CCBoot v3.0
User Manual

Youngzsoft 2014

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1 System Requirements

1.1 Server OS System Requirements

CCBoot server can run on XP, Windows 2003, Windows 7, Windows 2008, Windows SBS 2008 (Windows Small Business Server 2008) and Windows 2012 server. It even can run on Linux (not fully tested).
1. We recommend installing Windows 2008 Server R2 Enterprise Edition 64bit with the latest service packs.
2. The second choice is Windows 2003 Enterprise Edition 32bit.
3. The third choice is Windows 7 Ultimate Edition 64bit.

Notes: If you are using Windows 7 32 bit or Windows 2008 32 bit as CCBoot server OS, then you need to run "cmd -> bcdedit /set PAE ForceEnable" with administrator permission to enable large memory access. If it is Windows 7 64 bit or Windows 2008 64 bit OS, then you do not need to run this command.
If you are using Windows server 2012, please do the following settings and reboot the server machine.
Run gpedit.msc -> Computer Configuration -> Windows Settings -> Security Settings -> Local Policies -> User Rights Assignment -> Lock pages in memory -> Add User or Group: Add "everyone".

CCBoot server can run on Windows server 2012. When the installation is complete, please restart the server, and then the RAM option will be displayed. Moreover, CCBoot server can run on Linux but without fully tested. If you want to run CCBoot server on Linux, we recommend using Ubuntu or Centos with desktop mode, and also need install WINE in Linux. WINE is build-in Ubuntu. For Ubuntu, you should install and run WINE with root account. If you are using Centos, you have to install WINE from other rpm.

1.2 Server Hardware Requirements

Here is the recommened server hardware for diskless boot with CCBoot.
1) CPU: Intel or AMD Processor 4 Core or more
2) Motherboard: Server motherboard that supports 8GB or more RAM, 6 or more SATA Ports.
3) RAM: 8GB DDR3 or more.

4) Hard Disk:

At first, we introduce some items.
Image disk: the hard disk that stores the client OS boot data. We call it as "image".
Game disk: the hard disks that store the game data.
Writeback disk: the hard disks that store the client write data. In diskless booting, all data are read and wrote from server. So we need writeback disk save the client's write data. Other products are also named it as "write cache".

1) One SATA HDD is used for server OS (C :\) and image disk (D :\); some users put image file into SSD disk. It's not necessary. We have RAM cache for image. All image data will load from RAM cache at last. So put image file into SSD disk is not necessary.
2) Two SATA HDD is set up on RAID0 for Game Disk.
   We recommend using Win2008 disk manager to setup RAID0 instead of hardware RAID in BIOS. We recommend setting SATA mode as AHCI in BIOS. Because AHCI is better for writeback disks' write performance. For more information, please refer to AHCI on wiki. In the BIOS, SATA mode can only be one of AHCI and RAID. If we set it as AHCI, the RAID function of the motherboard will be invalid. So we use Win2008 disk manager to setup RAID0. The performance is same as hardware RAID0.
3) One SSD disk for SSD cache.
4) Two SATA/SAS/SSD HDD use for client write-back disk. We are NOT recommending use RAID for write-back disks. If one disk is broken, we can use the other one. If using RAID for writeback disk, one disk broken will cause all clients stop. On the other hand, CCBoot can do balance for writeback disk. Two disks write performance is better than one RAID disk. Using SSD as writeback disk is better than SATA. SSD has good IOPS. The street said the writing activities are harmful for the SSD lifetime. In our experience, one SSD for writeback disk can be used for three years at least. It's enough and worth.
5) For 25 - 30 client PCs, server should have 8G DDR3 RAM and two writeback disks.
6) For 30 - 70 client PCs, server should have 16G DDR3 RAM and two writeback disks.
7) For 70 - 100 client PCs, server should have 32G DDR3 RAM and two writeback disks.
8) For 100+ client PCs, we recommend to use 2 or more Servers with load balance.
9) Network: 1000Mb Ethernet or 2 * 1000 Mb Ethernet team network. We recommend Intel and Realtek 1000M Series.

1.3 Client OS System Requirements

CCBoot supports diskless boot the following OS systems:
1) Windows XP x32 and x64.

2) Windows 2003 x32 and x64.
3) Vista x32 and x64.
4) Windows 7 x32 and x64.
5) Windows 2008 x32 and x64.
6) Windows 8 x32 and x64.
7) Linux x32 and x64. (not full testing)

Note: CCBoot supports diskless boot Windows 8 and Windows 8.1, but it doesn't support using PNP tool to create one single image for multiple specifications. If there are two or more specs, you have to create two or more images. We are trying to improve it.

1.4 Client Hardware Requirements

If you want to use CCBoot diskless boot PC, the PC should has the following features:

1) The NIC should be PXE 2.x compliant network adapter. The NIC can be onboard or installed. For most up-to-date motherboard, the onboard NIC can support PXE 2.x. For example, Gigabyte and Asus motherboard.
2) 1Gbps speed NIC. We DO NOT recommend use 100M NIC. The diskless boot speed will be slow and can only boot small amount XP workstations.
3) We recommend using Realtek and Intel 1000M series NIC. We DO NOT recommend using NVIDA NIC. Because NVIDA NIC is not stable in diskless booting. Some earlier and cheap Athores NIC is also NOT recommended. They are not stable and good at performance in diskless booting.
4) Till now, CCBoot CANNOT diskless boot with wireless NIC.
5) The minimum RAM size is 512M. We recommend the client to use 2G RAM for XP and 4G RAM for Windows 7.
6) CPU can be AMD or Intel, no specific requirements.

1.5 Network Requirements

For better performance, we recommend Gigabit network environment (Server & Client NICs and Switches).

1) Normal or advanced router is OK. It only affects the Internet speed. But most routers have build-in DHCP service. It will be conflict with CCBoot DHCP service. You have to disable the DHCP service on the router.
2) Switch should be 1Gbps speed. If the switch is smart switch, you need to disable "flow control" option in the switch settings. This option will reduce the diskless boot speed. We recommend CISCO and HUAWEI switch.
3) CAT-5, CAT-5e and CAT-6 cable are all supported. But we recommend you to use CAT-5e and CAT-6 cable. CAT-5 cable has "far end crosstalk" problem and it will

cause packet loss.

1.6 Special Functions of CCBoot

CCBoot features all basic functions of diskless solutions. Compared to other diskless solution providers, it owns the following special functions.

1) CCBoot server can be installed on the Windows 2008 x 64 servers, which is totally compatible with Windows 2008.
2) CCBoot clients support Windows 7 x64 system and Windows 8.
3) CCBoot has SSD cache function. The memory of cache is limited, but the SSD drive can be great, and it can be smoother for playing games in CCBoot system.
4) CCBoot can boot more clients with the same hardware specifications. The server with 16G RAM can boot 100 clients.
5) CCBoot runs on the Windows server, and is easy to learn and deploy.

1.7 How to Use Youngzsoft Setup Service

We provide setup service for the customers. The setup service is not free. Before you request setup service please check the following steps -

1) Purchase the license first from http://www.ccboot.com/purchase.htm.
2) Purchase the setup service from http://www.ccboot.com/purchase.htm. The setup fee is USD 10 each client. If you have 10 clients, you need to purchase 10 * 10 = 100 USD setup service.
3) Follow the http://www.ccboot.com/wiki-system-requirements.htm and prepare the hardware both server and client.
4) Please prepare one client PC with HDD and Windows system installed. It will be used to upload image.
5) Install Teamviewer on the server and client. Send the server and client's Teamviewer ID and password to us via email.
6) Tell us your IM account, we will add you and contact you online easily.

1.8 CCBoot V3.0 on 64 Bit OS

CCboot V2.1 can not support the 64 bit OS, but CCBoot V3.0 does. If you are using CCBoot V2.1, and you still want to use CCBoot on the 64 bit OS, please upgrade CCBoot from V2.1 to V3.0. Of course, there is price difference between them. But do not worry, we can offer you a best discount for this upgrade service. Also, you can tell us your budget about this upgrade.

Note: For comparison information of CCBoot V2.1 and V3.0, please refer to "Comparison of 3.0 and 2.1".

1.9 Run CCBoot Server on Linux

1) Download centos bittorrent file from http://centos.someimage.com/6.4/isos/x86_64/CentOS-6.4-x86_64-bin-DVD1to2.torrent.
2) Download torrent by utorrent.
3) Install centos on a PC.
4) Login with root.
5) Open terminal command window.
6) Wget http://dl.fedoraproject.org/pub/epel/6/SRPMS/epel-release-6-8.src.rpm.
7) Wget http://dl.fedoraproject.org/pub/epel/6/i386/epel-release-6-8.noarch.rpm.
8) Rpm -Uvh epel-release*rpm.
9) Yum install "epel-release".
10) Yum list all.
11) Yum update.
12) Yum install "wine* -y".
13) System -> administration -> firewall -> disable.
14) Winecfg (if required install xxx HTML, click cancel).
15) Windows version => Windows 2008 R2.
16) Copy CCBoot files for Linux to "/root/ccboot".
17) Run "ccboot.exe" from "/root/ccboot".

How to run CCBoot as service?

1) edit /etc/rc.local

WINEDEBUG=-all /usr/bin/wine /root/ccboot/ccboot.exe -service &

2) reboot

Now CCBoot can run as service. If you want to remove service, just remove the link in /etc/rc.local

How to stop CCBoot service?

/usr/bin/wine /root/ccboot/ccboot.exe -stop

How to add game disk?

You can add hdd in Linux and add drive in winecfg. Now CCBoot can recognize the game disk.

Note: CCBoot cannot read disk in Linux. But you can transfer the game disk to a vhd file, and then add vhd file as game disk like image. For example, create a vhd image in game disk, and load the vhd as game disk.

Attach a new hdd in Linux and then run the following commands.

fdisk /dev/sdb

n
p
1
enter
enter
n
mkfs -t ext3 /dev/sdb1
mkdir /game_drive
mount /dev/sdb1 /game_drive
nano /etc/fstab
/dev/sdb1 /game_drive ext3 defaults 1 2
winecfg

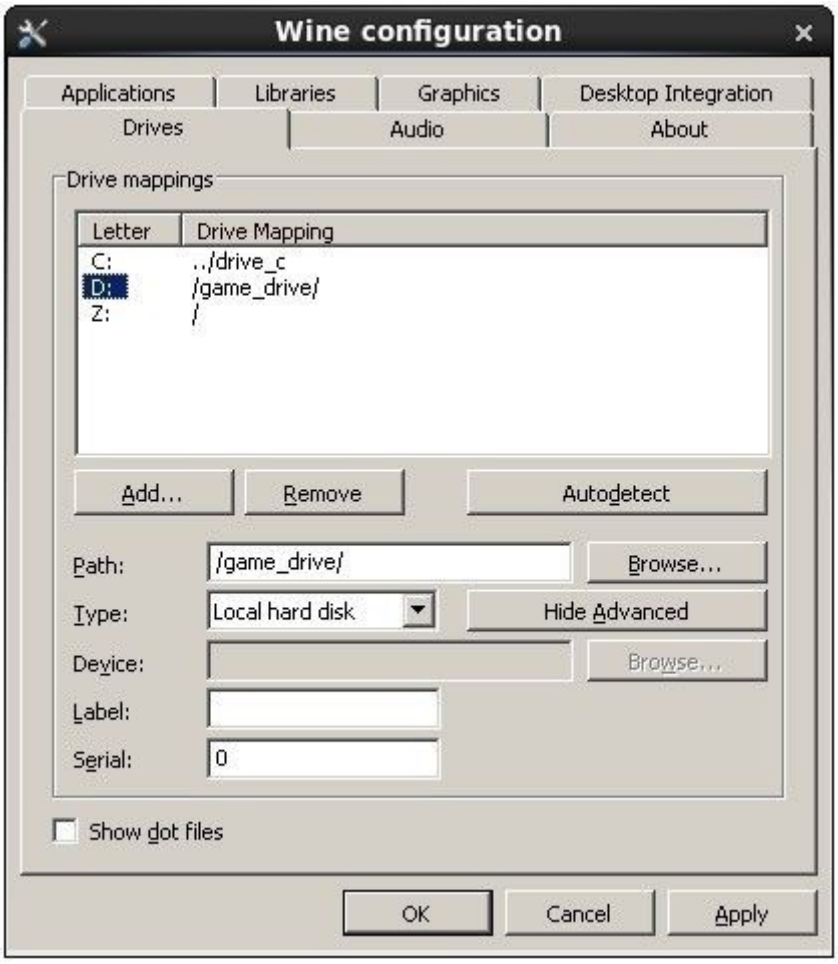


Figure 1-1

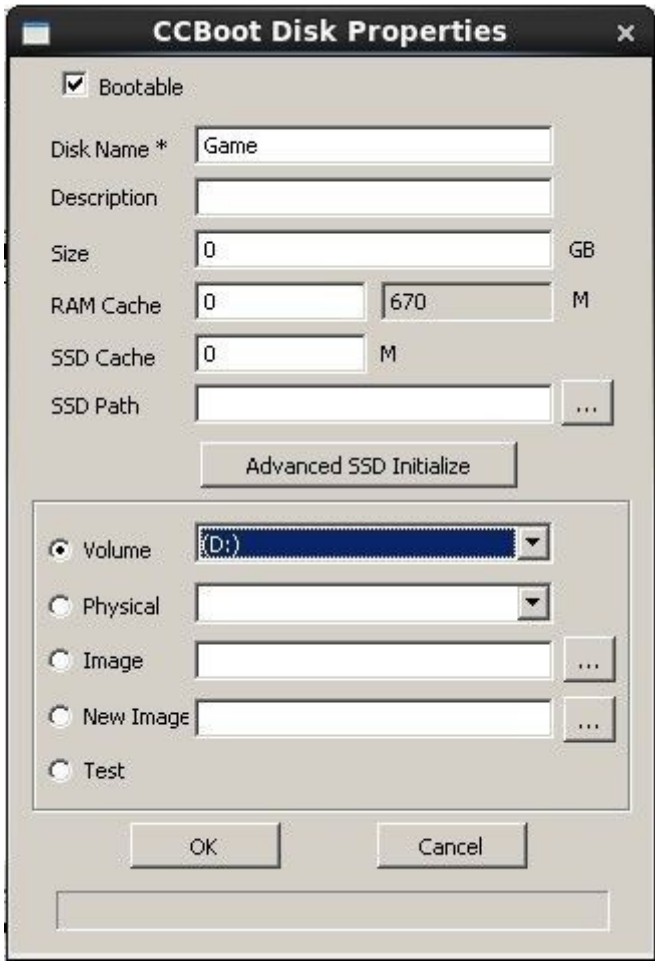


Figure 1-2

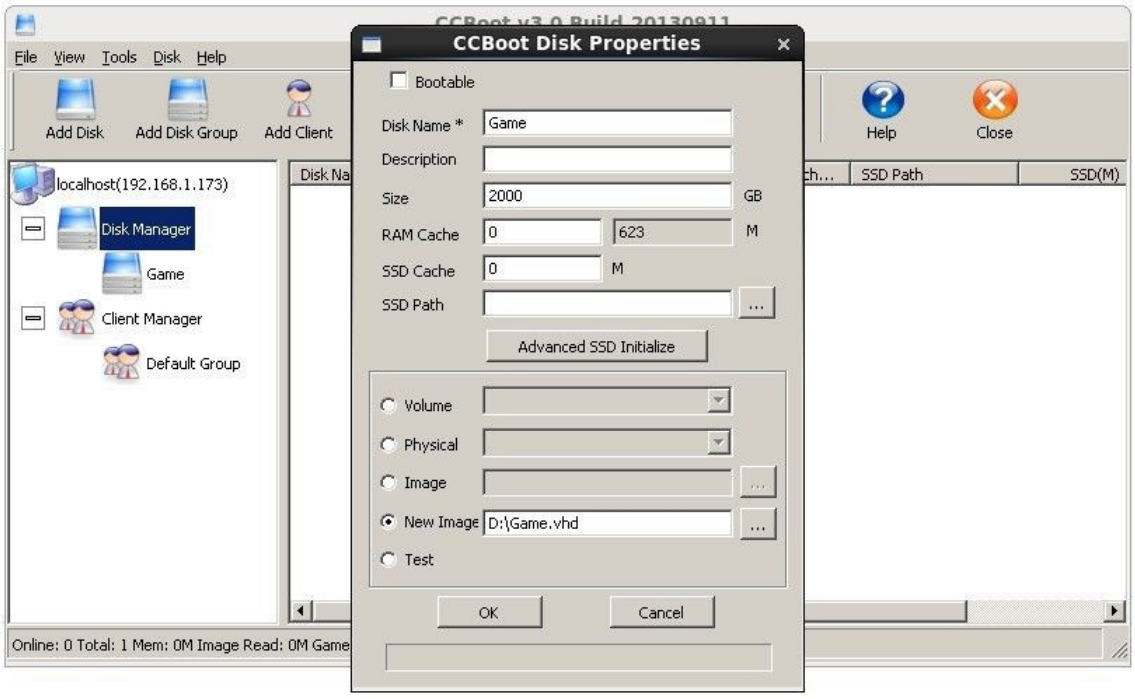


Figure 1-3

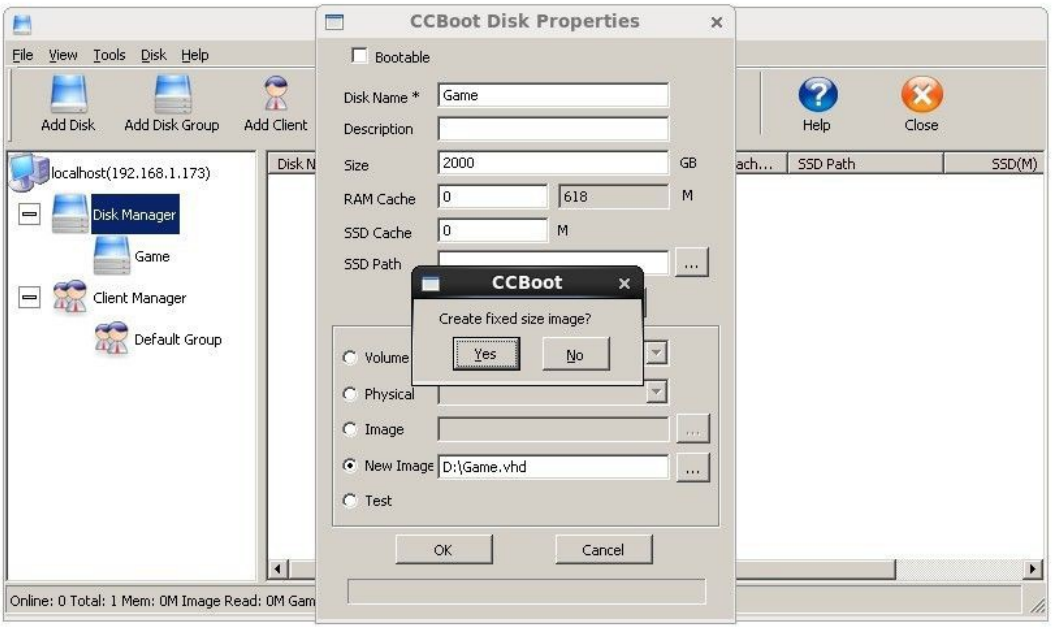


Figure 1-4

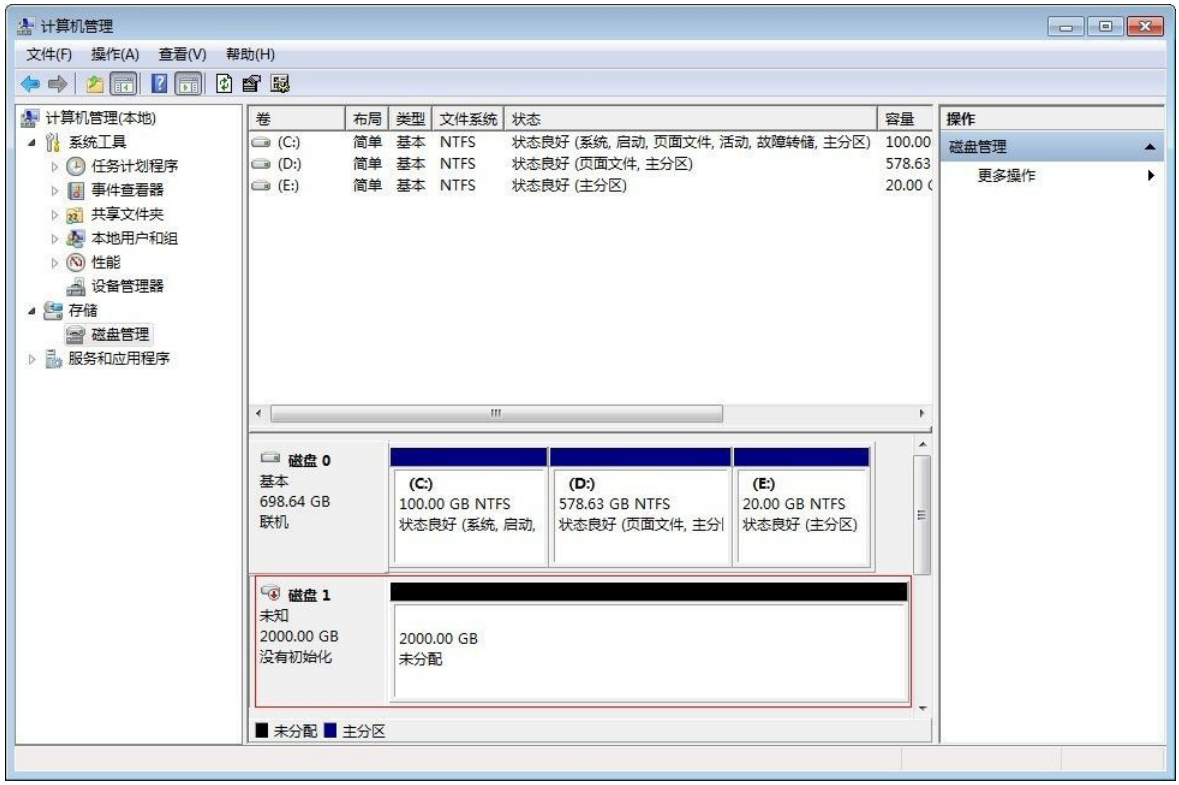


Figure 1-5

Figure 1

1.10 Differences of CCBoot Solution and VDI Mode

Question:
What is the difference between CCBoot as a solution and the Citrix N-series thin clients?

Reply:
Citrix solution adopts the VDI mode, which is a Remote Desktop mode that all applications are running on the server, the client is equivalent to be the remote control desktop, and the server acts as a virtual machine of the client remote control the server. But for CCBoot, all applications are actually running on the client. The differences are:

1) Citrix (VDI mode) has higher requirements on the server.
2) For Citrix, the client system is not actually running in the local machine, instead, it is running on the server's virtual machine.

Citrix, VMWare and Microsoft solutions all adopt the VDI mode. VDI mode can be useful, but it is not always the solution, it is running on the server's virtual machine, which is hard to get the real expriences on the clients. Besides, there may be a number of configurations, and probably application loadings aren't work or poorly performing on VMWare. VMWare produces 20% of a raw system's performance, but unique device connected to the system cannot be accessed through VMWare (VDI mode).

1.11 Advantages of CCBoot Diskless Solution

Compared with other diskless solution, CCBoot has its own obvious advantages.

1. SSD Cache Function
CCBoot is equipped with good cache performance, it supports physical memory and SSD cache. With SSD cache function, the server runs faster and stable, and the clients' read and write speed will be superior to local HDD.

2. Windows Server 2012 and Windows 8 Supported
Windows 2012 can be used as CCBoot server OS. Meanwhile, it supports diskless boot the latest Windows 8.

3. Client with 64 Bit OS Supported
CCBoot supports diskless boot 64 bit OS of Windows XP, Windows 2003, Vista, Windows 7, Windows 2008, Windows 8 and so on.

4. Support Windows Domain
CCBoot can perfectly work with Windows domain. One can login with domain account,

then load and store personal data on the personal disk.

5. Support VHD Format
CCBoot works with VHD format image very well.

6. Support Graphic Boot
CCBoot supports customizing the boot graphic. You can set the graphic boot menu as you like.

7. Support VLAN
CCBoot can be used on complex networks, such as dual NICs and dual LANs, dual LANs segment, and even VLAN. VLAN (Virtual Local Area Network) is an emerging data exchange technology, which divides the LAN equipment into small network segments logically to complete a virtual work group.

8. Failover with Super Path Function
Super Path can realize two servers working at the same time. If one server has stoppage, the other one will take place of it without affecting and restarting clients.

9. Compatible with Third Party DHCP
CCBoot is compatible with third party DHCP and TFTP, which makes the management become more convenient.

For more functions, please refer to the main features on CCBoot homepage.

1.12 Diskless Boot with UEFI BIOS

We take ASUS UEFI BIOS for example.
1) Advanced => Network Stack => Enabled (Figure 1-1; Figure 1-2).

Figure 1-1

Figure 1-2

2) Advanced => Onboard Devices Configuration => Realtek PXE OPROM => Enabled (Figure 1-3; Figure 1-4).

Figure 1-3

Figure 1-4

3) Boot => Boot Option Priorities => Boot Option #2 (Figure 1-5).

Figure 1-5

1.13 CCBoot Client on Windows 7 Embedded

CCBoot Client can be run on Windows Embedded Standard 7. To avoid some problems during the process, you can check the following notes.

1. Compared with the full version of Windows, Windows Embedded needs Microsoft updates.
2. Activate the iSCSI initiator of Microsoft, and then go to the Device Manager and install the iSCSI initiator.
3. If you have problem when configure more than one image (different languages) to boot on the same physical machine, please check whether there's a problem with active directory.

Go to the local security policy -> Local policies -> security options, and look for the parameters "Domain members: Disable machine account password change", this parameter must be activated.

Take English version image and French versioin image for example, in the English version, that parameter is activated by default, but in the French one, that parameter is always disabled, so please activate it.

4. If you failed to diskless boot multiple specifications with one image by using the provided drivers in CCBoot PNP tool, please try the NIC drivers of their manufacturers.
5. For the updates and drivers of Windows Embedded Standard 7, you also have to consider the OS (Windows 7 32bit or 64bit).

Thanks for Simon Leroux providing this solutio

2 Quick Start

2.1 Preparation for Quick Start

Please use Windows Server 2003 R2 Enterprise Edition SP2 32 bit if you plan to use Windows Server 2003 as CCBoot server system platform.
Please use Windows 7 Ultimate 64 bit if you plan to use Windows 7 as CCBoot server system platform.
Please use Windows 2008 R2 Enterprise Edition 64 bit if you plan to use Windows 2008 as CCBoot server system platform.

1) All hard disks should be formatted as NTFS. When format drives, please set "Allocation unit size" as "Default" for server OS system drive, and set "Allocation unit size" as "32K" for other drives.
2) Allocate hard disks for image, game (raid 0) and write back (2-3 hard disks). If you have an SSD disk, please format it to only one partition for cache. How to allocation hard disks? Please refer to Server Hardware Requirements.
3) If you haven't install SuperCache on the server, please click to select "Enable System Write Cache" in the settings of CCBoot server.
4) If you are using Windows 7 or 2008 as server OS, please make sure you have enabled the "Enable write caching on the device" for every disk.

How to do "Enable write caching on the device" on disk?

1) Click Start, right-click Computer and select Manage.
2) In the left panel, click Device Manager.
3) Expand Disk Drives and right-click on one of the disks.
4) Click the Policies tab and check "Enable Write Caching on the device" to enable (it's a default setting of Windows 7).
5) To further improve the disk performance (needless to say, higher the risk now), check the box "Turn off Windows write-cache buffer flushing on the device".
6) Press "OK" to save (Figure 1-1).

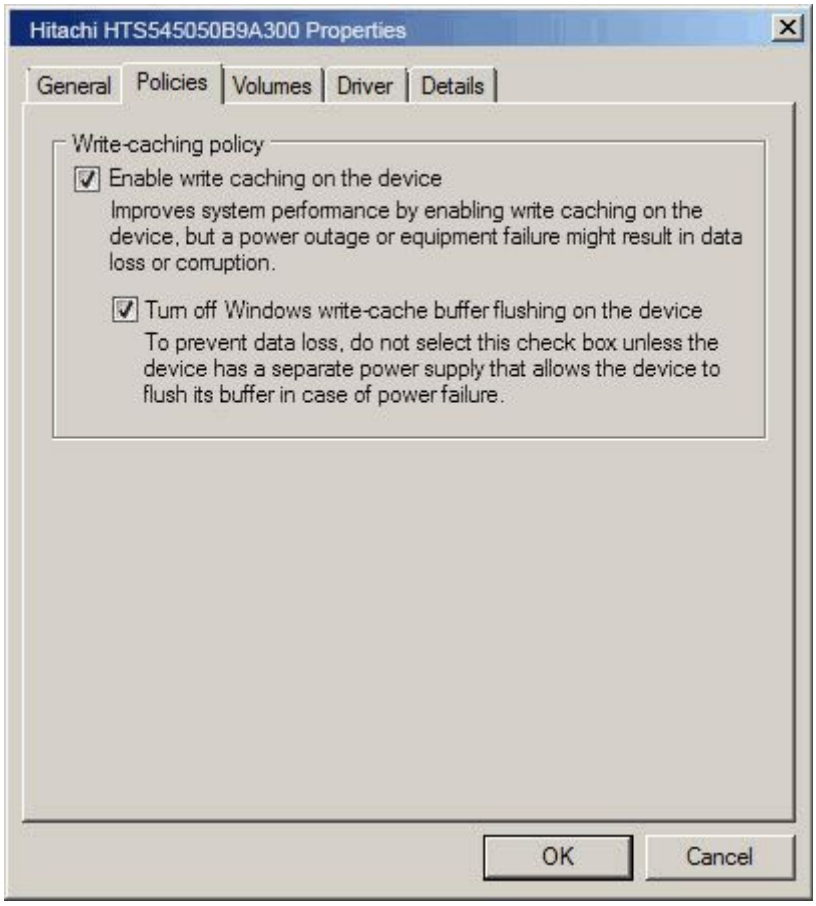


Figure 1-1

7) Implement step 3 - 6 for other disks.

2.2 Install CCBoot Server

Please download the latest version of CCBoot installation package from www.ccboot.com.

1) Launch ccbootsetup.exe on the server and press the "Next button". (Figure 1-1).

Figure 1-1

2) Select the "CCBoot Server installation" radio button in the pop up dialog.(From CCBoot v3.0 20140801, Server and Client all in one install package.)

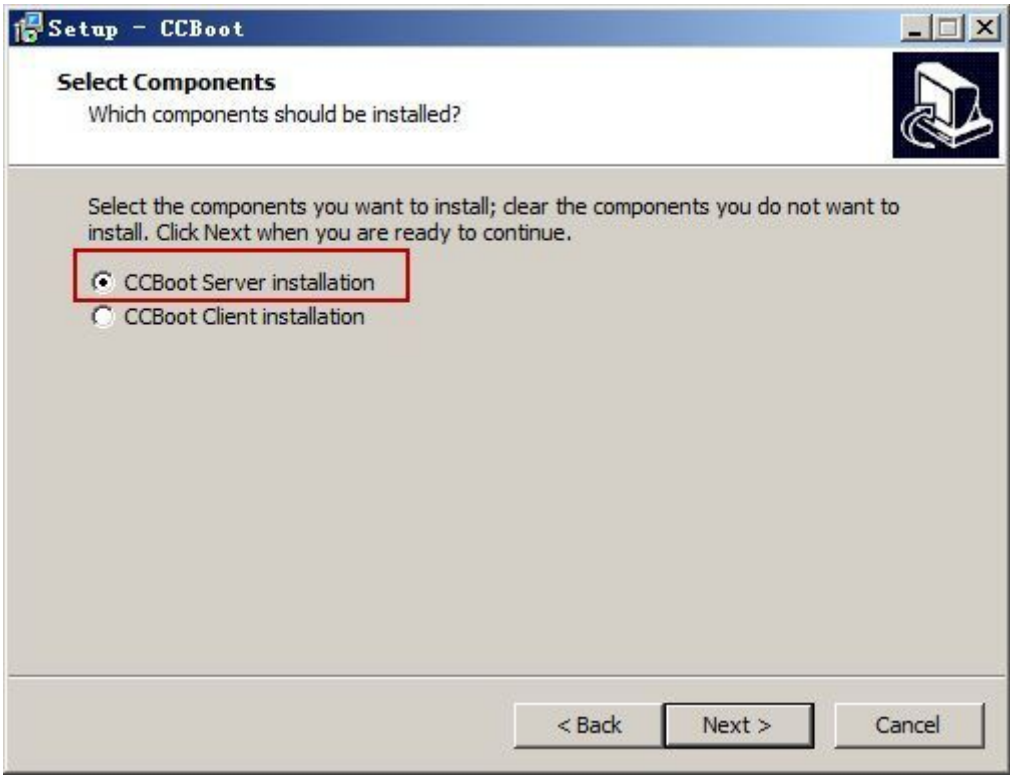


Figure 1-2

3) Keeping on pressing "Next button", in the pop up "CCBoot Options" dialog box, specify the "Write-back Path" and "Upload Image Path" as you wish, then keep other settings as default (Figure 1-3).

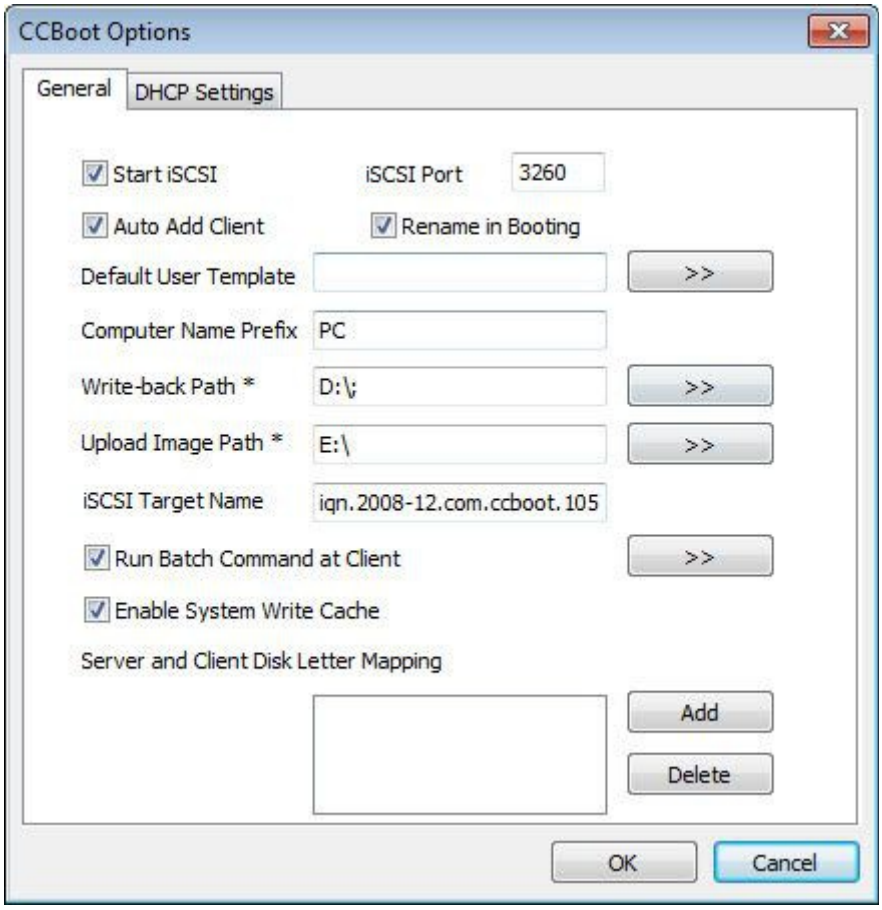


Figure 1-3

The "Write-back Path" and "Upload Image Path" as you wish, then keep other settings as default.

The "Write-back Path" is used to save the data written from clients. With this feature, every client can save private data separately. And these data are only available for client on which they are created.

The "Upload Image Path" is used to save images uploaded from clients. With such images, you can diskless boot clients over the network based on iSCSI.

4) Click "DHCP Settings" tab, and set the DHCP settings as below.

Demo Environment

Server IP: 192.168.1.220

Gateway: 192.168.1.1

DNS Address: 192.168.1.1

IP Mask: 255.255.255.0

DHCP Range: 192.168.1.101-192.168.1.254

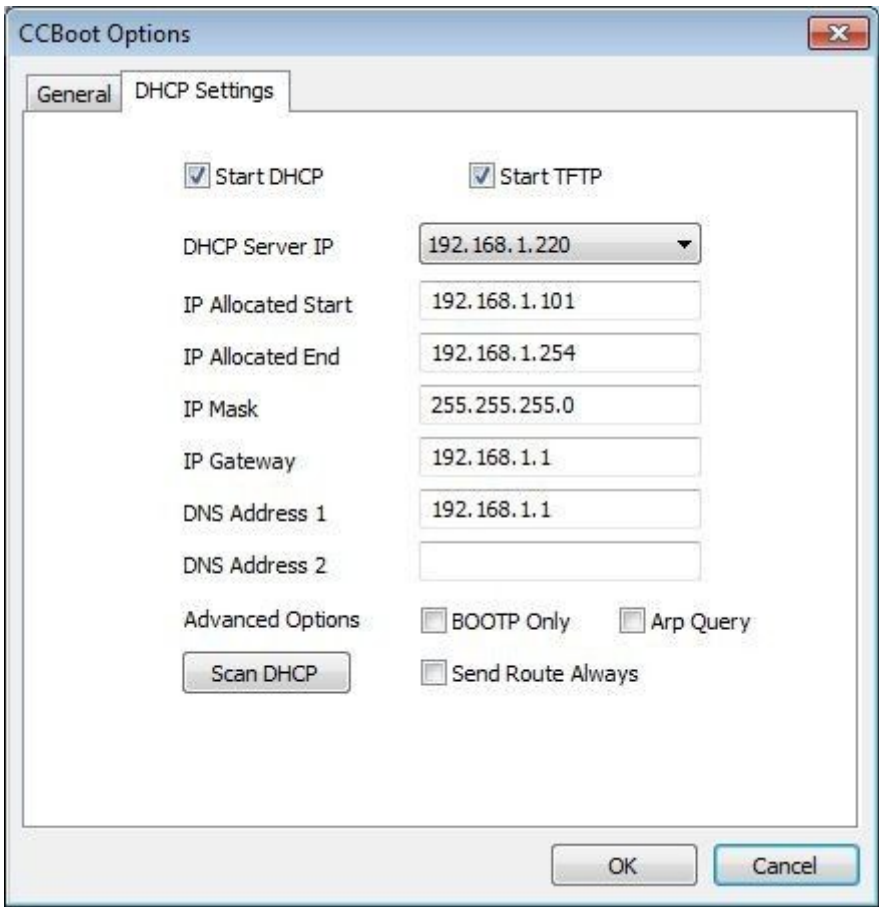


Figure 1-4

You need to select the correct local IP address as "DHCP Server IP". Press "Scan DHCP" to check if there are other DHCP services on the LAN. If yes, shut them down so that client PC can get IP address from CCBoot DHCP and then diskless boot Windows XP.

5) You will get the main interface as bellow (Figure 1-5).

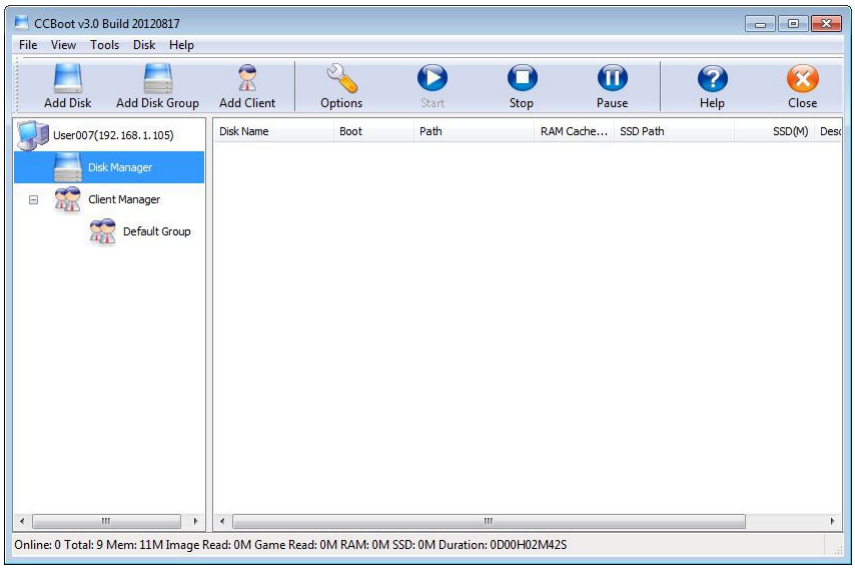


Figure 1-5

CCBoot Server Ports

CCBoot uses the following ports - 67 (DHCP), 69 (TFTP), 3260 (iSCSI), 1000 (Image Upload), 8001 (Service Control). Please open these ports on the server firewall to make sure client PC can diskless boot successfully. For CCBoot v3.0, you also need to open port 66. V3.0 using port 66 as DHCP backup.

Note: In order to make sure client's PCs can diskless boot well, please shut down the other DHCP services on the LAN, especially the DHCP service in the router. You can be rest assured that after you disabled other DHCP services on the LAN, it will not affect other computers' connecting to the Internet, because CCBoot will provide DHCP service which could also be used by the computers which boot from HDD.

2.3 Create Boot Image

1) Choose one client PC as master PC used for uploading boot image.
2) Attach a hard disk on the PC.
3) Delete all partitions firstly. Allocate a small MBR partition about 40G size and leave the rest unallocated. Format the 40G partition with NTFS.

Note: If you want to use Windows 7 or Windows 8 as client OS, when installing OS, you need to connect the boot disk to the SATA0 interface of the mother board. If you are not sure which is the SATA0 interface, you can remove other hard disks on the client, just leave one HDD for installing OS. The reason is that, on Windows 7 and Windows 8, the boot data will always be written to the hard disk which is connected to the SATA0 interface. If the HDD on the SATA0 interface is not the boot disk, the client will be failed to boot from that image. Because CCBoot only uploads the boot disk data.

4) Install Windows XP or Windows 7 into this partition. Install only NIC driver, main board chips driver and other low level drivers on this master PC.
5) Open the local area connection network properties and configure as bellow:

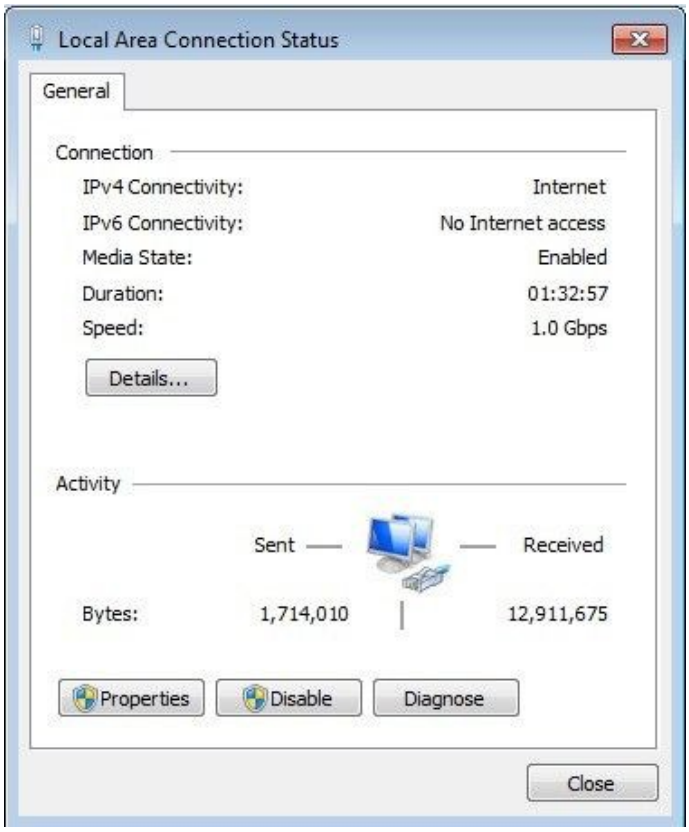


Figure 1-1

Click "Properties". Please uninstall "QoS Packet Scheduler" (Figure 1-2).

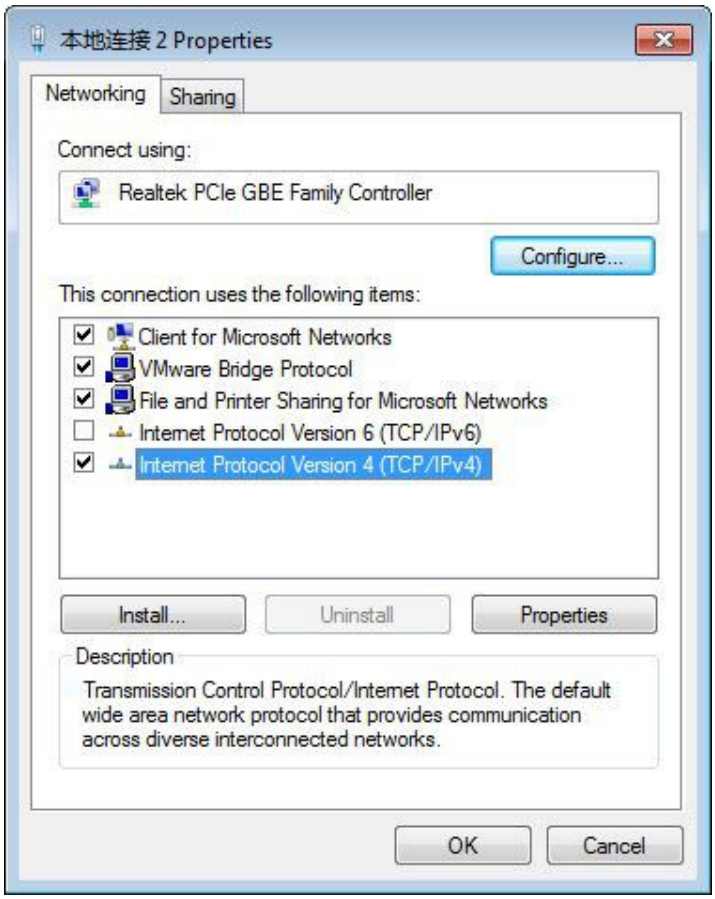


Figure 1-2

Select "Internet Protocol (TCP/IP)" and click "Properties" (Figure 1-3).

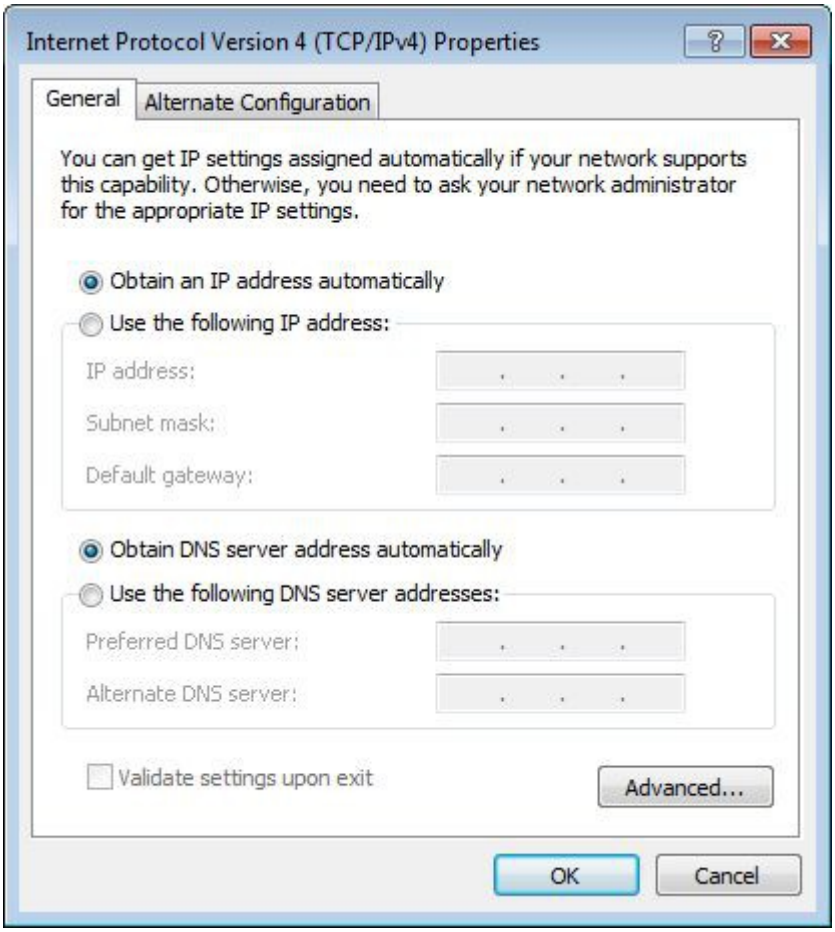


Figure 1-3

Select "Obtain an IP address automatically" and "Obtain DNS server address automatically", then click "OK" to save.

6) Download CCBoot installation package from from http://www.ccboot.com/download.htm. Launch ccbootsetup.exe and press the next button, select the "CCBoot Client installation" radio button in the pop up dialog box (Figure 1-4). (**From CCBoot v3.0 20140801, Server and Client all in one install package**.)

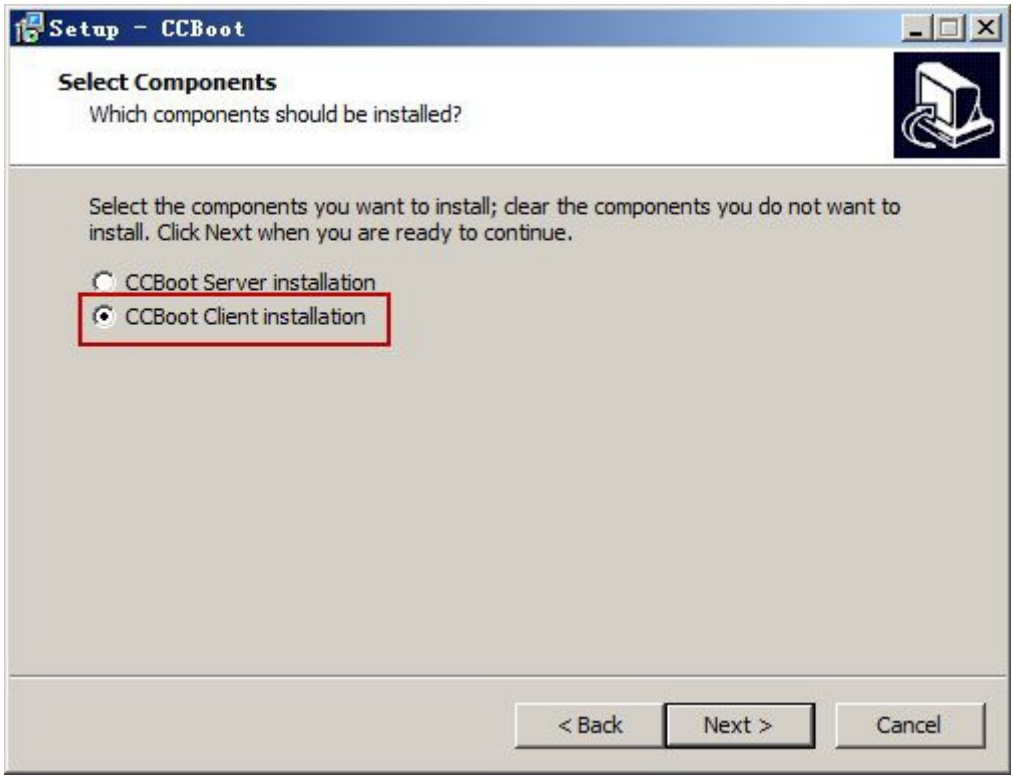


Figure 1-4

7) Keeping on pressing the "Next button", in the pop up "CCBoot Options" dialog box, then launch CCBoot client and you will see the main interface as bellow (Figure 1-5). (Note: If you have wireless card or multiple NICs, just leave the NIC used to boot from LAN, and disable the other NICs in Device Manager before installing CCBoot client, and then upload the image.)

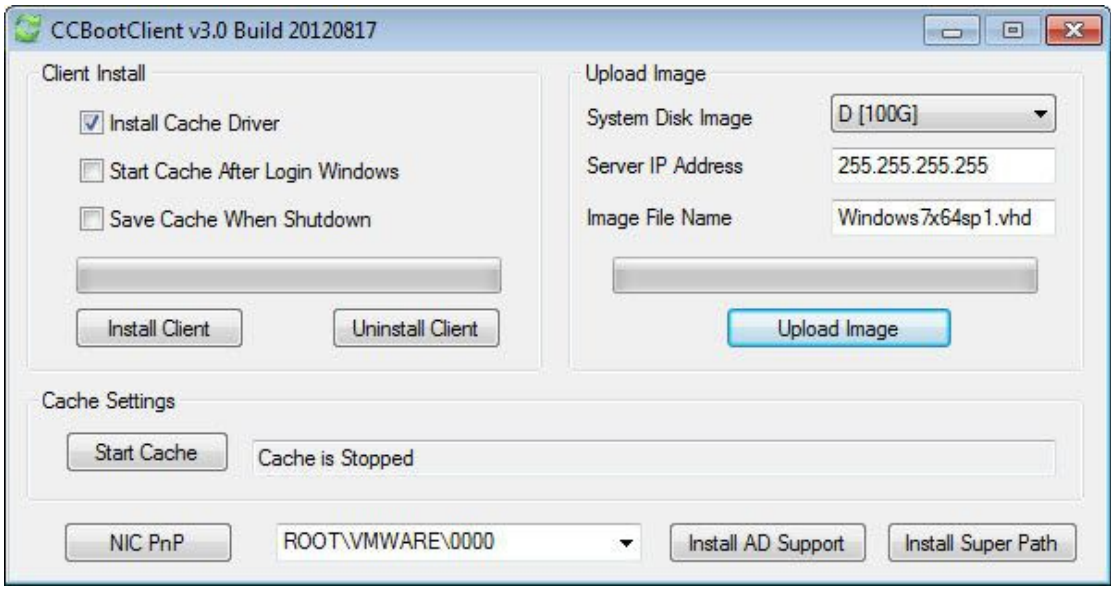


Figure 1-5

8) Press the "Install CCBoot Client" button. After finished, it will require rebooting

system. Reboot the client PC. Please use command "ipconfig /all" to get the client IP address.

9) Go to server. On the CCBoot server, you will find a client in the client list that is added by CCBoot automatically when the client PC gets IP address from the CCBoot DHCP service. If there are multiple clients in the list, please identify the client by the IP address.

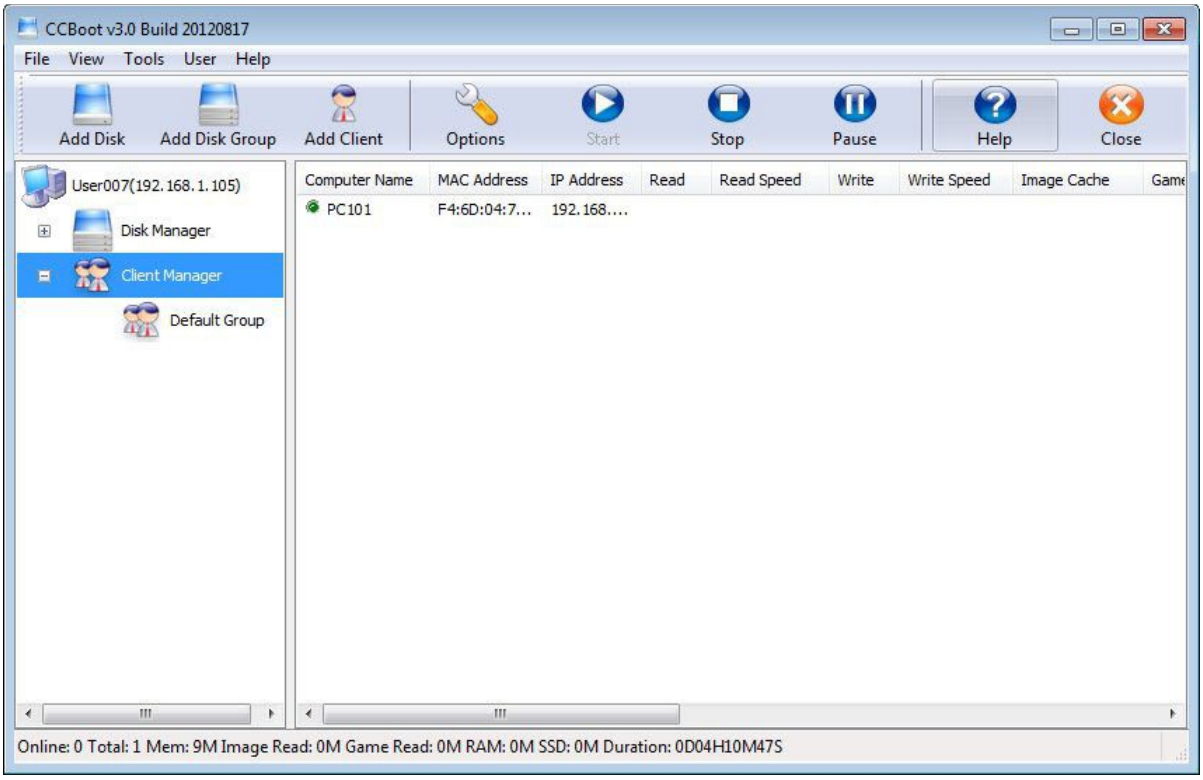


Figure 1-6

Double click the client to edit and check "Enable Upload Image", and press "save".

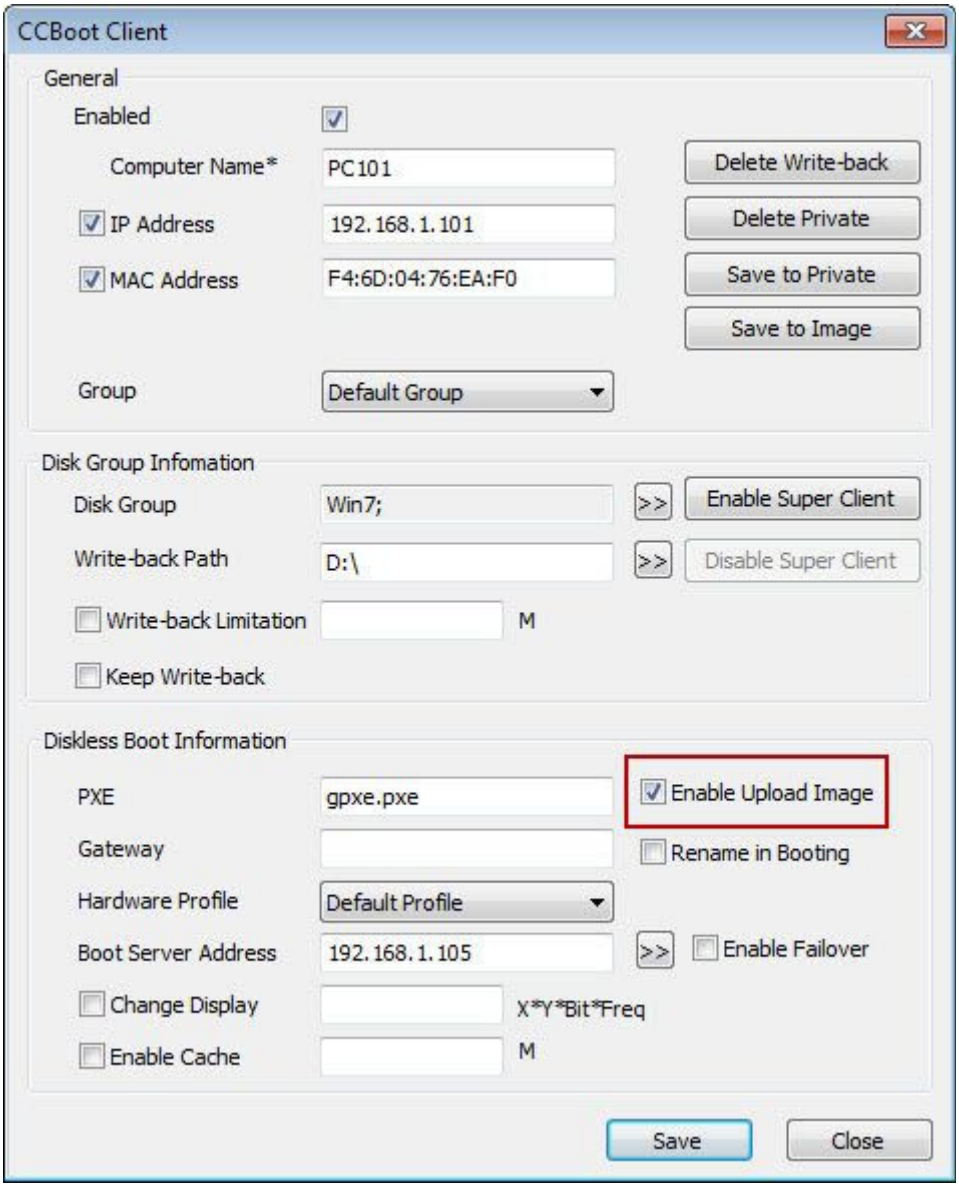


Figure 1-7

10) Go to client, launch CCBoot Client again, click "NIC PnP" button.
11) On the "CCBootPnP" dialog box, click "Install Known NIC" button, you will get a NIC driver list. Please check "Select All", click "OK" to install.

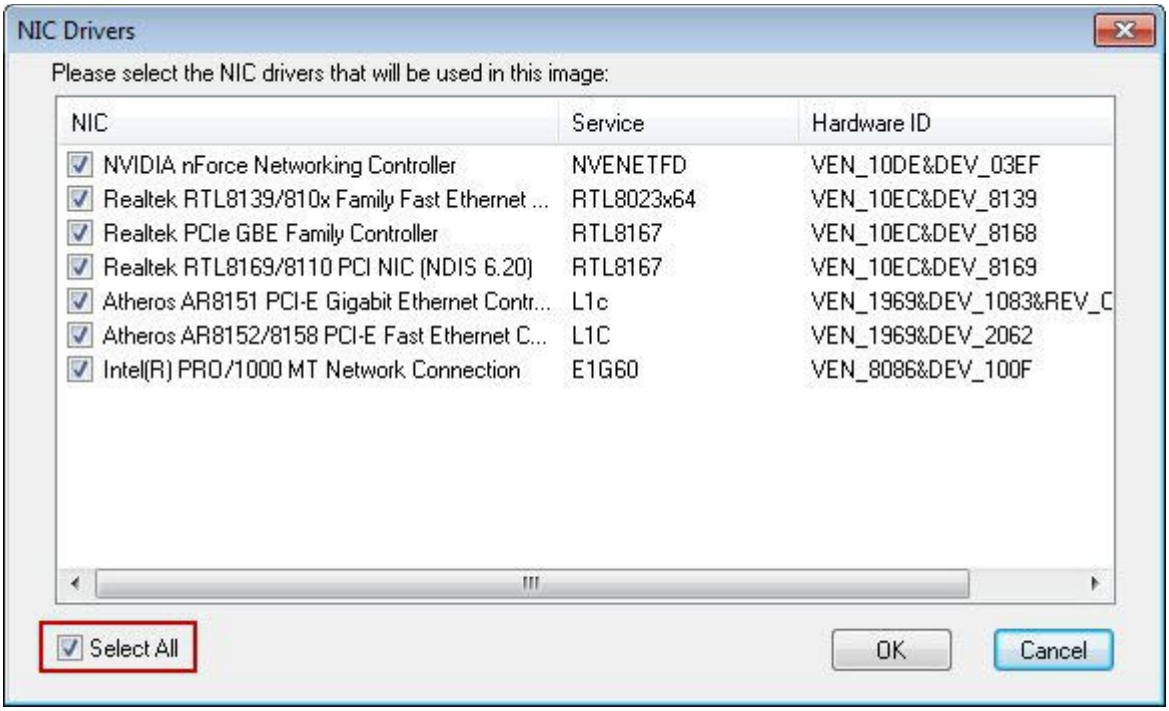


Figure 1-8

11) Input the correct "Server IP address", it should be the IP address of the CCBoot server, which has been located. Input the image file name as you wish in the "Image File Name". Press the "Upload Image" button to upload the image to the CCBoot server. Then CCBoot will create a boot image in the server "Image Save Path".

Note: CCBoot supports two types of image file format. It supports VMDK and VHD image file format. The image file format depends on the file extension you have set for the "Image File Name". For example, if you set "XP01.vmdk" as the "Image File Name", it means you will use "VMDK" image file format, while if you set "XP01.vhd", it means you will use "VHD" image file format. We recommend you to use VHD format.

2.4 Diskless Boot Client

1) On CCBoot server, double click PC101 to open the master PC's properties dialog box, uncheck "Enable Upload Image" and click "Save".
2) Shutdown the master PC. Remove the HDD or disable HDD in BIOS (This step is necessary especially for WIndows 7). Set it firstly boot from LAN (or network, PXE rom, or some similar settings) in BIOS settings, so that it will start diskless boot.
3) Boot the master PC; you will see the following picture.

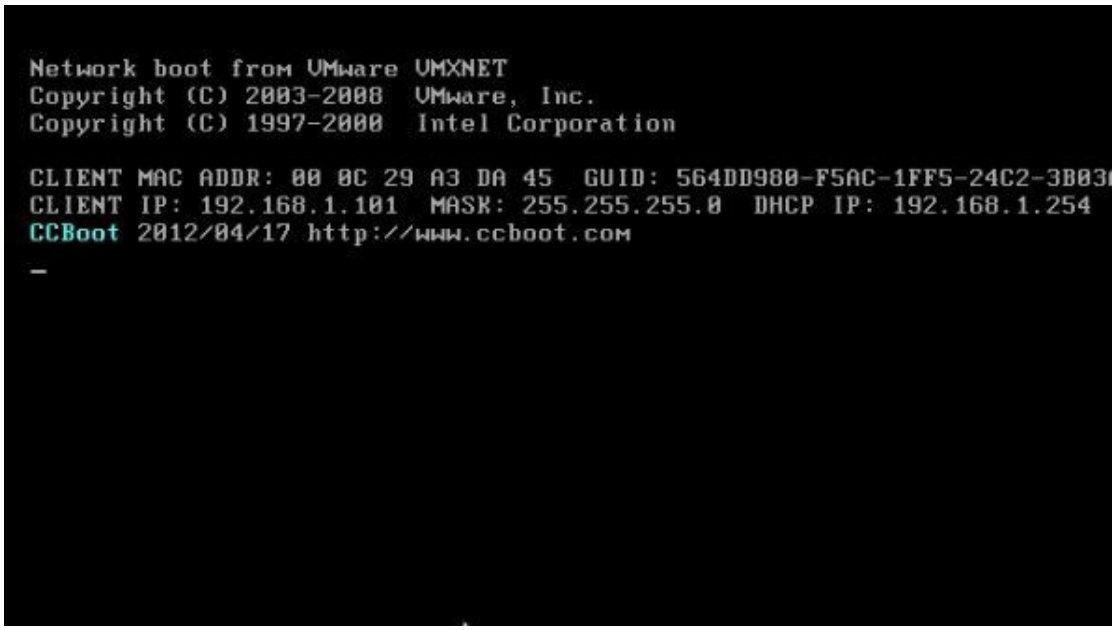


Figure 1-1

4) The first time diskless booting the master PC, you can modify its computer name and IP address as you wish. And then press Enter key. The client will reboot again.

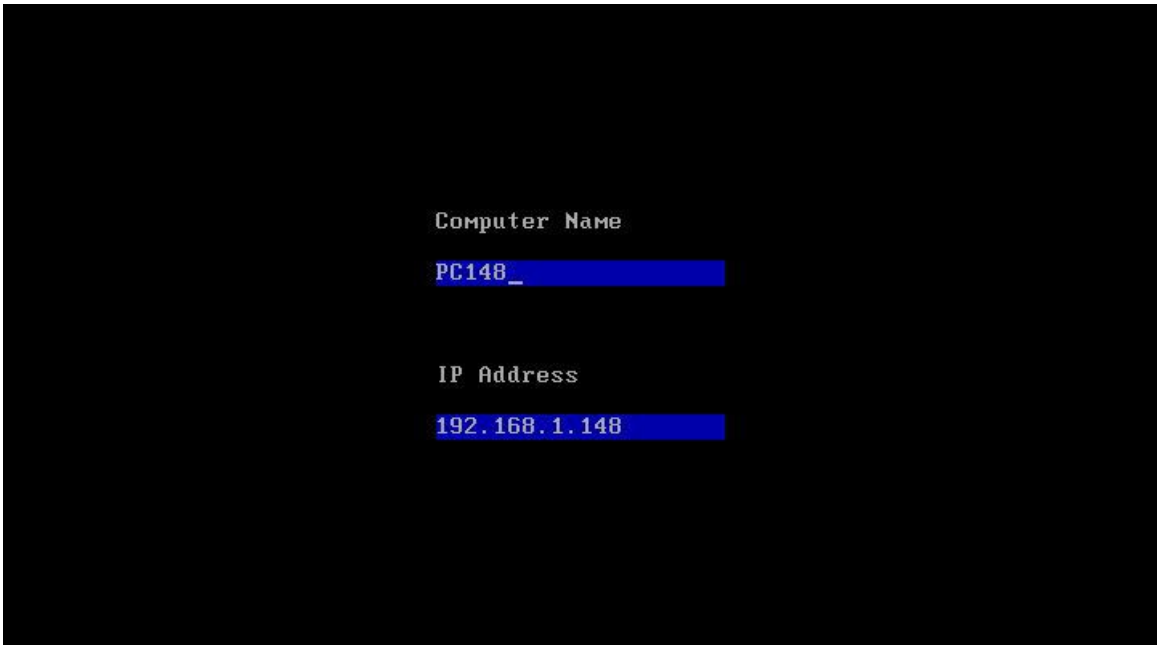


Figure 1-2

5) Now it will diskless boot successfully.

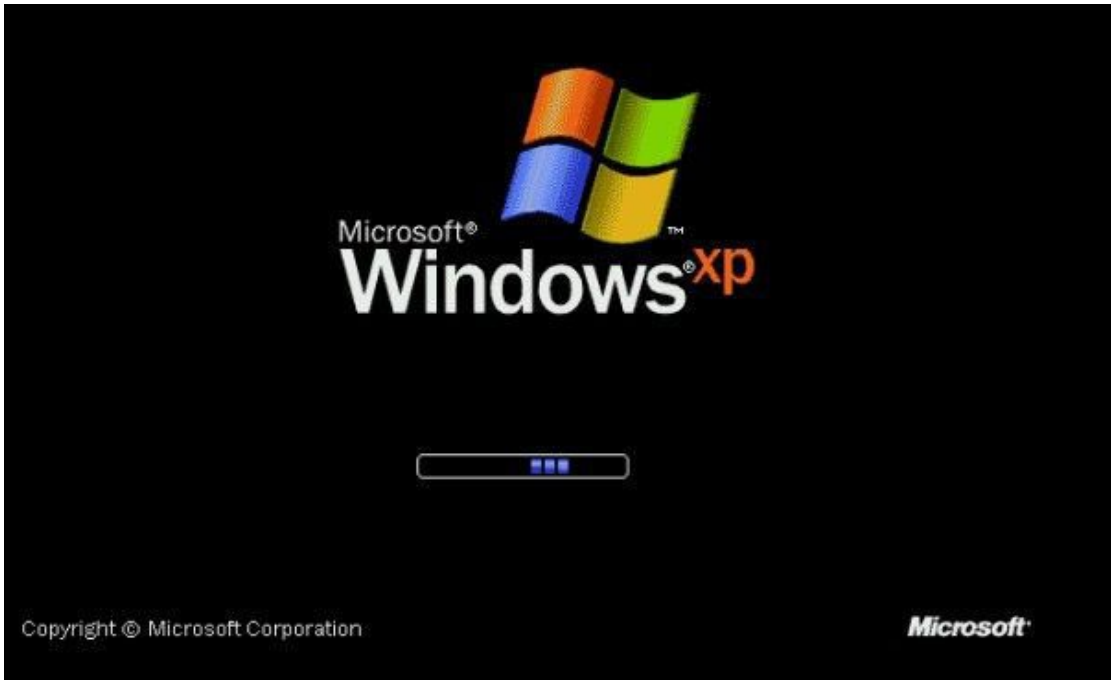


Figure 1-3

Note: For the first time you diskless boot Windows 7, you will get a startup list (also called "safe mode", it only happens when uploading image), normally just like has not shuting down computer. That's just because we uploaded the Windows 7 image during its running. Bellow is how to prevent from this situation for future booting.

1) On CCBoot server, double click PC101 to open the master PC's properties dialog box, check "Keep Write-back" and click "Save". Boot the client diskless.
2) Select "Start Windows 7 Normally" to boot.
3) When this client boot is OK, shut it down.
4) On the CCBoot server, double click PC101, press "Save to Image" in this client's properties and uncheck "Keep Write-back".

Now, clients can boot Windows 7 from this image normally.

Additional Instruction

If the image you have uploaded from the master PC can be used to diskless boot Windows XP/7 for all the other client PCs, please install other drivers (display, sound etc), Windows updates, and various application level software's to the image by update image.

If you want to diskless boot Windows XP with a single image for client's computers with different hardware specifications, you need to implement PnP. Please refer to this article for more details -Create a Single Image for All Specifications.

If the diskless booting stop at the Windows Logo for a long time and report BSOD error code such as 0x0000007b at last, please refer to Stuck in Windows Logo.

3 Server Settings

3.1 File Menu

File menu.

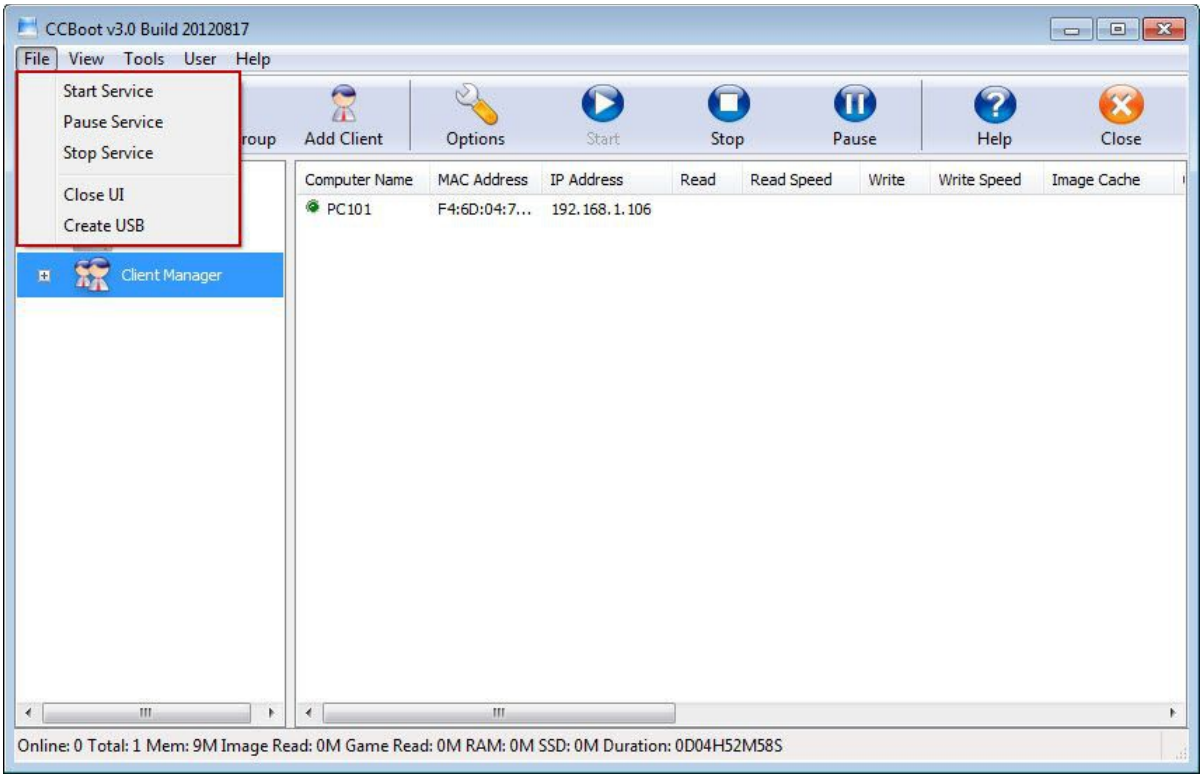


Figure 1-2

Start Service: Start DHCP, TFTP, and iSCSI Service.
Pause Service: DHCP Request Moratorium on LAN.
Stop Service: Stop CCBoot All Service.
Close UI: To close CCBoot Main Interface but the Server is still running.
Create USB: Make USB startup disk (for the NIC that without PXE chipset).

How to create USB for diskless booting client?
Sometimes, the client's NIC doesn't have PXE chipset but we still want to diskless boot with that NIC. We can use USB to boot the client, load the PXE code from USB and then diskless boot from the server.
1) Insert a USB in the server machine.

2) Click "File" menu.
3) Select "Create USB". It will popup "Create Bootable USB" dialog box.

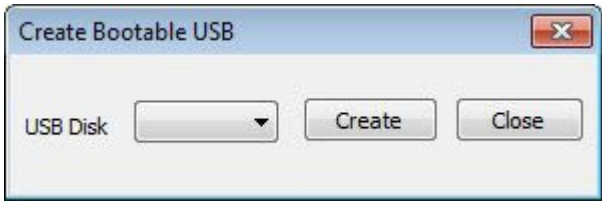


Figure 1-3

4) You can select the USB drive letter and click the "Create" button.

Notes: Because most of the up-to-date onboard NICs support PXE boot, we DO NOT recommend using this method for diskless booting. For this method, it only supports several old network cards, such as some earlier Realtek NIC.

3.2 View Menu

View menu.

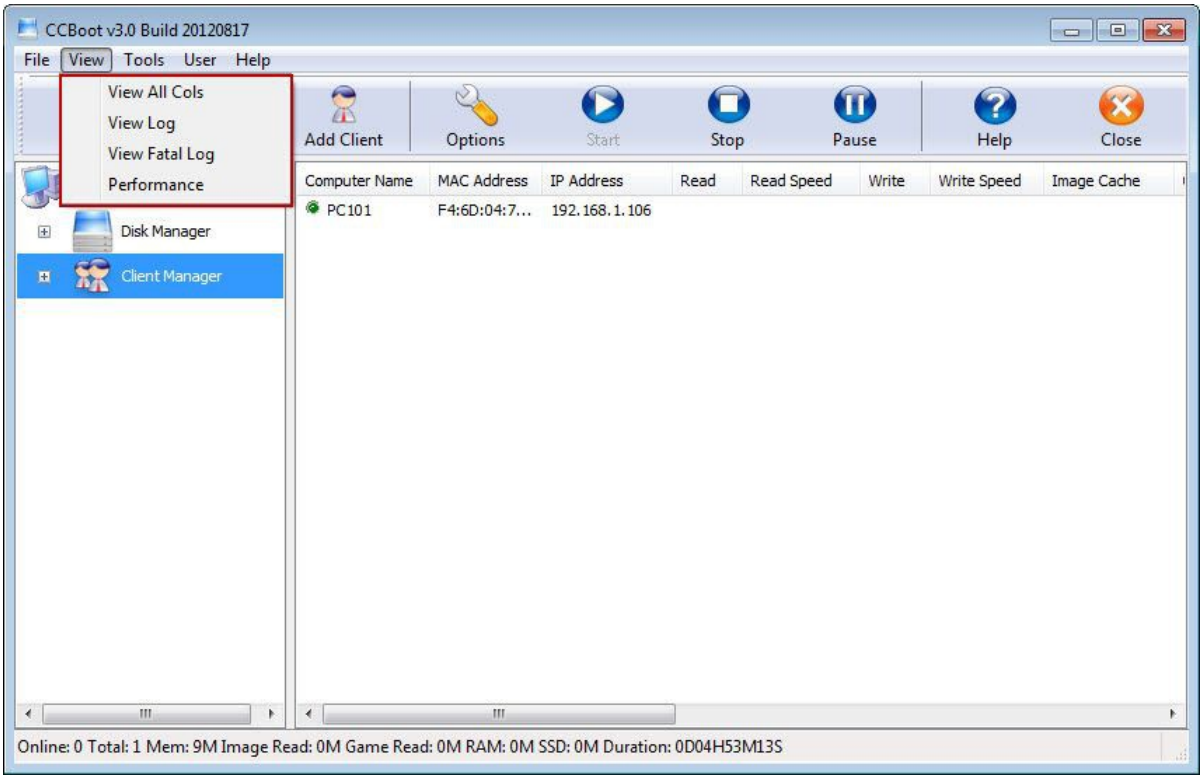


Figure 1-1

View All Cols: In the details pane of the main interface displays all parameters.

View Log: View software running log.
View Fatal Log: View software error log.
Performance: View performance of each disk, cluster size and other information.

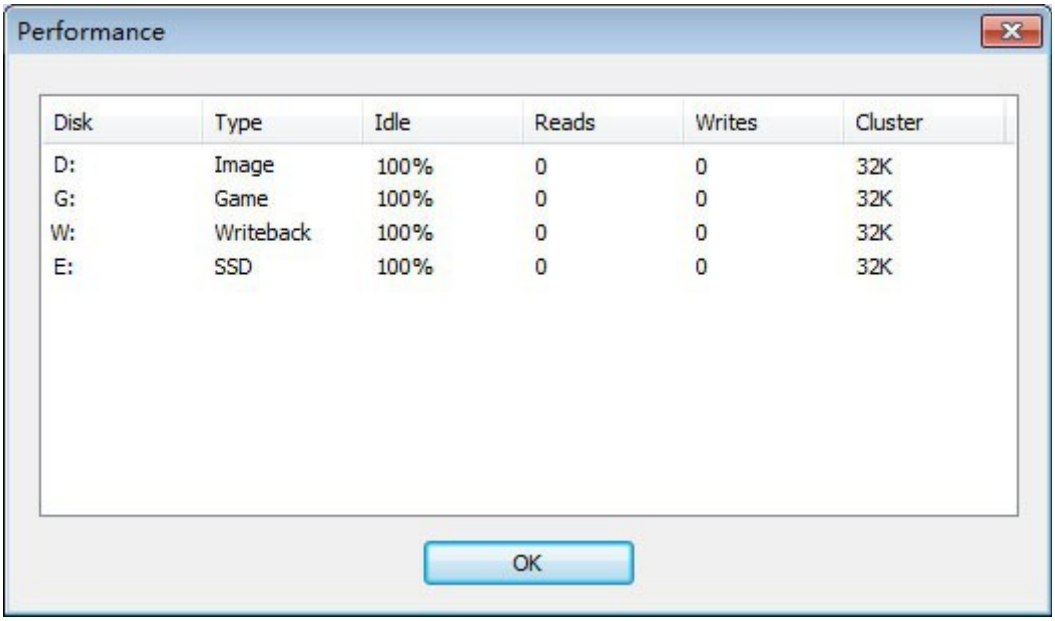


Figure 1-2

Disk: Drive letter or disk number.
Type: Image, game or writeback disk.
Idle: The disk idle percentage. This value more high is better.
Reads: The disk read times per second.
Writes: The disk write times per second.
Cluster: The disk NTFS cluster size. We recommend 32K.

Note: From CCBoot v3.0 build 20131010, the SSD performance monitor function was added.

3.3 Tools Menu

Tools menu.

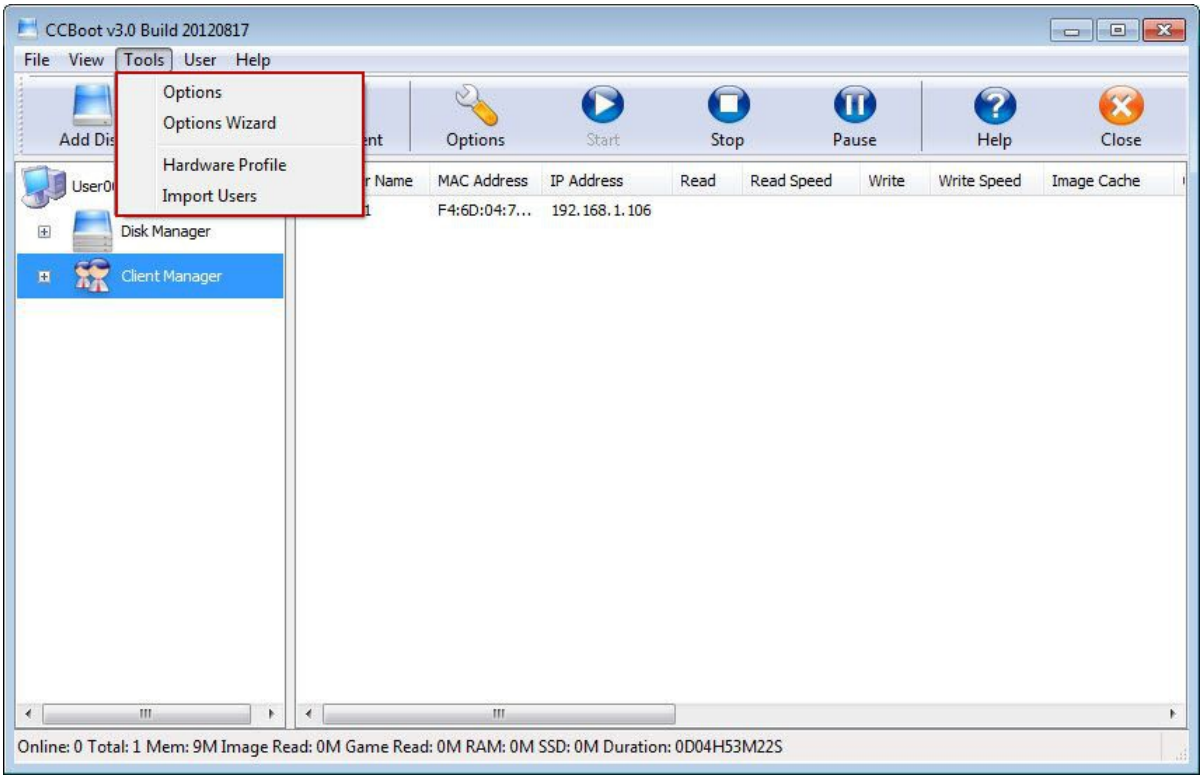


Figure 1-1

Options: Open the Server Settings dialog box.
Options Wizard: To Guide the user to Setup the Software.
Hardware Profile: You can add or hardware profile items here.
Import Users: Importing the clients from a CSV file. One client data per line. The first column is computer name, the second column is IP address, the third column is MAC address (12 letters) and each column divided by comma(,).

3.4 User Menu

User menu.

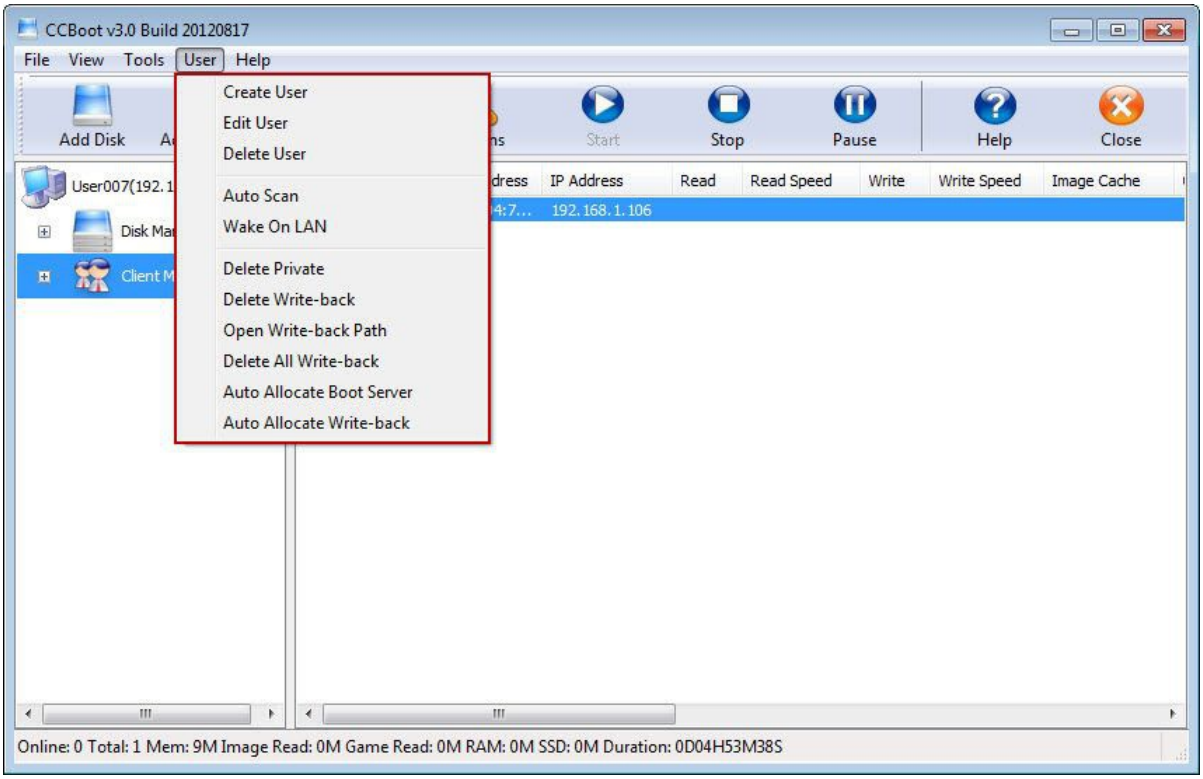


Figure 1-1

Create User: Add client.
Edit User: Edit the selected client.
Delete User: Delete the selected one or more clients.
Auto Scan: To Scan the client "Start IP" and "End IP" and to automatically add the client list.
Wake on LAN: The Server can remotely wake up the client.
Delete Private: Delete the client save package.
Delete Write-back: Clear the client "Write-Back File".
Open Write-back Path: To show the client Write-Back drive location.
Delete All Write-back: Clear all Client Write-Back File.
Auto Allocate Boot Server: Intelligently assigns automatically the Boot server IP for all clients.
Auto Allocate Write-back: Intelligently allocates Write-Back Disk for all clients.

3.5 Help Menu

Help menu.

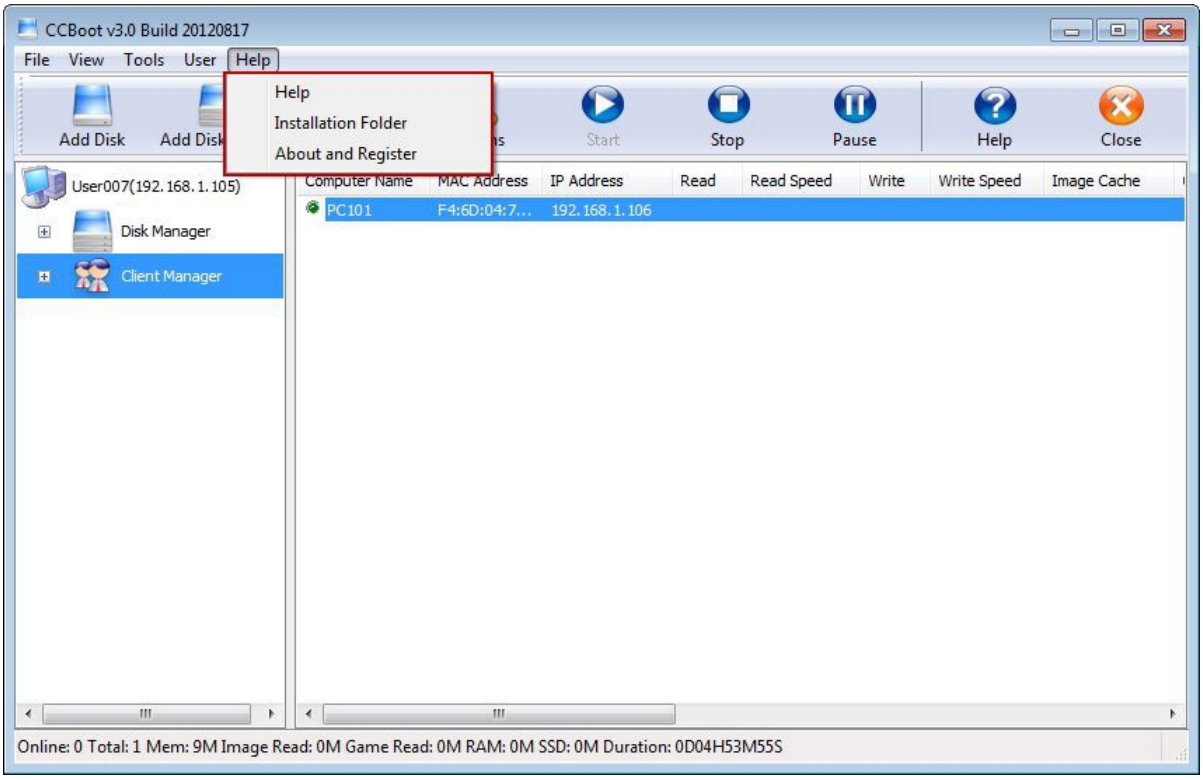
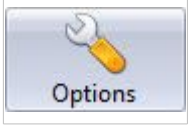
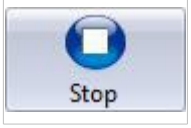
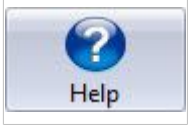


Figure 1-1

Help: To open the user manual.
Installation Folder: To open CCBoot installation directory.
About and Register: View CCBoot current version information and input the license registration code.

3.6 Toolbar Button

	"Add Disk" button.
	Add "Disk Group" button.
	"Add Client" button

	Configure server settings button.
	Start DHCP, TFTP and iSCSI services.
	Pause the service. In fact, it's only stop DHCP service and the other services are still running. The option will prevent the new client boot from this server.
	Stop all services, the service is stopped, the button will be disabled by the system.
	Open the user manual button.
	Button to close CCBoot main interface, but CCBoot service is still running.

3.7 Tree List

There are two nodes in the CCBoot Server Main Interface "Disk Manager and Client Manager".

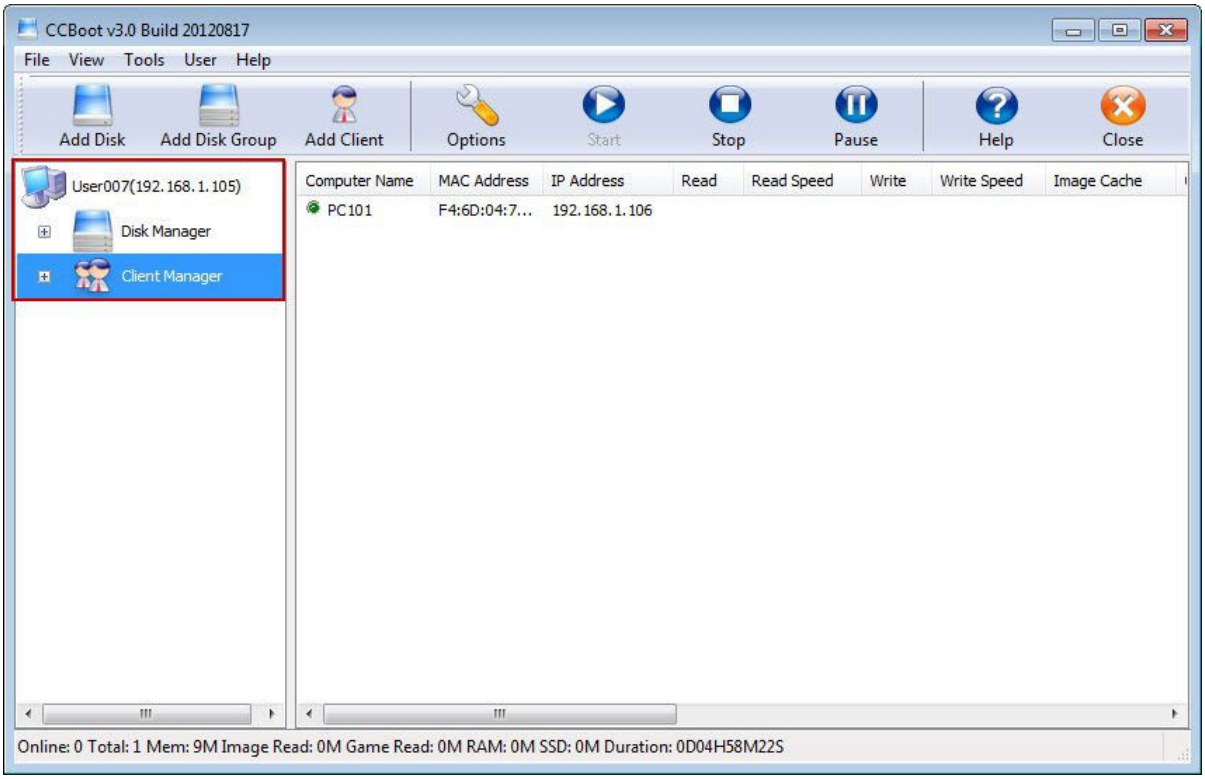


Figure 1-1

Right click "Disk Manager", to "Create Disk" and "Disk Groups"
Right click "Client Manager", to create "Users" and "Groups"

3.8 List Box

1. Disk List

Click the "Disk Manager" node on the tree; you can see that you have created the disk and disk parameters in the list control.

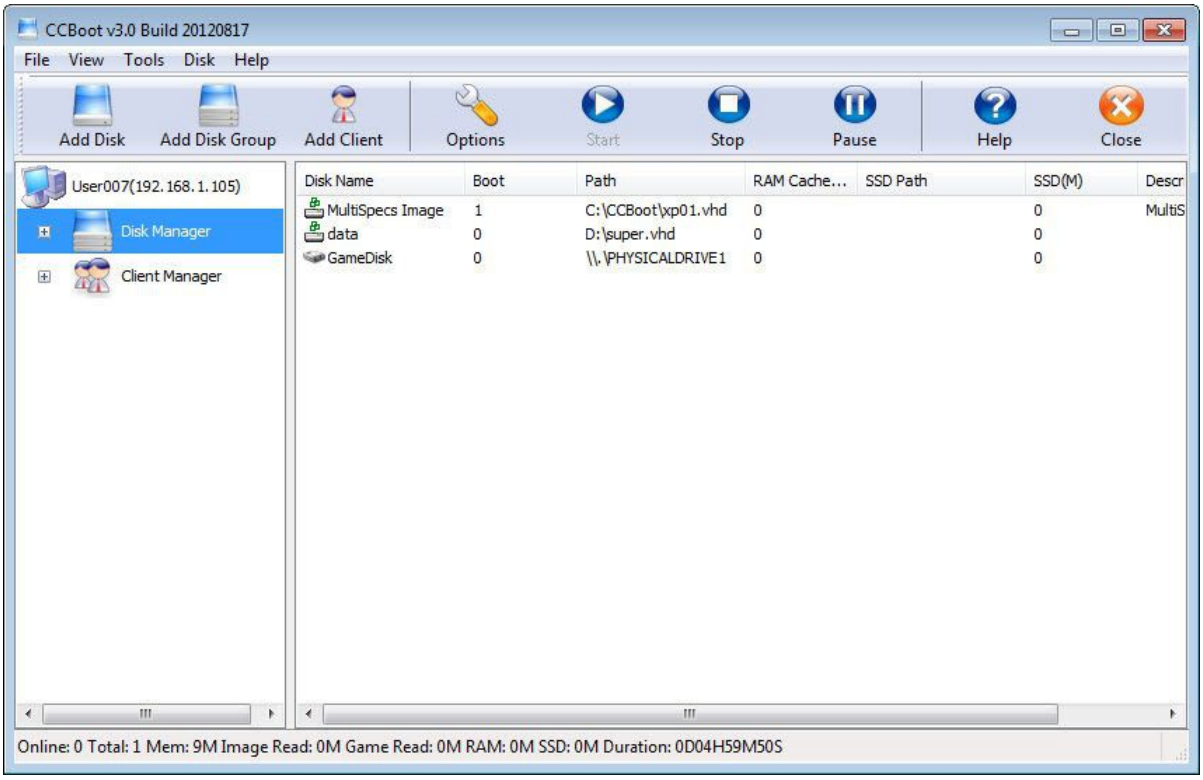


Figure 1-1

2. Client List

Click the "Client Manager" node in the tree; you can see the client detailed parameters. (If you want to display all the parameters, please select "view all cols" in the "View" menu. Or right click on the column header.)

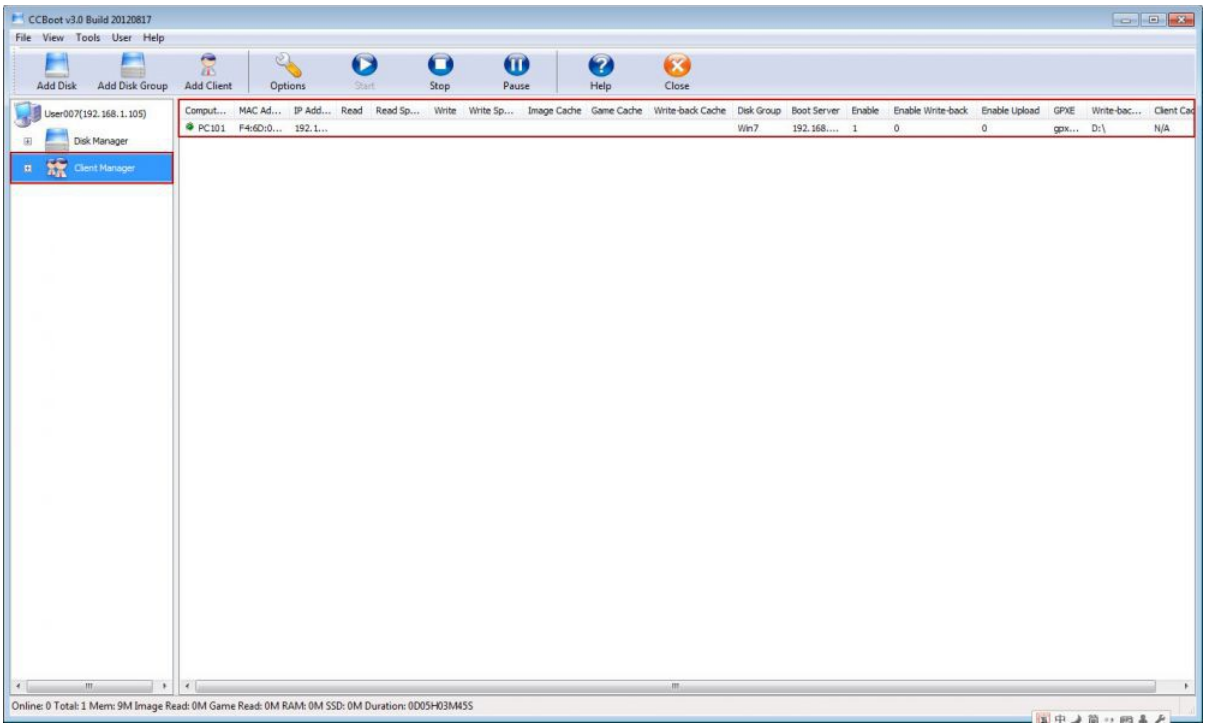


Figure 1-2

Computer Name: The computer name of the client.
MAC Address: The MAC address of the client.
IP Address: Server assigned client IP.
Read: The amount of data read by the client.
Read Speed: Read Speed of client data.
Write: Amount of Write-Back data from client.
Write Speed: The client Write-Back speed.
Image Cache: The client reads the image data from the cache and the percentage of the total amount of read.
Game Cache: Clients reads the game data from the cache and the percentage of the total amount of read...
Write-back Cache: Percentage of memory cache write-back data.
Disk Group: Displays the client's Disk Group.
Boot Server: Server's IP address.
Enable: Allows the client to boot from the server.
Enable Write-back: Allows the client keep write files on the server.
Enable Upload: Allows the client upload image.
GPXE: Displays the PXE file name.
Write-back Path: Write-back path of the client.
Client Cache: Client writes cache at local.

3.9 Status Bar

Showing the status and parameters in the bottom of the CCBoot main interface.

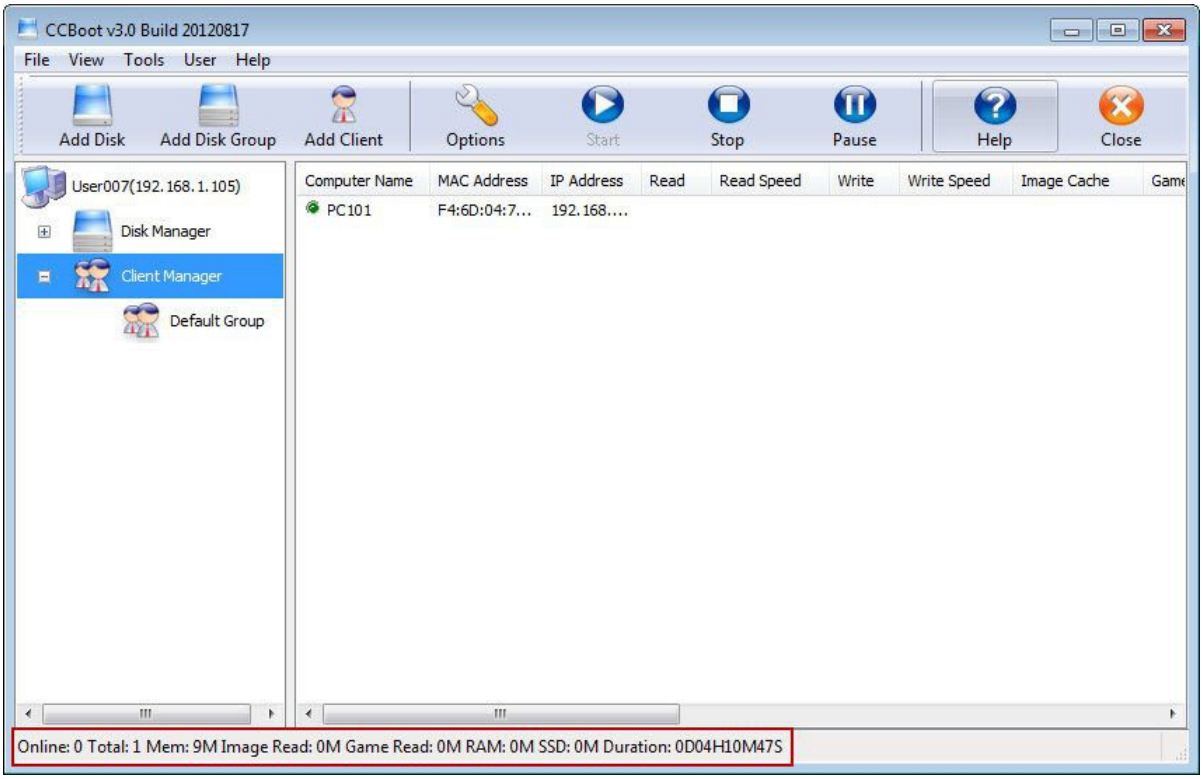


Figure 1-1

Status bar Information

Online: The total number of the online clients.
Total: The total number of the clients.
Mem: Shows the memory consumes for CCBoot own core process.
Image Read: The clients read size of the system image from the server.
Game Read: The clients read size of Game disk from the server.
RAM: The data size in the memory cache.
SSD: The data size in the SSD cache.
Duration: CCBoot system continues working time.

