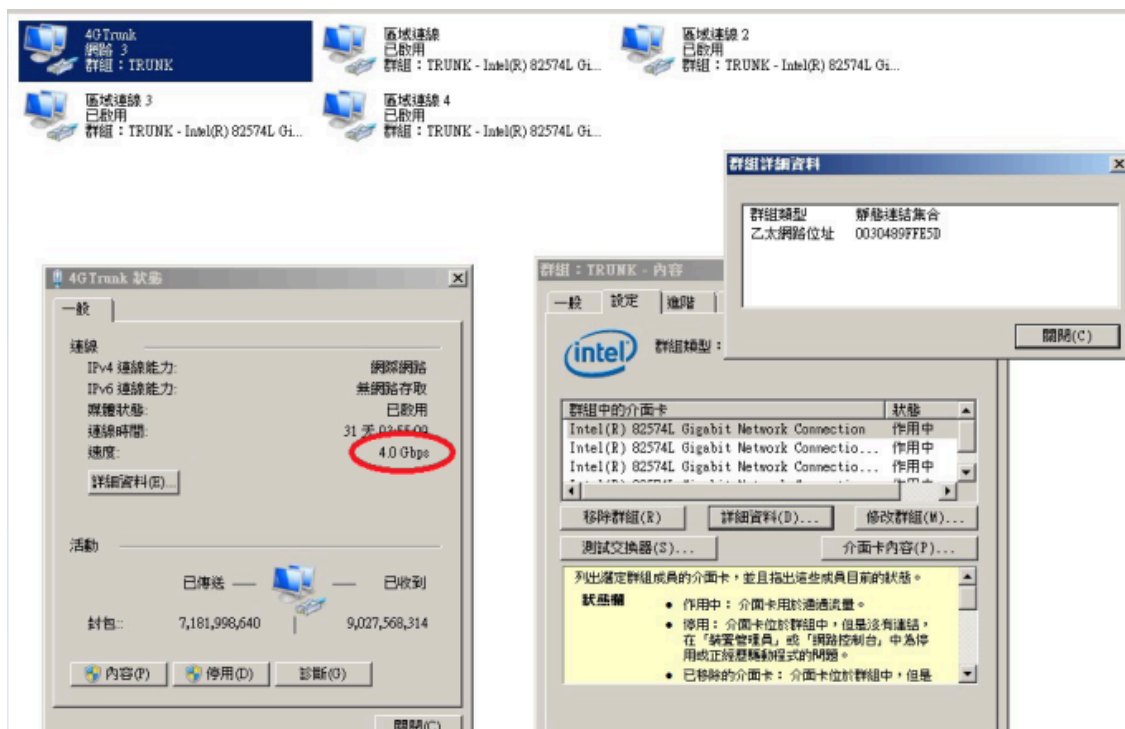
- [Main Interface](#)
 - [Settings](#)
 - [Image Management](#)
 - [Computer Management](#)
 - [Update of image and data disk](#)
 - [Cache Management](#)
 - [User Management](#)
 - [Boot in domain environment](#)
 - [Multi-system boot](#)
 - [Network card pnp](#)
 - [Dual-server hot backup and load balancing](#)
 - [Multiserver system image synchronization](#)
 - [Personal Disk](#)
 - [Batch adds computers](#)
 - [Recommended server settings](#)
-

👍 Recommended server settings

👤 Cloud Desktop ⌚ Less than 1 minute 🖥️ Desktop UI 💡 Recommended server settings

Server configuration:

- 1.Windows 2008 R2
- 2.CPU Intel(R) Core(TM) i3-2120 or quad-core or above
- 3.Kingston's memory 16G
- 4.Four game disks (SATA), each disk 500G size, make Raid0, hardware array or AHCI software array
- 5.System image file can be placed on ssd to improve boot speed/efficiency
- 6.Write cache principle, enable write cache on the device. (Enabled)
- 7.Client 35 servers one write-back disk, for example, 100 clients $100/35=3$ write-back disks
- 8.Intel network card recommends 2 or more, aggregation load or multi-IP shunt.



Network card aggregation

(Static link aggregation) supports the following network cards

Intel(R) Gigabit PT Quad Port Server Express Module
Intel(R) PRO/100 S Server Adapter
Intel(R) PRO/100 VE Desktop Adapter
Intel(R) PRO/100+ Dual Port Server Adapter
Intel(R) PRO/100+ Management Adapter
Intel(R) PRO/1000 CT Network Connection
Intel(R) PRO/1000 F Server Adapter
Intel(R) PRO/1000 Gigabit Server Adapter
Intel(R) PRO/1000 MB Dual Port Server Connection
Intel(R) PRO/1000 T Desktop Adapter
Intel(R) PRO/1000 T Network Connection
Intel(R) PRO/1000 T Server Adapter
Intel(R) PRO/1000 XF Network Connection
Intel(R) PRO/1000 XF Server Adapter
Intel(R) PRO/1000 XT Desktop Adapter
Intel(R) PRO/1000 XT Network Connection
Intel(R) PRO/1000 XT Server Adapter
Intel(R) PRO/1000P Dual Port Server Adapter
Intel(R) 82577LC Gigabit Network Connection
Intel(R) 82566MM Gigabit Network Connection
Intel(R) 82566MC Gigabit Network Connection
Intel(R) 82567LF Gigabit Network Connection
Intel(R) 82567V Gigabit Network Connection
Intel(R) PRO/10GbE CX4 Server Adapter
Intel(R) PRO/10GbE LR Server Adapter
Intel(R) PRO/10GbE SR Server Adapter

Settings

Cloud Desktop About 2 min Desktop UI Settings

DHCP Settings

DHCP

Enable DHCP and TFTP services: Whether to start the DHCP and TFTP functions, which are necessary for the client PXE network boot.