3.10 Basic Settings

In the CCBoot main interface "Tools" menu, click "Options".

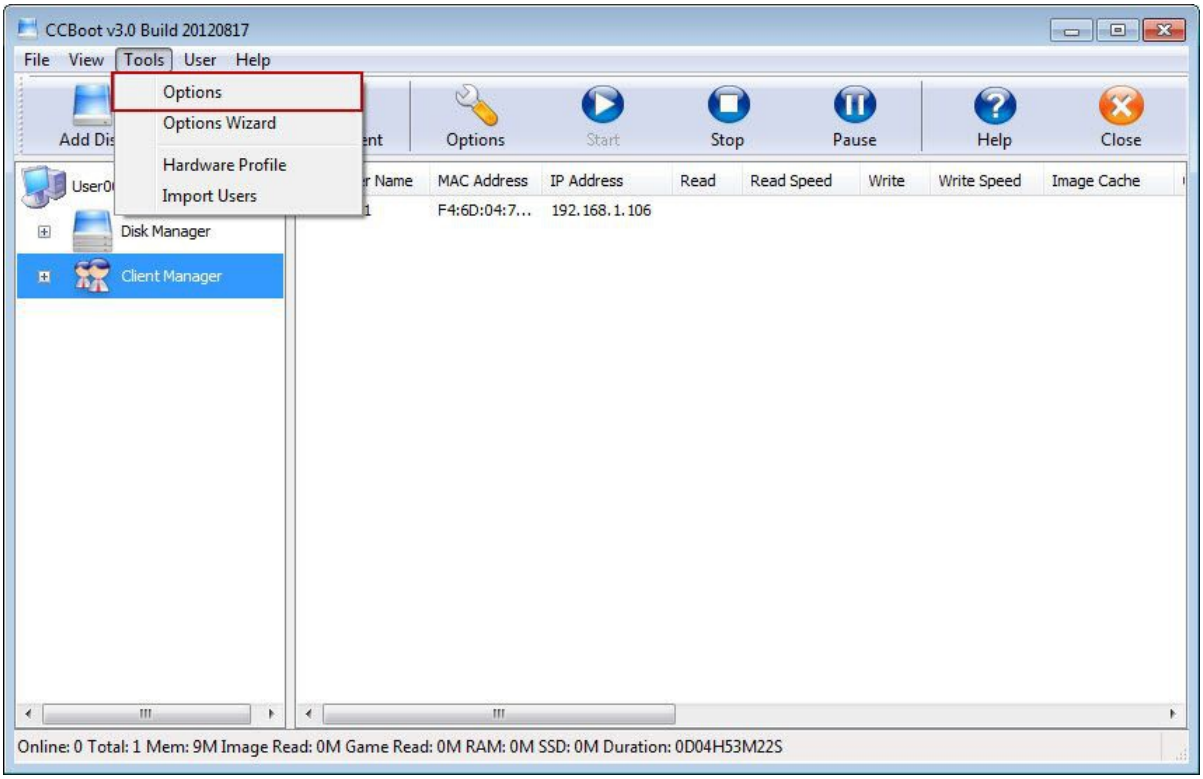


Figure 1-1

Will pop up "CCBoot Options" dialog box.

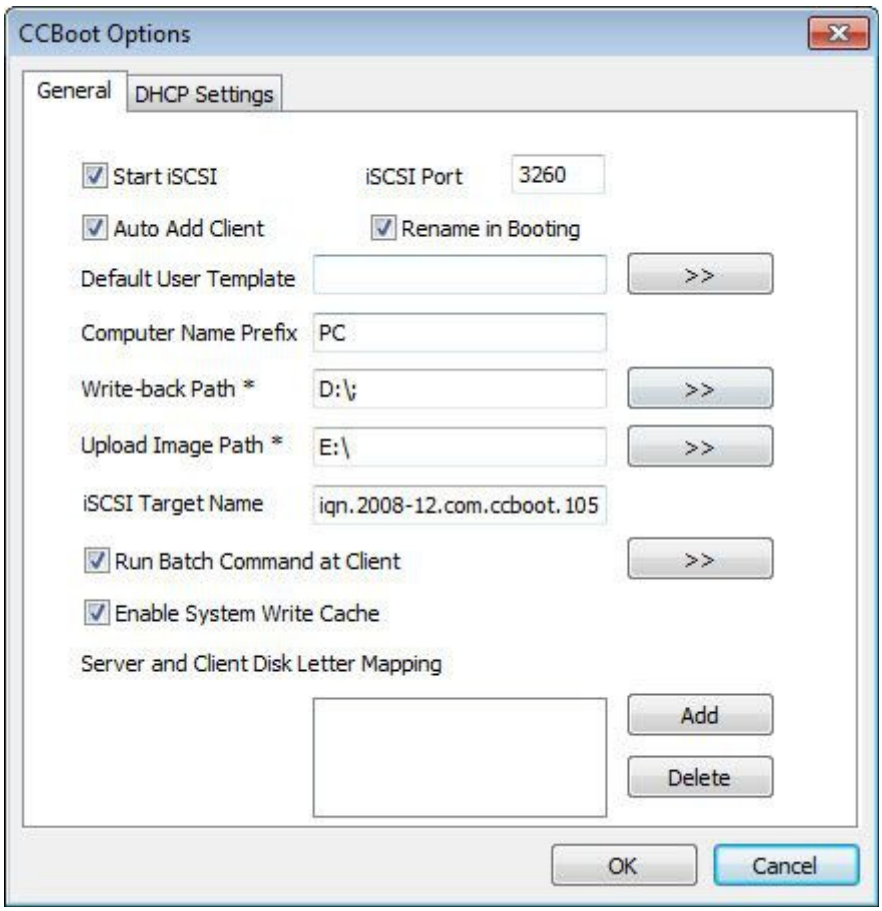


Figure 1-2

Start iSCSI: ISCSI service is enabled, and whether or not to provide a virtual disk service.

iSCSI Port: The iSCSI default ports is port 3260.

Auto Add Client: You are allowed to automatically add client

Default User Template: Configure first all the parameters for a client, as a success or to add client default settings.

Computer Name Prefix: Set the prefix computer name.

Write-back Path: Set the client Write-Back file locations.

Upload Image Path: Servers storage image upload drive location, (Note Make sure there is enough space in the storage location for Image).

iSCSI Target Name: It's iSCSI target name for iSCSI connection. Keep it with default value. Do not need to change.

Run Batch Command at Client: Setting up a client operating system startup, programs to run automatically, click on the ">>" button to edit it.

Enable System Write Cache: To enable system memory cache, the recommended memory size is 32GB to enable these features.

Server and Client Disk Letter Mapping: Show the mapped drive letter list. You can define the clients' disk letter here.

3.11 DHCP Setting

"DHCP Settings"Dialog Box.

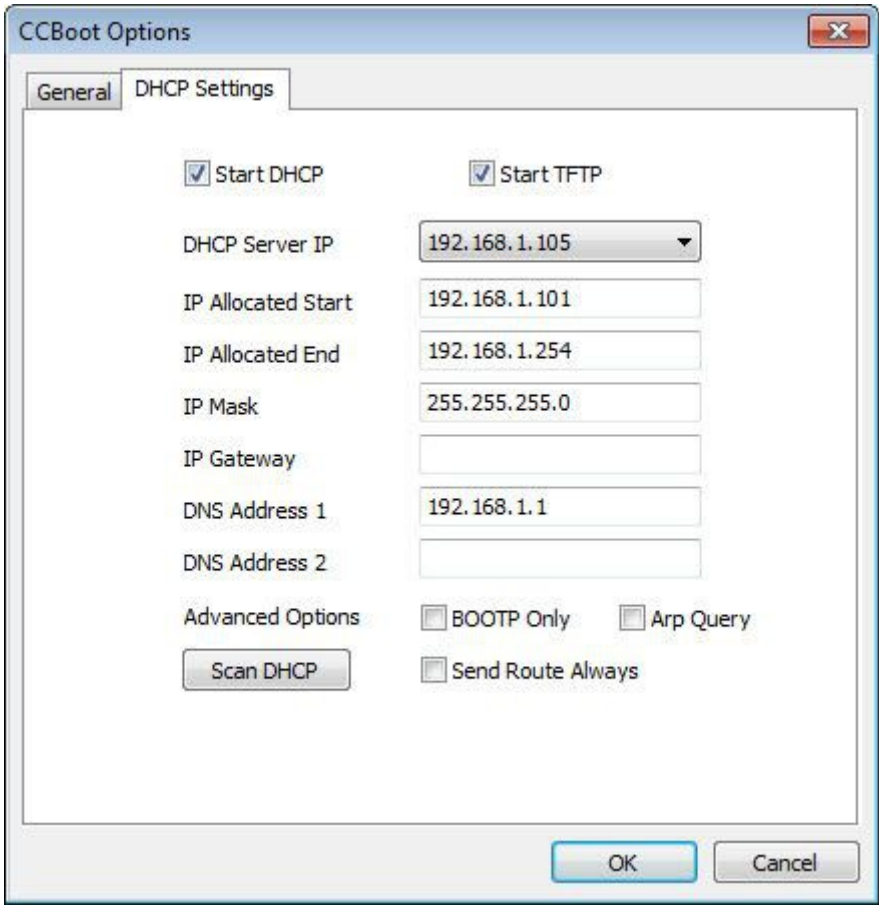


Figure 1-1

Start DHCP, Start TFTP: To activate the DHCP and TFTP services.
DHCP Server IP: Specifies the CCBoot Server IP address.
IP Allocated Start: Specifies the starting IP address. DHCP service will allocate the client IP address from this IP address.
IP Allocated End: Specifies the end IP address. DHCP service will allocate the client IP address that end to this IP address.
IP Mask, Gateway, DNS Address1, and DNS Address2: Specifies the client IP Mask, Getway, DNS addresses. The DHCP service will automatically apply these settings to all diskless clients. If your DNS address more than three can be separated by a semicolon, write in the edit box.

Advance Settings
BOOTP Only: Only reply the diskless client (PXE) DHCP requests and ignore standard DHCP requests (non diskless client).

Arp Query: When CCBoot allocated a new IP address to the client, it will send ARP query and see if the new IP exists already on the LAN and prevent IP conflict.
Send Route Always: Normally CCBoot DHCP doesn't send route IP (Gateway) at PXE stage. Because some old router will stop the Windows 7 diskless boot.
Scan DHCP: To Scan LAN and check if there's other device running DHCP service.

3.12 Auto Run Batch Commands at Client

Since V3.0, CCBoot makes you be able to run batch commands automatically on client booting, just read below.

1) Please click "Options" button on the toolbar of CCBoot server.
2) Click "General" tab, select the "Run Batch Command at Client" check box. And click the ">>" button.

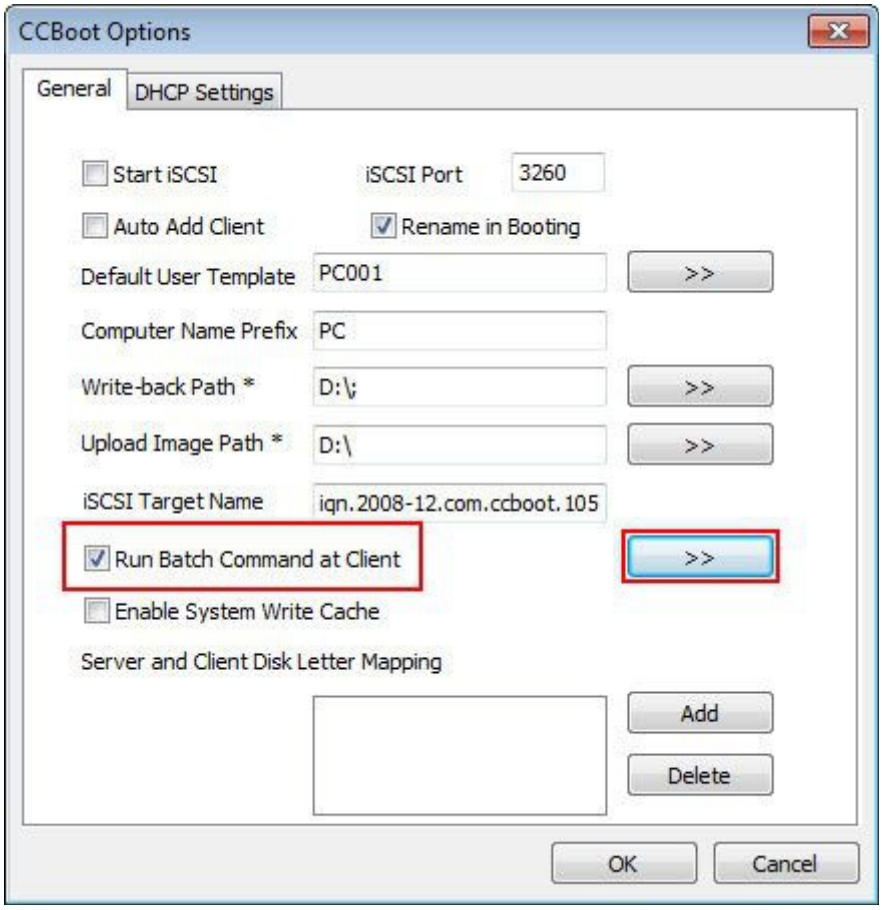


Figure 1-1

3) You will see public.txt opened in Notepad. The usage is:

1) # means comment.
2) Run -service command - means run the command in NT service at client. For

example, run -service ping 192.168.1.1

3) Run -startup command - means run the command in Startup menu at client. For example, run -startup c:\test.bat
4) Run -win logon command - means run the command when the client goes to windows logon. For example, run -winlogon copy c:\test.txt d:\test.txt
5) -Skip update - means this command will not run when the client is super client.

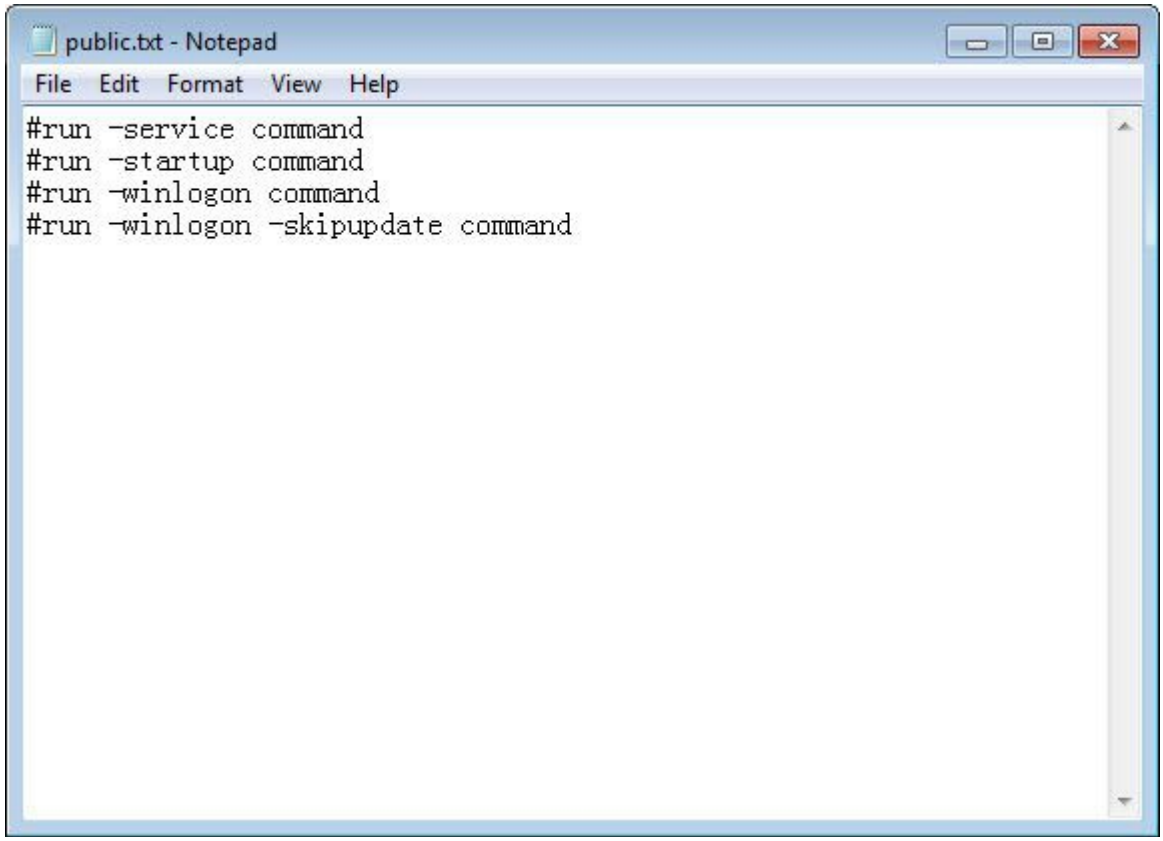


Figure 1-2

On CCBoot server, there's a folder named "Cmd" in CCBoot install directory. You can create batch commands files here in order that clients can implement this file when booting. If the file is named "public.txt", all clients will implement it. If the file is named by specified IP address such as "192.168.1.101.txt", only the specified client (192.168.1.101) will automatically implement it. The above usages also apply for ip.txt.

Attention: If there are two files - "192.168.1.101.txt" and "public.txt" , the client (192.168.1.101) will implement "192.168.1.101.txt" and "public.txt". The "192.168.1.101.txt" runs before "public.txt".

If you want to run commands such as

run -startup copy c:\reg\1.reg c:*.*

run -winlogon regedit /s c:\reg\1.reg

The reg files should be saved in the image by super client. Commands are run at client, so the files in the parameters of the command should be in the local client first. And you should also disable client UAC by super client.

3.13 View the Update Log in History File

If you want to know the update information of your CCBoot, you can follow the instructions below.

1) Open the CCBoot installation folder, find the "History.txt" file, and then double click it (Figure 1-1).

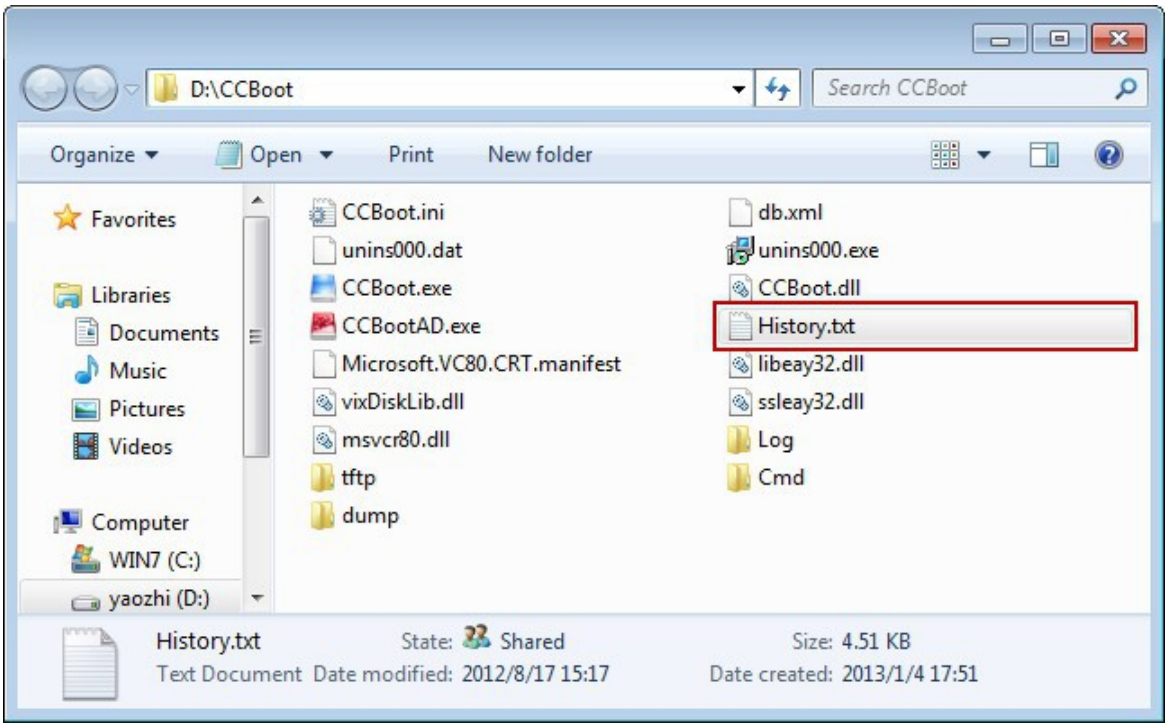


Figure 1-1

2) It will pop up the "History.txt - Notepad" dialog box, where you can find all the update information (Figure 1-2).

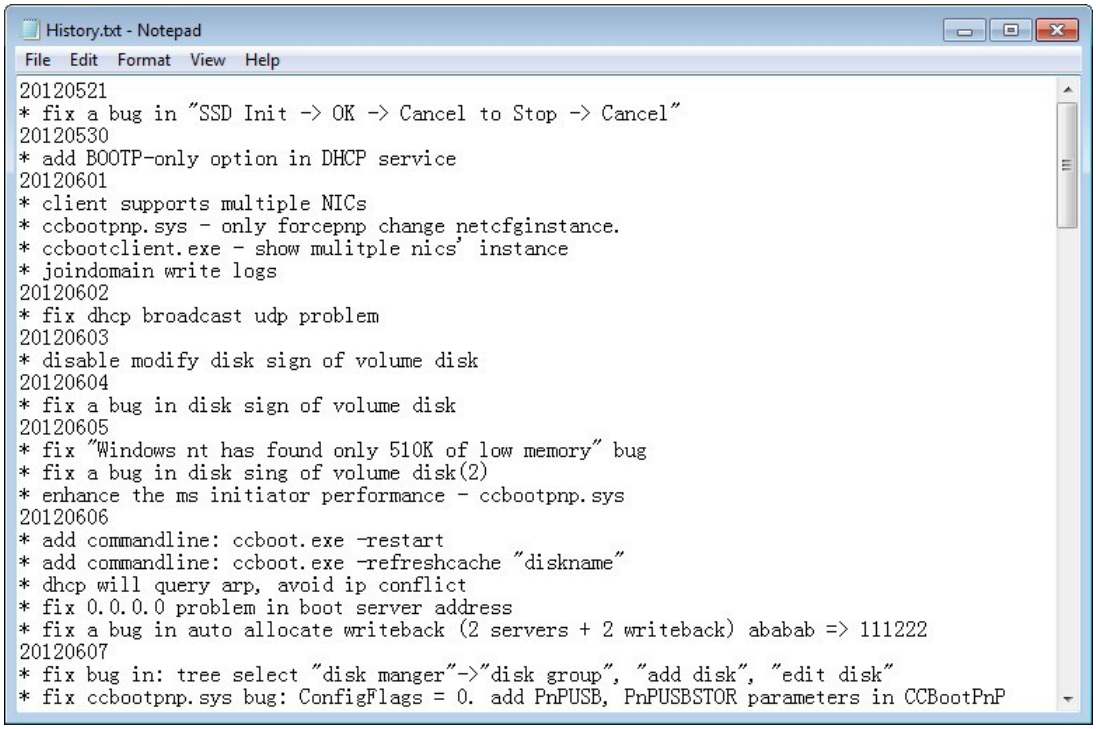


Figure 1-2

3.14 CCBoot Command Line

C:\CCBoot\CCBoot.exe -refreshcache "Game"
It will refresh the disk named "Game" cache. The last parameter is the Disk Name. It's case sensitive.

C:\CCBoot\CCBoot.exe -refreshcache
This command will refresh all disks on the server.

ccboot.exe -restart
This command line is used for restarting CCBoot service.

CCBoot.exe -wol 11:22:33:44:55:66
This command line is used for wake on LAN.

3.15 No Data Displayed on CCBoot Performance

Sometimes, you may encounter the problem that no data are displayed on CCBoot "Performance" dialog box (Figure 1-1).

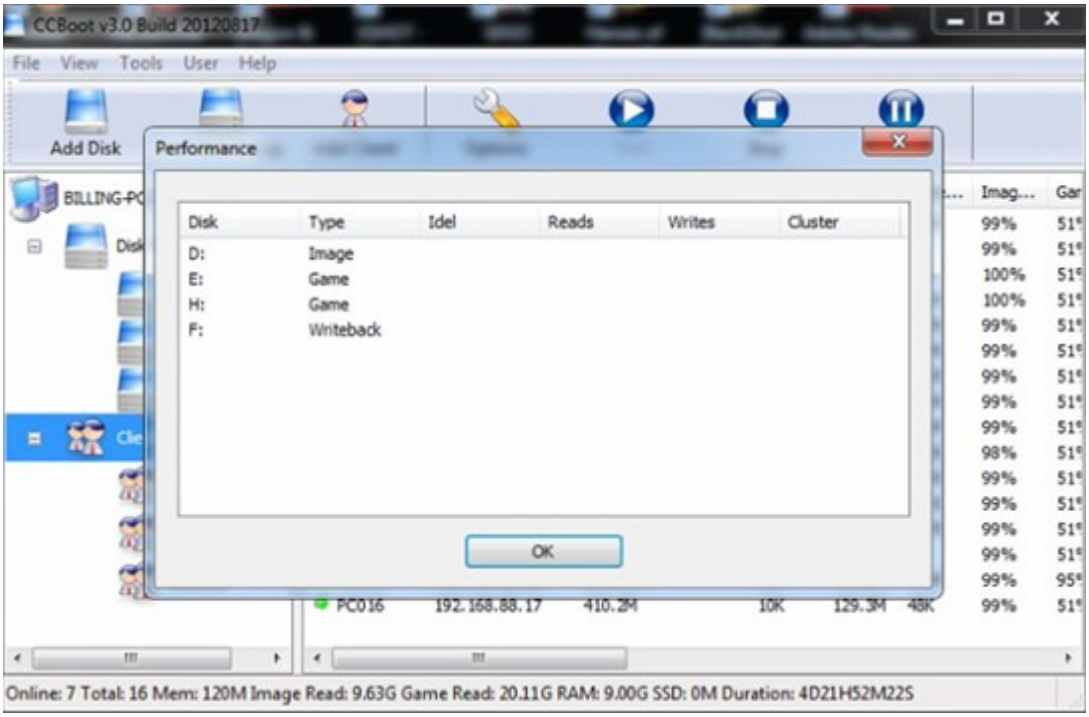


Figure 1-1

If the counter has been disabled intentionally or by the operating system itself due to its faulting 3 times, it will affect the performance. When a counter is disabled, a simple registry value is set that tells the OS to ignore it. This value is set under the Performance key of the service in question. If the Disable Performance Counters entry is set to 1 then the counter is disabled.

You can always reenable a performance counter manually by editing the registry, but they are not always easy to find depending on the service name they are listed under. The Extensible Counter List tool or Exctrlst.exe could help you with that. This tool shows a list of all installed performance counters, sorted either by DLL name, service or Counter ID. With this, you can easily see if a counter is enabled or disabled, and set them however you wish. This utility is part of the Windows 2000 resource kit, and can also be downloaded from

http://download.microsoft.com/download/win2000platform/exctrlst/1.00.0.1/nt5/en-us/exctrlst_setup.exe.

Once downloaded, start the installation and follow the installation wizard. The default install location for this will be:

C:\Program Files\Resource Kit or C:\Program Files (x86)\Resource Kit for 64bit OS.

To launch the utility, just double click the executable - Exctrlst.exe.

Note: Be sure that you run it under Administrator rights.

When it opens, you could see a window very similar to this (Figure 1-2).

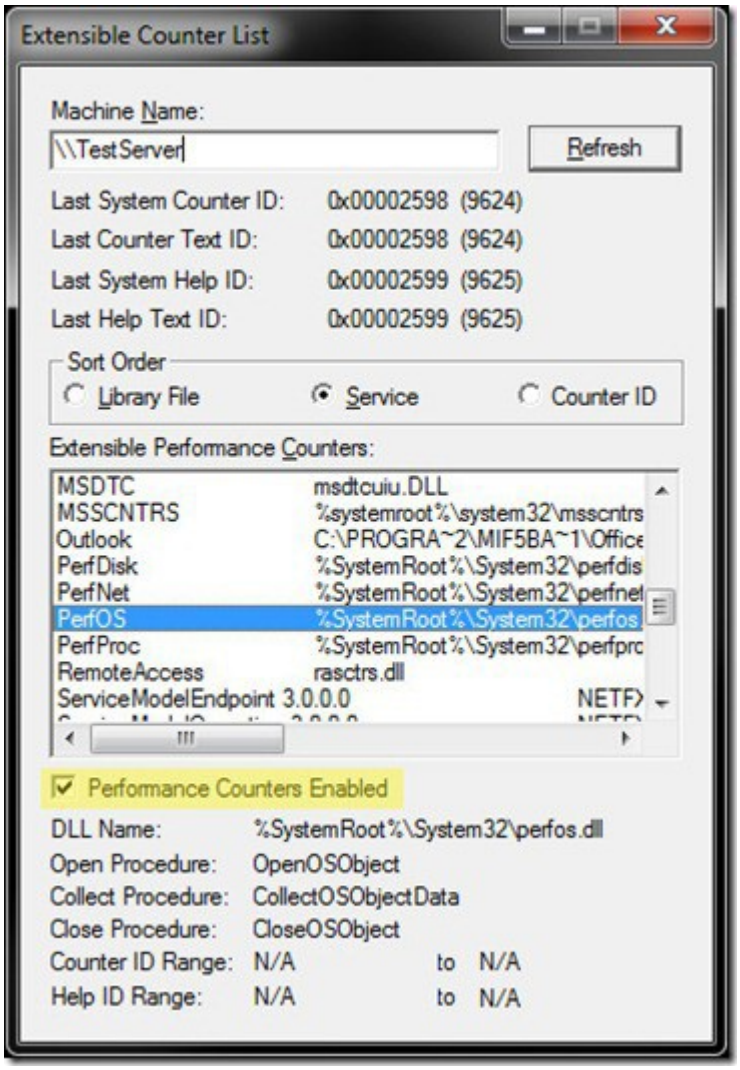


Figure 1-2

Now look through the list for the performance counter which you are missing. For System Monitor II and Top Process Monitor it is PersOS. For Network Monitor II it is PerfNet and for Drives Monitor it is PerfDisk. Please don't forget about Tcpip counter for Network Monitor II. For example, if the disk counters are missing, search for PerfDisk. Once you click the performance counter you are interested in, verify if the "Performance Counters Enabled" box is checked or not. If the box is not checked, then the performance counter is disabled. You can reenable it by selecting the check box. When done, please close the tool, because the registry change happens immediately. In Windows 7, you must restart your computer.

Note: In some cases, you need do the following steps.

1) Click Start, expand All Programs, and expand Accessories.
2) Right-click Command Prompt, and then click Run as administrator.
3) At the command prompt, type lodctr /r, and then press ENTER.

For more information about "Disable Performance Counters", please go to

http://technet.microsoft.com/en-us/library/cc784382%28WS.10%29.aspx.

3.16 Fackbook and Bug-Reports Functions

From CCBoot v3.0 Build 20131010, two new functions were added on CCBoot menu bar, they are, Facebook and Bug-Reports (Figure 1-1).

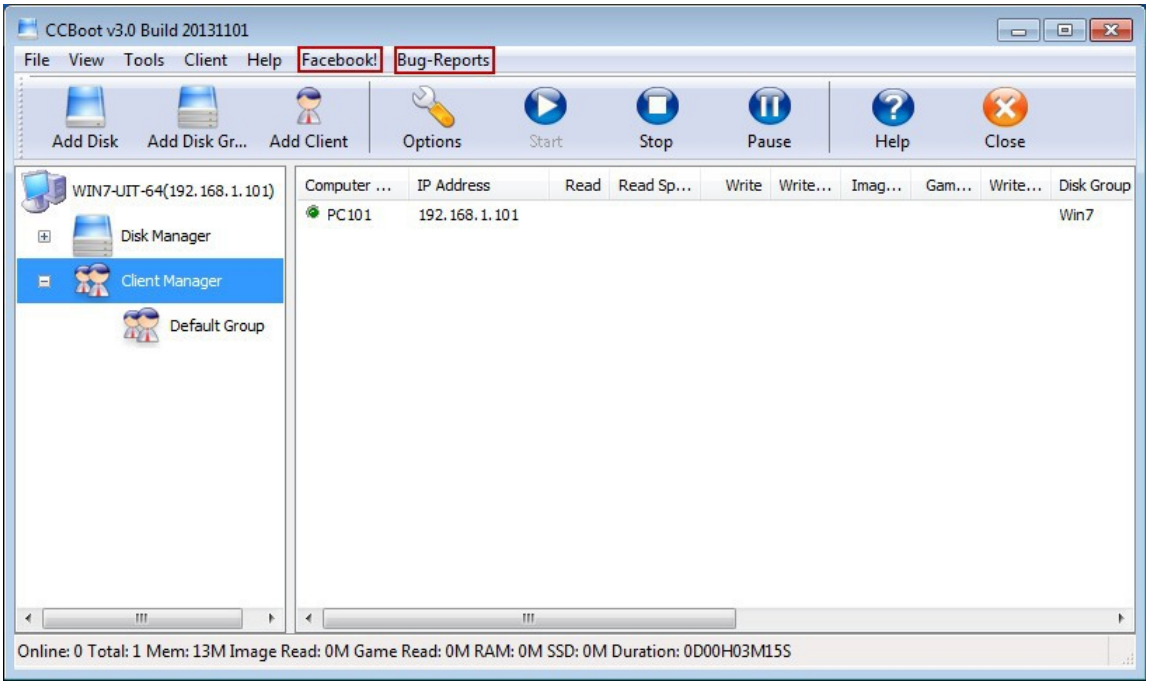


Figure 1-1

Facebook: Click to visit Youngzsoft facebook to get more information about CCBoot.
Bug-Reports: Click to submit a question or bug report to Youngzsoft.

3.17 Share Printer

If you can't share printer, the reason may because the "File and Printer Sharing for Microsoft Networks" check box was not selected. Please check it according to the following instructions.

1) Open network and sharing center. And then click the "Local Area Connection" (Figure 1-1).

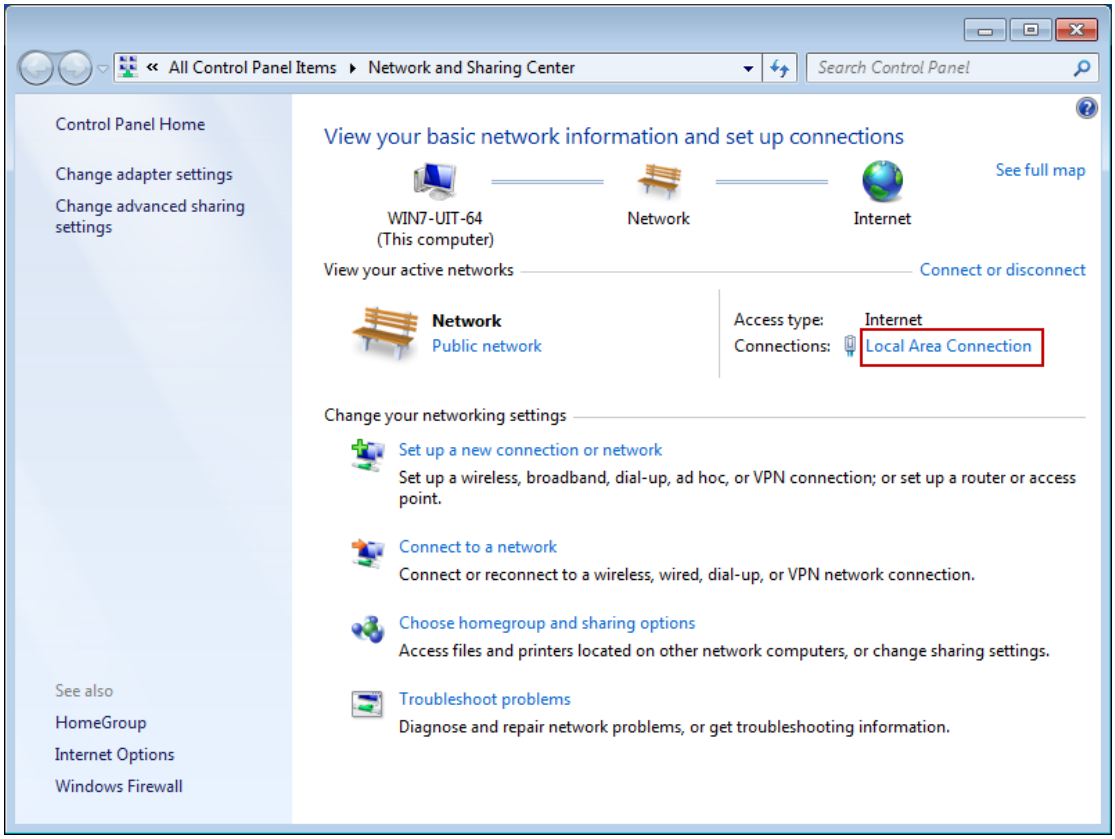


Figure 4

2) In the pop up "Local Area Connection Status" dialog box, click the "Properties" button (Figure 1-2).

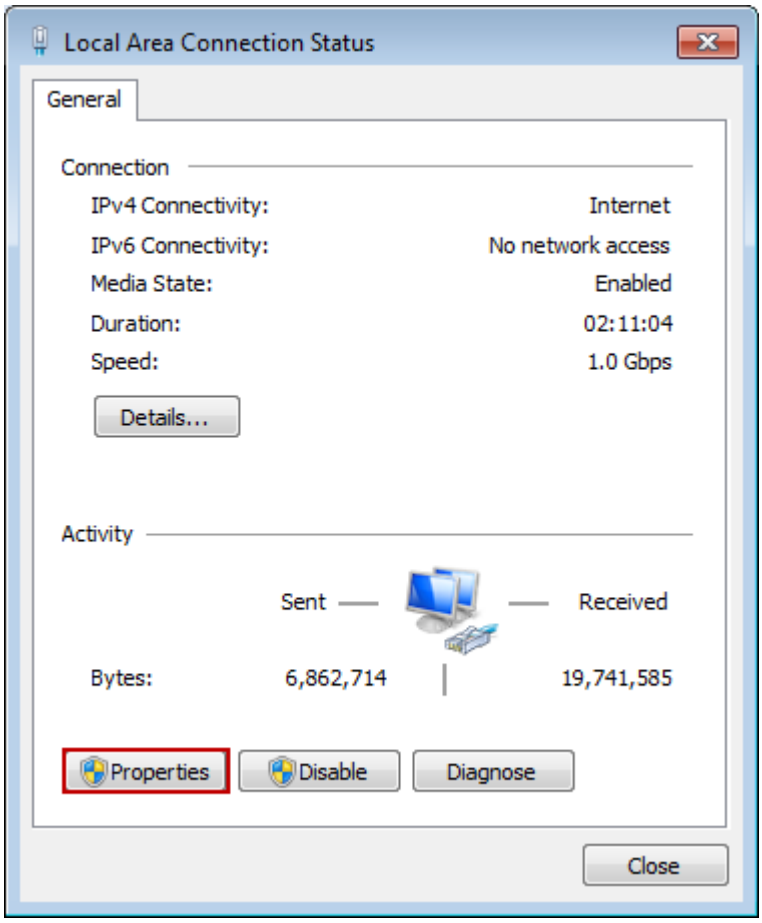


Figure 5

3) In the pop up "Local Area Connection Properties" dialog box, check whether the "File and Printer Sharing for Microsoft Networks" check box was selected or not. If not, please check it, and then click the "OK" button (Figure 1-3).

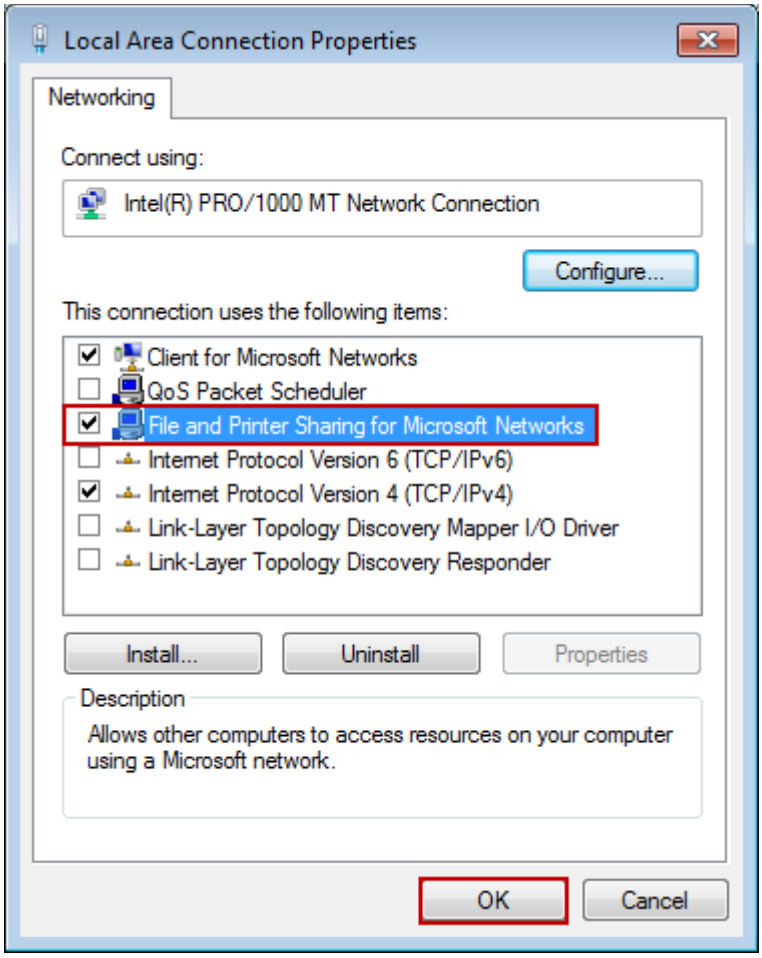


Figure 6

3.18 Langauge Translation

CCBoot becomes more and more popular around the world. Language difference sometimes is a problem. It would be very much appreciated if someone is willing to translate CCBoot language into his or her local language for us. If you are interested in this translation, please follow the following steps.

1) Open CCBoot main interface, in the menu bar, click the "Help" menu, and select "Installtion Folder" (Figure 1-1).

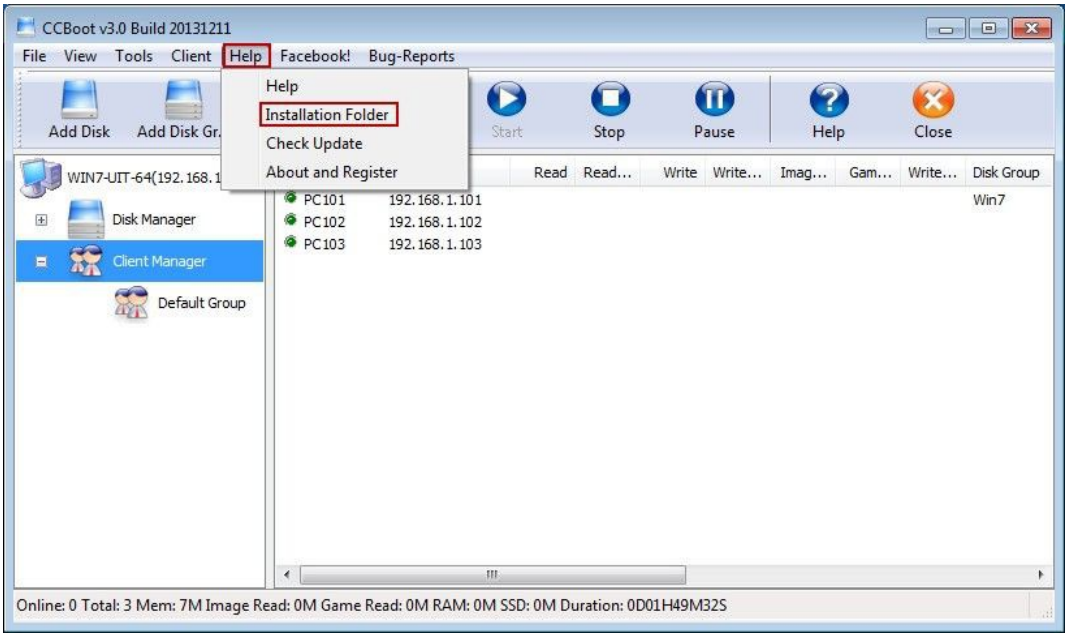


Figure 1-1

2) In the CCBoot installation folder, double click the "Language" folder, and then double click "eng.ini" file (Figure 1-2).

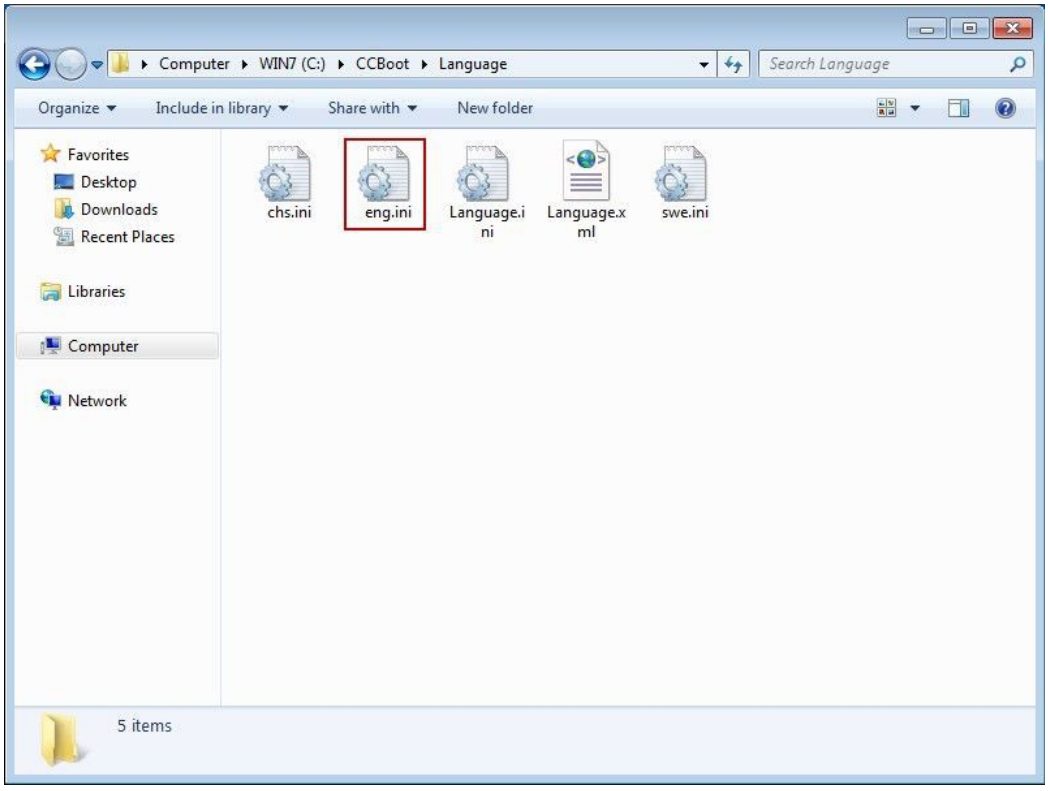


Figure 1-2

3) In the pop up "eng.ini - Notepad" form, you can translate the related info into your local language behind the "=" (Figure 1-3).

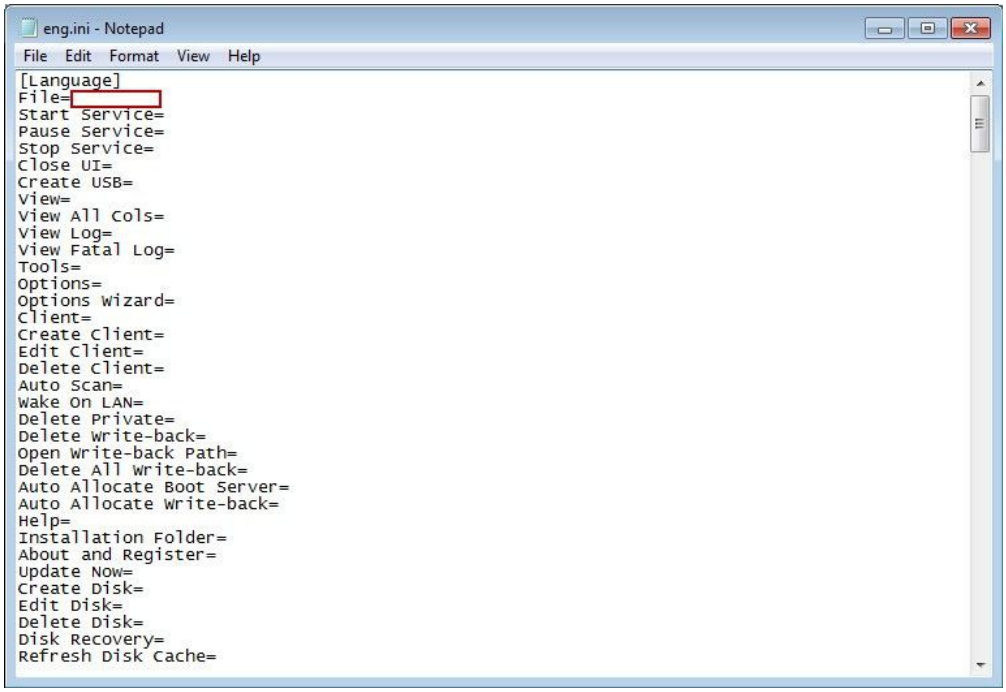


Figure 1-3

4) When done, please save the file with UTF-8 encoding format (Figure 1-4), and then send it to support@youngzsoft.net. Thanks for your help.

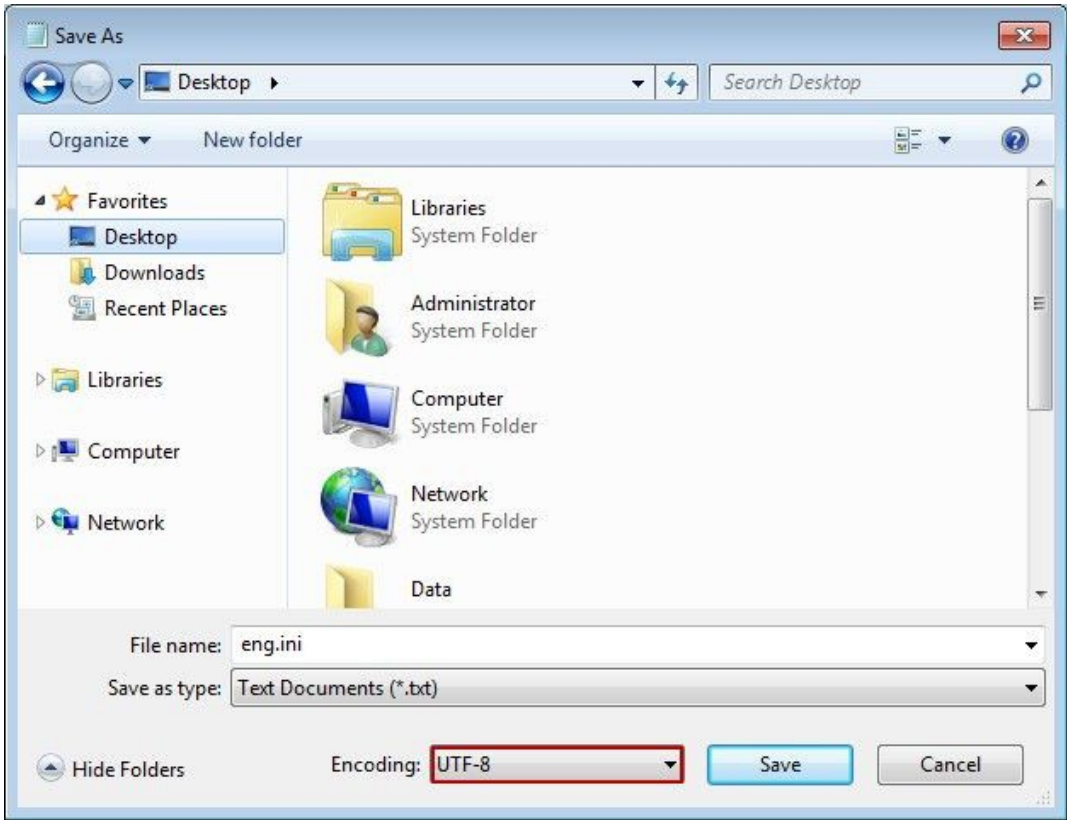


Figure 1-4

3.19 Configure Windows Firewall on CCBoot Server

1) On the server, click the "Start" button, in the "Run" edit box, type "wf.msc" and then press the "Enter" key (Figure 1-1).

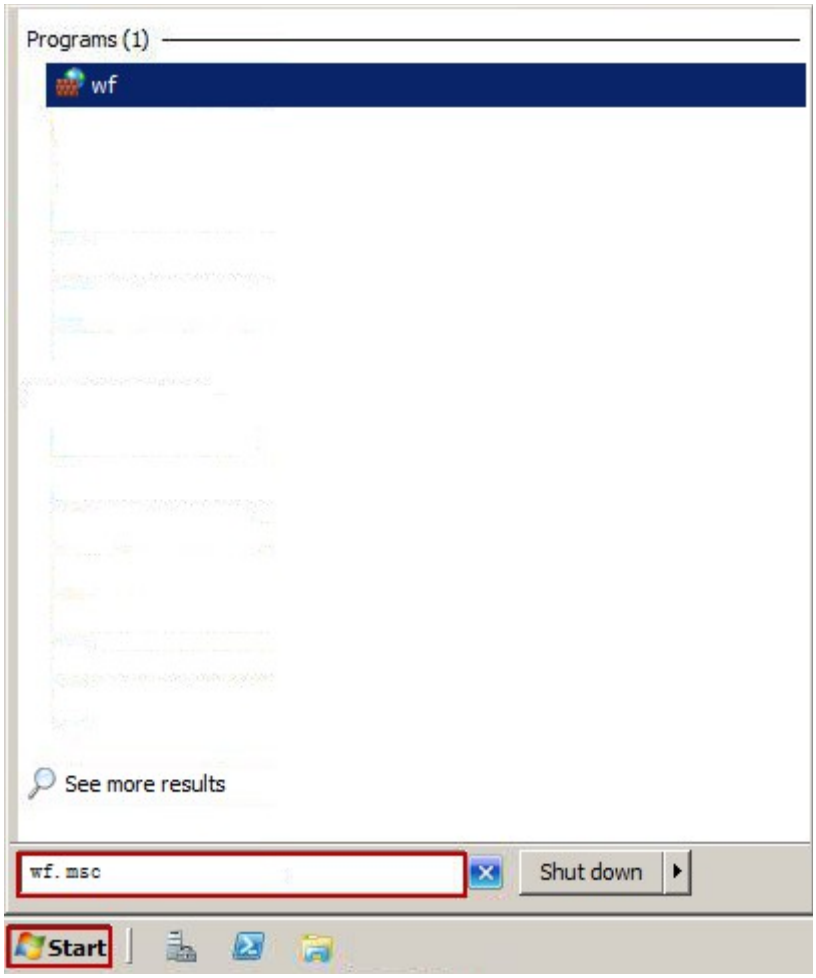


Figure 7-1

2) It will pop up the "Windows Firewall with Advanced Security" form. In the left side of the form, right click "Inbound Rules", and select "New Rule..." (Figure 1-2).

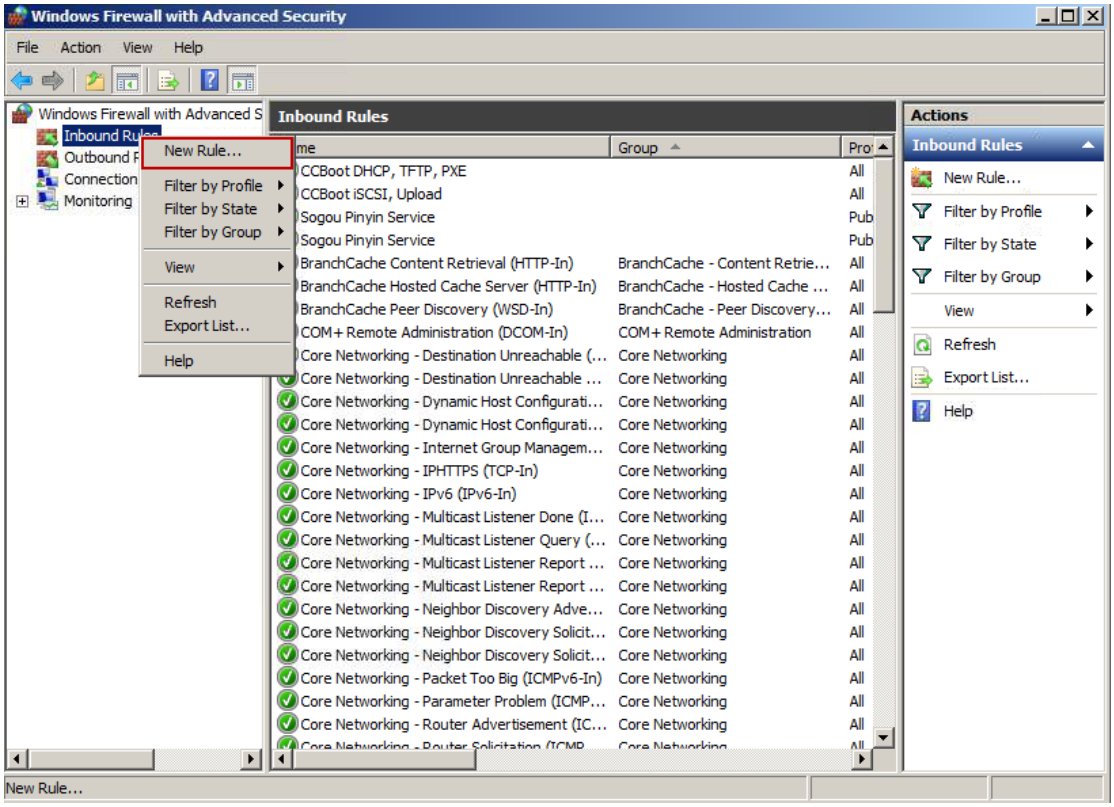


Figure 1-8

3) In the pop up "Rule Type" dialog box, click the "Port" radio button, and then click the "Next" button (Figure 1-3).

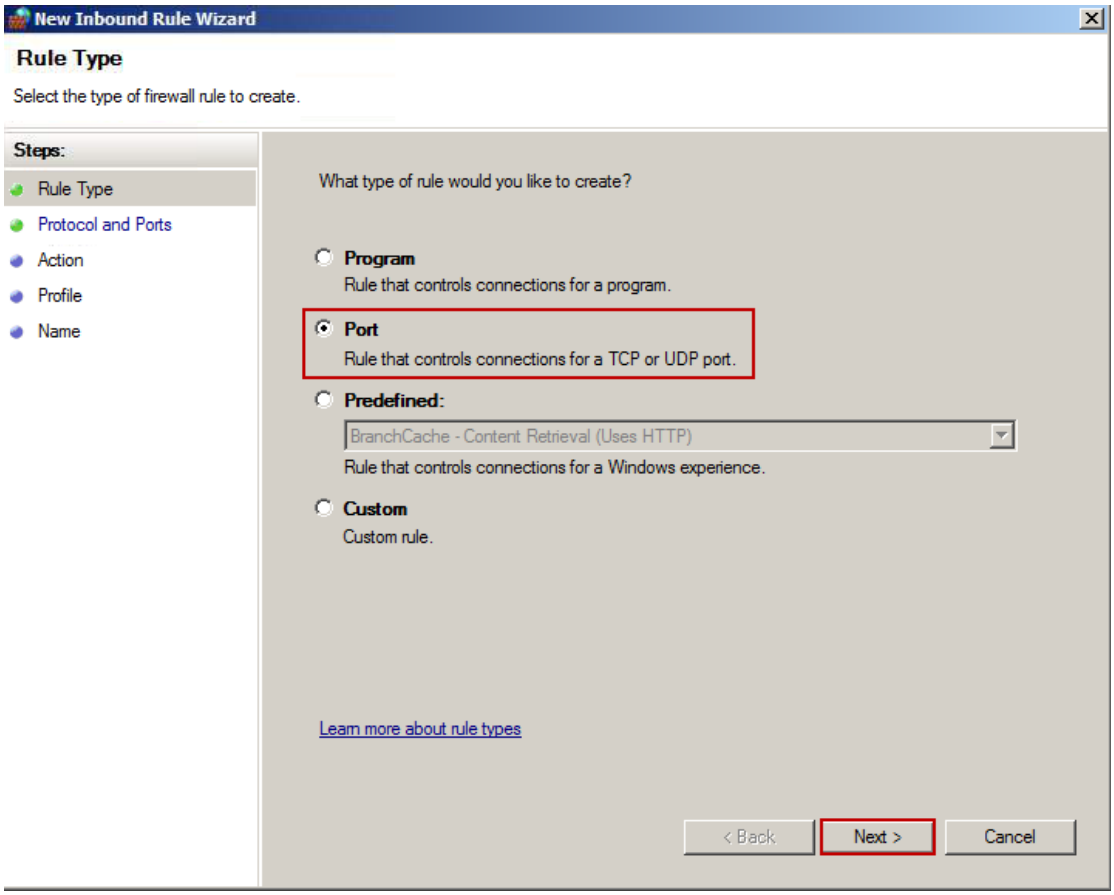


Figure 1-9

4) In the pop up "Protocol and Ports" dialog box, click the "TCP" radio button, then click the "Specific local ports" radio button, and type port 3260 and port 1000 in the edit box. Finally, click the "Next" button (Figure 1-4).

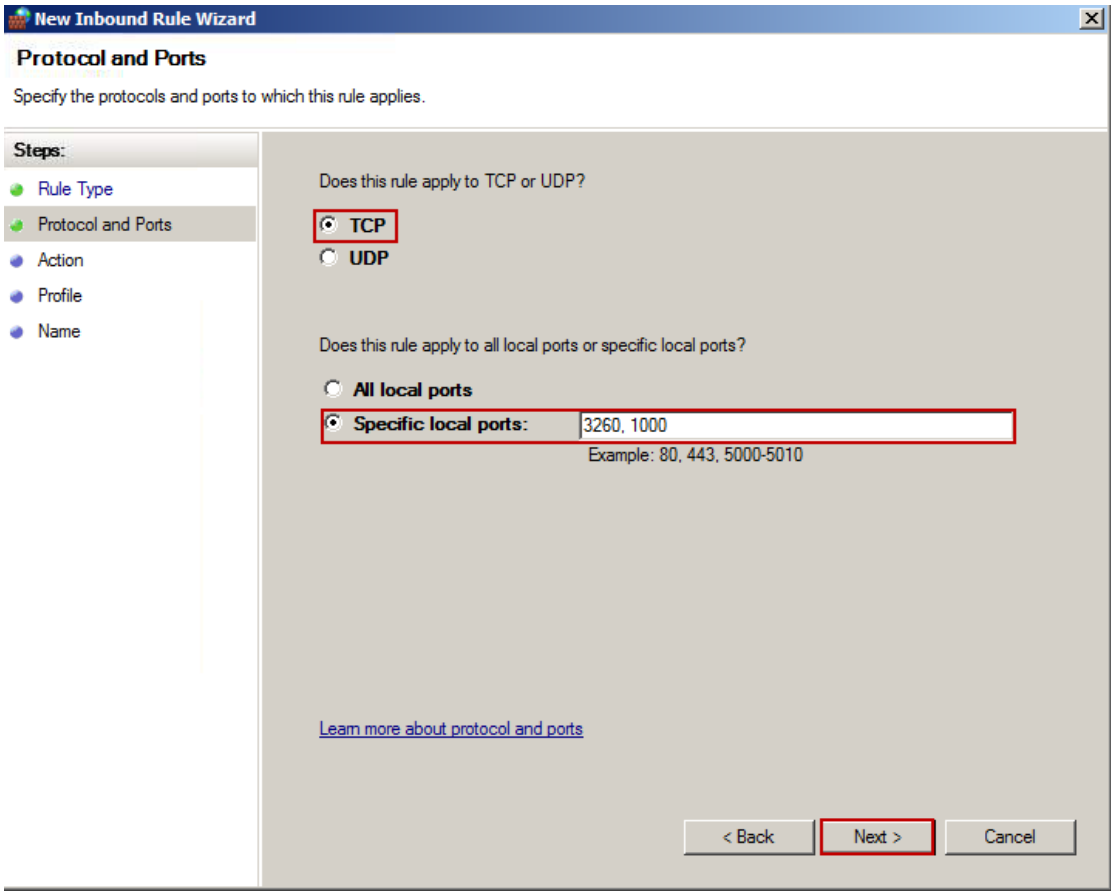


Figure 1-4

5) In the pop up "Action" dialog box, click the "Next" button (Figure 1-5).

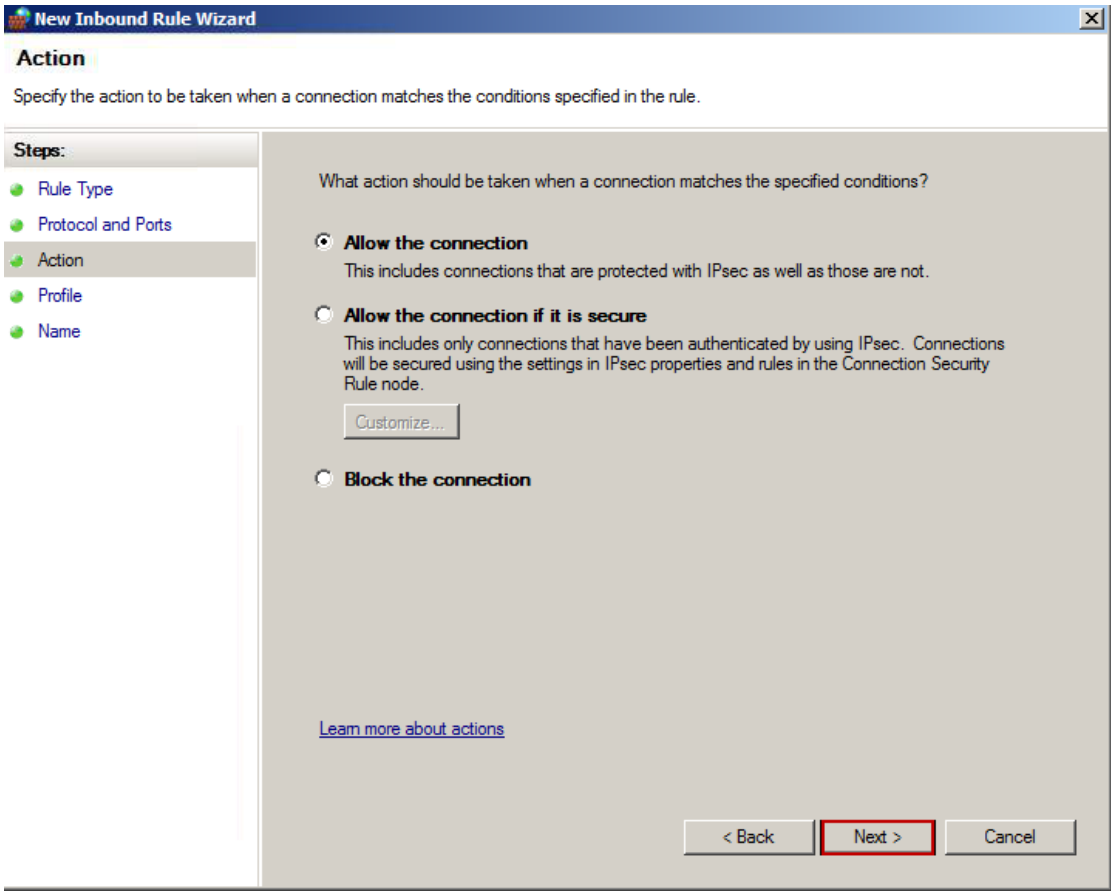


Figure 1-5

6) In the pop up "Profile" dialog box, click the "Next" button (Figure 1-6).

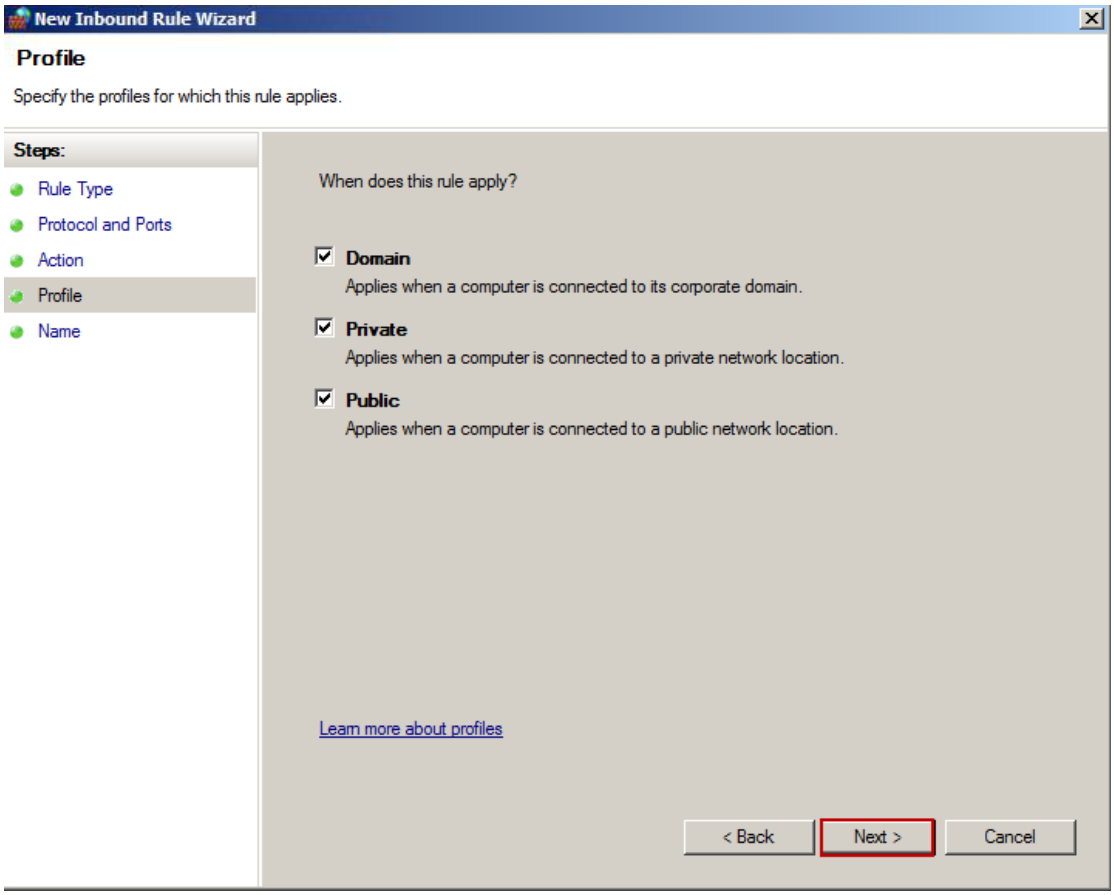


Figure 1-6

7) It will pop up the "Name" dialog box. In the "Name" edit box, type "CCBoot iSCSI, Upload", and then click the "Finish" button (Figure 1-7).

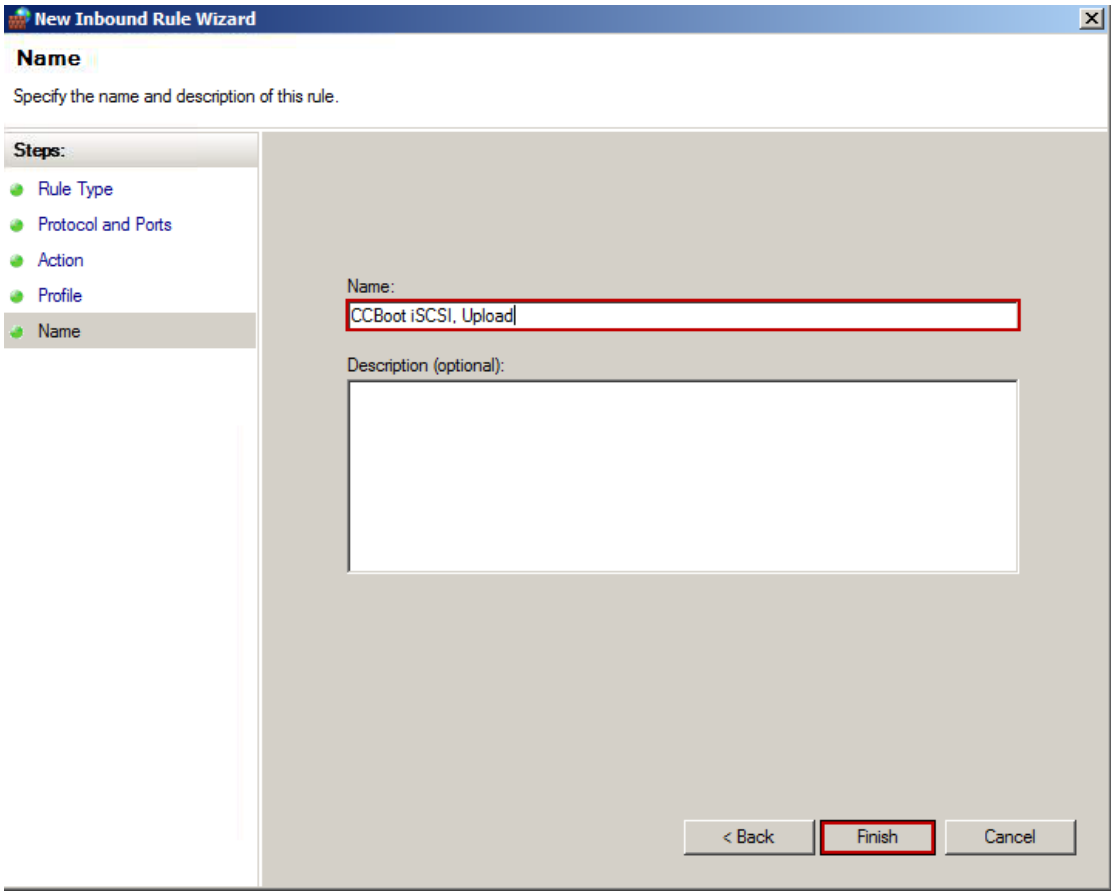


Figure 1-7

8) Repeat step 2 and 3. In the pop up "Protocol and Ports" dialog box, click the "UDP" radio button, then click the "Specific local ports" radio button, and type port 66, 67, 68, 69 and 4011 in the edit box. Finally, click the "Next" button (Figure 1-8).

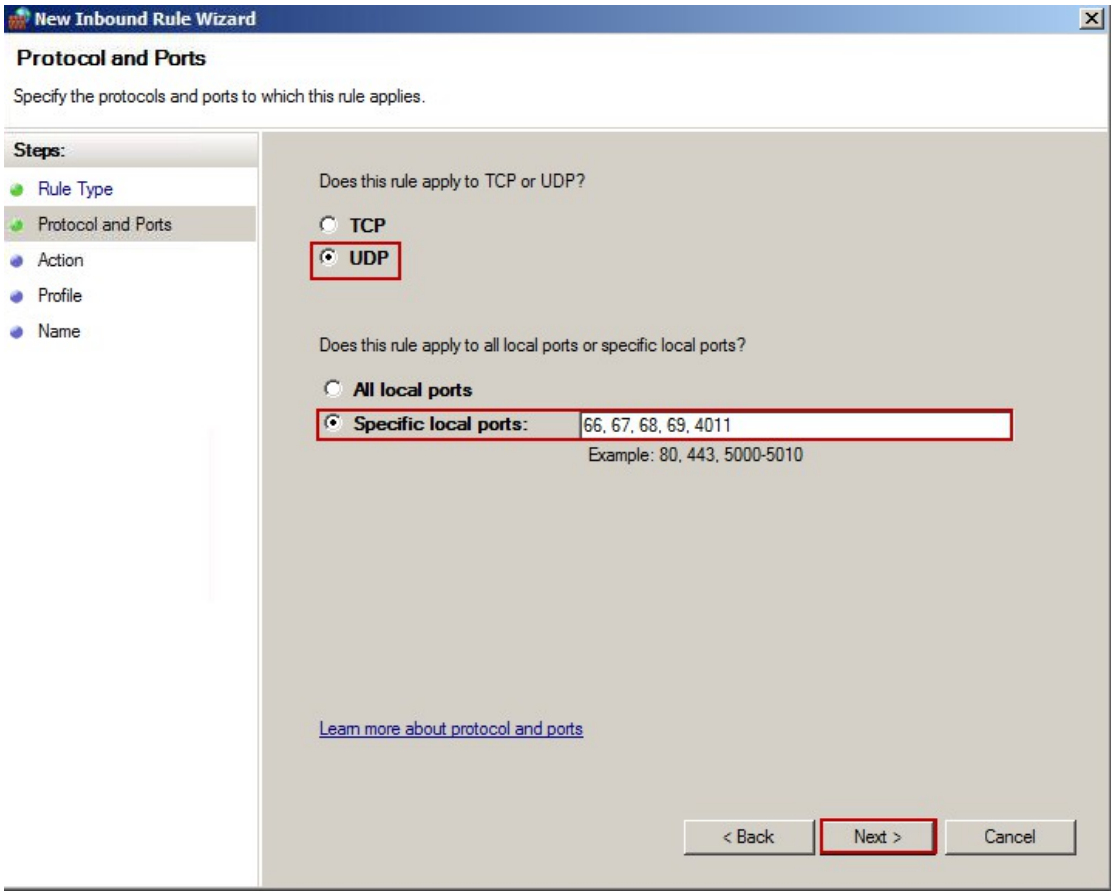


Figure 1-8

9) Keep click the "Next" button till it pops up the "Name" dialog box. In the "Name" edit box, type "CCBoot DHCP, TFTP, PXE", and then click the "Finish" button (Figure 1-9).

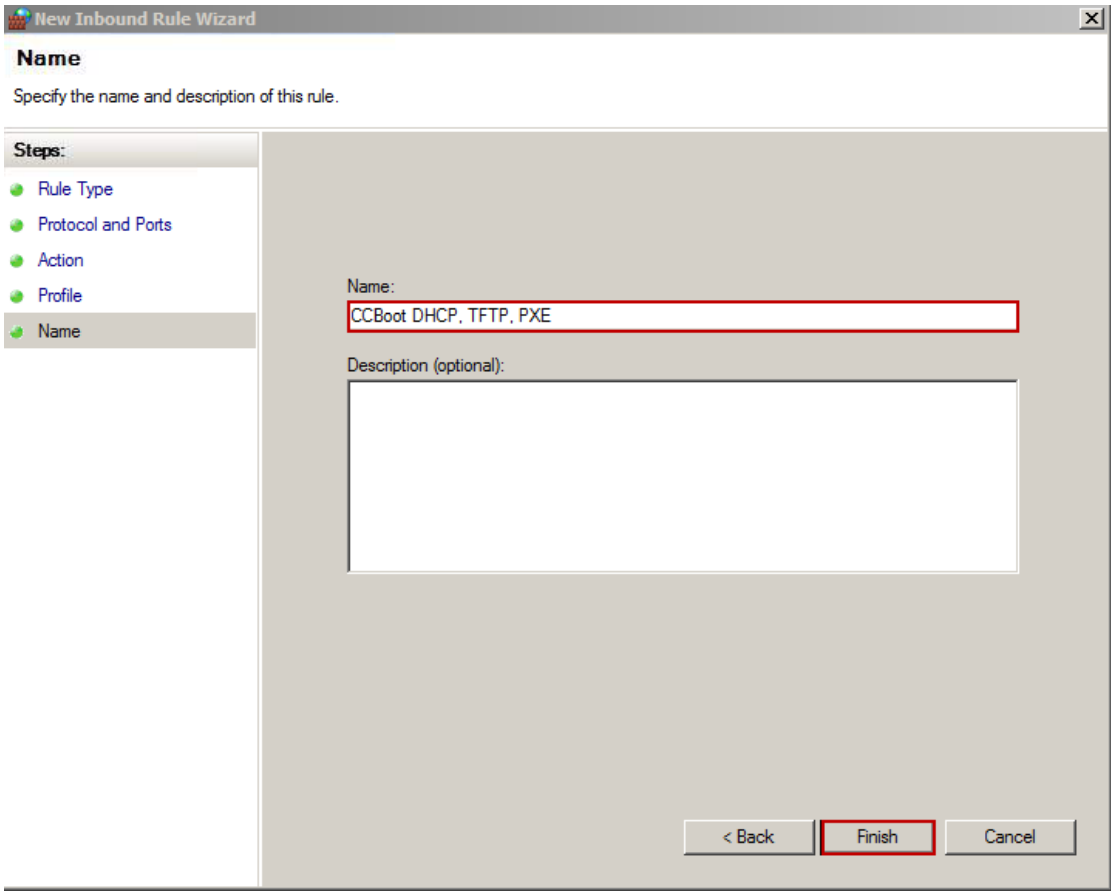


Figure 1-9

10) Now, you can see the "CCBoot DHCP, TFTP, PXE" and "CCBoot iSCSI, Upload" rules you just added (Figure 1-10).

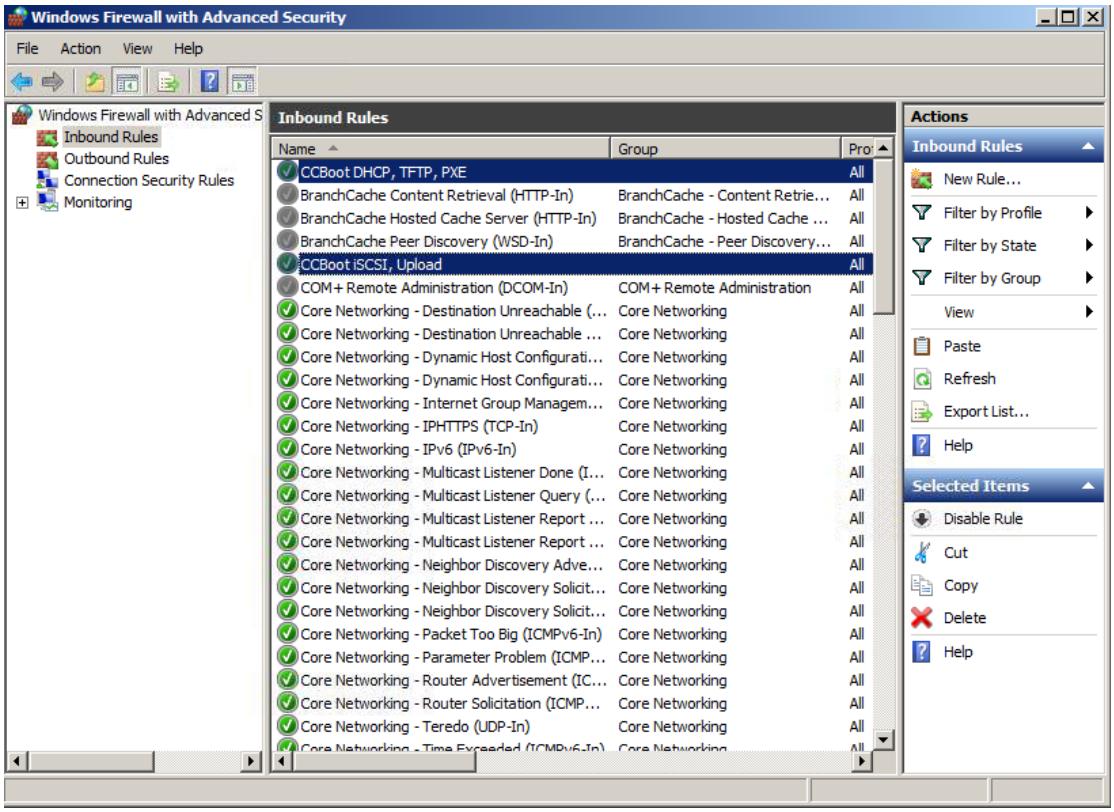


Figure 1-10

11) Double click "CCBoot DHCP, TFTP, PXE", it will pop up the "CCBoot DHCP, TFTP, PXE Properties" dialog box. Click the "General" tab, set as Figure 1-11.

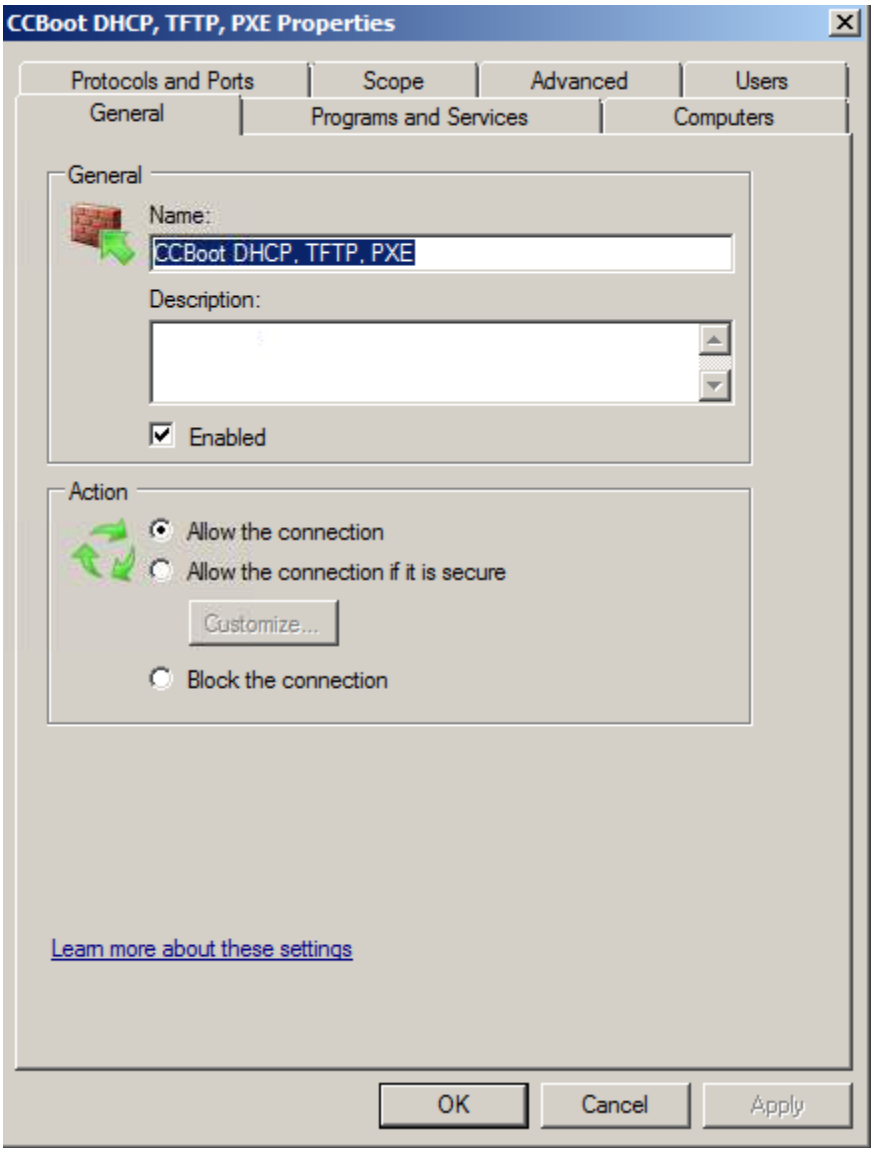


Figure 1-11

12) Click the "Protocols and Ports" tab, set as Figure 1-12.

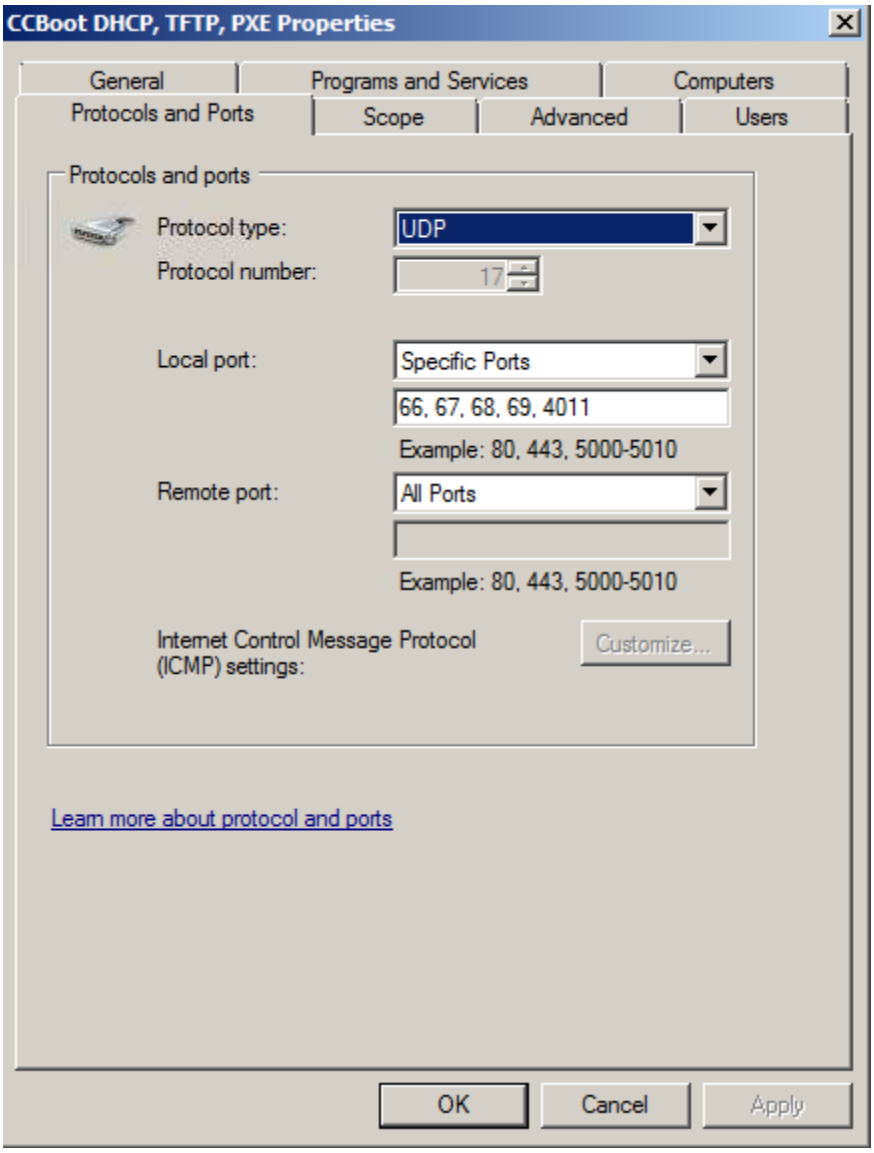


Figure 1-12

13) Click the "Scope" tab, under "Local IP address", click the "Any IP address" radio button. Under "Remote IP address", click "These IP addresses:" radio button, and then click the "Add" button to add IP and IP range into the edit box as shown in Figure 1-13.

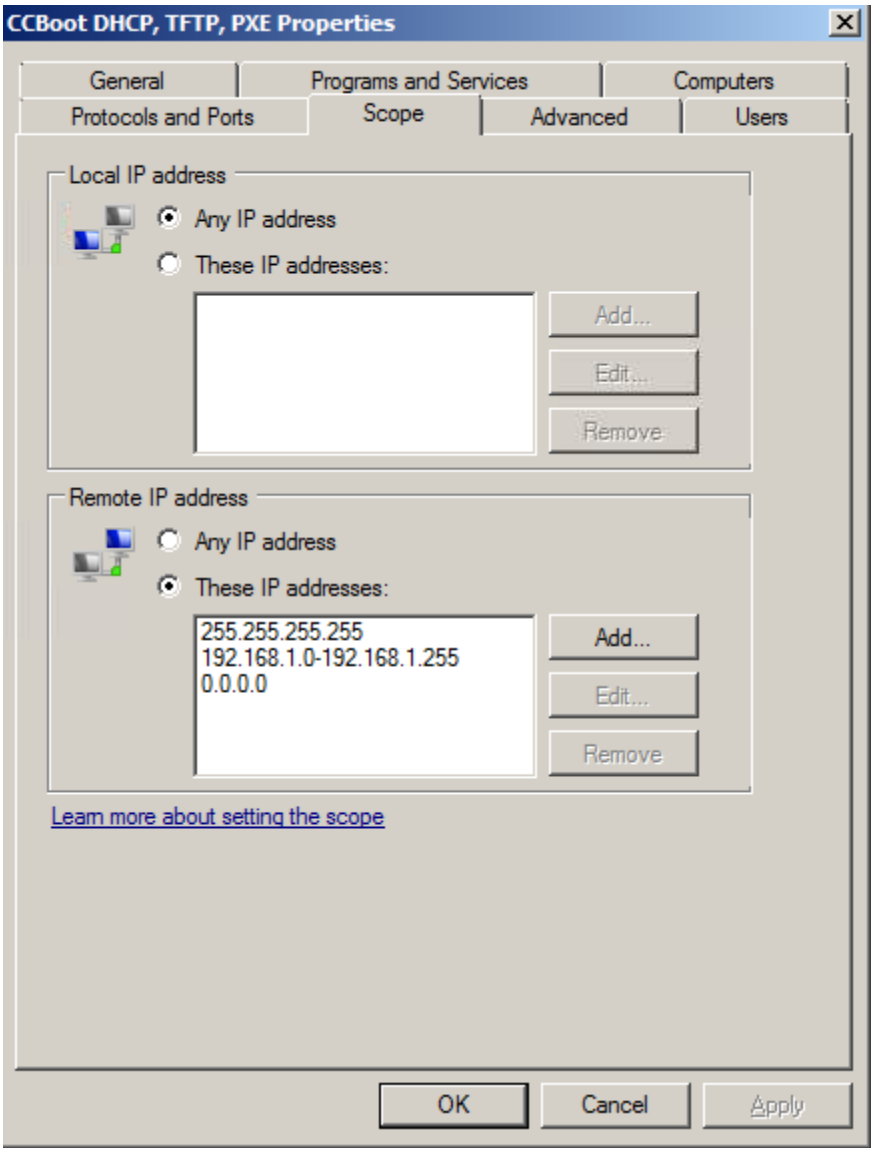


Figure 1-13

Double click "CCBoot iSCSI, Upload", it will pop up the "CCBoot iSCSI, Upload Properties" dialog box. Click the "General" tab, set as Figure 1-14.

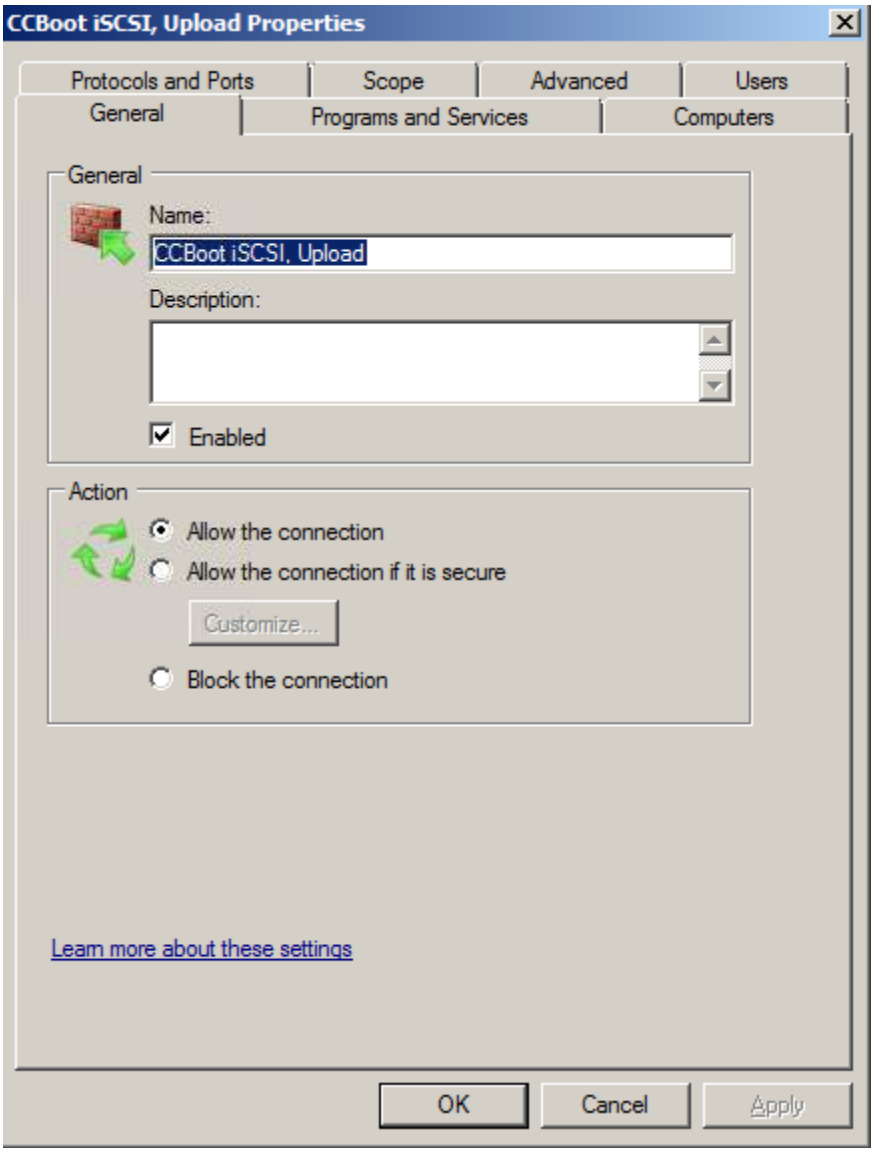


Figure 1-14

14) Click the "Protocols and Ports" tab, set as Figure 1-15.

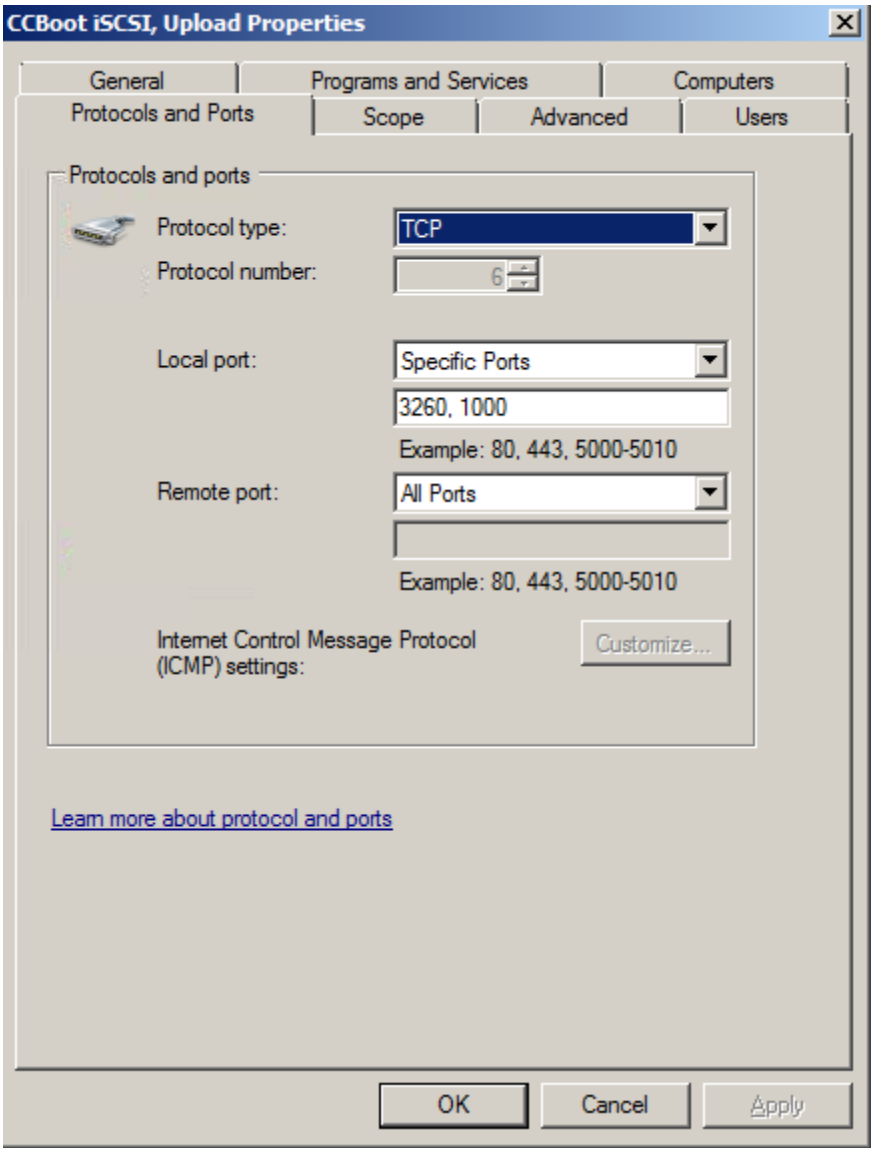


Figure 1-15

15) Click the "Scope" tab, under "Local IP address", click the "Any IP address" radio button. Under "Remote IP address", click "These IP addresses:" radio button, and then click the "Add" button to IP range (192.168-1.0-192.168.1.255) into the edit box as shown in Figure 1-16.

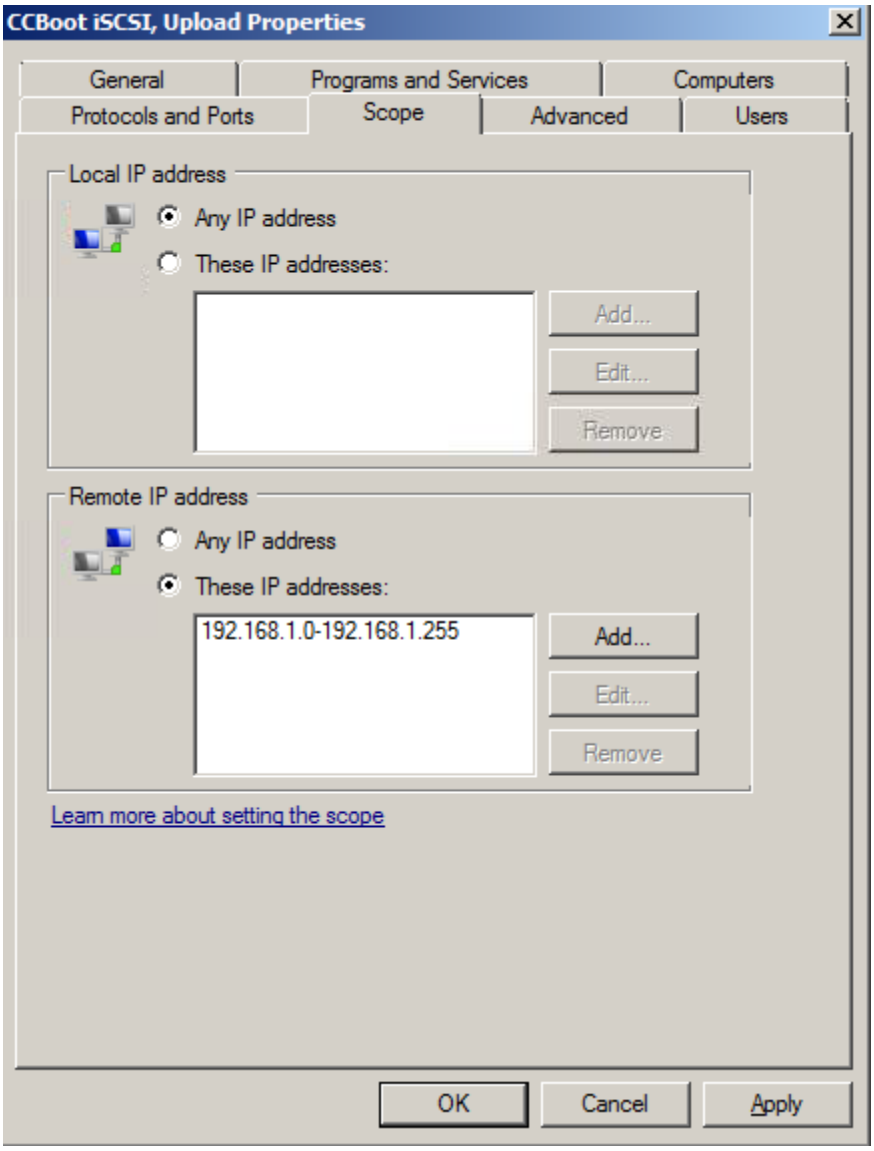


Figure 1-16

16) Go to "Control Panel / All Control Panel Items / Windows Firewall", in the left side of the form, click the "Turn Windows Firewll on or off" (Figure 1-17).

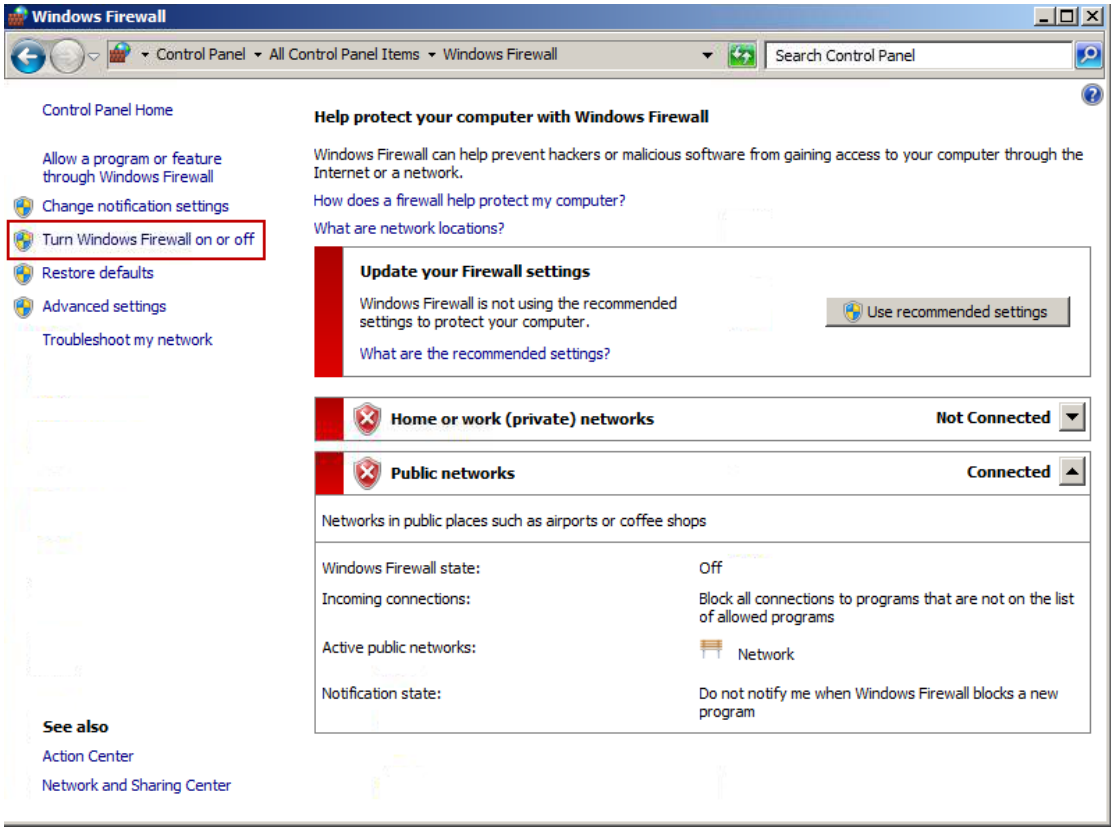


Figure 1-17

17) In the "Customize Settings" form, turn all Windows Firewall on, then click the "OK" button (Figure 1-18).

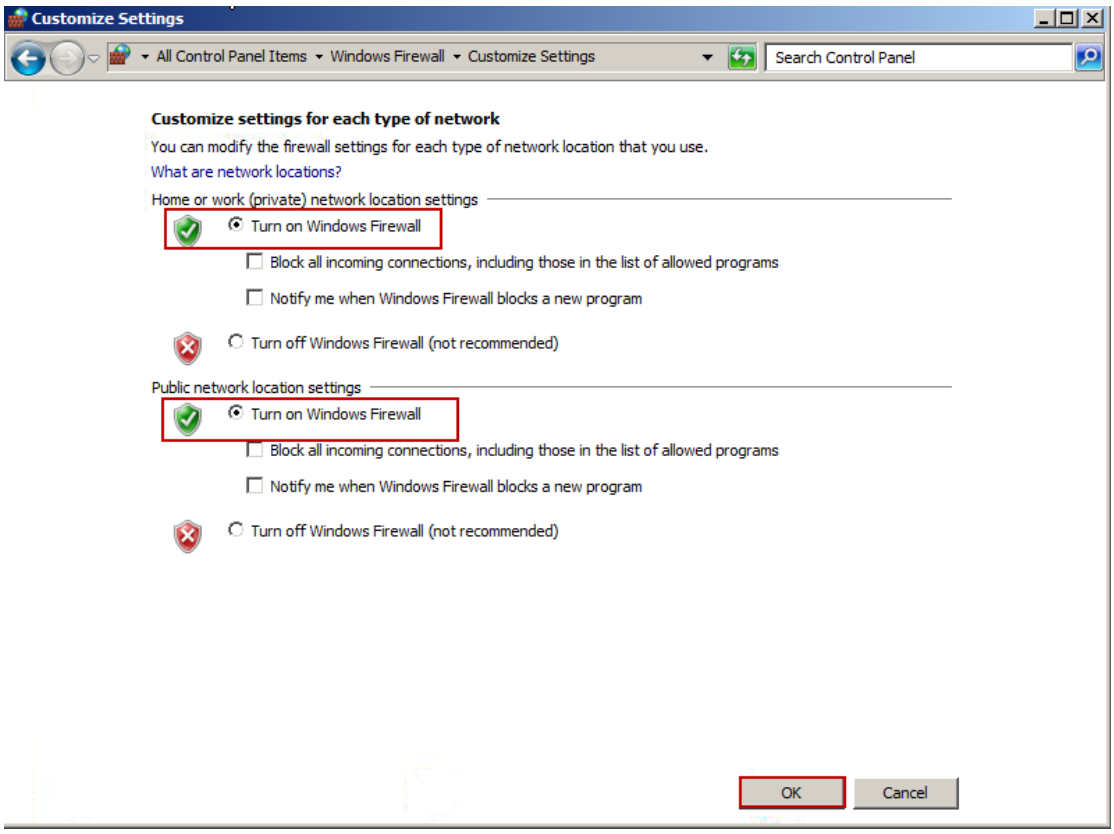


Figure 1-18

3.20 Autocad and Other Software License in Diskless

Question:

For software like spss and autocad, when use CCBoot, it will ask for software license authentication. How to solve this problem?

Reply:

Normally, software license is volume license or retail license. For volume license, such as the KMS of Microsoft, it will not be bound with client machines, just need to verify the total quantity of the computers.You should contact the software vendor, make it clear that which kind of software license it is, and choose volume license. If you have bought the retail license, see if it can be changed to volume license.

Related Information: "Microsoft Windows and Office License for Diskless"; "How to Activate Windows License".

3.21 Microsoft Windows and Office License for Diskless

Microsoft License Type:
Microsoft License includes RTL (Retail License), OEM (Original Equipment Manufacturer License, for example, the free Windows license which is given for purchasing DELL and HP computers) and VOL (Volume License).

Microsoft License for Server:
CAL is a concept for server (Client Access License), and it stands for the number of clients that is allowed to connect to the server.
Take Windows 2008 Server for example. It is free for five clients in the beginning, if you want it connect more clients, you need to buy a CAL. And CAL is divided into device-based CAL (Device CAL) and user-based CAL (User CAL).

Microsoft License for Client:
For VOL, it can be divided into MAK (Multiple Active Key) and KMS (Key Management Service).

How to Choose Microsoft Lciense for Diskless:
The license mode of Windows and Office which is suitable for diskless is KMS (Key Management Service) Volume License. This mode is completed by establishing the KMS host service on the LAN. KMS host needs to connect Microsoft to activate Windows license, while KMS clients does not have to connect to Microsoft. In this way, we have to deploy KMS host and configure DNS. The KMS clients which need to be activated should exceed a certain amount (For Windows 7, it needs at least 25 real machines or virtual machines), and it also needs to be updated and activated again within 180 days, otherwise, it will be expired.

Related Information: "How to Activate Windows License"; "Autocad and Other Software License in Diskless".

3.22 Script for Connecting to CCBoot ISCSI Target

Suppose your client PCs boot with HDD, and you only use CCBoot as iSCSI target to let clients connect to the server automatically and fix the disk drive letter, please download "auto connect iscsi disk batch file" from CCBoot Download Center.
Note: If you use CCBoot for diskless boot, you do not have to install that file to modify the

drive letter, because CCBoot has disk map function, for details, please refer to "Game Disk Mapping".

Thanks for Selçuk DERE reporting and providing this solution.

3.23 Send Network Speed Info to a Network Share Folder

Here is a batch command file that sends network speed information to a predefined network share folder:
wmic NIC where NetEnabled=true get Name, Speed > \\ucgen\save\networktest\ %computername%-networkhiz.txt

Thanks for Selçuk Dere providing this solution.

4 Disk Manager

4.1 Add Disk

CCBoot can share its own physical disks, volume disks, CDROM, VMDK files, VHD files, ISO files and etc to the diskless clients. At the clients, they are all shown as a virtual hard disk. And the system and applications will recognize it as real hard disk.
Click the "Add Disk" button on the toolbar to open the add disk window.

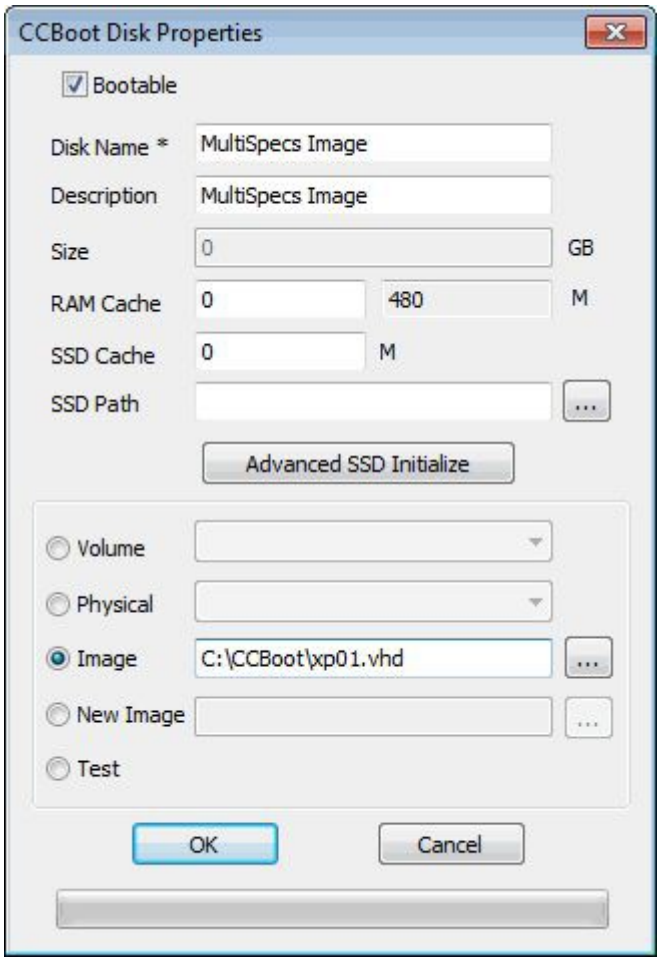


Figure 1-10

1) Input the "Disk Name" and "Description".
2) If you want to add a boot image, you should select the "Bootable" check box.
3) Keep other settings as default. If you want to know more details, please refer to "Disk Cache".

4) CCBoot supports multiple types of the virtual disk source, such as VHD, VMDK, ISO, CDROM, physical disk, volume disk and etc.
5) You can choose one type disk source. For example, you can choose volume, physical disk as game disk. And you can also select image file as the boot image of the client.
6) If you want to create a blank image, you can select the "New Image" radio button, and input the image size in "Size" edit box.

Click the "OK" button to save.

Why you get message "The disk path exists"?
This is because you have added the same disk path before. So you need to remove it from the disk manager first. You can click "Disk Manger" node in the tree, and search the disk path in the disk list. Right click the disk in the list, and select "Delete Disk".

4.2 Disk Cache Settings and Recommend

1. Disk Cache
When you add disk in CCBoot. There are some parameters related to cache. Here the cache is only for read cache.

RAM Cache: Define the RAM memory size for the disk read cache.
SSD Cache: Define the SSD size for the disk secondary read cache.
SSD Path: Define the SSD disk location. CCBoot will create SSD cache file in this location.
Advanced SSD Initialize: To get better performance of SSD cache, after you set SSD Cache size, you can use this option to initialize the SSD cache file. By default, CCBoot create SSD cache file with sparse file format. If you do "Advanced SSD Initialize", CCBoot will create SSD cache file with fixed size file format. The advantage of spare file is create big file fast, but expand file content is slow. If using fixed size file format, don't have this problem. Notes: the initialize processing is slow, please be patient.

CCBoot always use RAM cache as the first cache storage, and the SSD cache as the second cache storage. So when CCBoot received the read requests from the client, it will search it in RAM cache first and then SSD cache. If found, it will read the data from the cache else read data from the physical disk directly.

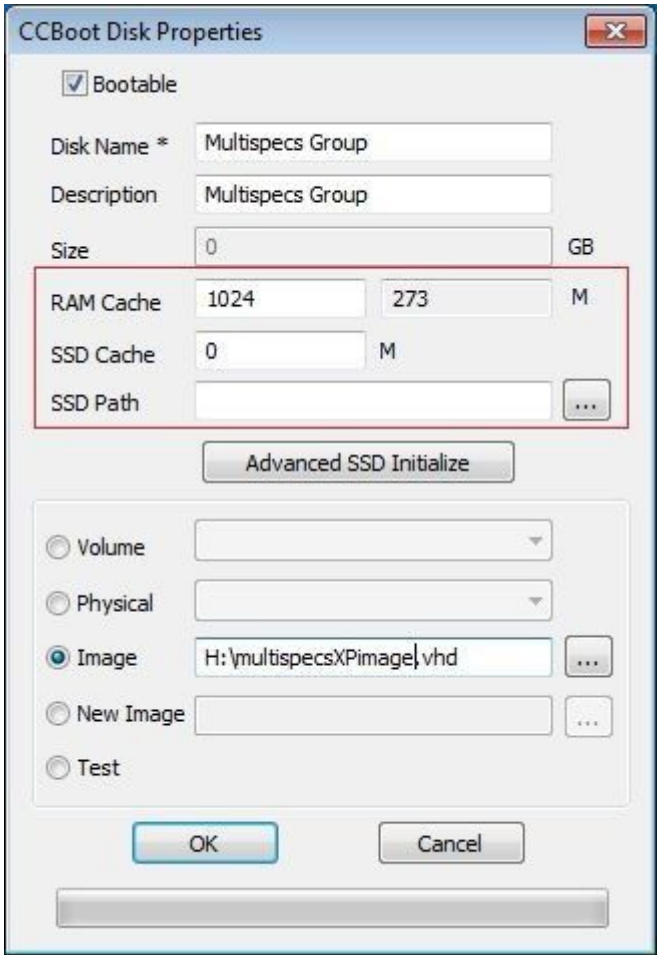


Figure 1-1

2. RAM Cache Recommend

Server Physical RAM	Image Cache	Game Cache
2G	256M	512M
4G	512M	1024M
8G	1024M	4096M
16G	1024M	8192M
32G	1024M	25600M

In fact, 1G RAM for image cache is enough. Though the image file size is over 1G. But

the most frequent read data of image at client is less 1G. Notes: you'd better left 3-4G RAM for server os system and write cache.
Suppose the CCBoot server (Windows 2008) has 8GB of physical RAM, the recommended cache settings are as bellow.

Image Cache

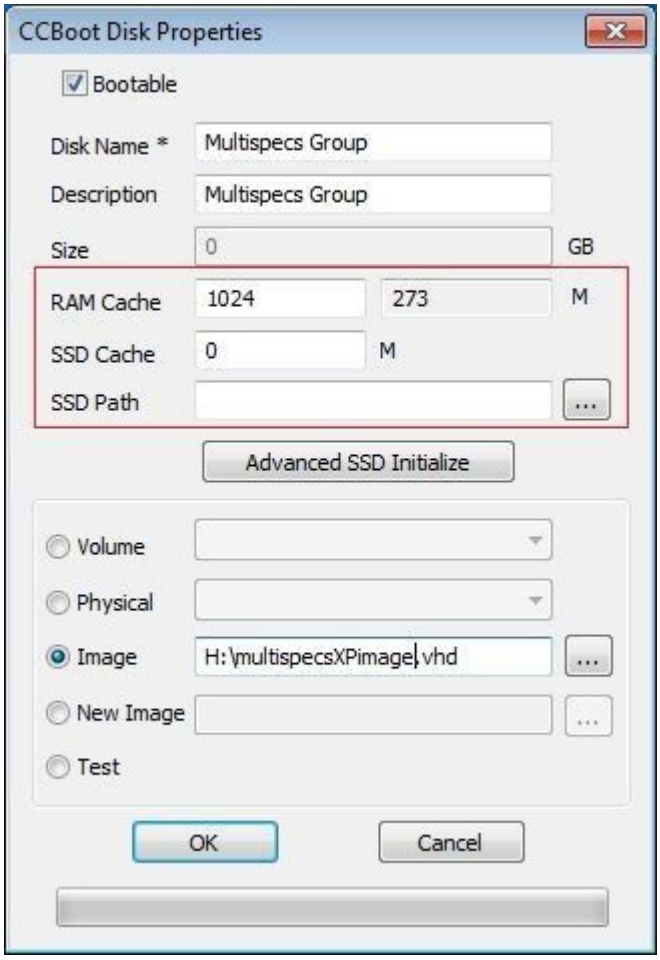


Figure 1-2

Game Disk Cache

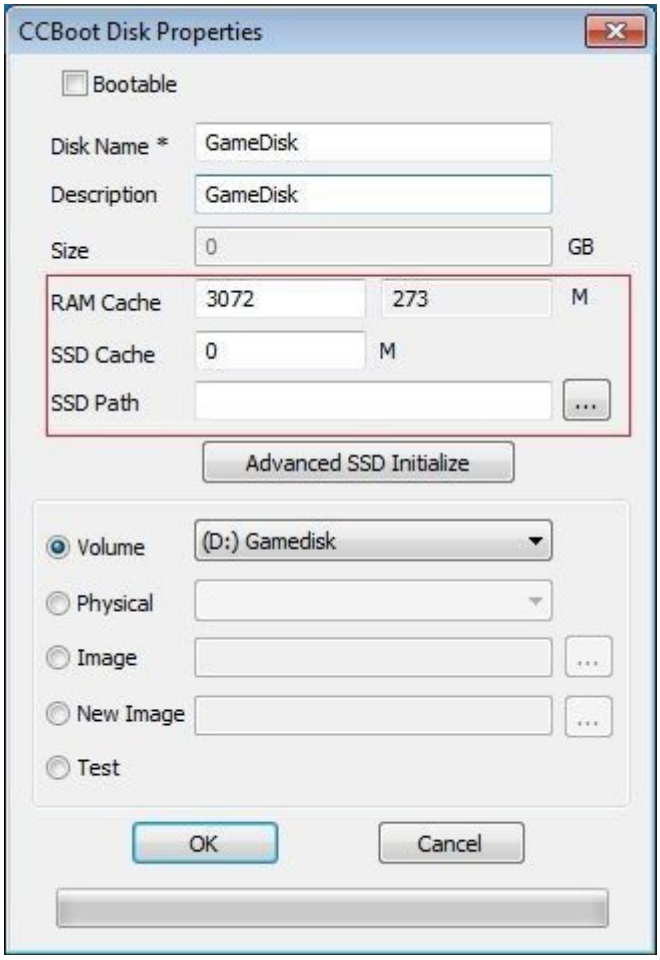


Figure 1-3

3. SSD Cache

If you have an SSD disk, we recommend you enable the SSD cache function of CCBoot. SSD cache is almost used for game disk cache, which can bring you a better performance. It will speed up client games loading. We recommend you format the SSD as one drive. Normally, we only recommend set SSD cache for game disk. RAM cache is enough for image and needn't add SSD cache more.

On CCBoot server, press "Disk Manager" -> Right Click the Disk -> and click the "Edit Disk" to open the window.

SSD Game Disk Cache

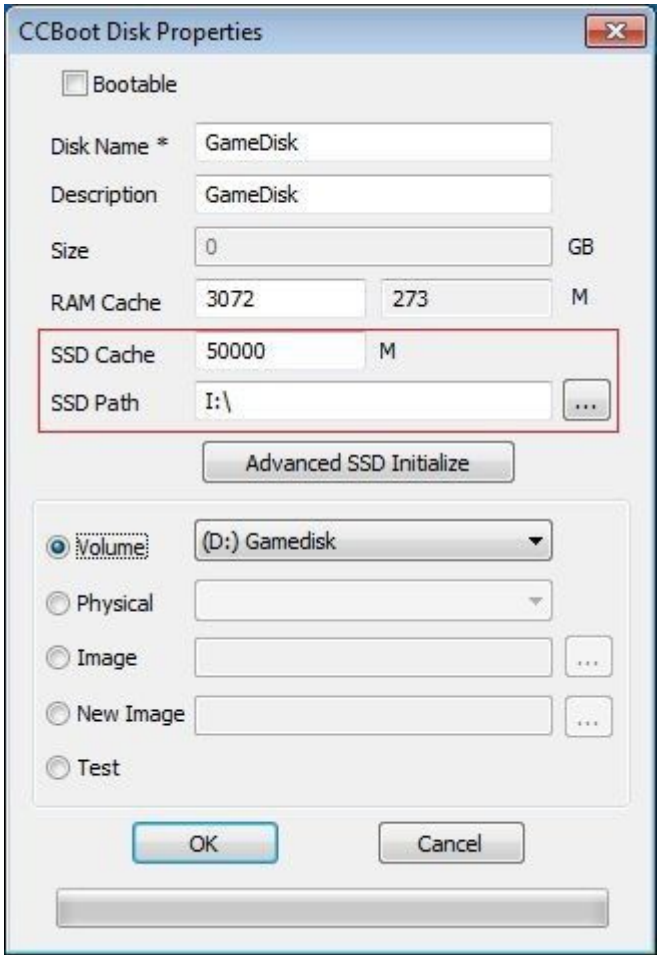


Figure 1-4

How to define the SSD Cache size?

Normally, we use the almost size of the SSD disk as the SSD cache and left 10% size. For example, if the SSD disk size is 80G, we use 80 * 90% = 72G as the SSD cache size. DO NOT use full size of SSD disk for the SSD cache. Because when the SSD disk is full, the performance will reduce much more.

SSD Disk Size	Game SSD Cache
80G	7168M
120G	10240M

4.3 How to Refresh the Cache Manually

Starting from CCBoot ver. 3.0 we recommend to use "Super Client" to update your Game Disk. (Please refer to help document "CCBoot Update Game Disk") If you use Super client to update the Game Disk, you don't need to use "Refresh Cache". By using CCBoot "Refresh Cache" we recommend to use this only if the online client is little amount, to avoid the client "stuck" for a few seconds.

Here are the steps to manually refresh the cache:

1) On the in CCBoot Main interface, click "Disk Manager" node in the tree, right-click the disk that need to update cache in the list, and then click the "Refresh Disk".

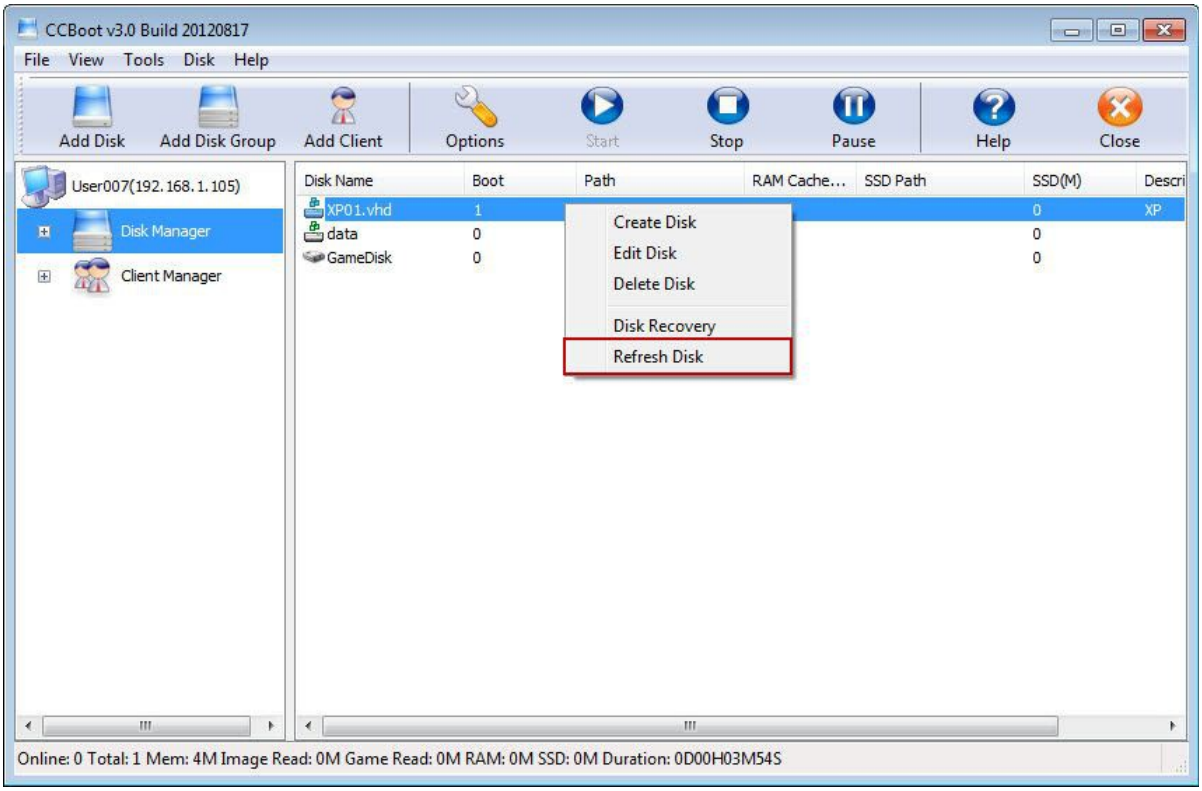


Figure 1-1

2) In the dialog box that pops up, click the "Yes" button.

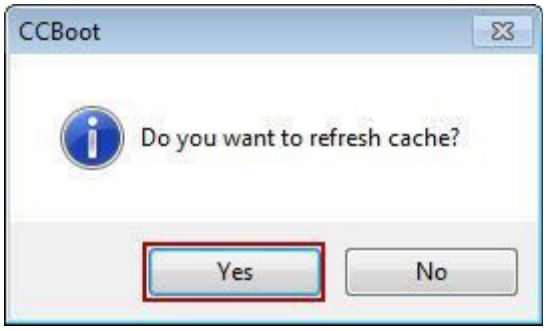


Figure 1-2

Above is to refresh the cache process.

4.4 Add Disk Group

CCBoot supports disk group management; all disks are managed by disk groups. So we need to add a disk group even you only have single image.

1) Click the "Add Disk Group" button then input "Disk Group Name" and "Disk Group Description" to add a disk group.

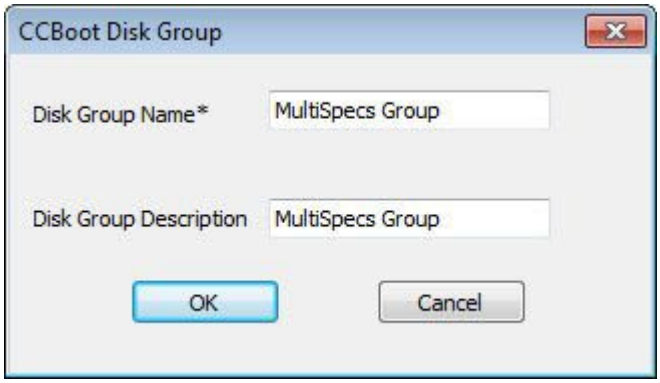


Figure 1-1

2) When click the "OK" button to save, it will ask you "Do you want to add disk to this disk group?"

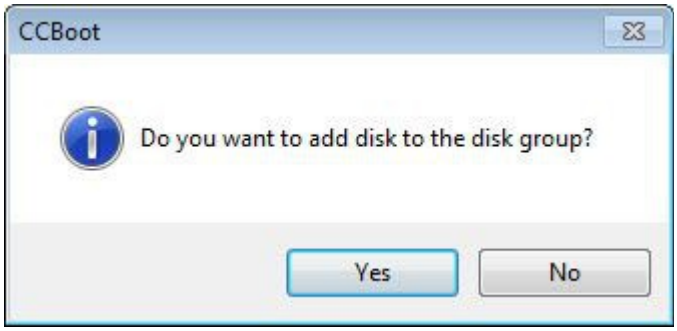


Figure 1-2

3) Click "Yes" to open the disk list.

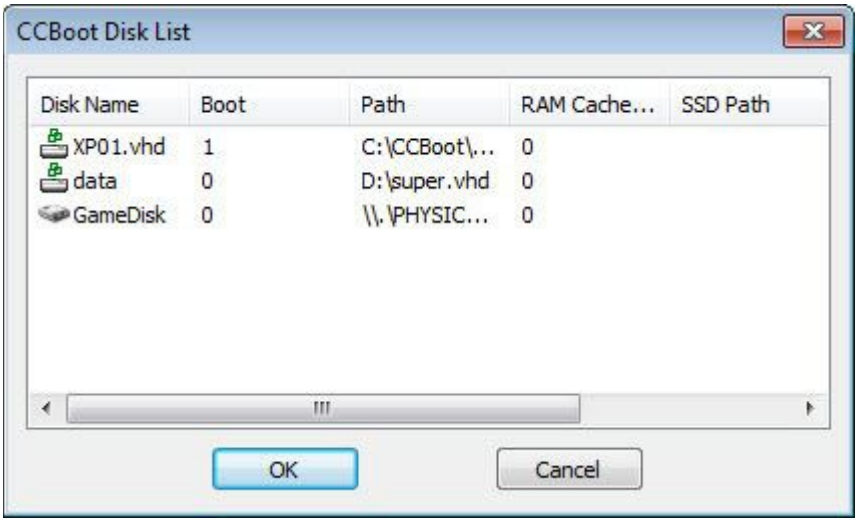


Figure 1-3

4) Select the disk we have just added and then click the "OK" button to save. Now you can see the disk group and its included disk as bellow.

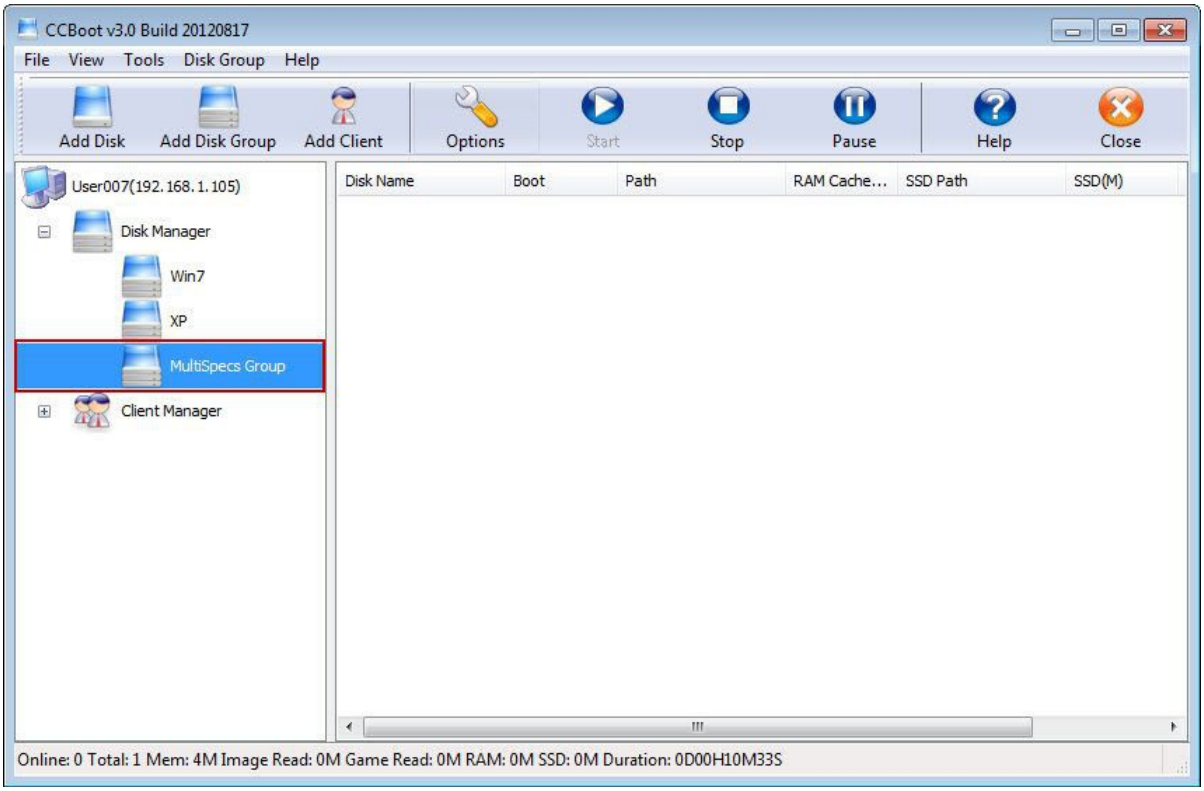


Figure 1-11

4.5 Add Game Disk

1. Add Game Disk

Game disk at client is in fact a virtual disk. It's a physical hard disk or just a partition on CCBoot server. Game disk is almost used for game disk - on CCBoot server, install games into this disk, on client side, you will get this disk and run games directly just like a local disk. Of course, you can also use this function for other intentions.

Click "Add Disk" Button and input the Disk Name and Description as you wish do not check "Bootable".
Select "Volume" and choose a partition as the source of the virtual drive. (Note: We recommend choosing "Volume" other than "Physical". Because "Volume" is more stable than "Physical".)
Click the "OK" button to save.

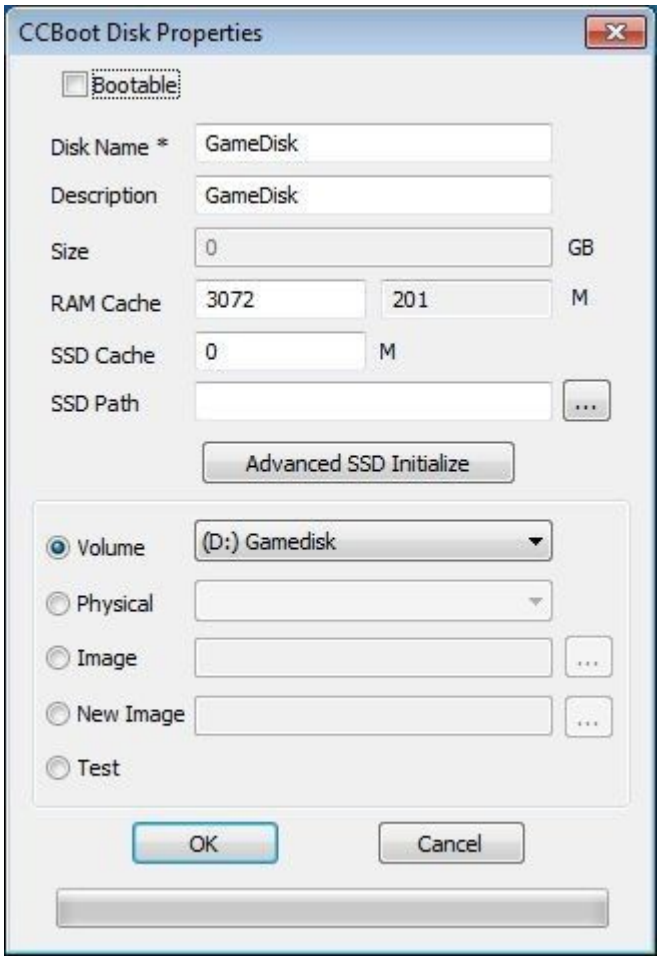


Figure 1-12

2. Add Disk to Group

Right click the user group we have just added and click add disk to group.
And choose the volume drive we have also added.

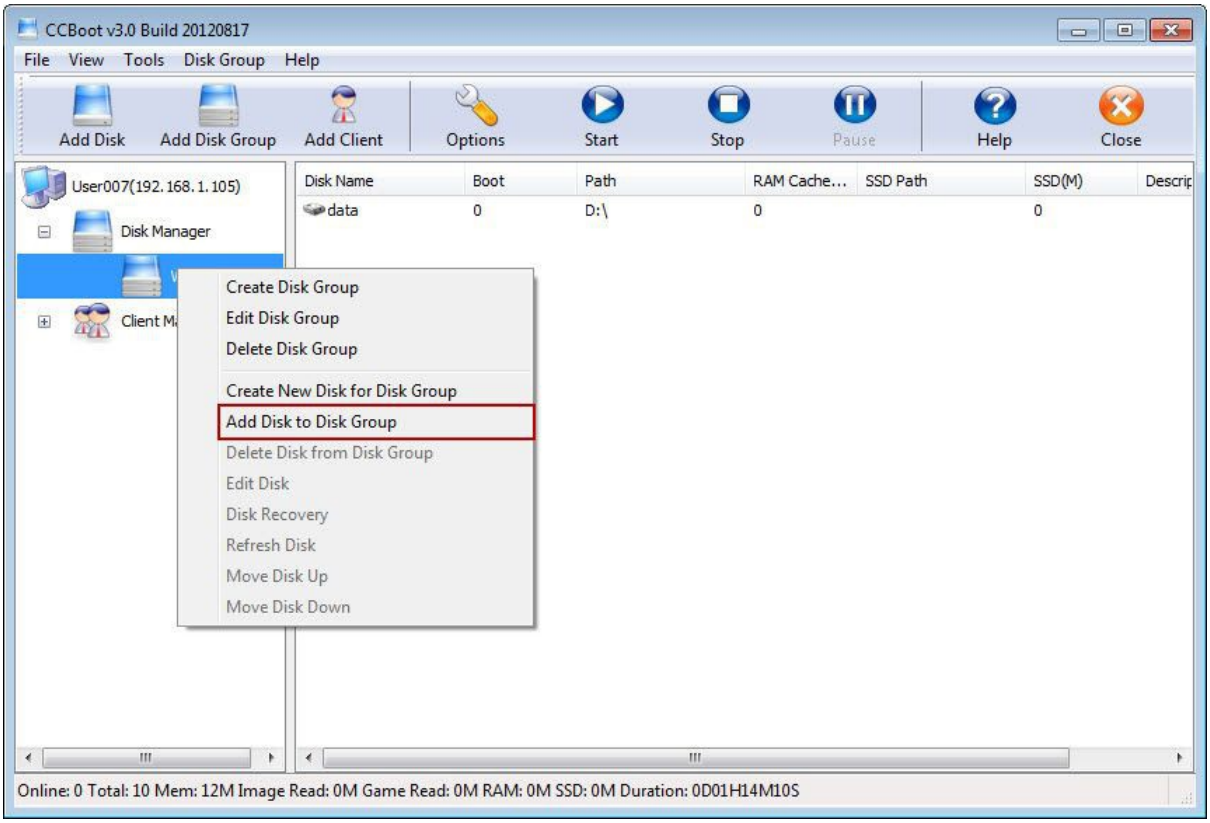


Figure 1-2

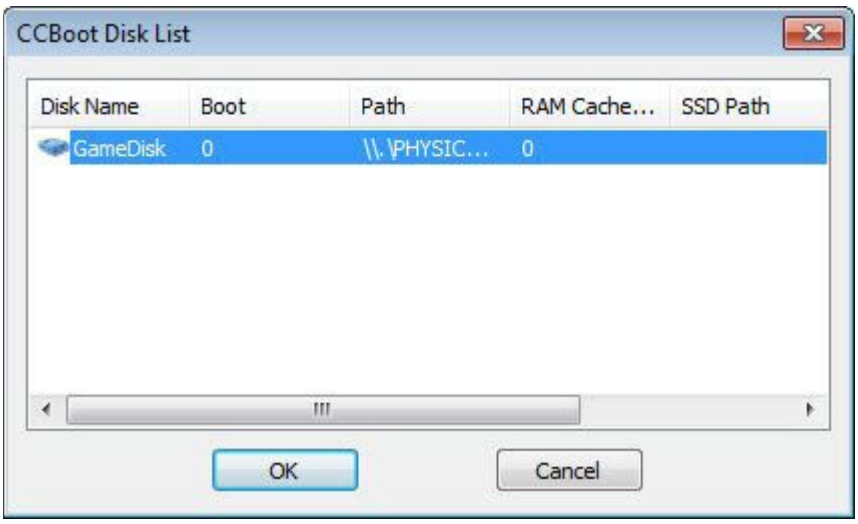


Figure 1-3

3. Game Disk Mapping

"Options" -> "General" -> "Server and Client Disk Letter Mapping". You can set disk mapping between server and client here.

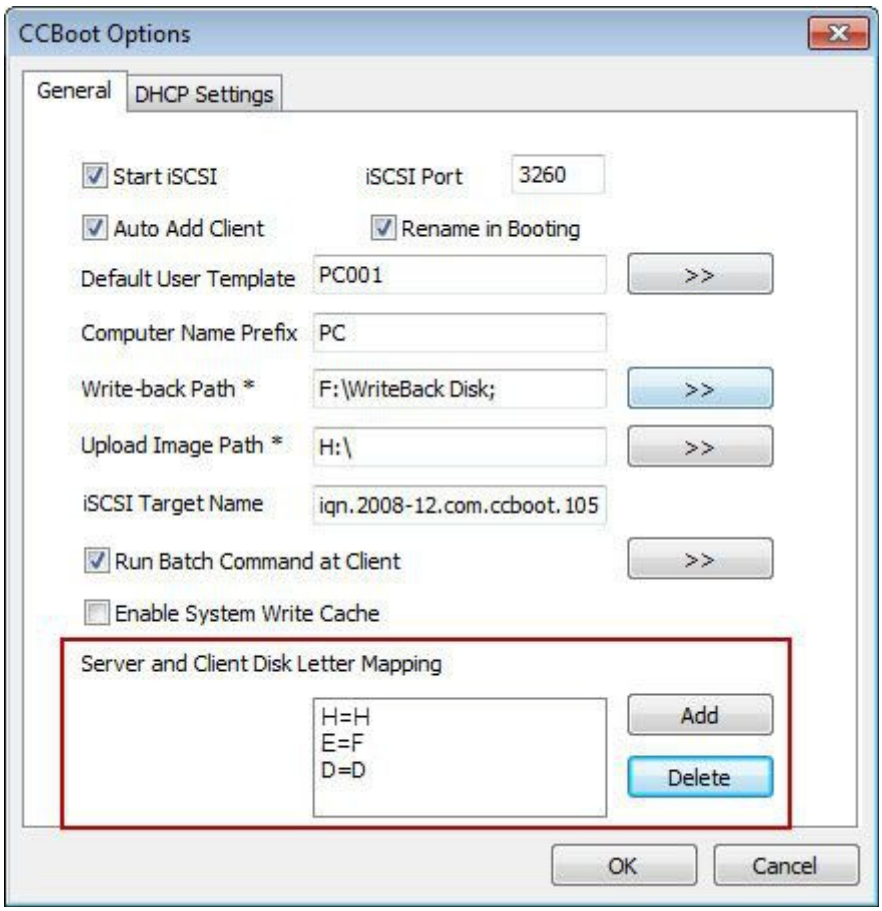


Figure 1-4

Partition D on server is used as a game disk for clients, and it will display as D on the client.

Partition E on server is used as a game disk for clients, and it will display as F on the client.

Partition H on server is used as a game disk for clients, and it will display as H on the client.

4.6 Restore Point Management

1. Features

When the Image is updated, the system will automatically create a restore point. Using the "restore to last" features, you can restore the Image to a previous restore point, you can fix mistakes, and multiple restores can be restored to its initial state. Using "merge to last", you can merge this operation from the last action, and you can also merge the multiple restore point.

2. Operations

1) In CCBoot main interface, click "Disk Manager" in the details pane, right-click on the

operation of the disk and then click "Disk Recovery".

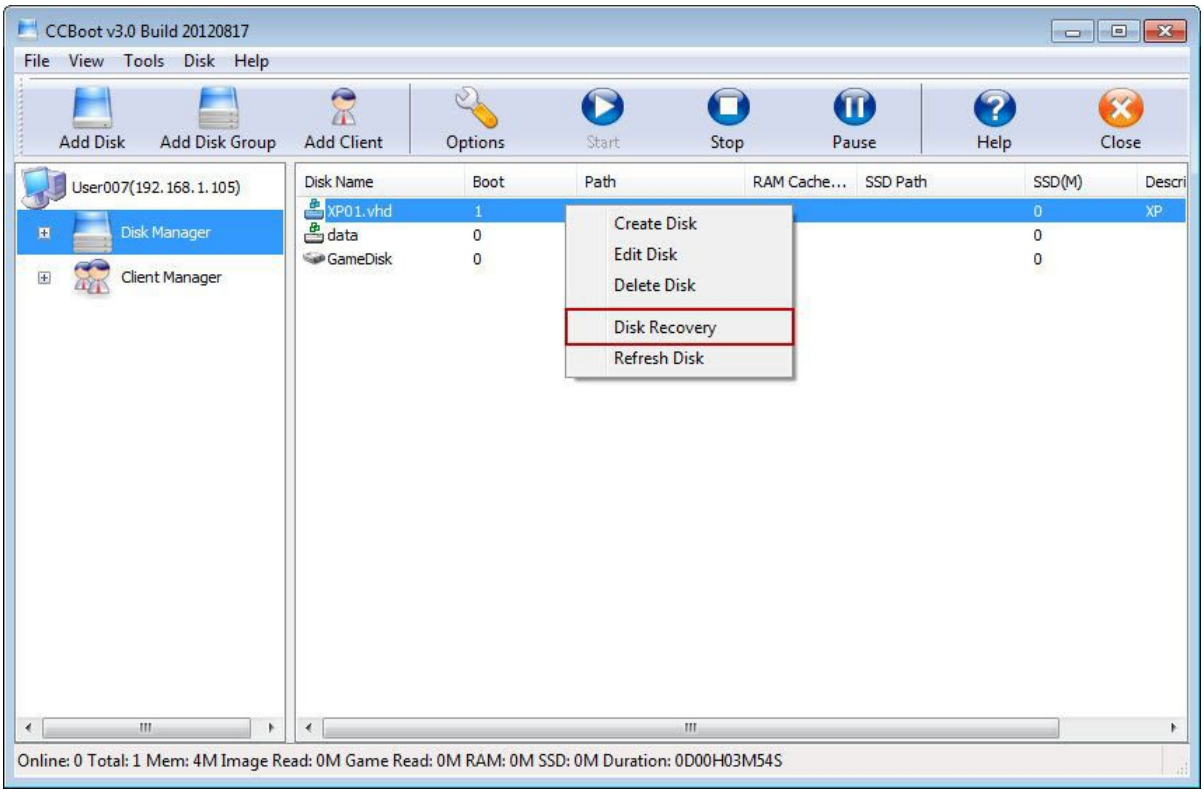


Figure 1-1

2) "CCBoot Recovery" dialog box pops up.

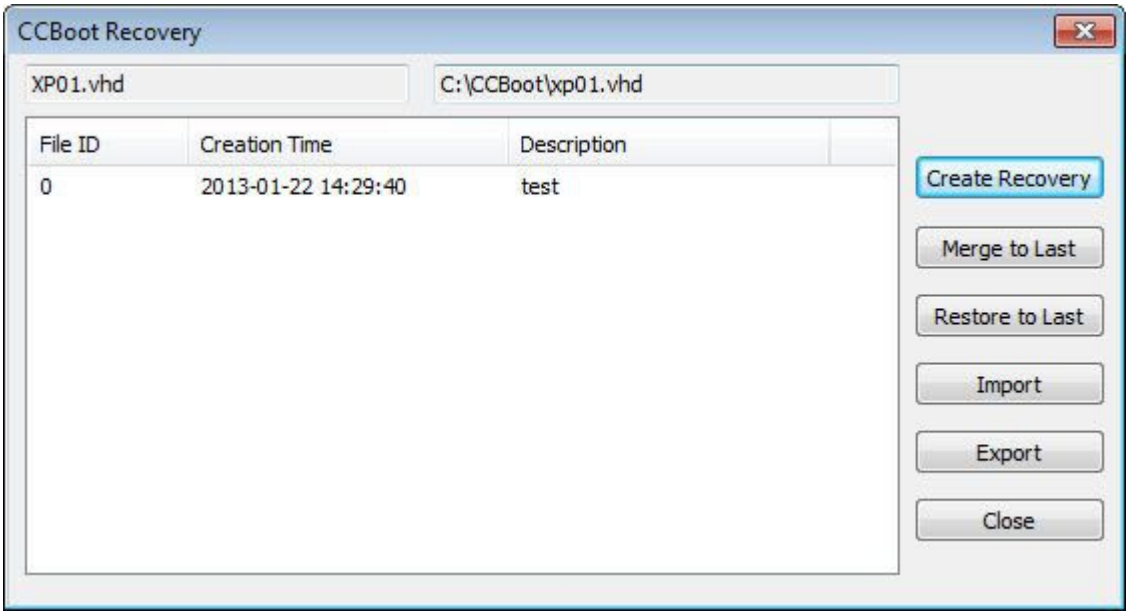


Figure 1-2

Create Recovery: Create a restore point on a current basis. Notes, one image can only create 30 maximum restore points.

Merge to Last: Merge the current created restore point. For more details, please refer to "Merge Image".
Restore to Last: Revert to the last restore point.
Import: Import the restore point information from a backup file.
Export: Export the restore point information to a file for backup. And import it when needed.

4.7 Use of Personal Disk

1. Features

CCBoot personal disk is used to store client data that never lost even reboot the client. This function is used in the enterprise widely.

2. Steps

We assume that you have installed CCboot and finished making the boot image, and assume that you are already very familiar with CCBoot's basic operation and settings, with PC001 as example, the settings of personal disk is as below.

1) On CCBoot main interface, find "PC001" on client PC list and double click it, click the ">>" button on Disk Group section.
2) 2. Select the "Enable Personal Disk" check box.
3) 3. Click the "..." button right beside the "Personal Disk Path", browse for the personal disk path location. Enter disk size at "Personal Disk Size". Notes: After you set the personal size, you cannot change it any more. As shown below :

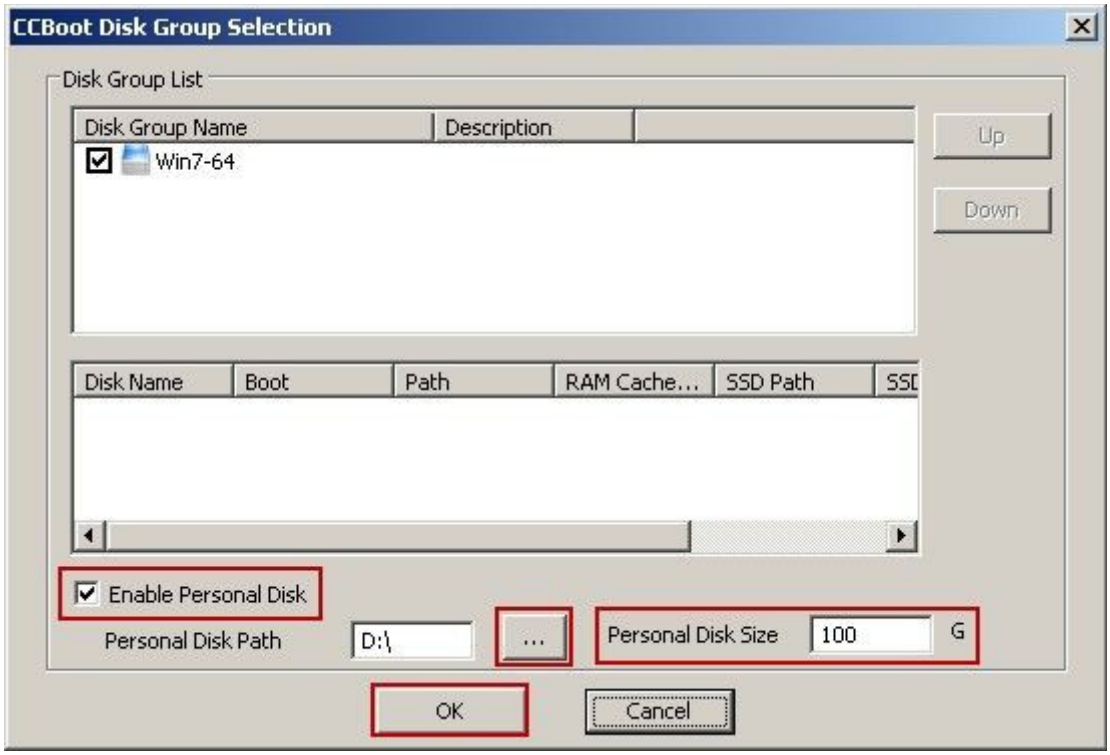


Figure 1-1

4) Boot "PC001", open Disk Management, initialize Disk 1, format it and set the drive letter to D:, as shown below:

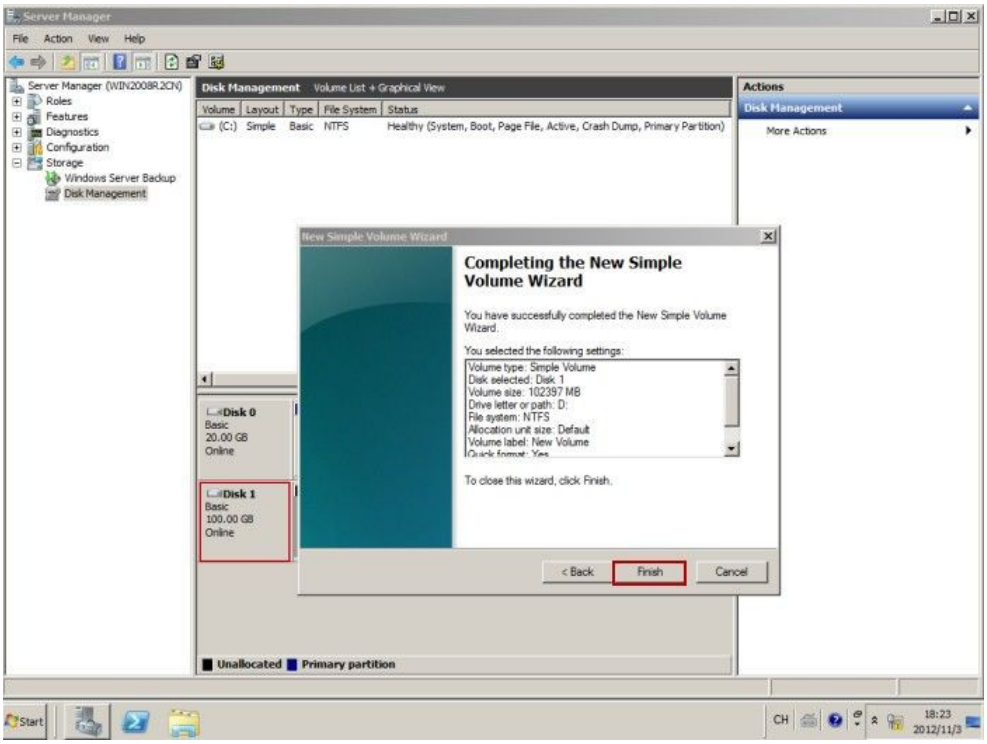


Figure 1-2

5) On the desktop, double click on Computer or My Computer; you will see there are 2 disks there. D: is the personal disk you have just created. And that is the drive to keep your personal files and your files won't be lost even you reboot your client.

4.8 Refresh Disk Cache by Command Line

CCBoot supports refresh cache by command line.

Two usages:

1. C:\CCBoot\CCBoot.exe -refreshcache "Game"

It will refresh the disk named "Game" cache. The last parameter is the Disk Name. It's case sensitive.

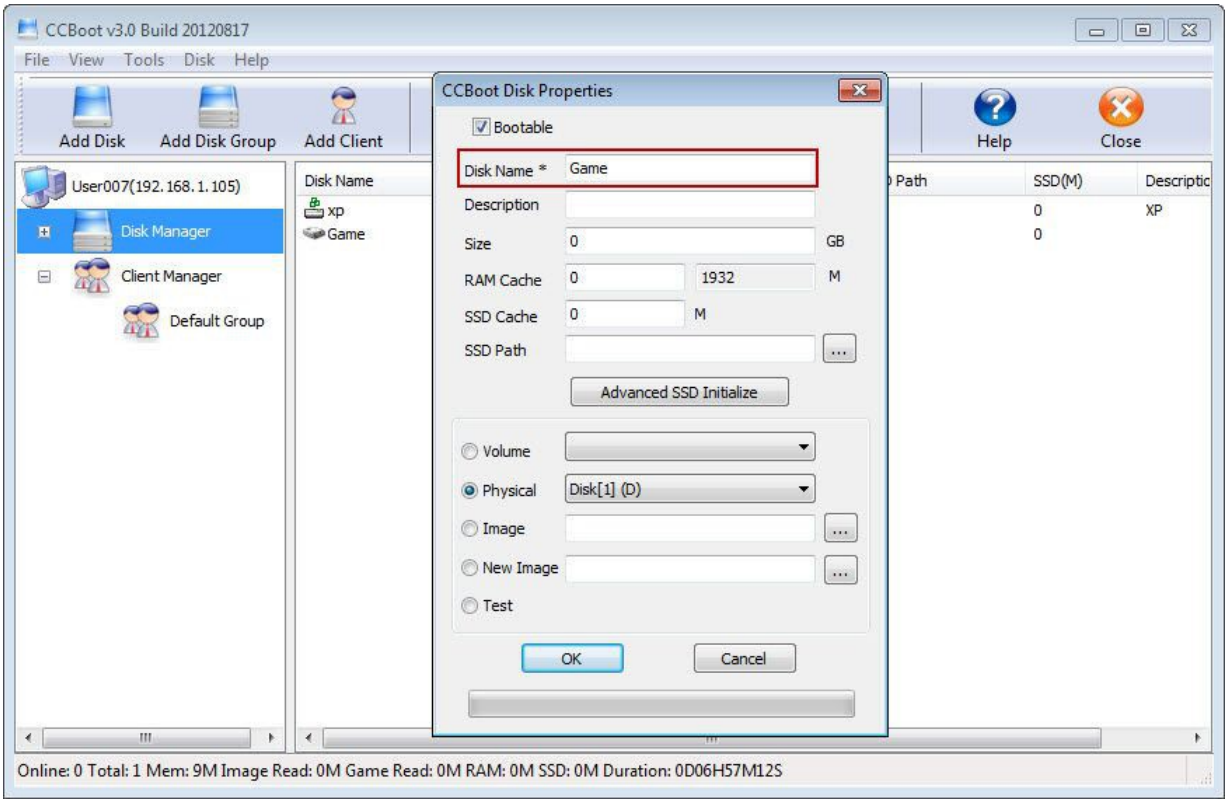


Figure 1-1

2. C:\CCBoot\CCBoot.exe -refreshcache
This command will refresh all disks on the server.
Notes: You can add this command into Windows schedule task. So you can run it automatically at certain time.

4.9 Adjust the Disk Order

If the boot disk is behind other disk (such as Game Disk), because it will boot from the first disk, the client will fail to boot. Therefore, we need to adjust the disk group's disk order.
The steps are as follows.
1) Click the "Disk Manager", and then click the disk group. In the details pane, right click the boot disk, and then select "Move Disk Up" (Figure 1-1).

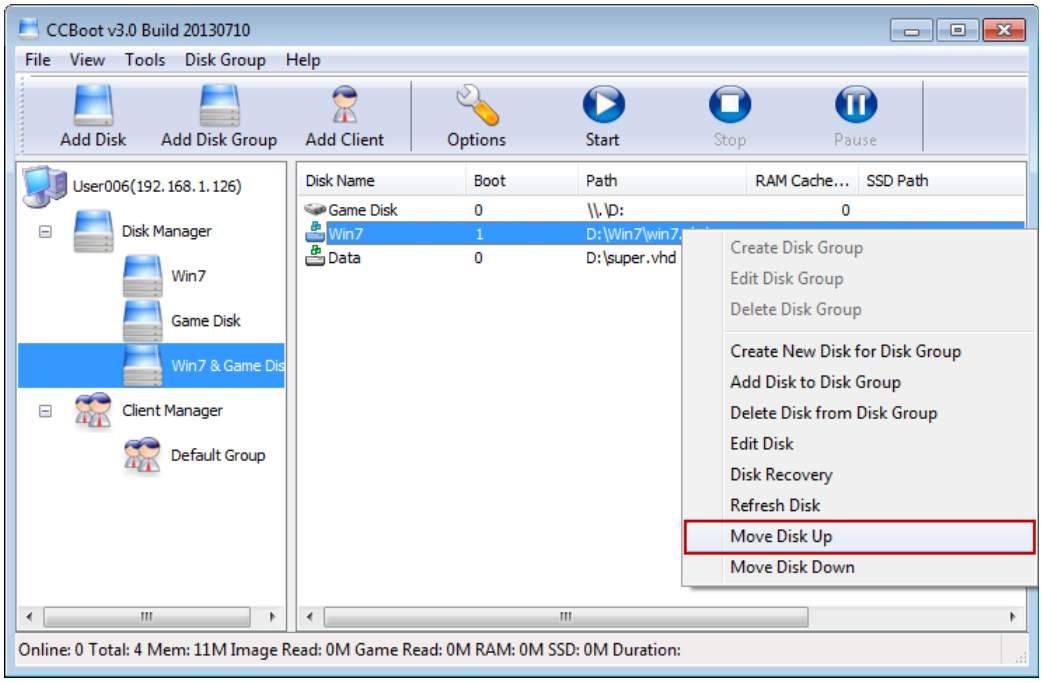


Figure 1-1

Or, click the "Disk Manager", and then click the disk group. In the details pane, right click other disk (such as Game Disk), and then select "Move Disk Down" (Figure 1-2).

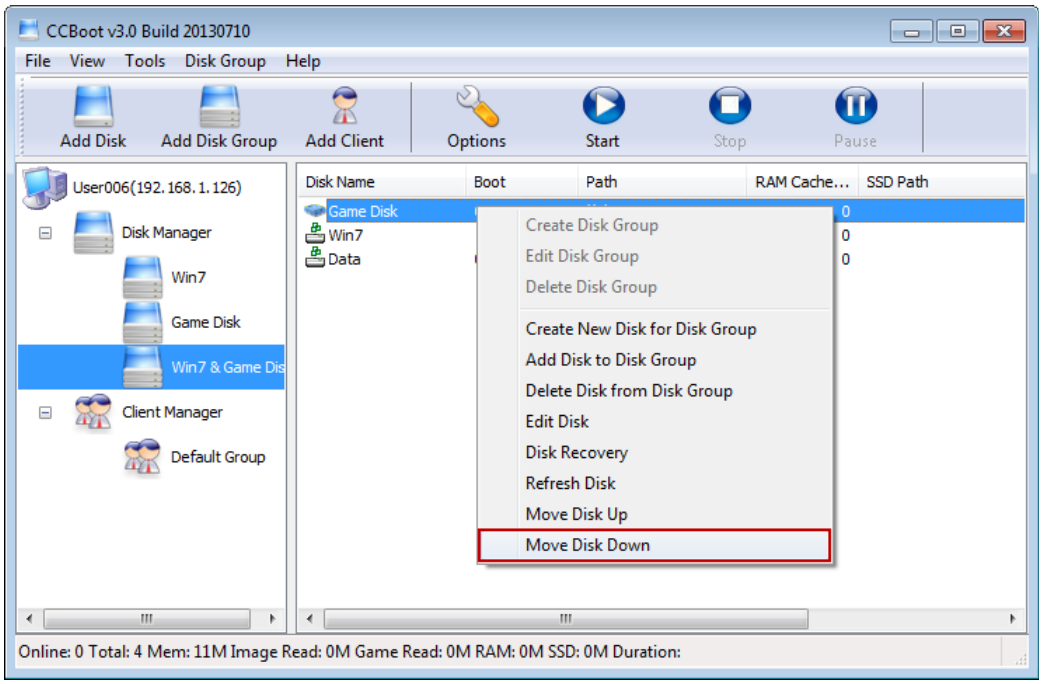


Figure 1-2

2) Now, the boot disk is in the first place of the disk group. The client can boot from this disk successfully (Figure 1-3).

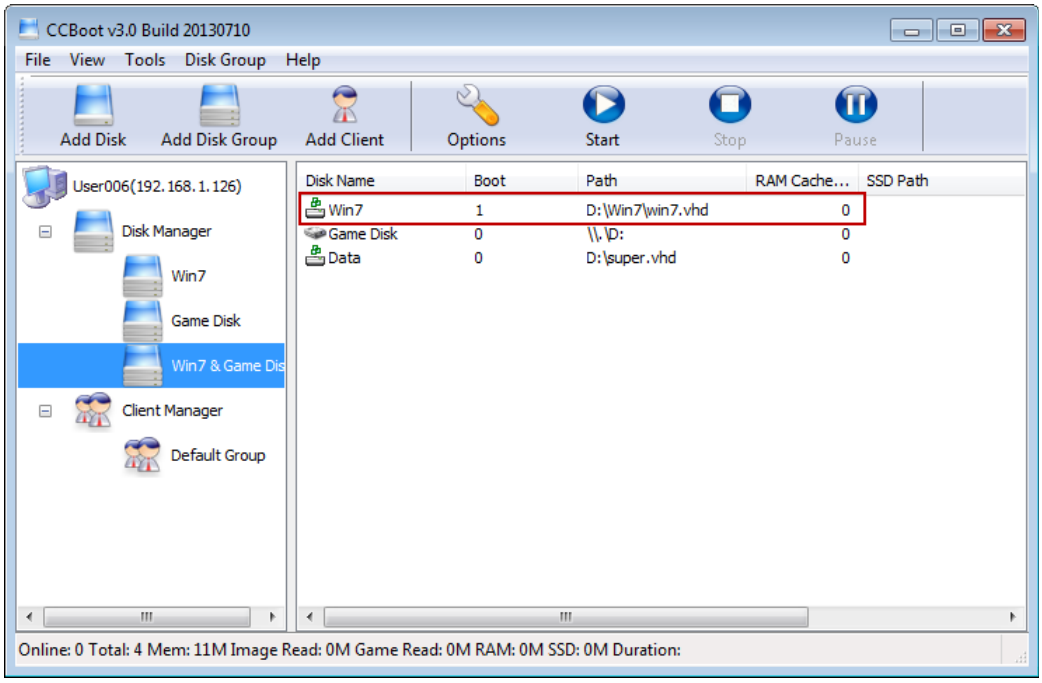


Figure 1-3

4.10 How to Check Whether the HDD Is 4K Aligned

In fact, whether the HDD is 4K aligned does not matter much. But you can check it according to the following steps.

1) In Windows XP/Vista/7 operating system, click the "Start" button, in the "Run" edit box, type "msinfo32", and then press the "Enter" key.
2) It will pop up the "System Information" form. In the left side of the form, on the directory tree, click the "Components" node, expand the directory tree. Click the "Storage" node, expand the directory tree, and then select the "Disks" node (Figure 1-1).

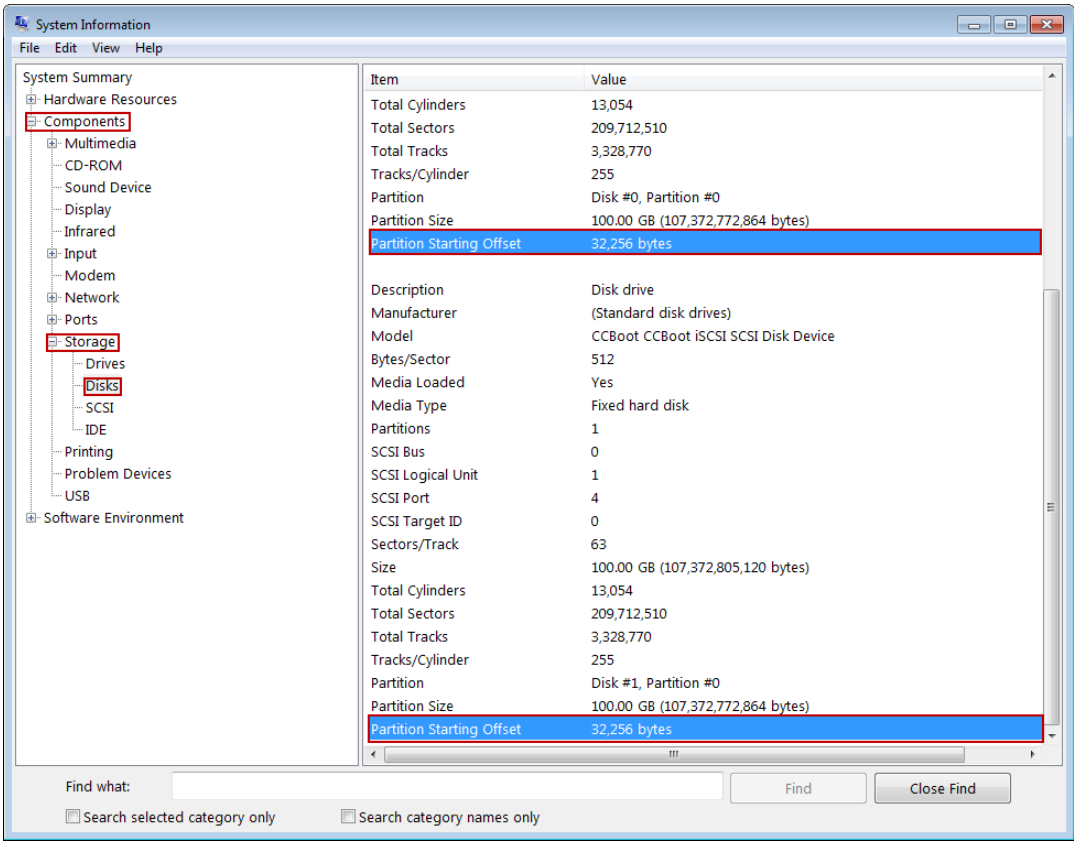


Figure 1-1

3) Check the "Partition Starting Offset" value. If the value cannot be divided by 4096, then the HDD is not 4K aligned. If the value can be divided by 4096, then the HDD is 4K aligned, and does not need the corresponding partition alignment tool for further operations.
4) From Figure 1-1, we can know that these two partitions' "Partition Starting Offset" value is 32,256, which can not be divided by 4096. So, these two HDDs are not 4K aligned.

Note: This problem will not happen if using the Win7 built-in HDD tool to format the disks. If it's XP system, you can check the 4K alignment by the following command.

1) Run -> diskpart
2) list disk
3) select disk 0
4) list partition

You will see the Offset is 32K. That means disk0 partition 1 is 4K alignment.

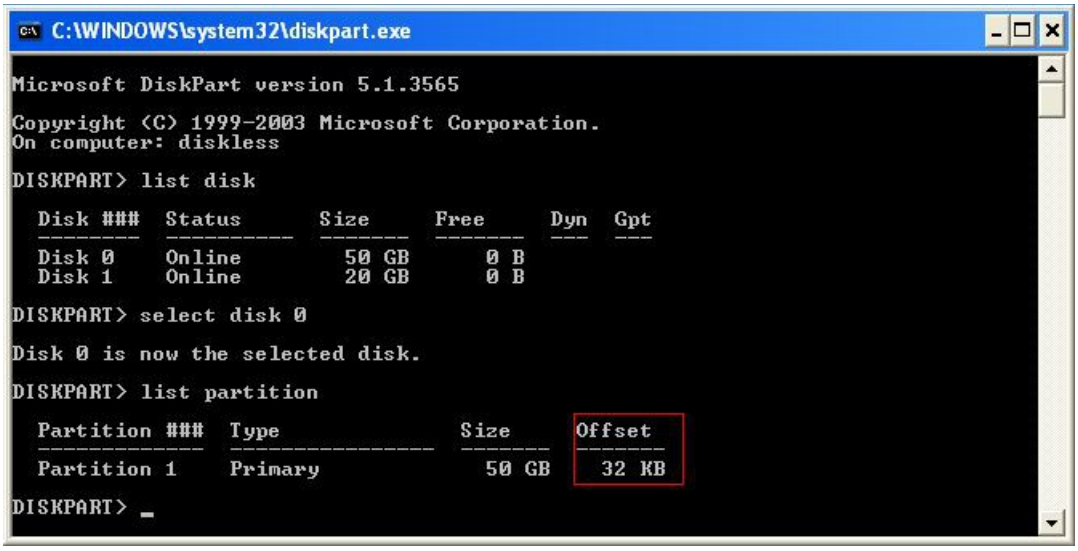


Figure 13

4.11 How to Solve Write-back Disk almost Full

1) Normally, 120GB SSD can handle 25 Client PCs. If the write-back disk size is too small, please replace the disk to a larger one.
2) Find the program whose write-back speed value is very large, and then stop its service. For details, please refer to "Find Large Write-back Speed Program".
3) Normally, when diskless boot Windows 7, it will cause little write-back data (less than 200M). Sometimes, after using Windows 7 several hours without shutting down, the write-back data could reach dozens of GB, this is because Windows 7 is not installed with the latest patches, so you need to install the Windows 7 latest patches.

4.12 How to Manage Restore Ponit

1. Features

When the Image is updated, the system will automatically create a restore point. By using the "restore to last" features, you can restore the Image to a previous restore point, you can fix mistakes, and multiple restores can be restored to its initial state. Using "merge to last", you can merge this operation from the last action, and you can also merge the multiple restore point.

2. Operations

1) In CCBoot main interface, click "Disk Manager" in the details pane, right-click on the operation of the disk and then click "Disk Recovery" (Figure 1-1).

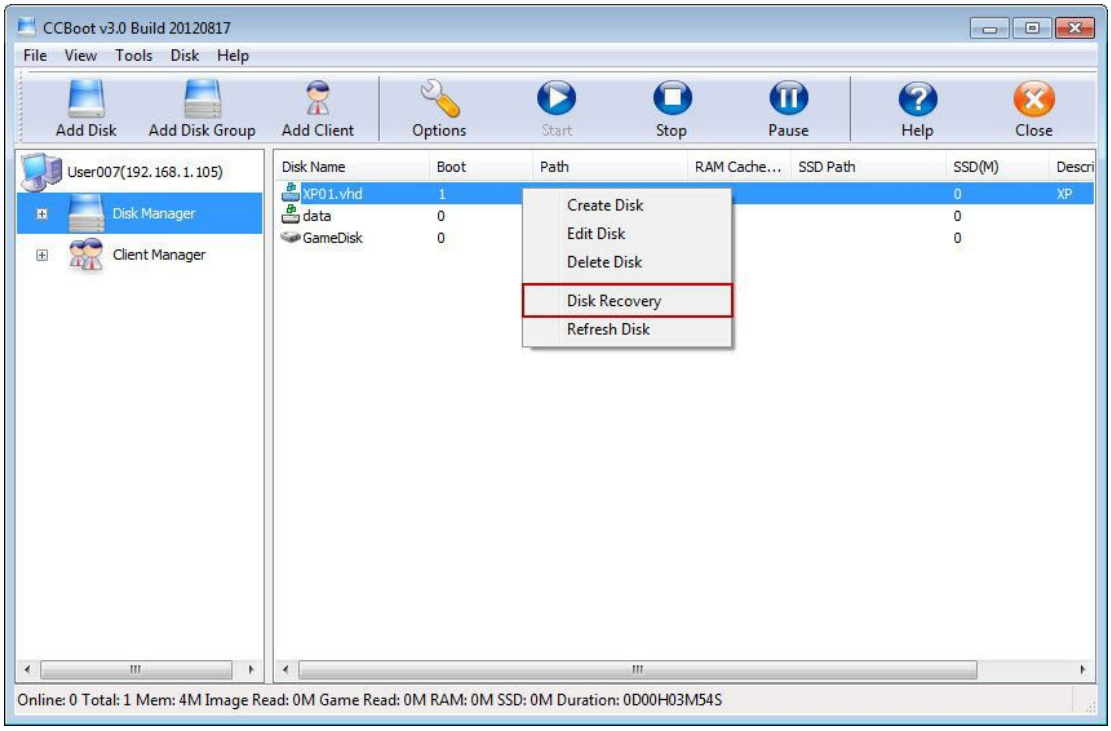


Figure 1-1

2) "CCBoot Recovery" dialog box will pop up (Figure 1-2).

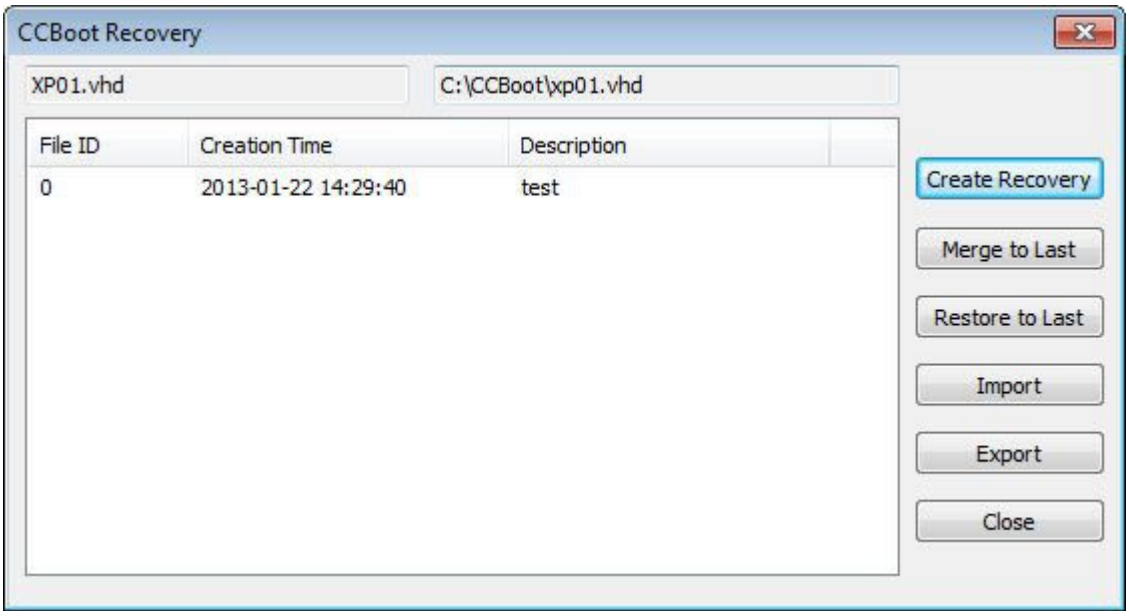


Figure 1-2

Create Recovery: Create a restore point on a current basis. Notes, one image can only create 30 maximum restore points.

Merge to Last: Merge the current created restore point. For more details, please refer to "Merge Image".

Restore to Last: Revert to the last restore point.

Import: Import the restore point information from a backup file.
Export: Export the restore point information to a file for backup. And import it when needed.

4.13 How to Use VHD and VHDX

VHD：Virtual Hard Disk is a file format which represents a virtual hard disk drive (HDD). It may contain what is found on a physical HDD, such as disk partitions and a file system, which in turn can contain files and folders. It is typically used as the hard disk of a virtual machine. The format was created by Connectix for Connectix Virtual PC product, which was later acquired by Microsoft in 2003, for what is now known as Microsoft Virtual PC. Since June 2005, Microsoft has made the VHD Image Format Specification available to third parties under the Microsoft Open Specification Promise.

VHDX： VHDX is a Hyper-V virtual hard disk (VHD) format found in Windows Server 2012. The main advantage of switching to VHDX is its increased storage capacity of 64 TB (terabytes), instead of VHD's standard storage limit of 2 TB. Other advantages of VHDX include file corruption protection and the ability to create differencing disks. VHDX files are not compatible with previous versions of Windows Server. However, the conversion process from VHD to VHDX is simplified with Windows Server 2012.

Note: Win 8/Win 2012 supports VHDX/VHD, Win 7/ Win 8 supports VHD. From the version of CCBoot v3.0 20140827, CCBoot supports VHDX as image format and write back file format. If the size of game disk and image is more than 2T, CCBoot will use VHDX as write back file format. If the size of game disk and image is less than 2T, CCBoot will use VHD as write back file format.
For more details please refer to http://searchservervirtualization.techtarget.com/tip/VHD-vs-VHDX-Virtual-disk-format-differences.

4.14 How to Use MBR and GPT

MBR: Master Boot Record is a special type of boot sector at the very beginning of partitioned computer mass storage devices like fixed disks or removable drives intended for use with IBM PC-compatible systems and beyond. The organization of the partition table in the MBR limits the maximum addressable storage space of a disk to 2 TB (232 × 512 bytes). Therefore, the MBR-based partitioning scheme is in the process of being superseded by the GUID Partition Table (GPT) scheme in new computers. A GPT can coexist with an MBR in order to provide some limited form of backward compatibility

for older systems.

GPT: GUID Partition Table is a standard for the layout of the partition table on a physical hard disk, using globally unique identifiers (GUID). Although it forms a part of the Unified Extensible Firmware Interface (UEFI) standard (Unified EFI Forum proposed replacement for the PC BIOS), it is also used on some BIOS systems because of the limitations of master boot record (MBR) partition tables, which use 32 bits for storing logical block addresses (LBA) and size information.

MBR disk partition: Support the largest volume for 2 TB (Terabytes) and each disk supports one up to four primary partitions or three primary partitions, one extended partition and unlimited logical drive.

GPT disk partition: Support the maximum volume for 18 EB (Exabytes) and each disk partition has no upper limit, GPT disk partition is only limited by the operating system. Due to the partition table itself needs to occupy a certain space, so the space left for hard disk partition at the original plan determines the most partitions can have in disk. (From CCBoot v3.0 20140801, Server game disk support GPT disk partition.)
Details of GPT, please refer to http://en.wikipedia.org/wiki/GUID_Partition_Table.
Details of MBR, please refer to http://en.wikipedia.org/wiki/Master_boot_record.

How Big does CCBoot Game Disk Support
From version of CCBoot v3.0 20140827, CCBoot disk supports GPT disk partition when hard disk exceeds 2TB. The main advantages of GPT disk partition compared with MBR disk partition is that GPT disk partition supports the maximum volume for 18EB (Exabytes) and each disk partition has no upper limit, GPT disk partition is only limited by the operating system, instead of MBR's maximum volume for 2TB (Terabytes) and each disk supports one up to four primary partitions or three primary partitions, one extended partition and unlimited logical drive.

From version of CCBoot v3.0 20140827, CCBoot supports VHDX as image format and write back file format. The main advantages of VHD switching to VHDX is that VHDX increases storage capacity to 64TB (terabytes), instead of VHD's standard storage limit of 2TB.

According to CCBoot supports GPT disk partition for game disk and CCBoot supports VHDX as write back file format, new CCBoot game disk maximum size supports 64TB.

Notes: 64-bit Windows system supports GPT, 32-bit Windows system supports GPT from Windows Server 2003 SP1.

More details of GPT/MBR, please refer to http://www.ccboot.com/gpt.htm.

More details of VHDX/VHD, please refer to http://www.ccboot.com/vhdx.htm.

4.15 How Big does CCBoot Game Disk Support

From version of CCBoot v3.0 20140827, CCBoot disk supports GPT disk partition when hard disk exceeds 2TB. The main advantages of GPT disk partition compared with MBR disk partition is that GPT disk partition supports the maximum volume for 18EB (Exabytes) and each disk partition has no upper limit, GPT disk partition is only limited by the operating system, instead of MBR's maximum volume for 2TB (Terabytes) and each disk supports one up to four primary partitions or three primary partitions, one extended partition and unlimited logical drive.

From version of CCBoot v3.0 20140827, CCBoot supports VHDX as image format and write back file format. The main advantages of VHD switching to VHDX is that VHDX increases storage capacity to 64TB (terabytes), instead of VHD's standard storage limit of 2TB.

According to CCBoot supports GPT disk partition for game disk and CCBoot supports VHDX as write back file format, new CCBoot game disk maximum size supports 64TB.

Notes: 64-bit Windows system supports GPT, 32-bit Windows system supports GPT from Windows Server 2003 SP1.

More details of GPT/MBR, please refer to http://www.ccboot.com/gpt.htm.

More details of VHDX/VHD, please refer to http://www.ccboot.com/vhdx.htm.

5 Client Manager

5.1 Client Properties

You can double click the client in the client list on the CCBoot interface and open "CCBoot Client" dialog box.

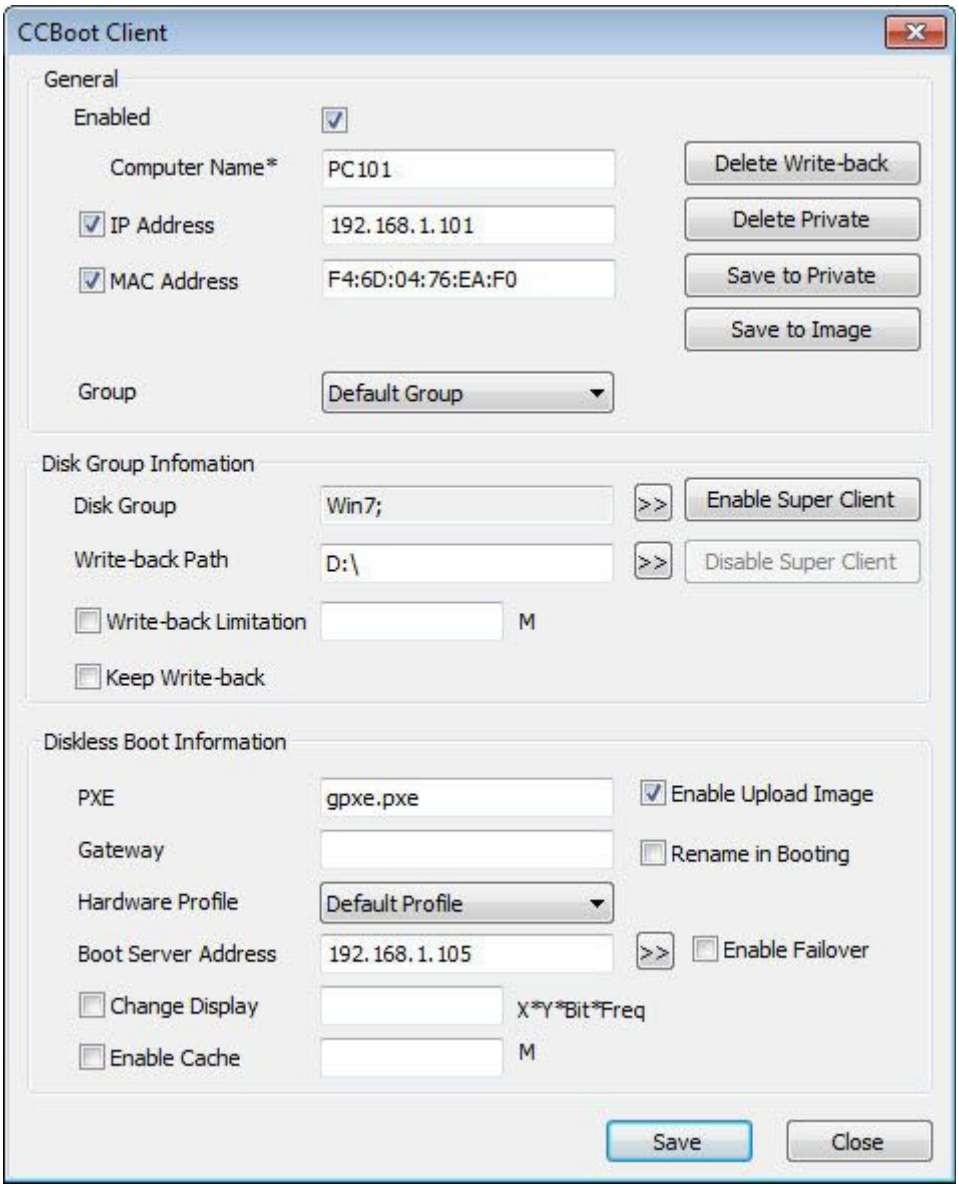


Figure 1-14

Enabled: Client PC is enabled for diskless booting.
Computer Name: Client computer name.
IP Address: IP address that gets from CCBoot Server.
MAC Address: MAC address of the client information.
Group: Define the user group that the client belongs to.
Disk Group Imfomation: Set the client boot from which disk group.
Write-back Path: Server's Write-Back disk storage location.
Write-back Limitation: Client Write-Back data storage limit. (From CCBoot v3.0 20140801, if the client write-back data reach the value you set and the write back disk free space less 10% the client will be auto restarted.)
Keep Write-back: Define the client write-back data keep on the server or not when after the client reboot.
When this option is selected, click the "Save" button will pop up "do you want to delete write-back file" dialog box, select the "Yes" button to delete the previous saved data, "No" to keep the previous saved data. This function is often used in "Save to Private" or "Save to Image".
PXE: Specified PXE file name. The default value can support most of the network card.
Note: It would be better to use "gpxe.pxe", but if you cannot diskless boot the client via using "gpxe.pxe", you can try to change the PXE value to "gpxe0.pxe". If this doesn't work, please modify the value to "gpxex.pxe". If you can successfully use "gpxe.pxe" in CCBoot 20120817, but failed to use it in the new build, please try "gpxe1.pxe". From CCBoot v3.0 Build 20130710, "gpxe1.pxe" means "gpxe.pxe" of 20120817. If Realtek 8111E NIC has blue screen problem, you can try to change the PXE value to "ipxe.pxe
Hardware Profile: To set the client hardware configuration profile.
Boot Server Address: The IP address of the server. If more than one server, you can input more than one IP address of the server, separated by a semicolon (";"), or click the ">>" button on the right, edit the list of servers.
Change Display: If your Client has multiple monitors the resolutions can set up, separated by semicolons to modify the client's resolution, the format is: screen width * height * color * screen refresh rate of the screen, for example: 1024*768*32*60.
Enable Cache: Setting the memory to use as a client cache, is depending on the client's memory size. Example: client RAM is 2GB; you can set the 512M to use as a cache.
Enable Failover: This is used for two or more server's failover. Please refer to chapter "Failover").
Enable Upload Image: Allows the client to upload the image to the server.
Enable Super Client: Updating the Image and Game Disk. Please refer to chapter "Update Image and Game Disk".
Disable Super Client: Cancel the "Super Client" function.
Save to Image: Save the client changes to image. When you enable "Keep Writeback", do some changes at client and then shutdown the client PC, you can go to server "Save to Image". Please refer to chapter "Update Image and Game Disk".
Save to Private: Options to update a single client, ex: save private driver for the different specification. Please refer to chapter "Update Image and Game Disk".
Delete Private: Delete the saved private data

Delete Write-back: Delete the client Write-Back file.

Note: When you update image or game, you can use "Enable Super Client" function to make all clients updated. It means that by using this function, you don't have to update clients one by one. You only need to update on one client with super client, then all clients will be updated. The "Keep Write-back" function is the same as "Enable Super Client". But there is a little difference between them: If you use the "Keep Write-back" method to update image, it will save a image file in the image folder. Suppose that the original image file is xp.vhd, after updated, it will generate a new file, like xp-001.vhd in the image folder. If you delete the xp-001.vhd file, it can restore to the previous status. While "Enable Supper Client" method will update the image directly and have no restore points, so the changes can not be restored. If you use the "Save to Private" function to update image, it will be only updated on one client. Besides, "Enable Upload Image" means allowing the client to upload the image to the server. While you can use "Enable Super Client", "Keep Write back" and "Save to Private" methods to update image.

5.2 Add Client

There are four methods to add clients.

1. Add Client Manually

1) Click the "Add Client" button on the toolbar.
2) Select "Enabled" checkbox; fill Computer Name, IP Address, and MAC Address (each two letters divided by (:)). Select "Default Group" in group.

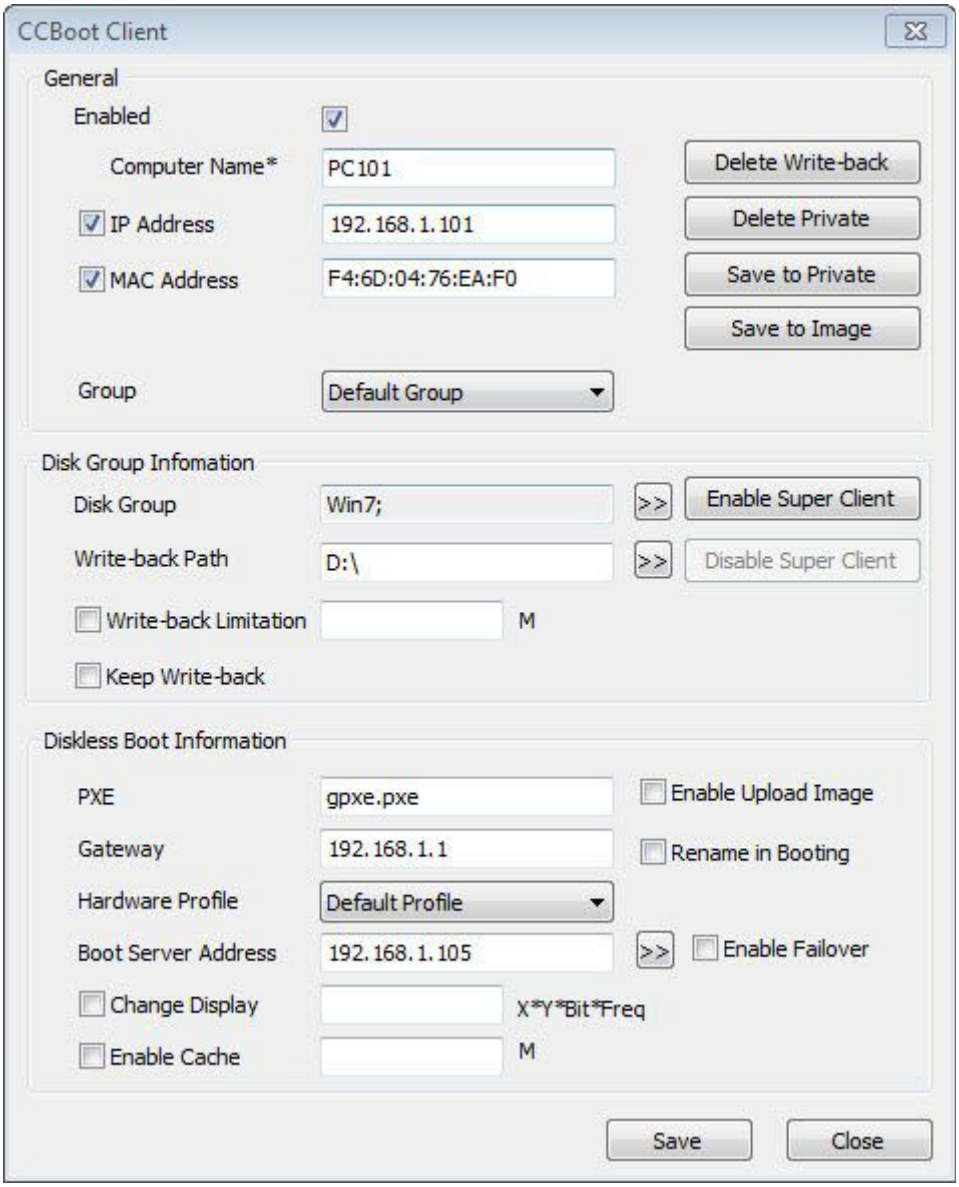


Figure 1-1

3) Click the ">>" button besides the "Disk Group".
4) In "Disk Group List", select one Disk Group. The selected disk group's disk will be listed in the next list box. Click "OK".

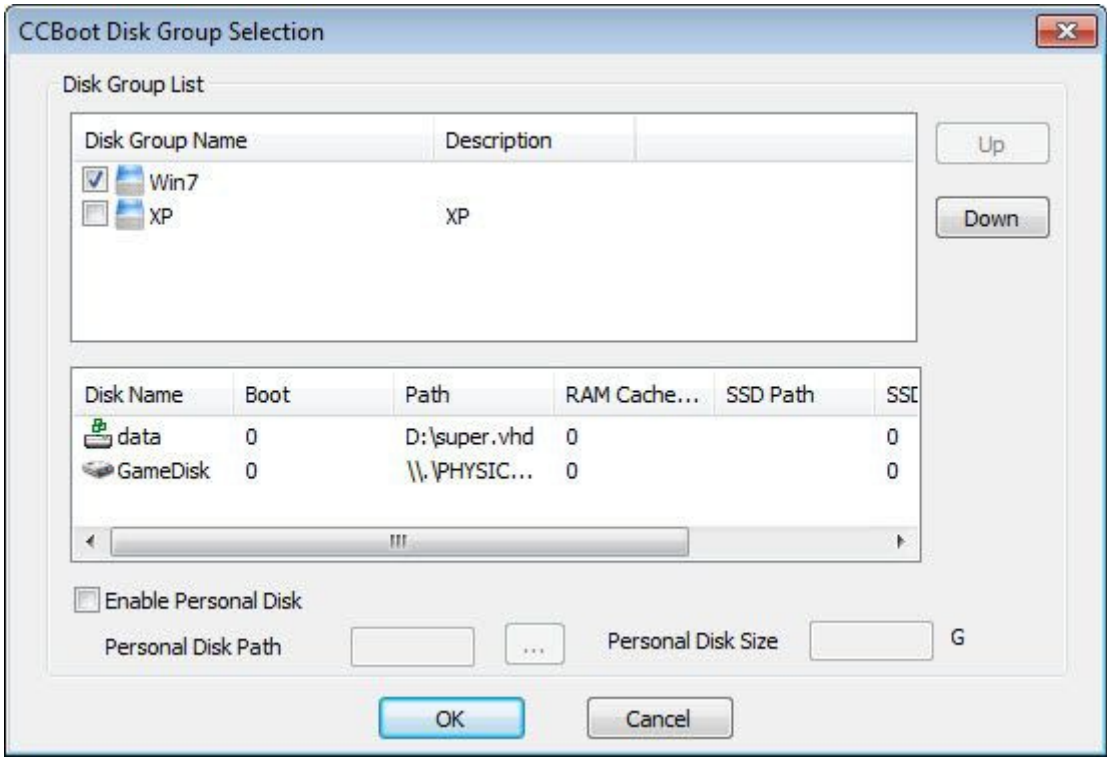


Figure 1-2

5) Fill or select a write-back location in "Write-back Path".
6) Fill gateway in "Gateway", fill the server IP address in "Boot Server Address".
7) The others keep the default value. The "Enable Cache" option, please refer to "Client Cache".
8) Click "Save".

2. Add Client Automatically

Before auto add client, you need to set a default client and all auto added client will get the default settings from that default client. You can set any already added client as the default client.

1) Click the "Options" button on the toolbar. Click the ">>" button besides the "Default User Template".

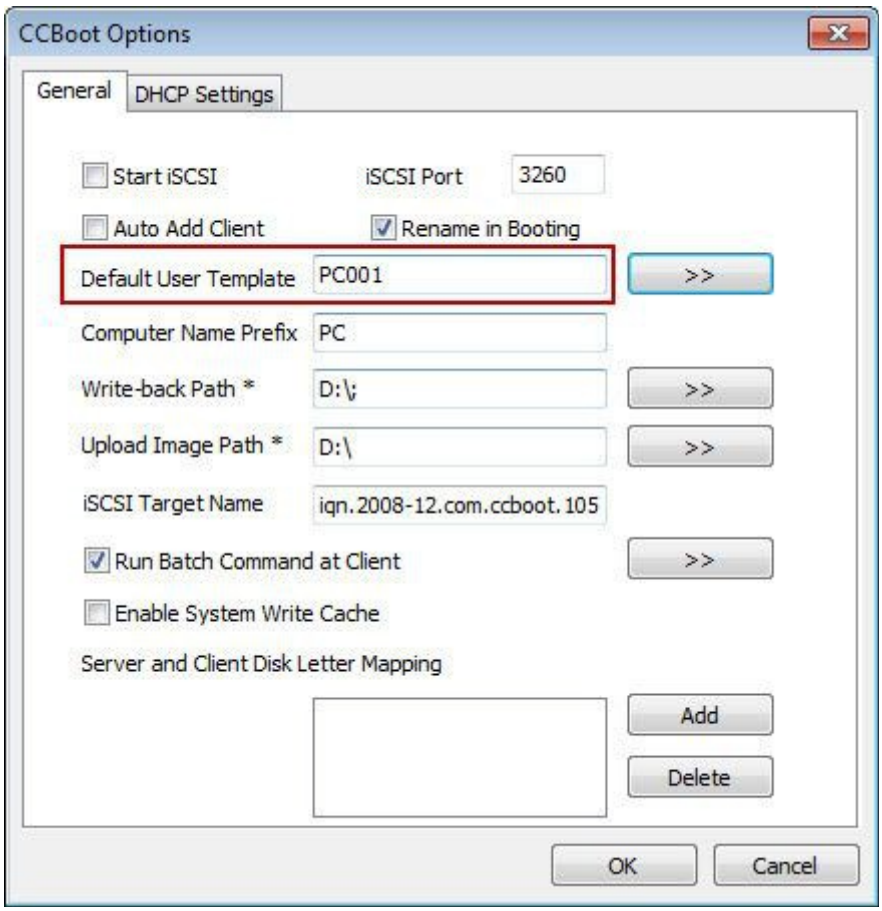


Figure 1-3

2) In the "CCBoot User List", select one proper user, click "OK". Now this user's settings will be the auto added users' default settings.

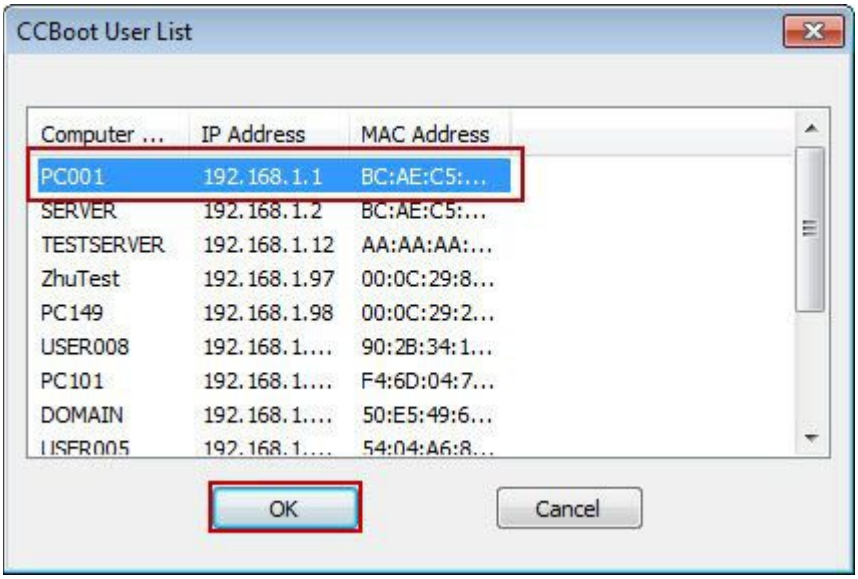


Figure 1-4

Add Client at Client PC

1) Click "Options" on the toolbar.
2) Select "Auto Add Client" and "Rename in Booting" checkbox.

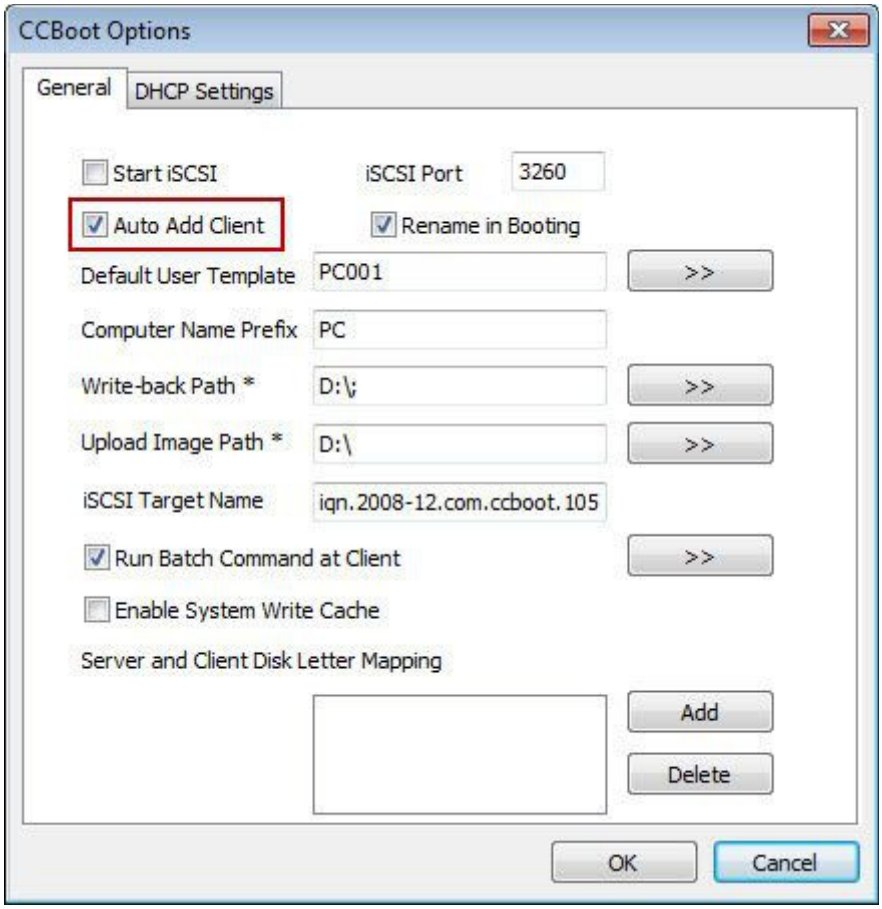


Figure 1-5

3) Now diskless boot the client, after DHCP request, you will reach this screen as below. Now you can change the Computer Name and IP Address, press "Enter" key. The client PC will reboot and boot from CCBoot again. And you will find this client has been added into CCBoot client list. It has the same settings as the Default User Template.

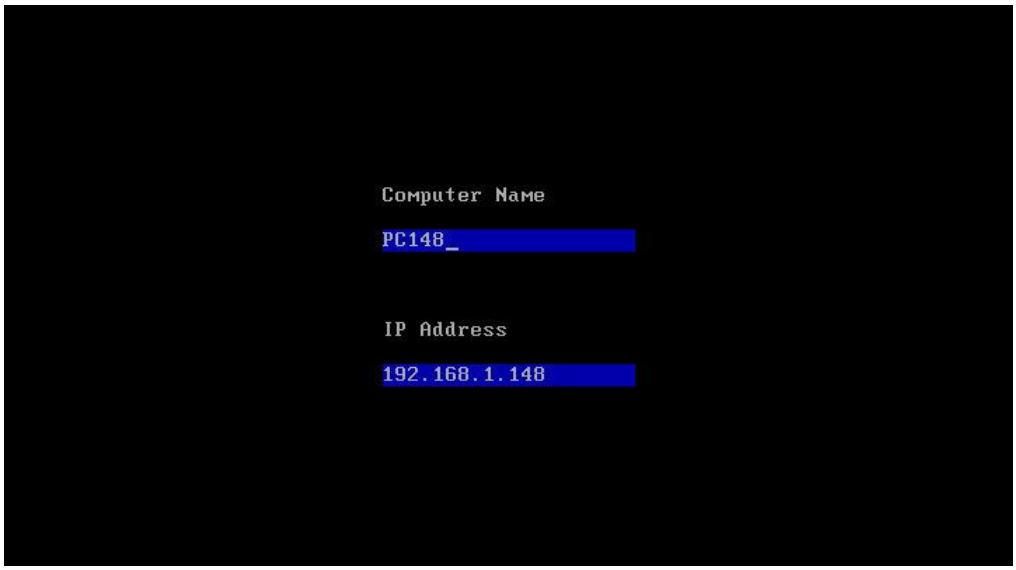


Figure 1-6

Auto Scan to Add Client

1) Select "Client Manager" node in the tree, and right click on the blank area at the right list box.

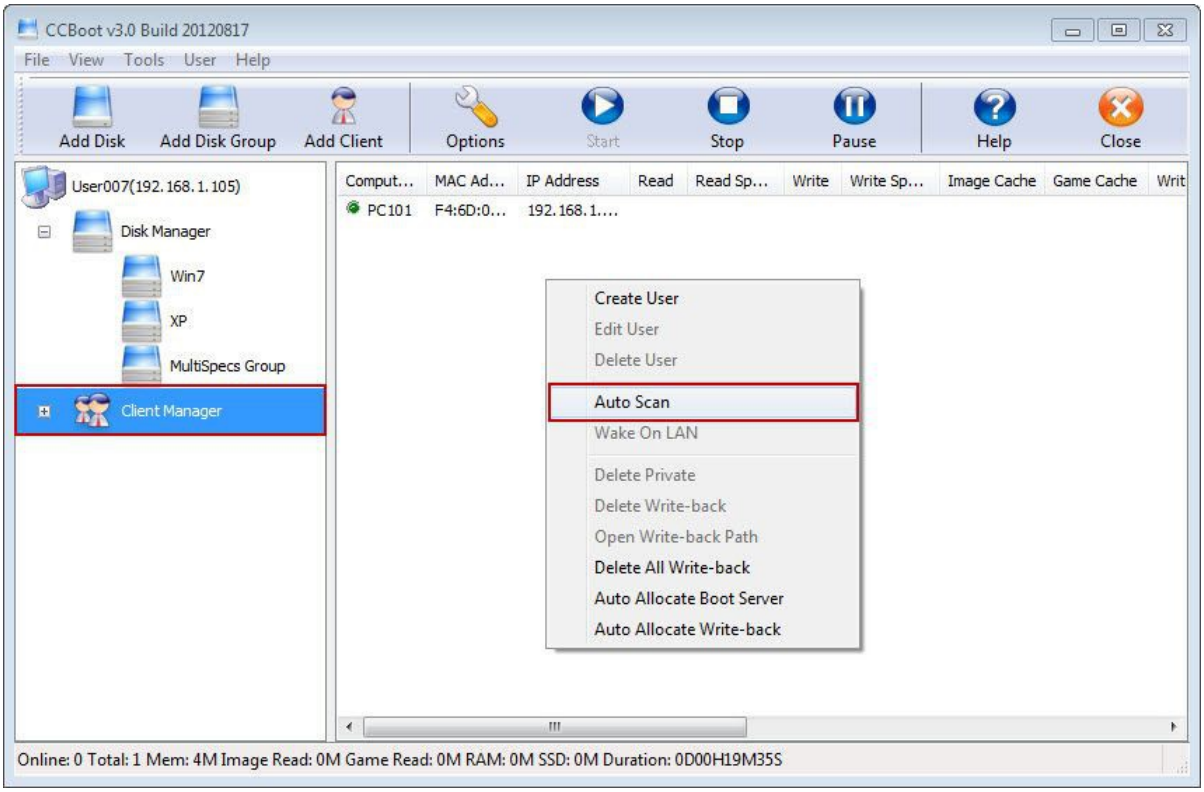


Figure 1-7

2) Select "Auto Scan" to open the auto scan window as Figure.