DHCP server: Specify the IP address of the DHCP service, which will automatically fill in the following settings.

Start IP and End IP: The start IP and end IP range of the DHCP service automatically assigned to new clients.

Subnet mask, gateway, preferred DNS and alternate DNS addresses: The network settings sent by the DHCP service to the client.

Multiserver automatic load balancing: When there are multiple servers in the LAN, please set this item. It can achieve dual-server hot backup and load balancing.

Basic Settings

The screenshot shows a 'Setting' dialog box with three tabs: 'DHCP', 'Base', and 'New Client'. The 'Base' tab is selected. Inside the dialog, there is a section titled 'Write-back disk' containing five numbered input fields (1-5) for specifying disk paths, each with a folder selection icon to its right. Below these fields is a label 'Size limit of per user write-back' followed by a dropdown menu showing '0' and the unit 'GB'. There is a checkbox labeled 'Allow super user update server disk'. Below the checkbox are two more input fields: 'System image upload folder' and 'Administrator password', each with a folder selection icon. At the bottom of the dialog are two buttons: '确定' (OK) and '取消' (Cancel).

Basic

Writeback directory: Used to store the data written by the client after PXE network boot, that is, the temporary data written by the client to the disk. That is, the so-called writeback (work) directory, which is placed in the writeback subdirectory on the server side by default. You can set multiple writeback directories, and the system will automatically balance the writeback file storage directories of multiple clients.

Per-user writeback limit size: When you need to limit the size of the writeback data written by the client, please set it to an appropriate value. When it is too small, the client will have a blue screen phenomenon.

Allow superusers to update server disk: When you need to update files on the server disk on the client, please select this item. In this mode, you do not need to save writeback data anymore, writeback data will be directly written to the server disk. During the online period of super users, the data disk on the server cannot be accessed.

System image upload directory: The storage directory when the client uploads images, which is the boot subdirectory on the server side by default.

Administrator password: The authentication password when the auxiliary server accepts management from the main server.

New Computer

Setting

DHCP Base **New Client**

☒ Add new client auto

Naming rule PC-(1-100*3) ...

Type None

System image None

Disk All

PXE mode Legacy

Time to display list of multi systems 30 second

Personal disk folder

iSCSI cloud disk server IP

确定 取消

New Computer

New computer default settings: The default settings for automatic scanning, automatic login, DHCP request and client connection of new computers.

Automatically add new computers: Whether to allow automatic addition of new computers. When there is a DHCP request, PXE network boot request, iSCSI connection request or client connection request, if the computer does not exist, a new computer will be automatically added.

Naming rules: Set the naming rules for new computers automatically added through DHCP.

System image: The default system image for automatically added new computers. (You can drag up and down each image to adjust the display order)

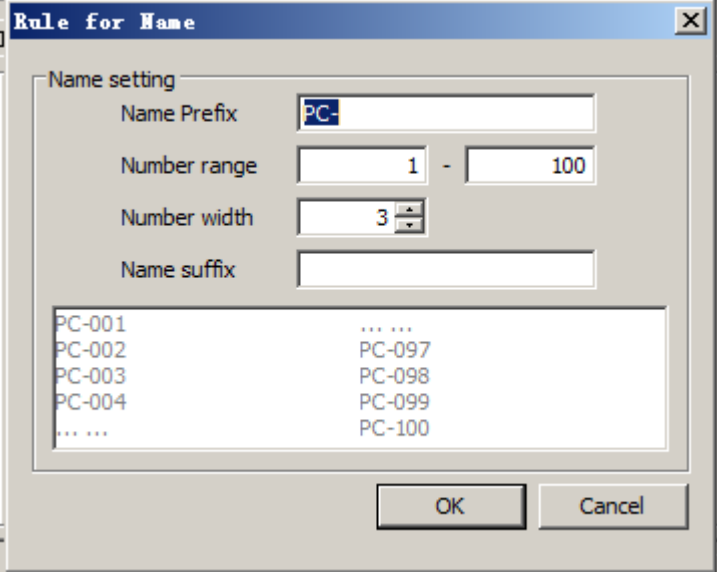
Disk: The disk list of automatically added new users.

Time to display an operating system list: When there are multiple system images for computers, a system selection list menu will be displayed when computers start. Here you can set the time for displaying the list.

Personal disk directory: The root directory of personal disks in shared directory form.

Personal disk server: The IP of a separate iscsi personal disk server.

New Computer Name Auto Generation Rules



The screenshot shows a dialog box titled "Rule for Name". It contains a "Name setting" section with the following fields:

- Name Prefix: PC-
- Number range: 1 - 100
- Number width: 3
- Name suffix: (empty)

Below these fields is a list box showing the generated names:

PC-001	...
PC-002	PC-097
PC-003	PC-098
PC-004	PC-099
...	PC-100

At the bottom of the dialog are "OK" and "Cancel" buttons.

Name Auto Generation Rules

New computer naming rules: When there is a DHCP request or a client connection request, new computer name generation rules.