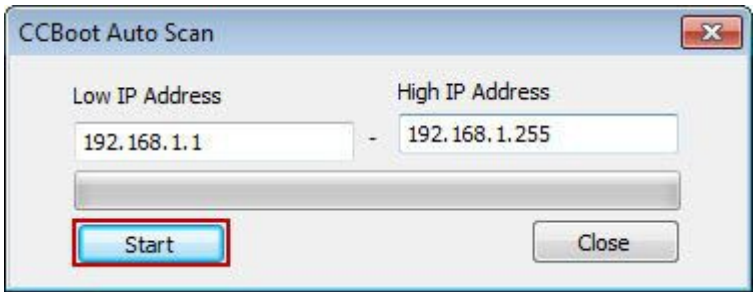


Figure 1-8

3) Set an IP range and click the "Start" button to scan all online computers in your LAN and add them to the user list automatically. All these users will also be added to the default user group automatically. They have the same settings as the Default User Template.

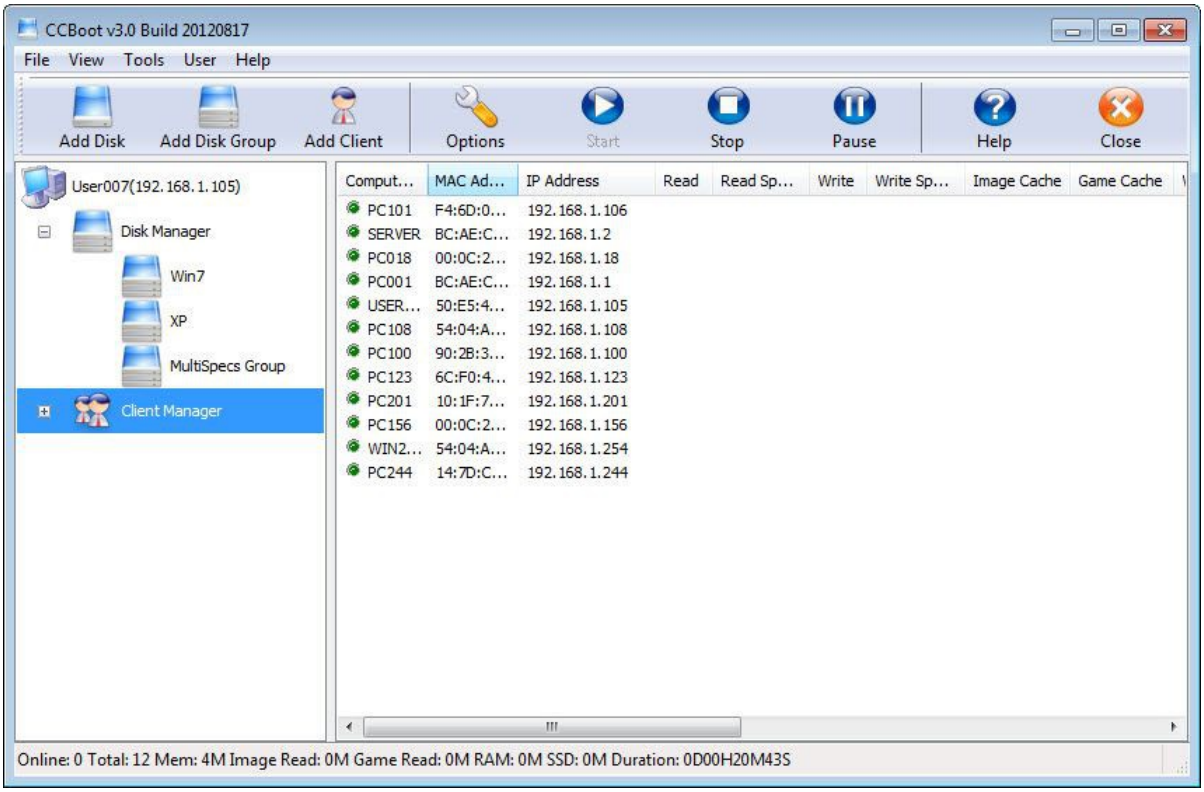


Figure 1-9

Add Client by Import from File.

1) Click "Tools" menu and select "Import Users".

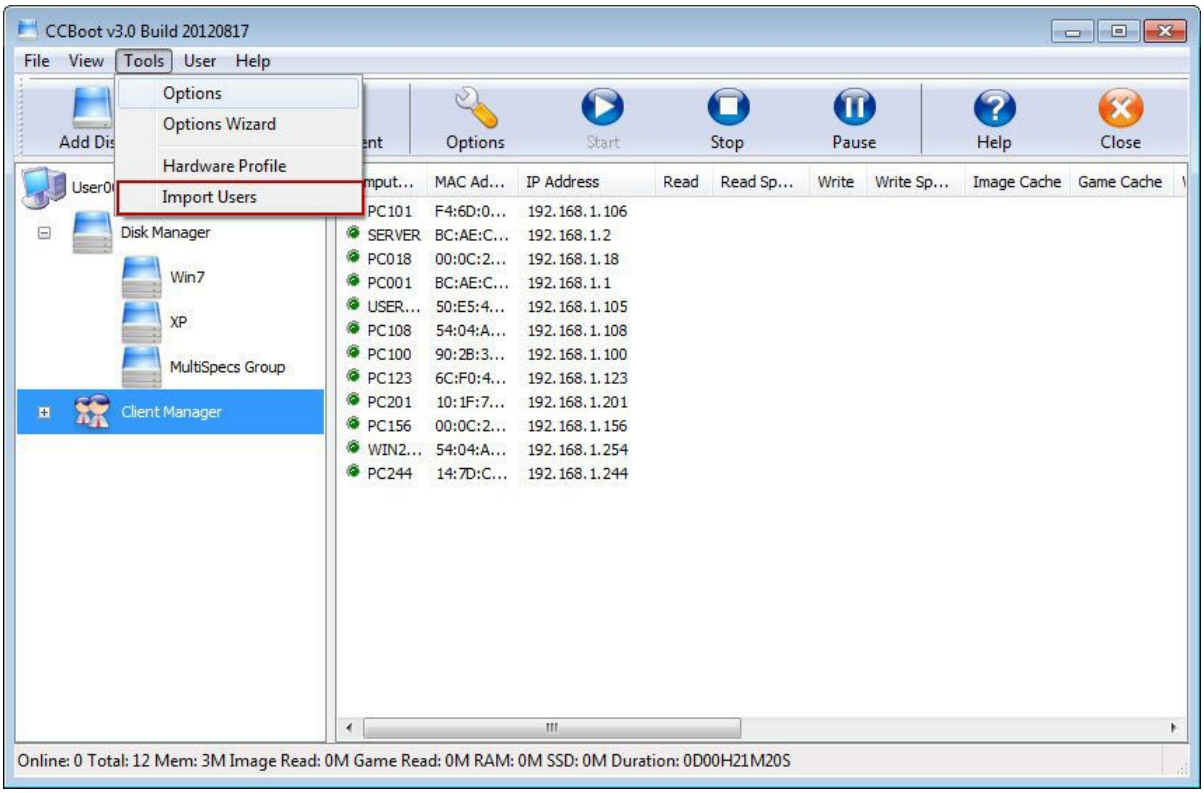


Figure 1-10

2) You can select a csv file to import the clients.

   The csv file format is

   One client information per line.

   The first column is ComputerName.
   The second column is IP Address.
   The third column is MAC Address. The MAC address should be 12 letters (case insensitive).

   The column is splitted by comma (,).

   For example:
   PC001,192.168.1.101,001C5A3CA5F1
   PC002,192.168.1.102,001C5A3CA5F2
   PC003,192.168.1.103,001C5A3CA5F3

3) After you import the csv file, all clients will be added to CCBoot and they have the same settings as the Default User Template.

3. How to delete client?

If you want to delete client, you need to click "Client Manager" node on the tree, and then delete the client from the client list on the right. If you click "Default" or other group nodes,

you cannot delete client and you can only remove client from the group.

5.3 Edit Client and Multiple Clients' Properties

1. Edit Single Client Properties

1) Click "Client Manager" node in the tree, select a specified client in the client list, and double click it.
2) And you will see the following dialog box; you can change some options as you like.

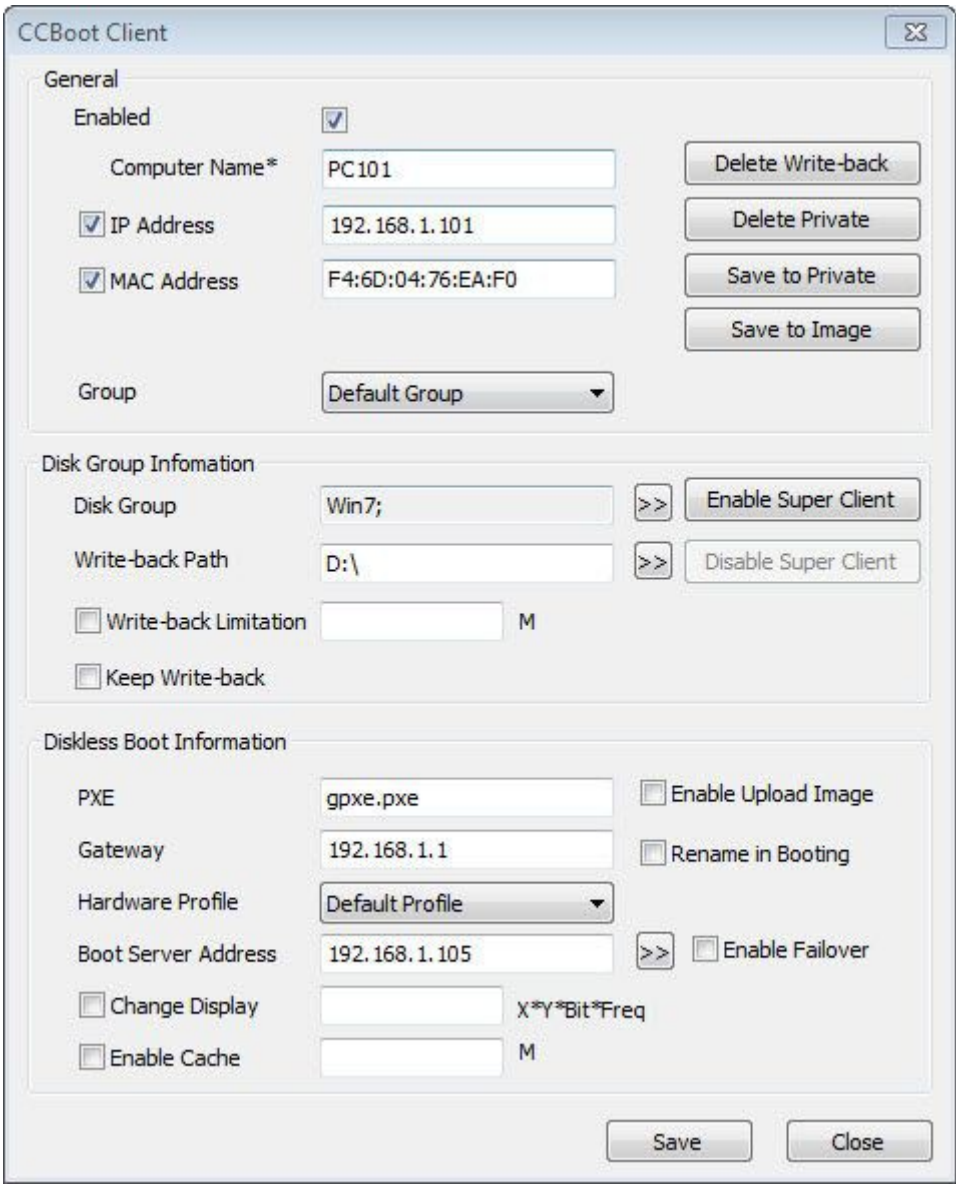


Figure 1-15

2. Edit Multiple Clients Properties

1) Select multiple clients in the client list, right click and select "Edit User".

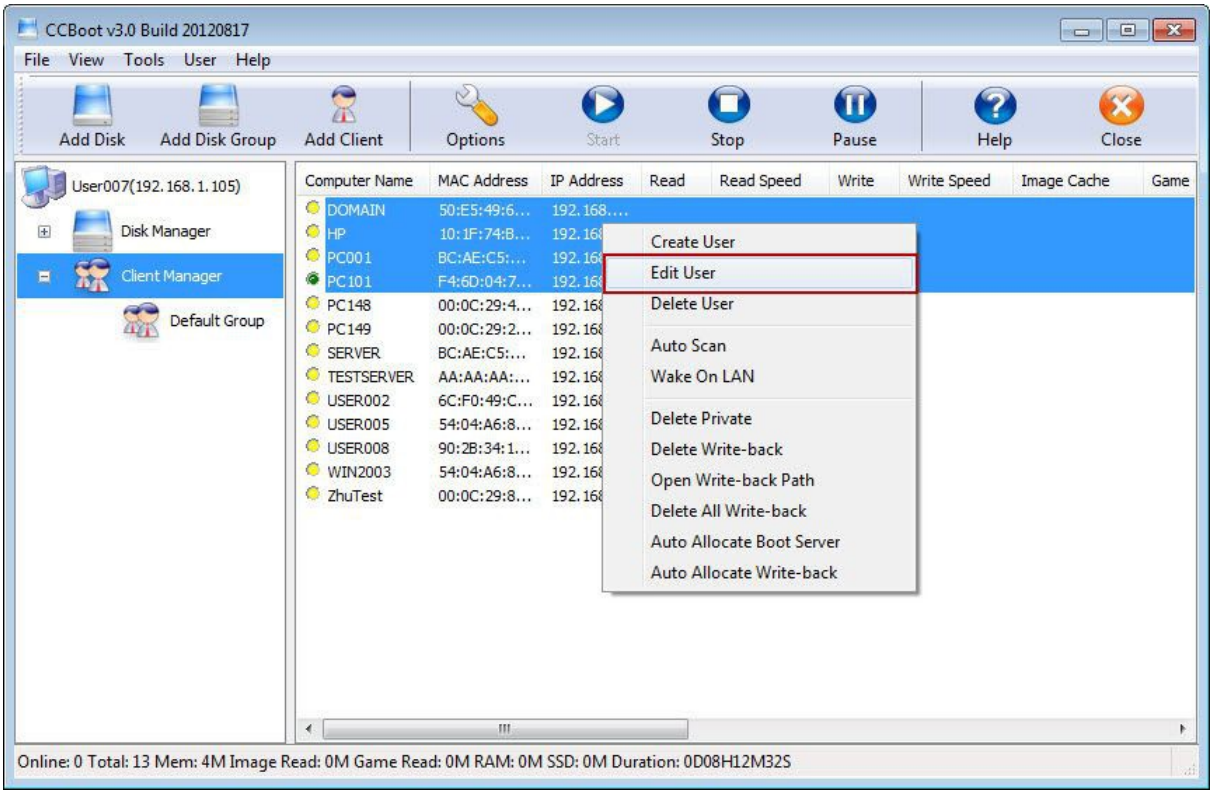


Figure 1-2

2) You will see some checkboxes before the options. That's means you can change the selected options multiple only. For example,

If you select the checkbox before the "Enable", and then select "Enable" checkbox, it will change all selected clients' "Enable" options. But the other options will not be changed.
If you select the checkbox before the "Enable Cache", it will change all selected clients' "Enable Cache" and "Client Cache Size". The other options will not be changed.

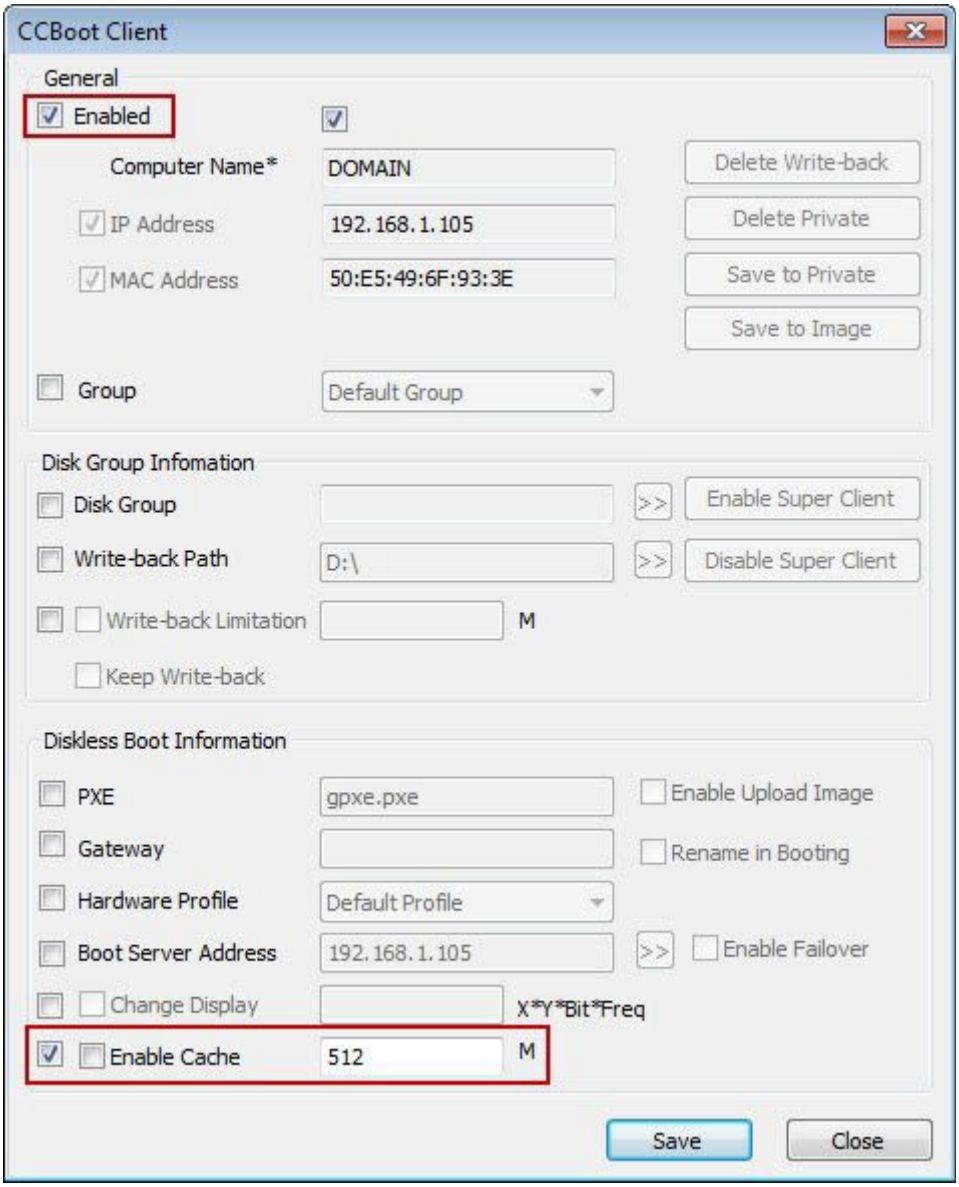


Figure 1-3

3) Click "Save" button.

5.4 Client Cache

Client cache is used for the client write data. When the client write data, it will be store into the client cache (RAM) first. Only when the client cache is full, it will store into the server. So the client cache can make better performance for the diskless client and also reduce the server load.

Comparing with server cache, the client cache is only RAM cache.

1) On CCBoot server, select the client PC, right click and choose edit to open the

window as below.

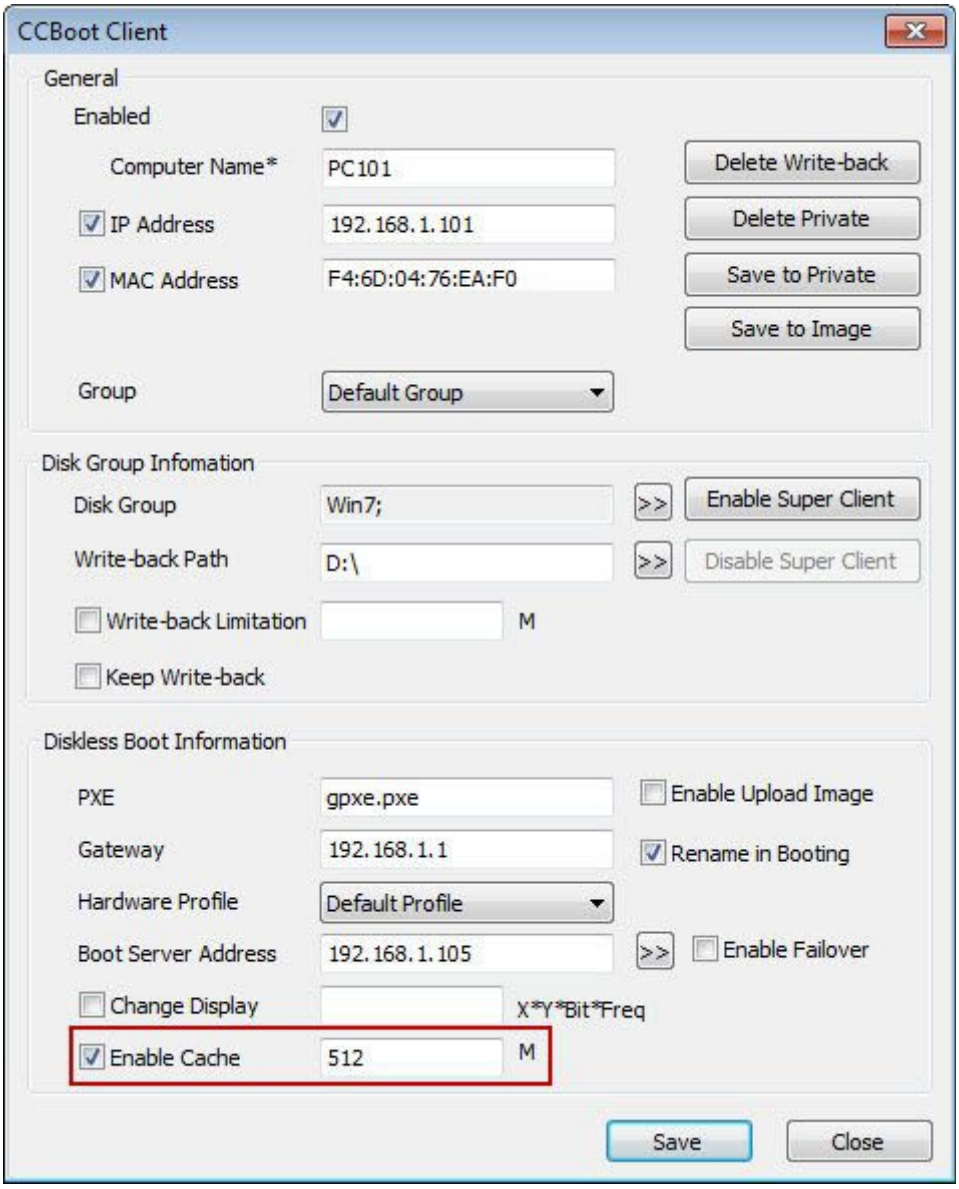


Figure 1-1

2) Select "Enable Cache"; fill the proper number in the edit box. Please refer to the following table.

Client Physical RAM	Client Cache
1G	256M
2G	348M or 512M
4G	1024M

Recommended Client Cache

3) Click "Save".

Notes:

1) If any one of the "Keep Write-backFile", "Enable Upload Image" and "Super Client" options checked in the client properties, the client cache will be unavailable.
2) Sometimes, the client cache will cause blue screen when boot Windows. You can update the image by three methods.

a) Reduce the client cache size. If still failed, try method b.
b) Reinstall CCBoot Client with select "Start Cache after Login Window".
c) Disable the client cache.

Advanced Client Cache

If the client OS is 32bit, then the unmanaged RAM can be used as client write cache. For details, please refer to "Unmanaged RAM as Client Write Cache".

5.5 Client Group Management

CCBoot client group is just used to distinguish the clients easy. There are no group properties yet. For example, you have AMD and Intel PCs on your icafe, and you want to check the clients easily. You can define two groups - Intel and AMD. Add the clients to their correspond groups. In default, all clients are in the "Default" group.

1) On the CCBoot main interface, right click the "Client Manager" to create a new users group.

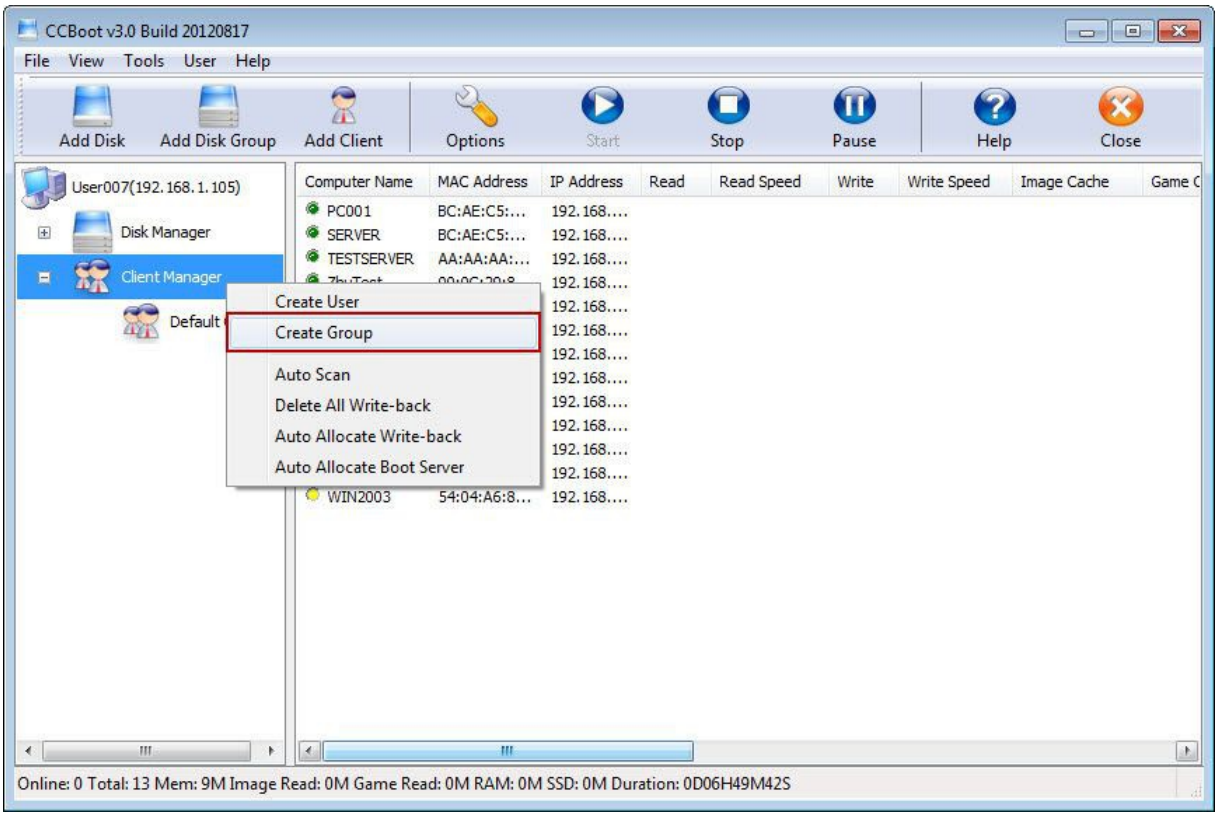


Figure 1-1

2) Input Group Name and Group Description in the popup dialog box, click "Save" button.

Figure 1-2

3) The "Intel" group that created just now will display in the tree. Select the "Intel" node, right click and select "Add User to Group".

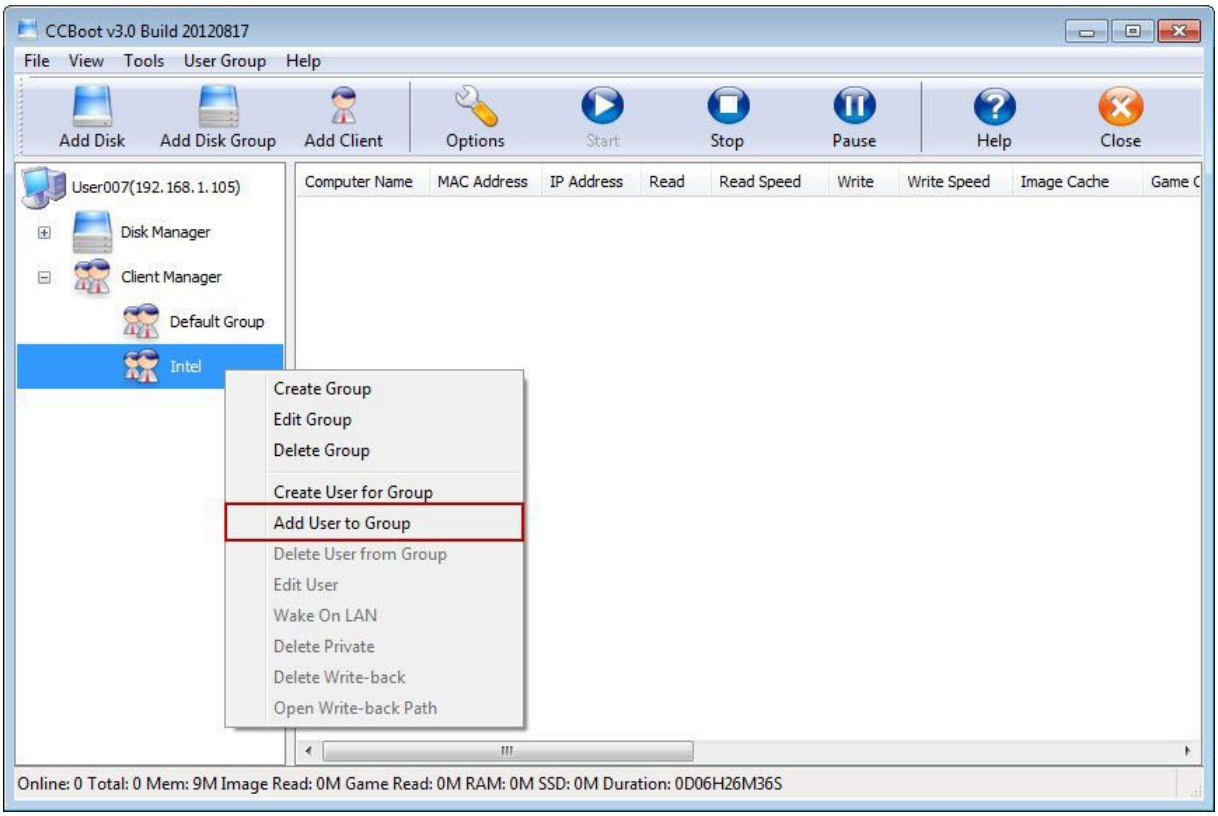


Figure 1-3

4) In the popup dialog box, you can selected the clients and add them to the group. **Notes:** One client can only belong to one group. If you add one client to this group, it will be removed from its original group.

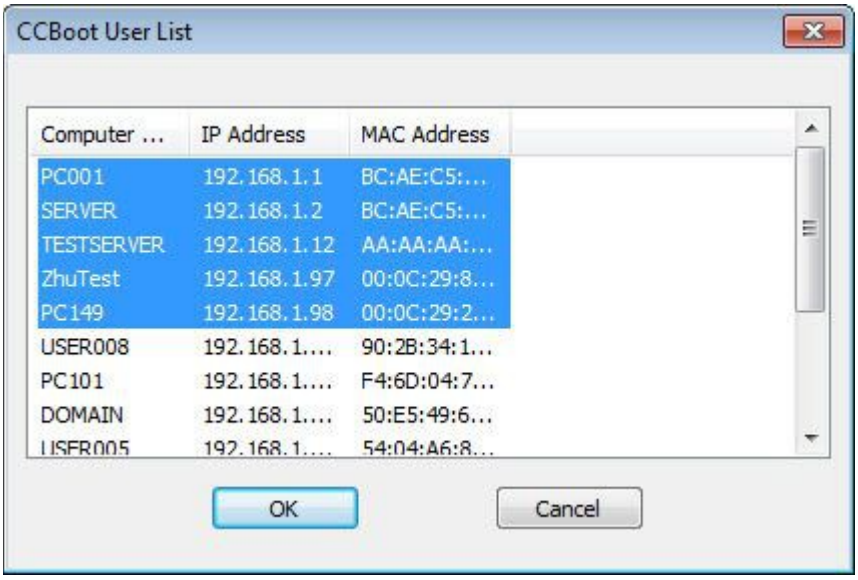


Figure 1-4

5) If you want to remove the clients from one group, just click the group in the tree, and select the clients in the client list, right click and select "Delete User from Group".

Notes: this operation just removes users from the group, not delete them. The removed users will go to the default group.

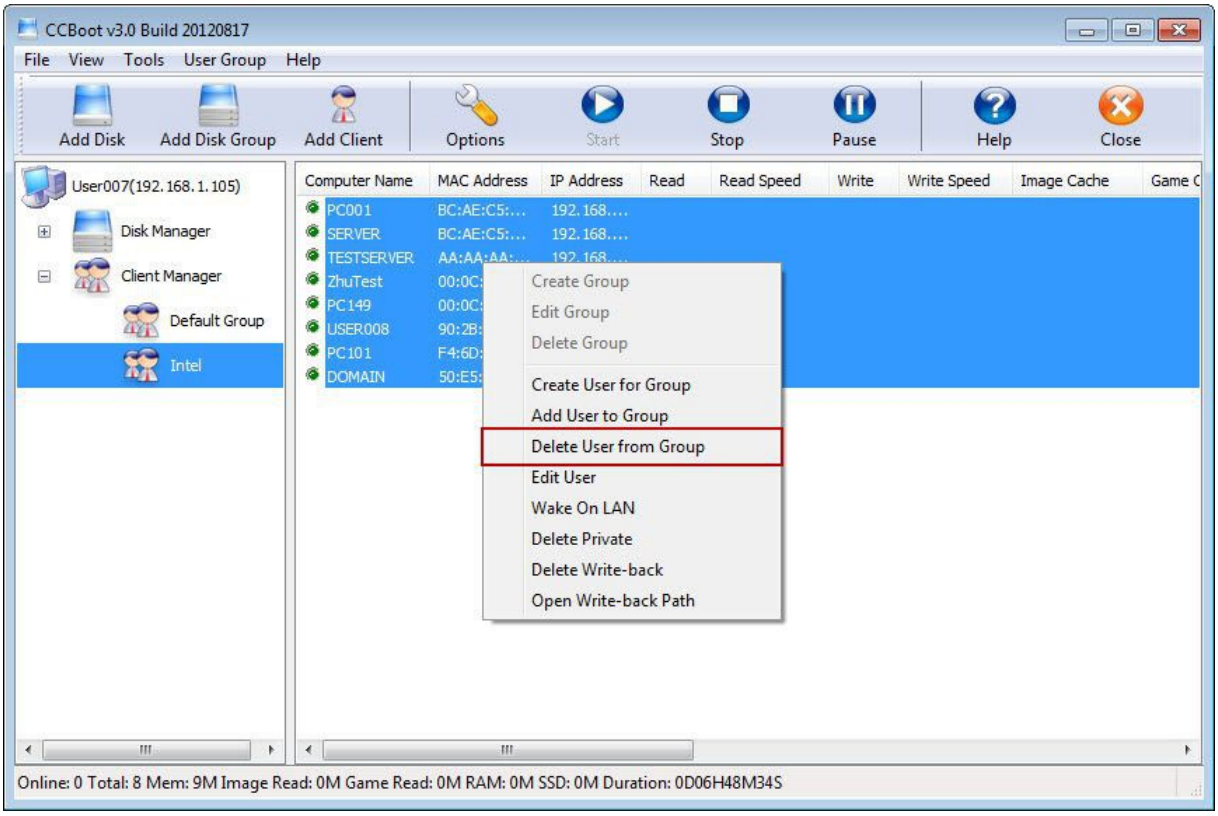


Figure 1-5

5.6 Unmanaged RAM as Client Write Cache

In 32bit OS system, you can only use 3.25G RAMS even your PC have 4G RAM. It's the 32bit system's limitation. The system can only recognize the 3.25G RAM and we call the rest memory as "Unmanaged Memory".

There is about 750M memory is waste. In CCBoot system, we can use the unmanaged memory for client write cache.

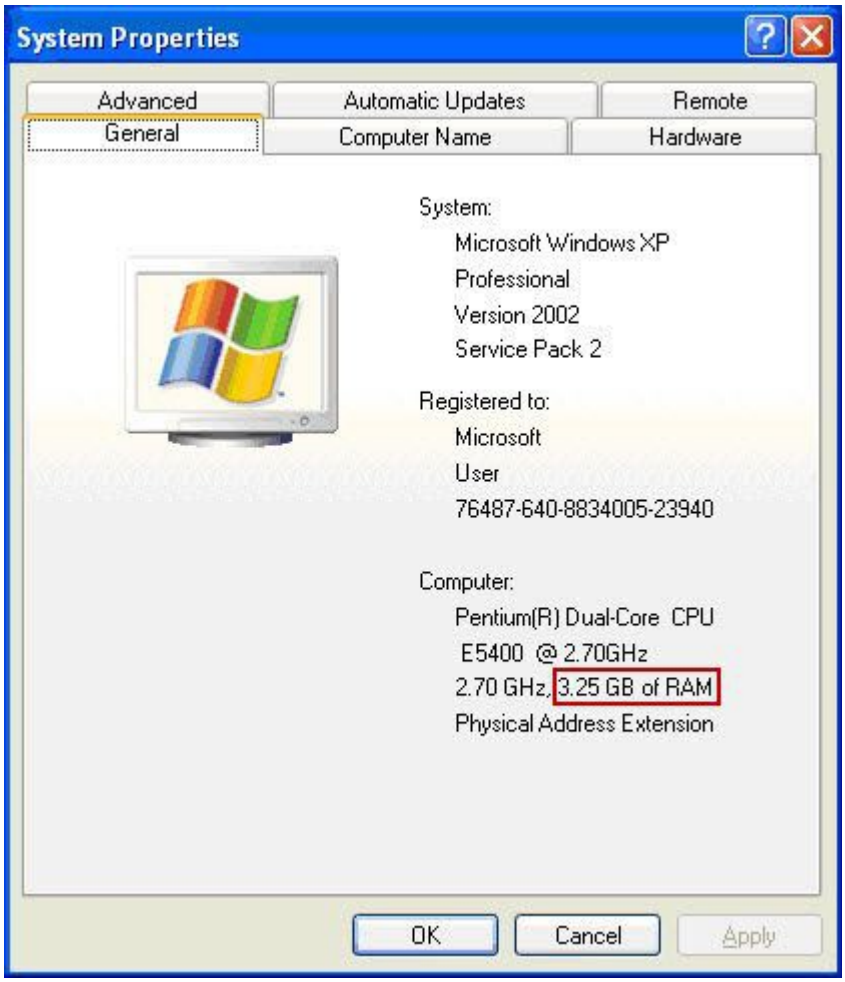


Figure 1-1

Requirements:

1) The client PC should have 4G or more RAM.
2) Not all motherboards support this function. If there is option named "memory mapping hole" in BIOS, please enable it.
3) This function is only valid in 32bit system. Cannot use it in 64bit system.
4) If you are using Windows 7 32bit OS, you need to run "cmd -> bcdedit /set PAE ForceEnable" with administrator permission to enable large memory access.

For example, PC101 has 4G RAM.

1) Enable super client in PC101 properties in CCBoot server.
2) Diskless boot PC101, click "Start" menu -> "Run" -> input "regedit", press "Enter" key.
3) Locate to \HKEY_LOCAL_MACHINE\SYSTEM\CurrentControSet\Services\CCache\Parameters
4) On the right list, double click "4G".

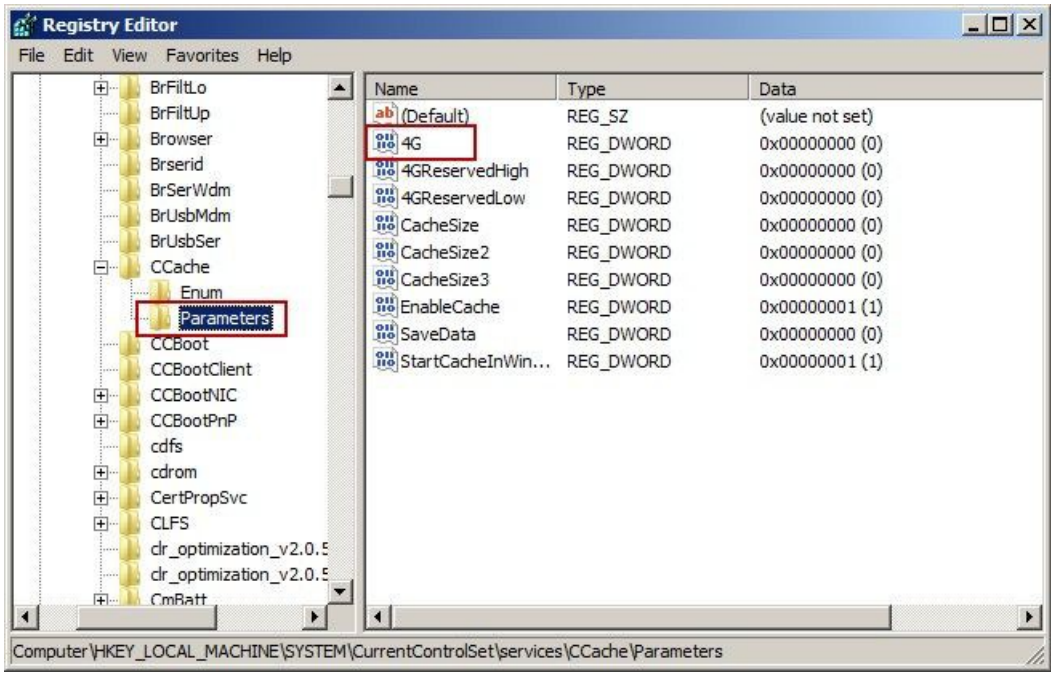


Figure 1-2

5) In popup "Edit DWORD (32-bit) Value" Dialog box, input "1" in "Value data", click "OK".

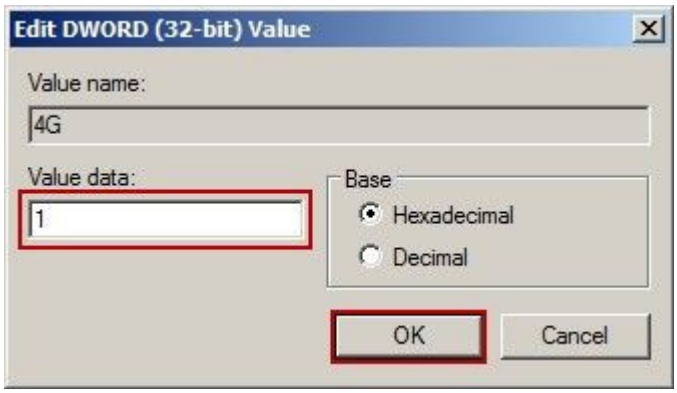


Figure 1-3

6) In the right list, double click "4GReservedLow"， in the popup "Edit DWORD(32-bit) Value" dialog box, input "100" in the "Value data", click "OK".

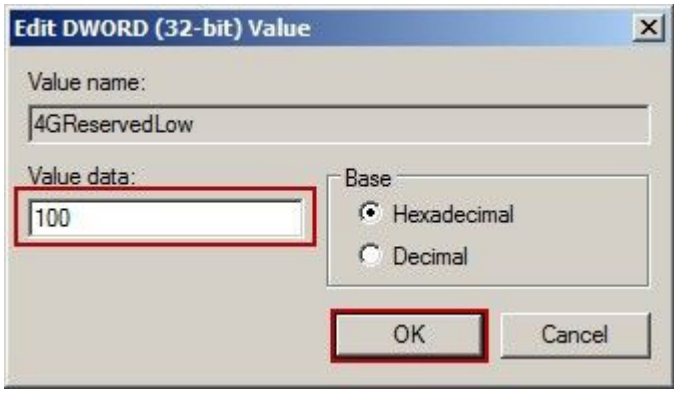


Figure 1-4

7) Close registry editor.
8) Shutdown the client PC and disable super client in the PC101 properties.

5.7 View the Client Local Cache Usage

CCBoot server can set local cache. (Please refer to the help document "Client Cache"). Sometimes, we want to check the client write cache usage.

After diskless booting the clients, open CCBoot client interface, you can view the client's local cache usage.

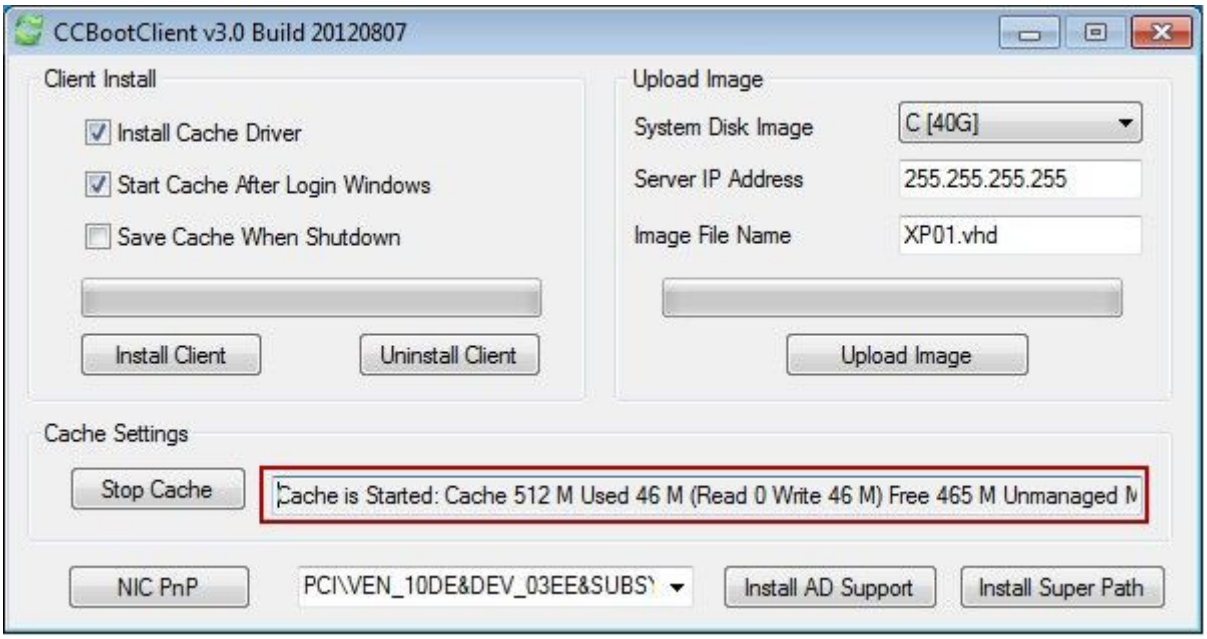


Figure 1-1

1) "Cache is started": Cache is already in effect.

2) "Cache 512M": Indicates that the client sets the local cache size is 512M.
3) "Used 46M": Represents a client local caching, use 46M.
4) "(Read 0 write 46M)": Represents a client, 0M read cache, write cache using 46M.
5) "Free 465M": Indicates that the client does not use the 27M local cache.
6) "Unmanaged Memory (0-0)": CCBoot client can use the unmanaged memory as the client write cache. The unmanaged RAM size equ this two values plus. (For more information, please refer to "Using Unmanaged Memory as Client Write Cache"). For example, "Unmanaged Memory"(4352 M - 5120 M) means CCBoot client can use 5120-4352=768 M unmanaged memory as client write cache.

6 Create Boot Image

6.1 Standard Method to Create Boot Image

You can use many methods to create boot image. Here is the standard method to create boot image. Please follow the steps at below:

1) Choose one client PC as master PC and install HDD. If you have many different specifications PCs, please choose the advanced one. For example, the motherboard is the update-to-time.
2) Allocate a small partition for C: from the HDD and leave the rest as unallocated. If the partition is big, the image uploading will be long time. For example, 40G for XP and 100G for Win7. Please format C: to NTFS and default cluster size. Notes: When you install Win7 with DVD, it will allocate a 100M hidden partition if the HDD is not formatted. CCBoot cannot boot it if there is 100M hidden partition. So please format C: first.

Note: If you want to use Windows 7 or Windows 8 as client OS, when installing OS, you need to connect the boot disk to the SATA0 interface of the mother board. If you are not sure which is the SATA0 interface, you can remove other hard disks on the client, just leave one HDD for installing OS. The reason is that, on Windows 7 and Windows 8, the boot data will always be written to the hard disk which is connected to the SATA0 interface. If the HDD on the SATA0 interface is not the boot disk, the client will be failed to boot from that image. Because CCBoot only uploads the boot disk data.

3) Install the client OS system. CCBoot client supports Windows XP, Windows 2003, Vista, and Windows 7, Windows 2008 and Windows 8 (We have created a video - "How to Diskless Boot Windows 8 with CCBoot v3.0"). Both 32-bit and 64-bit are supported.
4) Install the latest patches of Windows even the service patches are installed. (DO NOT skip this step)
5) Only install the motherboard chipset drivers and NIC driver. Can the image be compatible with most specifications. If you install all device drivers, the image maybe conflict with other specifications. We can install other devices' drivers in diskless boot with super client.
6) Open the local area connection network properties (Figure 1-1).

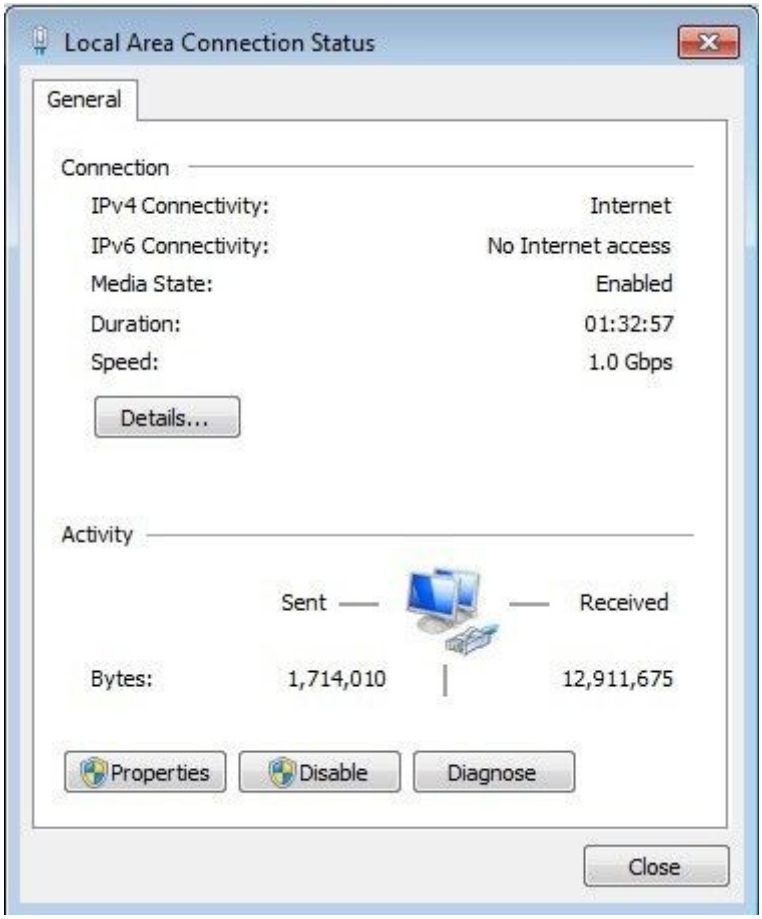


Figure 1-1

7) Click "Properties". Please uninstall "QoS Packet Scheduler" (Figure 1-2).

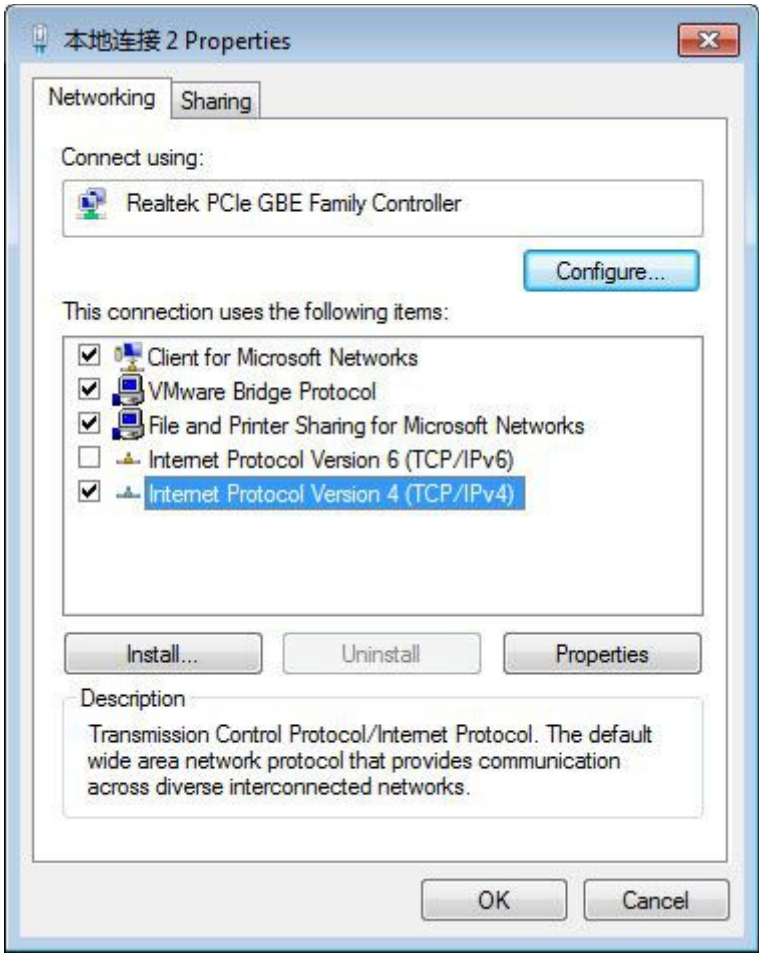


Figure 1-2

8) Select "Internet Protocol (TCP/IP)" and click "Properties".
9) Select "Obtain an IP address automatically" and "Obtain DNS server address automatically", then click "OK" to save (Figure 1-3).

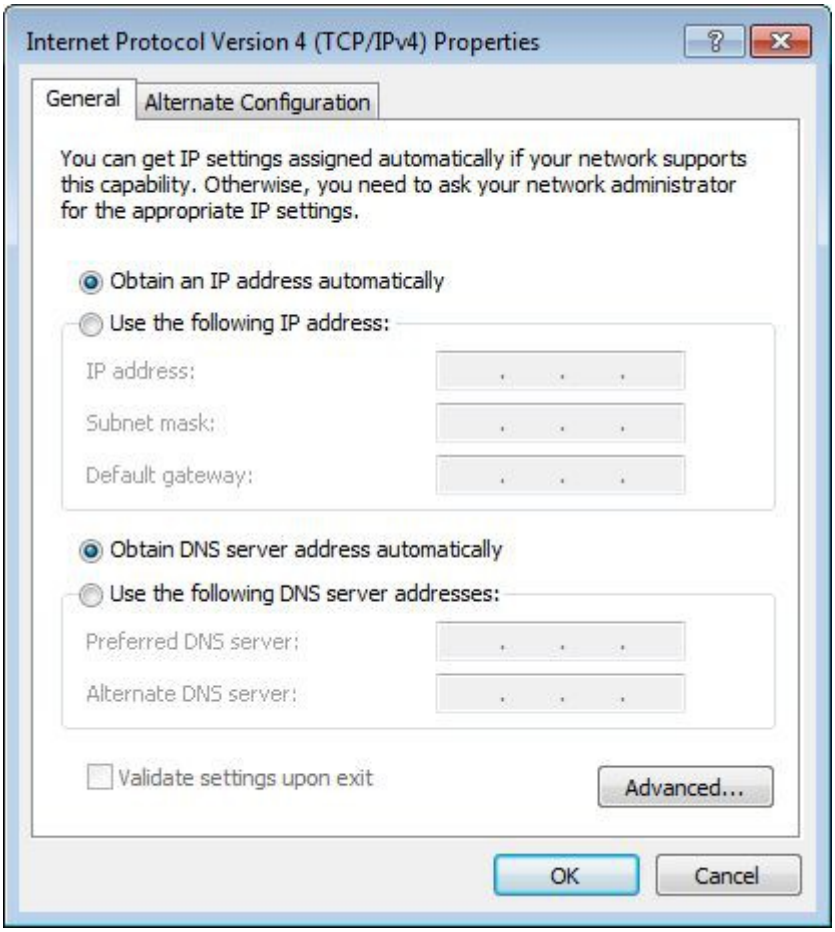


Figure 1-3

10) Download CCBoot client installation package from http://www.ccboot.com/download.htm. Launch ccbootsetupclient.exe and keep pressing the next button to the end. Then launch CCBoot client and you will see the main interface as below (Figure 1-4). Note: If you have wireless card or multiple NICs, just leave the NIC used to boot from LAN, and disable the other NICs in Device Manager before installing CCBoot client, and then upload the image.

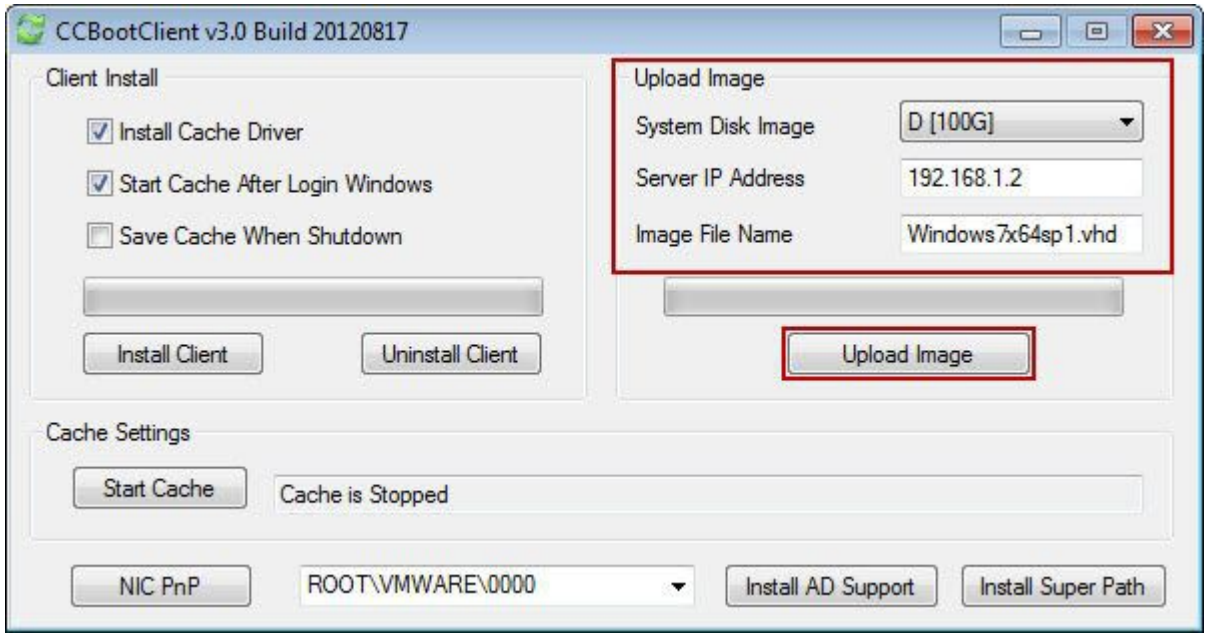


Figure 1-4

11) Press the "Install Client" button. After finished, it will require reboot system. Reboot the client PC. Please use command "ipconfig /all" to get the client IP address.
12) Now go to server. On the CCBoot server you will find the client in the client list (Figure 1-5) that was added by CCBoot automatically when the client PC got IP address from the CCBoot DHCP service. If there are multiple clients in the list, please identify the client by the IP address.

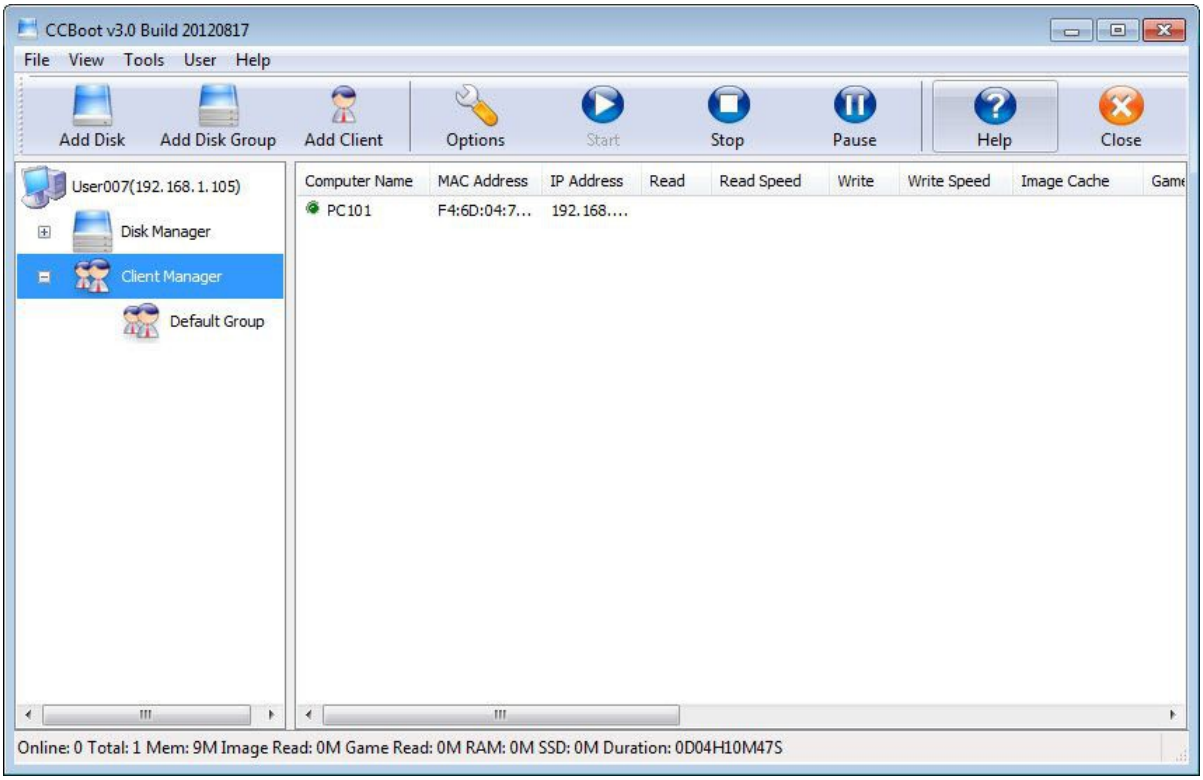


Figure 1-5

13) Double click the client to edit and check "Enable Upload Image" (Figure 1-6), and press "Save".

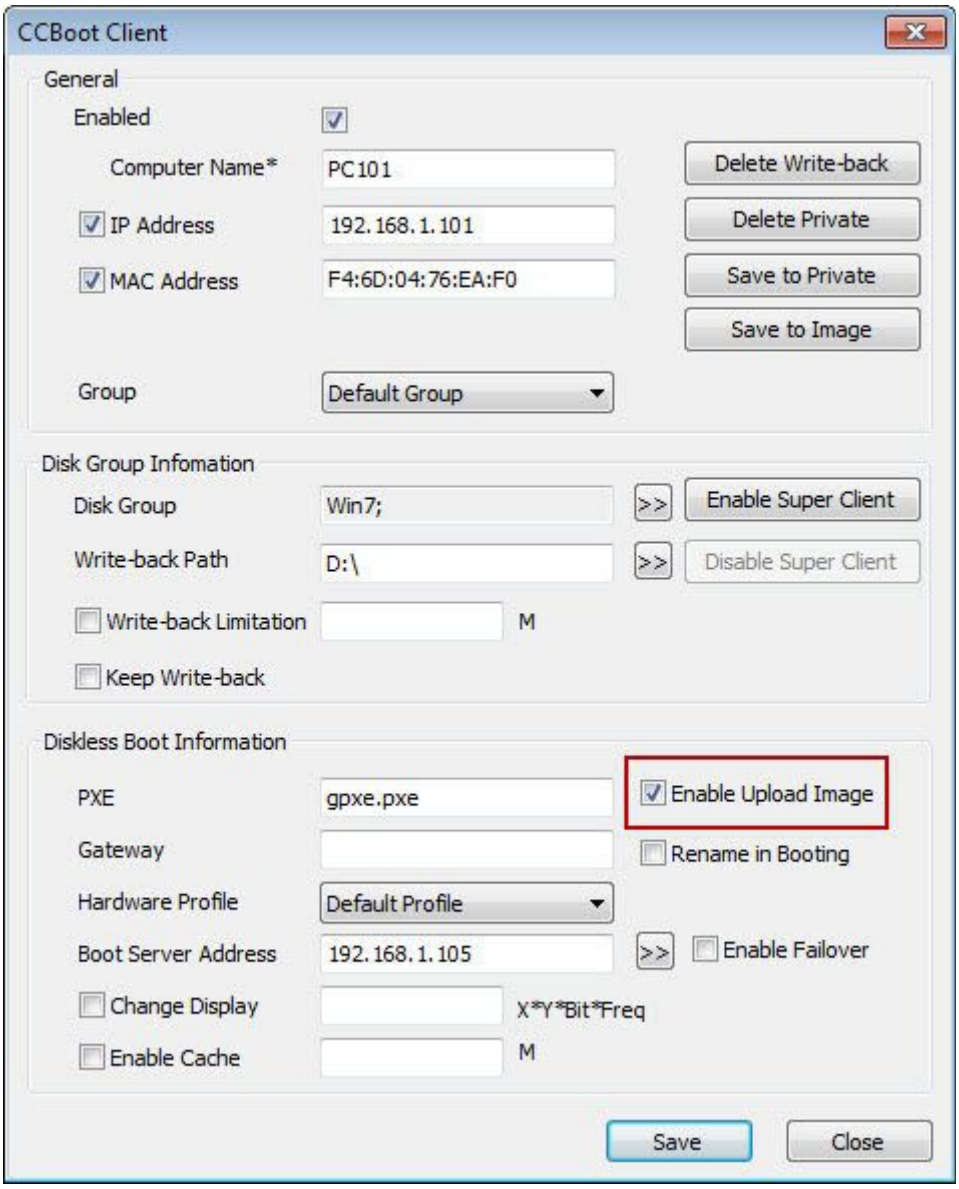


Figure 1-6

14) Now go to the client PC, launch CCBoot Client again, click "NIC PnP" button. (This step is optional)
15) On the "CCBootPnP" dialog box, click "Install Known NIC" button, you will get a NIC driver list. Please check "Select All", click "OK" to install (Figure 1-7). **(This step is optional)**

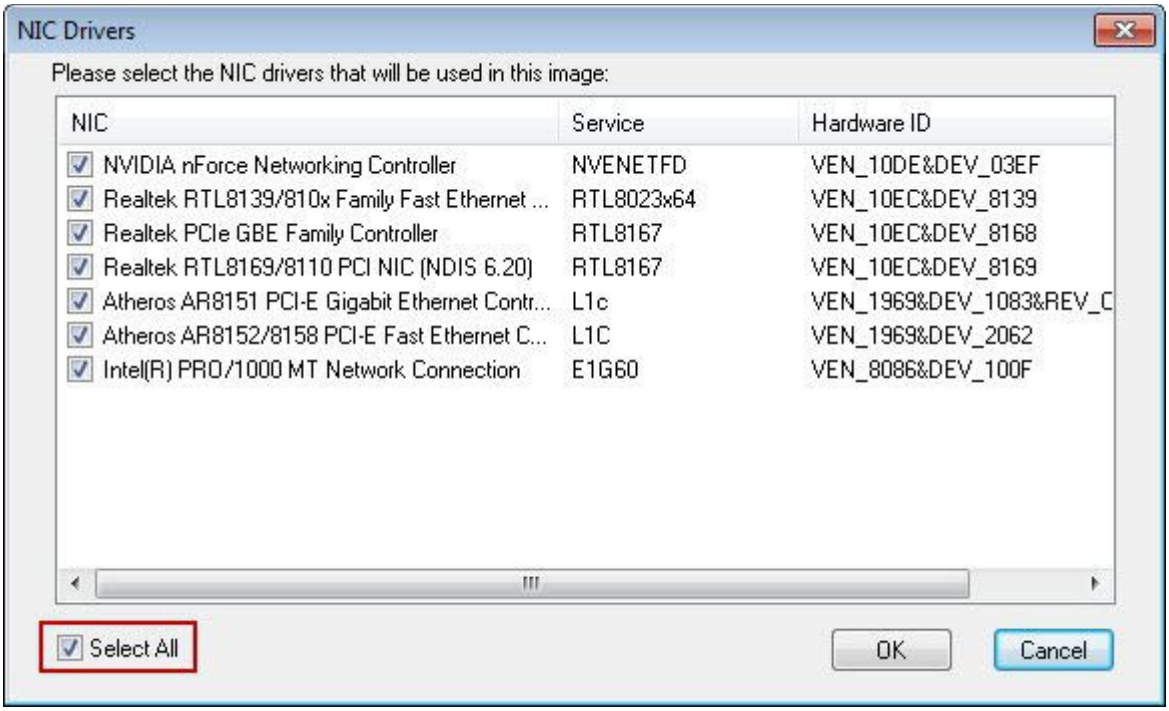


Figure 1-7

16) Input the server IP address in "Server IP address", it should be the IP address of the CCBoot server has been located. Input the image file name as you wish in the "Image File Name". Press the "Upload Image" button to upload the image to the CCBoot server (Figure 1-8). Note: CCBoot supports two types of image file formats - VMDK and VHD. The image file format depends on the file extension you have set for the "Image File Name". For example, if you set "XP01.vmdk" as the "Image File Name" , it means you will use "VMDK" image file format, while if you set "XP01.vhd" , it means you will use "VHD" image file format. We recommend you using VHD format.

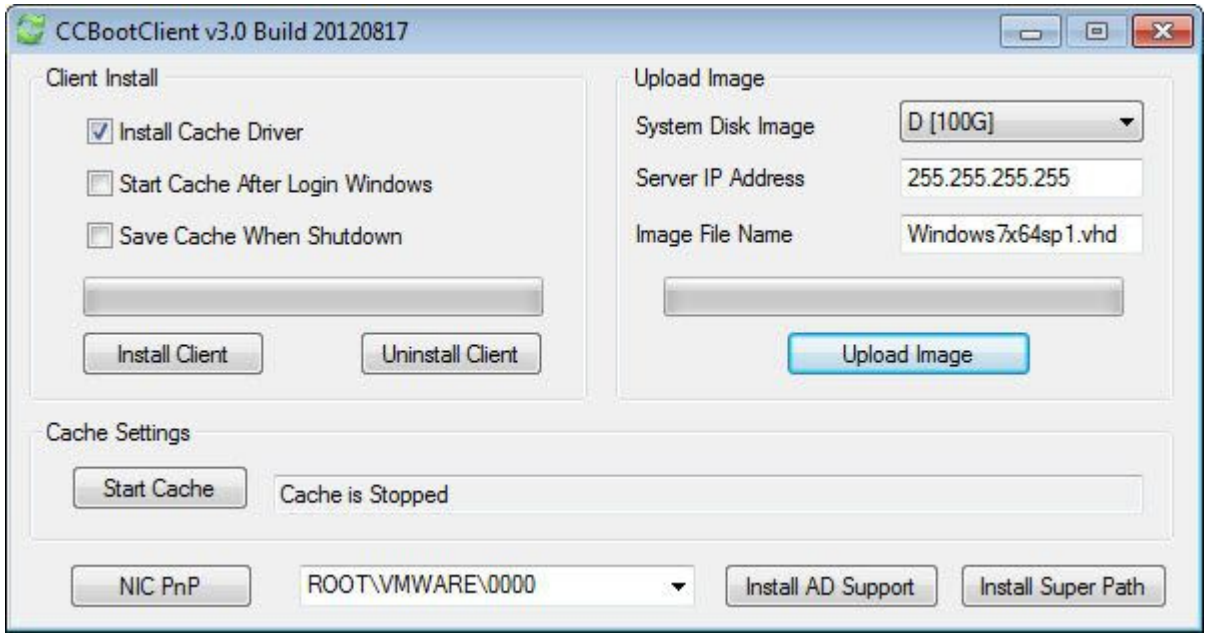


Figure 1-8

17) In the popup "Start Upload Image?" dialog box, click the "YES" button. Then CCBoot will create a boot image in the server "Image Save Path". Notes: If you get message like "You don't have grant write permission right to the client", maybe your client IP is get from other DHCP service and not listed in the CCBoot server, please make sure that there are no other DHCP services on the LAN. Or, please try to set static IP address for the client, and scan this client IP address on CCBoot server, then upload image.
18) If the client OS system is Windows XP, it will pop up dialog box "Upload Pagefile.sys?". Click the "NO" button (Figure 1- 9). The client will not upload C:\pagefile.sys to the server.

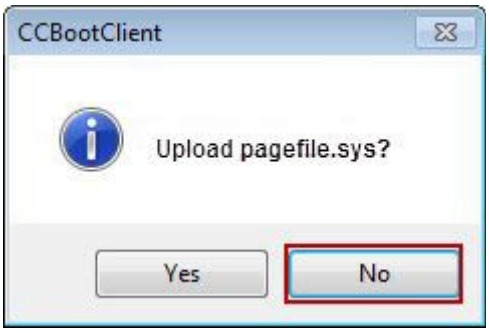


Figure 1- 9

19) The image uploading will start, please wait until the upload is completed, and shutdown the client after the image is uploaded.

6.2 CCBoot Client Interface

CCBoot Client Installation Interface.

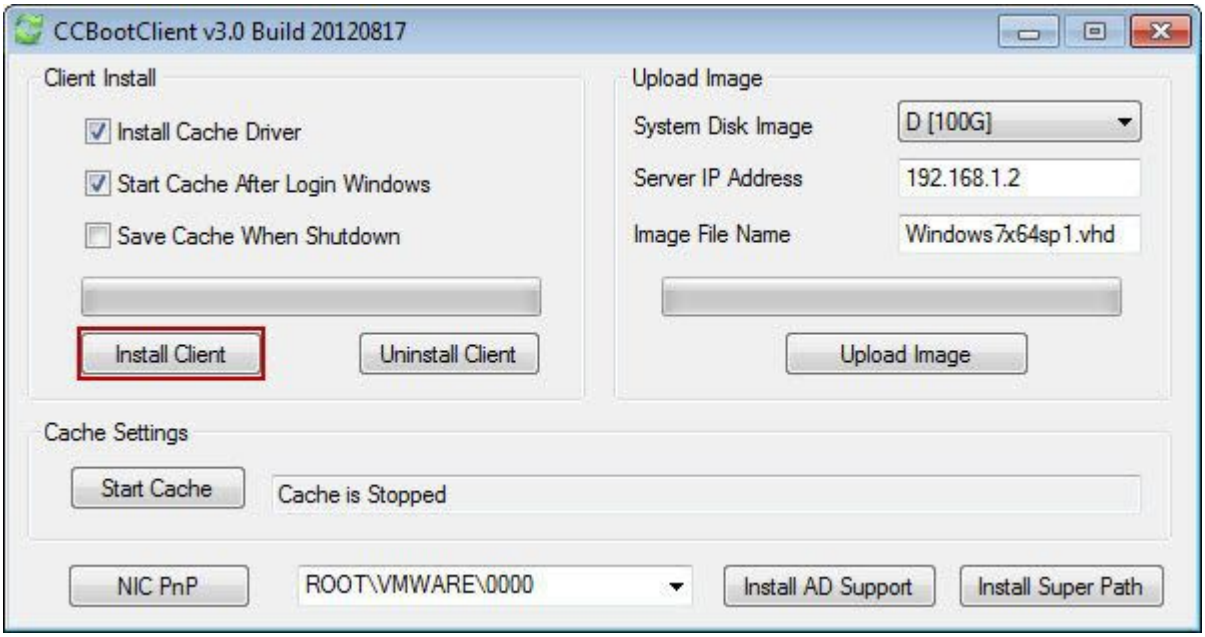


Figure 1-16

Install Cache Driver: Select this check box, and click "Install Client" button, to install client cache driver. Otherwise, the client cache driver will not be installed.
Start Cache after Login Windows: Client starts caching mode, If this checkbox is checked, the client will start caching function after go to the desktop; Uncheck this check box and the client will start caching function before enter the desktop.
Save Cache When Shutdown: If checked this checkbox, the client cache data will be saved to the server.
Install Client:To install all components for diskless boot.
Uninstall Client: Click the "uninstall client" button to uninstall some CCBoot client drivers.
System Disk Image: Select the system OS drive. Normally it's C:.
Server IP Address: Input the CCBoot Server's IP address.
Image File Name: The boot image file name.
Upload Image: Click the button to upload the image to the server, while uploading the image it will display a progress bar.
Start Cache: Displays if the cache is turned on and its cache usage.
NIC PnP: In the right side of the list box you will see the client PC NIC driver information, click the NIC PnP "button, to show all CCBoot NIC driver package.
Install AD Support: Click this button to enable domain function.
Install Super Path: Click "Install Super Path" button if it's required, (Please refer to help

document about "Super Path").

6.3 Using VMware to Create Boot Image

VMware is virtual machine software. You can use VMware to create CCBoot boot image.

1) Install VMware Workstation on a computer.
2) Create a virtual machine in VMware.
3) Install Windows system in the virtual machine, named it as "Windows 7 x64" and optimize the system if it's necessary.
4) Install the CCBoot Client software and then restart.
5) Shutdown virtual machine.
6) Open the virtual machine settings, click "Hardware" tab, you can find the Disk file is "Windows 7 x64.vmdk".

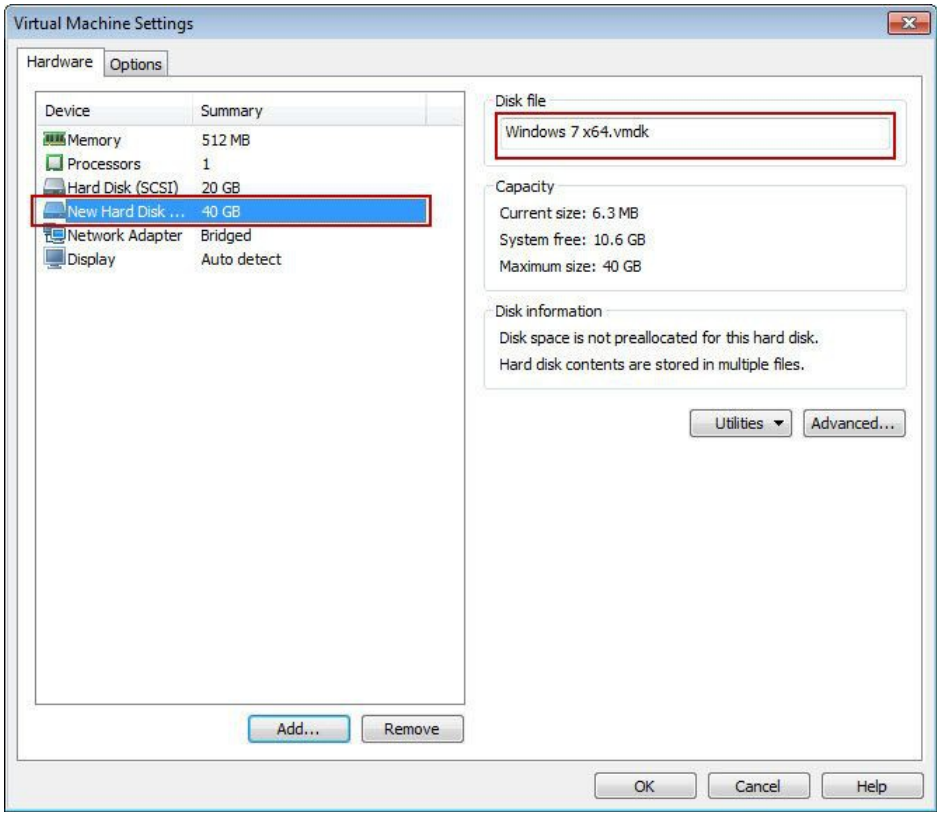


Figure 1-1

7) Click "Options" tab, find "Working directory" is "D:\Virtual Machines\Windows 7 x64". Now you can go to "D:\Virtual Machines\Windows 7 x64" and find disk file "Windows 7 x64.vmdk".

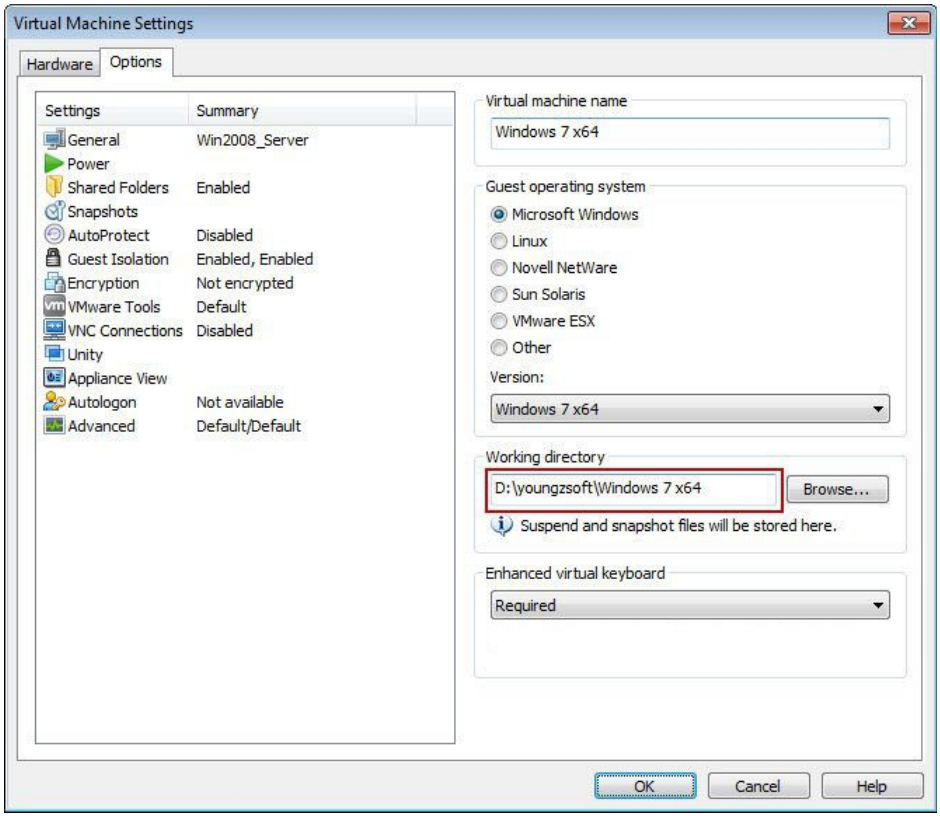


Figure 1-2

8) Now the "D:\Virtual Machines\Windows 7 x64\Windows 7 x64.vmdk" can be used as boot image directly.
9) Normally, we recommend using VHD file format image. You can use "VMDK2VHD" to convert vmdk to vhd file. Please refer to "Convert VMDK to VHD".

6.4 Using Ghost to Create Boot Image

1) Install Windows system on the master PC that installed HDD.
2) Install CCBootClient.
3) Using DOS version of Ghost backup the drive C: of the master PC to image.gho. (You can use WinPE boot the client to run Ghost or other method to run Ghost)
4) Copy the image.gho file to the Windows 2008 server.
5) Right click on "My Computer" and select "Manage"
6) In the pop-up "Server Manager" window, expand the "Storage" node, click "Disk Management" in the "Action" menu, and click the "Create VHD".

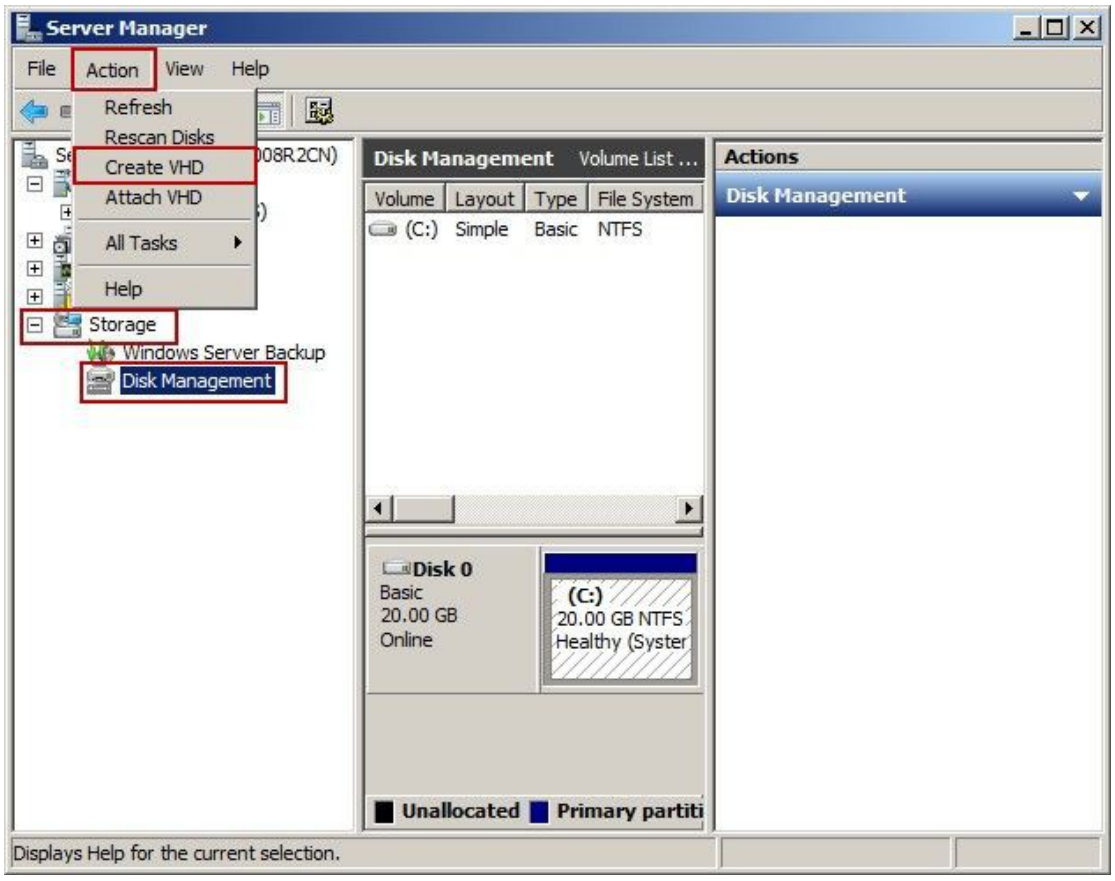


Figure 1-1

7) In the pop-up "Create and attach Virtual Hard Disk" dialog box create a VHD according to their own needs, you can also create a different capacity of VHD packages.

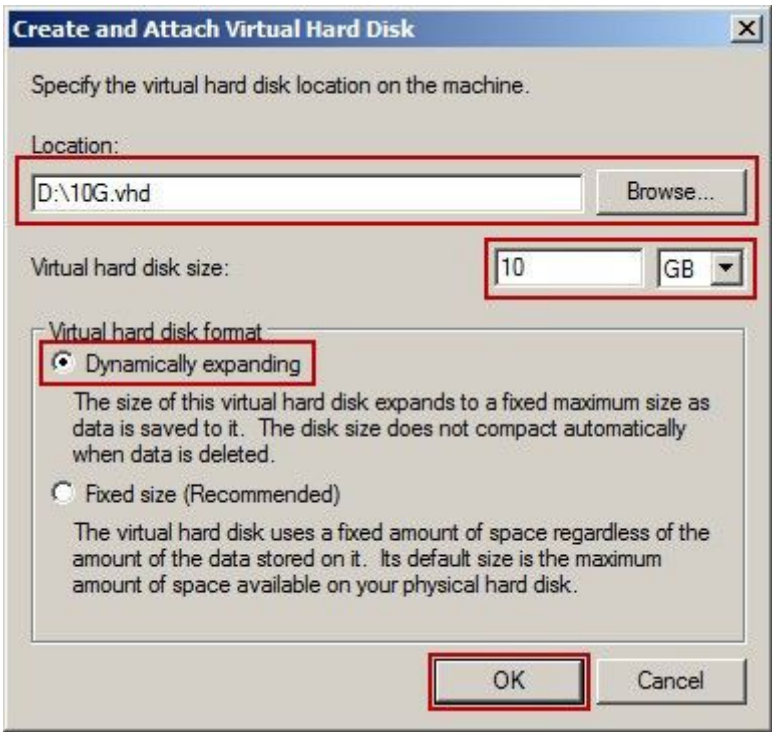


Figure 1-2

8) If the disk creation is success, initialize the disk and create a simple volume on this disk and then format.

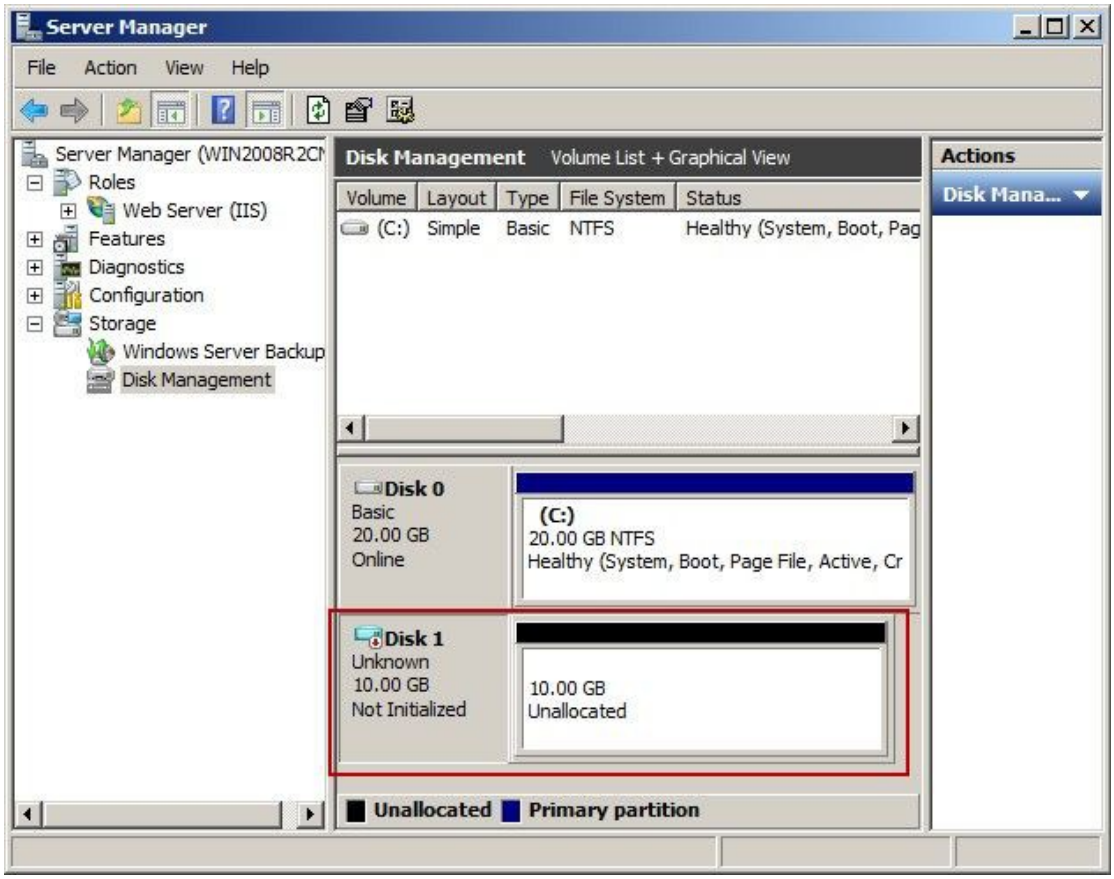


Figure 1-3

9) Set the created VHD disk as "Activated partition".
10) Now use Ghost to restore the image.gho to the created VHD disk. (Using partition to partition method).
11) When down, Right-click the created VHD disk in the disk management and then select "Detach VHD" disk operation.

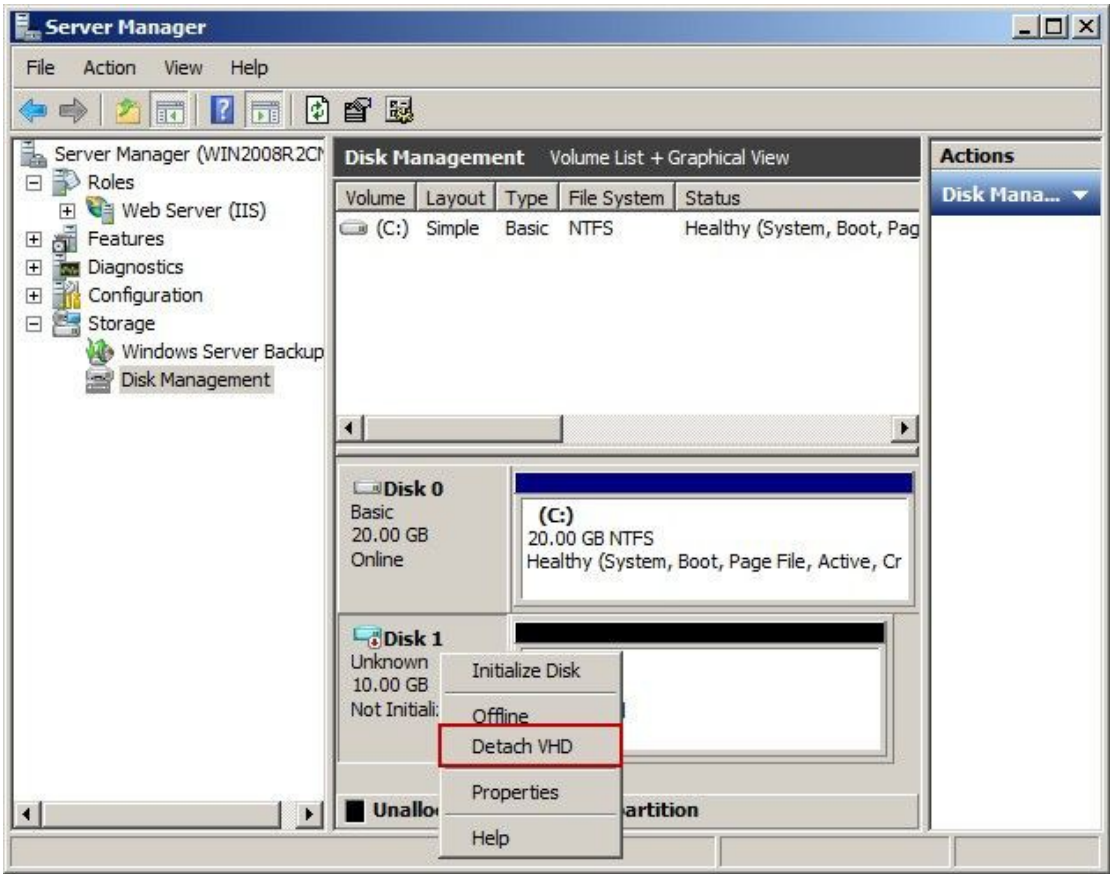


Figure 1-4

12) In the pop-up dialog box "Detach Virtual Hard Disk" click the "OK" button (Note: detach the VHD without selecting the "Delete the Virtual Hard Disk file after removing the disk" check box).

Figure 1-5

13) Now the vhd file can be used as boot image.

6.5 Convert VMDK to VHD File

1) Download the "VMDK2VHD" converter from: http://www.ccboot.com/download/vhdtools.
2) Prepare the VMDK file.
3) Double-click the "VMDK2VHD" converter to run the program and it wills pop-up the "VMDK2VHD" dialog box.

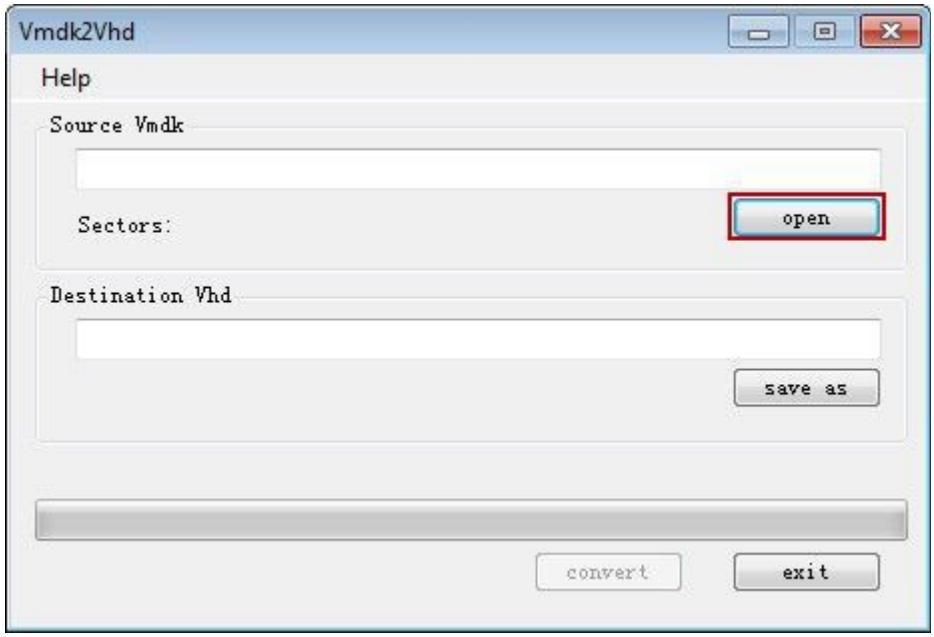


Figure 1-1

4) Click the "Open" button in the "VMDK2VHD" dialog box and then locate the vmdk file

storage path.

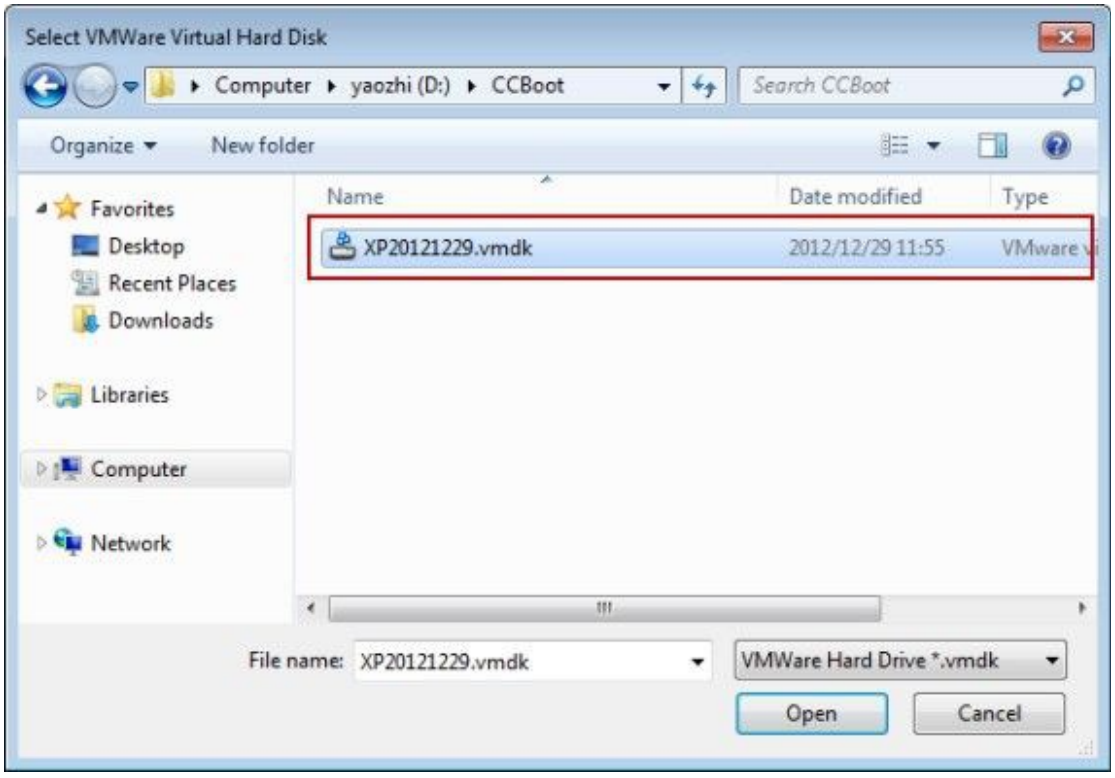


Figure 1-2

5) Click the "Save as" button and then browse the vhd file storage path. For example: the vhd file name is "XP20121229".

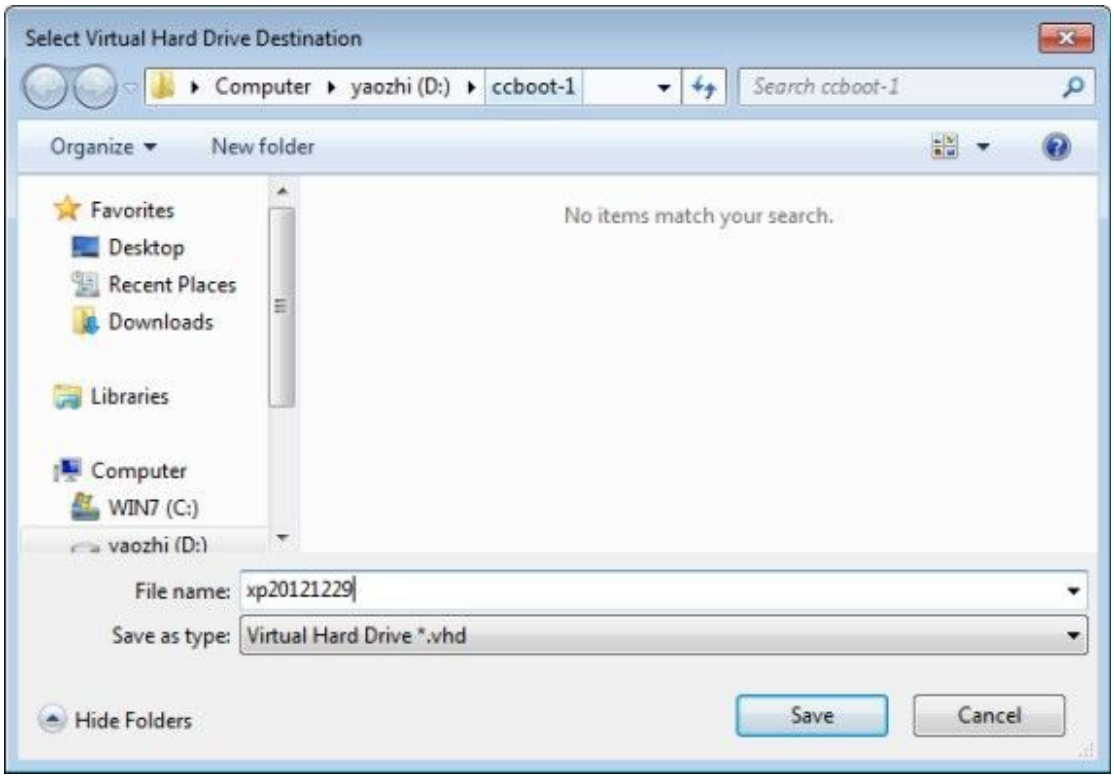


Figure 1-3

6) Click the "convert" button to start the conversion.

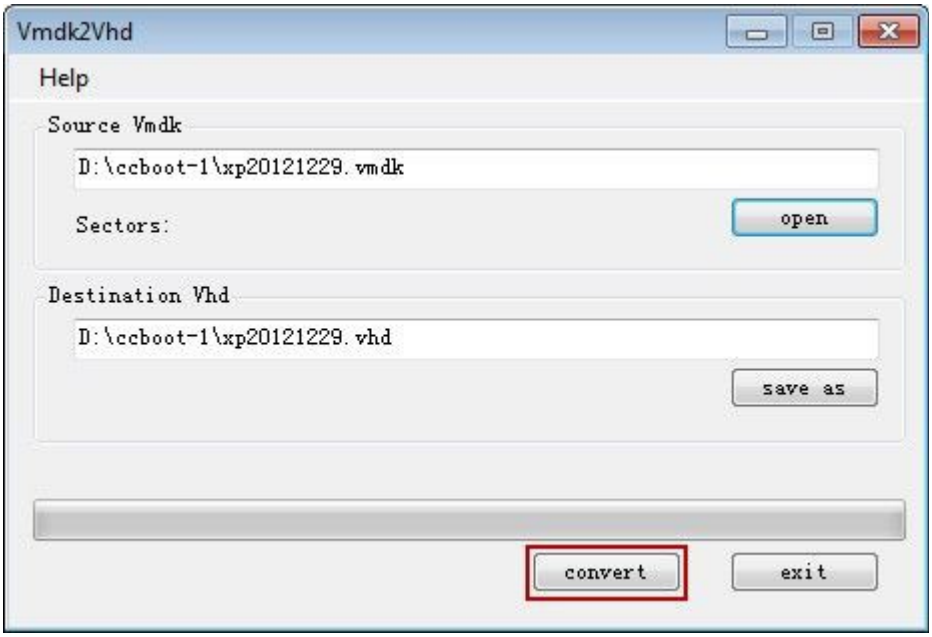


Figure 1-4

7) When the conversion of vmdk file format to vhd file format is complete, click the "exit" button to close the program.

6.6 Expand the Boot Image Disk Size

When we create boot image file with vhd file, we need to set a VHD disk size or just upload it from a small partition. If we want to expand the image disk size later, how to do? This section will introduce a method to expand the VHD disk.

1. Stop CCBoot service to release the vhd file accessing.
2. Download VhdResize.zip from http://www.CCBoot.com/download/vhdtools/ and extract it and install.
3. Click "Start" -> "Vhd Resizer" (Figure 1-1).

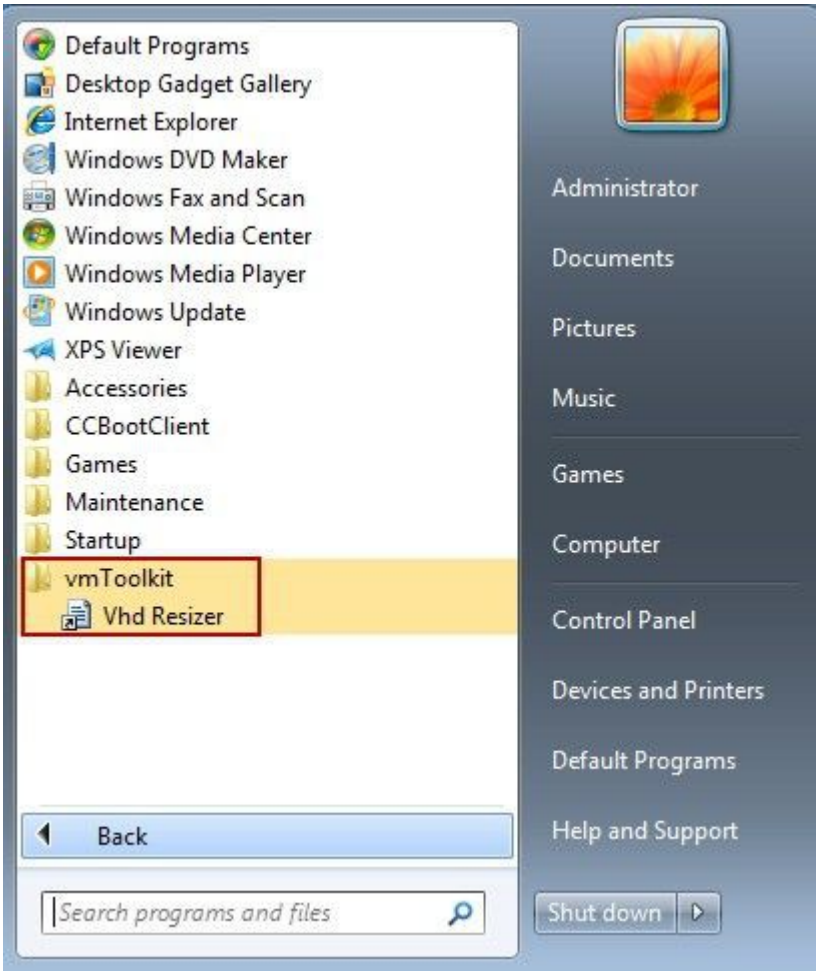


Figure 1-1

4. Click "open" button to locate the old vhd file path, click "save as" to locate the new vhd file path, input new vhd disk size in "New Size" and click "resize" button to finish (Figure 1-2).

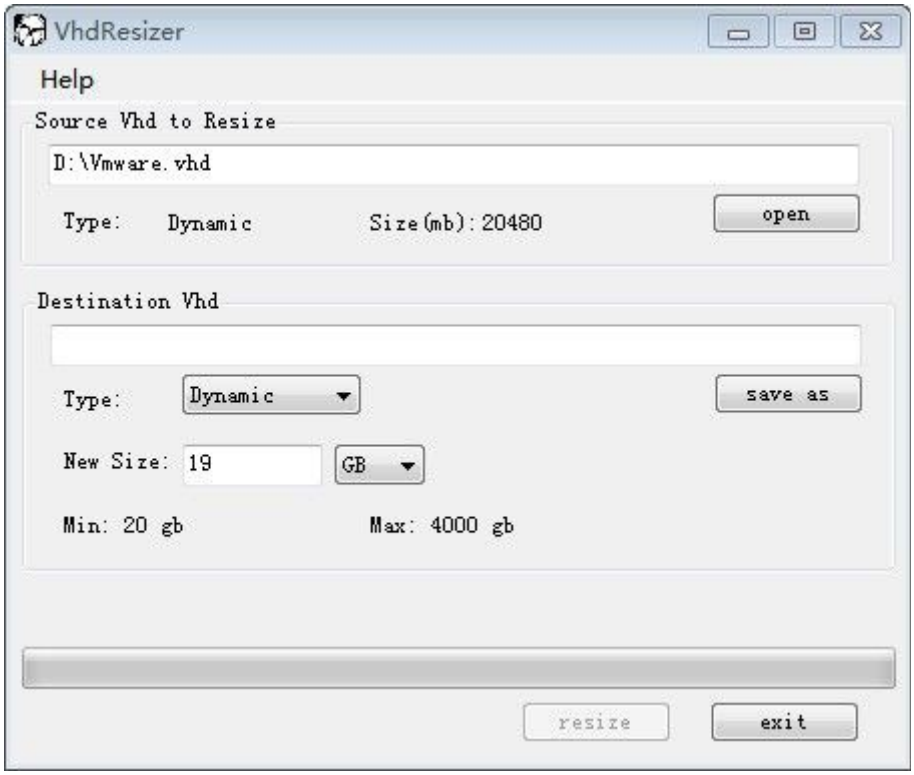


Figure 1-2

5. When done, right click "My Computer", select "Manage".
6. Select "Disk Management" node in the left tree, right click on the "Disk Management", select "Attach VHD".
7. Locate the new vhd file, and then you will see a new disk in the disk list (Figure 1-3, the vhd disk icon is bright blue).

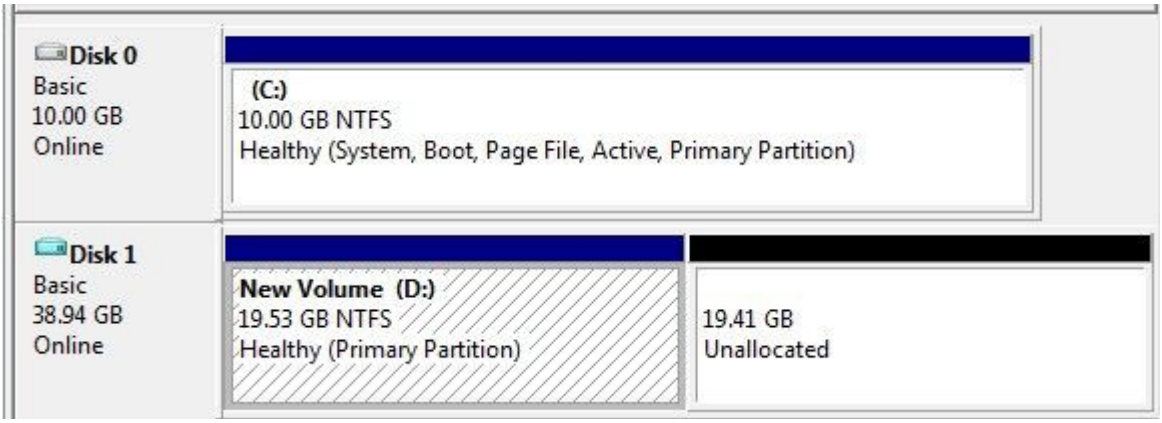


Figure 1-3

8. Right click "New Volume (D:)", select "Expand Volume" (Figure 1-4).

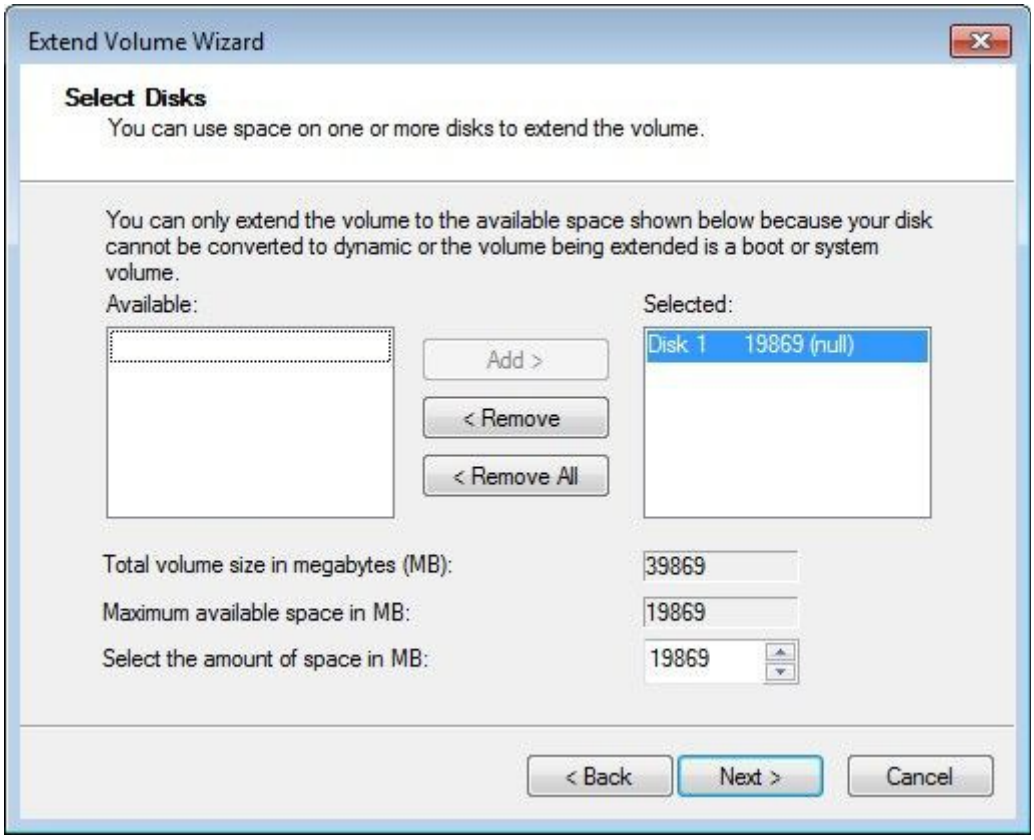


Figure 1-4

9. Click "Next" button (Figure 1-5).

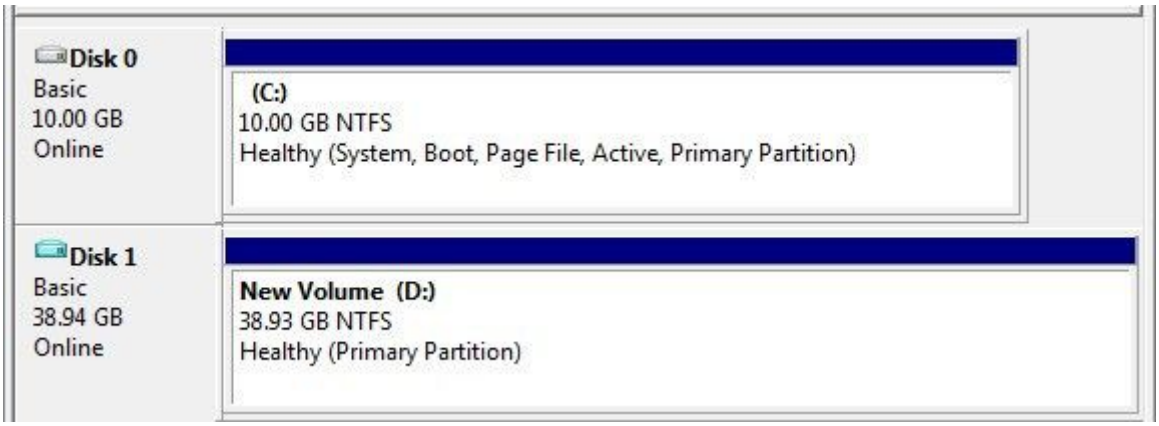


Figure 1-5

10. Right click on "Disk 1", select "Detach VHD" and Click "OK". Notice: DO NOT select "Delete File" (Figure 1-6).

Figure 1-6

11. Now you can add the new vhd file to CCBoot. After you boot with this VHD image, you will see the C: drive is already expanded.

6.7 Create Client Image with Dual NICs

1) CCBoot supports diskless booting the client PC that installed Dual NICs.
2) Suppose the client PC name is PC115. The Network card name is NICA and NICB
3) The client PC is installed of hard disk drive with operating system and also the two Network card, the two NICs name is NICA and NICB, the NICA will be use for diskless booting, and the NICB will be used to connect to other networks or do anything else.

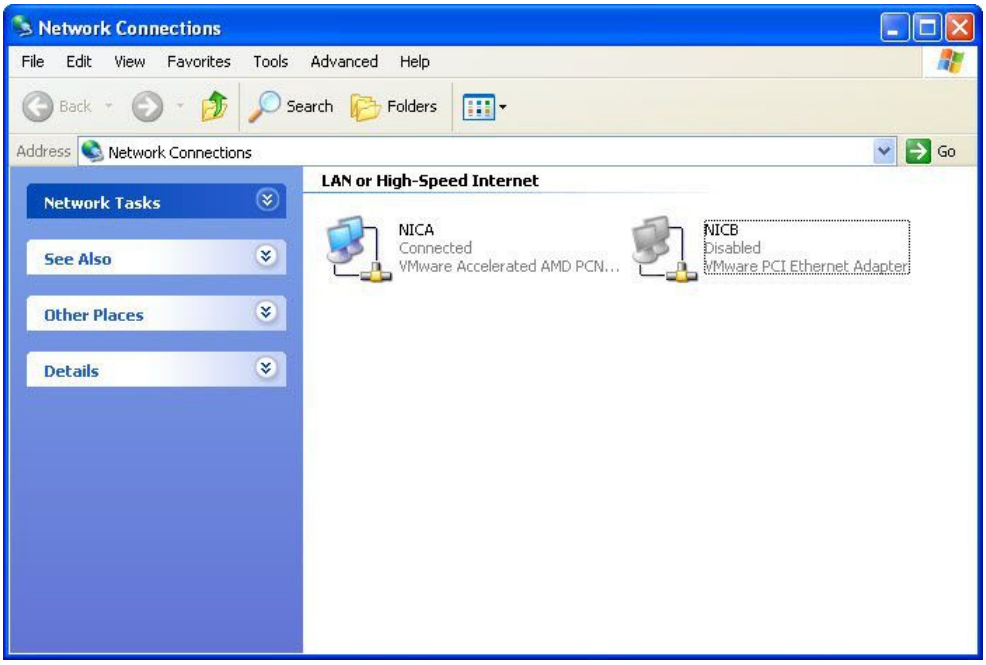


Figure 1-1

4) Right click NICB, select "Disable".
5) Install CCBootClient, click "Install Client". DO NOT click "NIC PnP" to install CCBootPnP. Then click "Upload Image".

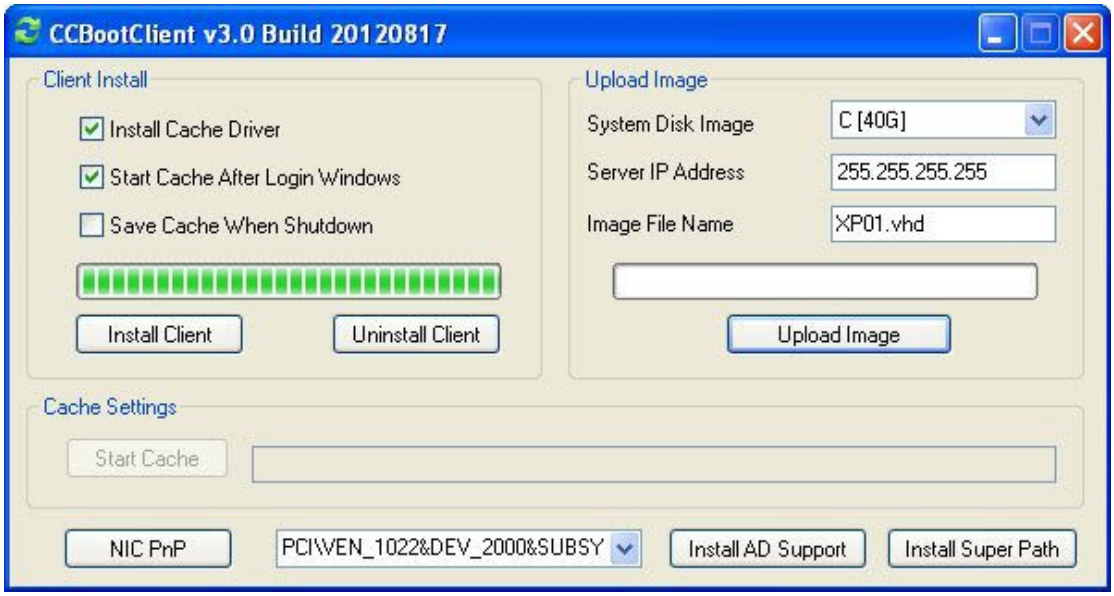


Figure 1-2

6) If the image package has been completely upload, Shutdown the client and then remove the hard disk.
7) Diskless boot the client using the network card named NICA and unplug the cable of the network card named NICB.
8) Enable the "Super Client" in PC115 and then diskless boot.
9) After the client enters the windows system, open the Device Manager to enable the NICB network card.
10) Shutdown the client and then disable the "Super Client" on the server.
11) Diskless boot the client again, and you will see the following picture.

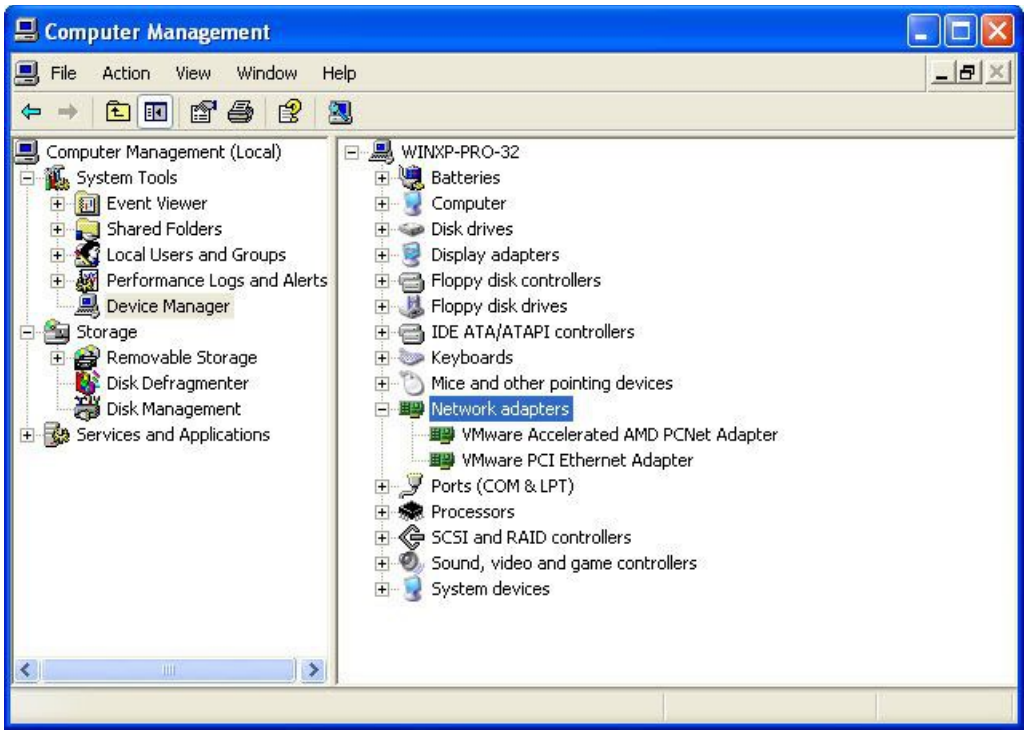


Figure 1-3

6.8 Create Linux Boot Image

This document describes the installation of Linux, as well as by CCBoot diskless booting Linux system.

1. Add Disk

1) In the CCBoot Main Interface "Toolbar" click the "Add Disk" button to open the "CCBoot Disk Porperties" click the "Add Disk" button will pop up "CCBoot Disk Properties" dialog box, in the "Disk Name" edit box, enter the disk name, the "Size" automatic predefined disk size in the edit box. Select "New Image" radio button, and then click the "New Image" edit box to the right of the "Browse" button, select the Image storage path, and then click the "OK" button.

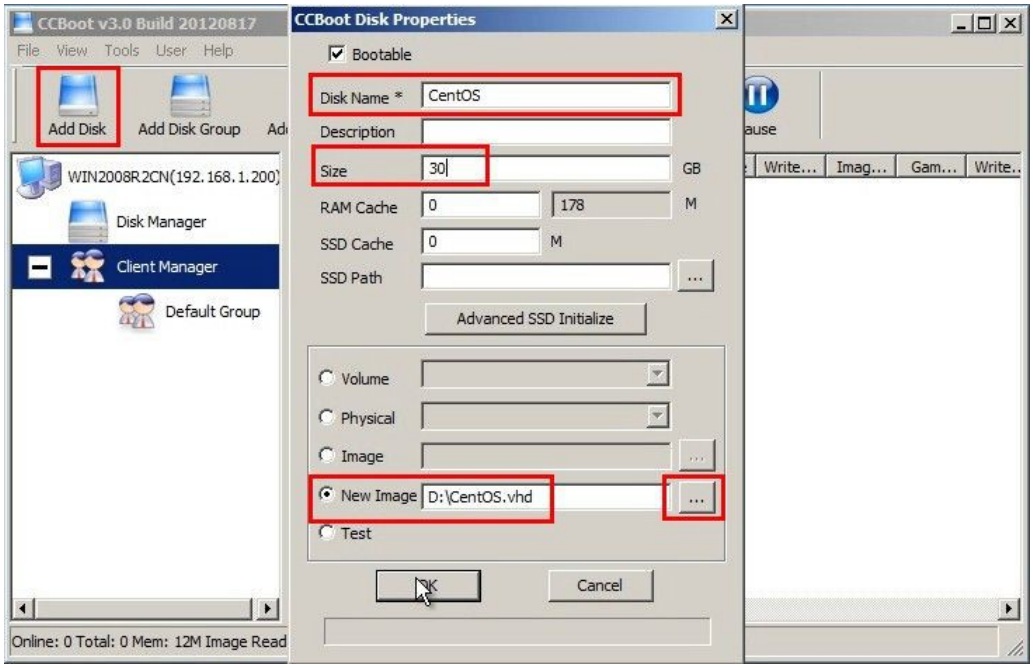


Figure 1-1

2) In the pop-up dialog box "Create fixed size image?" Click "NO" button.

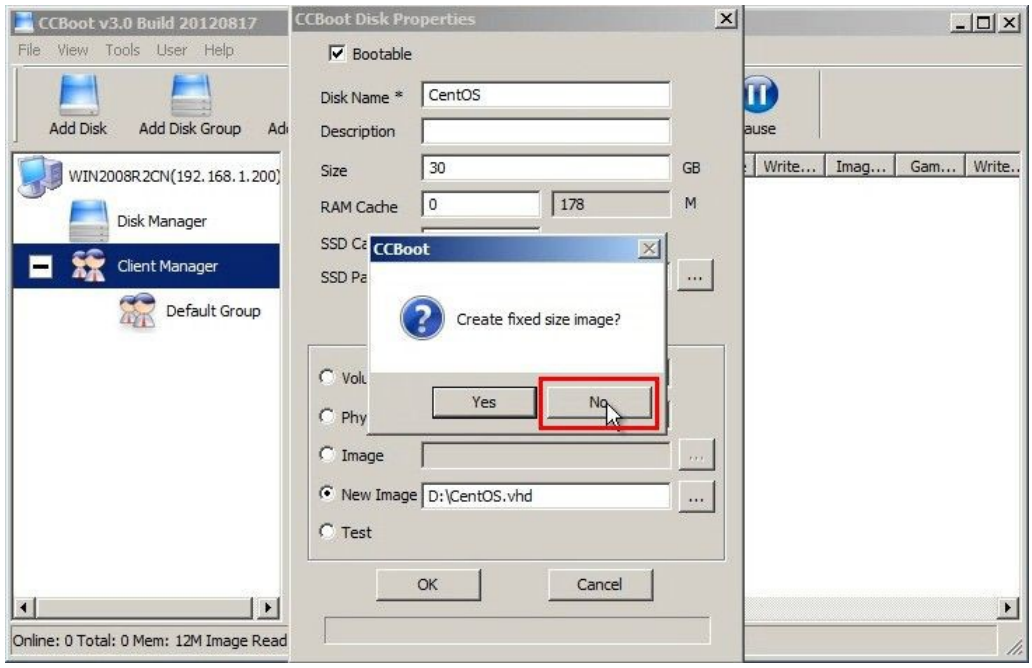


Figure 1-2

Finally, "CCBoot Disk Properties" dialog box, click the "OK" button to complete the add disk operation.

2. Add the Disk Group

1) In the toolbar on the CCBoot main interface, click "Add Disk Group" button will pop-up "CCBoot Disk Group" dialog box, in the "Disk Group Name" edit box, enter the

name of the disk group, and then click "OK" button.

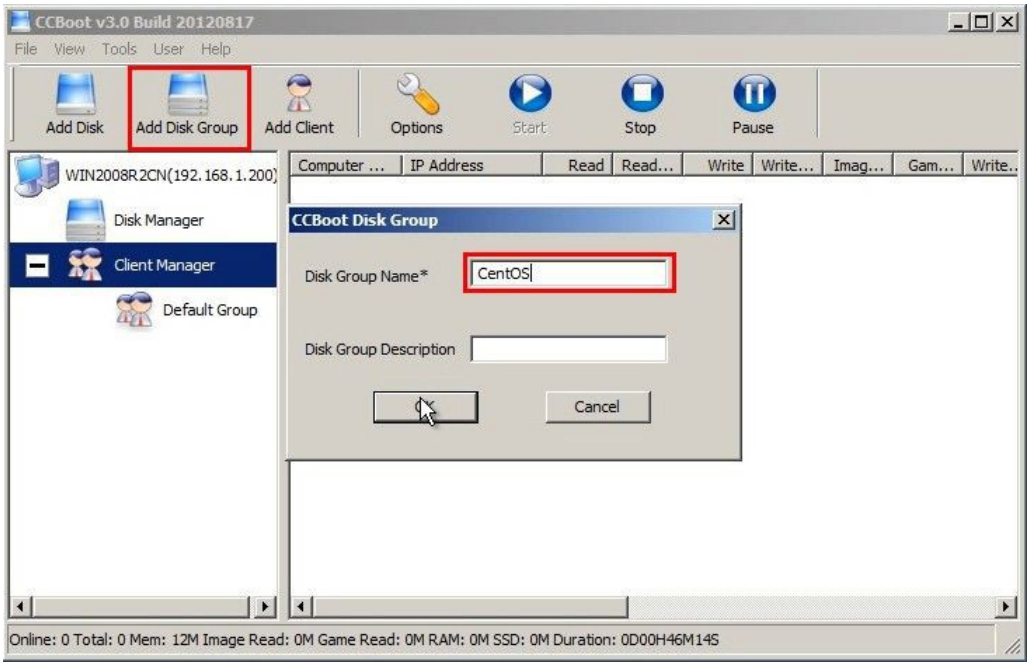


Figure 1-3

2) In the pop-up dialog box "Do you want to add disk to the disk group?" click "Yes" button.

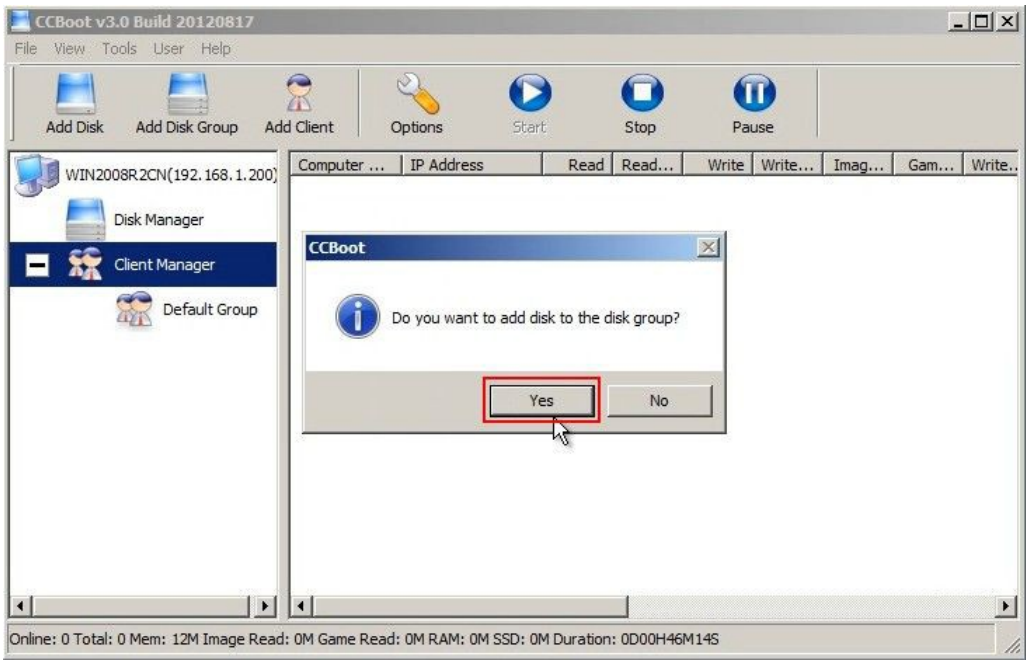


Figure 1-4

3) "CCBoot Disk List" pop-up dialog box, select the "CentOS" disk, click on the "OK" button to complete the operation to add a disk group.

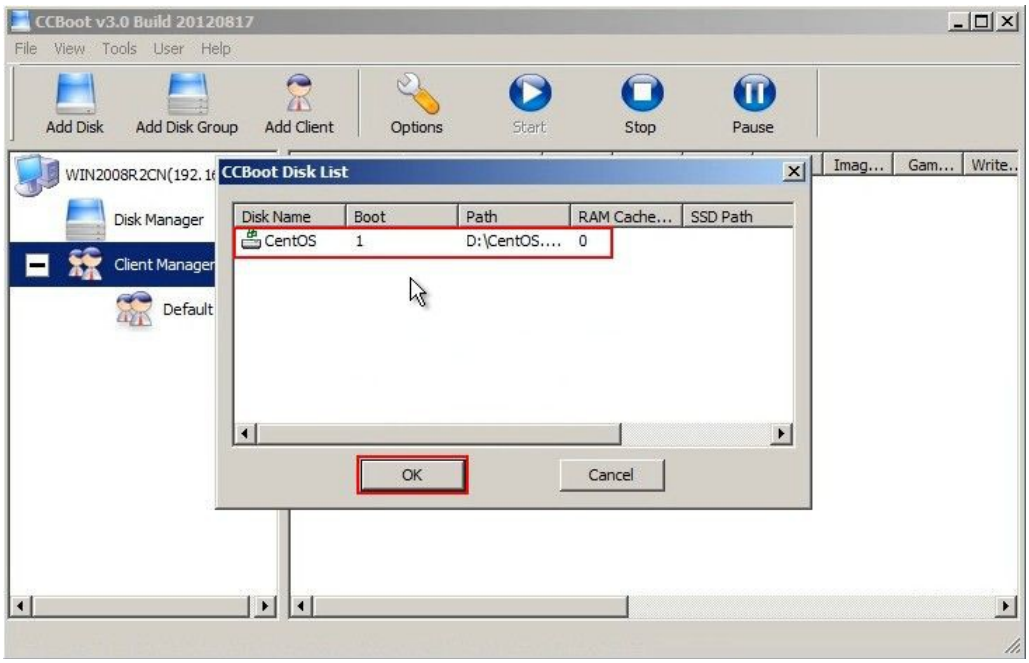


Figure 1-5

3. Check the Settings

1) Check the CCBoot Basic Settings.

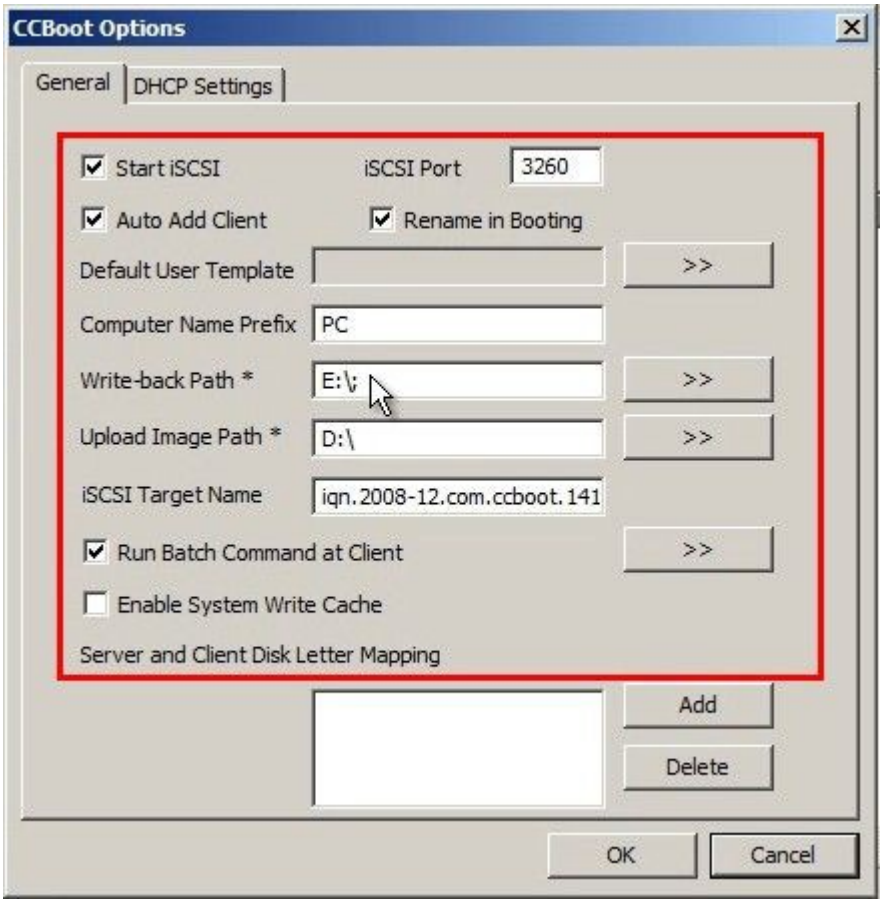


Figure 1-6

2) Check the CCBoot DHCP Settings.

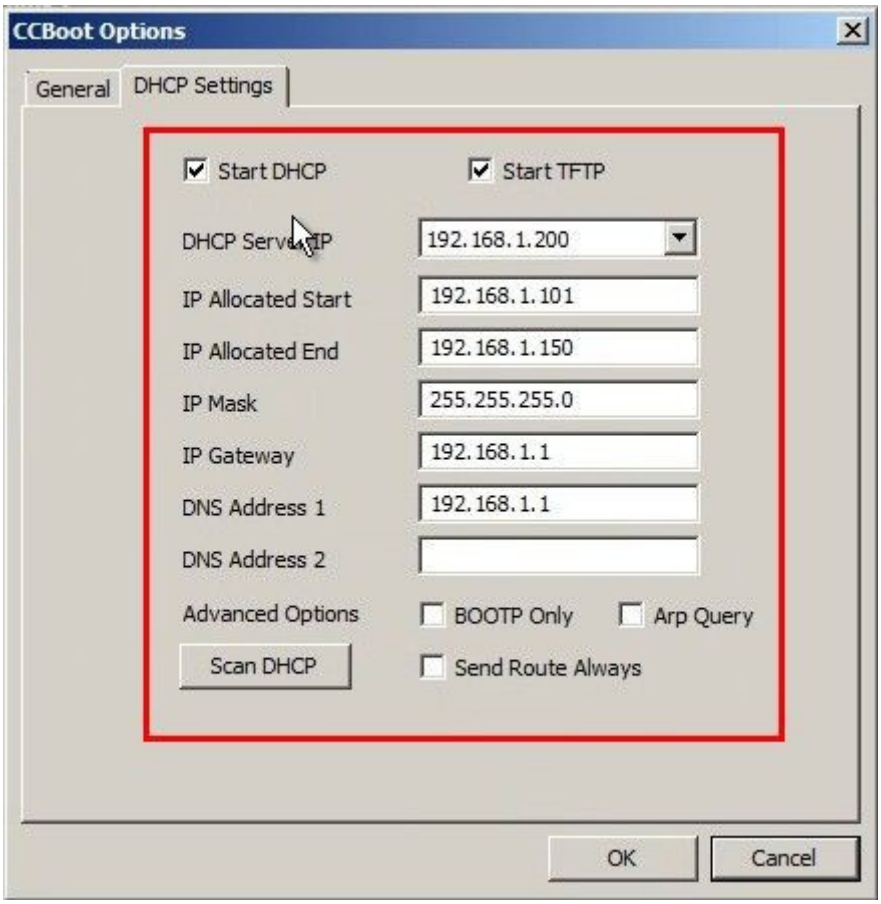


Figure 1-7

4. Linux Diskless Installation and Image upload

If CCBoot Server Setup is complete, prepare the client to install the Linux Operating System. Please use CentOS-6.x-x86_64-bin-DVD1.iso to install. DO NOT use the LiveCD/LiveDVD edition.

1) Linux installation interface.

Figure 1-8

2) Select the "Skip" button.

Figure 1-9

3) Click the "Next" button.

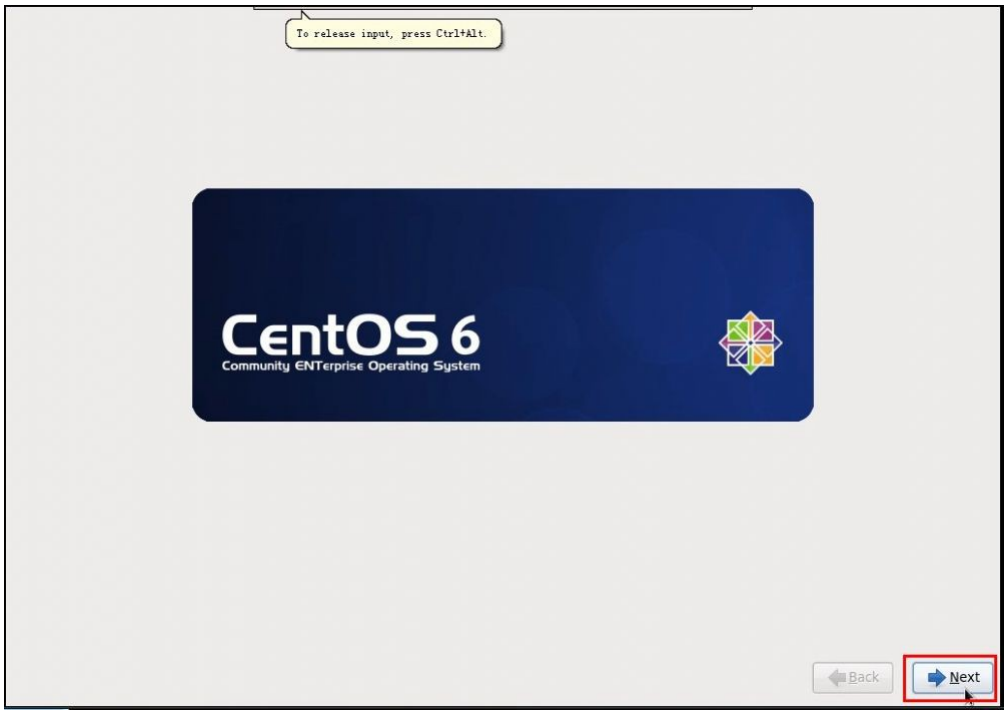


Figure 1-10

4) Select the installation language and click "Next".

Figure 1-11

5) Select "specialized storage devices" radio button, and click the "Next" button.

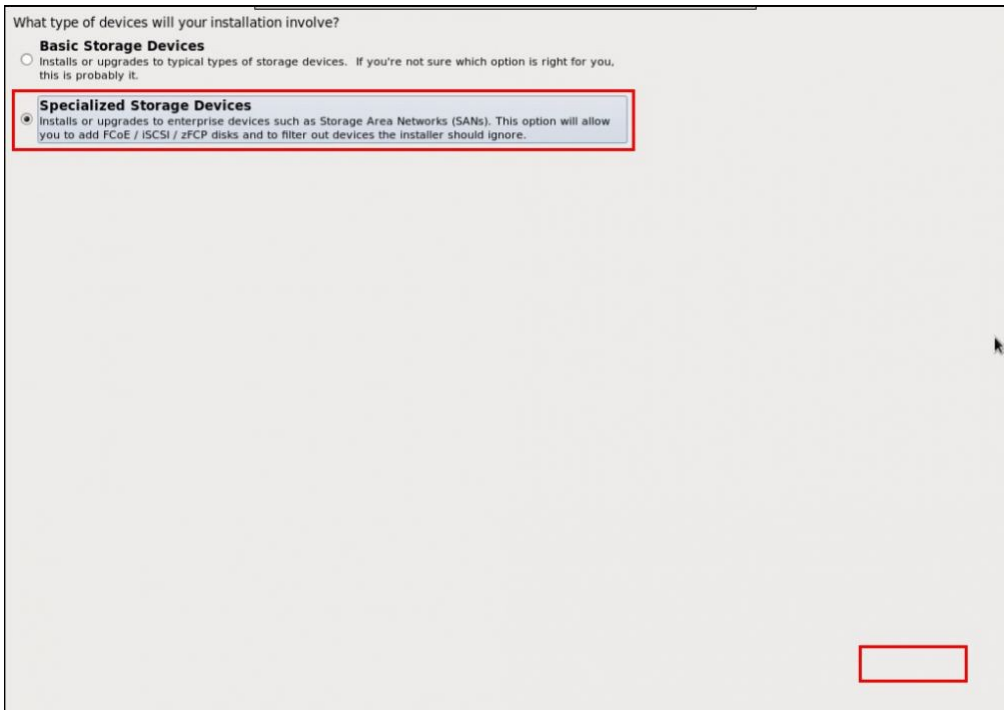


Figure 1-12

6) Click "Add Advanced Target" button will pop up the "Advanced Storage Options" dialog box, and then select the "Add iSCSI target" radio button, and then select the "Bind targets to network interfaces" check box, and then click "Add drive" button to go to the next step.

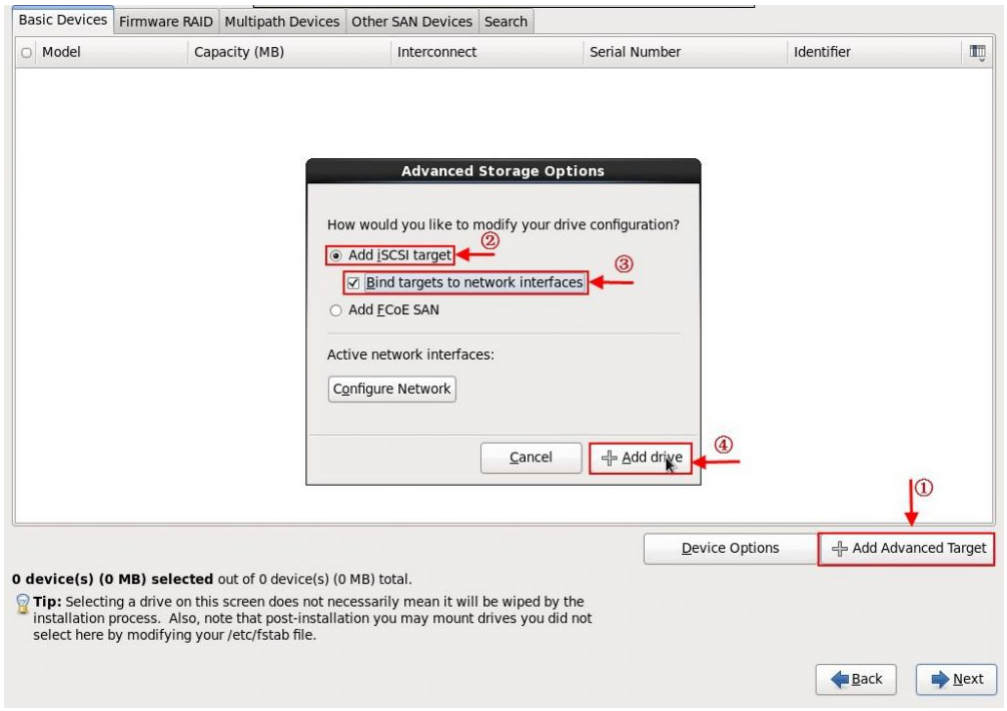


Figure 1-13

7) In the "Select Network interface" dialog box, click the "OK" button.

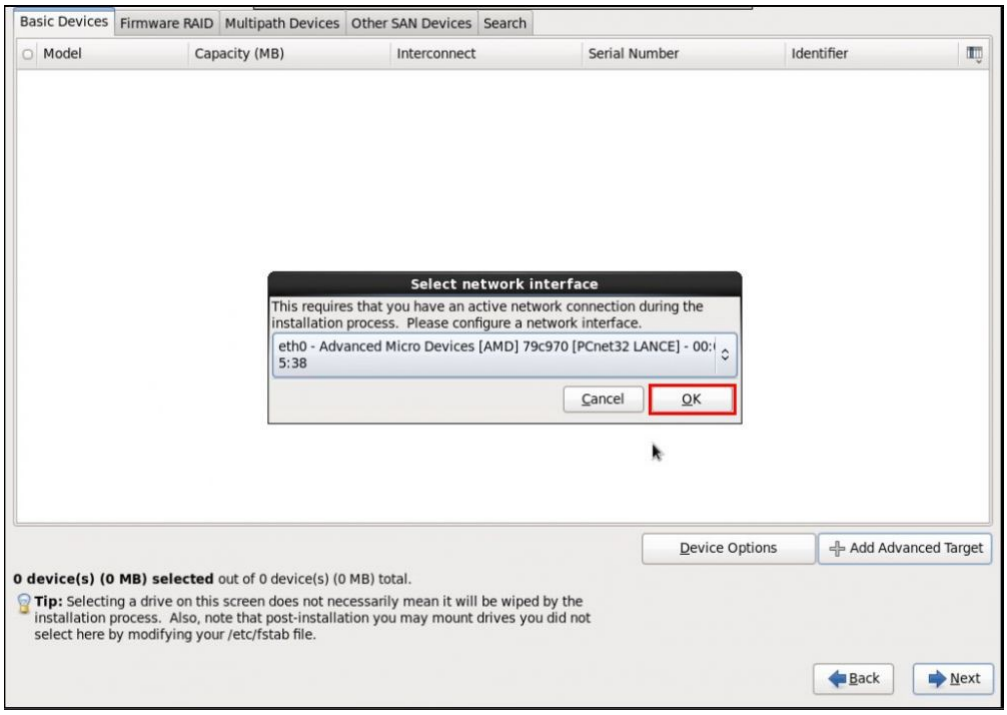


Figure 1-14

8) In the "Network Connections" dialog box, click the "Close" button.

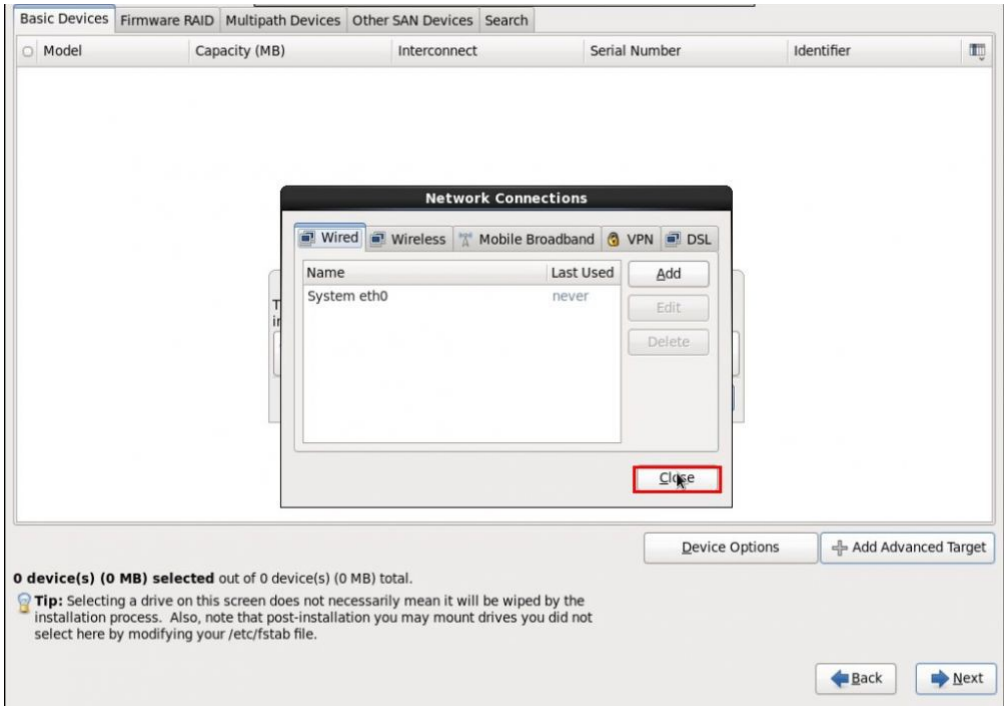


Figure 1-15

9) In the "Target IP Address" edit box, enter the server's IP address, and then click the "Start Discovery" button.

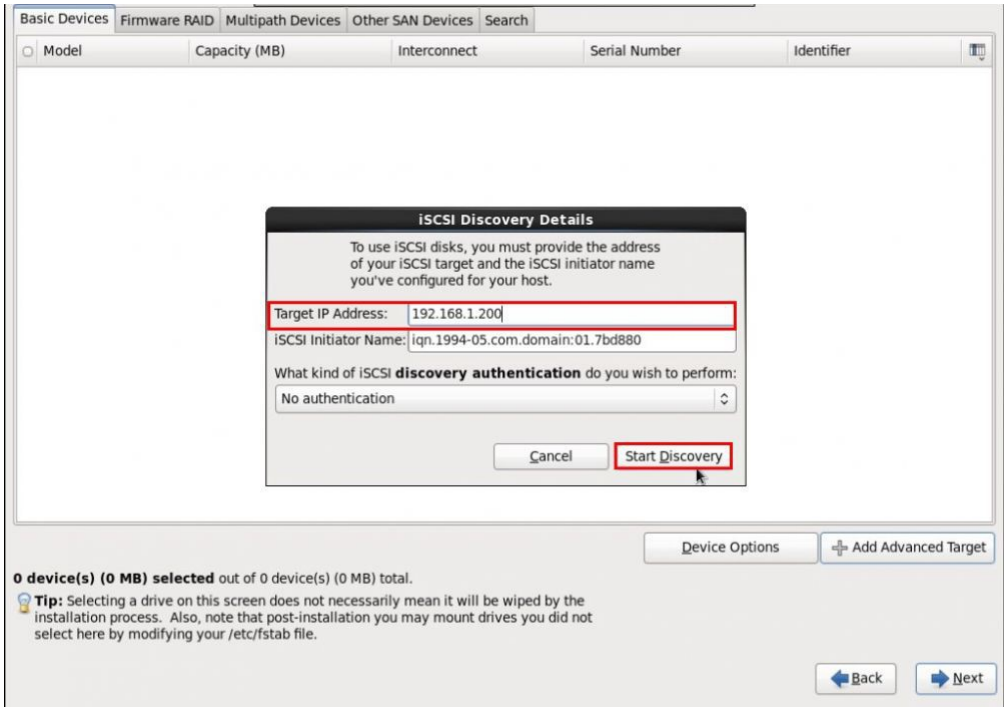


Figure 1-16

10) "iSCSI disk" initialization process.

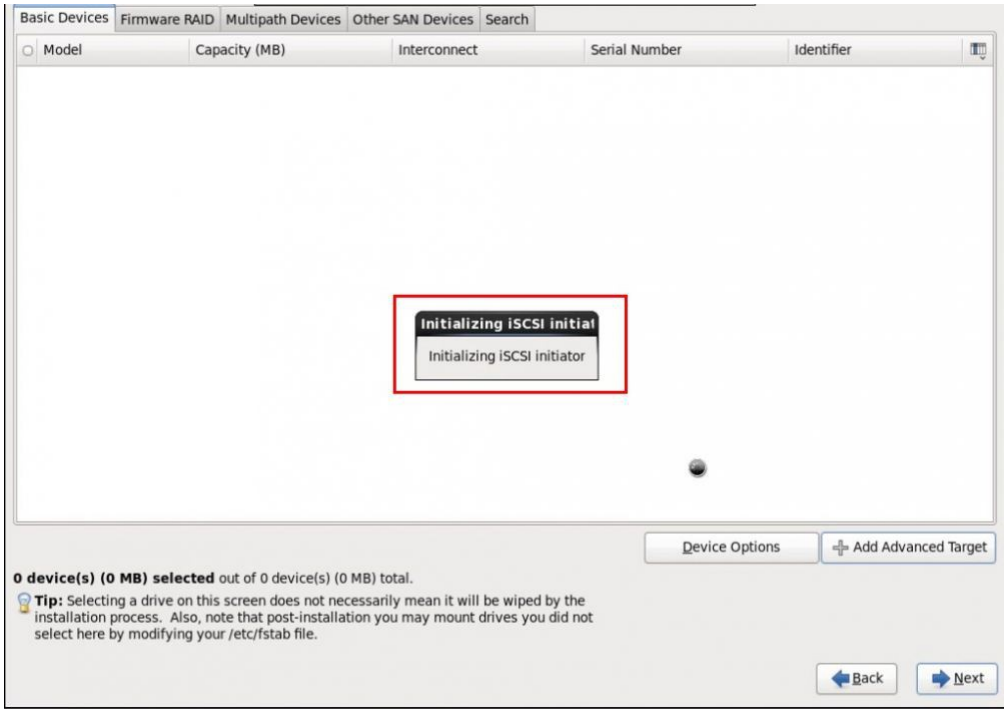


Figure 1-17

11) After initialization, it wills pop-up "No iscsi nodes to log in" click the "OK" button and then set to the CCBoot server.

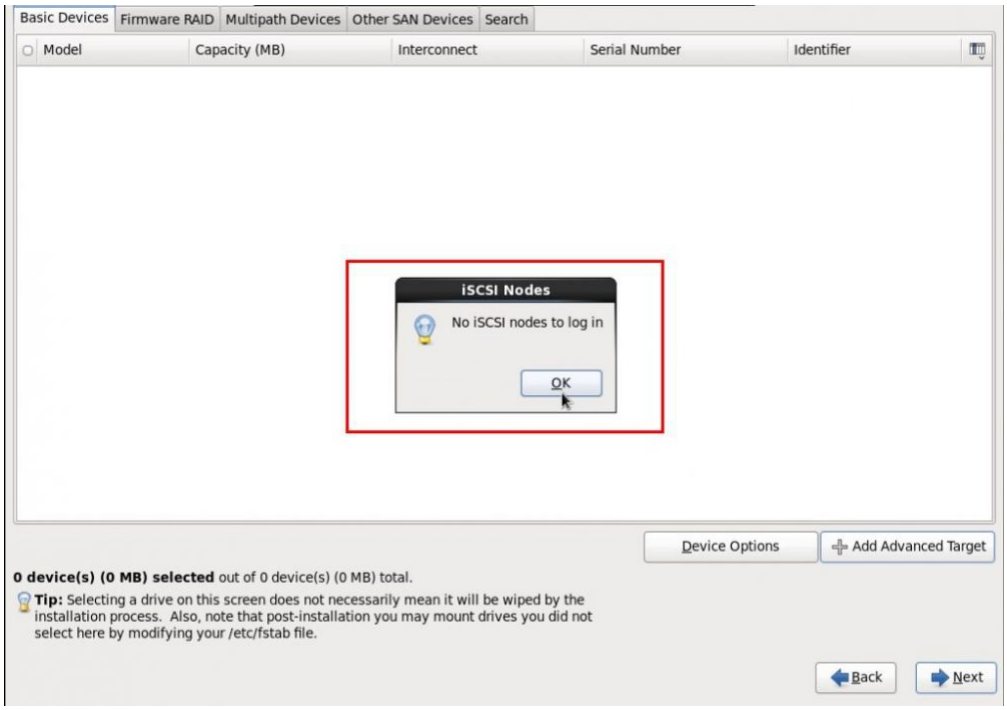


Figure 1-18

12) In the CCBoot Main Interface details pane, double click the "PC101".

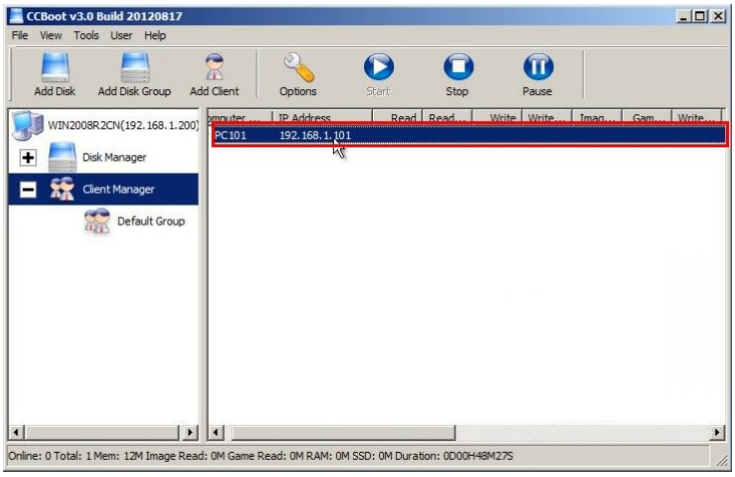


Figure 1-19

13) In the "CCBoot client properties" pop-up dialog box, click the ">>" button.

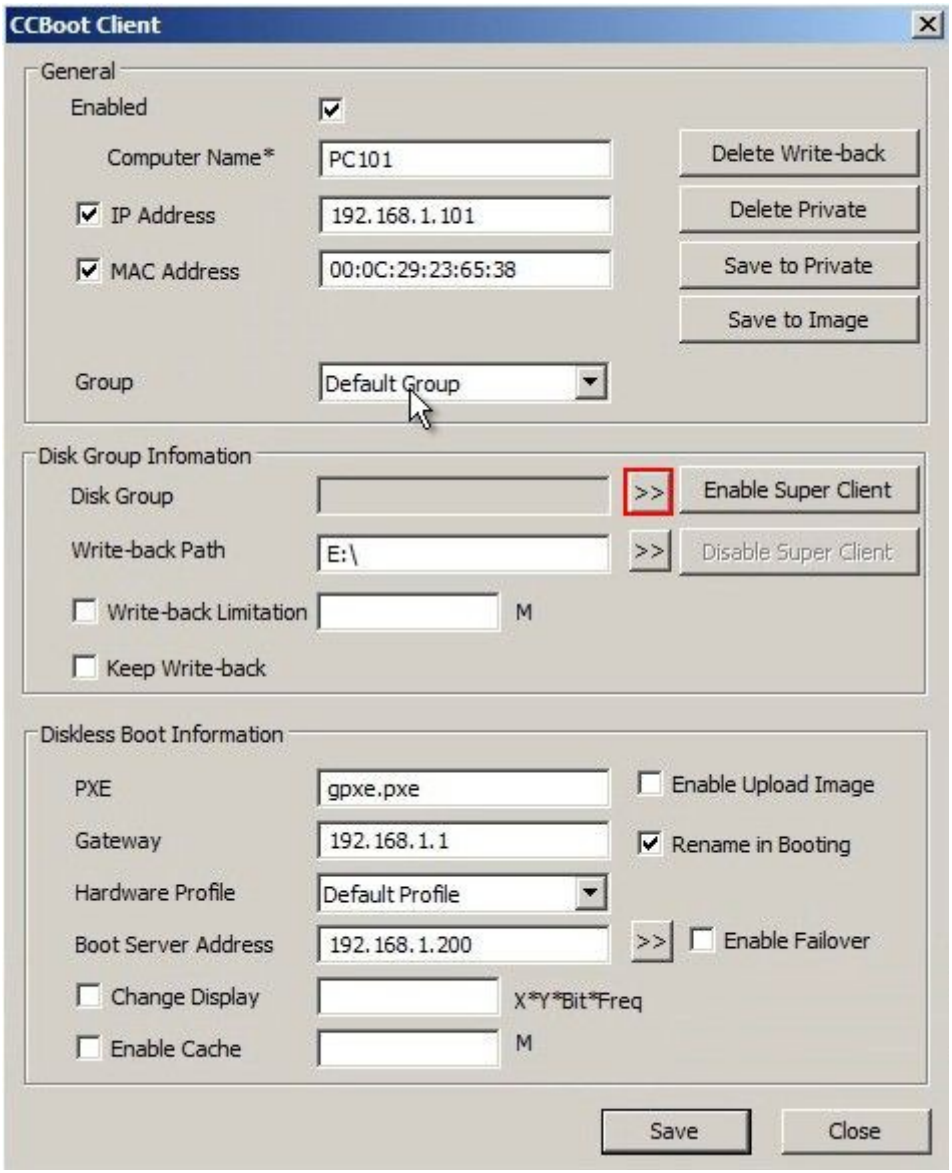


Figure 1-20

14) In the pop-up "CCBoot Disk Group List" dialog box, select "CentOS", and then click the "OK" button.

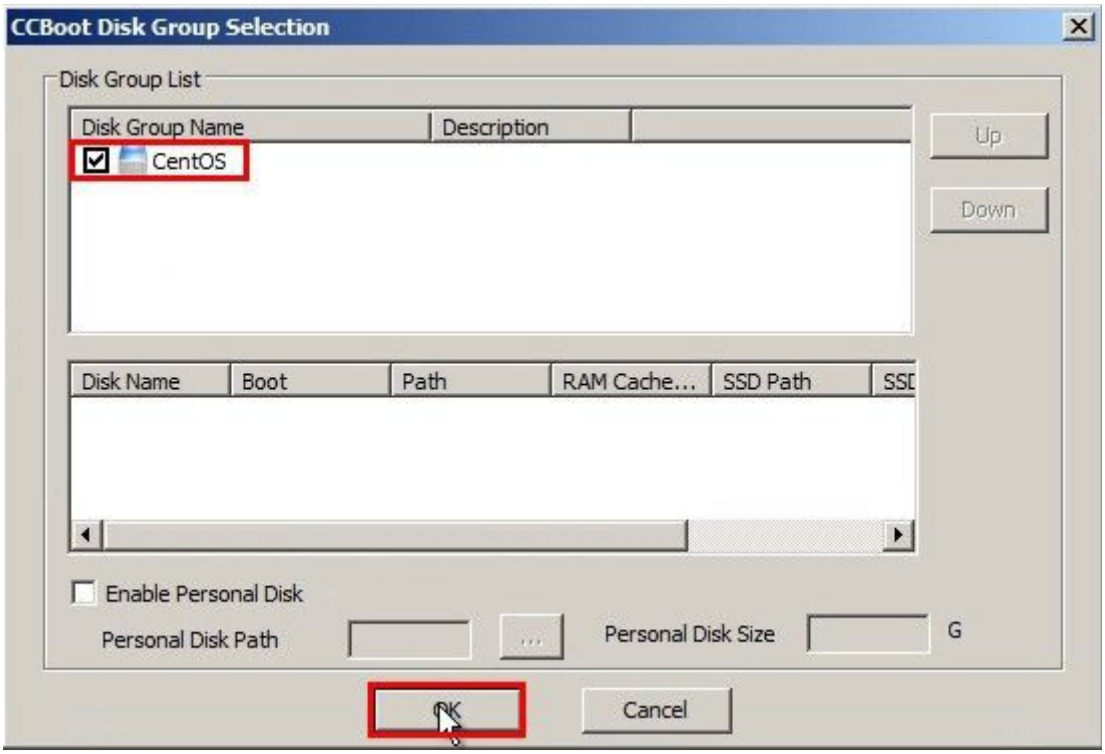


Figure 1-21

15) In the "CCBoot Client" dialog box, click the "Enable Super Client" button.

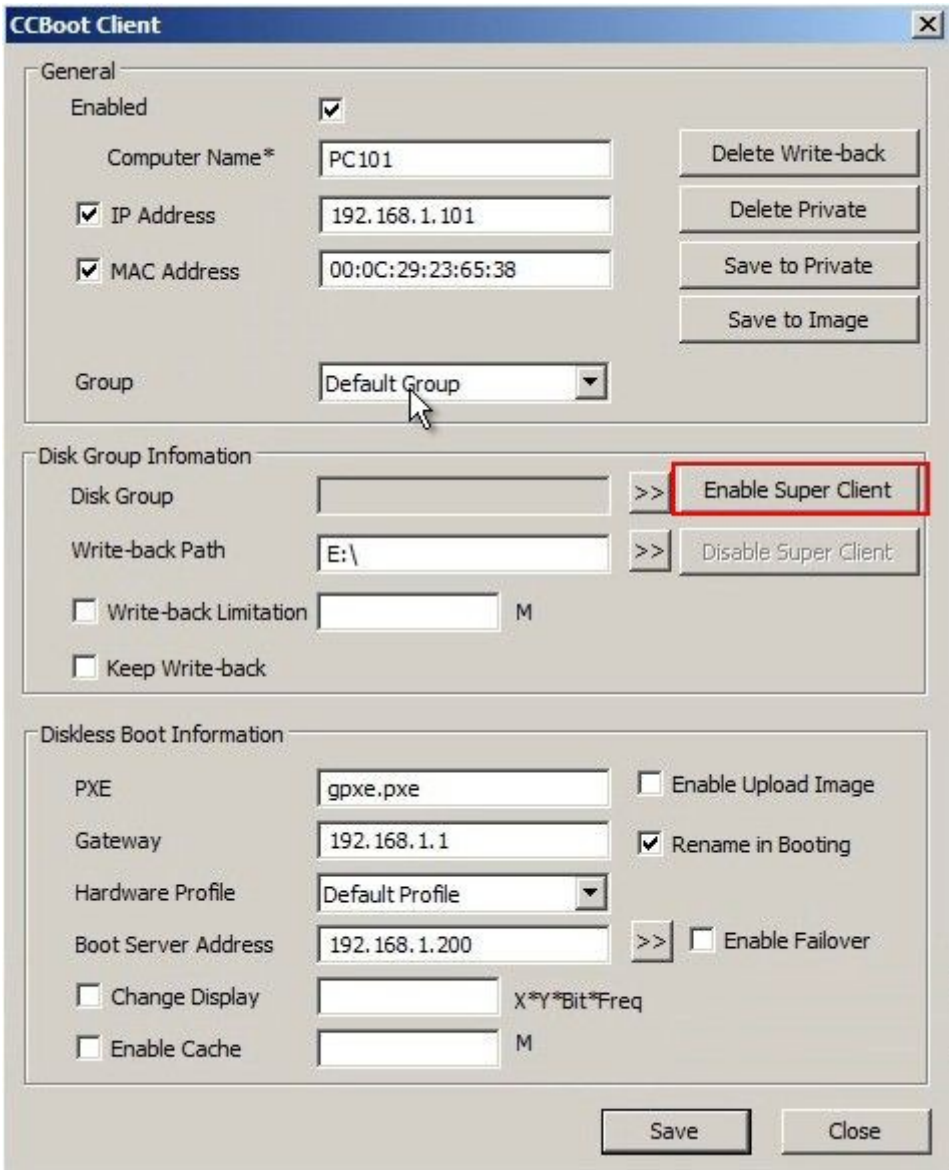


Figure 1-22

16) In the pop-up "CCBoot Select Disk" dialog box, select "CentOS", and then click the "OK" button.

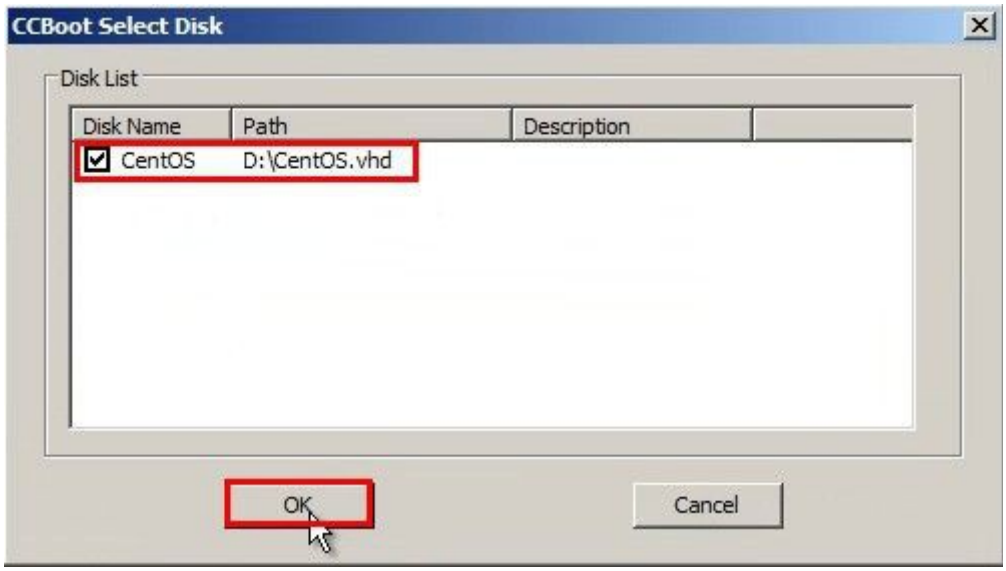


Figure 1-23

17) In the pop-up "CCBoot" dialog box, click the "NO" button, that it did not create a restore point.

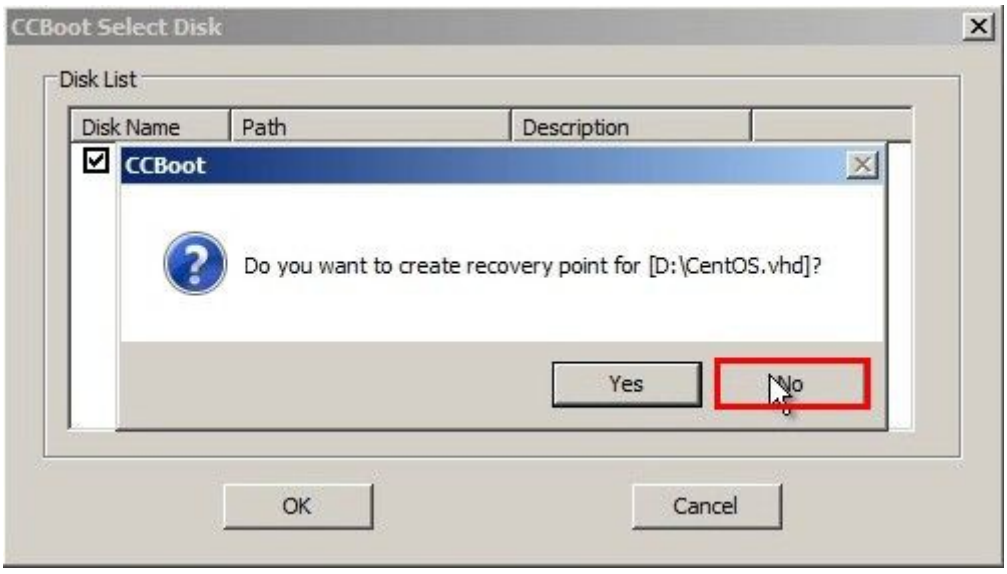


Figure 1-24

18) Finally in the "CCBoot Client" dialog box, uncheck the "Rename in booting" check box, and then click the "Save" button to complete the "Super Client" settings.

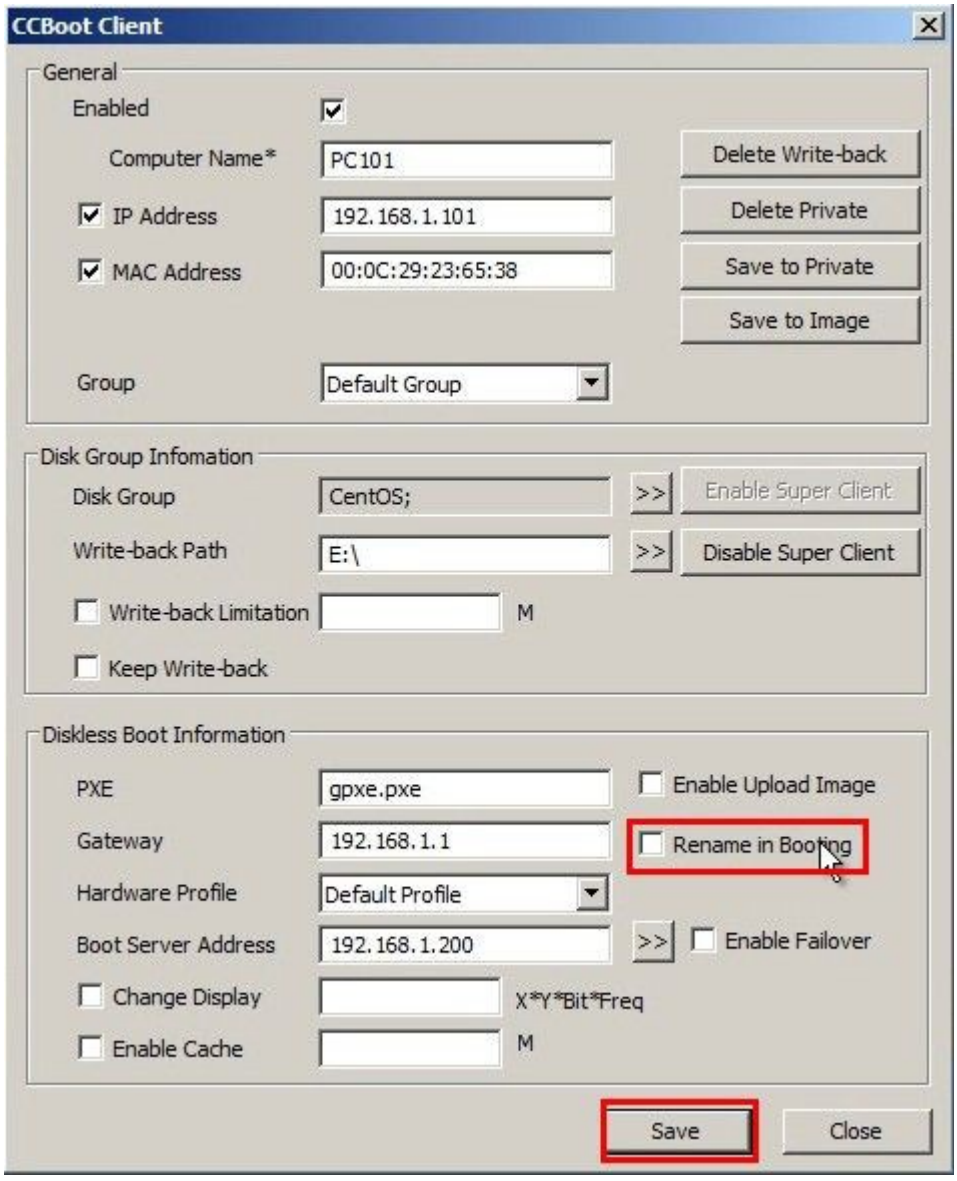


Figure 1-25

19) After adding a "Disk Group" repeats the 6 – 9 procedures.
20) Click in the pop-up dialog box "StartDiscovery" button and in the pop-up "iSCSI Discovered Nodes" dialog box, select the "iqn.2008-12.com.CCBoot.141:00" check box, and then click the "Login" button.

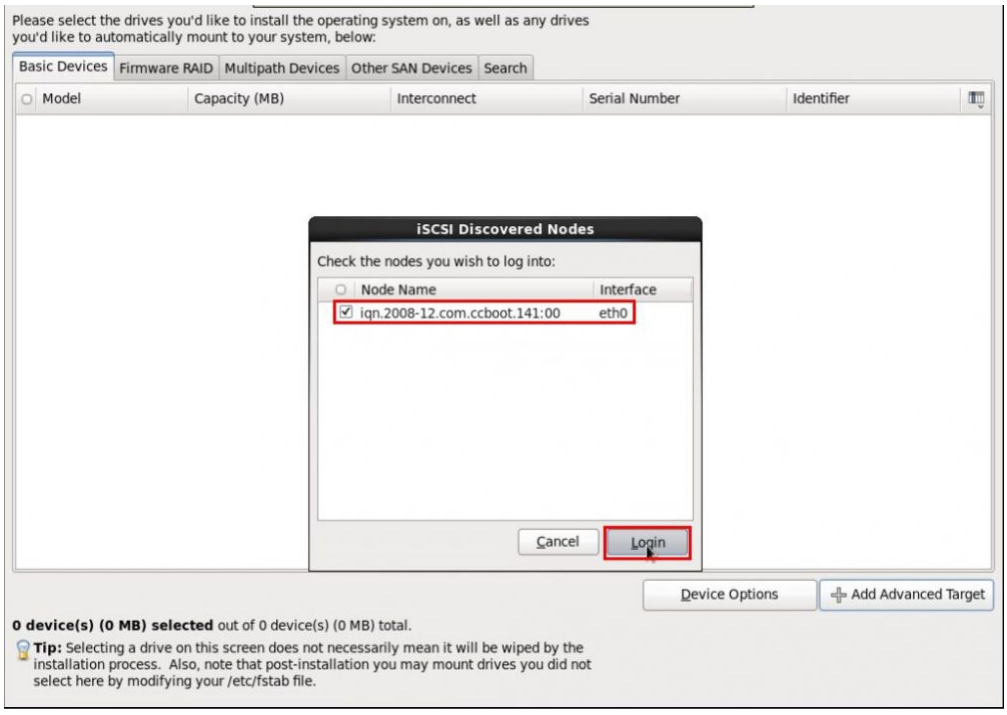


Figure 1-26

21) In the pop-up "ISCSI Nodes Login" dialog box, click the "Login" button.

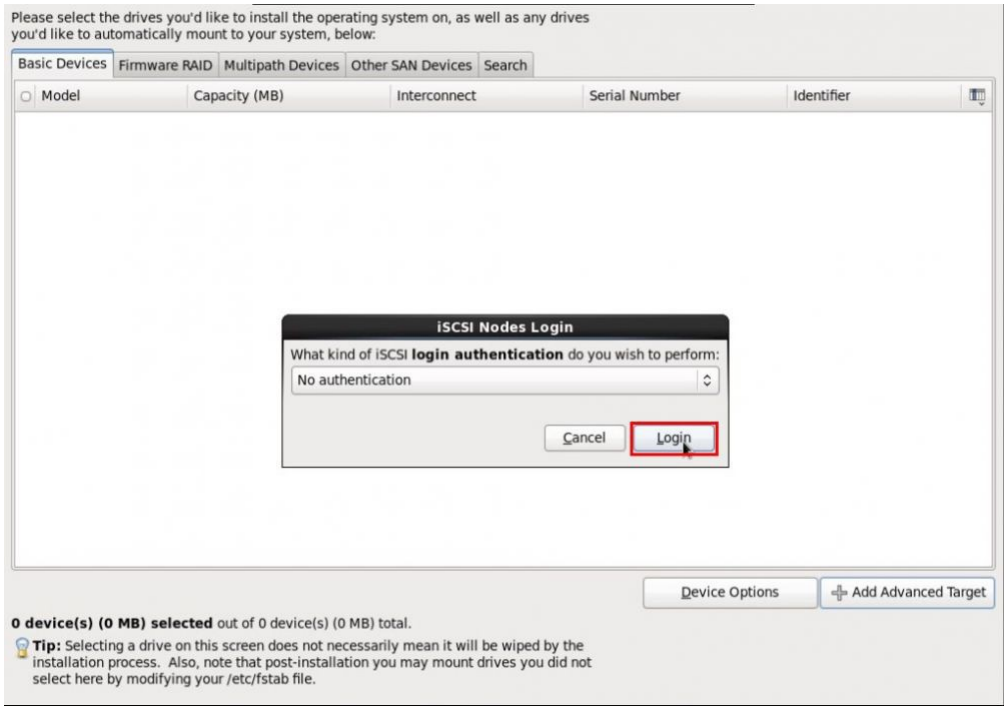


Figure 1-27

22) In the pop-up "ISCSI Login Results" dialog box, click the "OK" button, and then click the "Next" button.

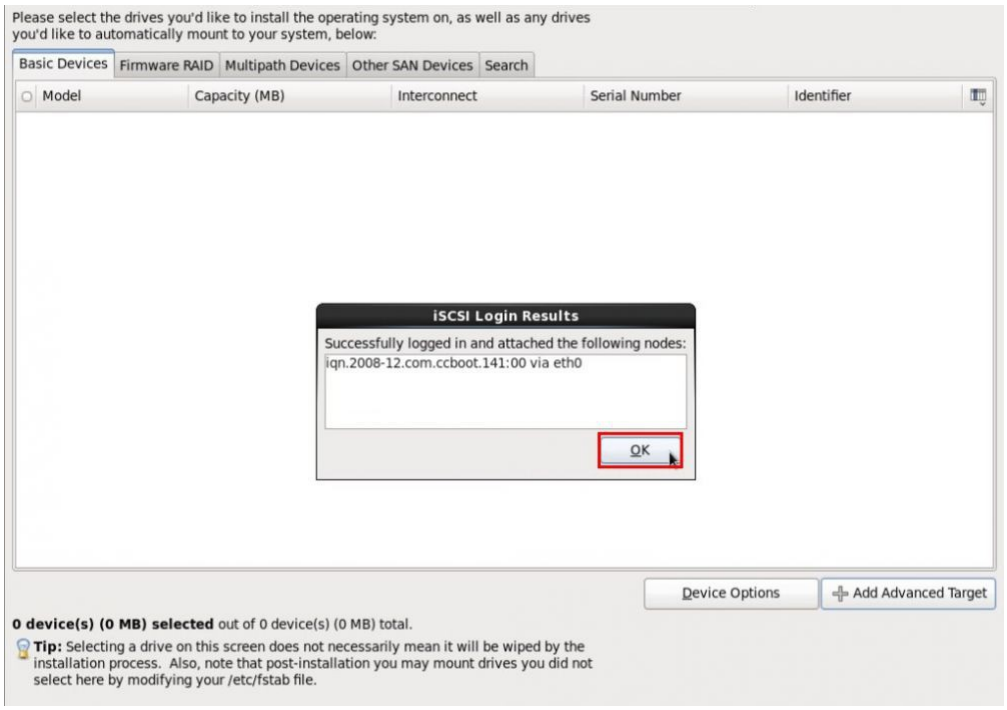


Figure 1-28

23) In the pop-up "Storage Device Warning" dialog box, click "Yes, discard any data" button, to discarding all data.

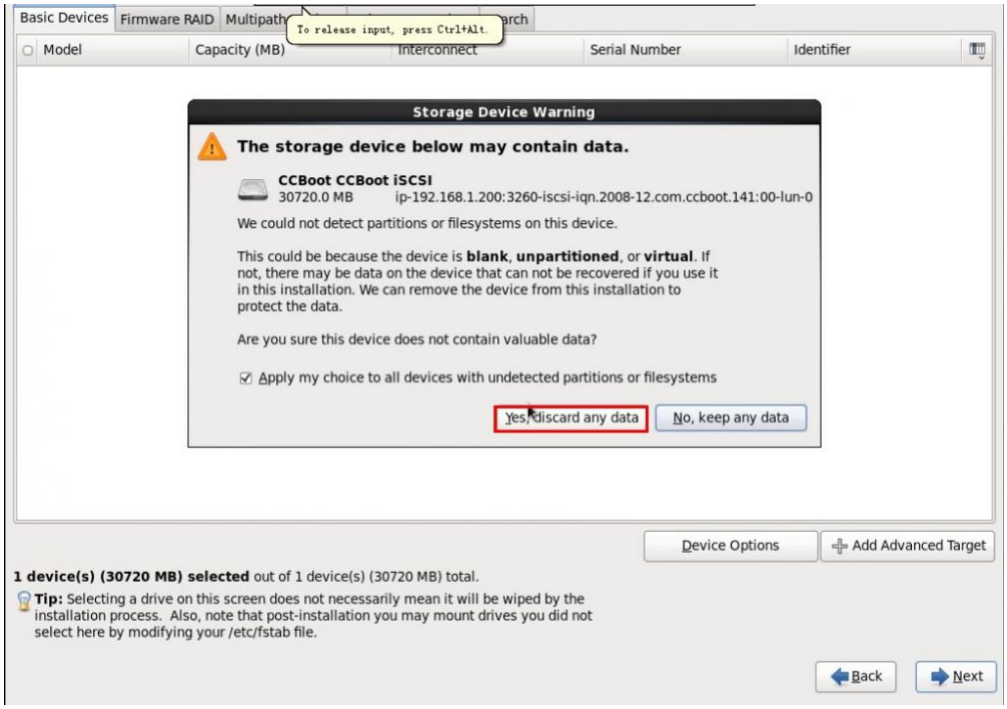


Figure 1-29

24) After entering your computer name, click the "Next" button.

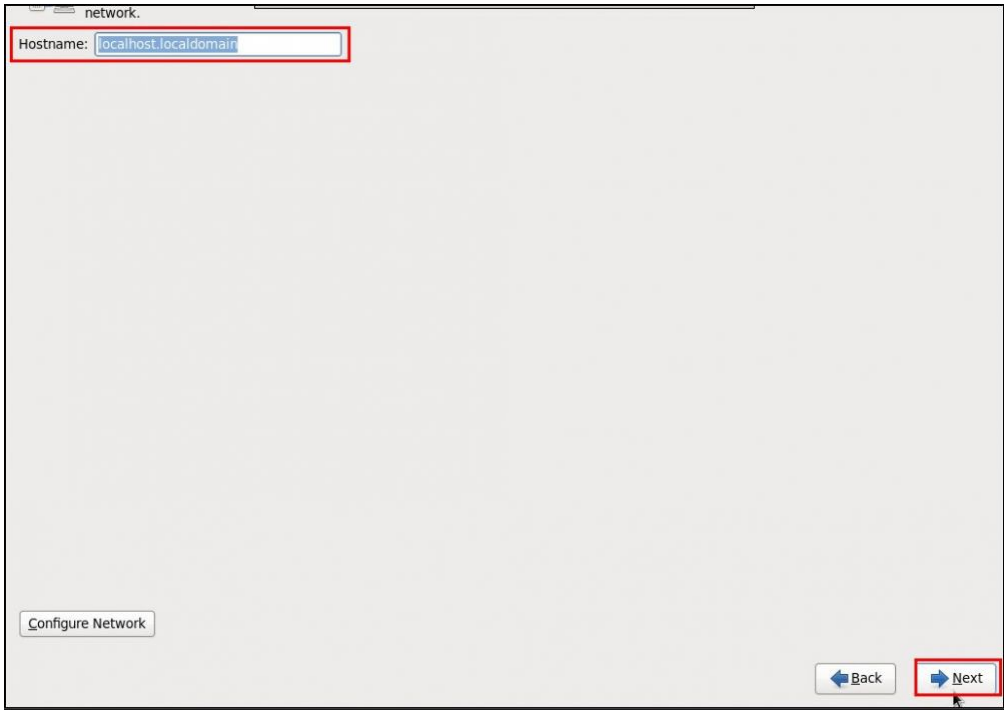


Figure 1-30

25) After you select the time zone, click the "Next" button.

Figure 1-31

26) Enter the "Root" login password, and then click the "Next" button.

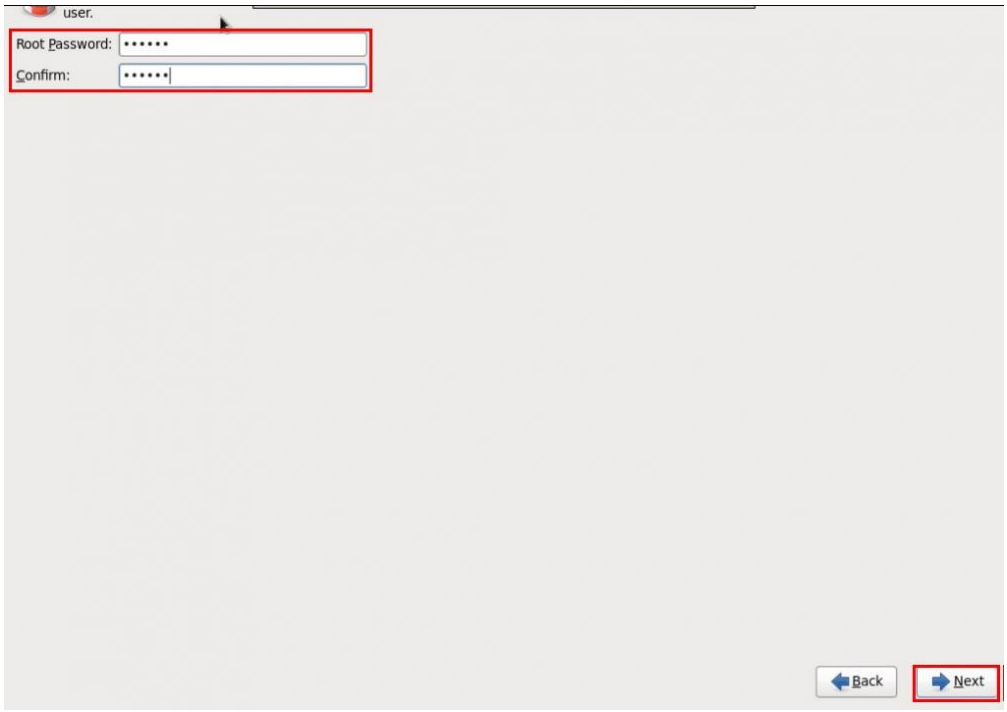


Figure 1-32

27) Default settings; click the "next" button.

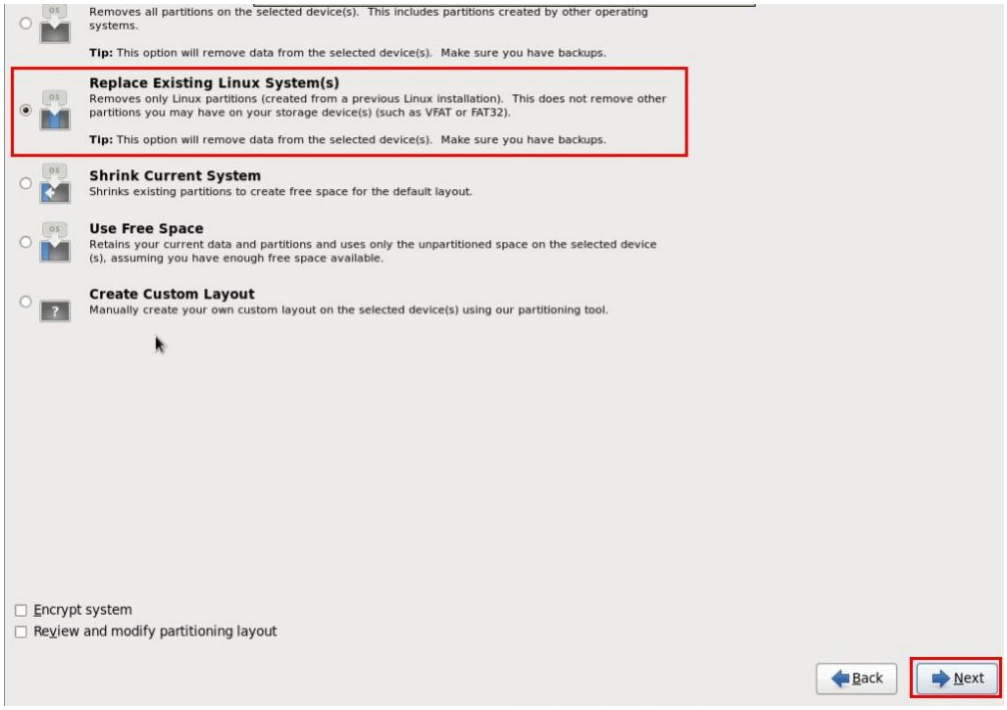


Figure 1-33

28) In the pop-up "Writing storage configuration to disk" dialog box, click the "Write changes to disk" button.

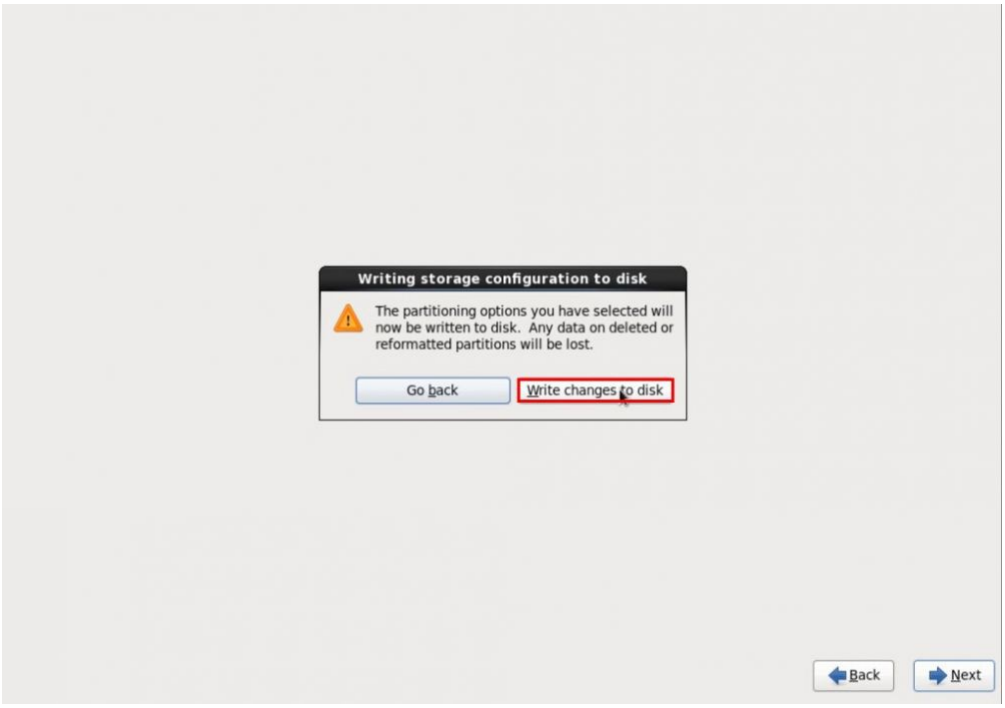


Figure 1-34

29) Select the version of the installed system ("Minimal" is a command version, the "Desktop" is a desktop version), click the "Next" button.

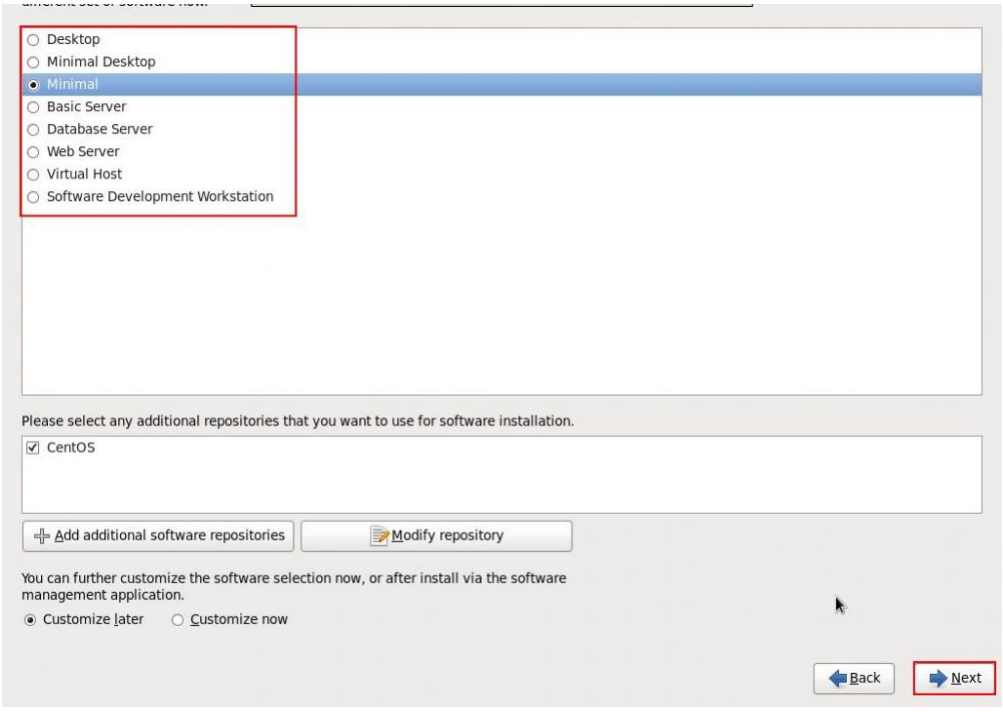


Figure 1-35

30) Linux Installation process.

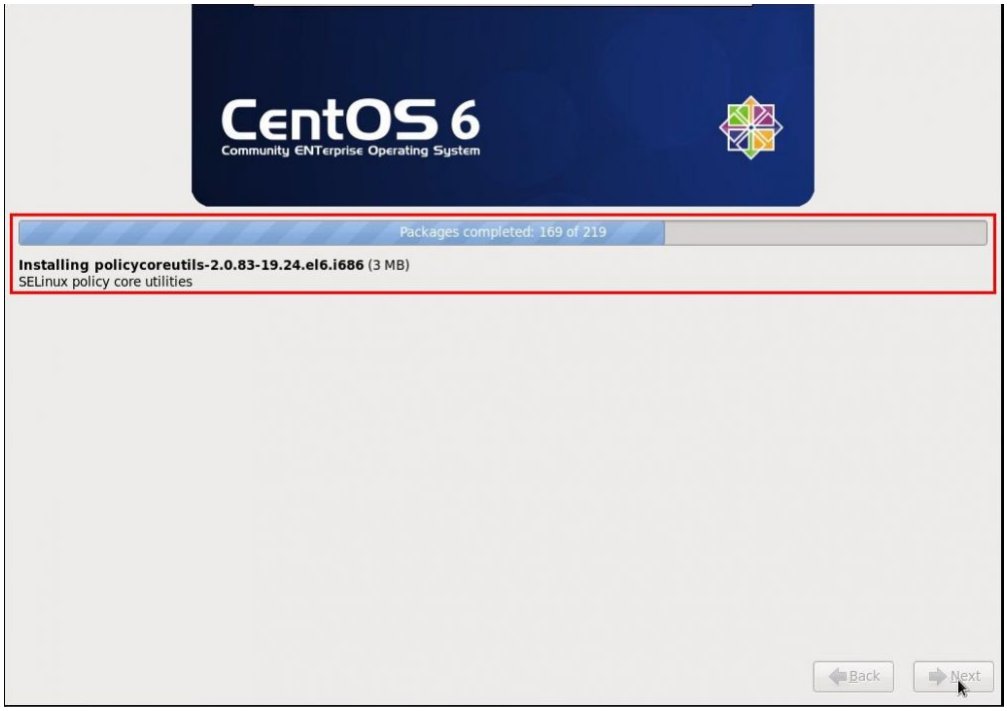


Figure 1-36

31) After the installation is complete, click the "Reboot" button, to restart the Linux operating system, and now it has no disk.

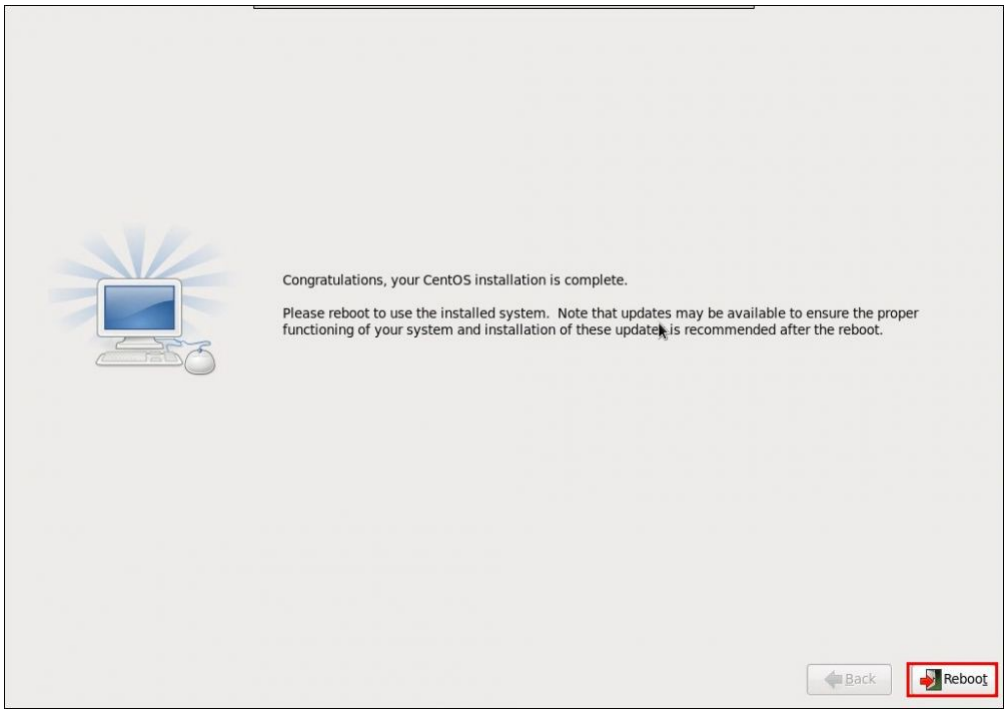


Figure 1-37

32) Diskless boot one of the client PCs with super client.

33) Run the following commands.

[root@localhost ~]# /etc/init.d/NetworkManager stop

[root@localhost ~]# ntsysv

Disable Service Network Manager.

34) Run command as "[root@localhost ~]# nano /etc/udev/rules.d/70-persistent-net.rules" (Figure 1-38).

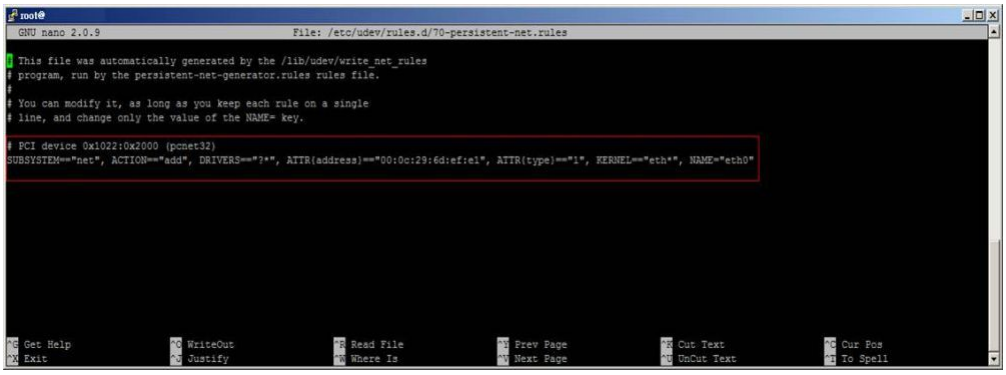


Figure 1-38

35) After modifying (Figure 1-39).

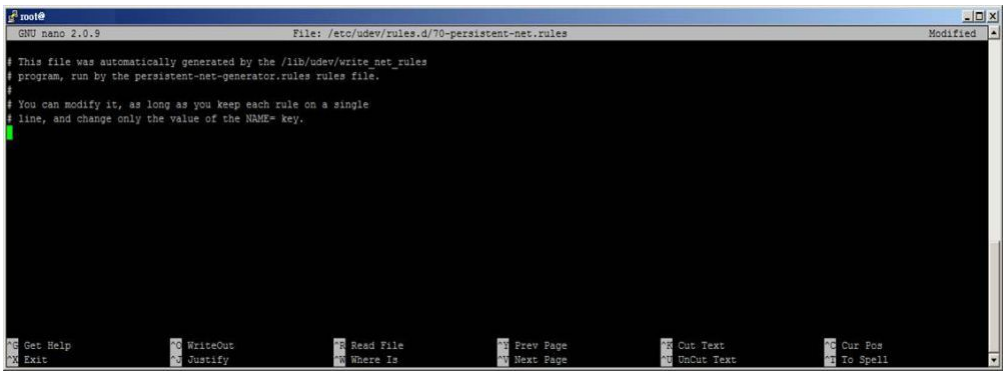


Figure 1-39

36) Run command as "nano /etc/sysconfig/network-scripts/ifcfg-eth0".

Keep these three lines (Figure 1-40).

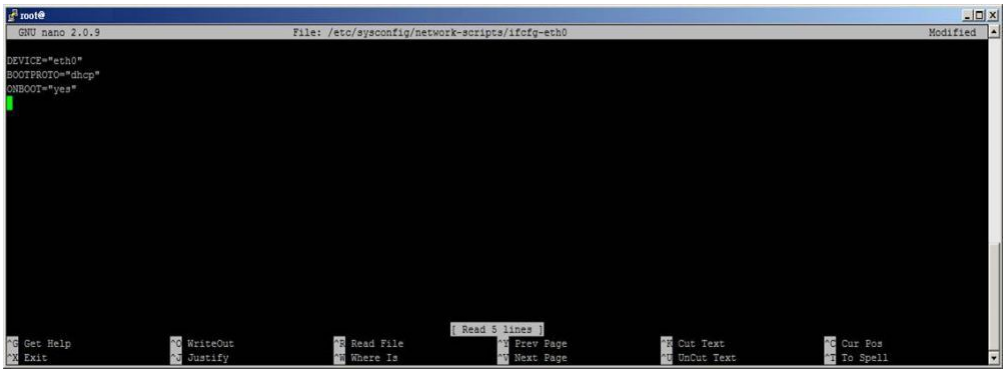


Figure 1-40

37) Run command as "nano /boot/grub/grub.conf" (Figure 1-41).

Delete part: **ifname=eth0:00:50:56:29:02:18**.
For example:
kernel /vmlinuz-2.6.32-431.el6.i686 ro root=/dev/mapper/vg_pc2-lv_root rd_NO_LUKS rd_LVM_LV=vg_pc2/lv_root netroot=iscsi:@11.11.11.207::3260:iface0:eth0::iqn.2005-02.com.ricecake.iscsi:00 ip=eth0:dhcp rd_NO_MD**ifname=eth0:00:50:56:29:02:18** SYSFONT=latarcyrheb-sun16 crashkernel=auto iscsi_initiator=iqn.1994-05.com.domain:01.f94652 KEYBOARDTYPE=pc KEYTABLE=us rd_LVM_LV=vg_pc2/lv_swap rd_NO_DM LANG=en_US.UTF-8 rhgb quiet

after Edited:
kernel /vmlinuz-2.6.32-431.el6.i686 ro root=/dev/mapper/vg_pc2-lv_root rd_NO_LUKS rd_LVM_LV=vg_pc2/lv_root netroot=iscsi:@11.11.11.207::3260:iface0:eth0::iqn.2005-02.com.ricecake.iscsi:00 ip=eth0:dhcp rd_NO_MD SYSFONT=latarcyrheb-sun16 crashkernel=auto iscsi_initiator=iqn.1994-05.com.domain:01.f94652 KEYBOARDTYPE=pc KEYTABLE=us rd_LVM_LV=vg_pc2/lv_swap rd_NO_DM LANG=en_US.UTF-8 rhgb quiet

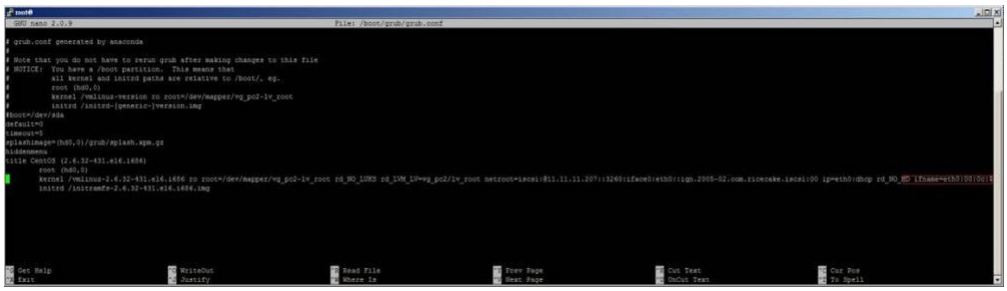


Figure 1-41

38) After diskless booting Linux Operating System, enter the shutdown command "Poweroff" to safely turn off your computer (Figure 1-42).