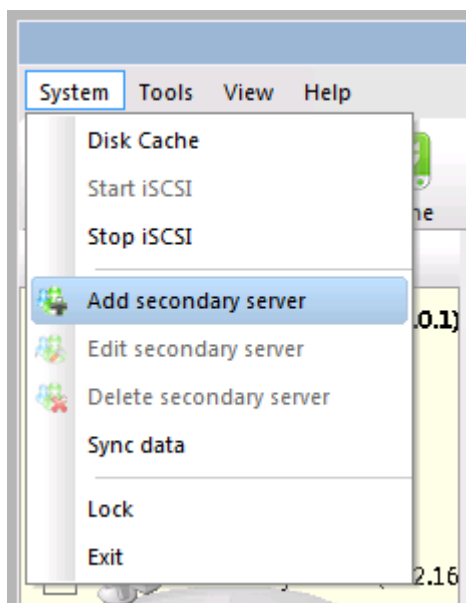
🔄 Multi-server system image synchronization

👤 Cloud Desktop ⌚ Less than 1 minute 🖥️ Desktop UI 🔑 Multi-server system image synchronization

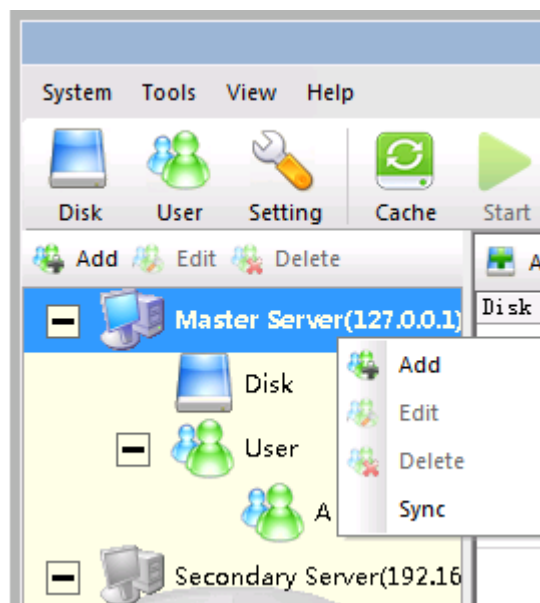
Auxiliary server management

Use the "System"->"Add auxiliary server" command to add secondary servers in the same local area network, enter the IP and remote management password of the secondary server.

Use the "System"->"Edit auxiliary server" and "System"->"Delete auxiliary server" commands to manage auxiliary servers.



Add auxiliary server command



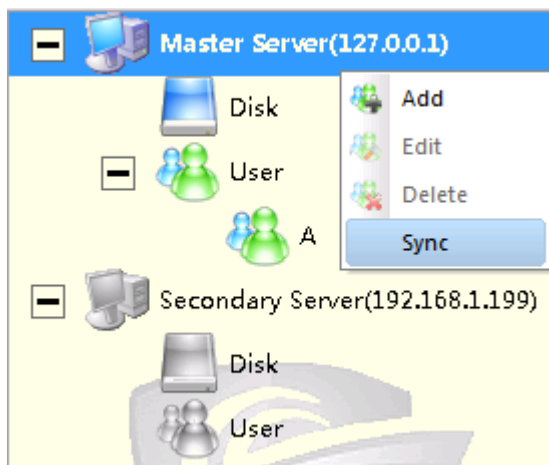
Add auxiliary server command



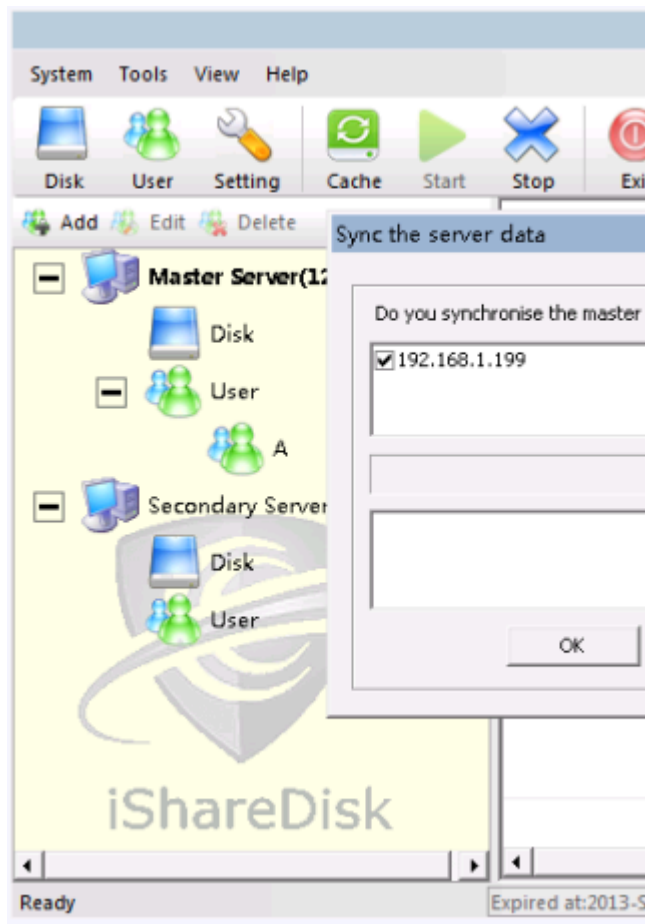
Ready

System image synchronization

Use the "System"->"Synchronize data" command to synchronize the disks, users and settings of the main server to the auxiliary servers.



Synchronize command



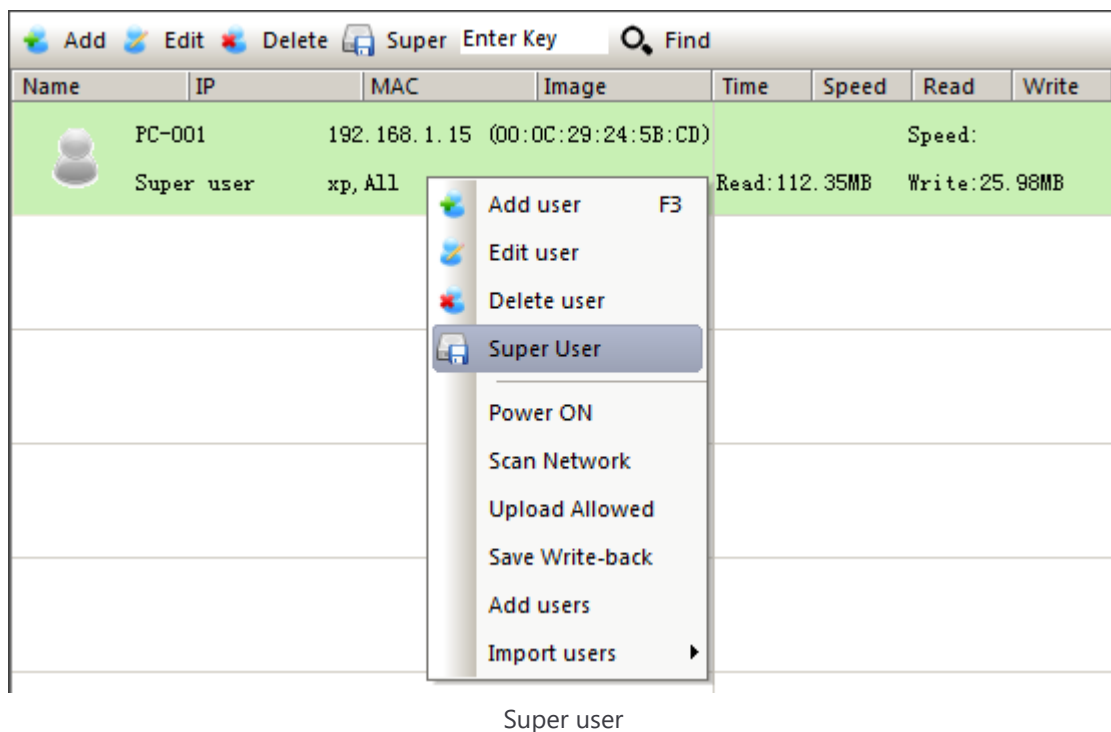
Synchronizing

📈 Updates of System Image and Server Disk

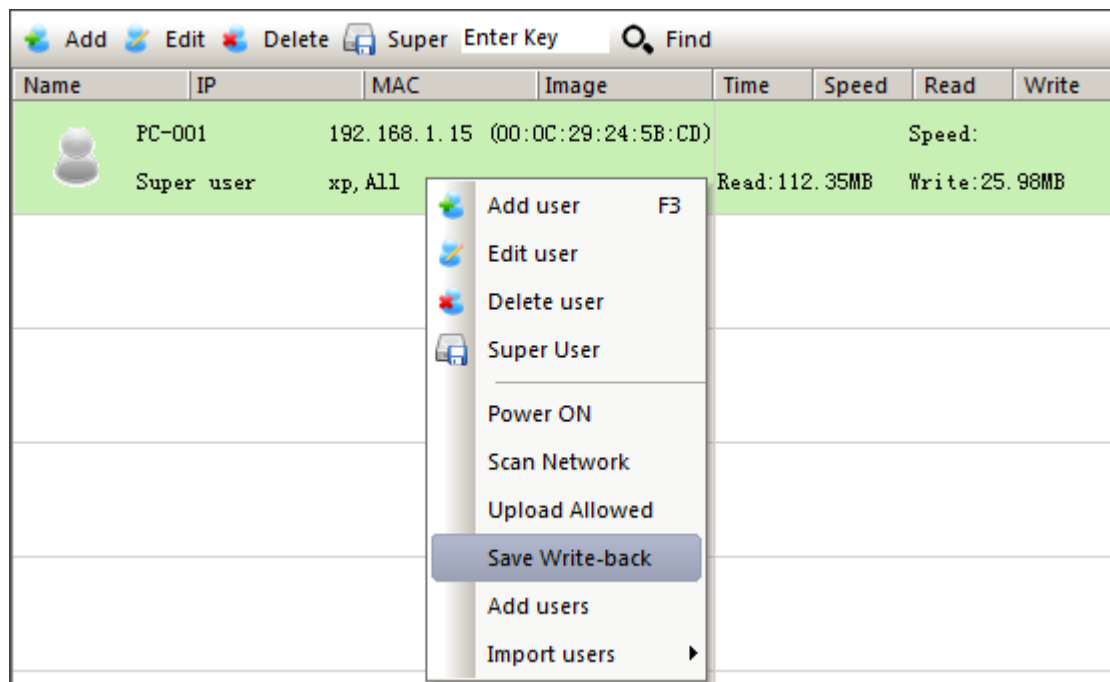
👤 Cloud Desktop ⌚ About 2 min 🖥️ Desktop UI 🔑 Updates of System Image and Server Disk

System image update when PXE network booting

- First, shut down the client machine, switch to superuser, boot and install hardware drivers or software, then shut down and use the save write-back command.

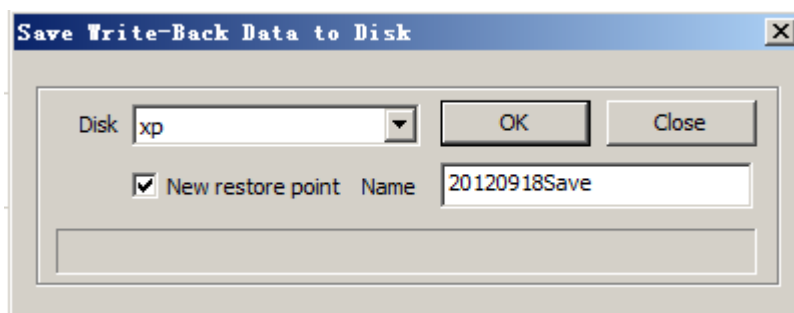


- In the user list, click the "Save write-back" command to pop up this interface. After selecting the corresponding disk, the temporary data of the client machine will be permanently written to the system image or create a new restore point, so that other client machines can see the data written by the super user.