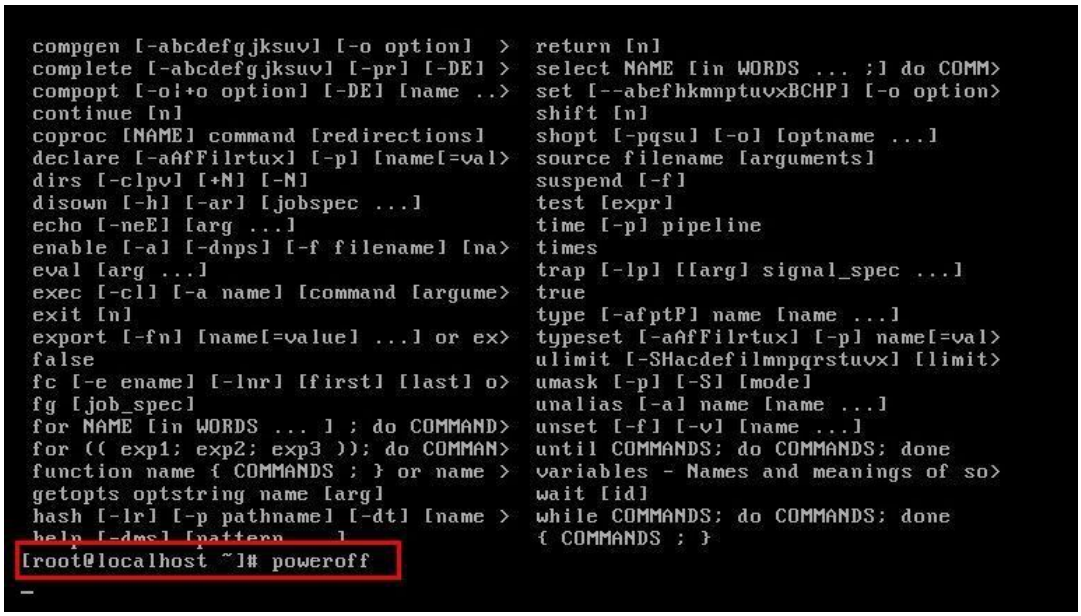


Figure 1-42

39) After the Linux client security is closed, go back to CCBoot server, and then disable "Super Client" for this PC.
40) This completes the operation.

5. Linux Diskless Boot process

1) Prepare the Linux client for diskless booting, the Linux client gets DHCP process (Figure 1-43).

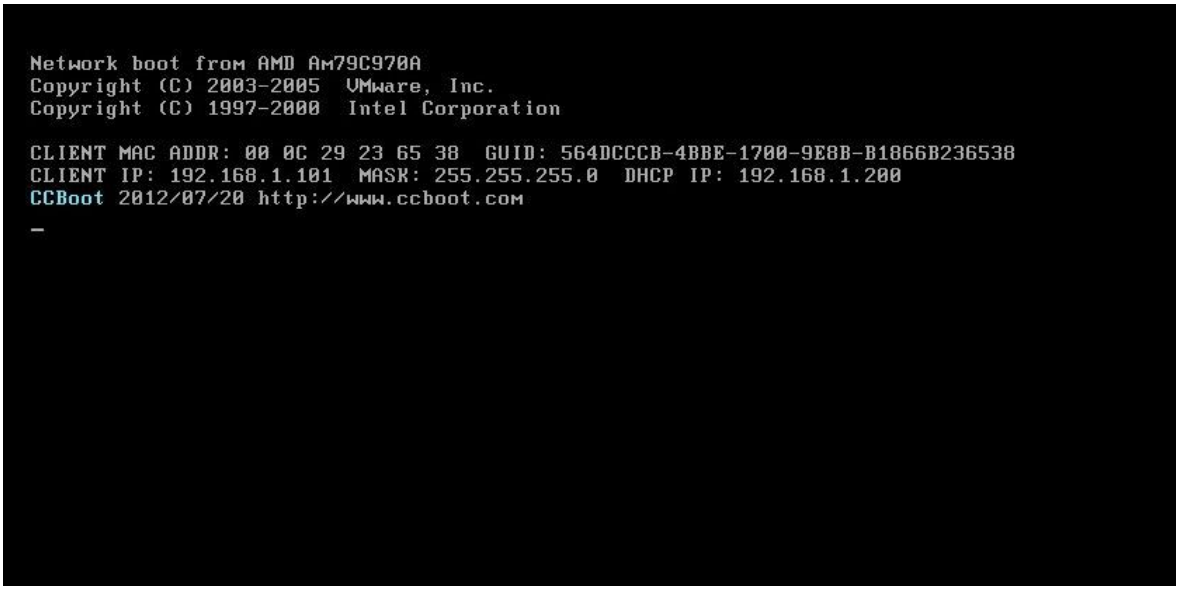


Figure 1-43

2) Linux Client boot screen (Figure 1-44).

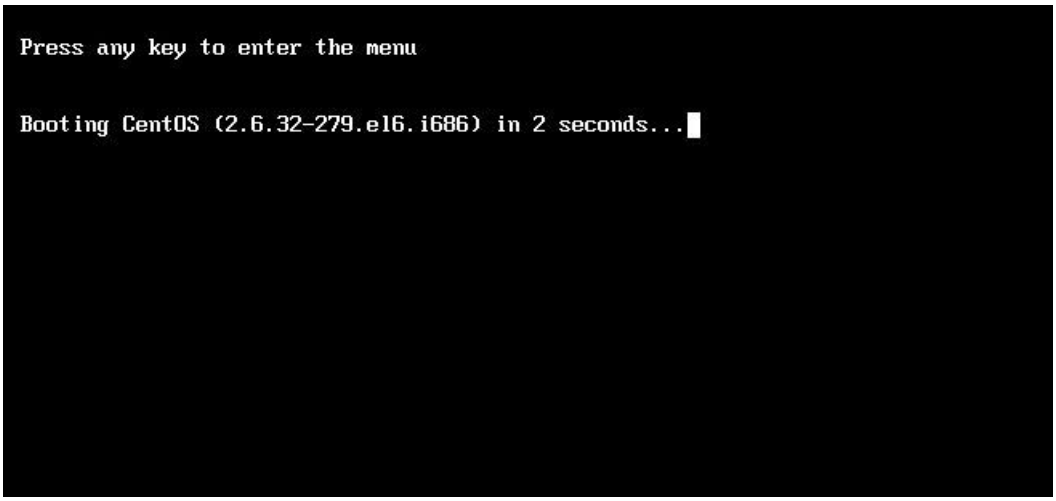


Figure 1-44

3) Linux Client boot process (Figure 1-45).

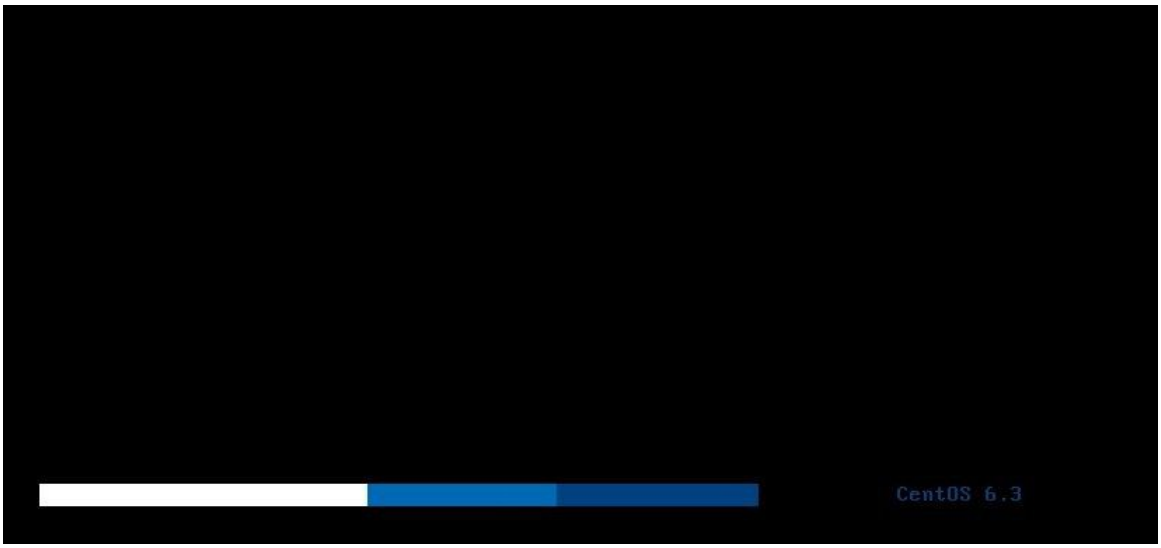


Figure 1-45

4) During Linux client login process, enter the user name (user name is root) and password (Figure 1-46).

Figure 1-46

5) Linux Client login successfully (Figure 1-47).

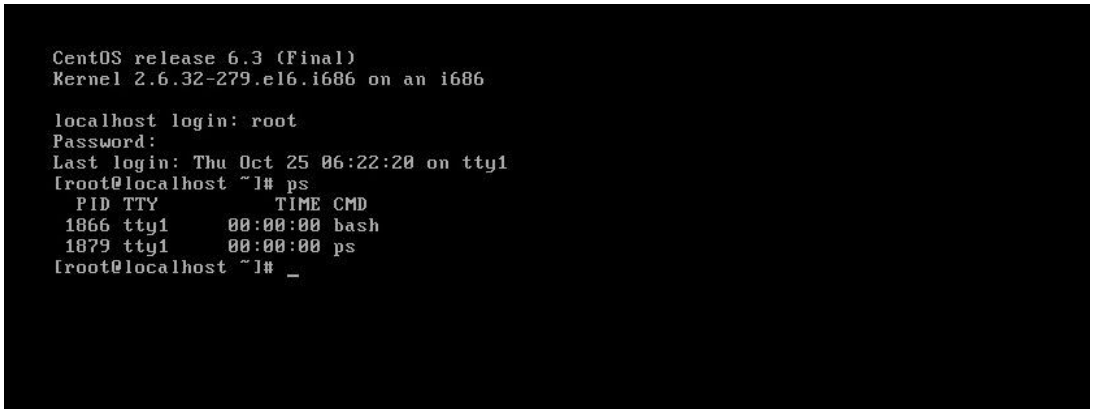


Figure 1-47

6.9 Using CCBoot Diskless Boot Plop Linux

1) Download ploplinux-netboot.zip from
http://www.ccboot.com/download/ploplinux-netboot.zip
and extract it.
2) Copy the files of ploplinux-netboot.zip to C:\CCBoot\tftp\ploplinux-netboot.
3) Download Plop Linux from
http://download.plop.at/files/ploplinux/4.2.2/ploplinux-4.2.2/ploplinux-4.2.2.zip
and extract it.
4) Copy the files of ploplinux-4.2.2.zip to C:\CCBoot\tftp\ploplinux-netboot.
5) Now the C:\CCBoot\tftp should have three folders (ploplinux, pxelinux.cfg and syslinux) and other files such as memtest, menu.c32, tftpfilelist and etc.
6) Edit C:\CCBoot\tftp\ploplinux-netboot\pxelinux.cfg\tftp.conf, change 192.168.1.201 to your CCBoot server IP address.
7) Double click one client in the client list on the CCBoot server; modify the "PXE" to

"ploplinux-netboot\pxelinux.0". The original is "gpxe.pxe".

8) Restart CCBoot service.
9) Now boot the client PC, you will see the Plop Linux boot successfully.

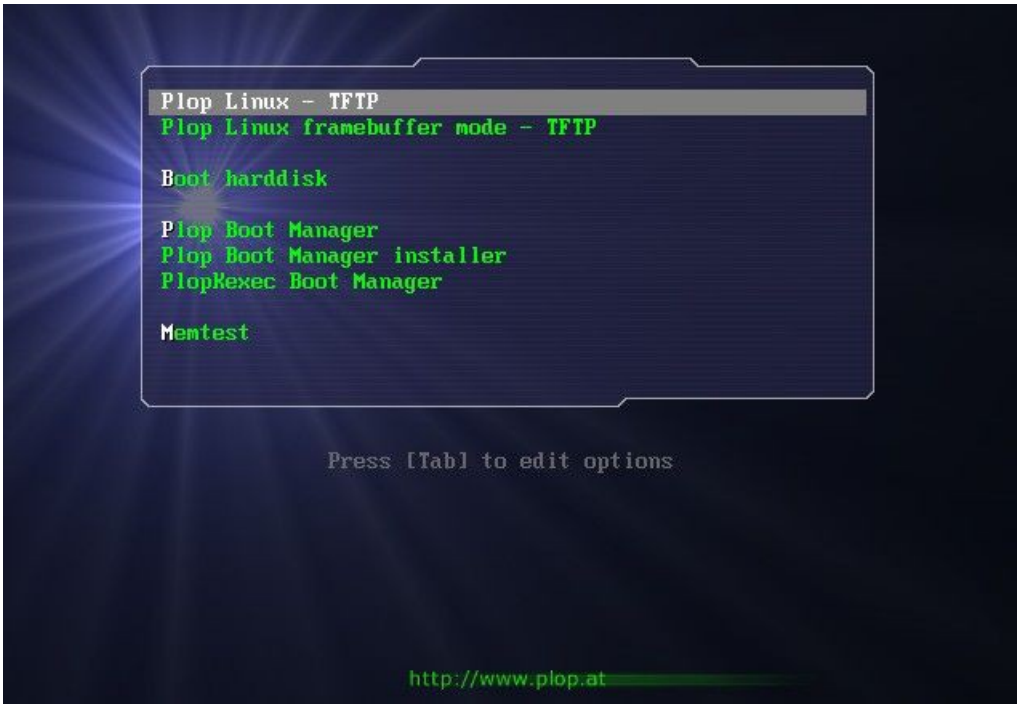


Figure 1-1

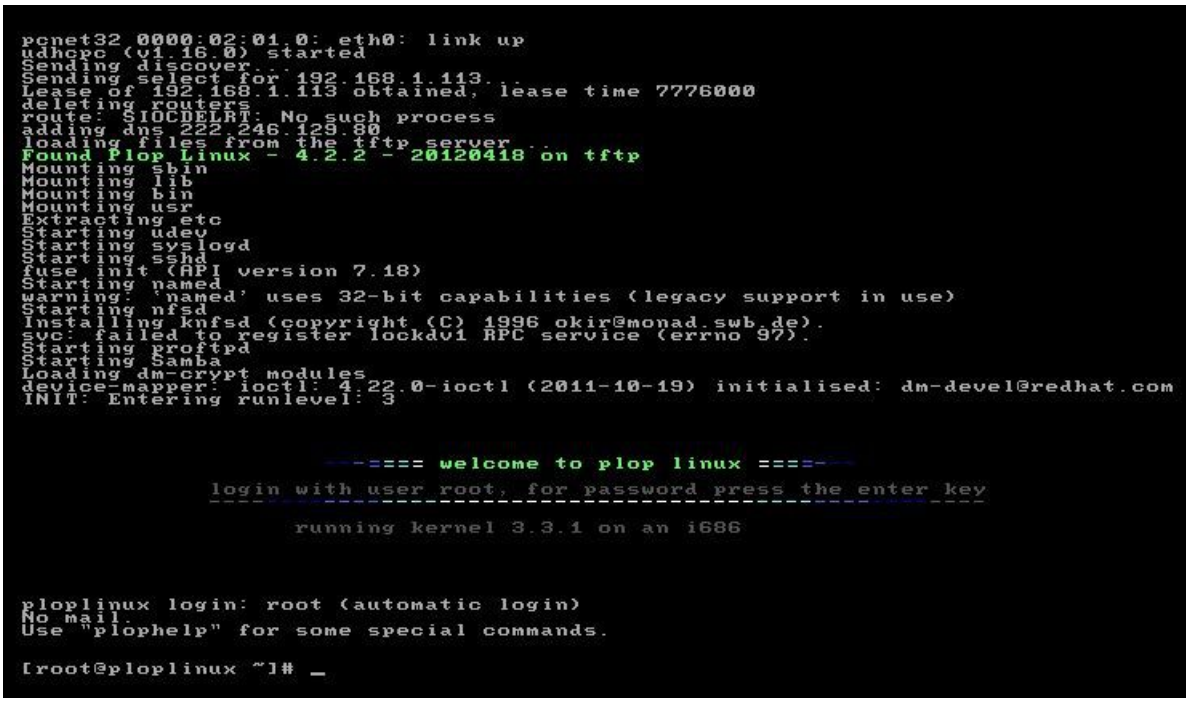


Figure 1-2

6.10 Install Windows 7/8/2008 from HDD

The method of installing Windows 7, Windows 8 and Windows 2008 from HDD is the same. We will take Windows 2008 for example. And the steps are as follows.

1) Download iso image file. Load Windows 2008 image file, and copy all the files to the HDD, such as "D:\win2008".
2) Copy the "bootmgr" and "boot" folder of Win2008 to Drive C, and then, in the root directory of Drive C, create a "sources" folder, and copy the "boot.win" file of "D:\win2008\sources" to this new created "sources" folder.
3) If Drive C has not been formatted as NTFS, you can use the XP build-in "convert /fs:ntfs c:" to convert C to NTFS format.
4) Run "c:\boot\bootsect.exe /nt60 c:" with administrator permission, and then restart the computer.
5) When the installer starts, select the language and keyboard which you want to install.
6) It will display the "Start Installation" Interface. (Please pay attention not to click the "Install Now", but click the "Repair My Computer" on the left bottom.)
7) Enter into the "System Recovery Options", select the "Command Prompt", and enter into the DOS form.
8) Format Drive C by using the "format c:/fs ntfs /q" command.
9) Now you can run "D:\win2008\sources\setup.exe" and then press the "Enter" key. The next installation steps are the same with booting from the CD.

6.11 Add from INF

In CCBoot previous versions, when using CCBoot PNP tool to collect NIC drivers, the new machine must be attached with a HDD. From CCBoot v3.0 build 20131023, we add the "Add from INF" function. With this new function, as long as one client can diskless boot successfully, you could use the CCBoot PNP tool to add NIC drivers (such as Win7 Realtek NIC drivers) from INF on that client directly, which is more convenient.

1. Download Win7 Realtek NIC drivers and exact it into a USB key.
2. Please merge image first.
3. If you are using CCBoot PNP tool on the server, it doesn't matter if there are no clients that can diskless boot successfully. You can use "Load Image" and "Add from INF" function. The steps are as follows.

3.1 Download CCBootPnP.exe (64bit) file from http://www.ccboot.com/download/ccbootpnp.zip. And then extract this file, and run CCBoot PnP tool.

3.2 In the pop up "CCBootPnP" dialog box, click the "Install Known NIC" button (Figure 1-1).

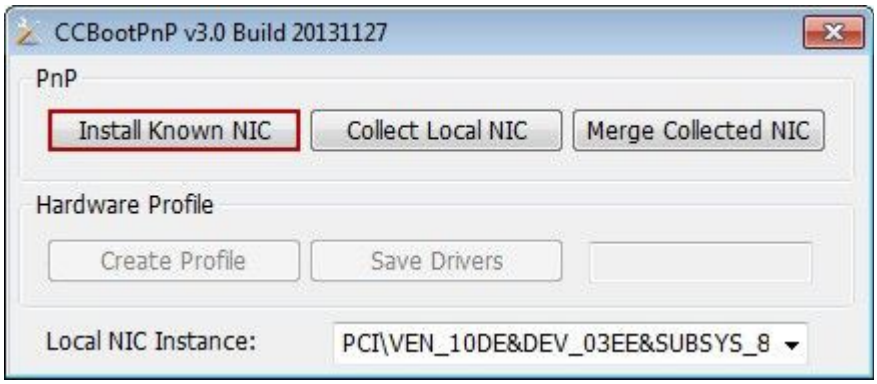


Figure 1-1

3.3 In the pop up "NIC Drivers" dialog box, click the "Load Image" button to select a ".vhd" image file. After image loaded, in the pop up "CCBootPnP" dialog box, click the "OK" button (Figure 1-2).

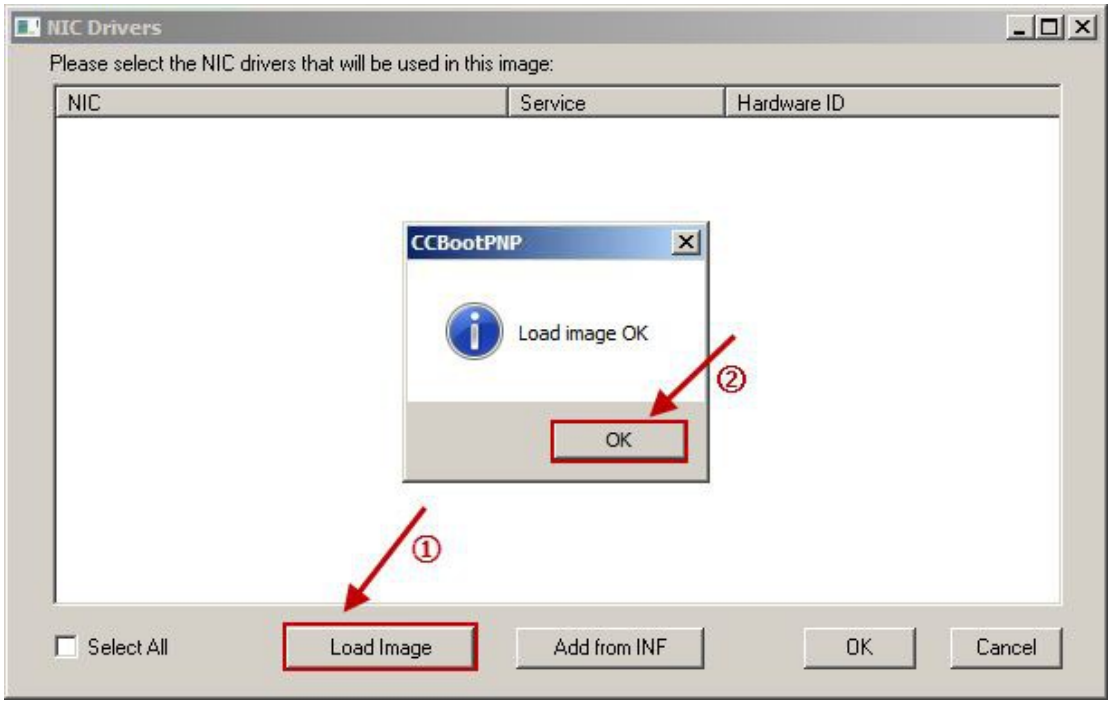


Figure1-2

3.4 In the "NIC Drivers" interface click the "Add from INF" button (Figure 1-3).

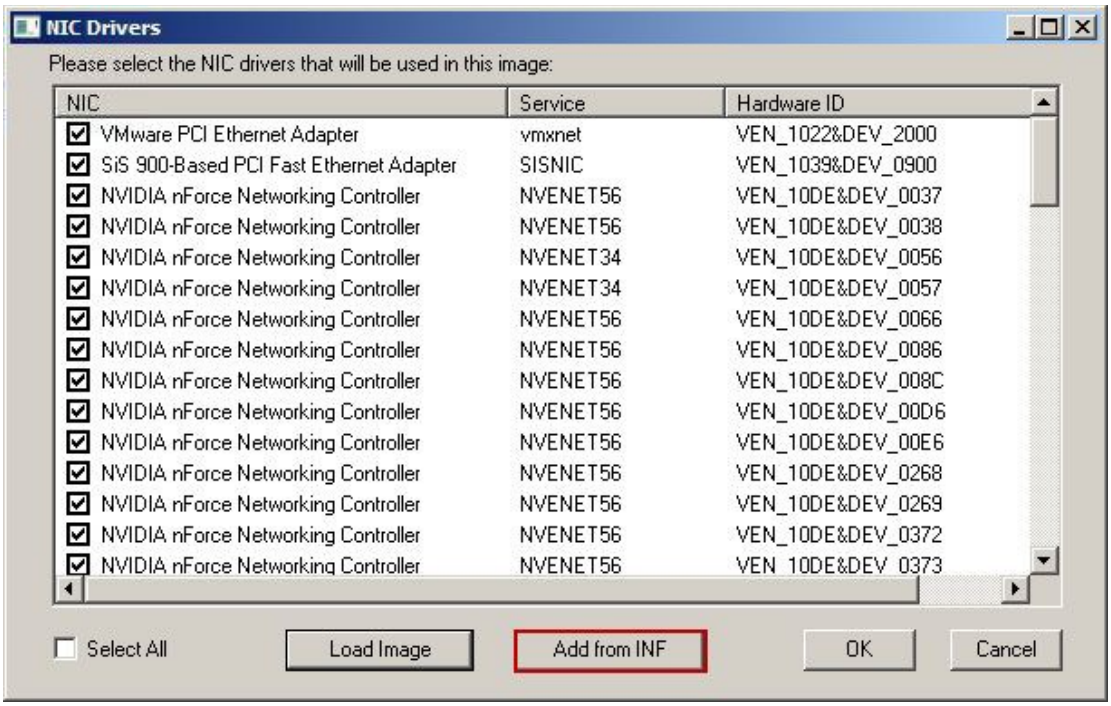


Figure 1-3

4. If you are using CCBoot PnP tool on the client, the steps are as follows.
4.1 Diskless boot one client with super client. And then launch "CCBootClient".
4.2 In CCBootClient main interface, click the "NIC PnP" button (Figure 1-4).

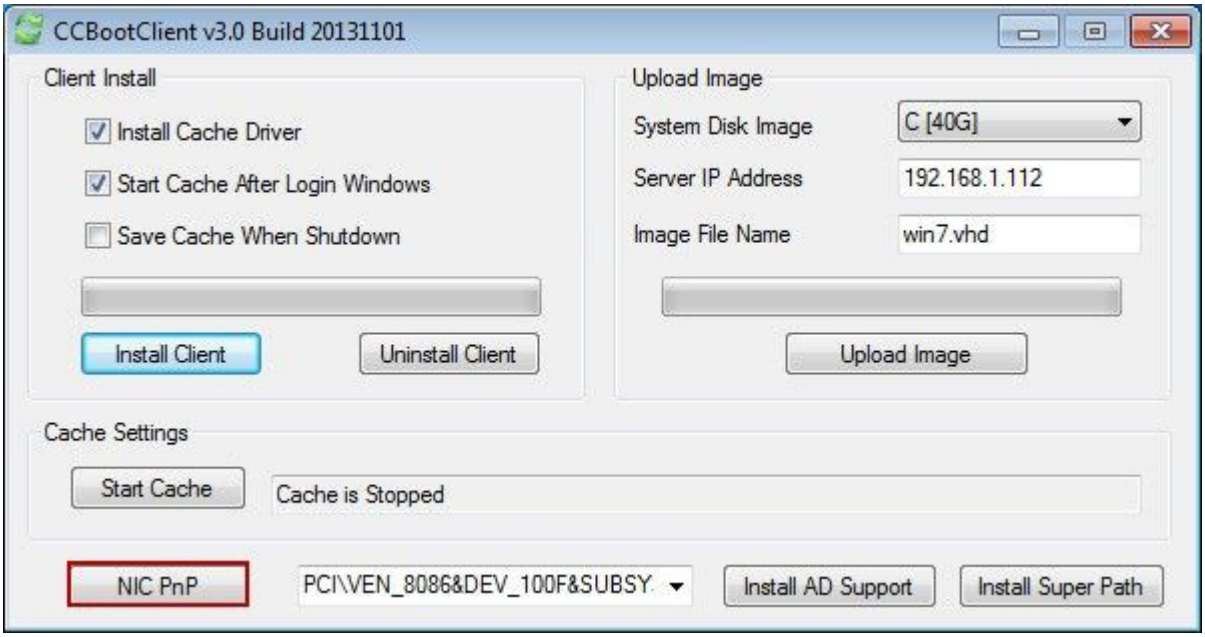


Figure 1-4

4.3 In the pop up "CCBootPnP" dialog box, click the "Install Know NIC" button (Figure 1-5).

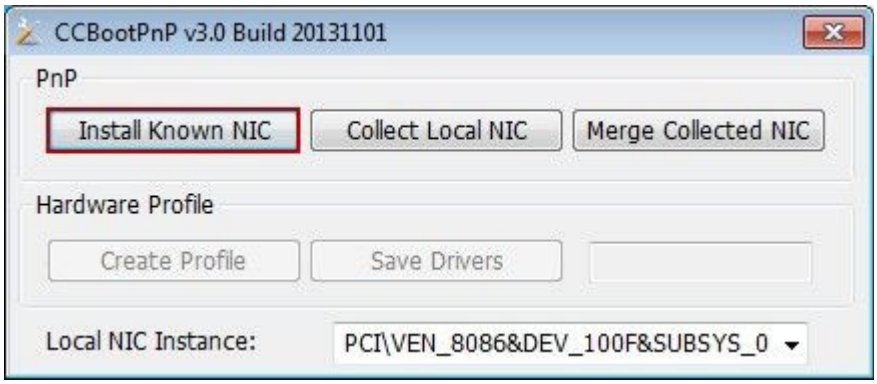


Figure 1-5

4.4 In the pop up "NIC Drivers" dialog box, click the "Add from INF" button (Figure 1-6).

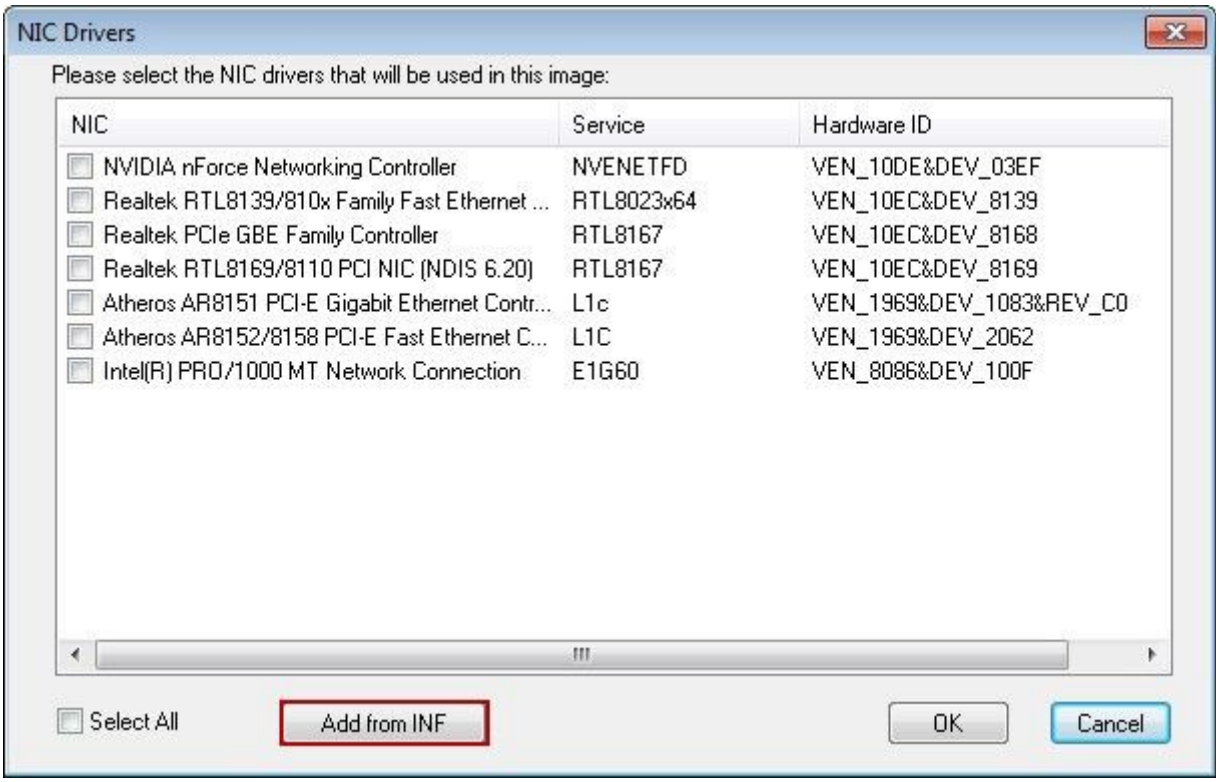


Figure 1-6

5. Find the ".inf" file from the USB key, and then click the "Open" button (Figure 1-6).

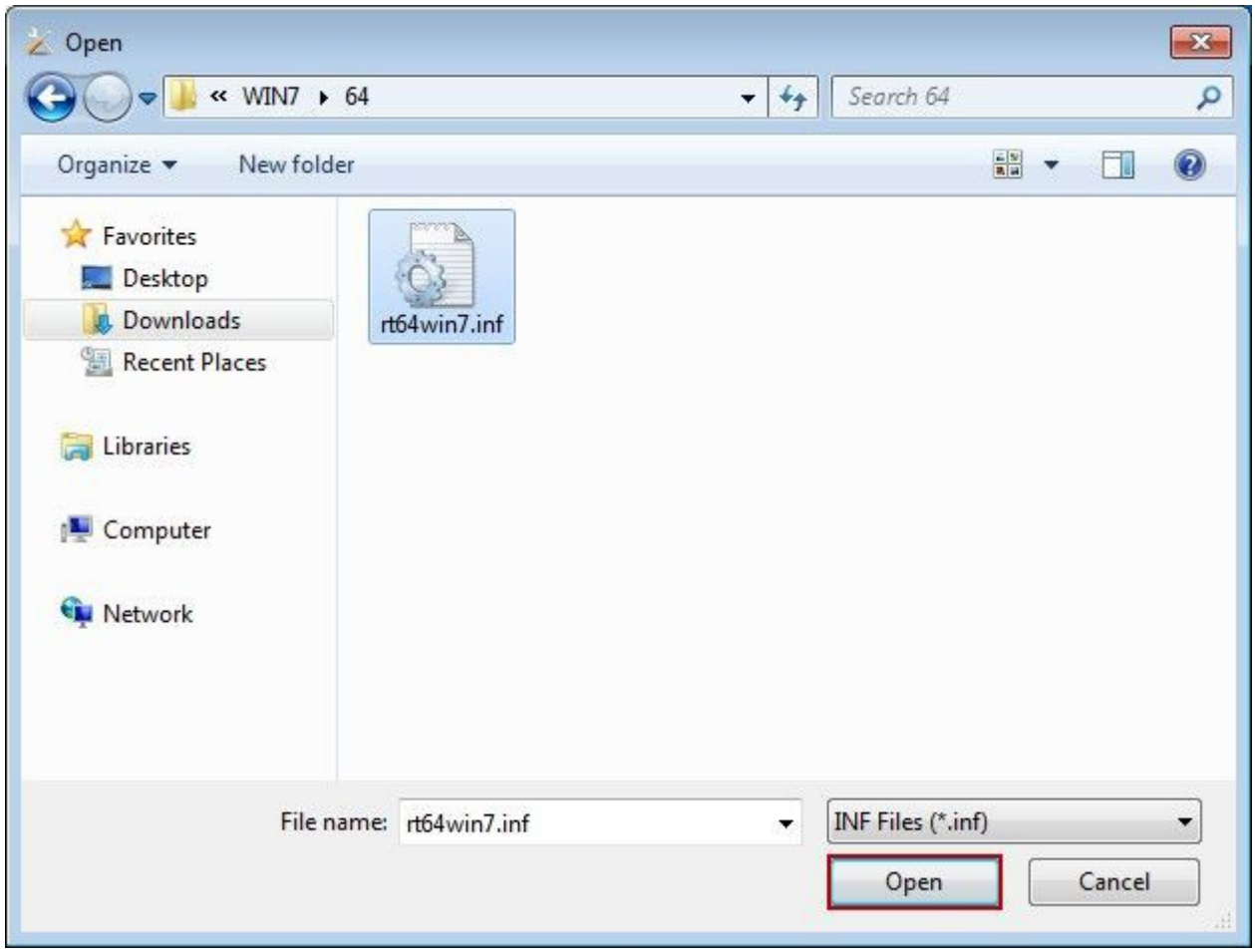


Figure 1-6

6. In the pop up "NIC Drivers in INF" dialog box, select the "Select All" check box, and then click the "OK" button (Figure 1-7).

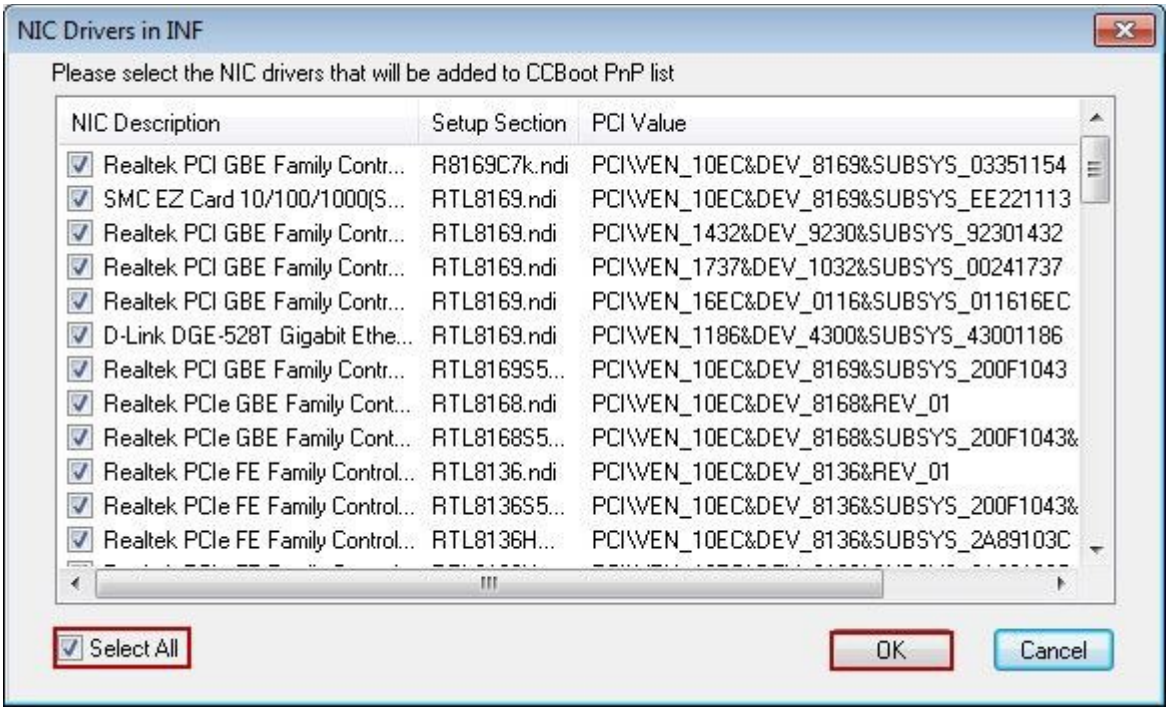


Figure 1-7

7. Now, you can find these NIC drivers you have added from INF in the "NIC Drivers" dialog box (Figure 1-8).

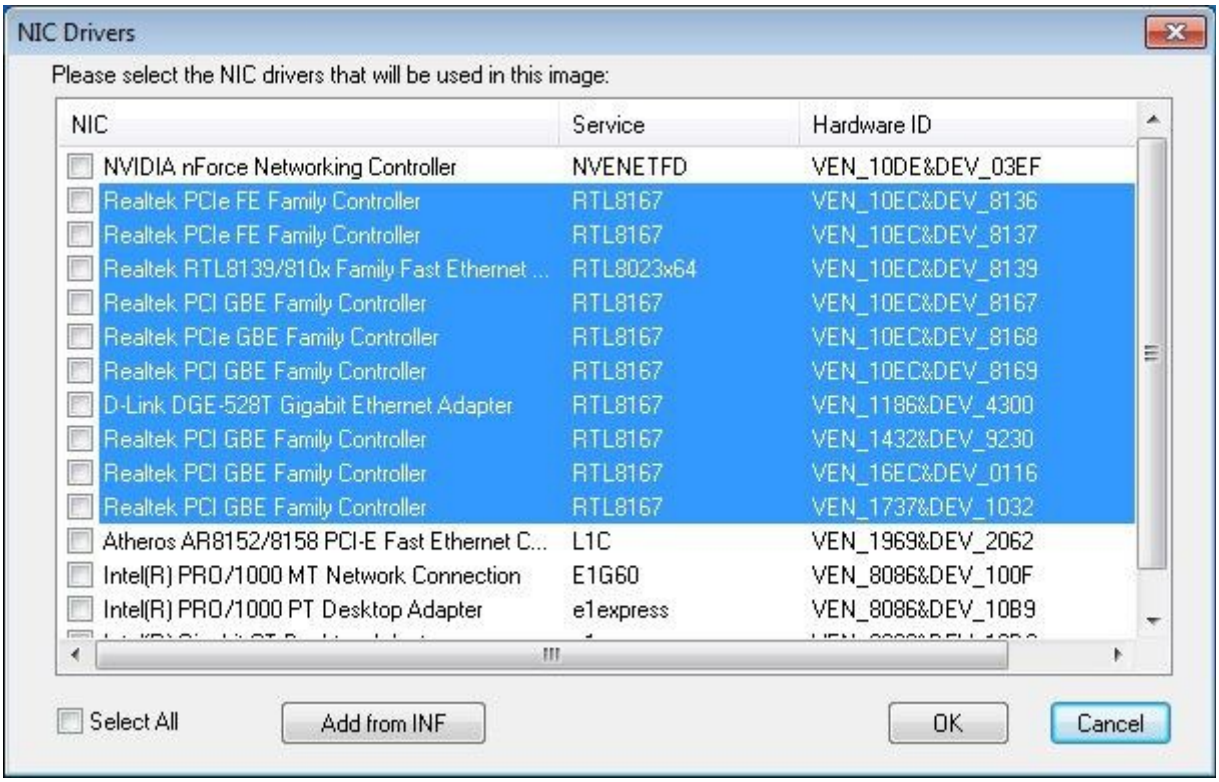


Figure 1-8

8. Select the "Select All" dialog box, and then click the "OK" button (Figure 1-9).

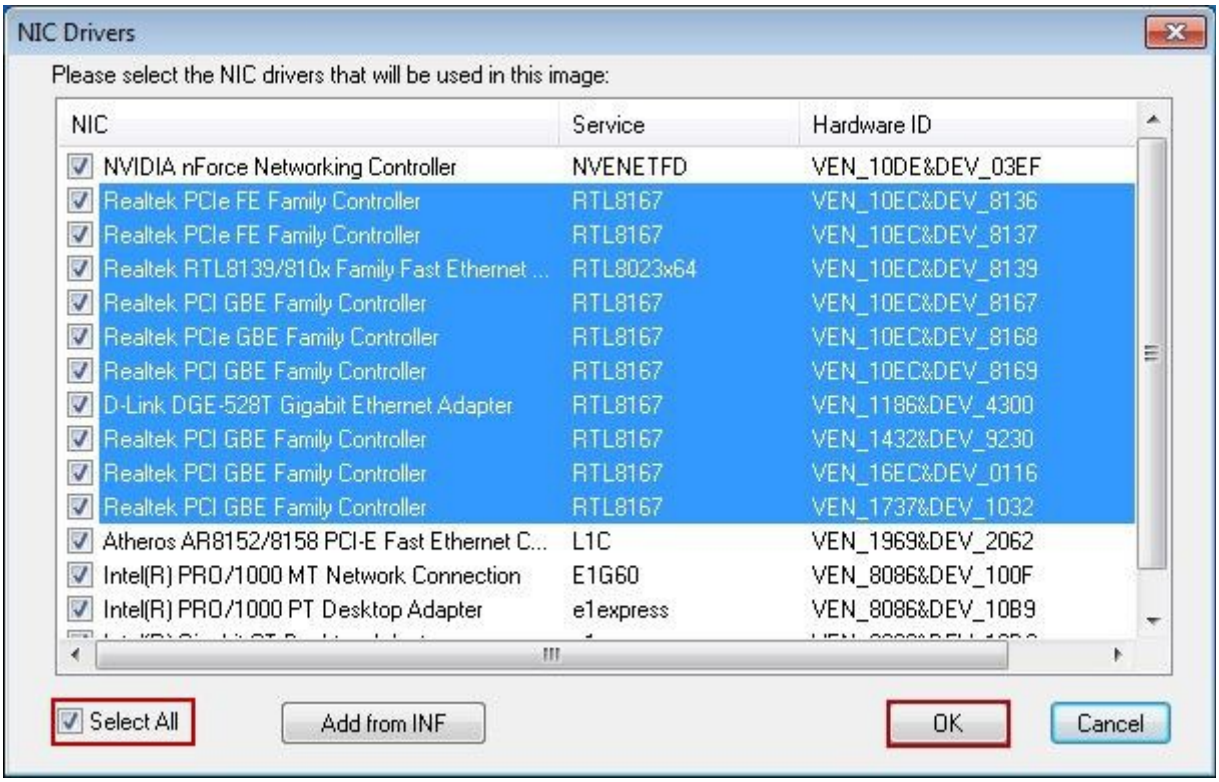


Figure 1-9

9. When done, it will pop up "CCBootPnP" dialog box. Click the "OK" button (Figure 1-10).

Figure 1-10

10. If you run CCBootPnP at client, please shut down the computer, and disable super client on the server.

6.12 How to Convert VHD to Ghost

1) Copy the ".vhd" image file to Windows server 2008.
2) Right click "Computer" and select "Manage".
3) In will pop up the "Server Manager" form. In the left side of the form, on the directory

tree, click the "Storage" node, expand the directory tree, and select the "Disk Management" node (Figure 1-1).

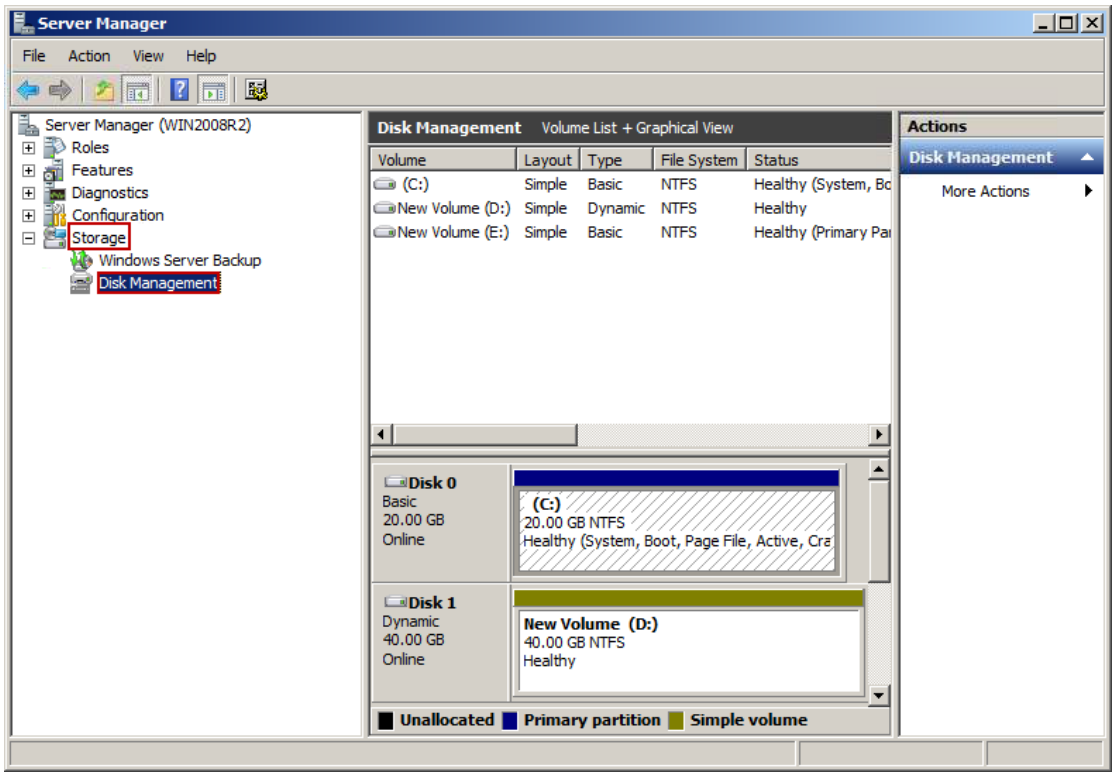


Figure 17-1

4) On the "Action" menu, click "Attach VHD" (Figure 1-2).

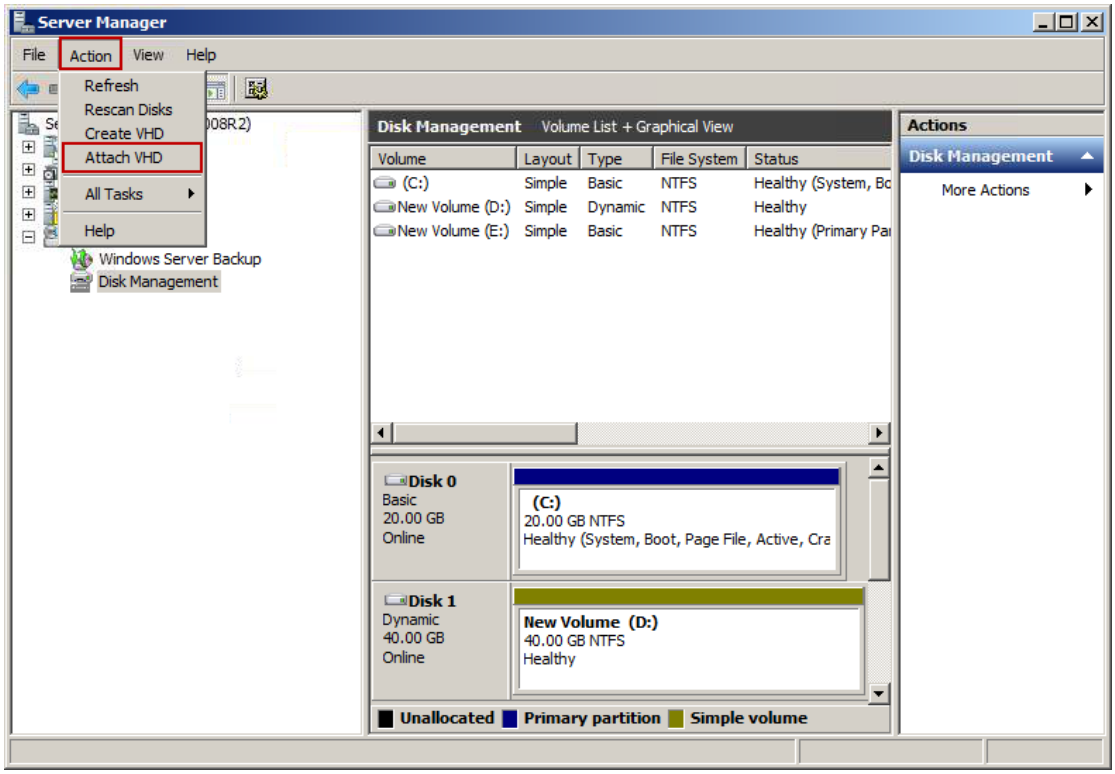


Figure 1-2

5) In the pop up "Attach Virtual Hard Disk" dialog box, click the "Browse..." button (Figure 1-3).

Figure 1-3

6) In the pop up "Browse Virtual Disk files" form, select a VHD file and click the "Open" button (Figure 1-4).

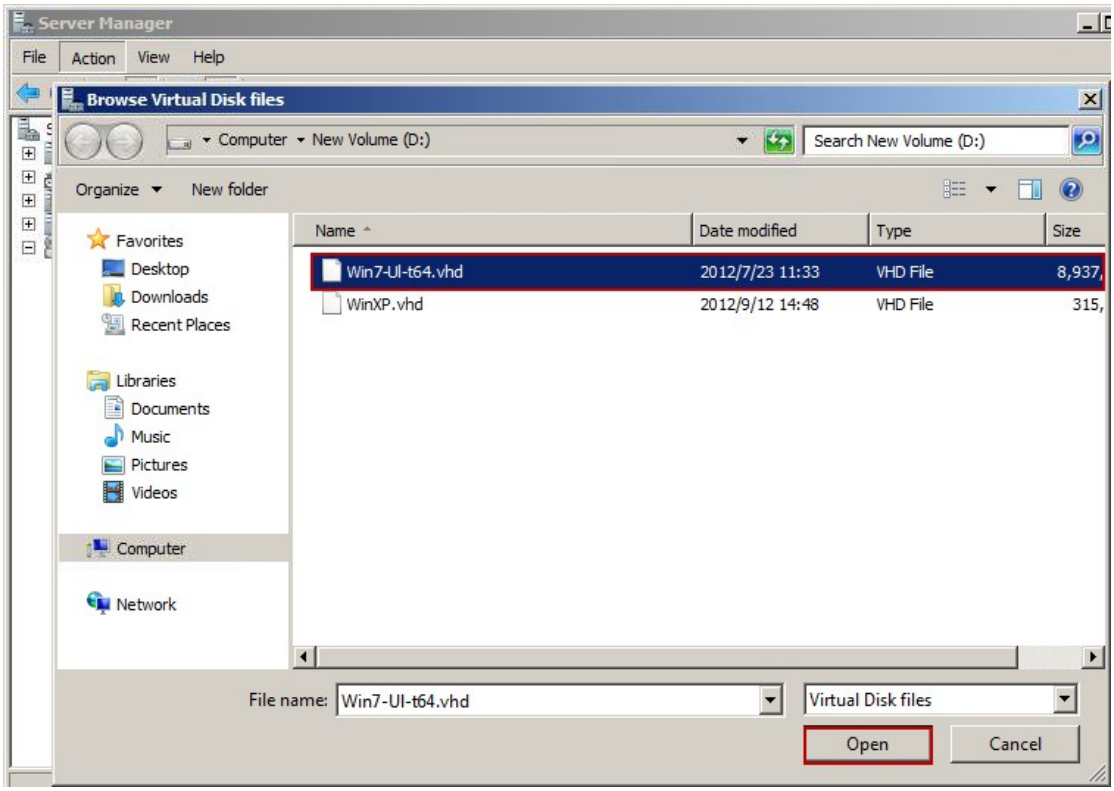


Figure 1-4

7) In the pup up "Attach Virtual Hard Disk" dialog box, click the "OK" button (Figure 1-5).

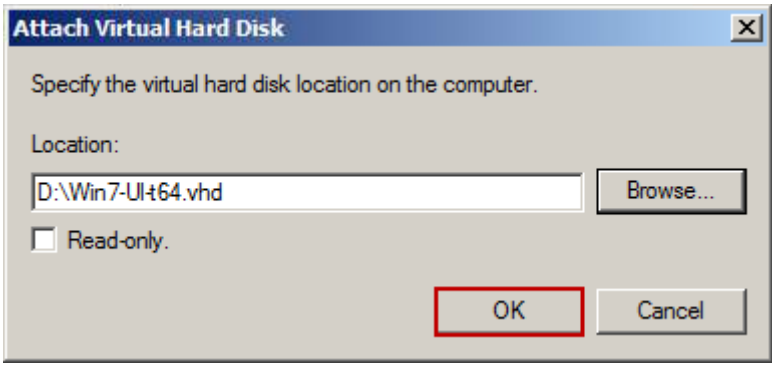


Figure 1-5

8) You will find there is a "Disk 3" you just created (Figure 1-6). (Note: If "Disk 3" is offline, please right click "Disk 3", and select "Online").

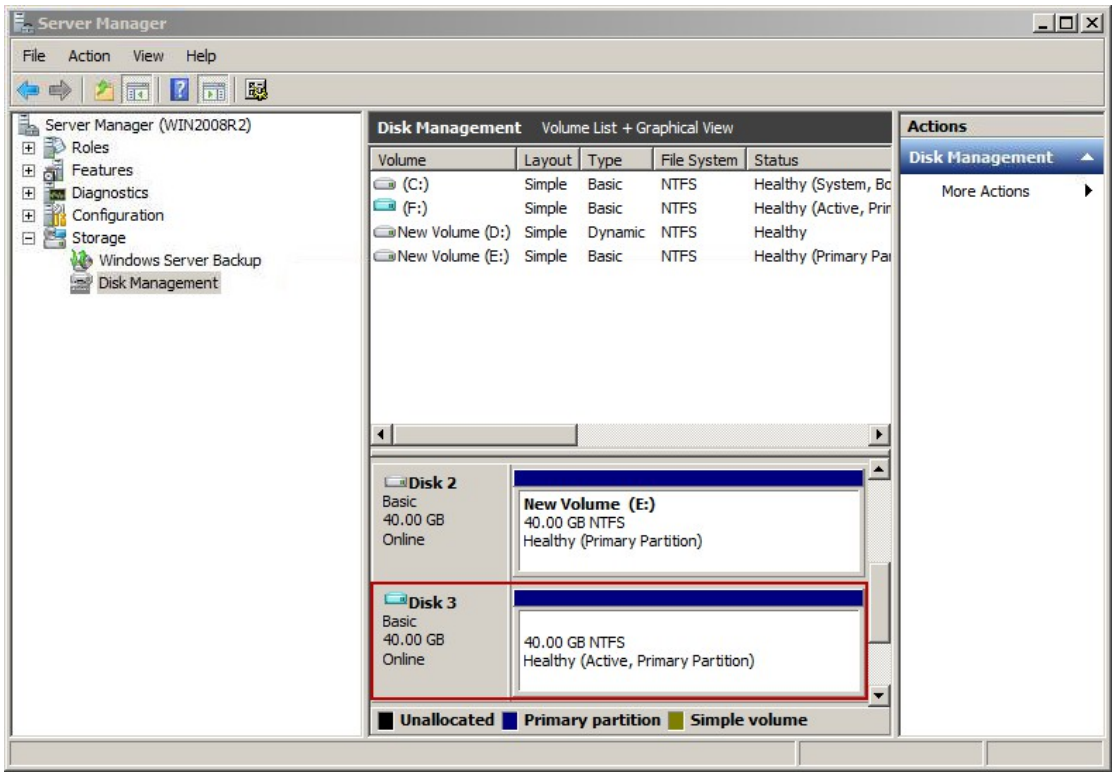


Figure 1-6

9) Download Ghost32 v11.0.

10) Right click "Ghost32" you just downloaded, and then click "Run as administrator" (Figure 1-7).

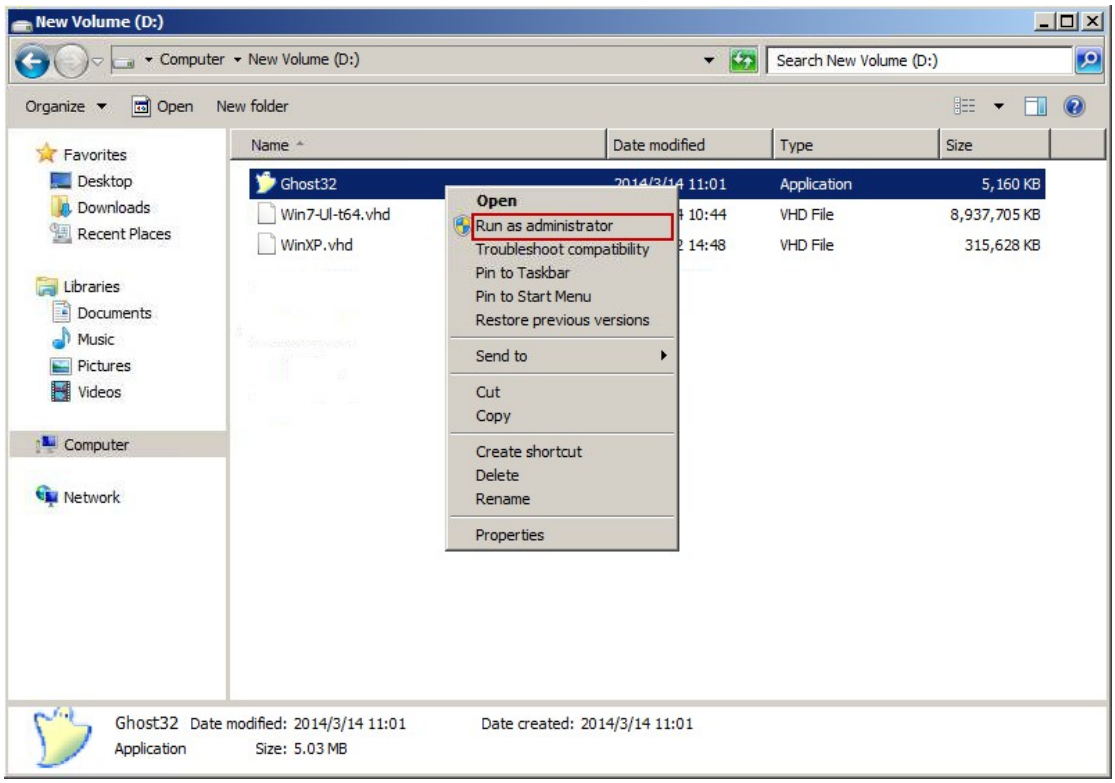


Figure 1-7

11) In the pop up "Ghost 32 11.0" dialog box, click "Local => Disk => To Disk" (Figure 1-8).

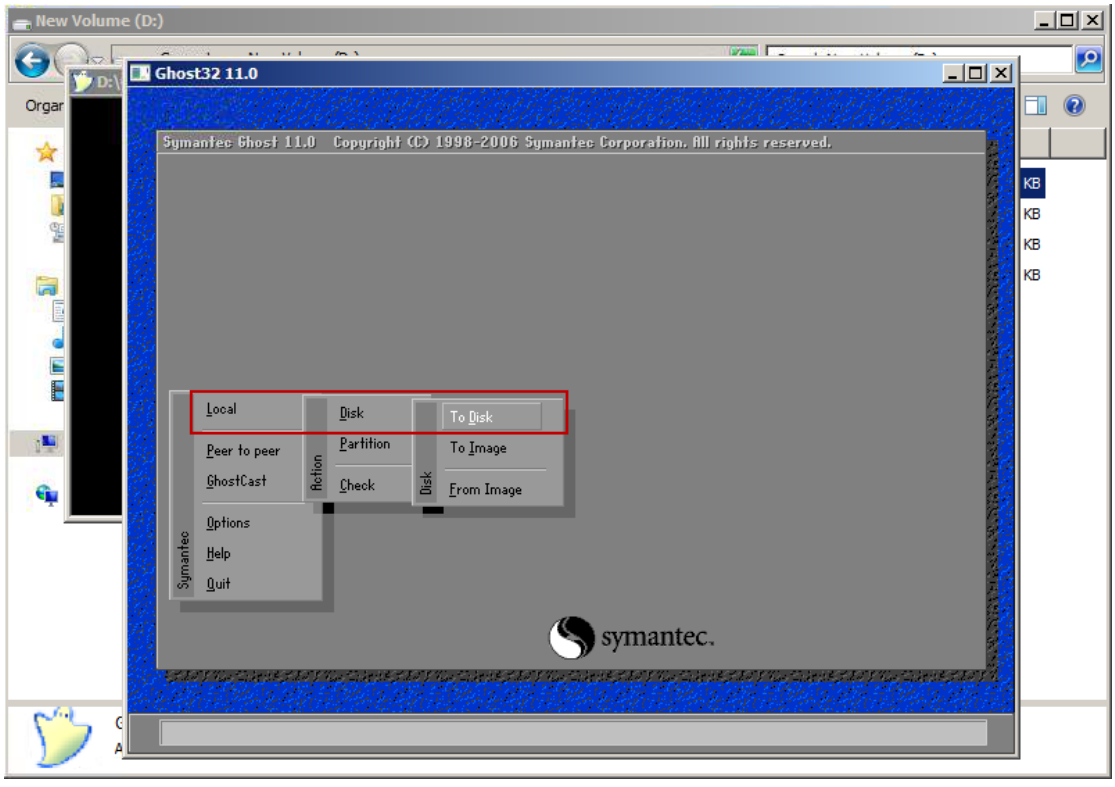


Figure 1-8

Thanks for Mr. Quoc Thang provides this solution.

6.13 How to Solve CCBoot Client Image Upload Failed

Normally, the reasons that cause image uploading failed can be find as below.

1. Can Not Connect to the Host

1) Make sure the CCBoot server & CCBoot client works fine and in the same network.
2) Suppose server IP is 192.168.101.20, type "ping 192.169.101.20" into the "Command Prompt" window, when you get the information as follow, it means ping server successfully (Figure 1-1).

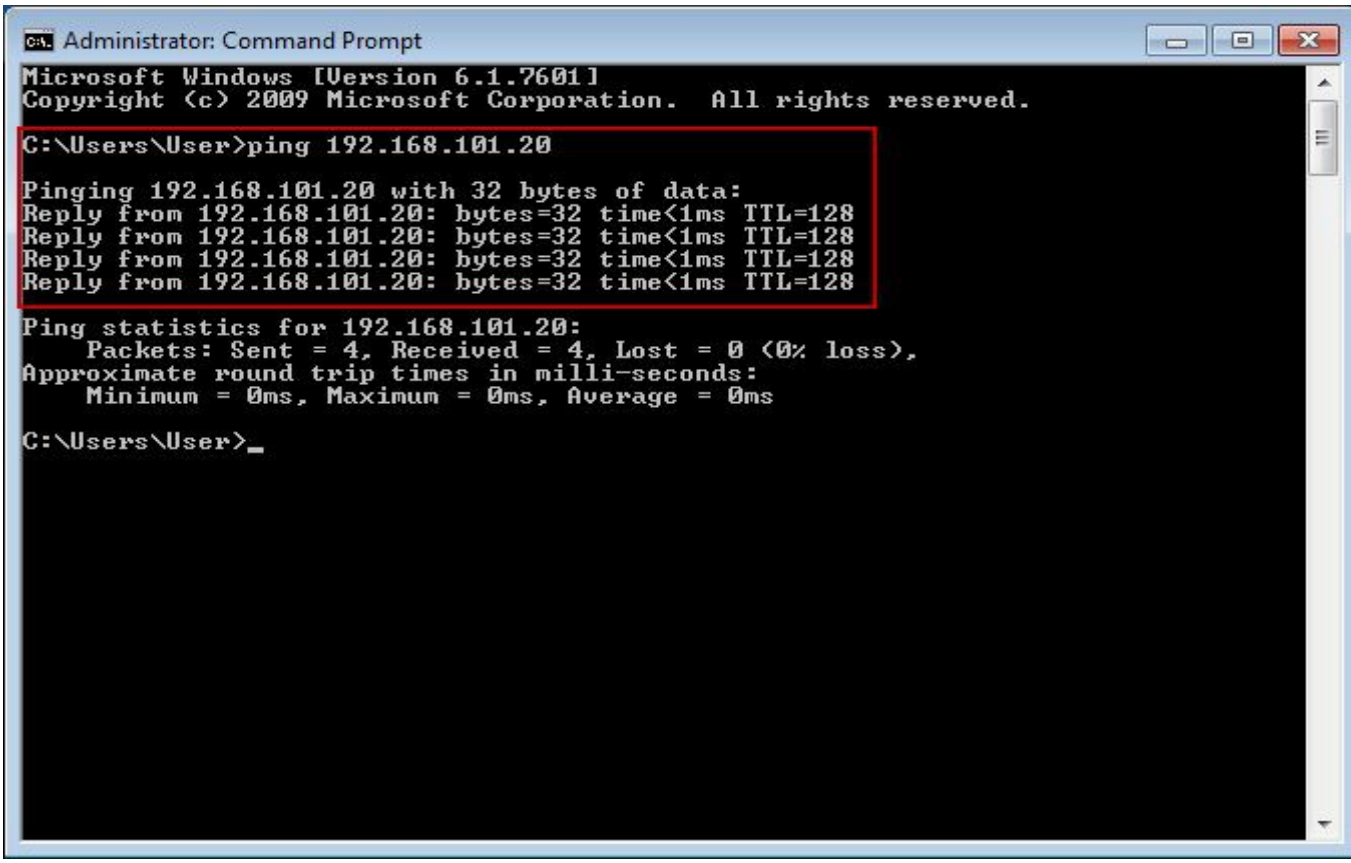


Figure 1-1

3) Suppose client IP is 192.168.101.136, type "ping 192.169.101.136" into the "Command Prompt" window, when you get the information as follow, it means ping client successfully (Figure 1-2).

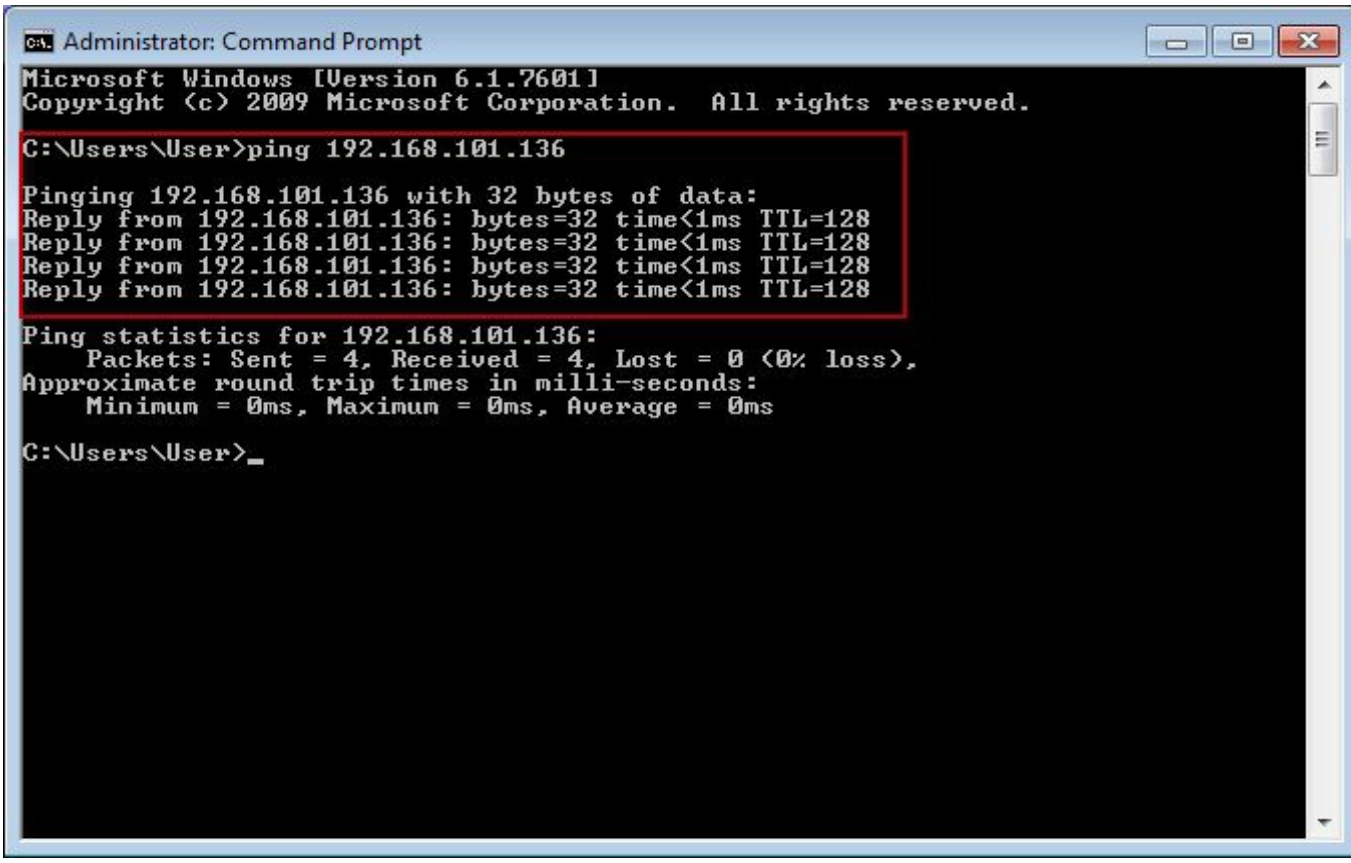


Figure 1-2

2. No Permission

2.1 Permit Image Uploading

1) Double click the client "PC" which you want to upload image in the "Client Manager" details pane (Figure 1-3).

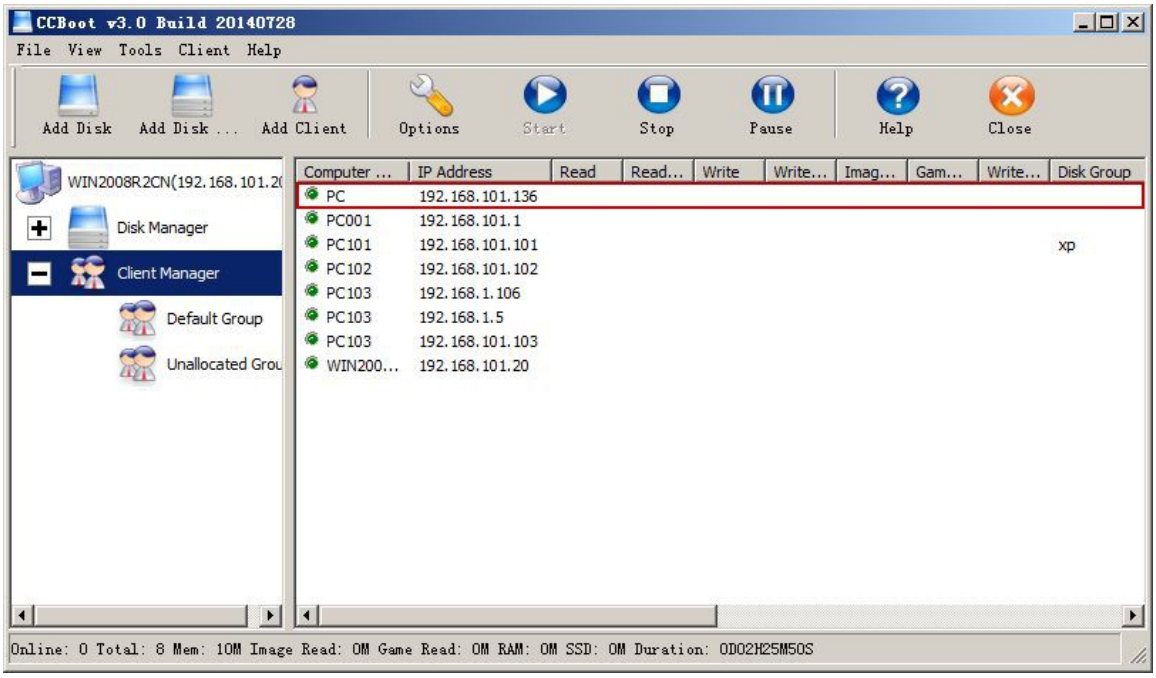


Figure 1-3

2) Select the "Enable Upload Image" check box in the pop-up dialog box (Figure 1-4).

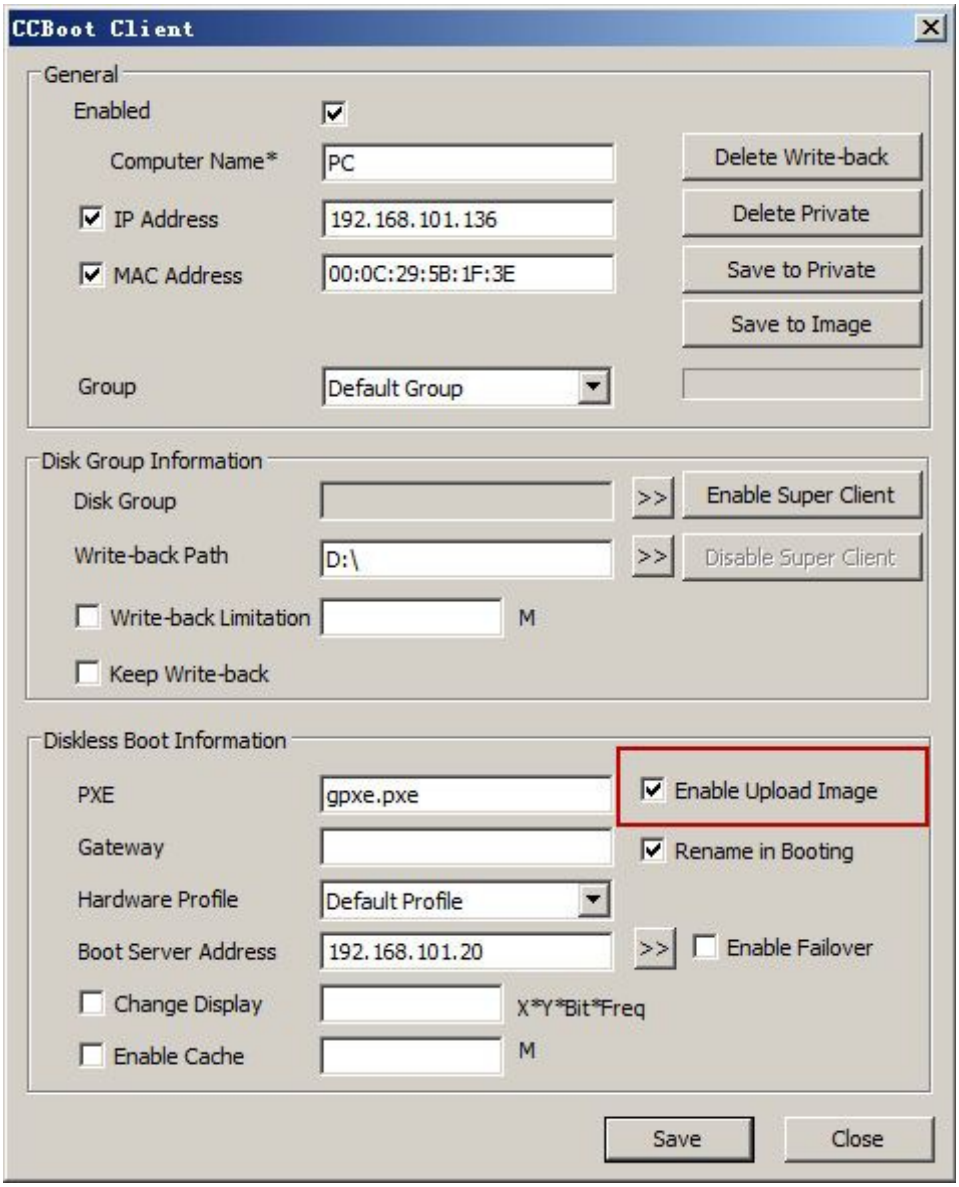


Figure 1-4

2.2 Check DHCP

1) Click the "Options" in the CCBoot interface, in the pop-up dialog box click "DHCP Settings" tab, then click "Scan DHCP" button in the "DHCP Settings" interface, make sure there is no other DHCP in the same network (Figure 1-5).

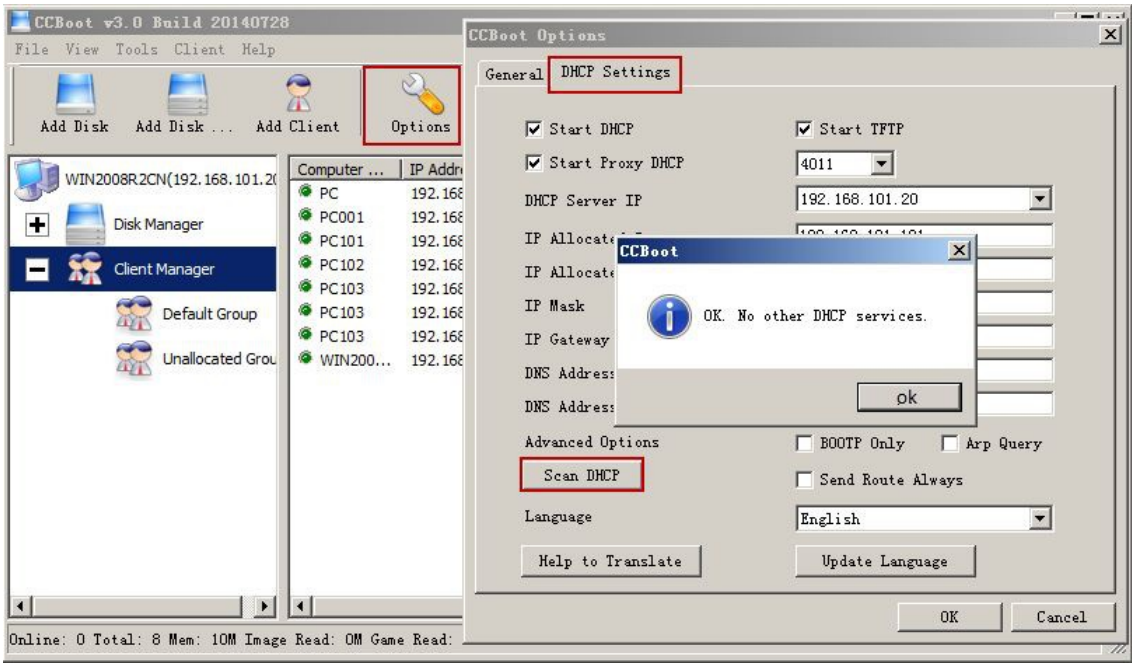


Figure 1-5

2) Check the client IP address, make sure the client IP is allocated from CCBoot server, Here the correct CCBoot client IP address is 192.168.101.136 (Figure 1-6).

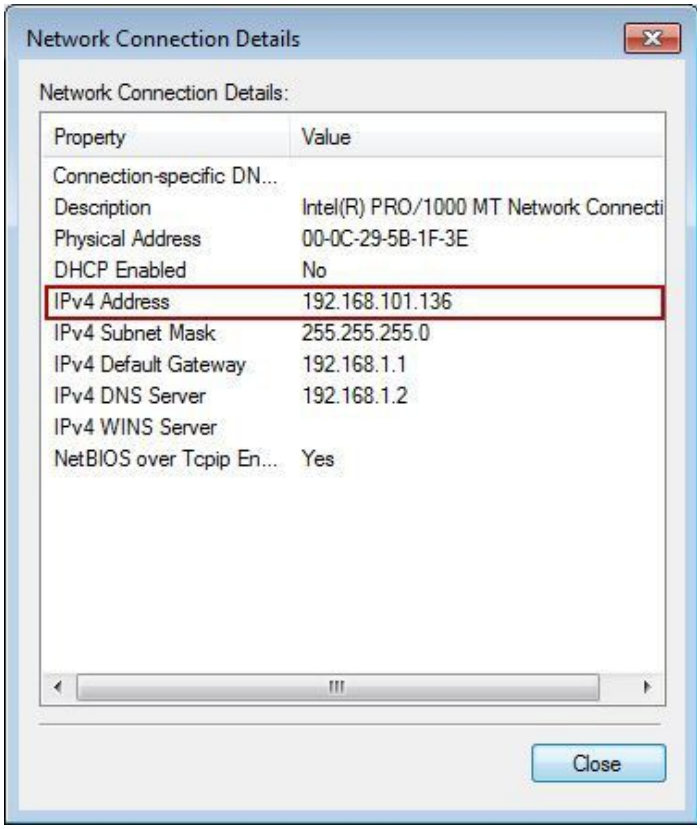


Figure 1-6

Note: You need to check CCBoot client IP address, make sure the client IP address is allocated from CCBoot server. Here the CCBoot client IP address is 192.168.101.136. If there are other DHCP services on the LAN, shut them down avoid the conflict between the CCBoot DHCP and other DHCP service. Especially, please disable the DHCP service in the router.

3. Connect Send Failed

1) Check CCBoot server IP, make sure server and client in the same network (Figure 1-7).

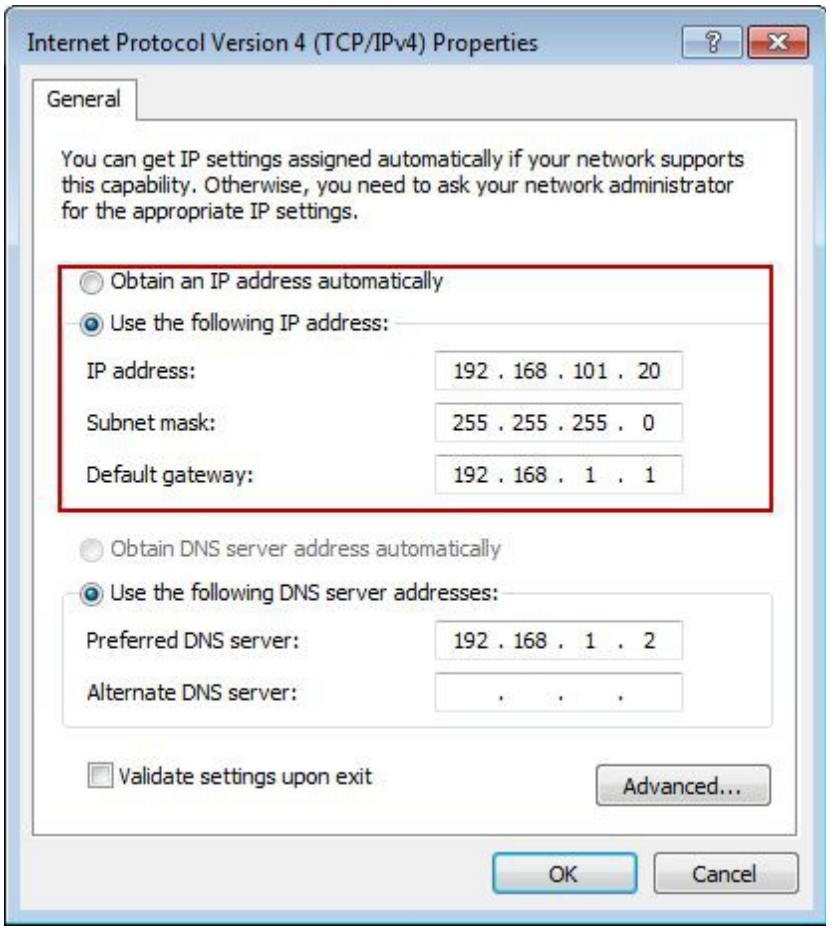


Figure 1-7

2) Check CCBoot client IP, make sure server and client in the same network (Figure 1-8).

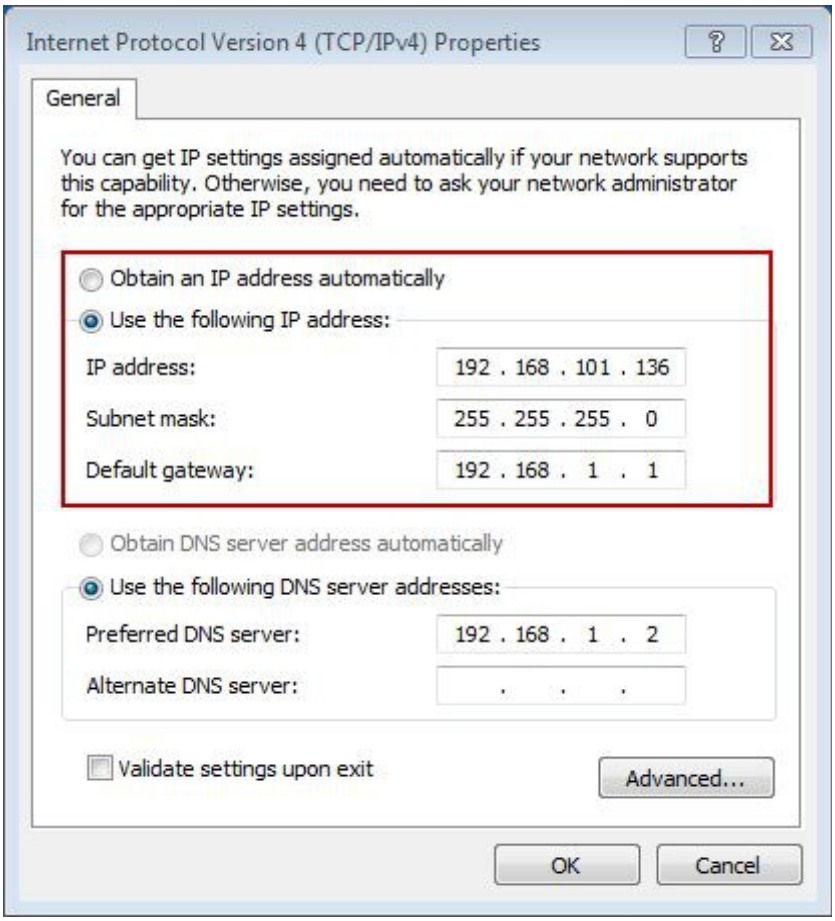

Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 101 . 136
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 1 . 1
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 192 . 168 . 1 . 2
Alternate DNS server: . . .
Validate settings upon exit
Advanced...
OK
Cancel

Figure 1-8

7 Single Image for Multiple Specs

7.1 Create Single Image for Multiple Specs

The PnP function of CCBoot makes it is possible for you to create a single image for all client PCs with various specifications so that they can diskless boot with this single image. Suppose you need to implement PnP for 30 client PCs Intel, AMD and with different types of Video Card and Sound Card: below are the steps for you.

Note: From CCBoot v3.0 build 20131023, we add the "Add from INF" function. With this new function, as long as one client can diskless boot successfully, you could use the CCBoot PNP tool to add NIC drivers (such as Win7 Realtek NIC drivers) from INF on that client directly, which is more convenient. For details, please refer to "Add from INF".

1) Install Windows XP or Windows 7 on the client (suppose PC-1) which has the best hardware specifications. Please install Windows first on AMD client PC in this way it will avoid such problem like BSOD, and it is much stable to merge different drivers into one image in this process.
2) Install NIC driver, chips driver and other low level drivers on PC-1.
3) Install CCBoot Client on PC-1 and restart it as required.
4) After rebooted, launch CCBoot Client again, and click "NIC PnP", "Install Known NIC" and check "Select All", then upload image from PC-1 to CCBoot server (Figure 1-1).

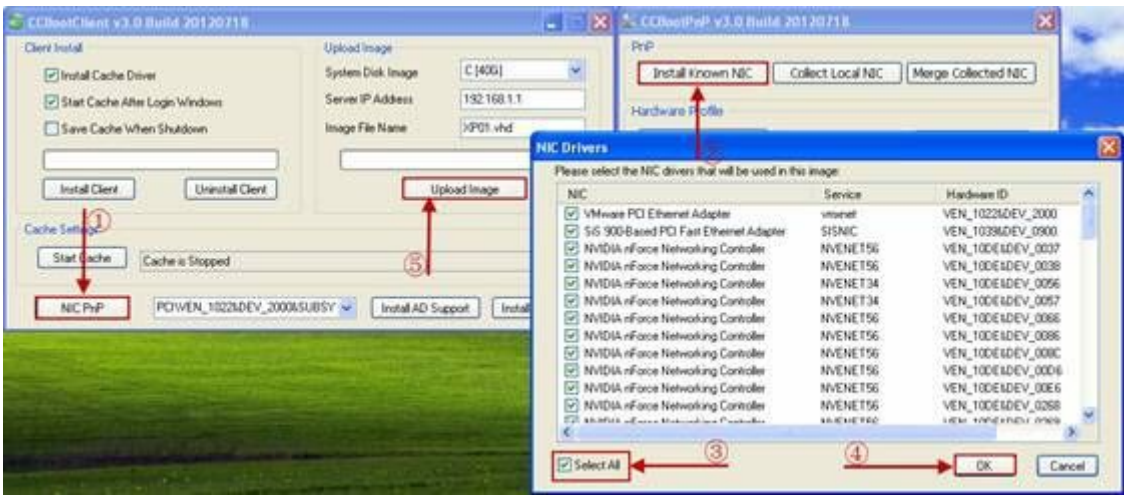


Figure 1-1

5) Diskless boot PC-1 by super client and install all the other drivers and software you need on it, insert a USB Flash Drive on PC-1, copy "C:\CCBootClient\CCBootpnp.exe" to the USB key, shutdown PC-1 then disable super client. Now the master image is created successfully (Figure 1-2).

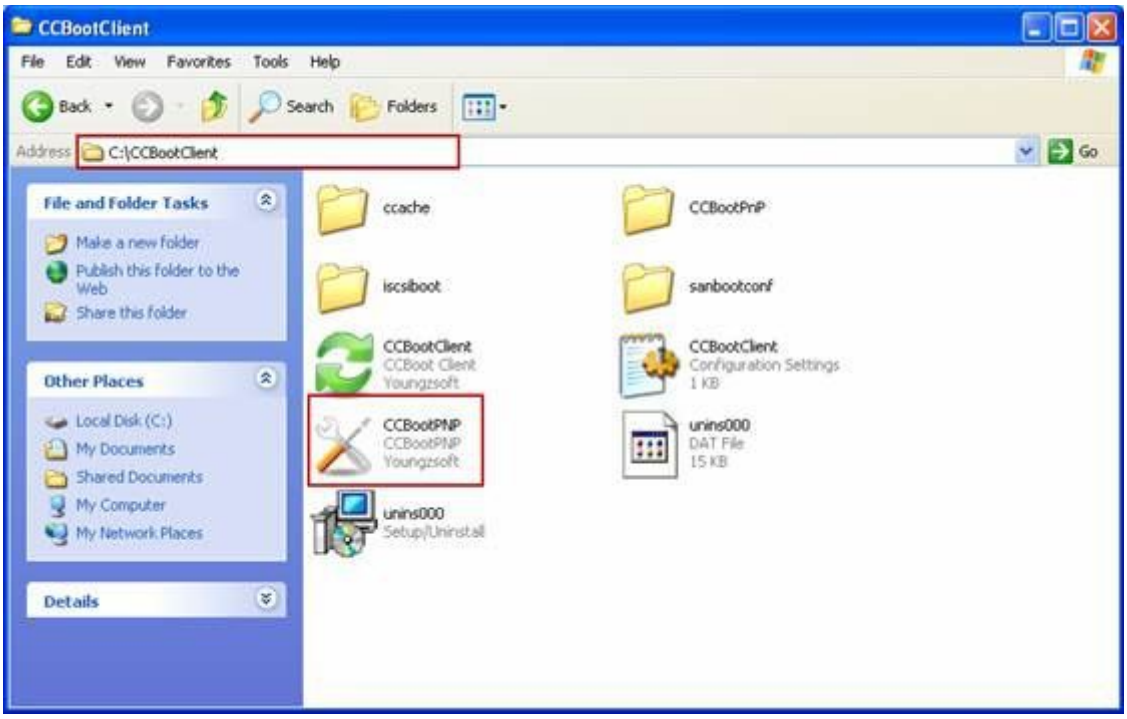


Figure 1-2

6) Try to diskless boot all client PCs one by one with the master image. If one client PC can boot successfully, please go to Step 12. If one client (suppose PC-2) cannot boot successfully, normally it stops at the Windows logo then BSOD, it because the master image doesn't have the NIC driver of PC-2. So we will use CCBootPnP to collect the NIC drive of PC-2 and merge it to the master image. Please follow the steps at below.
7) HDD Boot PC-2 and install the same Windows edition on it.
8) Install NIC driver on PC-2. Only need to install NIC driver because we just need to collect the NIC driver of PC-2.
9) Insert this USB key to PC-2. Run "CCBootpnp.exe" and click the "Collect Local NIC" button, it will create a folder in this USB Key, named "Drivers", which includes NIC driver of PC-2. (If there is 'Drivers' folder already before click "Collect Local NIC", that doesn't matter, just leave it there.) (Figure 1-3).

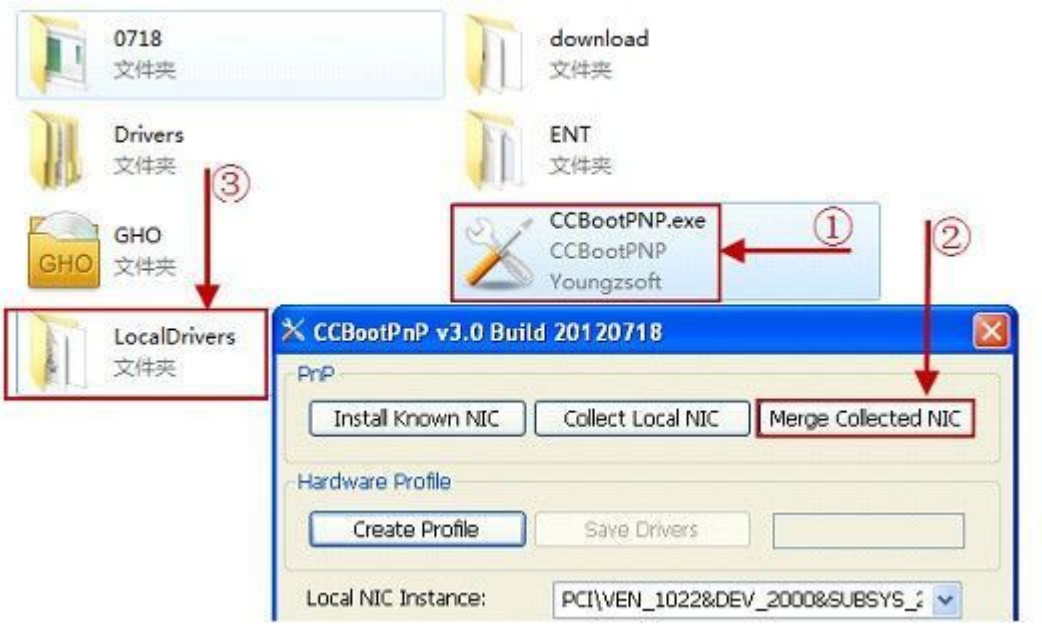


Figure 1-3

10) Insert this USB Key on PC-1 and diskless boot PC-1 by super client. Run "CCBootpnp.exe" on the USB key and click the "Merge Collected NIC" button. When finish, please shut down PC-1, disable super client (Figure 1-4).

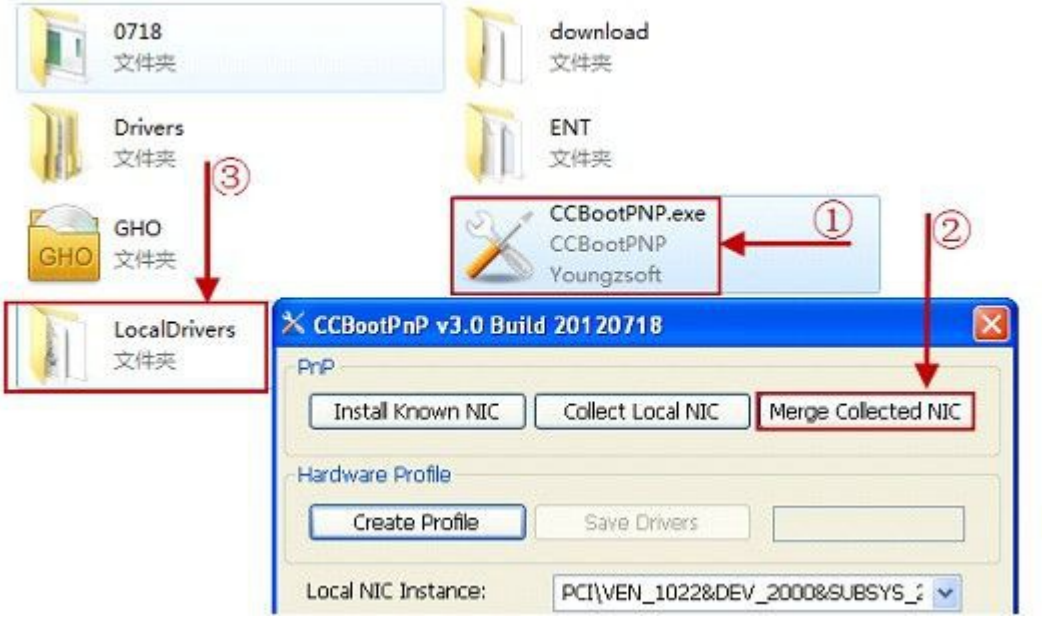


Figure 1-4

11) Now, you are able to diskless boot PC-2 with the master image successfully.
12) Diskless boot PC-2 by super client with restored point, install other devices' drivers on PC-2 if necessary. After installed or updated the drivers, shutdown PC-2 and disable super client.
13) Do the same as Step 8-12 for other unable diskless boot PCs, and so on and so forth.

14) If all client PCs with different specifications have successfully diskless boot by using one image, you need to merge the image in order not to degrade the image performance. Please refer to “How to Merge Image”.

We have created a video - "Single Image for Multiple Specifications" on Youtube.

7.2 Add New Machine into Boot Image

An Internet Cafe have old client computers that are already able to boot from one single image, and they purchase a batch of new client PC, but the problem is, they cannot diskless boot the new PC with the old image. So we are using "CCBootPnP" to add the new PC drivers to the old image and boot all PCs with a single image package.

Note: From CCBoot v3.0 build 20131023, we add the "Add from INF" function. With this new function, as long as one client can diskless boot successfully, you could use the CCBoot PNP tool to add NIC drivers (such as Win7 Realtek NIC drivers) from INF on that client directly, which is more convenient. For details, please refer to "Add from INF".

In fact, we just need to add the new PC's NIC driver into the old image. After add the NIC driver, you can diskless boot the new PC with the image and install other device drivers.

Below are the steps:

1) First back up your master image that is used by your old by old computer then prepare your new computer by installing the windows operating system, drivers and then install also the "CCBootClient"
2) Get a "USB memory stick" inserts it in your old computer then locate the CCBootClient installation directory and then copy the "CCBootPnP.exe" in to your USB memory stick.

Figure 1-18

3) Attach HDD in the new PC, install Windows system.
4) Make sure that your new computer is installed with the latest driver of NIC.
5) Insert your "USB memory stick" in the new computer installed with the latest NIC driver, run the "CCBootPnP.exe" file inside the USB memory stick, in the pop-up dialog box click the "Collect Local NIC" button.

Figure 1-19

6) In the "CCBootPnP" pop-up dialog box, click the "Yes" button. Inside your "USB memory stick" you will see a file folder name "Drivers" that is the registry NIC driver package of your new computer that is collected by "CCBootPnP". Remove the USB memory stick from the new PC (Figure 1-3).

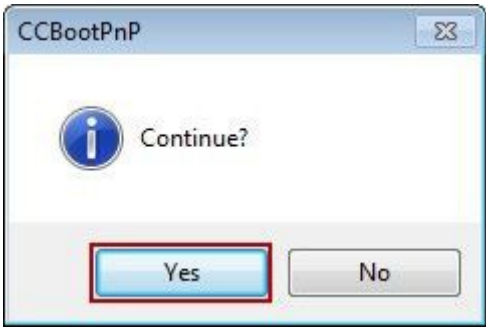


Figure 1-20

7) In your CCBoot server "Client Manager" select one of your old client computers; double-click to open the client properties to enable the "Super Client".
8) Diskless boot this old computer, insert your "USB memory Stick" and then run the "CCBootPnP.exe", click the "Merge collected NIC" button.

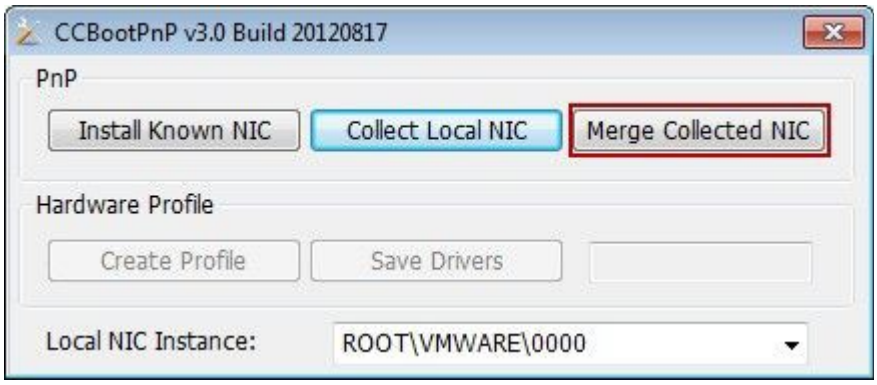


Figure 1-21

9) In the "CCBootPnP" pop-up dialog box, click the "Yes" button.
10) After that shutdown the computer, go back to CCBoot server and then disable the "Super Client".
11) Now we can diskless boot the new PC with the old image. If it's OK, diskless boot the new PC with super client and add other devices' drivers of the new PC.

The above method is also suitable for operation on a virtual machine (for detailed please refer to "Create CCBoot Image using VMWARE"). All Internet Cafe technical staff can also do this, by going to some Internet Cafe and collecting the NIC drivers using "CCBootPnP" and merge them to create a "Super Image" (single image package) that cans diskless boot different types of computer specification with different types of NIC.

7.3 Multiple Hardware Profiles

Hardware Profile is another pnp function of CCBoot. It's complicated. Normally, we DO NOT use this method to create single image for multiple specifications. The standard PnP

method supports most specifications. Only when the drivers are conflict in the standard PnP method, you need to use Hardware Profile method. In the previous, this method is used for NVIDIA video cards' drivers' confliction in different PCs. Now, NVIDIA Company provides one driver for all NVIDIA video cards. So Hardware Profile is not required any more.

Note: This function is not valid in Windows 7 / 2008 and Vista. Because in Windows 7, the driver's compatibility is good enough. No need Hardware Profile.

1) Install Windows XP and all applications you need
2) Install drivers except Video and Sound Driver
3) Install CCBoot Client, CCBoot PnP and upload the image to the Server
4) On the CCBoot Server main Interface, Choose one Client PC and double click to open the client interface and put check on "Keep Write-Back" (Figure 1-1) A pop up message appear asking you "Do you want to Delete Write-Back?" then press "Yes". Click "Save".

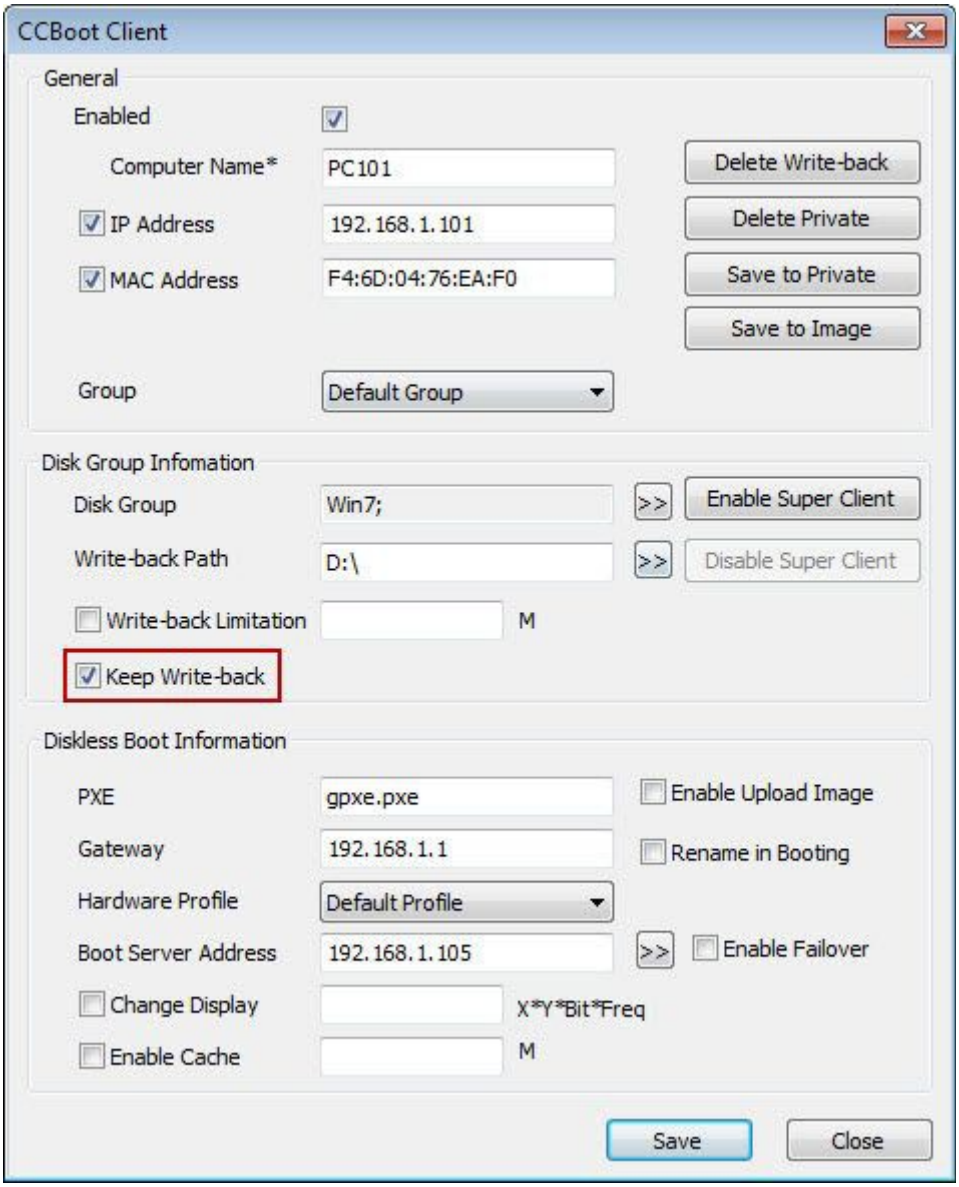


Figure 1-1

5) Click "Tools" menu, select "Hardware Profile" then input the Profile ID such as "AAAA", "BBBB", click "Add". You can add more Hardware Profile ID if you have many specifications.