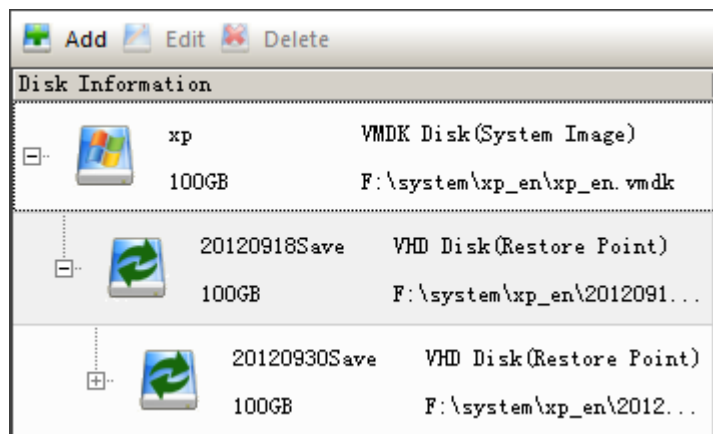
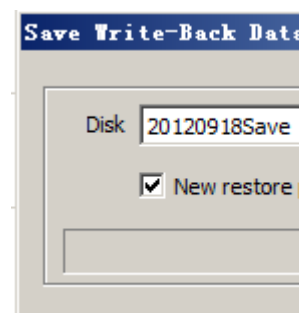


Save write-back

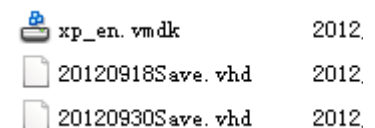
- After using the save command, you can repeat the above steps and save again, creating continuous restore points



Save



Restore point list



Restore point files

- The final continuous restore point view is as above, so you can restore to any restore point at any time, just edit the disk boot image

Add/Edit User

User Information

PC Name: PC-001

IP: 192 . 168 . 1 . 15

MAC: 00:0C:29:24:5B:CD

Type: None

System Image:

- ☐ None
- ☐ xp
- ☐ 20120918Save
- ☒ 20120930Save

Game Disk:

- ☒ All

Person Disk:

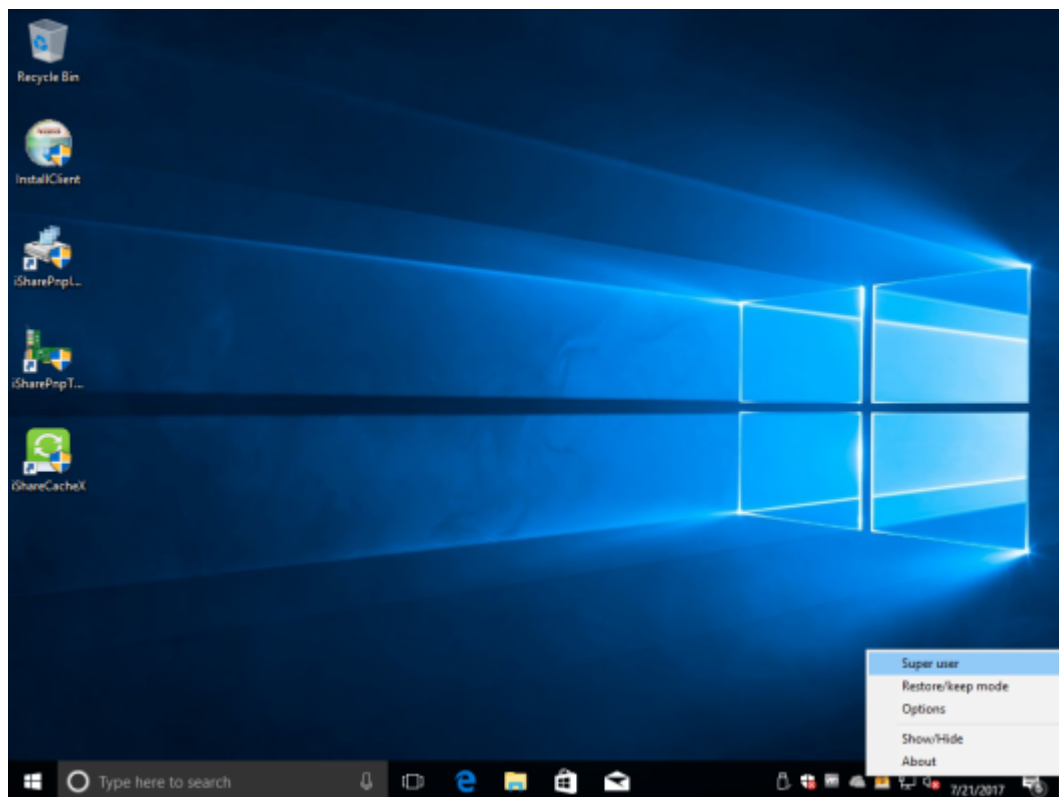
☐ Disable diskless boot ☐ Use compatible PXE boot

OK Cancel

Restore point boot

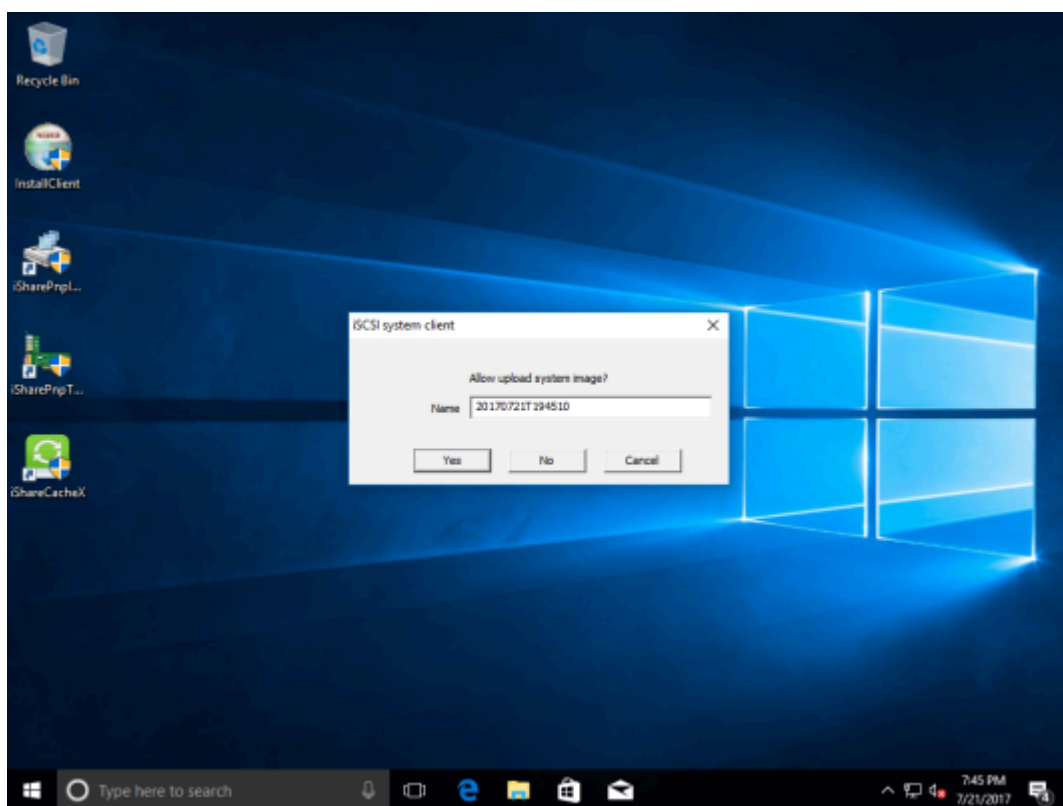
System image update when local vhd offline booting

- First, use the superuser command on the client machine to enter the super user mode, and install hardware drivers or software.



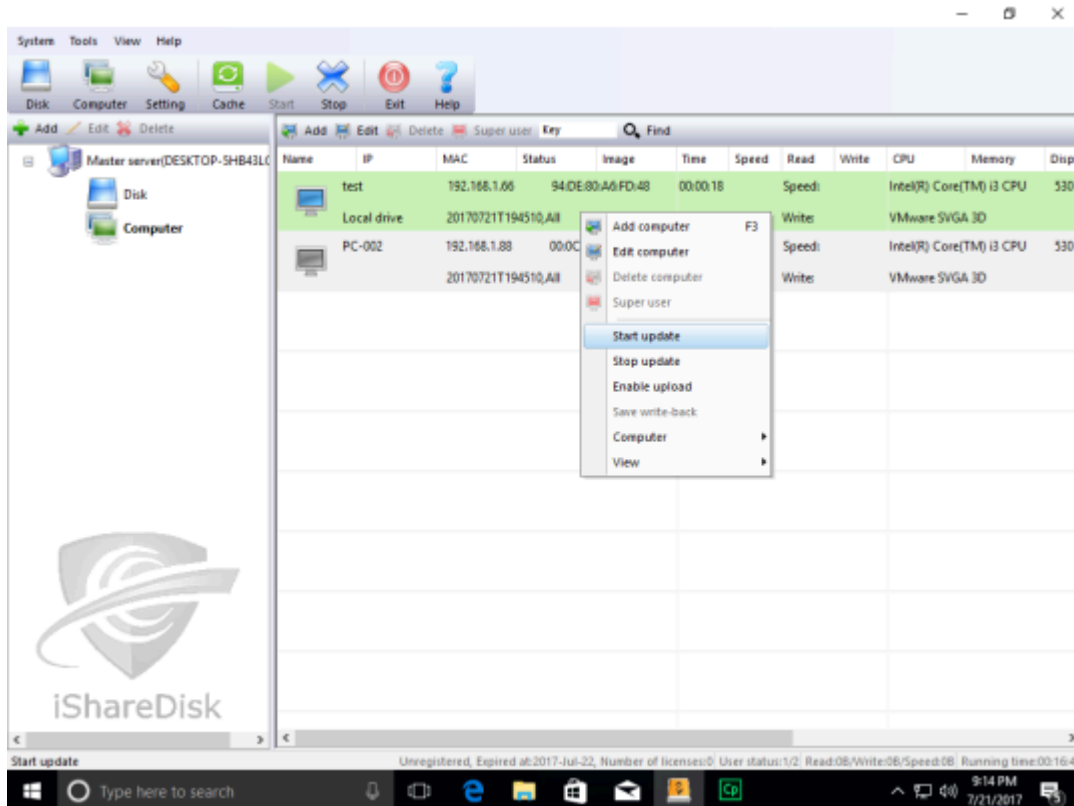
Enter super user from client machine

- After installing the software, use the super user command on the client machine to leave. After the client machine restarts, the system will prompt to upload the restore point.