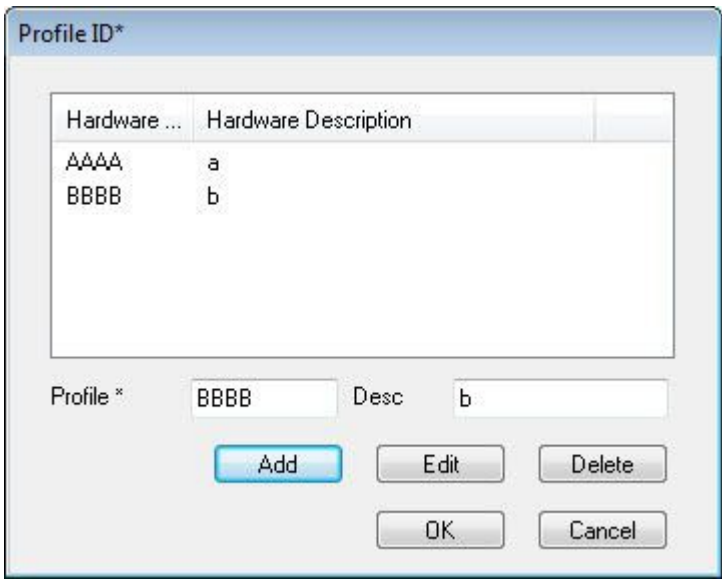


Figure 1-2

6) Diskless boot client PC101, launch "CCBootPnP" from C:\CCBootClient, click "Create Profile" in CCBootPNP.

Figure 1-3

7) Input the Hardware Profile ID "AAAA" and "Hardware Description" waits for the pop up message then press "OK".

Figure 1-4

8) Input again the Profile ID "BBBB" and "Hardware Description" wait for the pop up message to press "OK" (Figure 1-5) then close CCBootPnP. (If you have created many hardware profiles in step 5, you need to do step 8 same times.)

Figure 1-5

9) After creating the Hardware Profile ID for client PC101 shutdown this PC and go back to the CCBoot Server Main Interface.

10) On the CCBoot Server Main Interface double click PC101 to open the client properties. Click the "save to image" button and a pop up message will appear asking you "Do you want save the image press "Yes" and type the "Description" for CCBoot Recovery for Image. Press "OK". Please uncheck "Keep Write-Back" then click "Save" button.

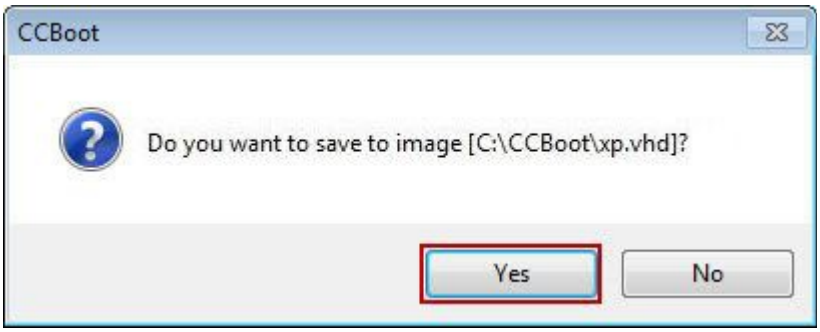


Figure 1-6

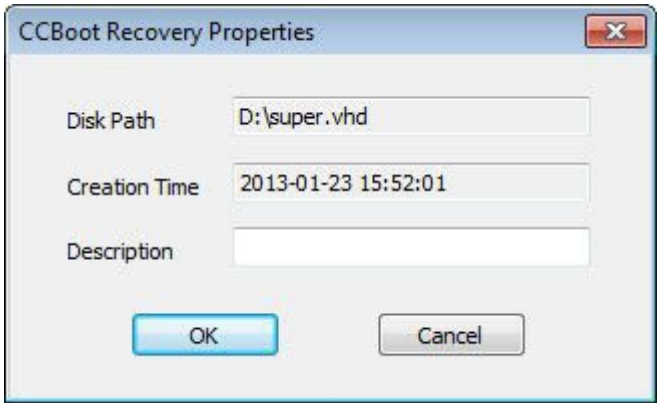


Figure 1-7

11) In the PC101 Client Properties put check on "Keep Write-Back" and change the Hardware Profile ID to "AAAA" then click "Save" button.

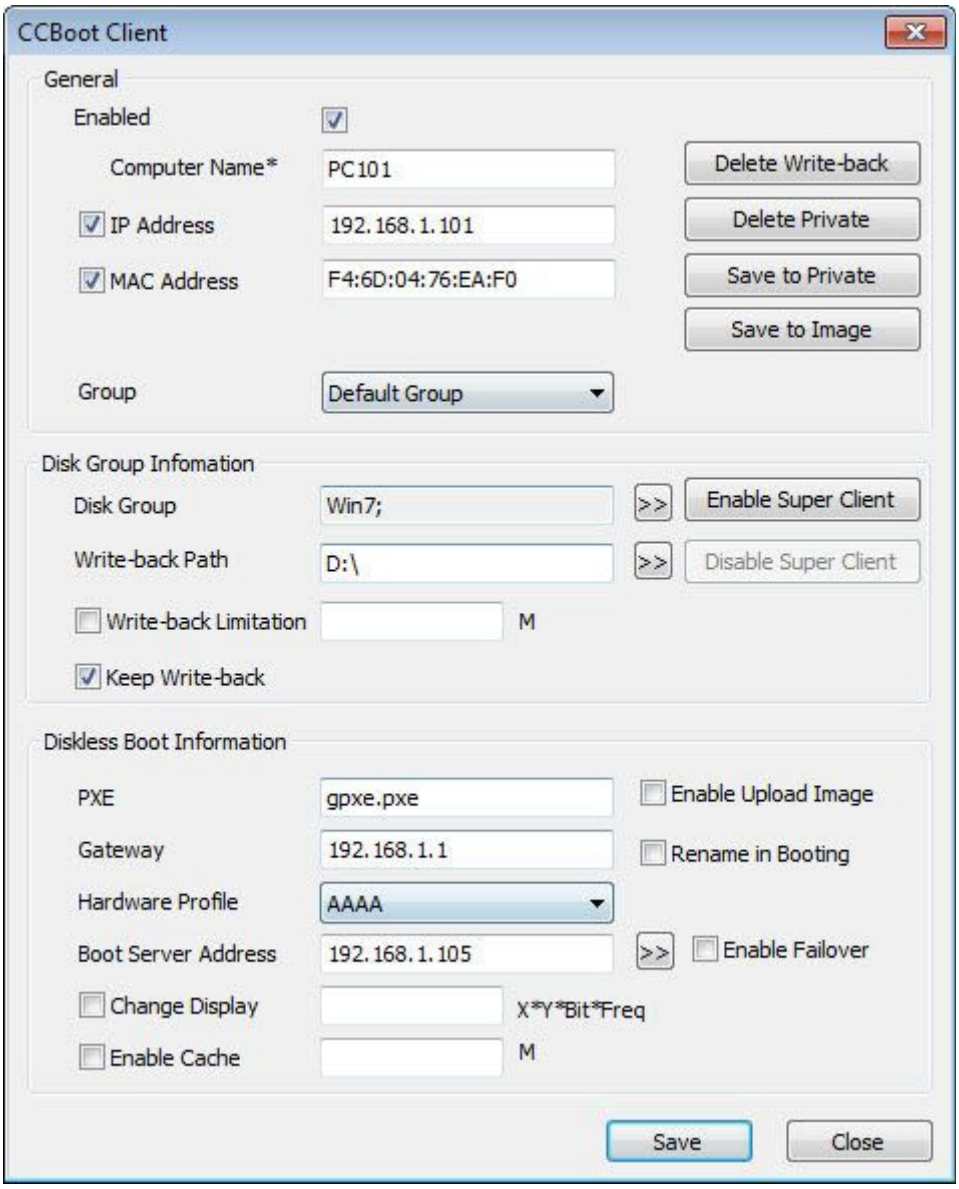


Figure 1-8

12) Diskless boot PC101 and Install all driver including Sounds and Video Card driver, launch "CCBootPnP" from C:\CCBootClient and then press "Save Drivers". Please wait for the pop up message to click "OK" then shutdown this client PC.

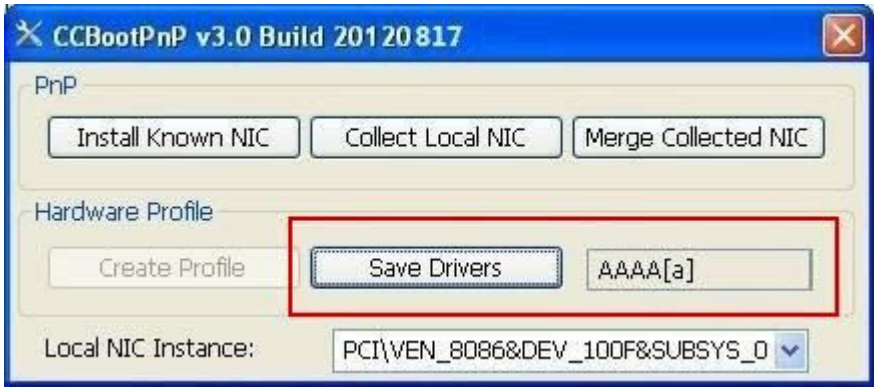


Figure 1-9

13) Go back to CCBoot Server Main interface double click PC101 to open the client properties. Click the "Save to Image" button and a pop up message will appear asking you "Do you want save the image press "Yes" and type the "Description" for CCBoot Recovery for Image. Press "OK". Please uncheck "Keep Write-Back" then click "Save" button.

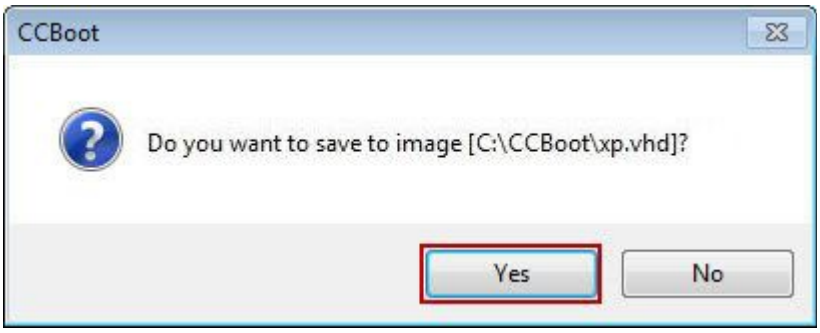


Figure 1-10

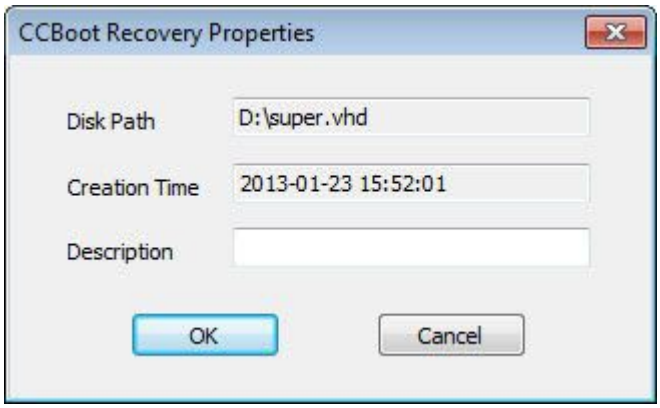


Figure 1-11

14) In the PC102 Client Properties put check on "Keep Write-Back" and change the Hardware Profile ID to "BBBB" then click "Save" button.

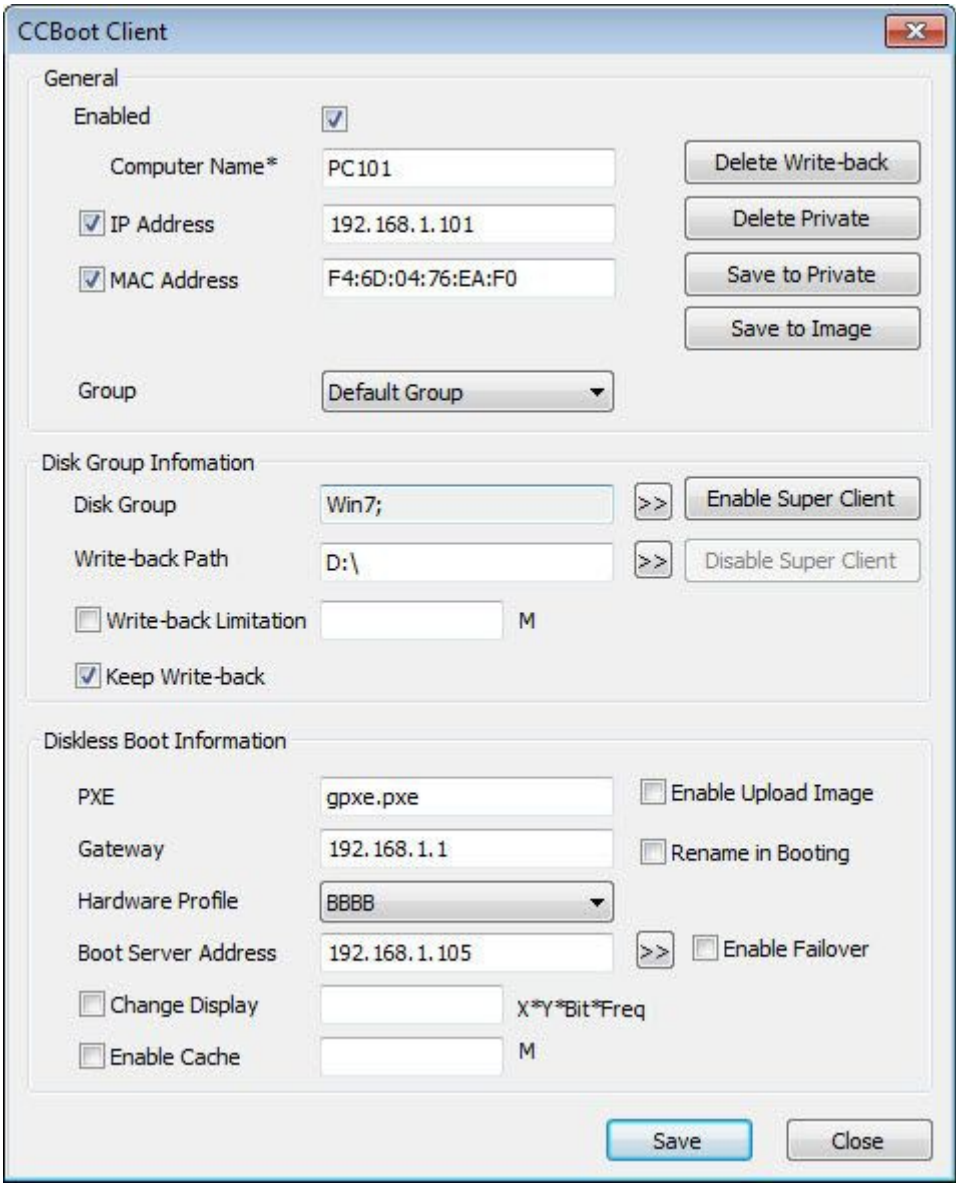


Figure 1-12

15) Diskless boot PC102 and Install all driver including Sounds and Video Card driver, launch "CCBootPnP" from C:\CCBootClient and then press "Save Drivers" Please wait for the pop up message to click "OK" then shutdown this client PC then please repeat step 11-13 for other PCs.

Figure 1-13

16) If all Client PC has successfully created the Hardware Profile, you have to test all clients PC by diskless booting.

Now you may get many restore point that you created this will degrade the image performance. The "Merge to Image" function will help you. Please refer to "Restore Points Management".

7.4 Installing PNP Driver for New Hardware

Problem:
It has no problem to diskless boot clients which have different hardware specifications with a single Windows 7 image, but it will pop up the message of "Installing PNP Driver for New Hardware" on one of the hardware specifications' clients.

Solution:
Windows 7 has a good compatibility with other devices, so it is no need to do Multiple Hardware Profile. To avoid the message of "Installing PNP Driver for New Hardware" popping up again next time, you can follow the folllowing instructions.

1) Diskless boot one of the client PCs (which has "Installing PNP Driver for New Hardware" problem) with super client.
2) Install the relevant device drivers.
3) When finished, shutdown the client PC, and disable super client on the server.

Note: In some cases, the hardware drivers maybe conflict with each other, that is, after enabling super client to update the drivers of one of the hardware specifications, the drivers of other hardware specifications will have problem. Mostly, this problem happens to graphic cards, if this happens, please refer to "Graphics Card Conflict".

Thanks for Thomas Yuen reporting this problem.

8 Advanced Diskless Boot Client

8.1 How to Set Multiple OS Boot

At present more and more customers use multiple operating systems such as Windows XP and Windows 7. We developed a Multi Operating System Boot to meet market demand. Multi OS Boot is a selection of more than one operating system to start from the same client. Any customers can choose their operating system such as XP and Win7 Operating Systems in the same server at the same time.

1) Create several boot image packages first. For example: XP01.vhd and Win701.vhd boot image package.
2) Open CCBoot Main Interface, click "Add Disk" button as shown in Figure, put check on Bootable, Type the "Disk Name" ex: XP01.vhd, locate the XP image location then press OK.

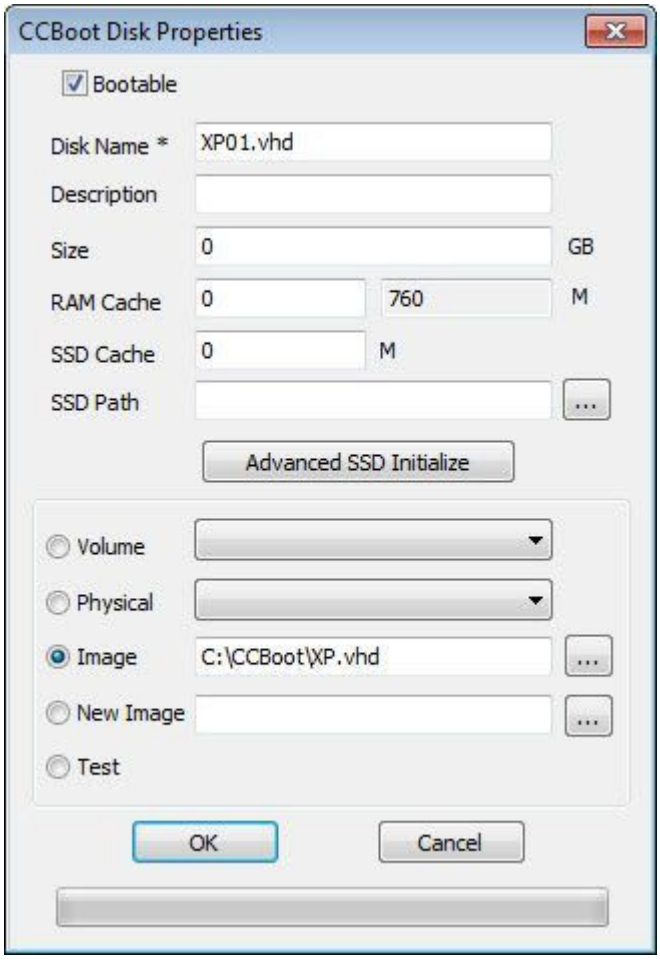


Figure 1-22

3) Create Windows 7 image package, please do the same step on step 1 above.
4) Click "Add Disk Group", named Win7 as shown in Figure.

Figure 1-23

5) Click "Win7" node under the "Disk Manager", right click and select "Add Disk to Group".
6) Select "Win7Image" and add it to disk group "Win7".
7) Repeat 3-5, do the same steps. Add disk group "WinXP", add disk "WinXPimage" to disk group "WinXP".
8) Double-click the name of the client machine in the client list, for example PC101, to open the "Client Properties" and then click ">>" button besides the "Disk Group".

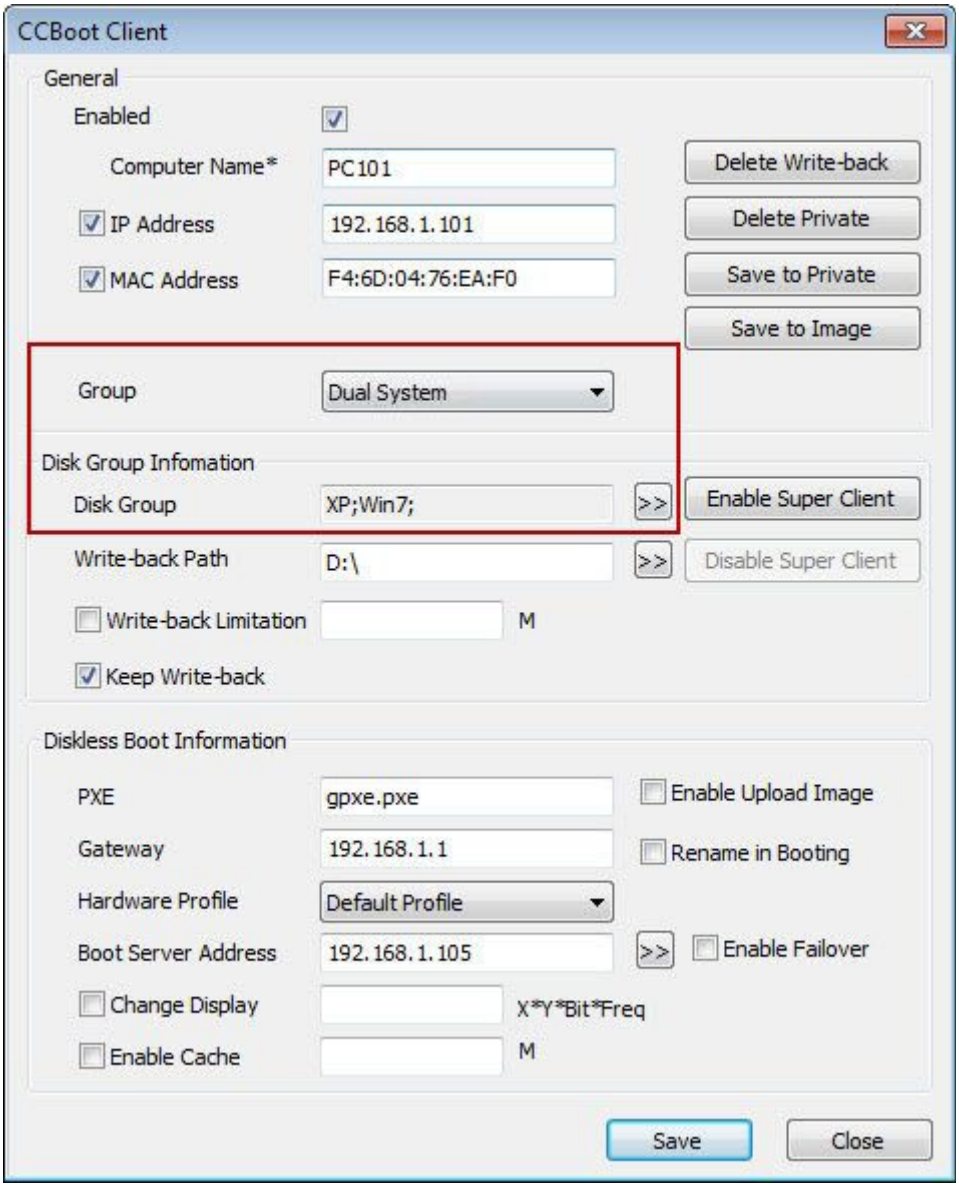


Figure 1-24

9) Please select and put check on the disk group that you need to start, for example, start with XP and Win7 as shown on Figure.

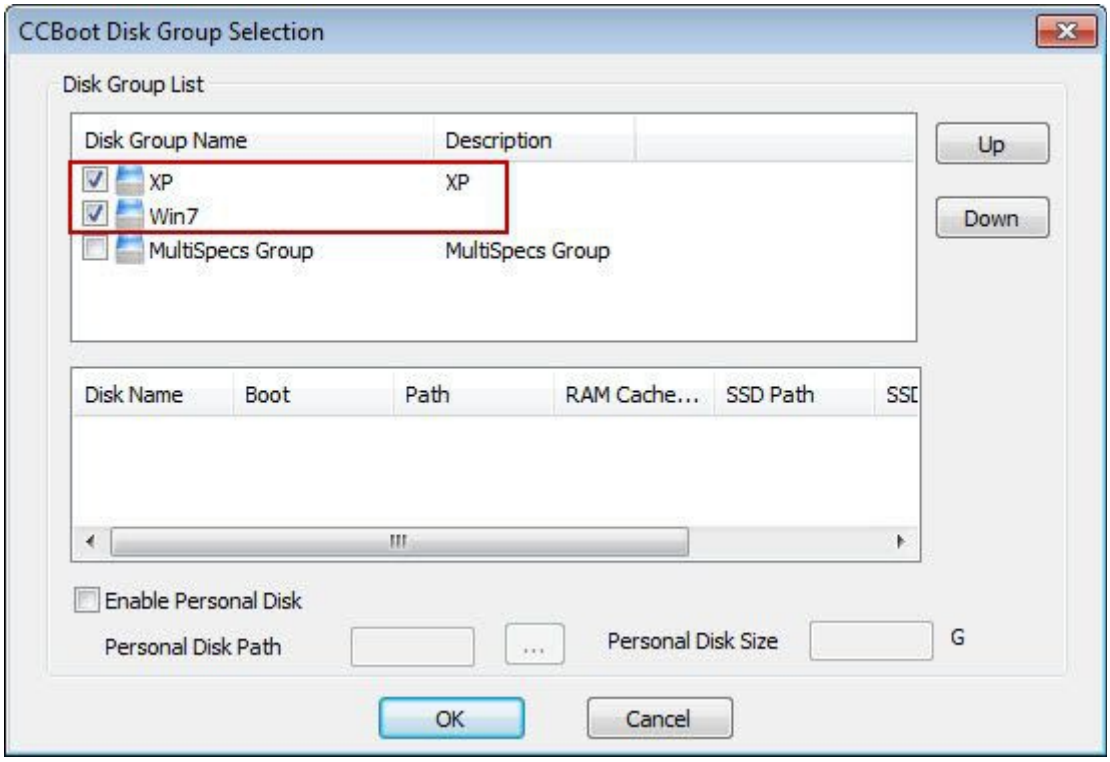


Figure 1-25

10) If you want to set up other systems, do the same set then Click OK.
11) Now diskless boot PC101, CCBoot Multi System Start up screen as shown on Figure.

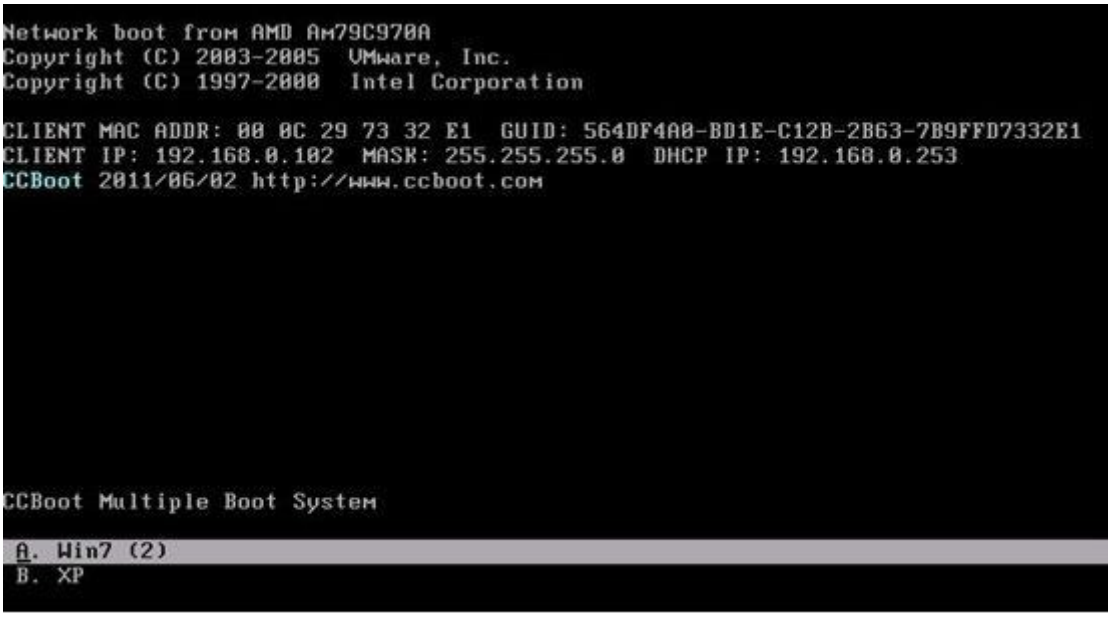


Figure 1-26

12) Just move the keyboard arrow key to select Boot system.

8.2 How to Set Default Timeout Boot Menu

CCBoot multiple boot system will show a boot menu when the client diskless boot. The default timeout is 3 seconds. If the client doesn't do any operations, the system will boot from the first system. How to define the default timeout?

1) Open CCBoot installation directory, and then find the "db.xml" file, as shown below.

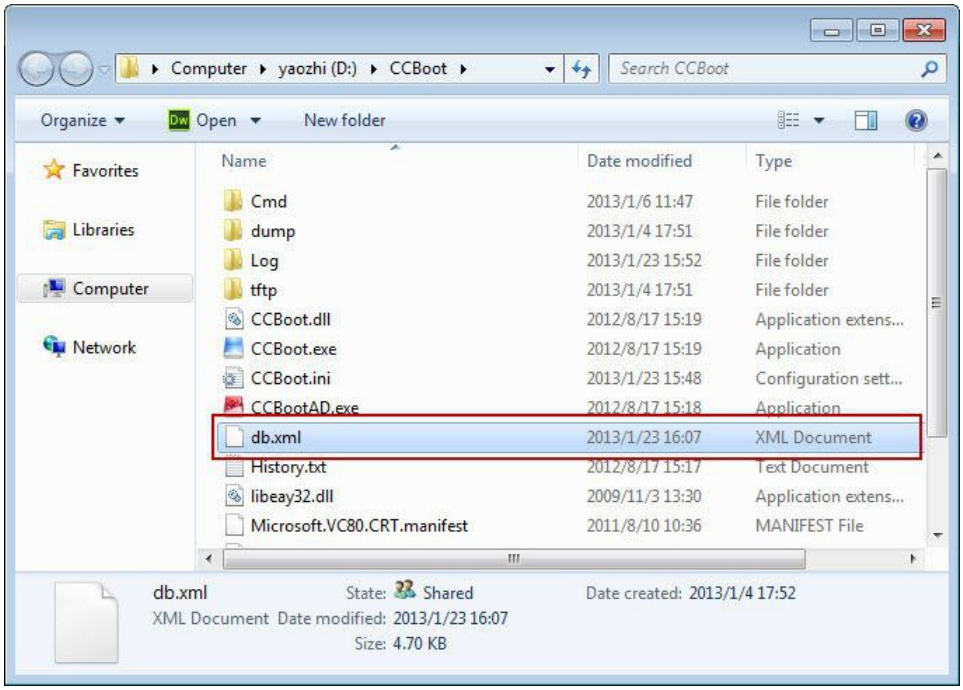


Figure 1-1

2) Right-click the "db.xml" files and chooses open With "Notepad" to open. As shown below:

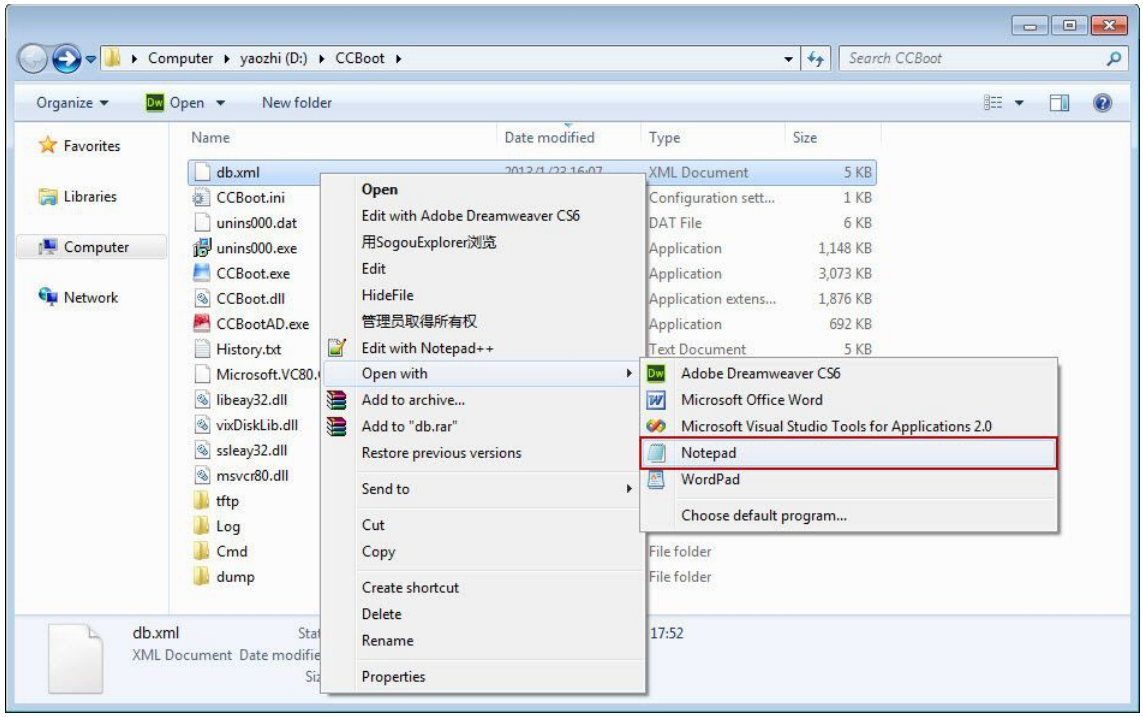


Figure 1-2

3) In the "Notepad", search "dhcp_boot_menu_timeout". Input a number in quotation marks. As shown below, fill "15", and then the time of the display list of operating systems will be changed to 15 seconds.

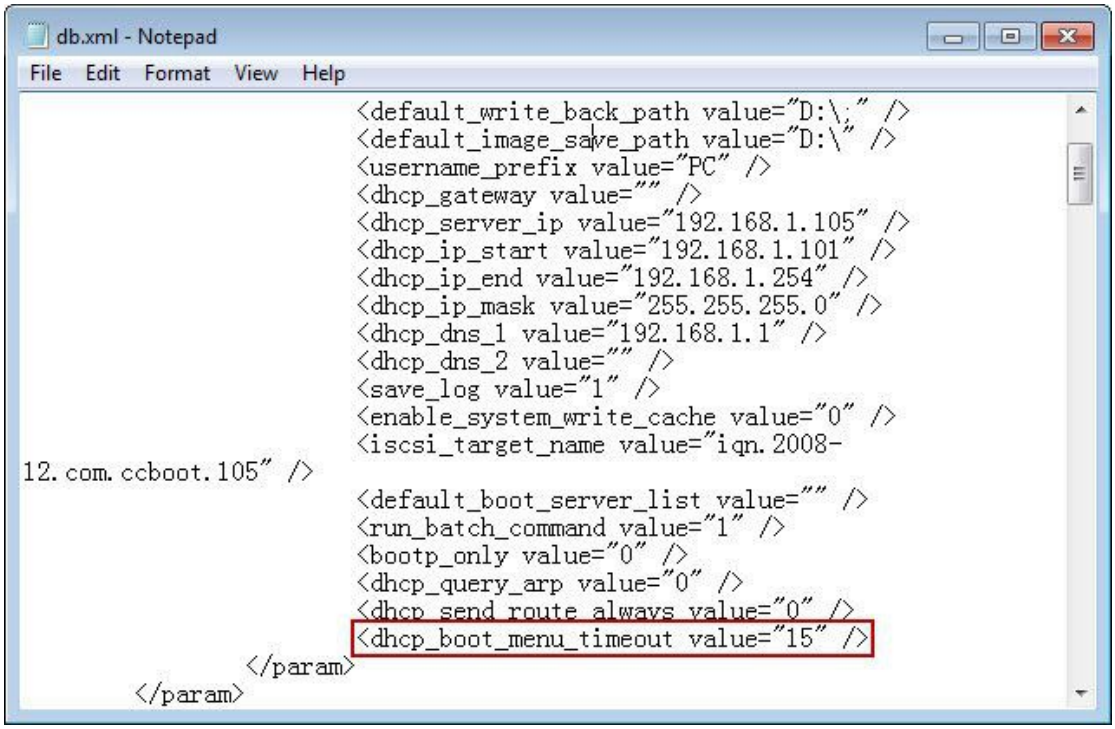


Figure 1-3

4) Close Notepad and save the changes. Click "Options" on CCBoot server interface, and then click "OK" button to take changes to effect.

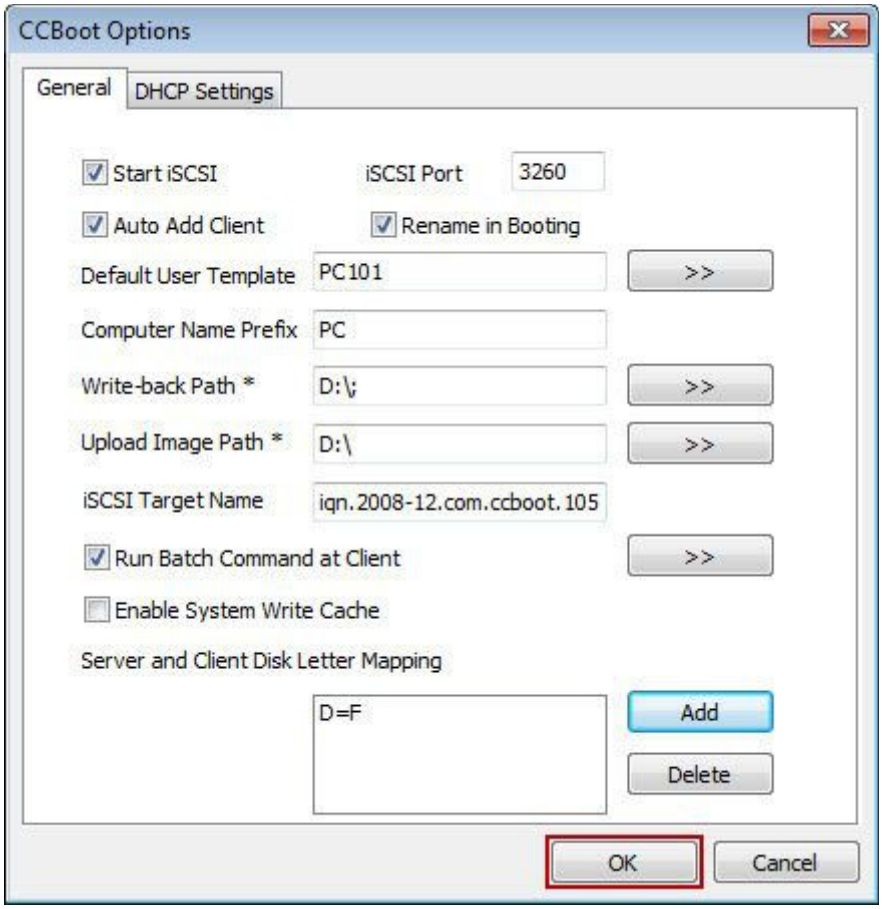


Figure 1-4

5) Diskless boot the client, you will see below.

Figure 1-5

8.3 How to Set Graphic Boot Menu

1) Open the CCBoot installation folder, Copy all files in "tftp\sample" to folder "tftp".

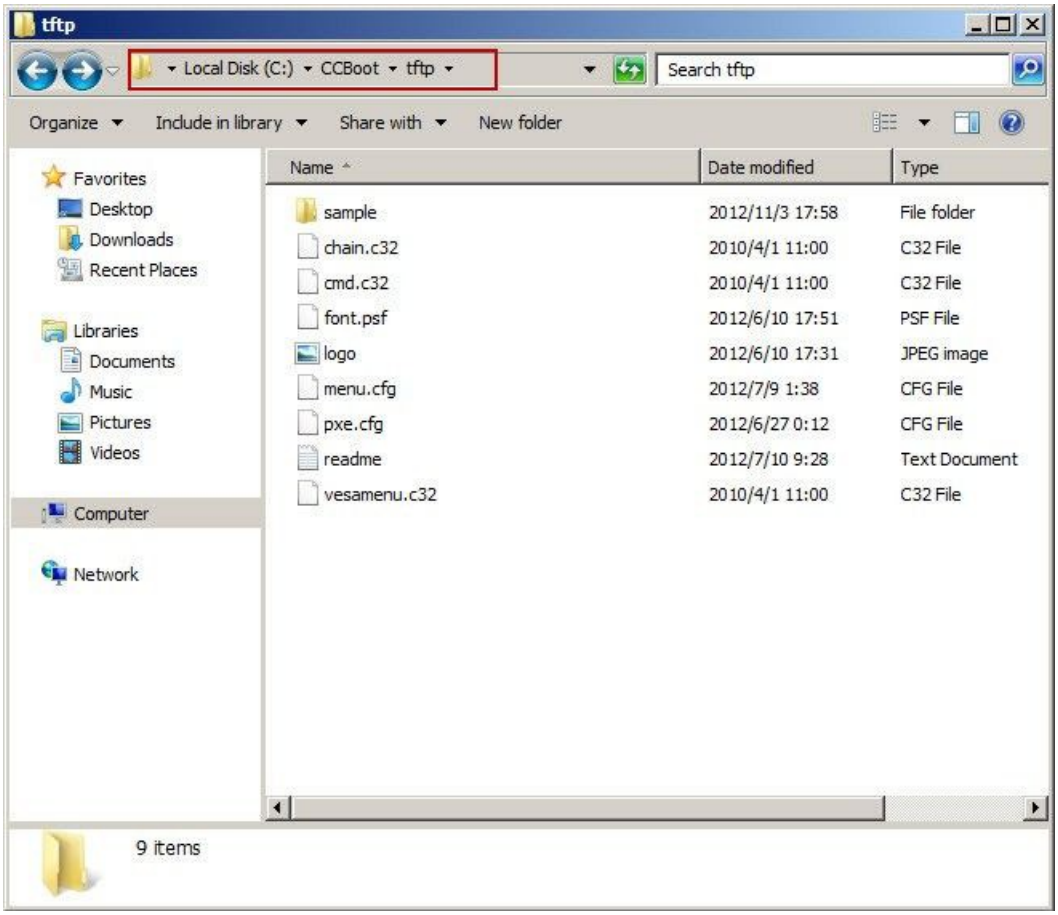


Figure 1-1

2) The "menu.cfg" is the boot configuration file and logo.jpg is the graphic shown at client.
3) On the CCBoot server interface, click "Options", click "OK" to take effect for the changes.
4) After diskless boot the client, you will see the below.

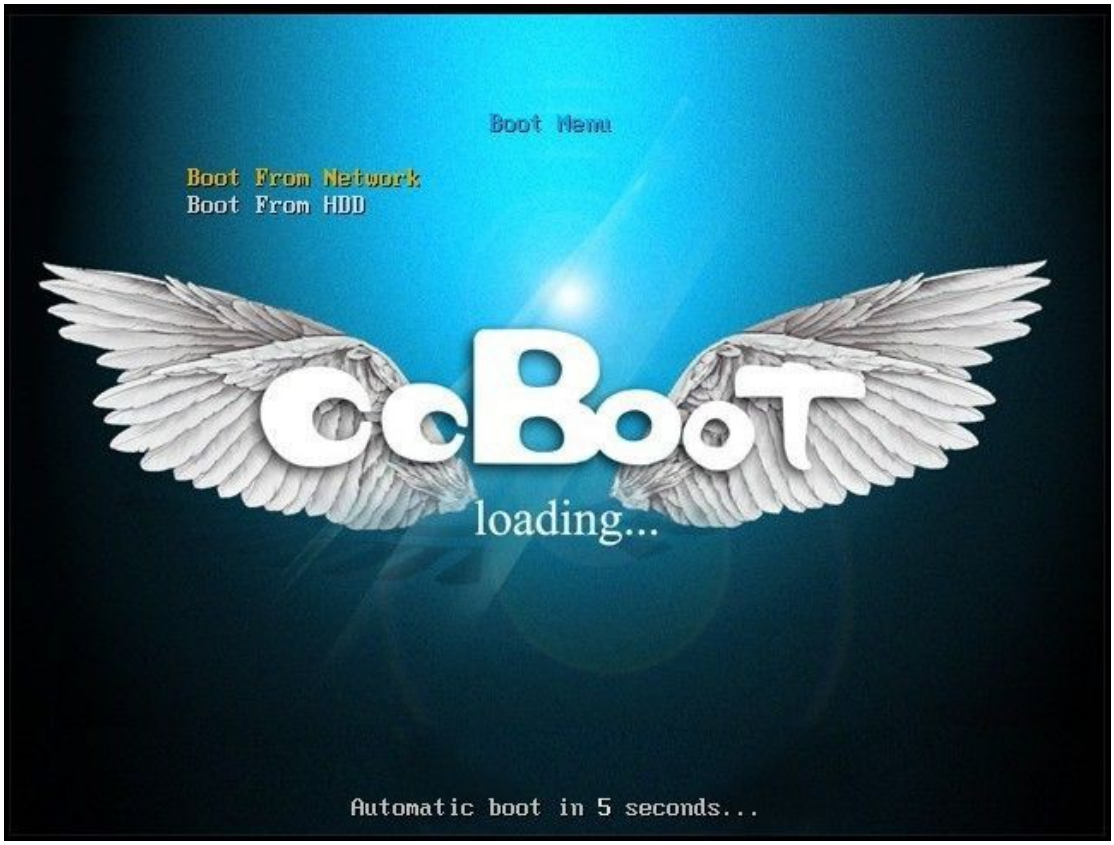

Boot Menu
Boot From Network
Boot From HDD
CcBooT
loading...
Automatic boot in 5 seconds...

Figure 1-2

9 Update Image and Game

9.1 Updated Image by Super Client

Taking the client PC101 as an example, the operation steps are as follows:

1) Before updating, please backup image files. (For methods of backup image files, please refer to "Backup Image")
2) On the main interface of the CCBoot, click the "Client Manager", and in the detailed pane on the right side, double-click the "PC101".

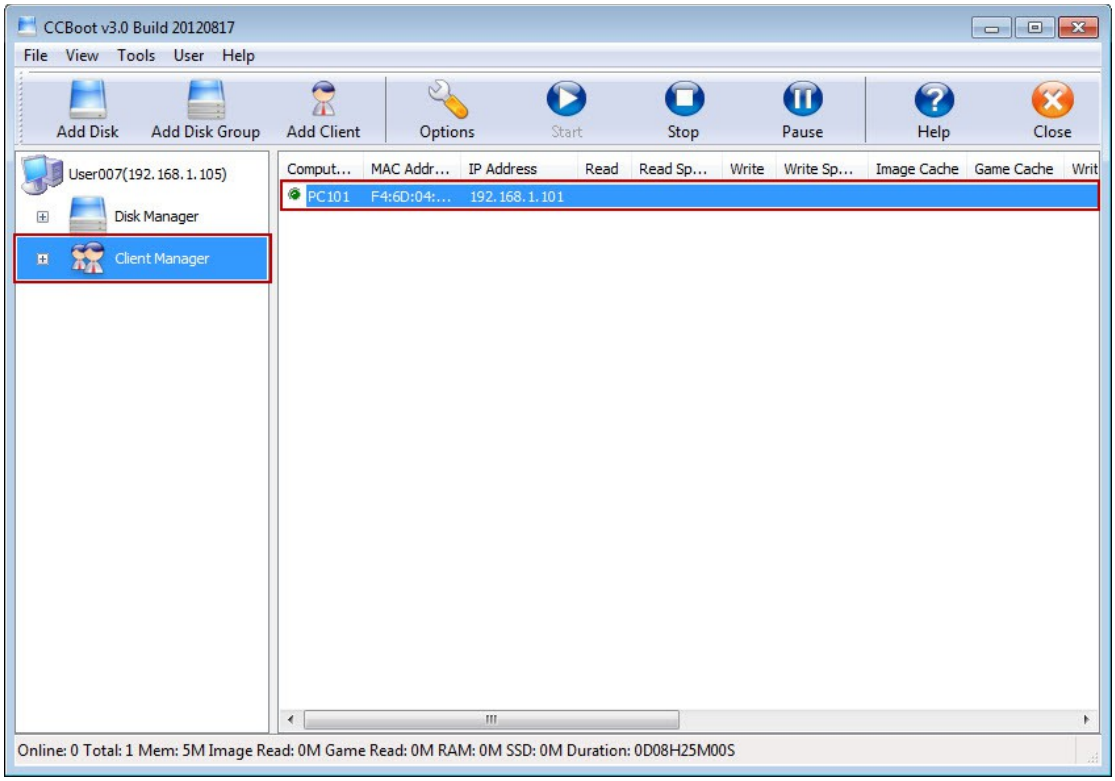


Figure 1-27

3) In the pop-up "CCBoot Client" dialogue box, click the "Enable Super Client" button.

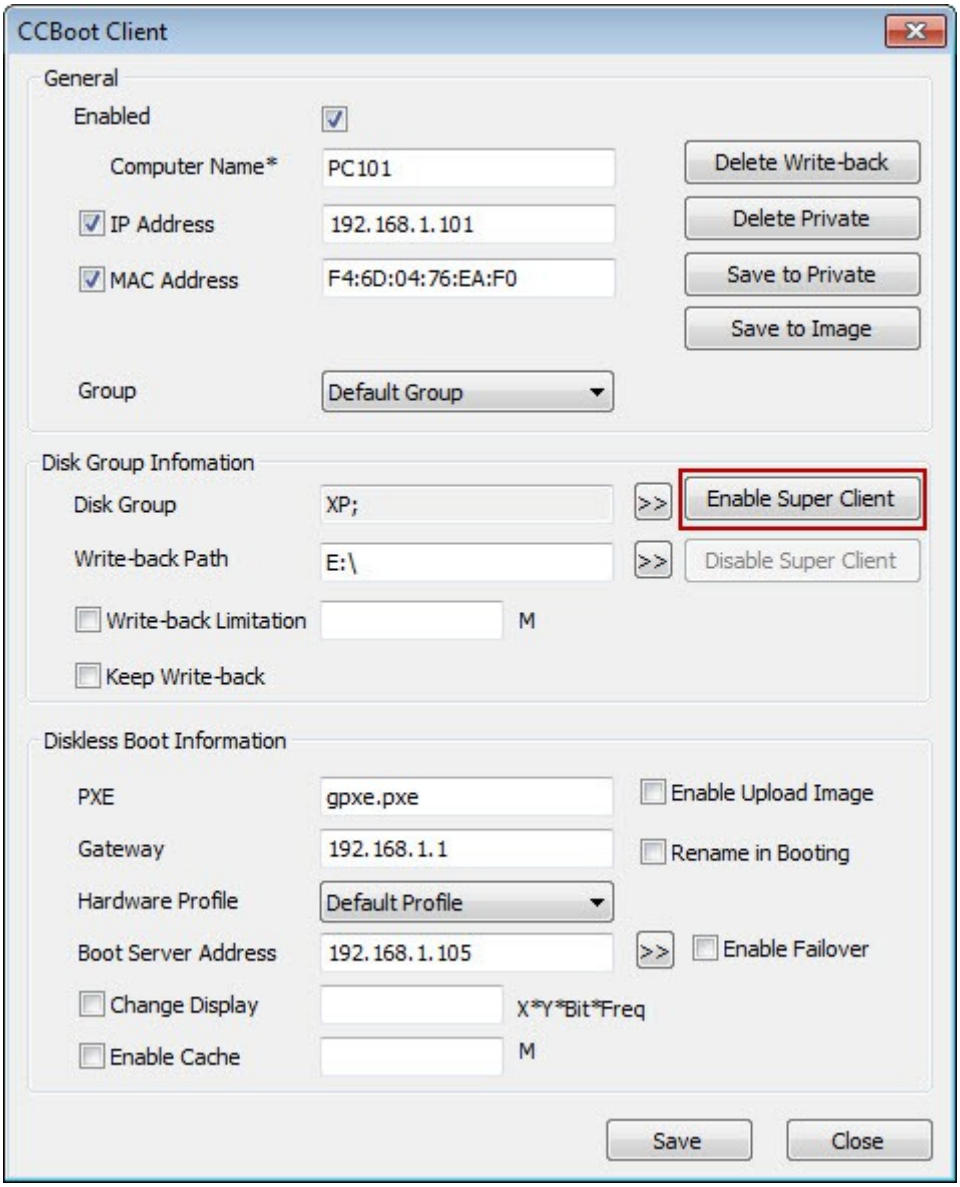


Figure 1-28

4) In the pop-up "CCBoot Select Disk" dialogue box, select the image package which needs updating, and the click "OK" button.

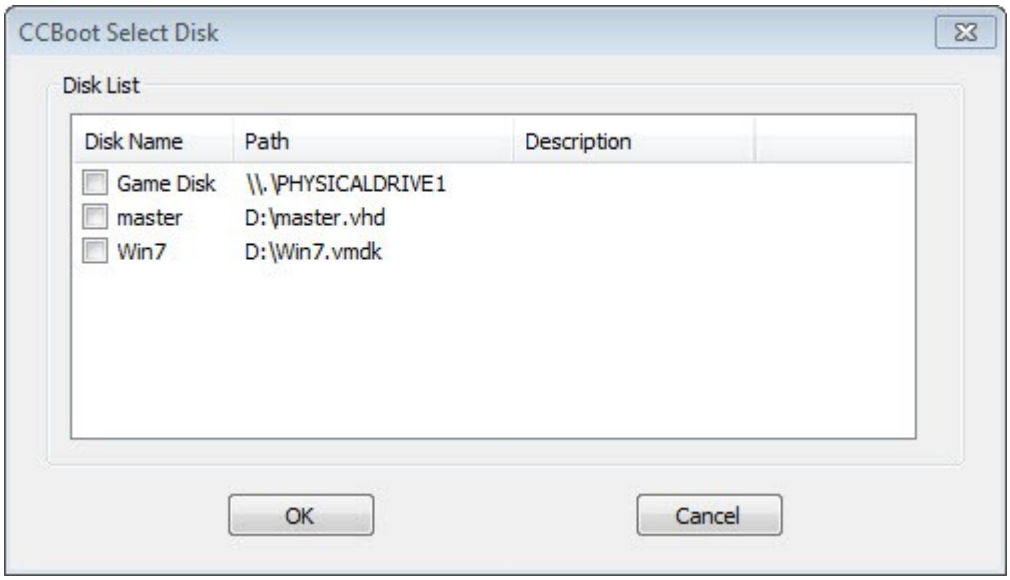


Figure 1-29

5) In the pop-up "Do you want to create recovery point "dialogue box, if you click "Yes" button, it will create recovery point; if you click "No" button, it will not create recovery point.

Figure 1-30

6) In "Do you want to create recovery point" dialogue box, if you click "Yes" button, it will pop up "CCBoot Recovery Properties" dialogue box, enter "Description" in the edition box of description, and then click "OK" button, you can finish creating recovery point.

Figure 1-31

7) Diskless boot the client PC101, and take the updating operation on the PC101. After the operation is completed, close the client.
8) On the main interface of the CCBoot, double-click"PC101" again
9) In the pop-up "CCBoot Client" dialogue box, click the "Disable Super Client" button.

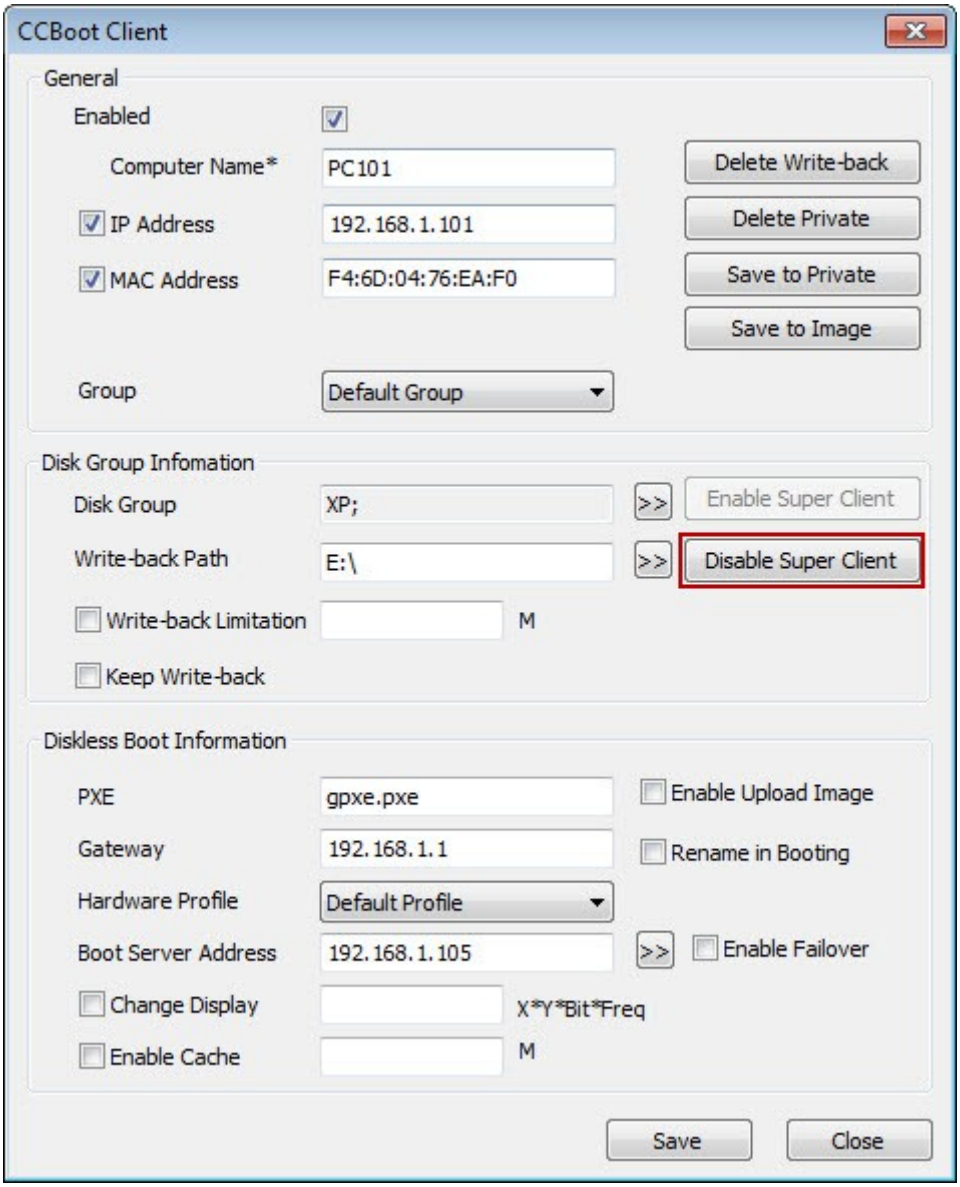


Figure 1-32

Notes:

1） In the fifth step, if you click "No" button, use "Super Client "directly on the image package to take update operation, so the changed image package can't be recovered.

2） In the fifth step, if you click "yes" button, using this method to update the image, by managing recovery point, you can still recover the image.(For details, please refer to "Recover Image ") But every time you increase a recovery point, the image file will have one more small file package; (such as sp-001.vhd) so it will have more and more image files. If you want to merge these recovery points, please refer to "Merge Image" for details.

9.2 Update Image by Keep Write-back

Taking the client PC101 as an example, the operation steps are as follows:

1) Before updating, please backup image file. (For methods of backup image file, please refer to "Backup Image")
2) On the main interface of the CCBoot, click the "Client Manager", and then in the detailed pane on the right side, double-click the "PC101".

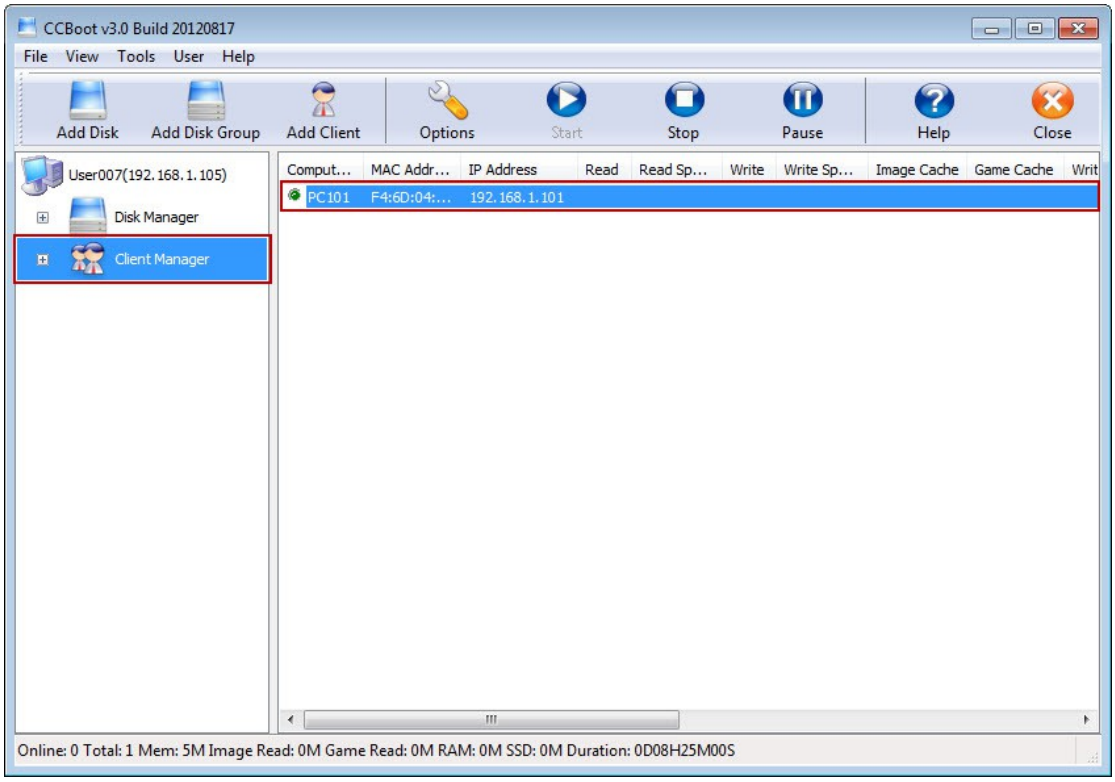


Figure 1-1

3) In the pop-up "CCBoot Client" dialogue box, select the "Keep Write-back" check box, click the "Save" button.

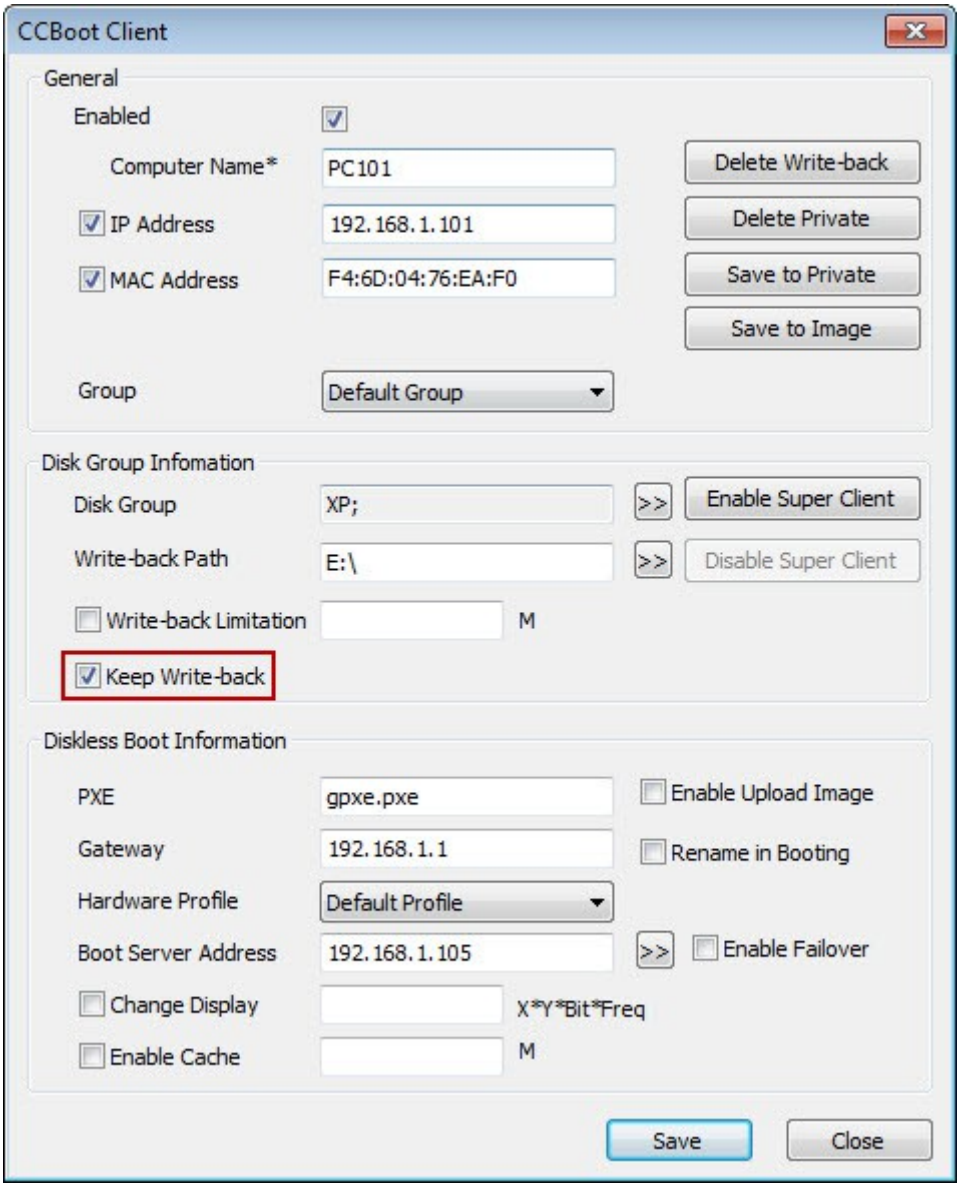


Figure 1-2

4) In the pop-up "Do you want to delete write-back?" dialogue box, click the "Yes" button, then you can delete the "write-back" file.

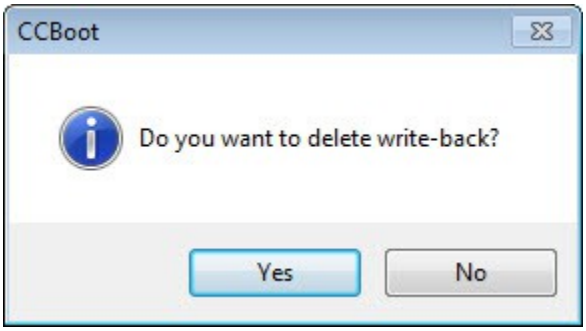


Figure 1-3

5) Diskless boot the client PC101, and take updating operation on the PC101. After the operation is completed, close PC101.
6) On the main interface of the CCBoot, again double-click "PC101".

In the pop-up "CCBoot Client" dialogue box, click the "save to Image "button.

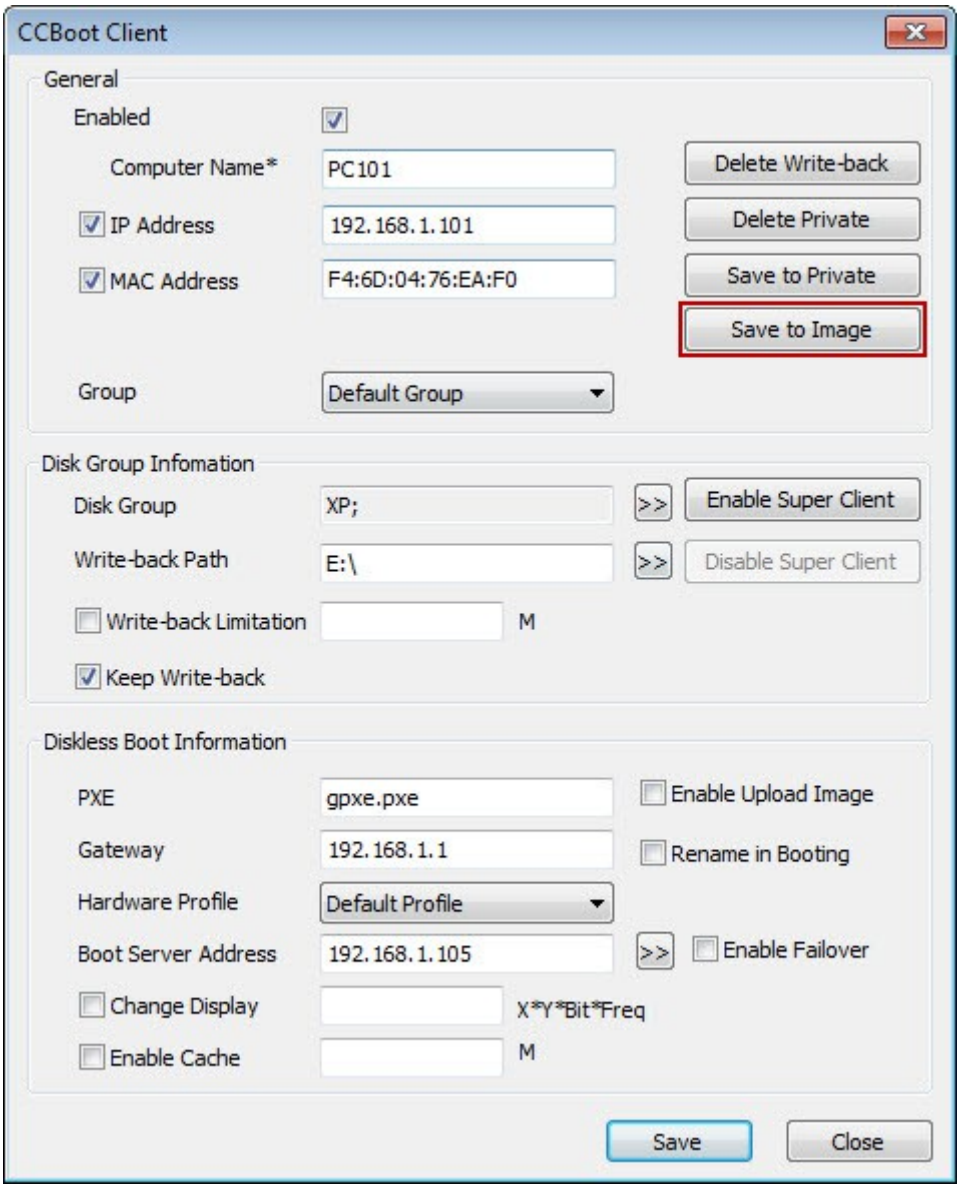


Figure 1-4

7) In the pop-up "Do you want to save to Image?" dialogue box, click the "Yes" button, it will save the "recovery point".

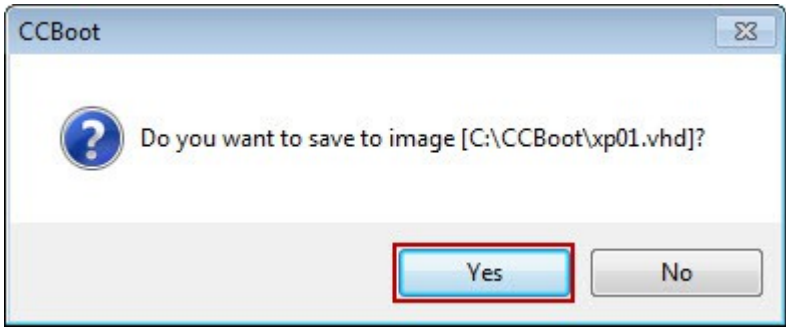


Figure 1-5

8) In the pop-up "CCBoot Recovery Properties" dialogue box, enter "Description "in the edition box of description, and then click "OK" button, you can finish creating recovery point.
9) Uncheck the "Keep Write-back" check box, and then click "Save" button
10) Thus it completes the updating operation of image package.

Notes:

1) In the eighth step, if you click "No" button, then you can give up the updating operation.
2) Using this method to update image, every time you increase a recovery point, then the image file will have one more small file package (such as xp-001.vhd). So it will have more and more image files. If you want to merge the recovery points, please refer to "Merge Image "for details.

9.3 Update Image by Save to Private

Sometimes, we hope the image updating is valid only for a certain client. Taking the client PC101 as an example, the operation steps are as follows:

1) On the main interface of the CCBoot, click the "Client Manager", and then in the detailed pane on the right side, double-click the "PC101".

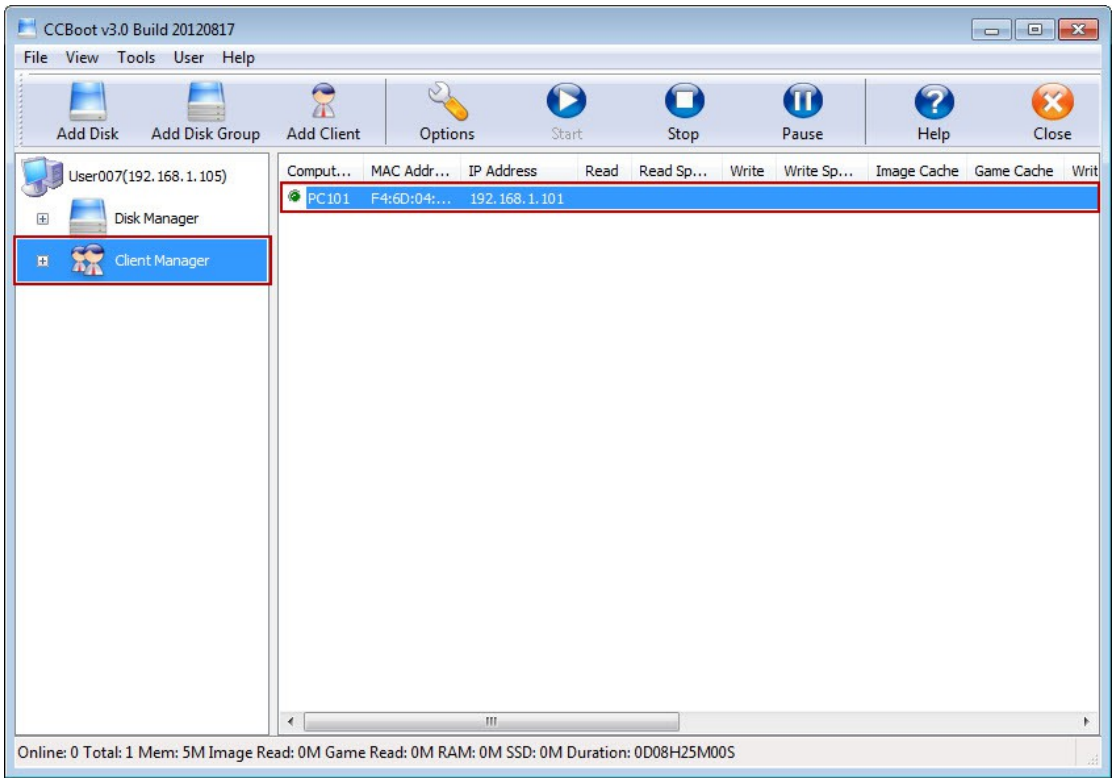


Figure 1-1

2) In the pop-up "CCBoot Client" dialogue box, select the "Keep Write-back" check box, click the "Save" button.

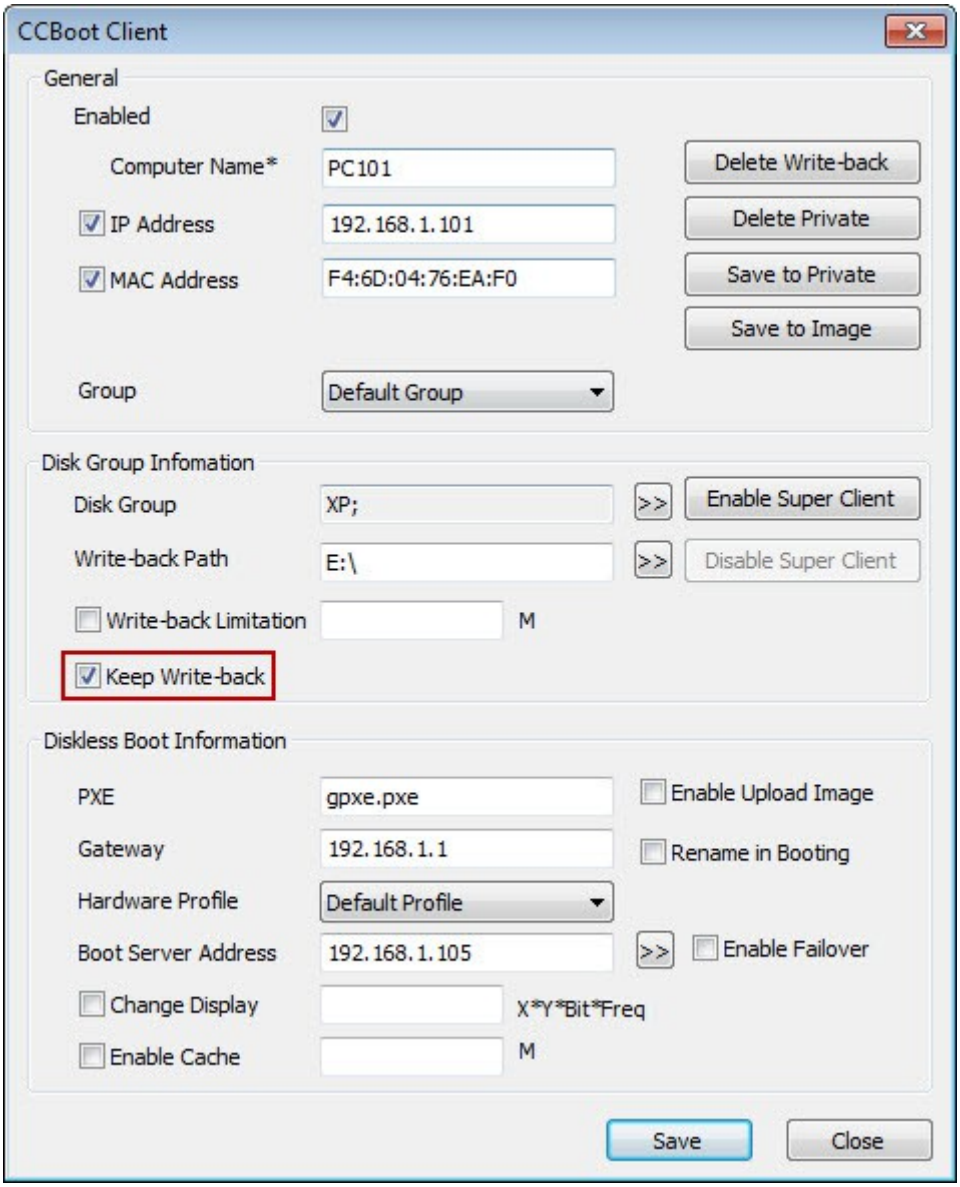


Figure 1-2

3) In the pop-up "Do you want to delete write-back?" dialogue box, click the "Yes" button, then you can delete the "write-back "file.

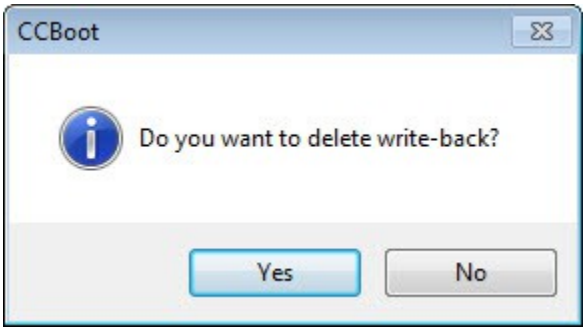


Figure 1-3

4) Diskless boot the client PC101, and take the updating operations on the PC101. After the operation is completed, closes PC101.
5) On the main interface of the CCBoot, again double-click "PC101".
6) In the pop-up" CCBoot Client" dialogue box, click the "Save to Private" button.

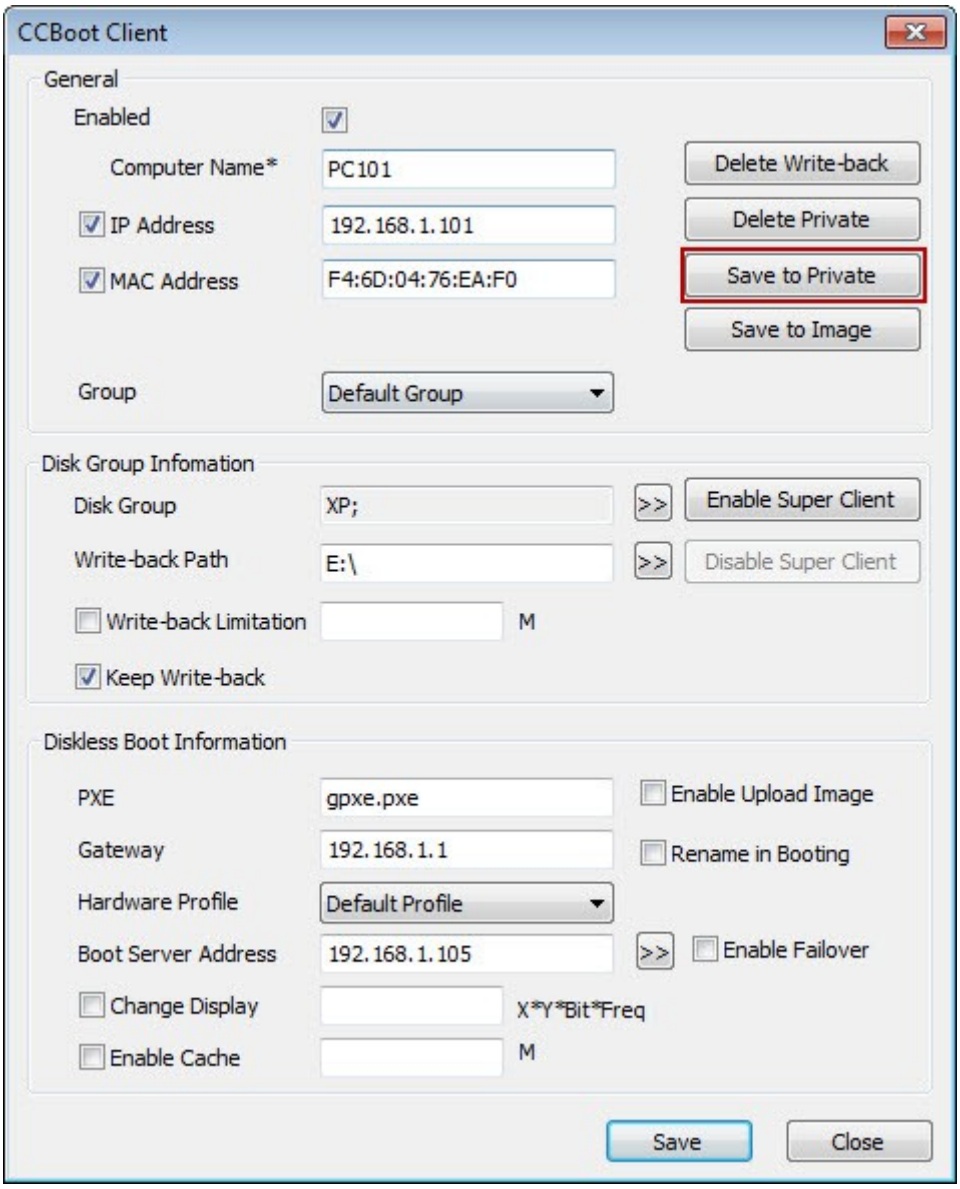


Figure 1-4

7) In the pop-up "Do you want to save private?" dialogue box, click the "Yes" button.

Figure 1-5

8) Uncheck the "Keep write-back" check box, click the "Save" button.
9) This update is valid only for PC101.

Notes:

1) In "Do you want to save private" dialogue box, if you click" No" button, then the operation is not valid.
2) After the execution of storing packet operation, if you update the image, then the stored private packet will not be valid. Then you need to click the "Delete Private" button on the "CCBoot Client" dialogue box. After deleting the packet, then you can take the operation steps above again.

9.4 How to Merge Image

If you have created many "Restore Point" files, that will degrade the performance of the image. **Caution: You cannot just delete the restore point files manually. In this case, you n**eed to use "Merge to Last" function to merge the entire original image file (win7.vhd) into a single one. We take win7.vhd as an example, after created many restore points, there are win7-001.vhd, win7-002 and other files in the same path of win7.vhd.

1) Backup the image you plan to merge. Please refer to "Backup Image". **(Note: This step is extremely important.)**
2) On CCBoot Server main interface, click "Disk Manager". In the right side details pane, right click the image you want to recover and select "Disk Recovery" (Figure 1-1).

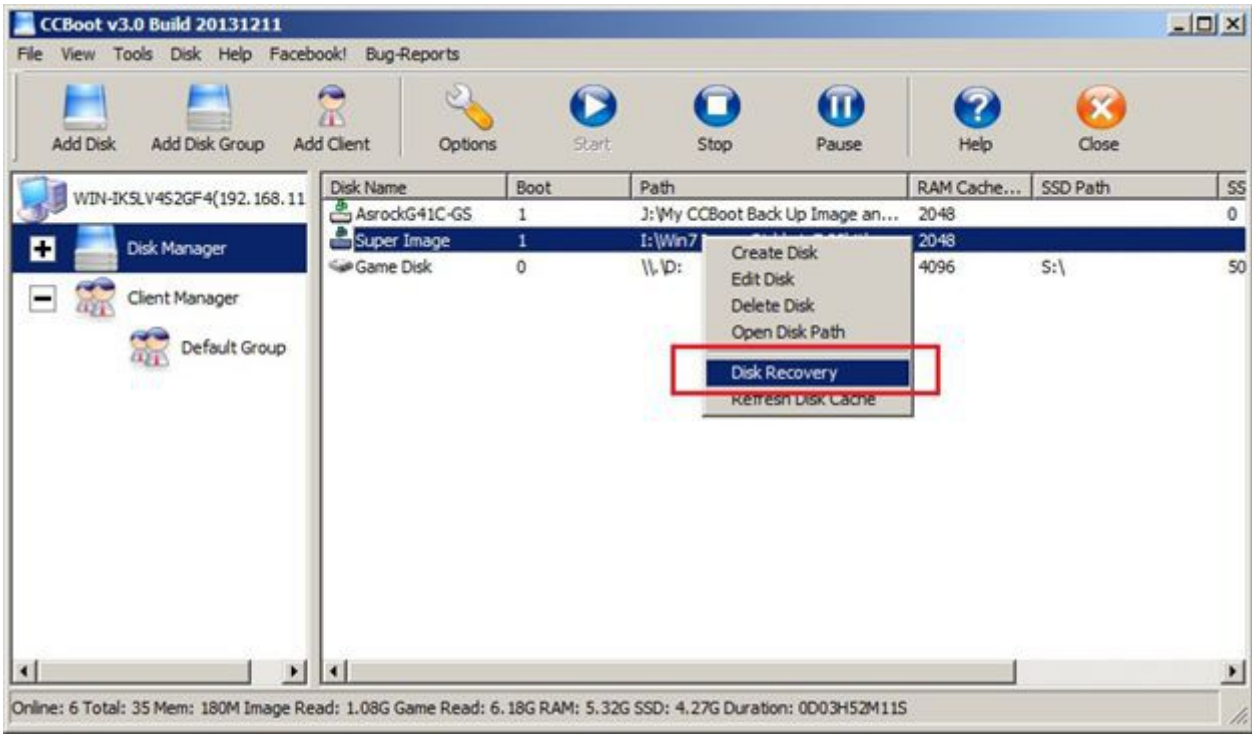


Figure 1-1

3) Click "Merge to Last" button to merge the image (Figure 1-2).

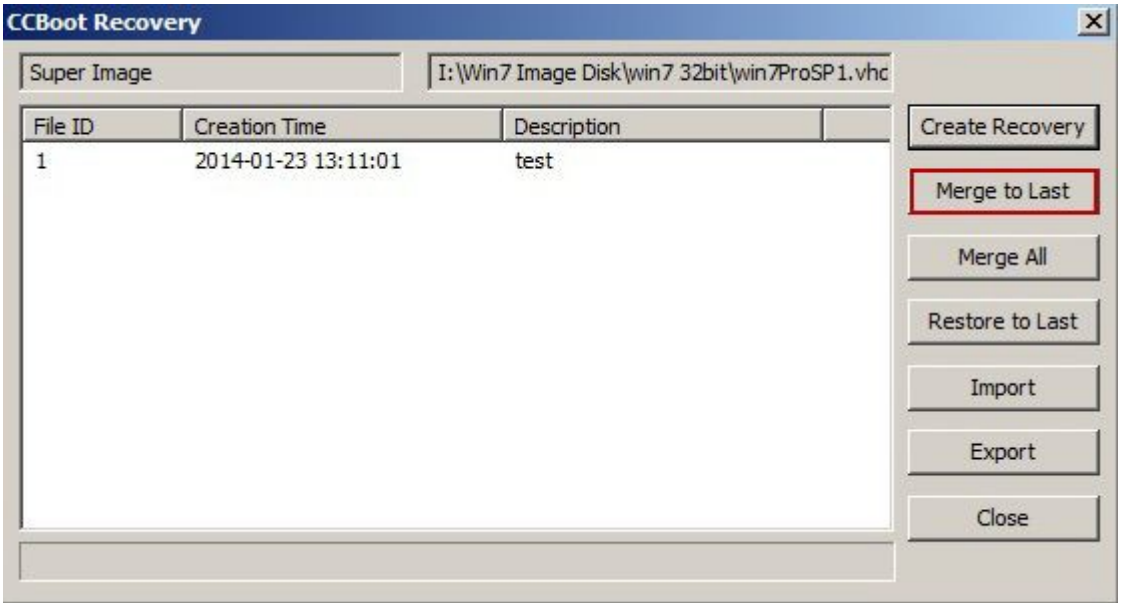


Figure 1-2

4) Click the "Merge to Last" button once will only merge one restore point at a time.
5) If you have multiple restore points, you can click the "Merge All" button, then all restore points will disappear in the restore points list.

When completed, you will find that the win7-xxx.vhd files are removed from "win7.vhd", and the win7.vhd is updated, but the file size becomes larger.

Note: Please do not merge image while client PCs are online, it will damage the image.

9.5 Recover Image

After updating the image, you find some problems in the image. If you have previously created" recovery point", you can take the recovery operation to recover to the state before the image updating. The specific steps are as follows:

1) On the main interface of the CCBoot, click the "Disk Manager", and then in the detailed pane on the right side, right-click the image which needs to recovery, and then click to select "Disk Recovery".

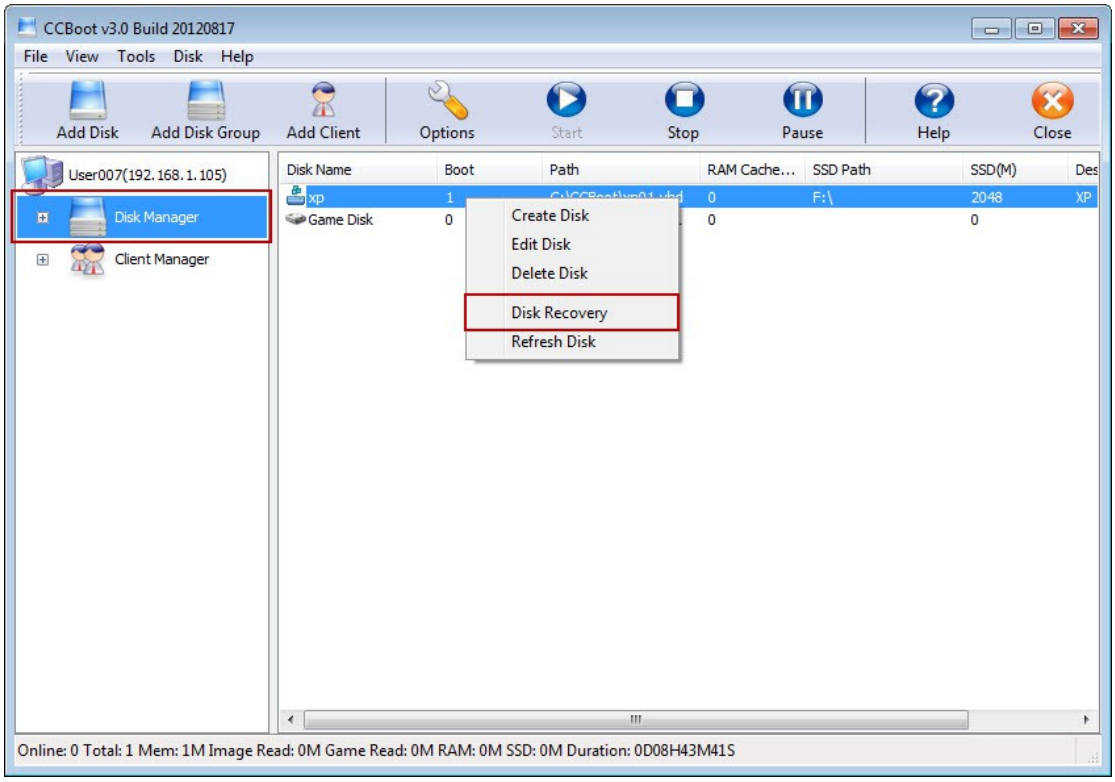


Figure 1-1

2) In the pop-up "CCBoot Recovery" dialogue box, click the "Restore to last" button, it will restore an image.

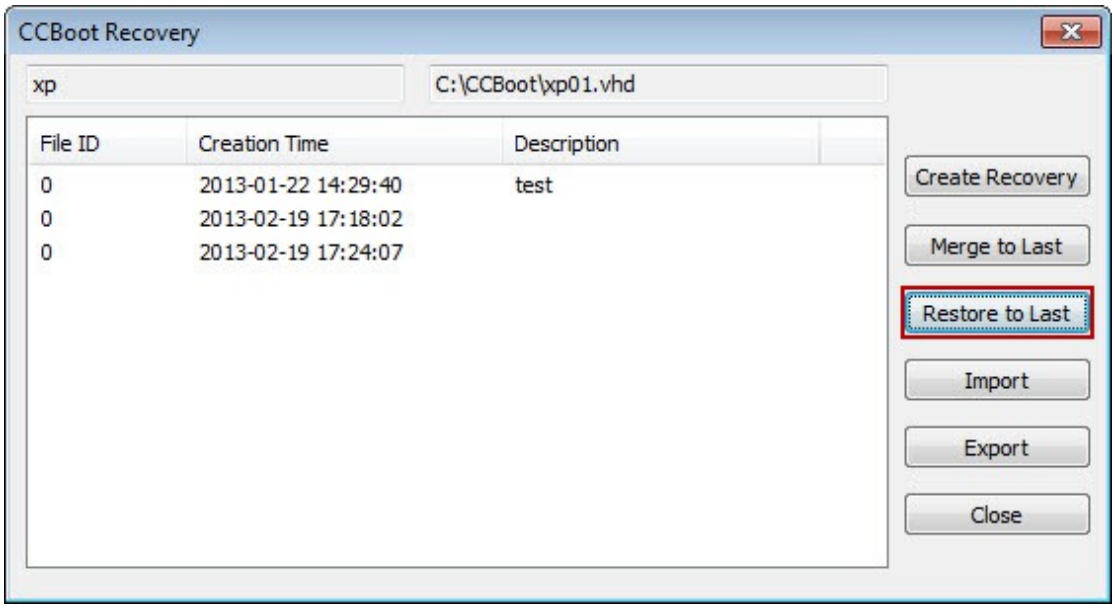


Figure 1-2

9.6 Reduce Image File Size

When the image package is updated and merged for many times, the image files are becoming bigger and bigger, so what method can make the image file smaller?

1. The first method is to upload the image again.

1) On the main interface of the CCBoot, click the "Client Manager". And then in the detailed pane on the right side, double-click the "PC101".

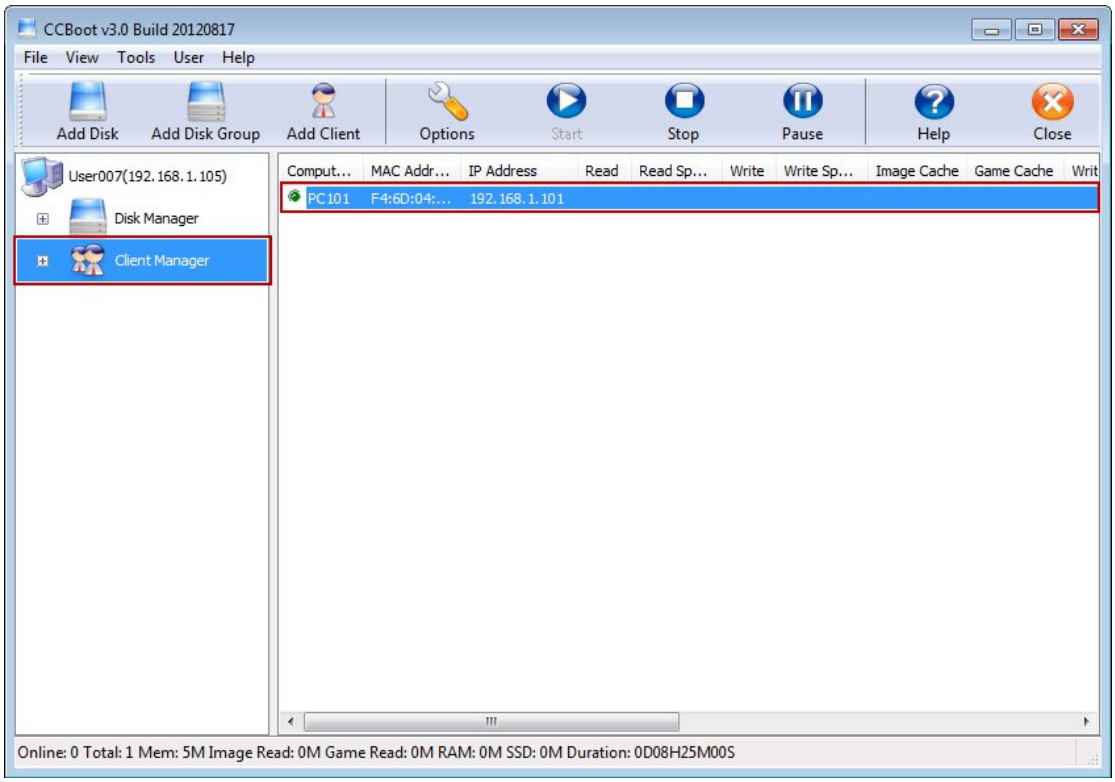


Figure 1-1

2) In the pop-up "CCBoot Client "dialogue box, select the "Enable Upload Image" check box, click the "Save" button.

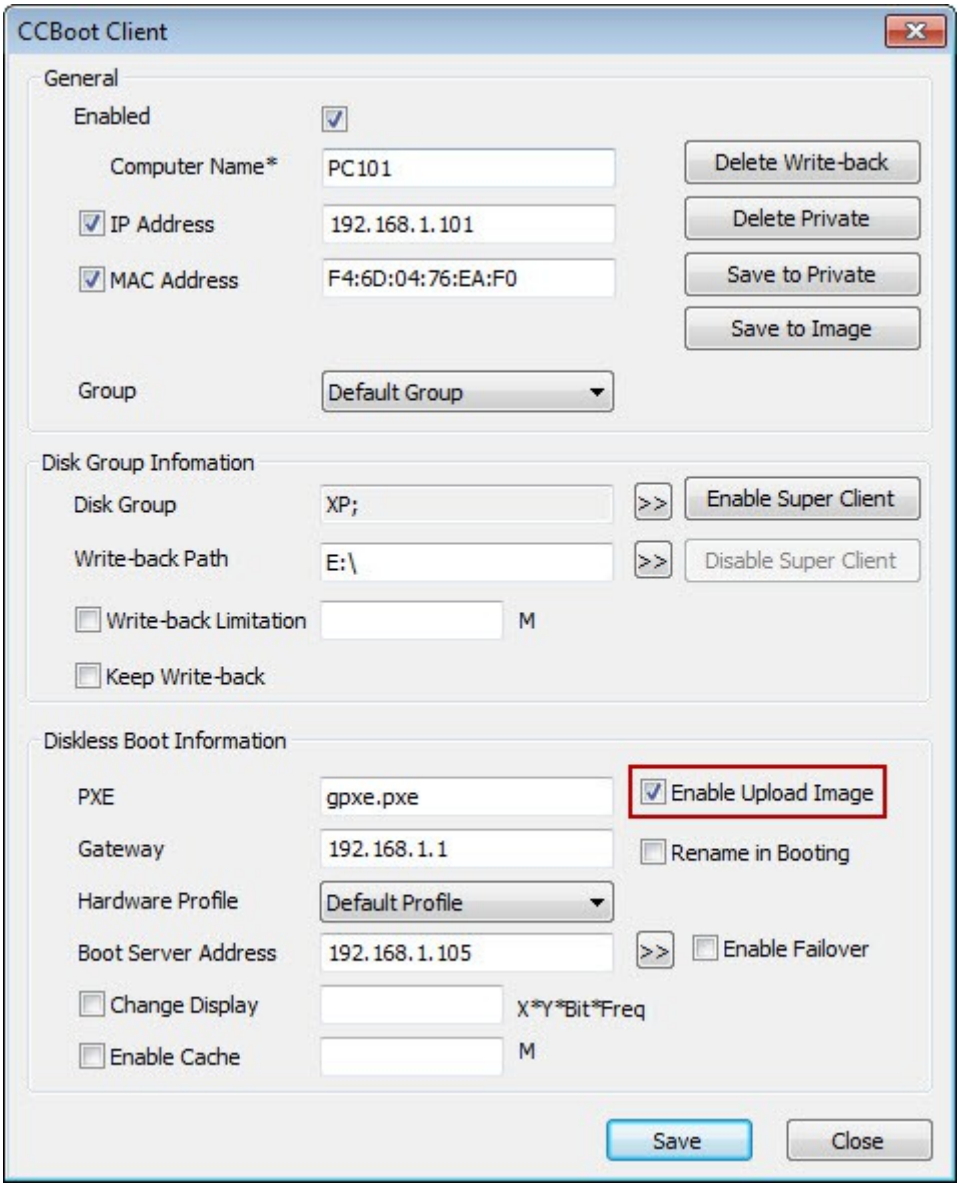


Figure 1-2

3) Diskless boot the "PC101".
4) In PC101, run the CCBoot Client .exe program.
5) It will pop up the "CCBoot Client "dialogue box, enter the CCBoot server IP address in the "Server IP Address "edition box, and enter a new image file name in the "Image File Name" edition box, and then click the "Upload Image "button, until the upload is completed.

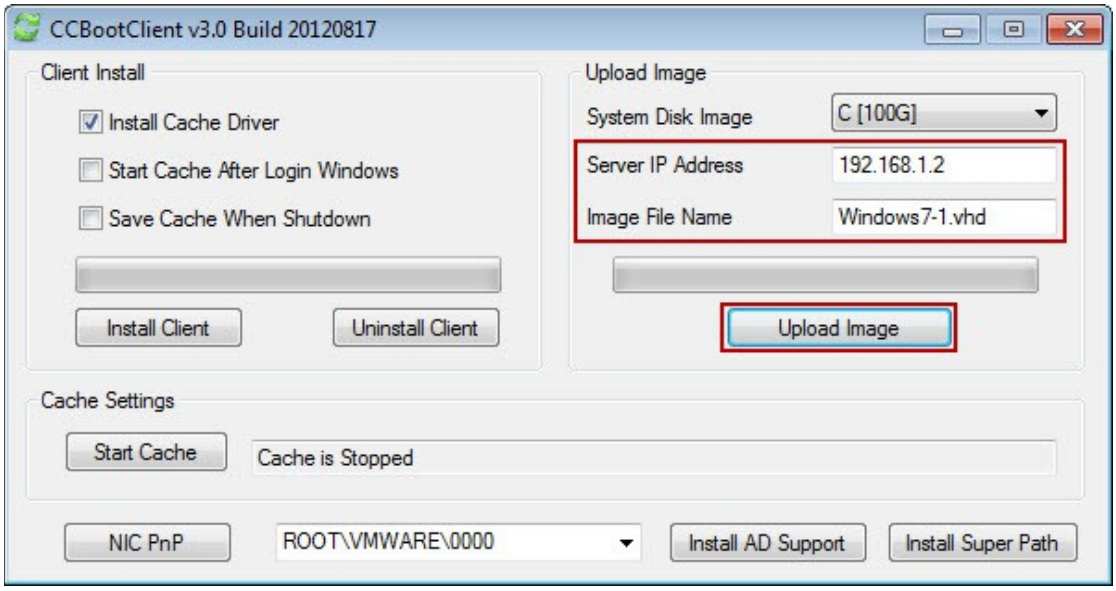


Figure 1-3

6) On the interface of the CCBoot, double-click the PC101.
7) In the pop-up "CCBoot Client" dialogue box, uncheck the "Enable Upload Image" check box, click the "Save" button.