Upload restore point

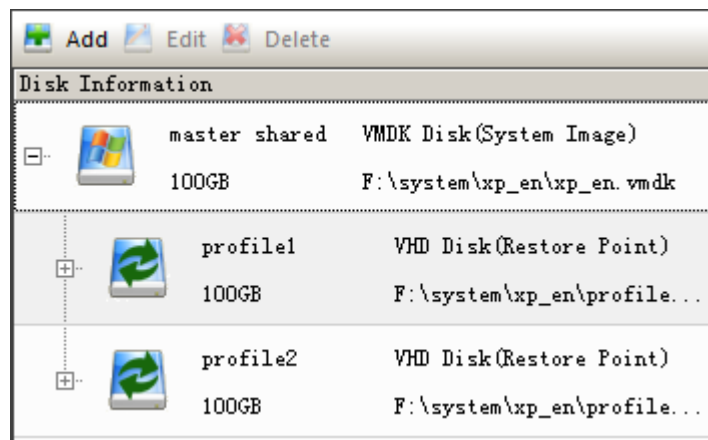
- After uploading, on the server side, use the "Start update" command to update other client machines to use the latest uploaded restore point.



Start update

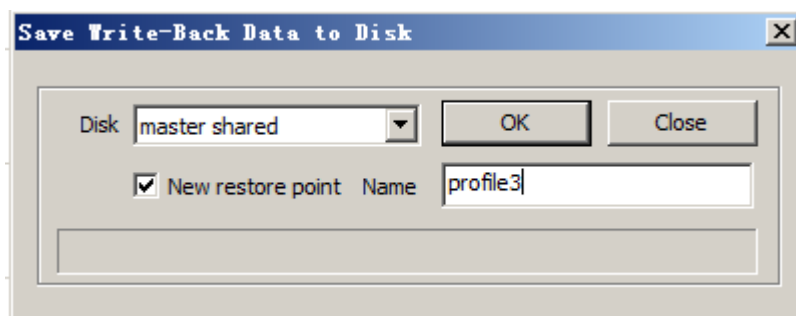
Single package multi-configuration, restore point description

- A restore point is a non-complete virtual disk, which needs to be mounted under a complete system image to boot. When you have machines with multiple hardware configurations, you need to create multiple restore points (configurations) under one master disk. The actual size of the restore point is only the size of your installed driver files. This saves disk space and uses server disk cache more efficiently.



Multiple configuration restore points

- Configuration/restore point creation method: first switch users to super user mode, install drivers and shut down, then execute save write-back command. Save write-back data and create restore points at the same time



Create new configuration

- Assuming there are two configurations and one master disk, the final created system image and restore point files are

	xp_en.vmdk	2012/9/18 9:40	VMware virtual...	1,477,824 KB
	profile1.vhd	2012/9/18 12:05	VHD 文件	325,914 KB
	profile2.vhd	2012/9/18 12:05	VHD 文件	178,422 KB

Multiple configuration files

- Different configuration machines use different boot images to achieve one package multi-configuration.

Add/Edit User

User Information

PC Name: PC-001

IP: 192 . 168 . 1 . 15

MAC: 00:0C:29:24:5B:CD

Type: None

System Image:

- ☐ None
- ☐ master shared
- ☒ profile1
- ☐ profile2

Game Disk:

- ☒ All

Person Disk:

☐ Disable diskless boot ☐ Use compatible PXE boot

OK Cancel

Configuration boot

Add Edit Delete Super E		
Name	IP	MAC
PC-001	192.168.1.15	profile1, All
PC-002	192.168.1.16	profile2, All

Multi-configuration com

Data disk update when PXE network booting

- Turn on the "Allow superuser to update server disk" option in basic settings.

Allow super user to update server disk

- Add data disk as partition form.

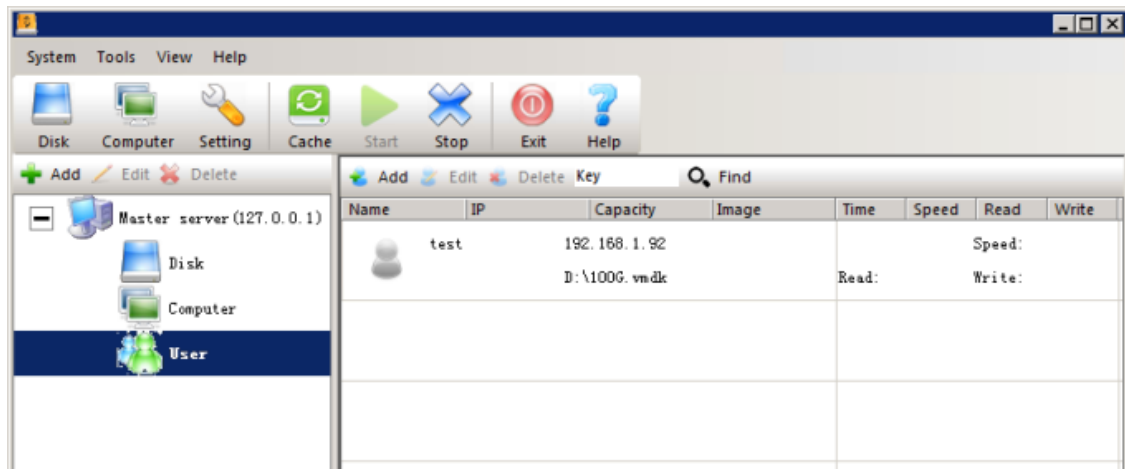
Data disk

- Set as client machine as superuser, then install and update games on client machine, after finishing shut down and exit super user mode. No need to save write-back data anymore.

User Management

 Cloud Desktop  Less than 1 minute  Desktop UI  User Management

User List



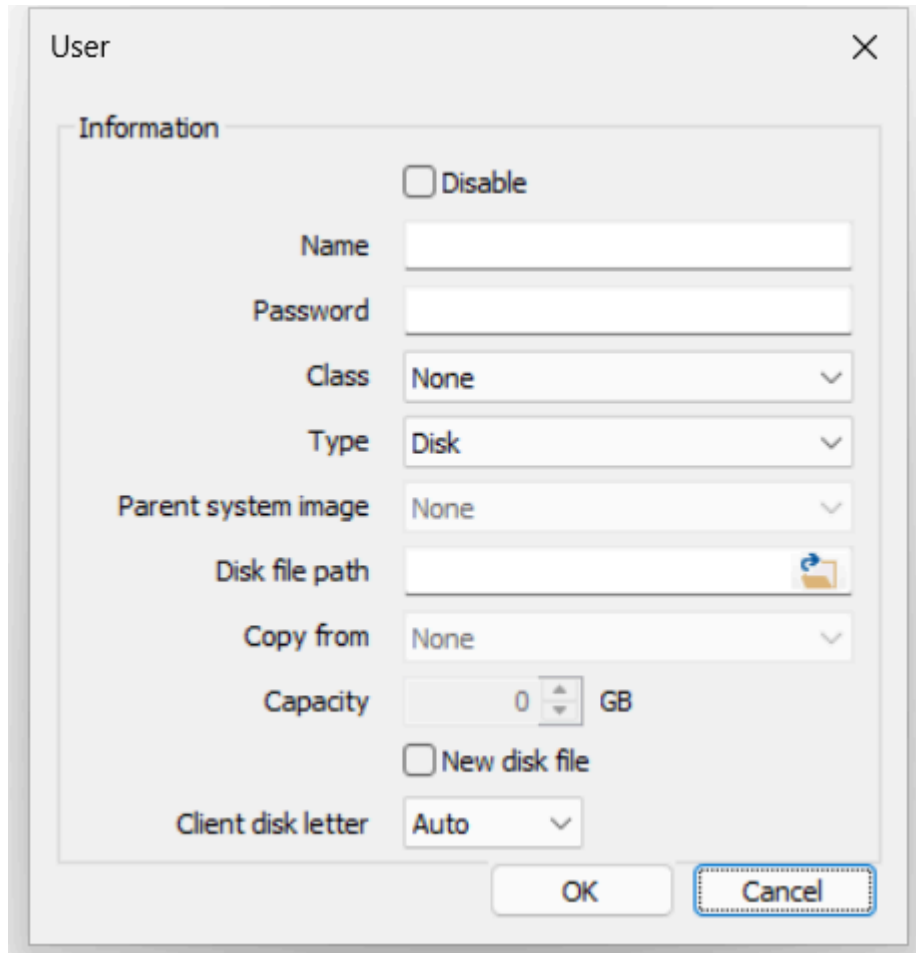
The screenshot shows a software interface for managing users. On the left is a sidebar with a tree view containing 'Master server (127.0.0.1)', 'Disk', 'Computer', and 'User' (which is selected). The main area displays a table with columns: Name, IP, Capacity, Image, Time, Speed, Read, and Write. A single user named 'test' is listed with IP '192.168.1.92' and Capacity 'D:\100G.vmdk'. The 'Time', 'Speed', 'Read', and 'Write' columns for this user contain sub-labels: 'Speed:', 'Read:', and 'Write:' respectively. The interface includes a menu bar (System, Tools, View, Help) and a toolbar with icons for Disk, Computer, Setting, Cache, Start, Stop, Exit, and Help.

Name	IP	Capacity	Image	Time	Speed	Read	Write
test	192.168.1.92	D:\100G.vmdk			Speed:	Read:	Write:

User

- User information: Includes login name, personal disk image file, capacity, last login IP
- Read-write status: Includes user's online time, current read-write speed, total read amount and write amount

Edit User



The 'User' dialog box is a window for editing user settings. It has a title bar with 'User' and a close button (X). The main area is titled 'Information' and contains several fields and checkboxes. At the top right is a 'Disable' checkbox. Below it are text boxes for 'Name' and 'Password'. Then are dropdown menus for 'Class' (set to 'None'), 'Type' (set to 'Disk'), and 'Parent system image' (set to 'None'). Below these is a 'Disk file path' text box with a folder icon, followed by a 'Copy from' dropdown (set to 'None'). Then is a 'Capacity' field with a numeric input (set to '0') and a 'GB' unit. Below that is a 'New disk file' checkbox. At the bottom is a 'Client disk letter' dropdown (set to 'Auto'). At the bottom right are 'OK' and 'Cancel' buttons.

Field	Value
Disable	<input type="checkbox"/>
Name	
Password	
Class	None
Type	Disk
Parent system image	None
Disk file path	
Copy from	None
Capacity	0 GB
New disk file	<input type="checkbox"/>
Client disk letter	Auto

User

- Disabled: Prohibit user login.
- Name: User login name.
- Password: User login password.
- Category: User's category, useful for management and batch settings.
- Type: Disk, system image, and restore point.
- Parent System Image: The parent image of the user's system image.
- Disk File Path: The path of the user's personal disk file on the server.
- Copy: Whether to initialize the user's disk by copying from the user disk template file when creating a user.
- Capacity: The capacity of the user's personal disk.
- Create New Disk File: Whether to create a new personal disk file when creating a user.
- Client Drive Letter: The drive letter of the user's personal disk on the client after login.

404

Page not found

That's a Four-Oh-Four.

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