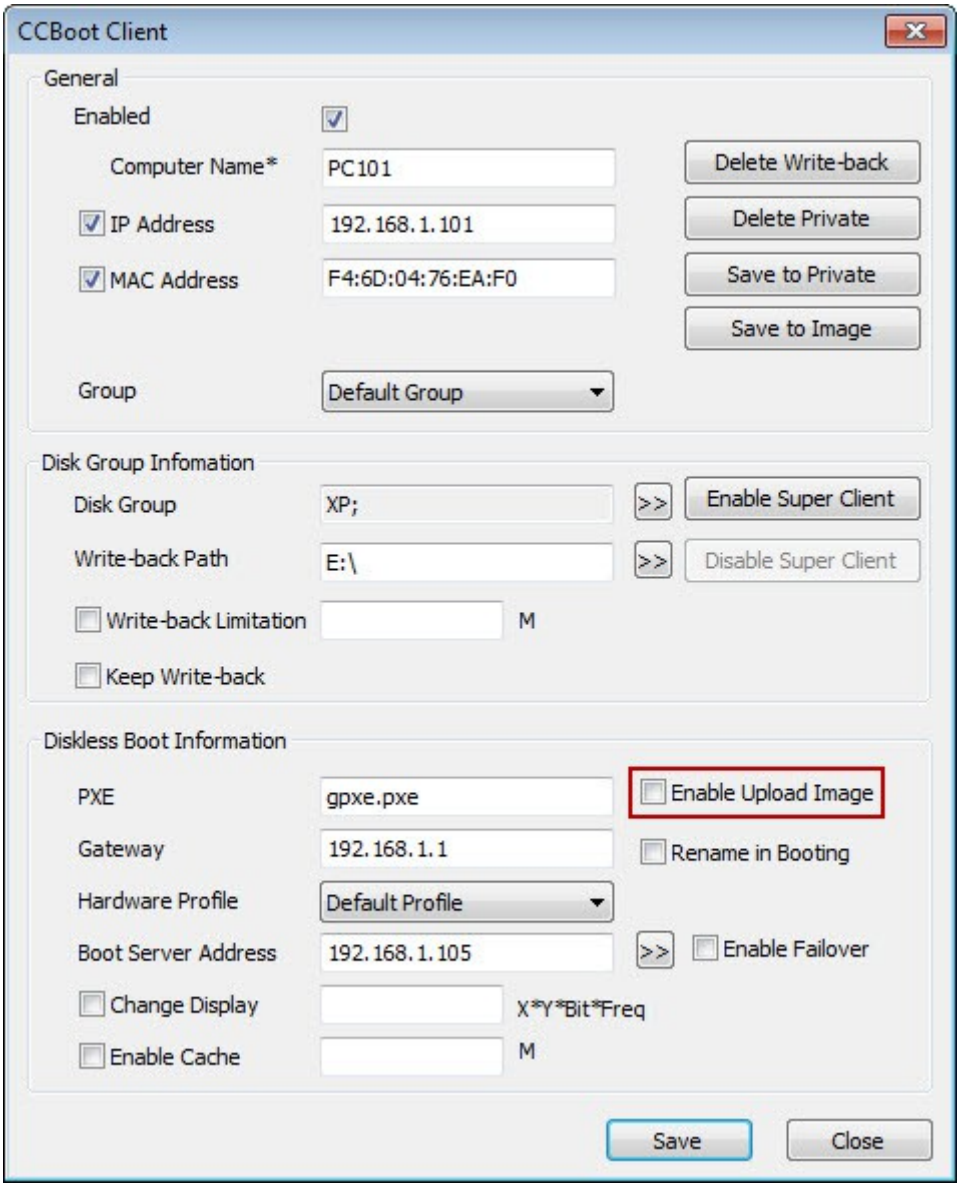


Figure 1-4

8) New image file is a slimmed-down image file.

2. The second method is to use GHOST software, to copy over the image again.

The following operations are needed in the Win2008 operating system. The specific steps are as follows:

1) Firstly you need to take the "Merge Image" operation for the image which needs slimming .For details, please refer to "How to Merge Image".
2) Assume the name of the image file which needs slimming as XP.VHD
3) Copy the XP.VHD, named OLD.VHD.
4) Open the "Server Manager" window, expand the "Storage" node, right-click the "Disk Manager", click the "Attach VHD".

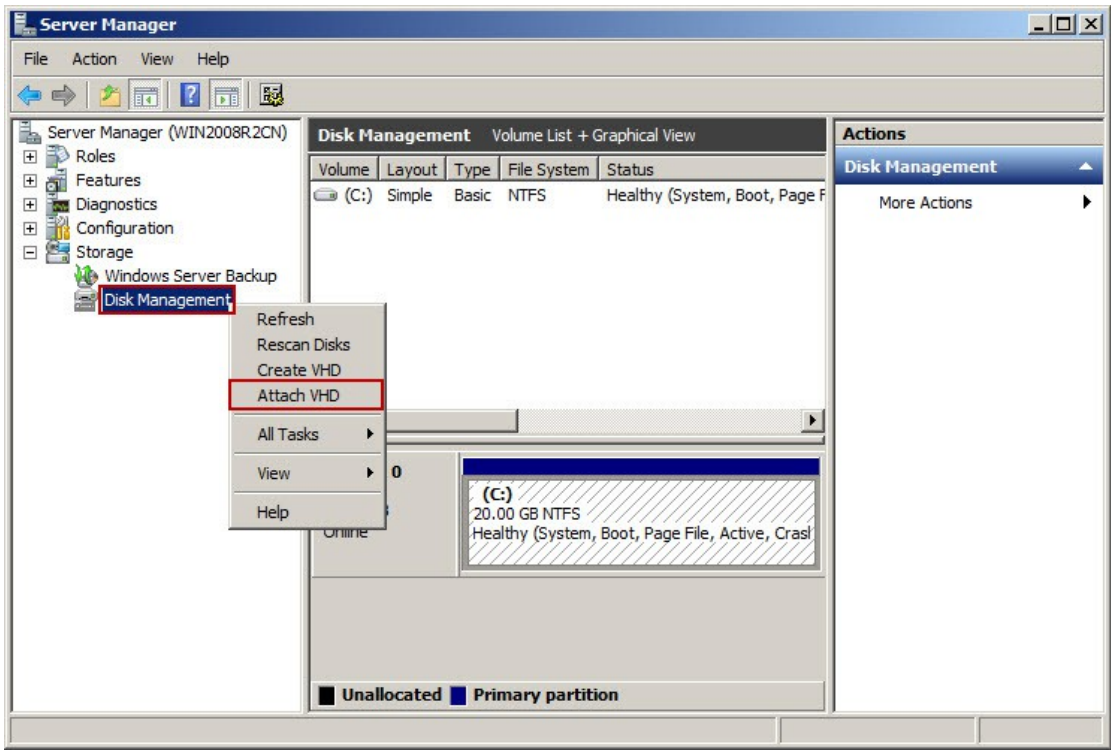


Figure 1-5

5) In the pop-up "Attach Virtual Hard Disk" dialogue box, click the "Browse" button, select the OLD.VHD file.

Figure 1-6

6) Open the "Server Manager" window, expand the "Storage" node, right-click the "Disk Manager", and click to select the "Create VHD".

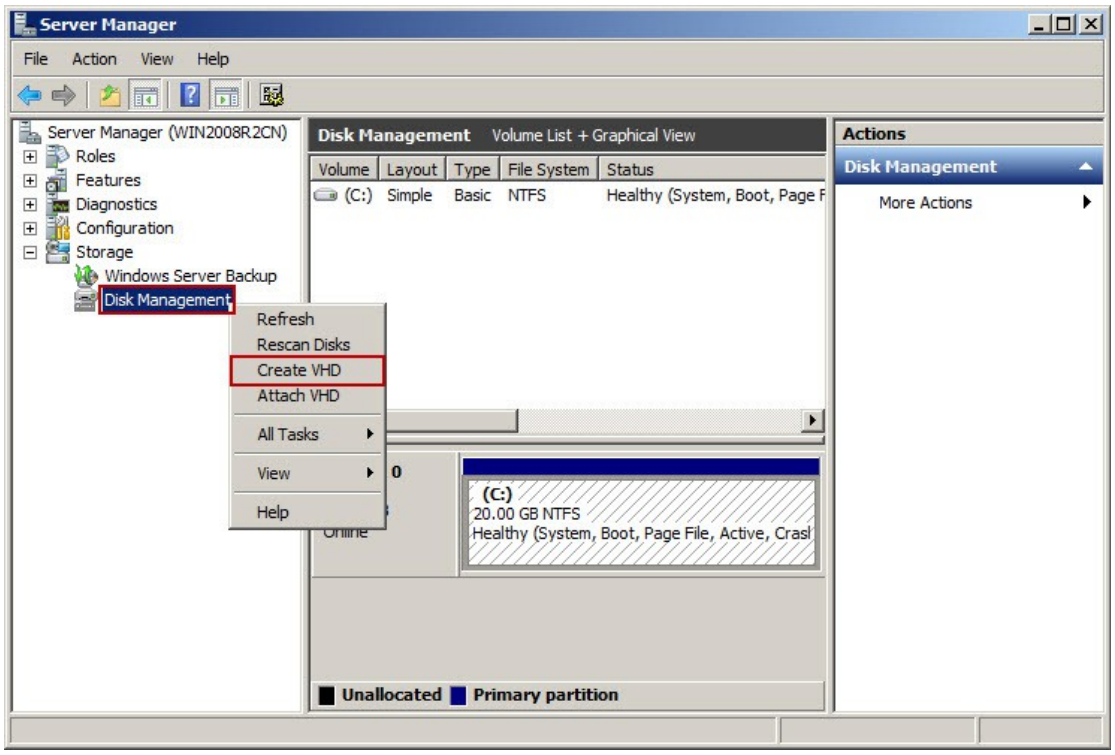


Figure 1-7

7) In the pop-up" Create and Attach Virtual Hard Disk" dialogue box, create a virtual disk which has the same size of the original image disk, named NEW.VHD; select "Dynamically expanding" and click the button, and then click "OK" button.

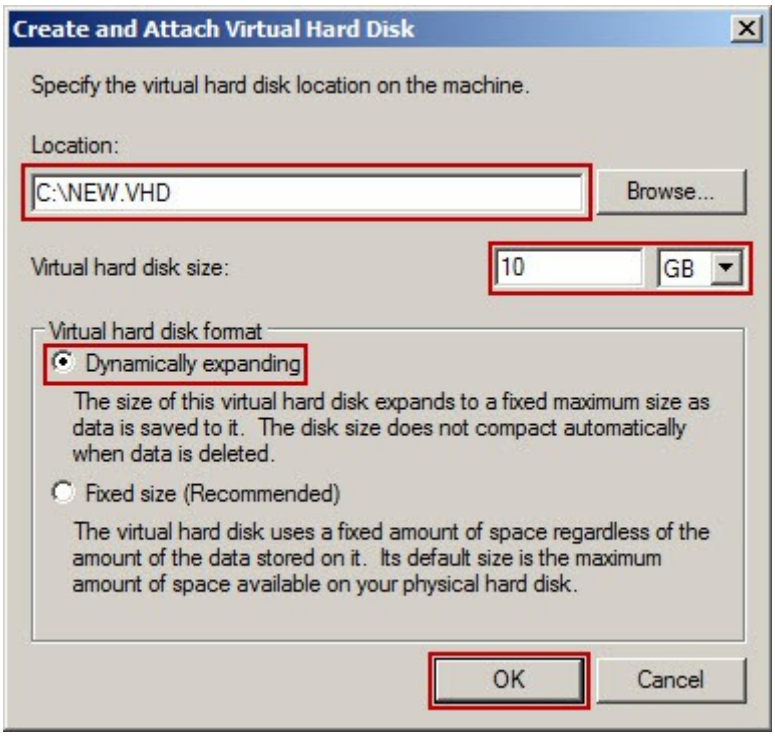


Figure 1-8

8) Right-click the "NEW.VHD" and then click the "Initialize Disk" to activate the disk.

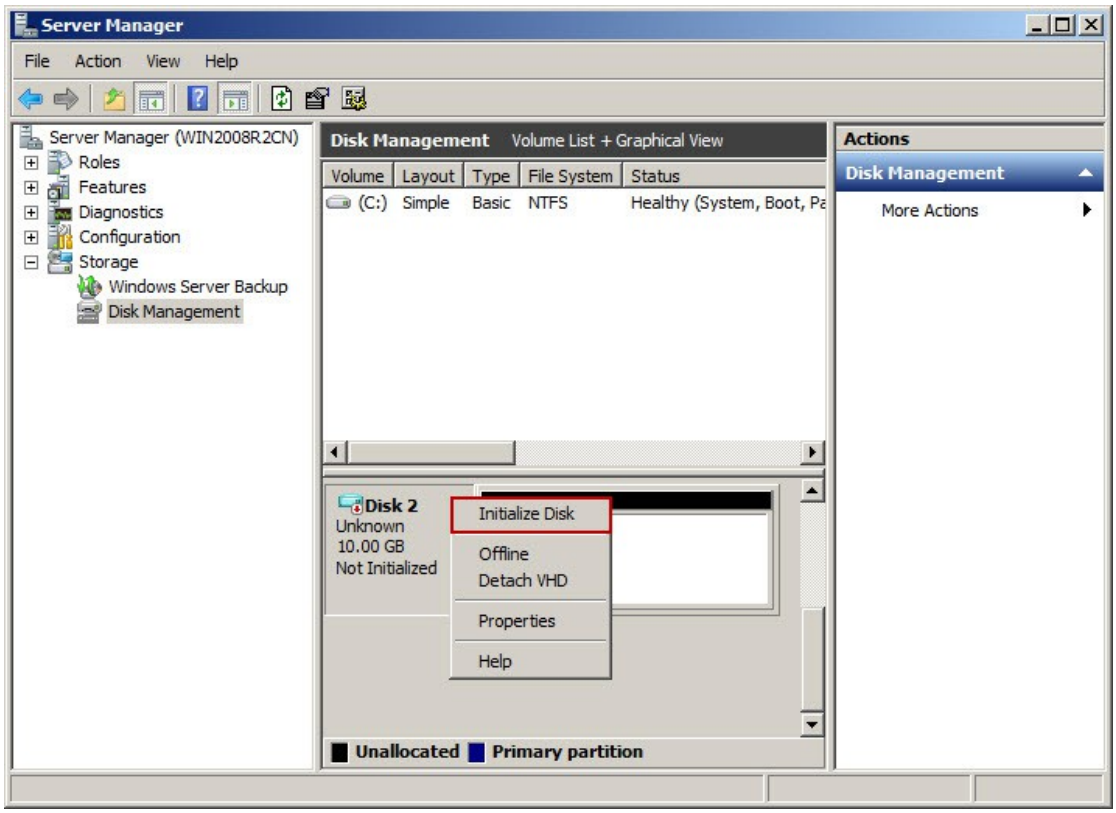


Figure 1-9

9) In the disk manager, there are two disks with blue icons. The first disk is OLD.VHD, and the second disk is NEW.VHD.

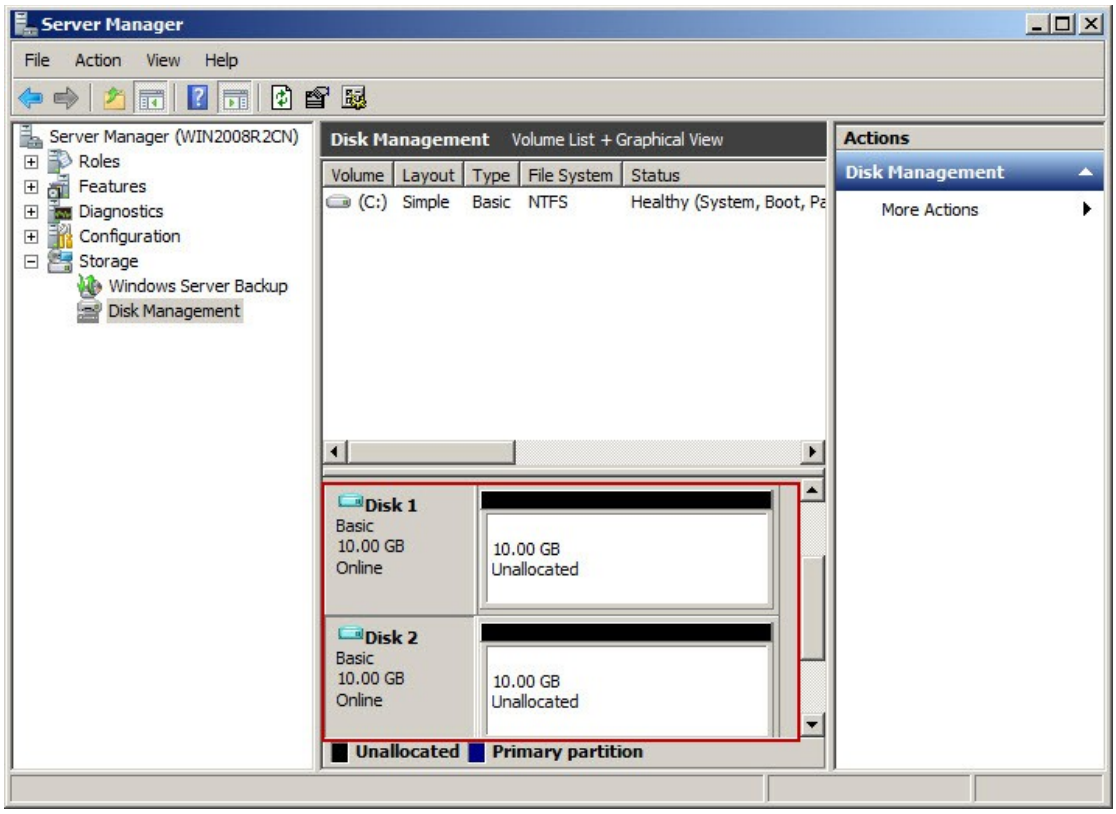


Figure 1-10

10) Run the GHOST32.EXE program.
11) Local>Disk>To Disk, make the OLD.VHD corresponding to the disk copy to the NEW.VHD corresponding to the disk. After the copy is completed, does not restart the machine, Please select the "Continue", and the GHOST program withdraw from the normal procedures.

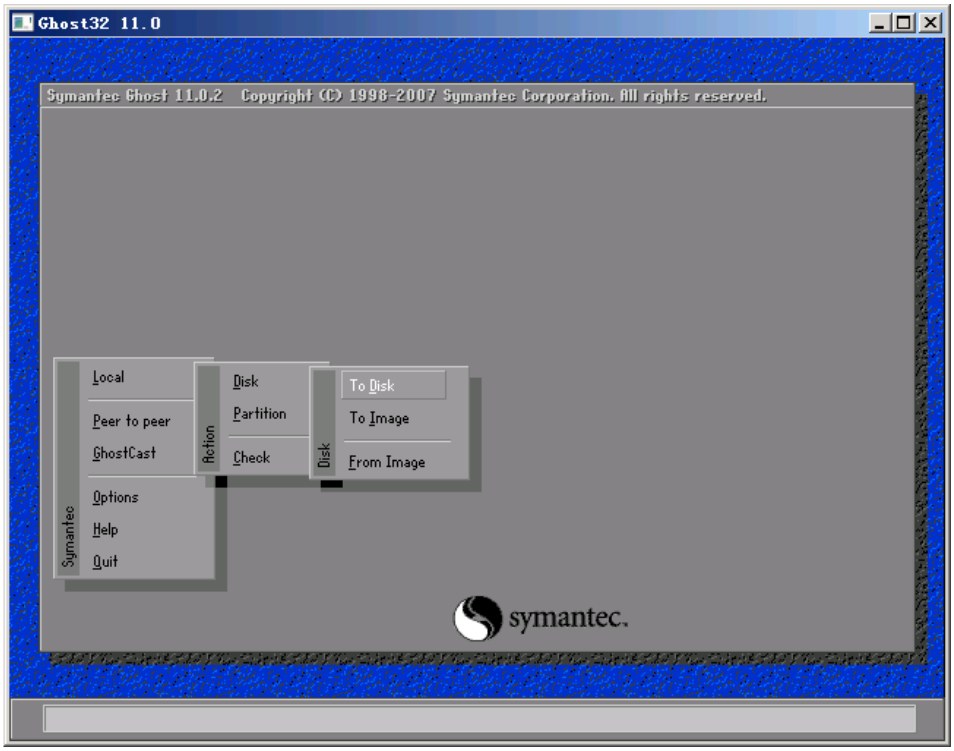


Figure 1-11

12) In the "Server Manager" window, expand the "Storage" node, click the "Disk Manager", and then right-click the NEW.VHD, select the "Mark Partition as Active", to mark NEW.VHD as the active partition.

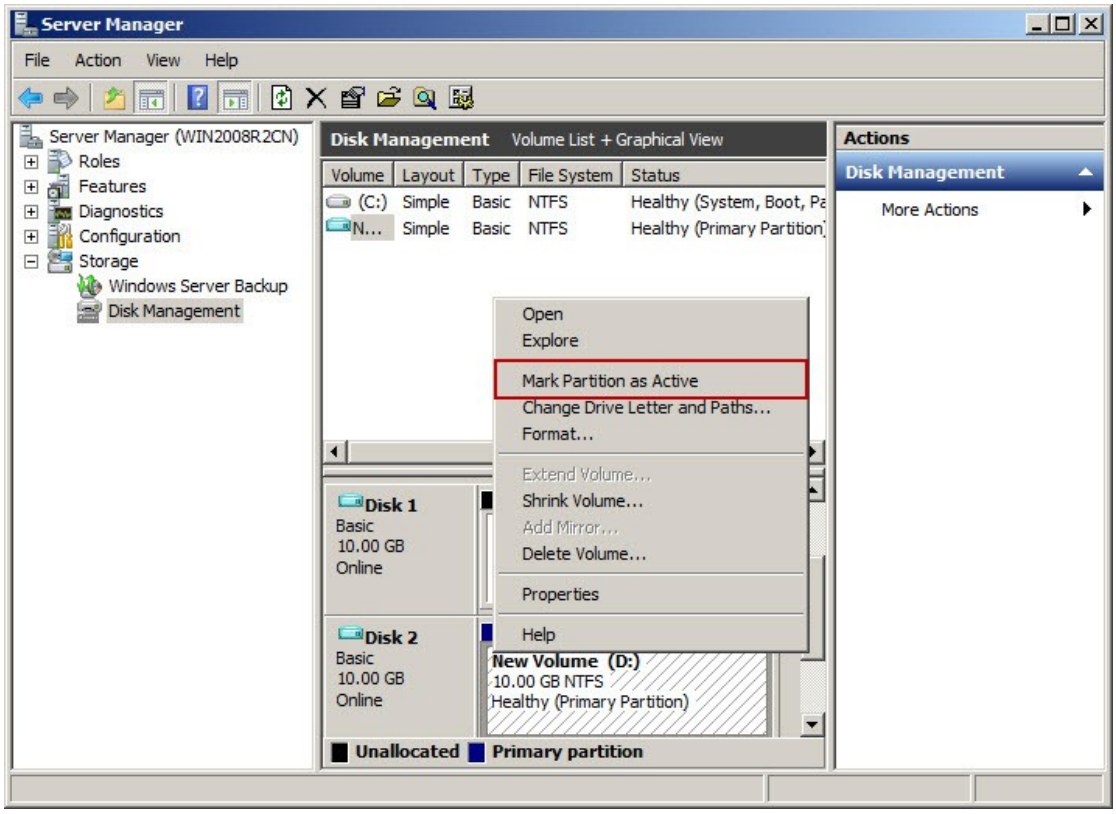


Figure 1-12

13) Right-click the NEW.VHD disk, select the "Separation of VHD."

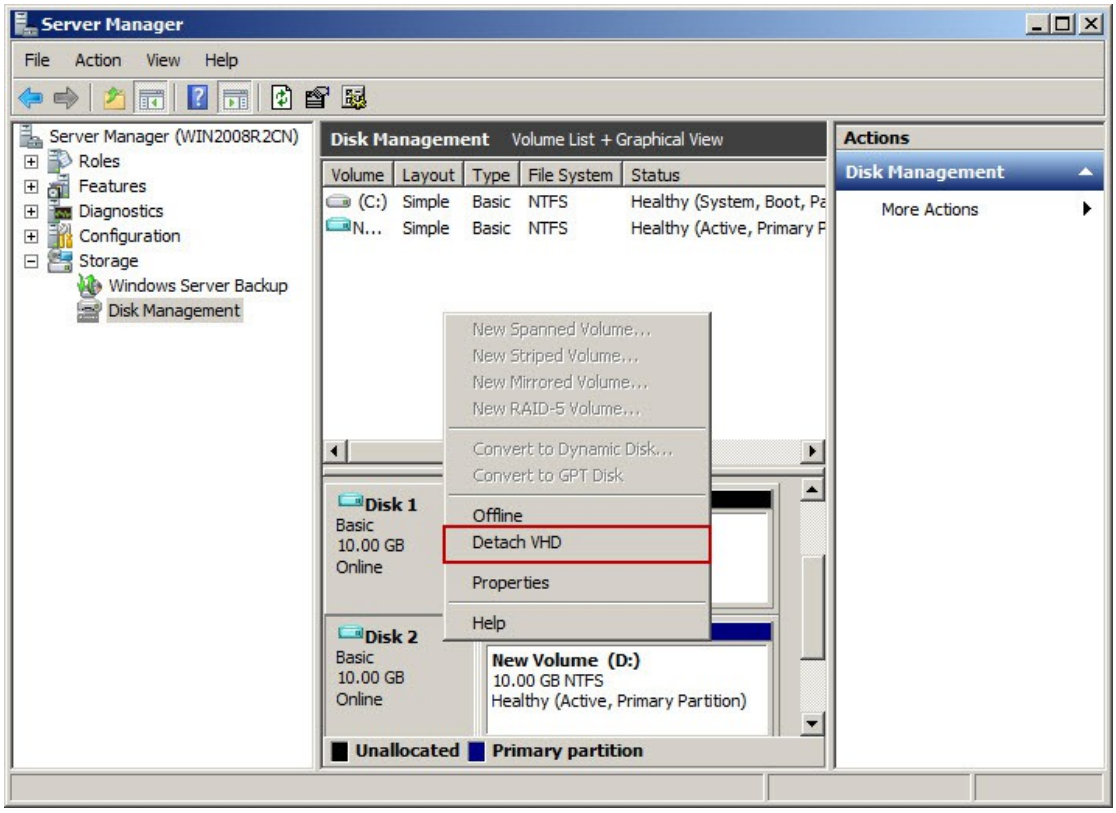


Figure 1-13

14) In the pop-up "Detach Virtual Hard Disk" dialogue box, do not select the "Delete the virtual hard disk file after removing the disk", then click "OK" button.

Figure 1-14

15) Thus, NEW.VHD is a slimmed-down VHD file.

9.7 Update Game by Super Client

Taking the client PC101 as an example, the operation steps are as follows:

1) On the main interface of the CCBoot, click the "Client Manager", and then in the detailed pane on the right side, double-click the "PC101".

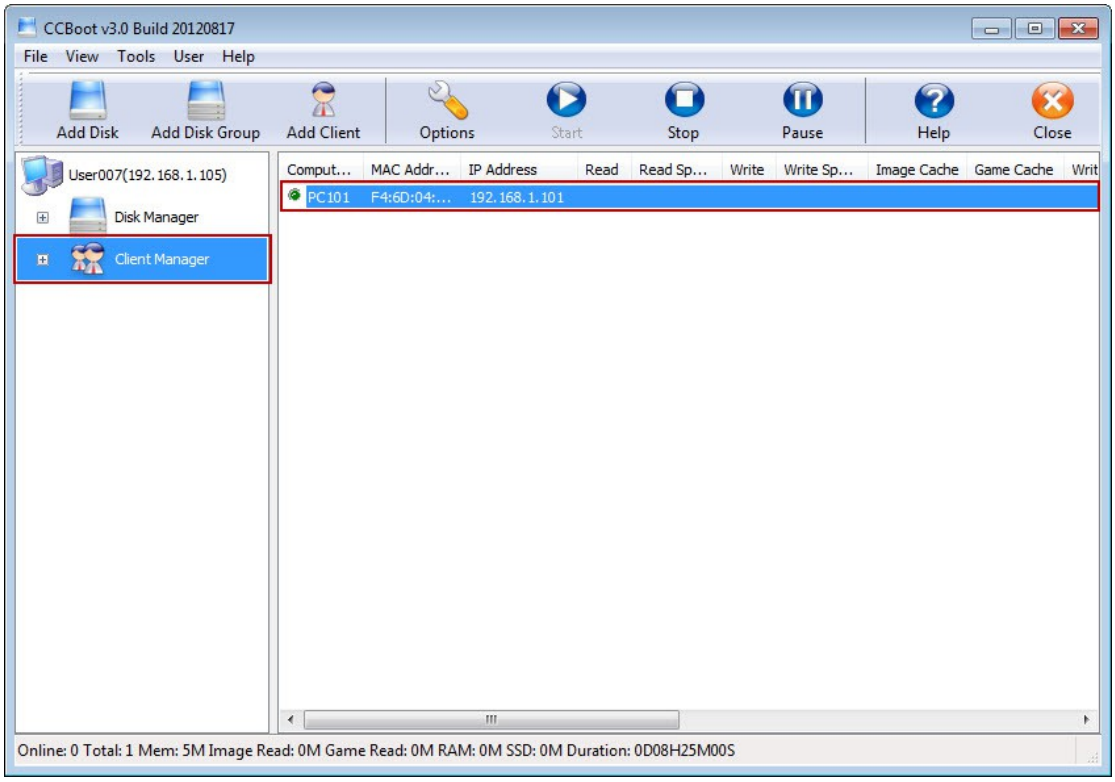


Figure 1-1

2) In the pop-up "CCBoot Client" dialogue box, click the "Enable Super Client" button.

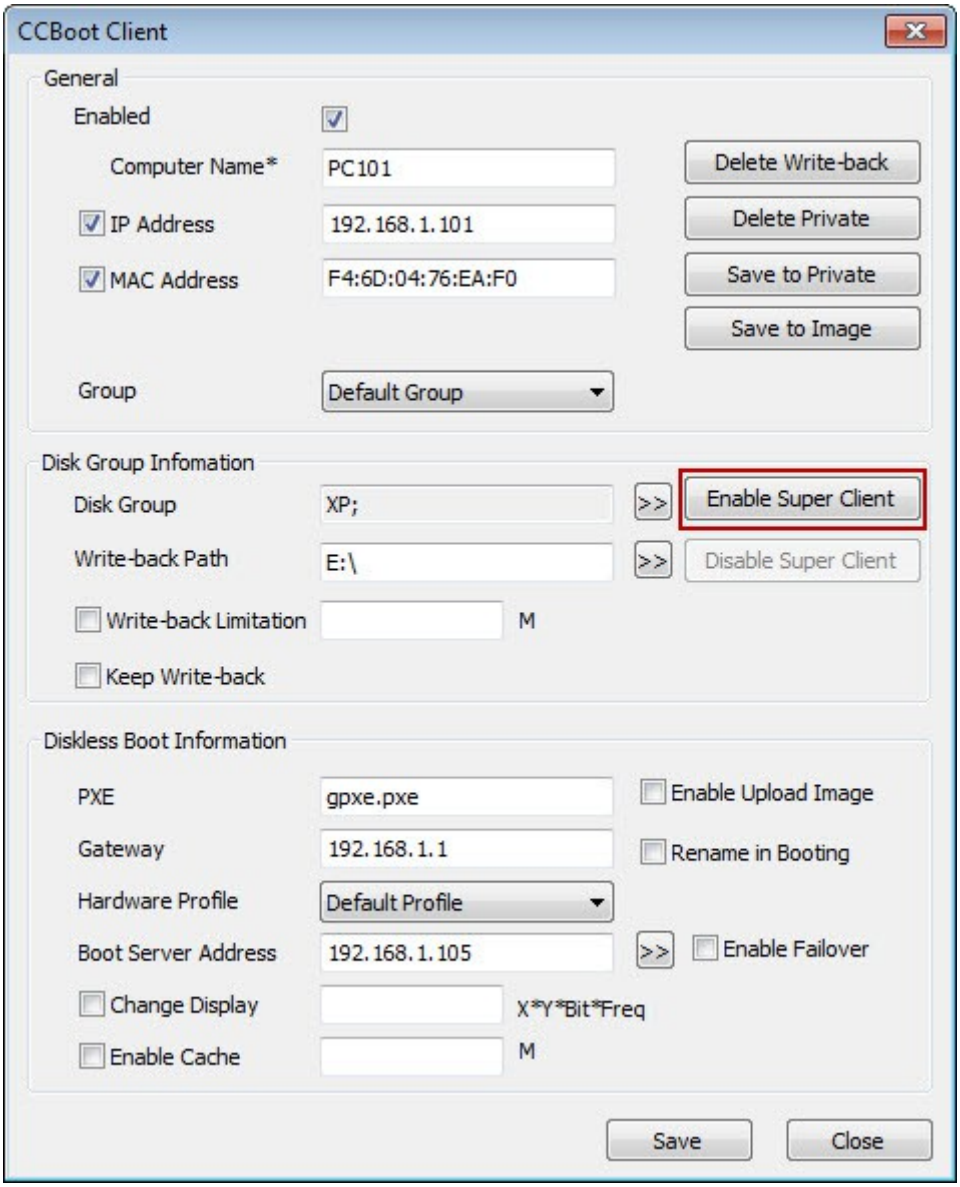


Figure 1-2

3) In the pop-up "CCBoot Select Disk" dialogue box, select the game disk check box, and then click "OK" button. If you are installing the game, you need to select the image disk check box.

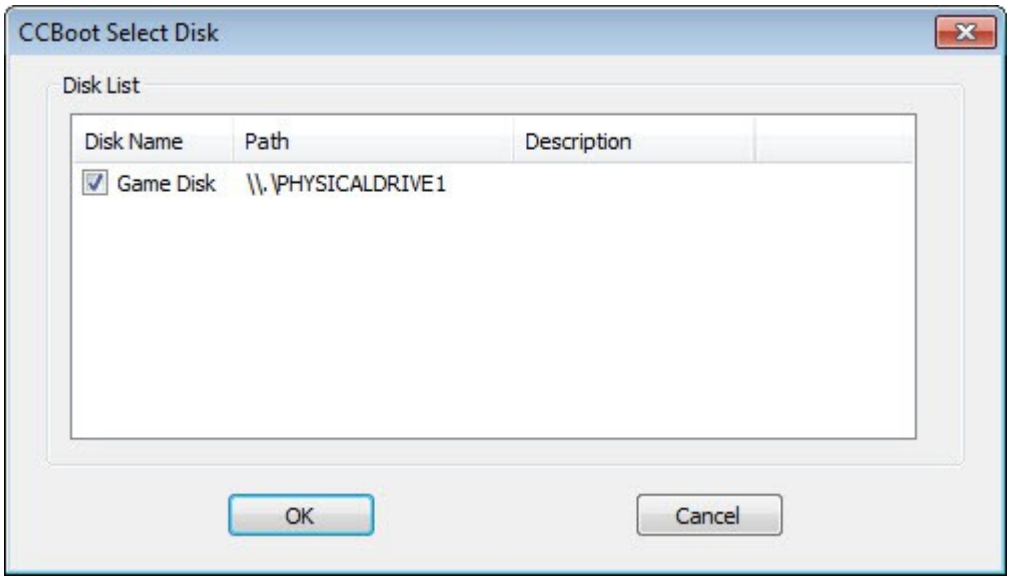


Figure 1-3

4) Diskless boot the PC101, update the game.
5) After the updated is completed, close the client.
6) On the main interface of the CCBoot, again double-click the "PC101".
7) In the pop-up "CCBoot Client" dialogue box, click the "Disable Super Client" button, then click the "Save" button.

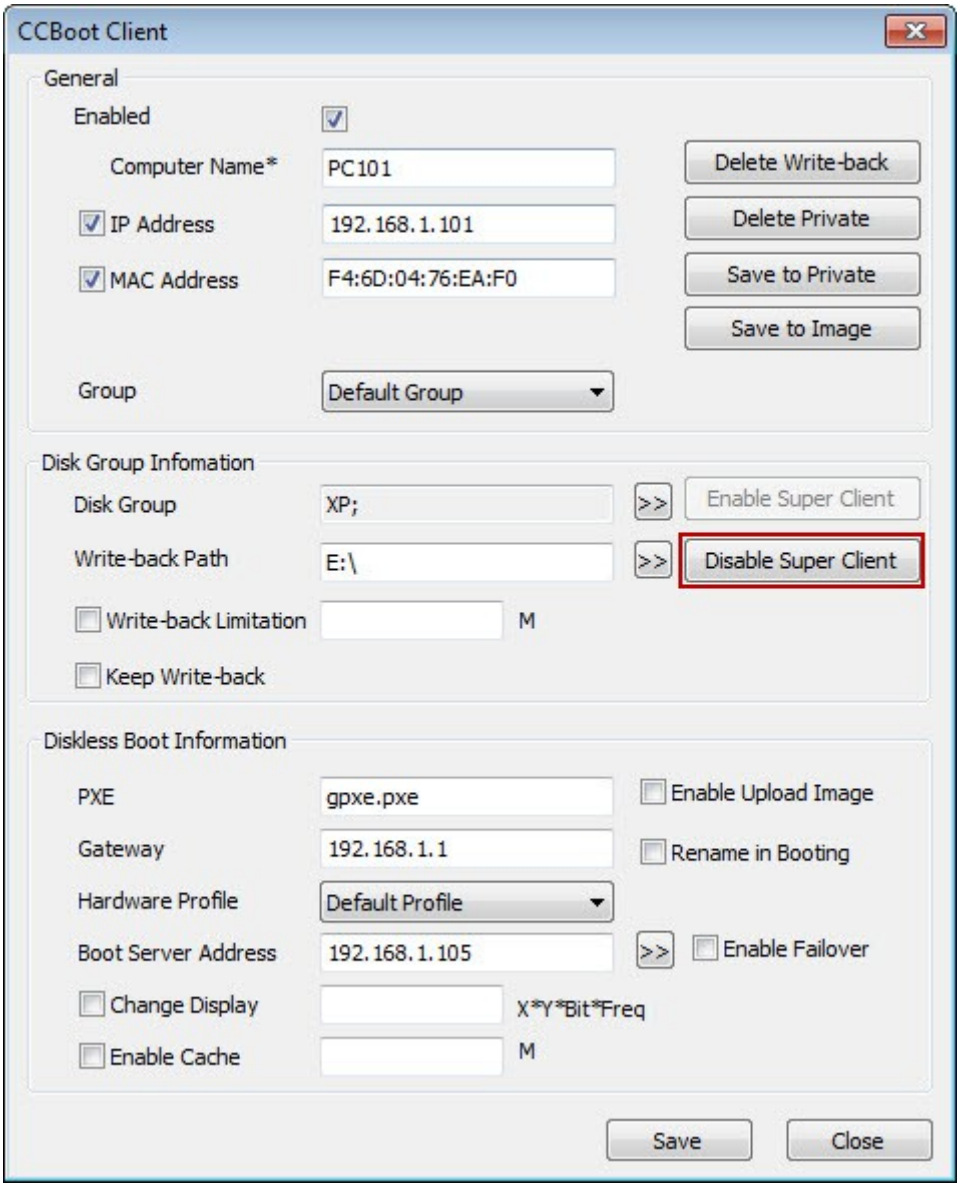


Figure 1-4

9.8 Update Game on the Game Server

If you are very familiar with CCBoot software, and the "game-updating software's", then we can take the following operation steps.

Preparation work:

The game server (must install "hard disk"), IP address: 192.168.1.25

The CCBoot server, IP address: 192.168.1.252

The steps are as follows:

1. The game server setting

1) With an installed "hard disk" machine, to update the game. (machine named: the game server)

2) In "game server", install iSCSI Initiator (For details, please refer to the iSCSI Initiator Installation.") And the game-updating software.

2. CCBoot setting

1) Creating a disk group on the CCBoot server, named "Game", just adding the game disk.
2) On the main interface of the CCBoot, right-click the "Client Manager", click to select the "Auto Scan".

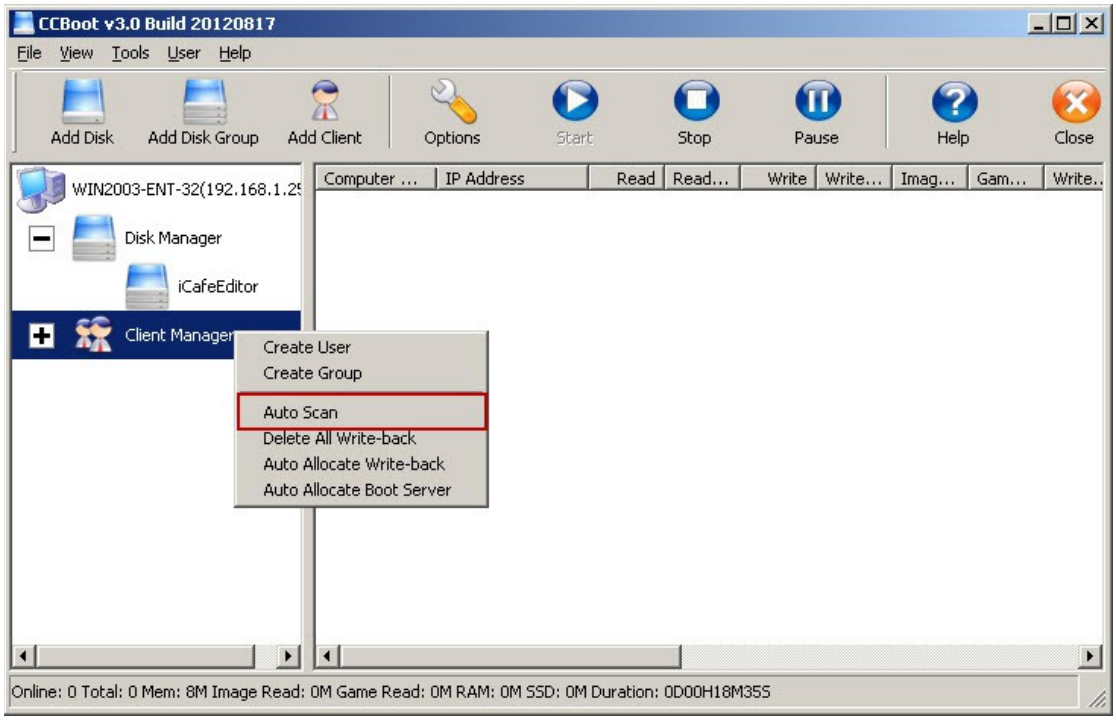


Figure 1-1

3) It will pop up the "CCBoot Auto Scan " dialogue box, in the "Low IP Address" and "High IP Address "edition box, enter the. Game server IP and then click "Start" button, and scan out the game server IP.

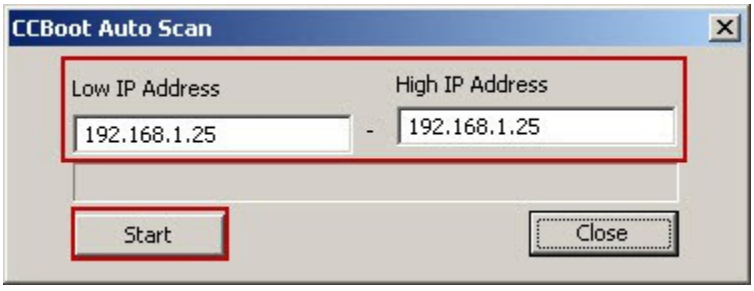


Figure 1-2

4) Double-click the "just scanned machine", it will pop up "CCBoot Client" dialogue box, and then click the "Disk Group" on the right "»"button.

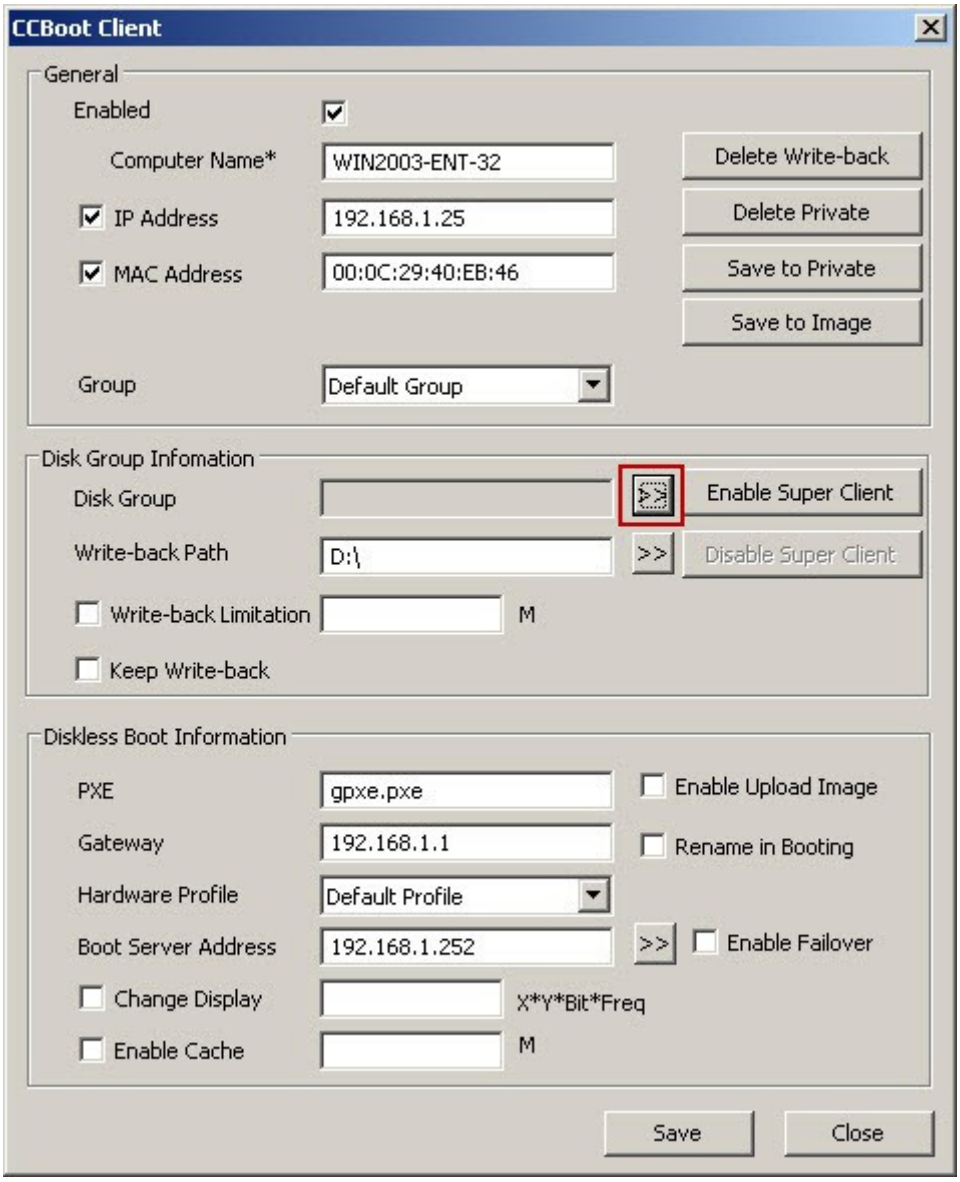


Figure 1-3

5) In the pop-up "CCBoot Disk Group Selection "dialogue box, select the "Game" check box, and then click the "OK" button.

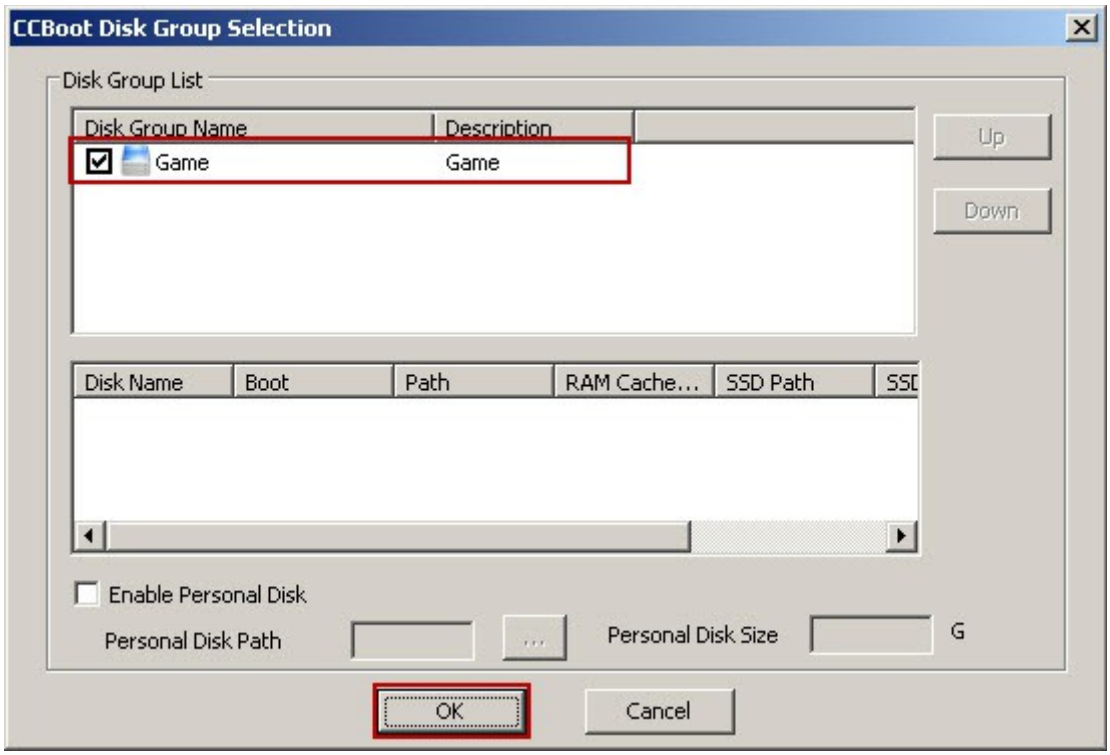


Figure 1-4

6) Click the "Enable Super Client "button on the "CCBoot Client "dialogue box.

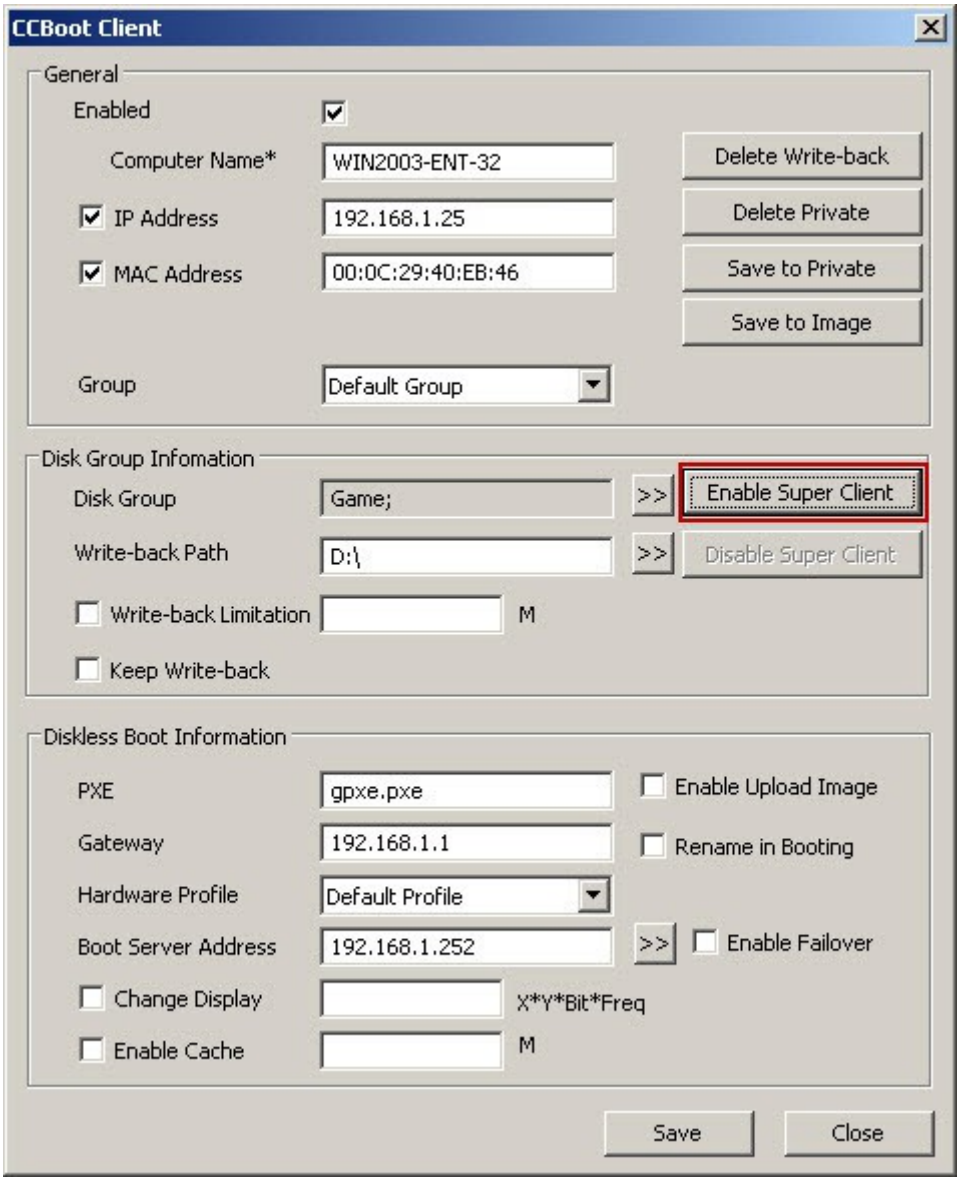


Figure 1-5

7) In the pop-up "CCBoot Select Disk "dialogue box, select the "Game", click "OK" button.

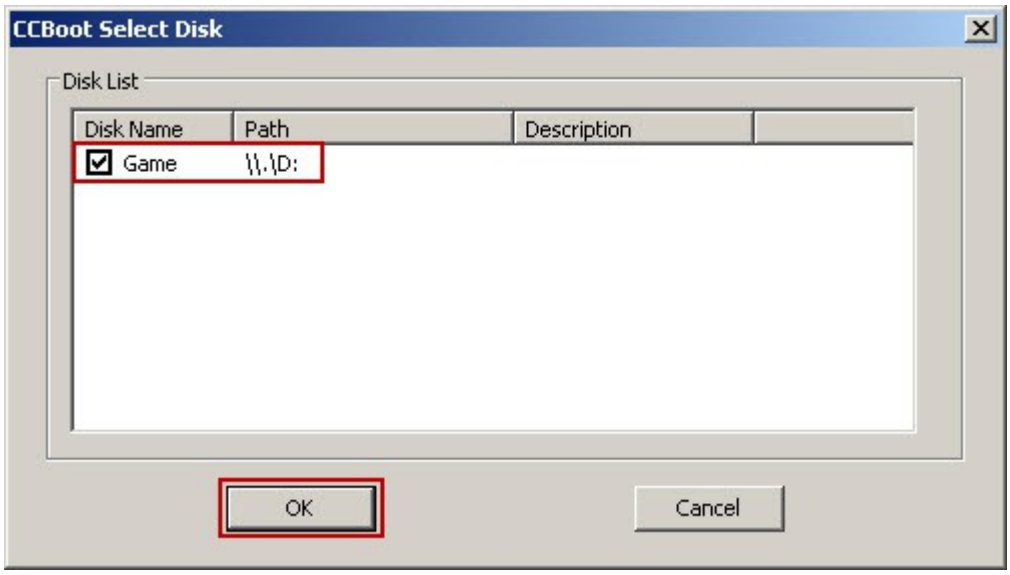


Figure 1-6

3. iSCSI setting

1) Boot the "game server", in the game server, run the iSCSI program.
2) In the pop-up "iSCSI Initiator Properties "dialogue box, click the "Add" button.

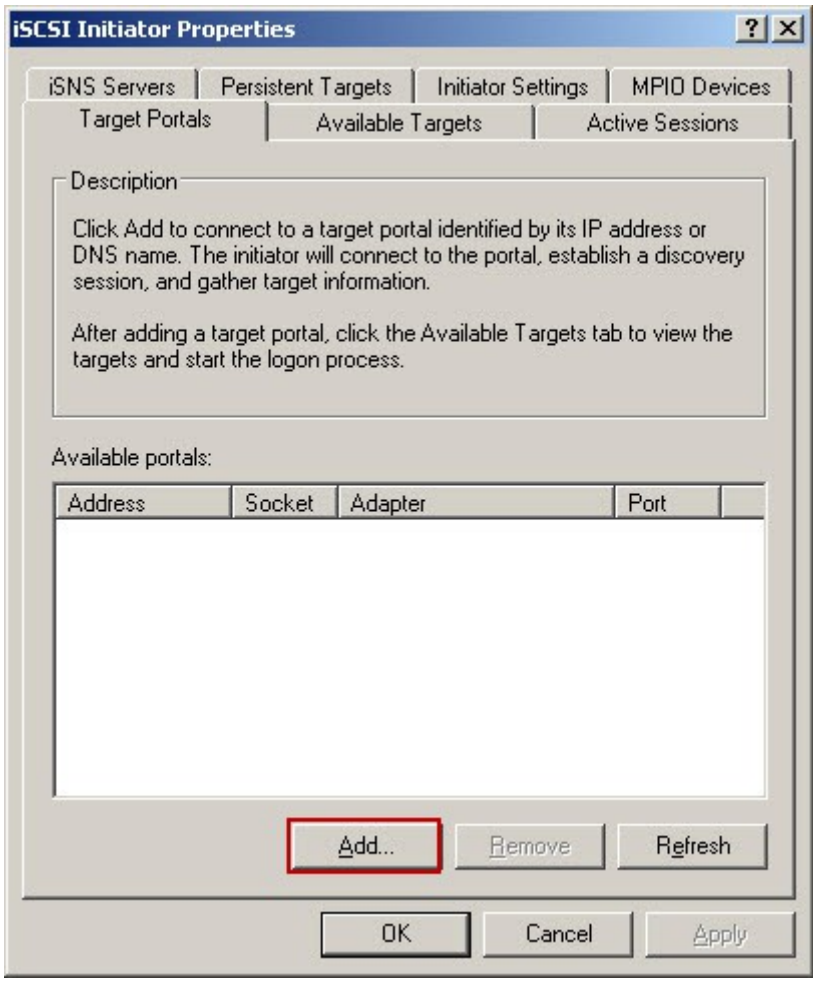


Figure 1-7

3) It will pop up "Add Target Portal" dialogue box, in the "IP address or DNS name" edition box, enter the "CCBoot server IP address", then click "OK" button.

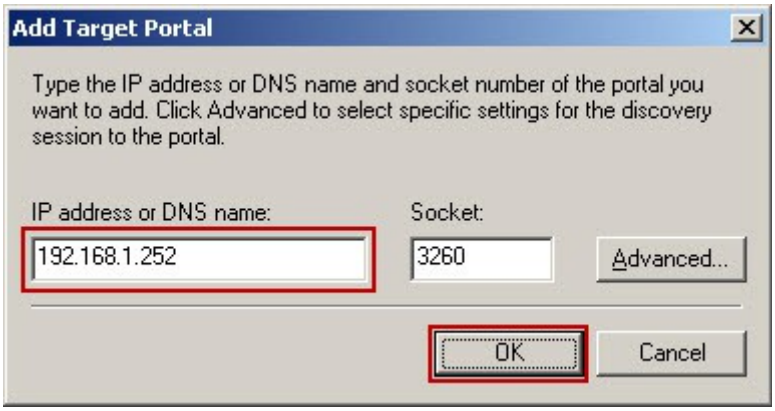


Figure 1-8

4) After "Add" is completed, and then click "Available Targets "tab.

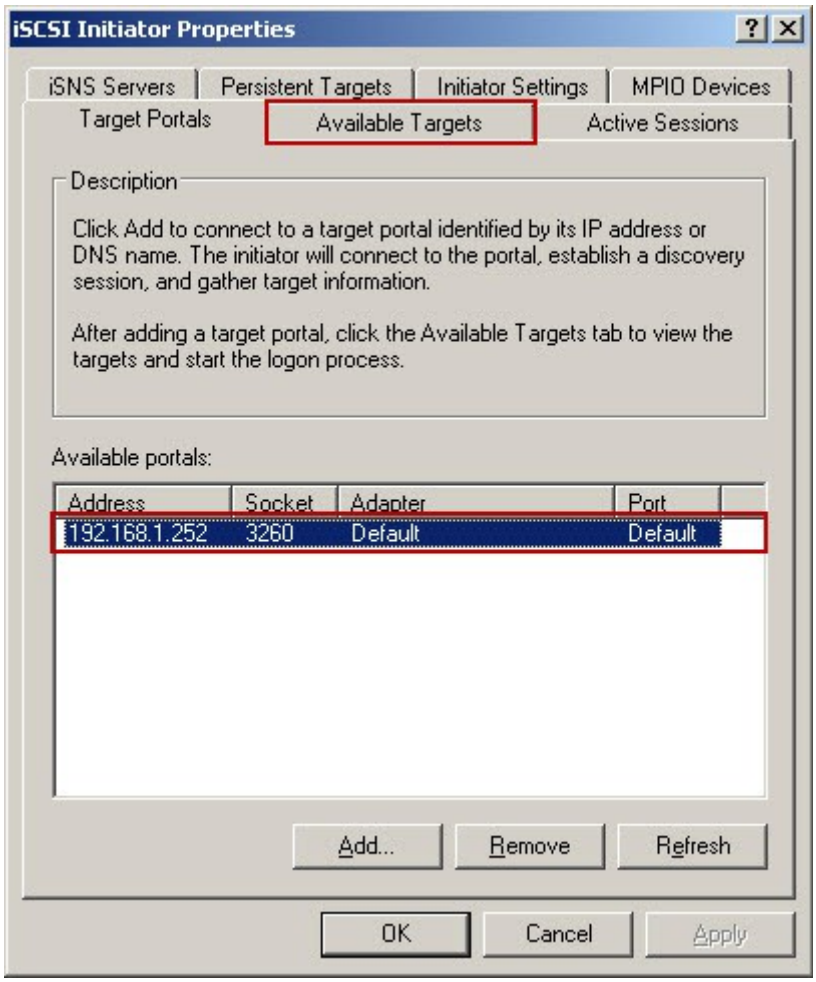


Figure 1-9

5) In the detailed pane of "Select a target", you will see something similar to the item "iqn.2008-12com.ccboot 252:00",and then click" Log On" button.

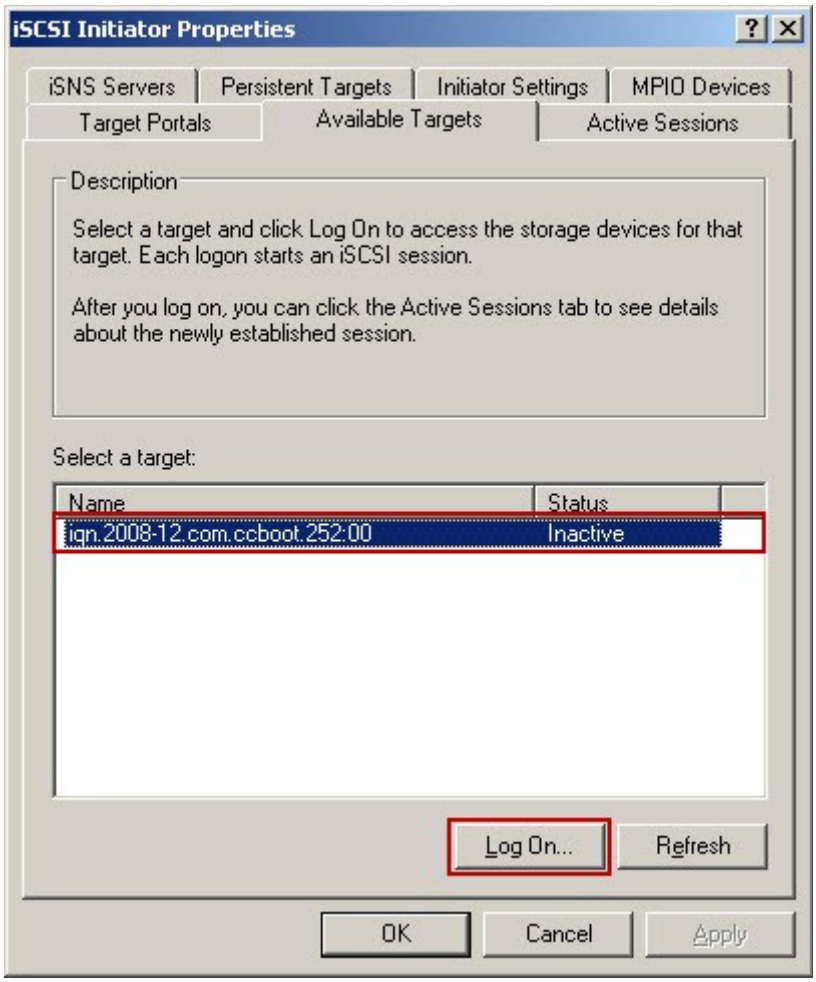


Figure 1-10

6) In the pop-up" Log onto Target "dialogue box, select the "Automatically restore this connection when the system boots" check box, and then click "OK" button.

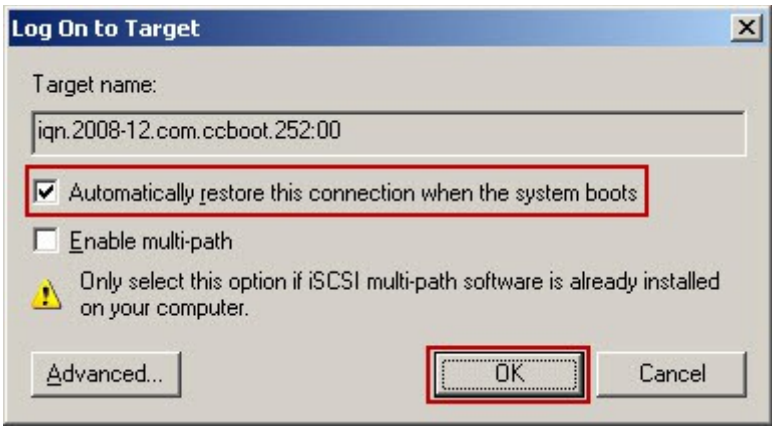


Figure 1-11

7) After the successful setting, in the "disk management" window of "the game server", there will be one more disk. This is the game disk on the server.

8) Add the disk letter "for the game disk, and update the "G disk" using the game-updating software.

9.9 Update Game Disk on the Server

1) On CCBoot server, install new games or game patches on the game disk.
Refresh disk cache. Please refer to "Refresh Disk Cache".
2) After rebooting clients, they can get new game data.

9.10 Update Game on the Server

In order to improve the efficiency in the use of cache, in the use of CCBoot software, recommend the use of "super terminal "to update the game. On the server, the steps of using the super terminal game update are as follows:

1) Install the iSCSI Initiator on the CCBoot server. For details, please refer to the "iSCSI Initiator Installation".
2) On the main interface of the CCBoot, right-click the "Client Manager", click the "Auto Scan".

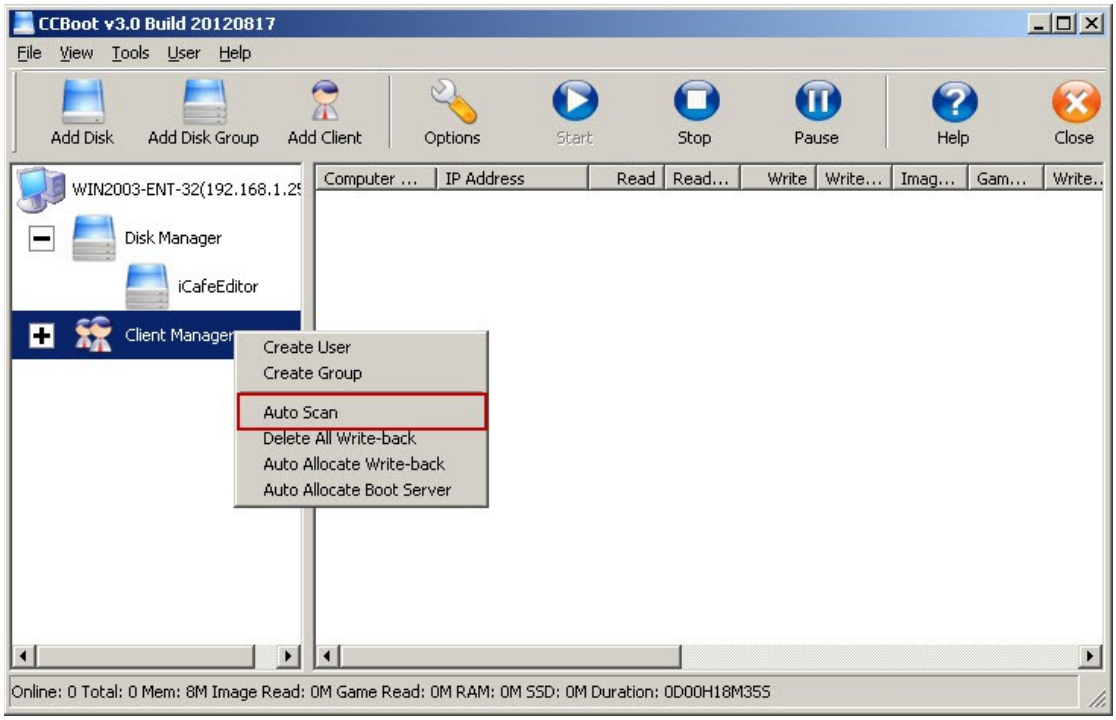


Figure 1-1

3) It will pop up "CCBoot Auto Scan "dialogue box, in the "Low IP Address" and "High

IP Address " edition box, enter the server IP ,and then click "start" button, and scan out the server IP.

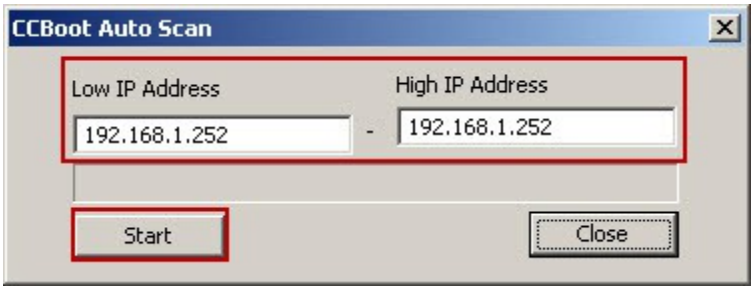


Figure 1-2

4) Double-click the " just-scanned machine", it will pop up "CCBoot Client" dialogue box, and then click the "Disk Group" on the right "»" button.

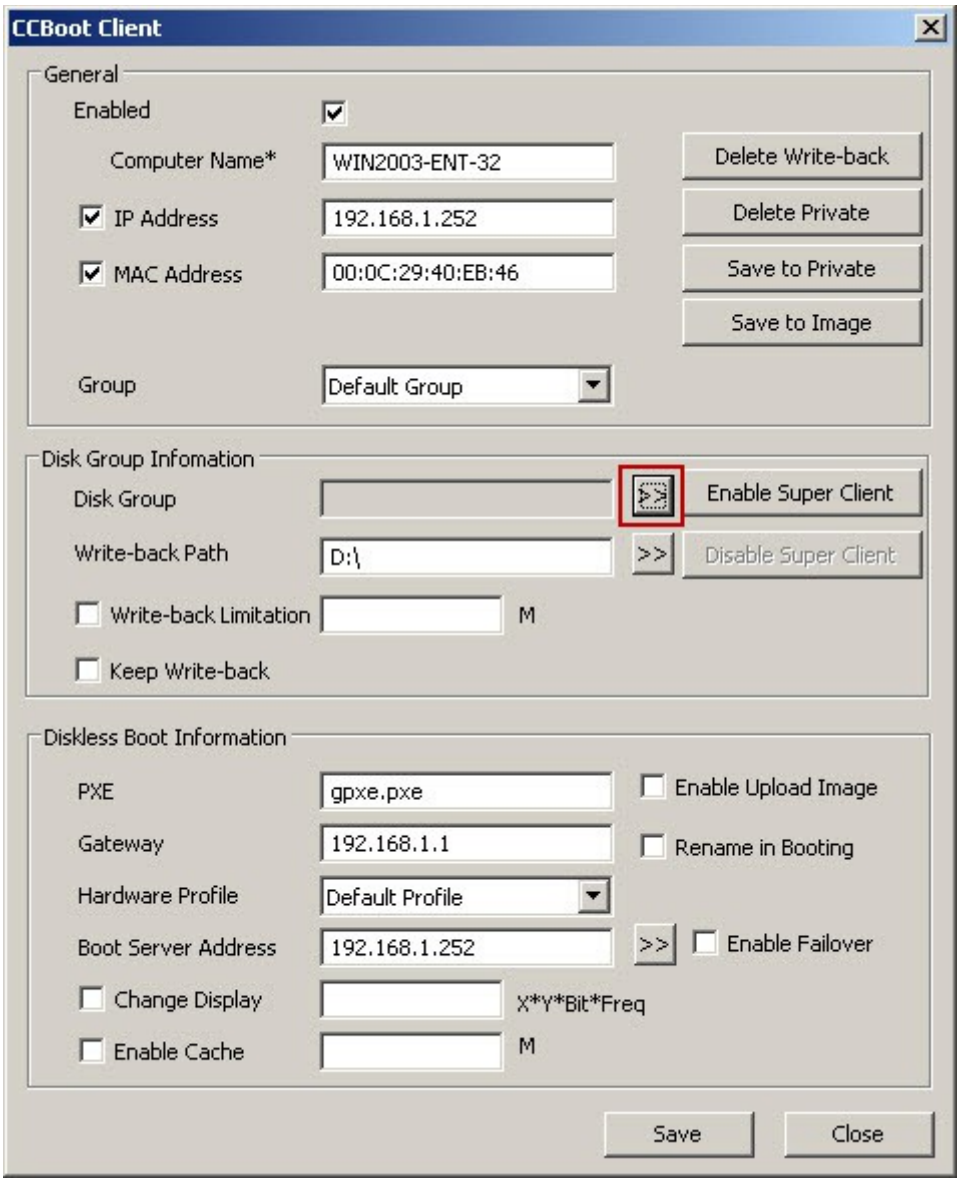


Figure 1-3

5) In the pop-up "CCBoot Disk Group Selection" dialogue box, select the "Game" check box, and then click "OK" button.

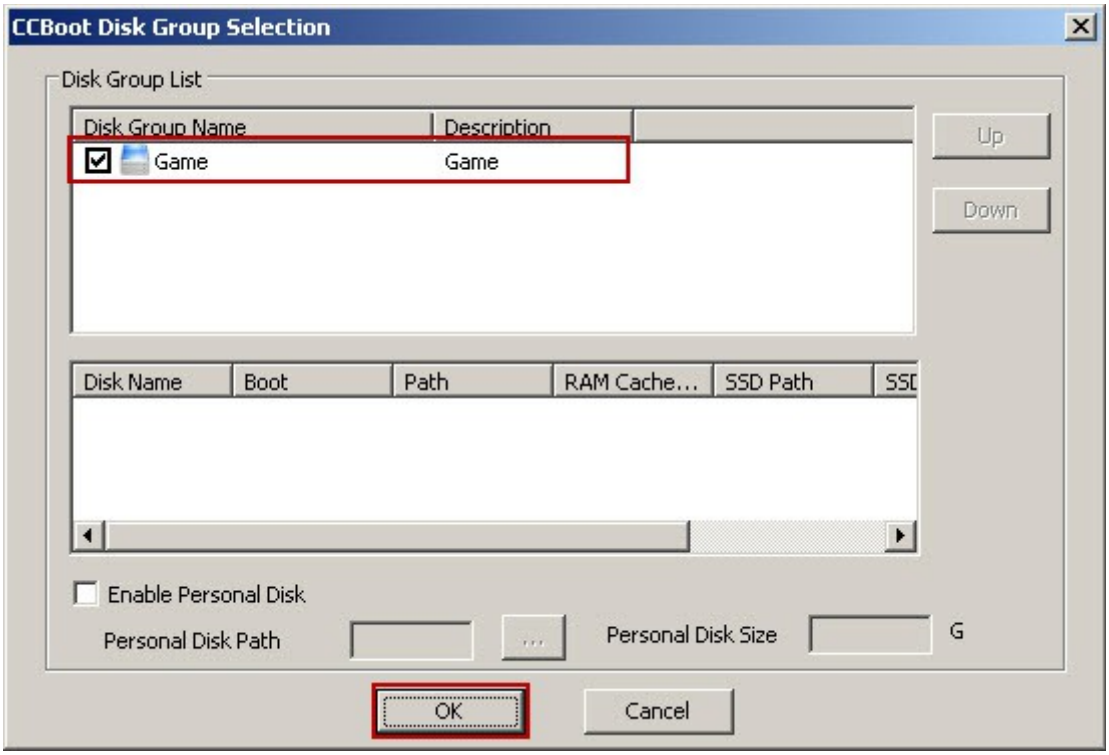


Figure 1-4

6) Click the "Enable Super Client "button of the "CCBoot Client "dialogue box.

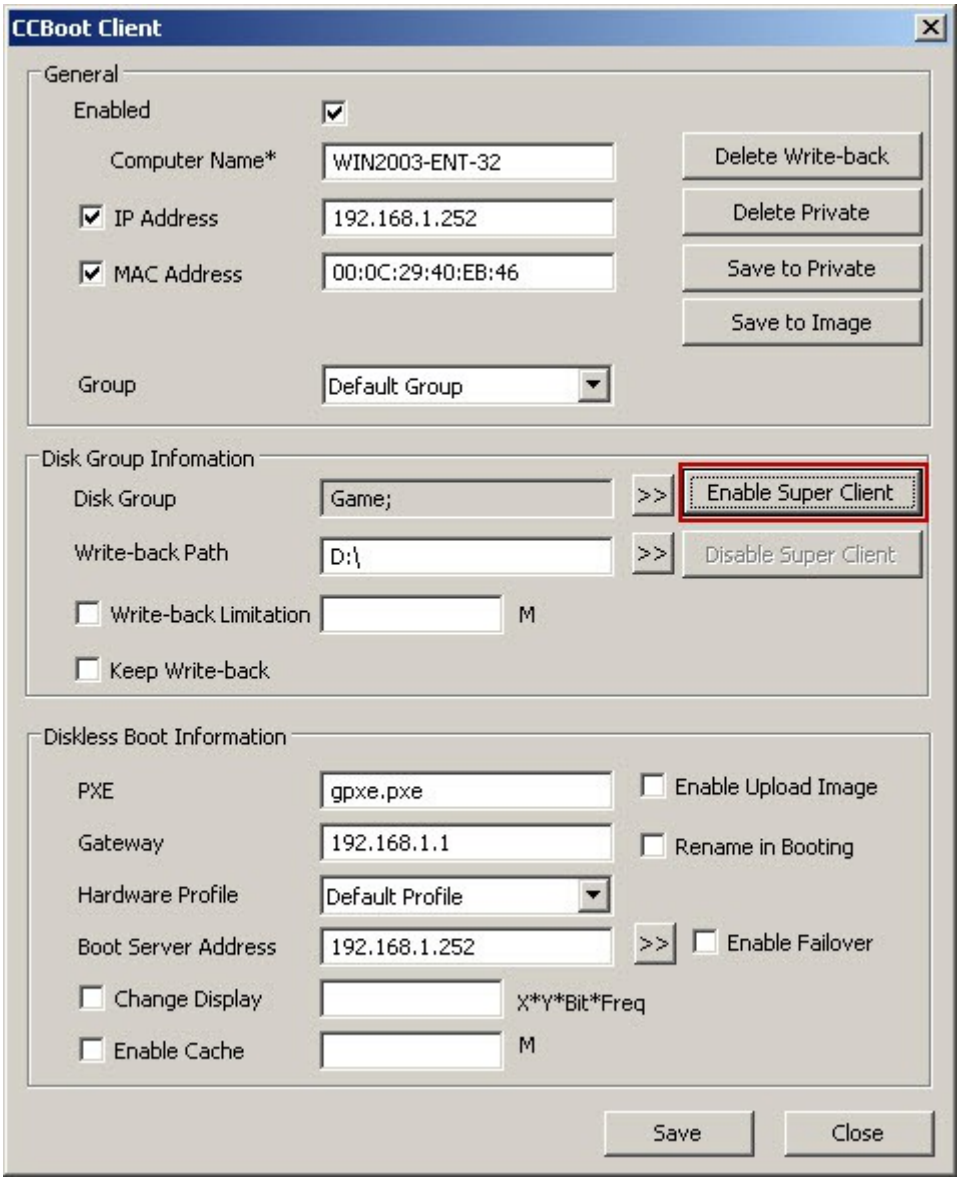


Figure 1-5

7) In the pop-up "CCBoot Select Disk "dialogue box, select the "Game", click "OK" button.

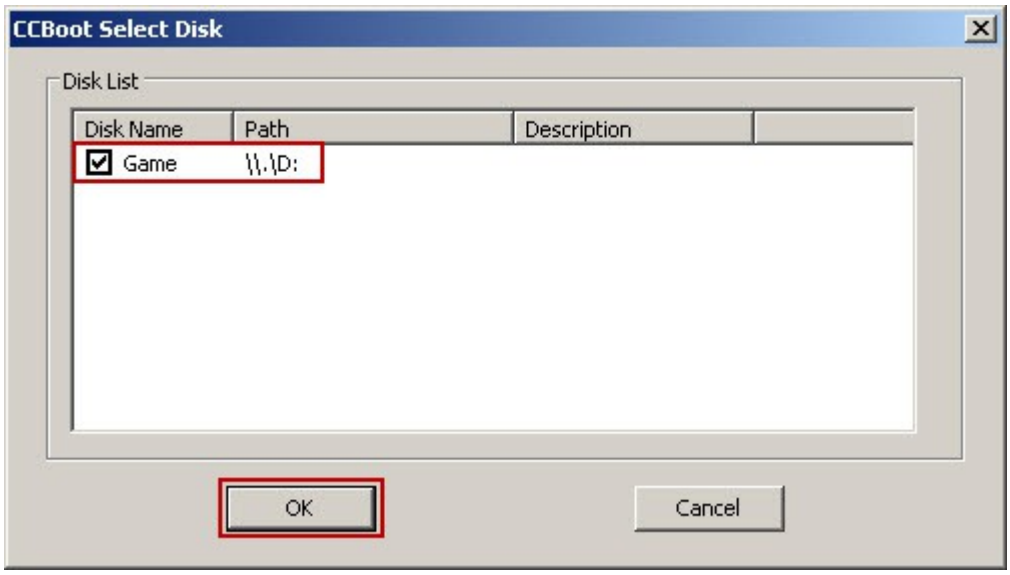


Figure 1-6

8) In the "CCBoot Client "dialogue box, click the "Save "button, save the settings.
9) Install iSCSI; please refer to "install iSCSI".
10) Run iSCSI.
11) In the pop-up "iSCSI Initiator Properties" dialogue box, click "Add" button.

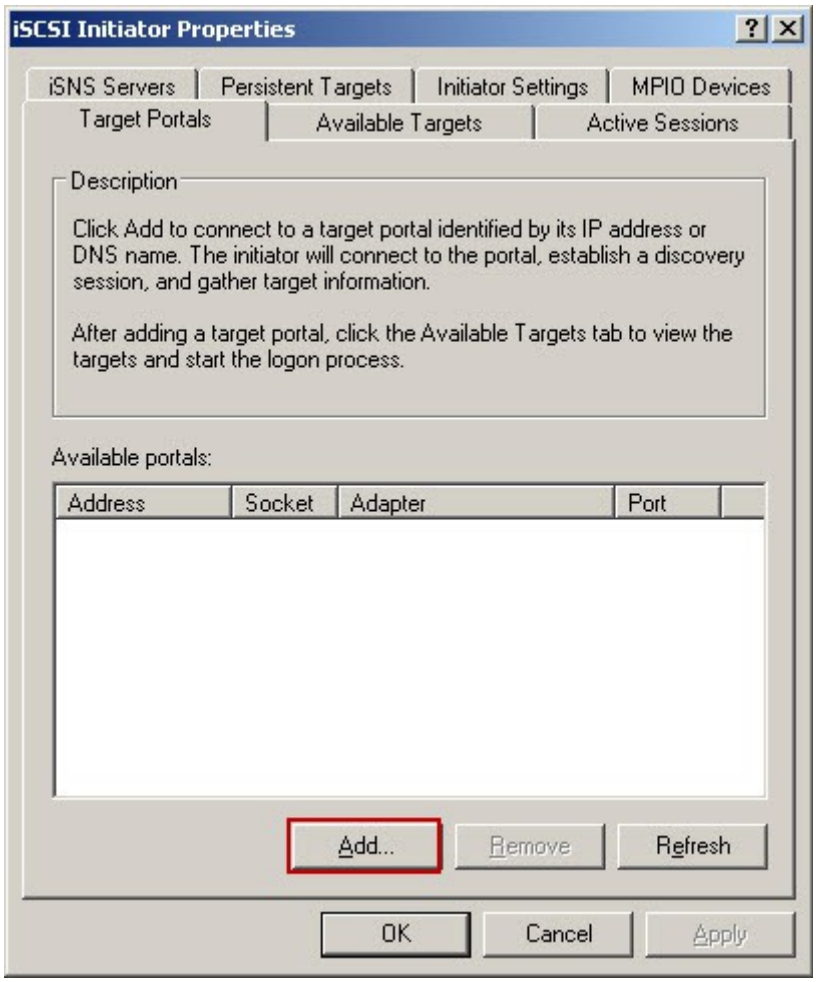


Figure 1-7

12) It will pop up "Ass Target Portal "dialogue box, in the "IP address or DNS name " edition box, enter "the server IP address" , then click "OK" button.

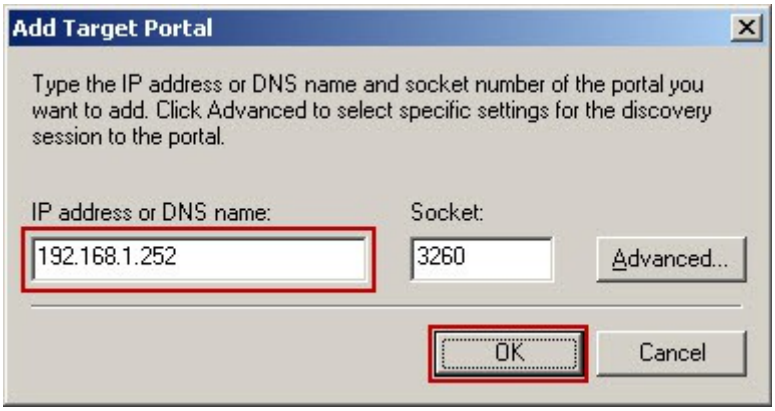


Figure 1-8

13) After "Add" is completed, and then click the "Available Targets" tab.

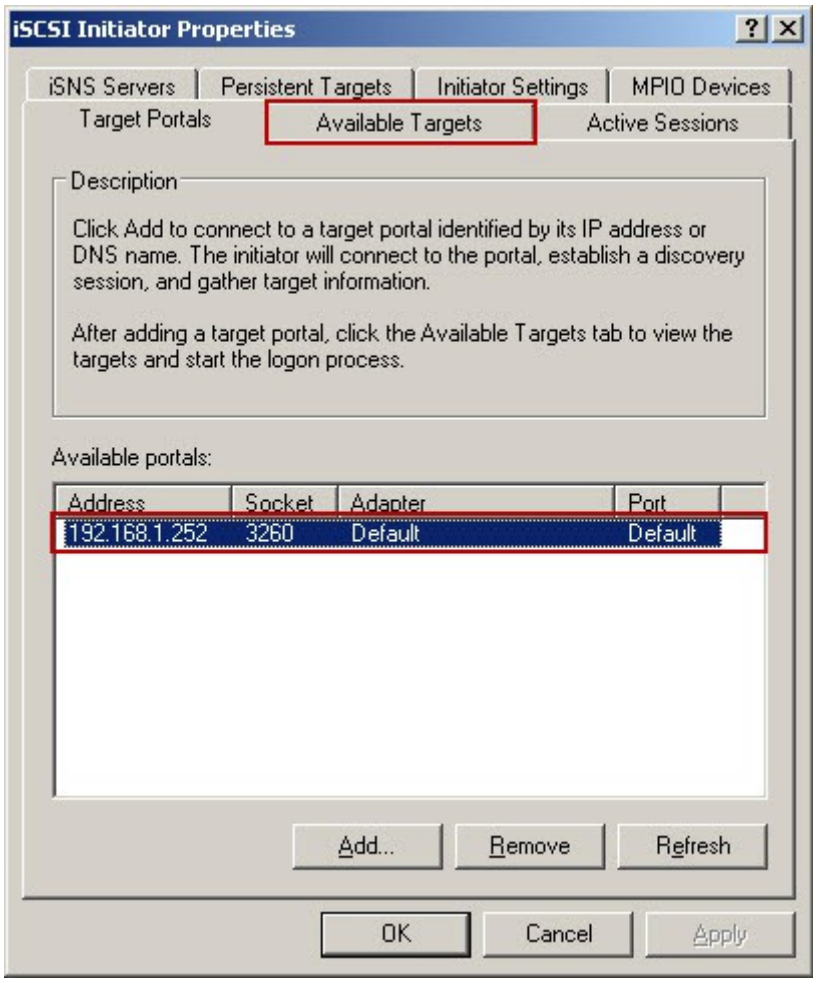


Figure 1-9

14) In "Select a target "list box, you will see something similar to the item "iqn.2008-12com.ccboot252:00", and then click the "Log On" button.

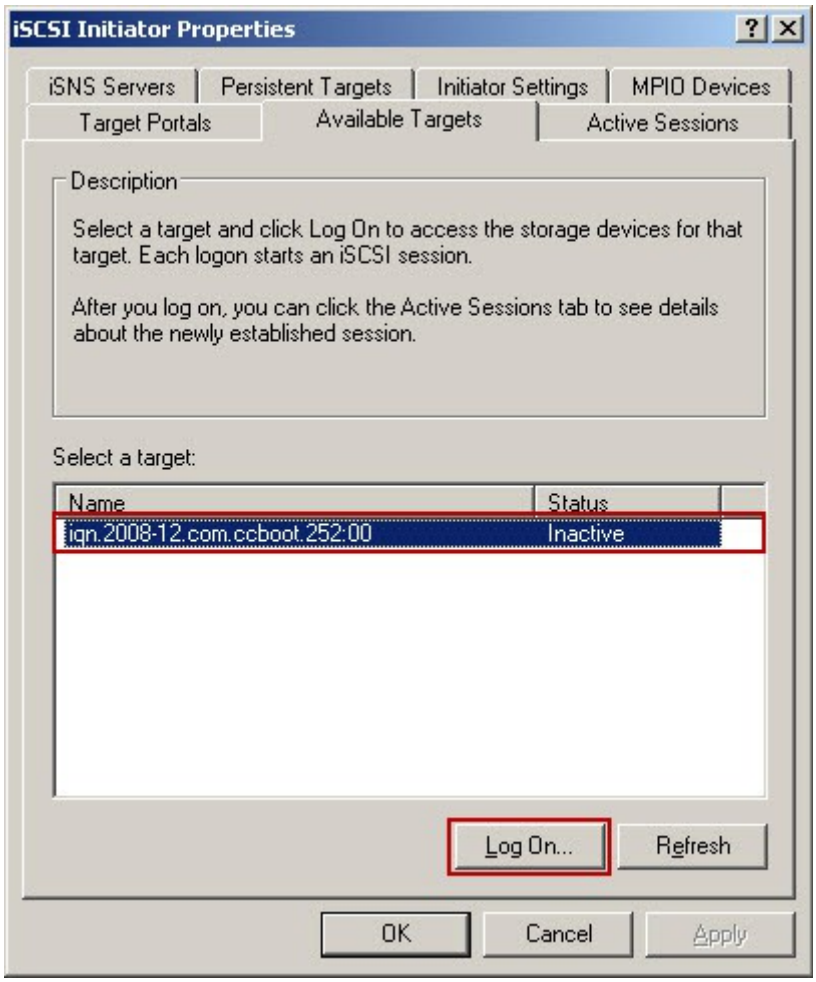


Figure 1-10

15) In the pop-up "Log Onto Target" dialogue box, select the "Automatically restore this connection when the system boots" check box, and then click "OK" button.

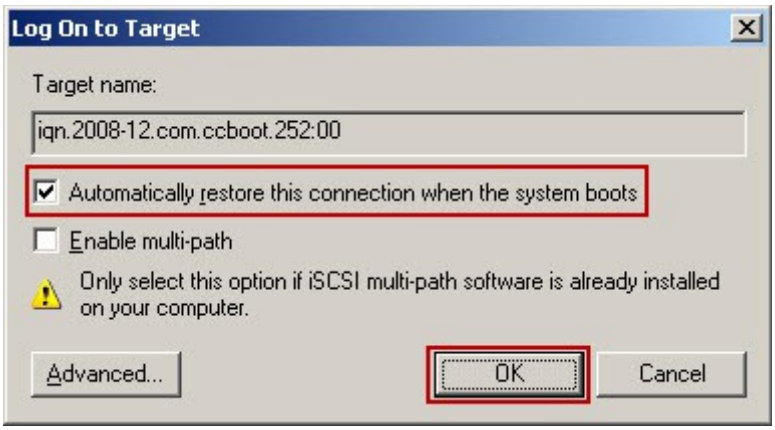


Figure 1-11

16) After completing the steps above, in the "Disk Management", there will be one more virtual disk. We need to update the games in the new virtual disk. The original game

disk-E disk can not be opened, successfully locked.

Notes:

When using iSCSI, if you shut down or reboot the server, you must first disconnect the iSCSI. For details, please refer to the "How to disconnect the iSCSI".

9.11 ISCSI Initiator Installation

If you system is Windows 2003, then you need to install the iSCSI program.

If you system is Windows 2008 or Windows 7, then you do not need to install the iSCSI program, because the system has iSCSI program.

1. Install iSCSI Initiator in Win2003

Download the installation package of the iSCSI Initiator

http://www.microsoft.com/en-us/download/details.aspx?id=18986

1) Double-click the "iSCSI" setup, it will pop up the "installation wizard" dialogue box, and then click "Next "button.

Figure 1-1

2) In the pop-up "Select Installation Folder" dialogue box, select the installation directory, and then select the "Everyone" button, then click "Next" button.

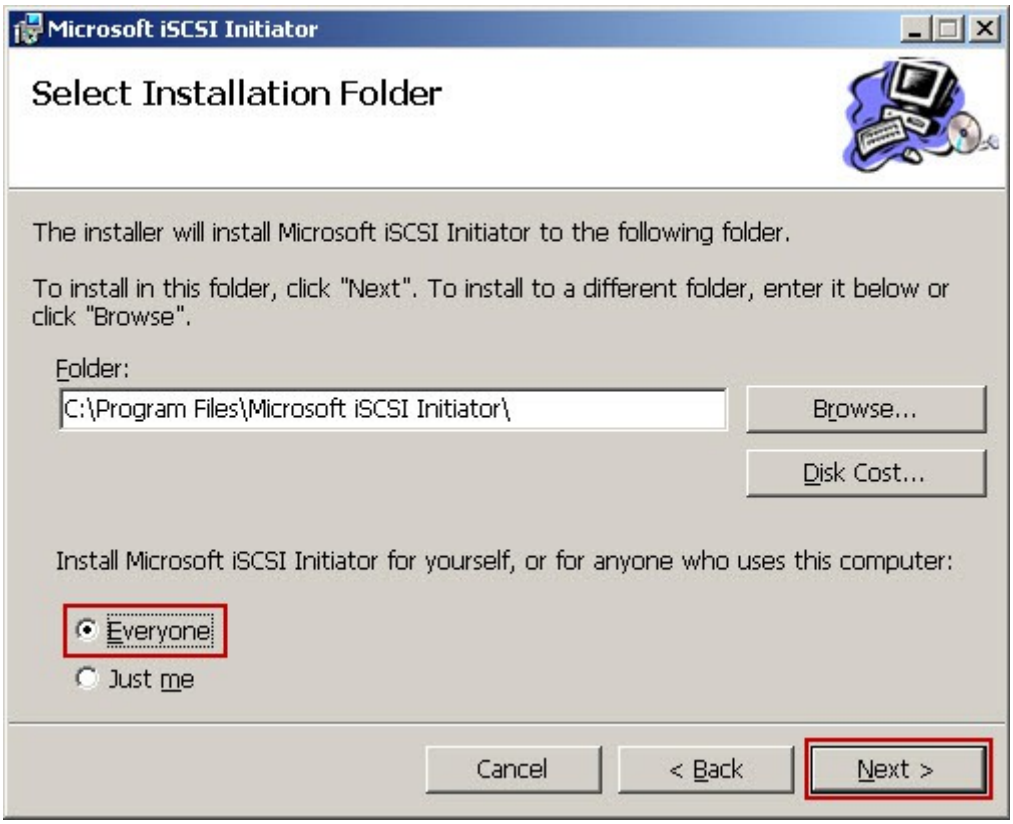


Figure 1-2

3) In the pop-up "License Agreement" dialogue box, select the "I Agree" and click the button and then click "Next" button.

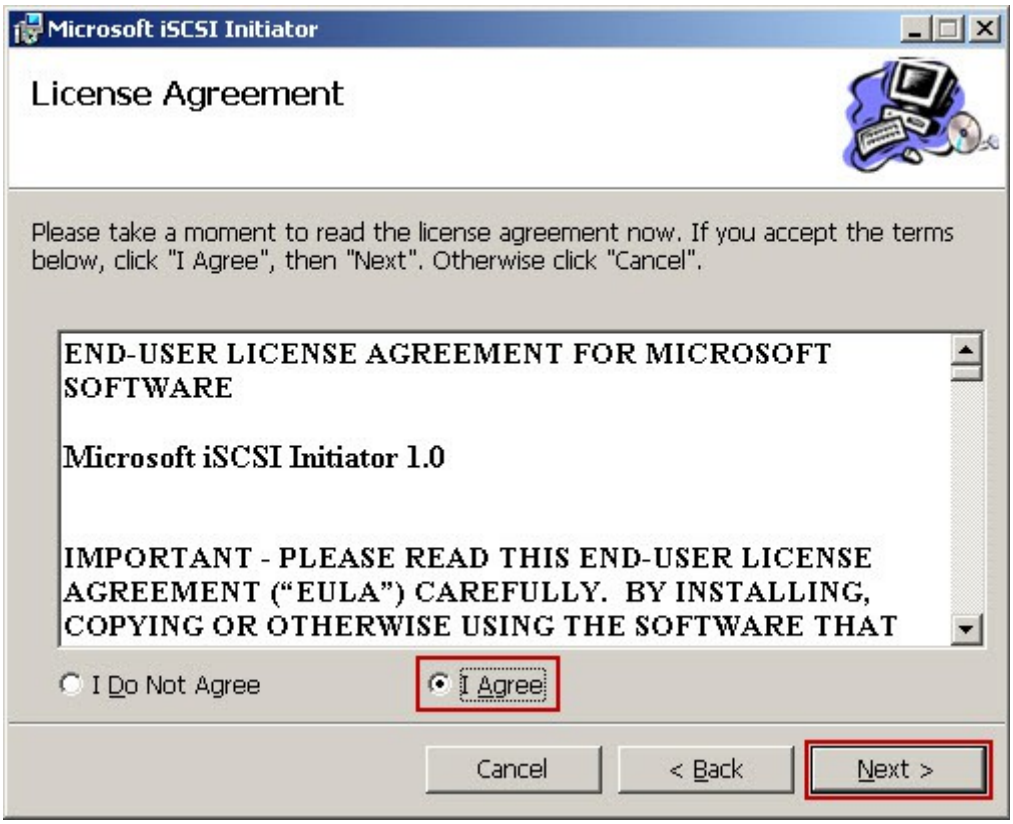


Figure 1-3

4) In the pop-up "Microsoft iSCSI Installation Program" dialogue box, select the "Install Complete iSCSI Initiator" and click the button, click "OK" button.

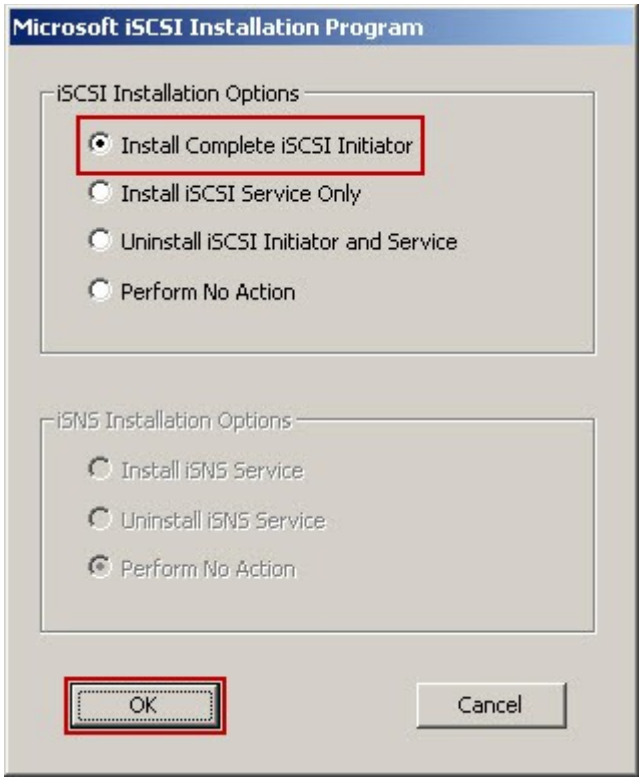


Figure 1-4

5) In the pop-up "End User License Agreement" dialogue box, click the "Agree" button.

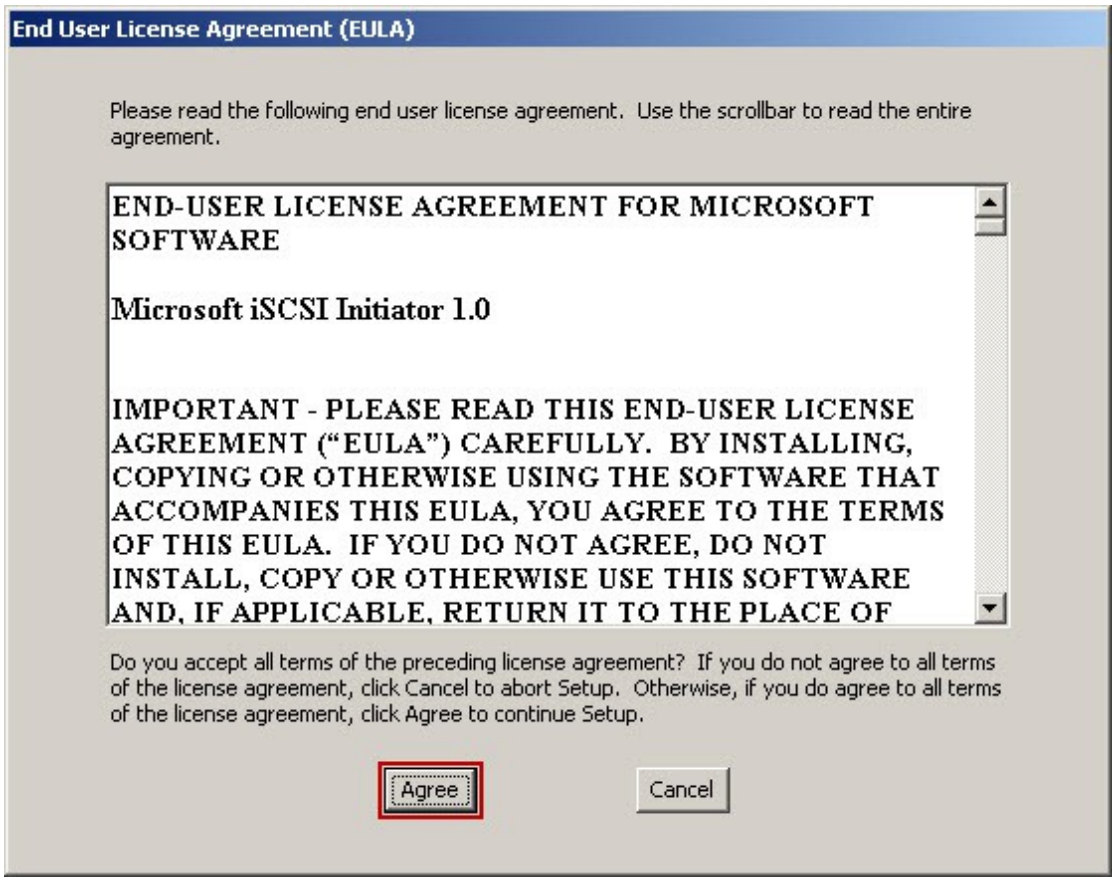


Figure 1-5

6) After the successful installation, click "OK" button.

Figure 1-6

2. Activate iSCSI in Win2008 and Win 7

1) Click "Start" button, and then in the "Run" edition box, enter "iSCSI", then click "iSCSI Initiator", run "iSCSI".

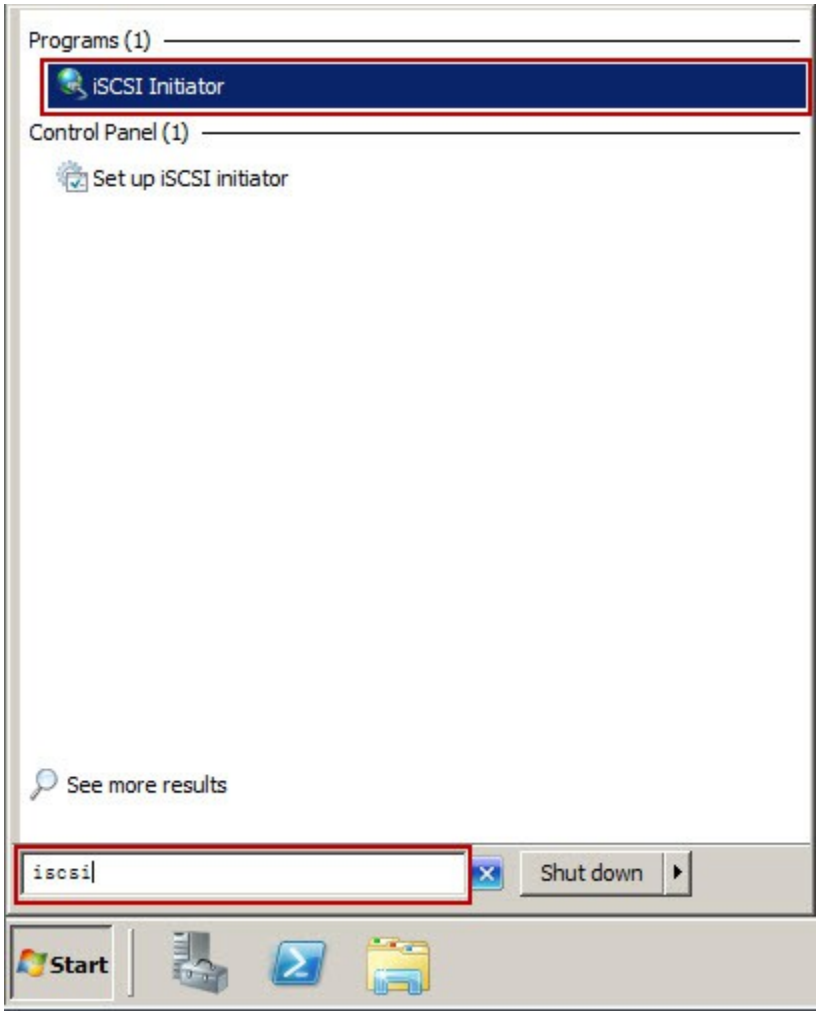


Figure 1-7

2) In the pop-up "Microsoft iSCSI" dialogue box, click the "Yes" button.
3) It will pop up "iSCSI Initiator Properties" dialogue box.

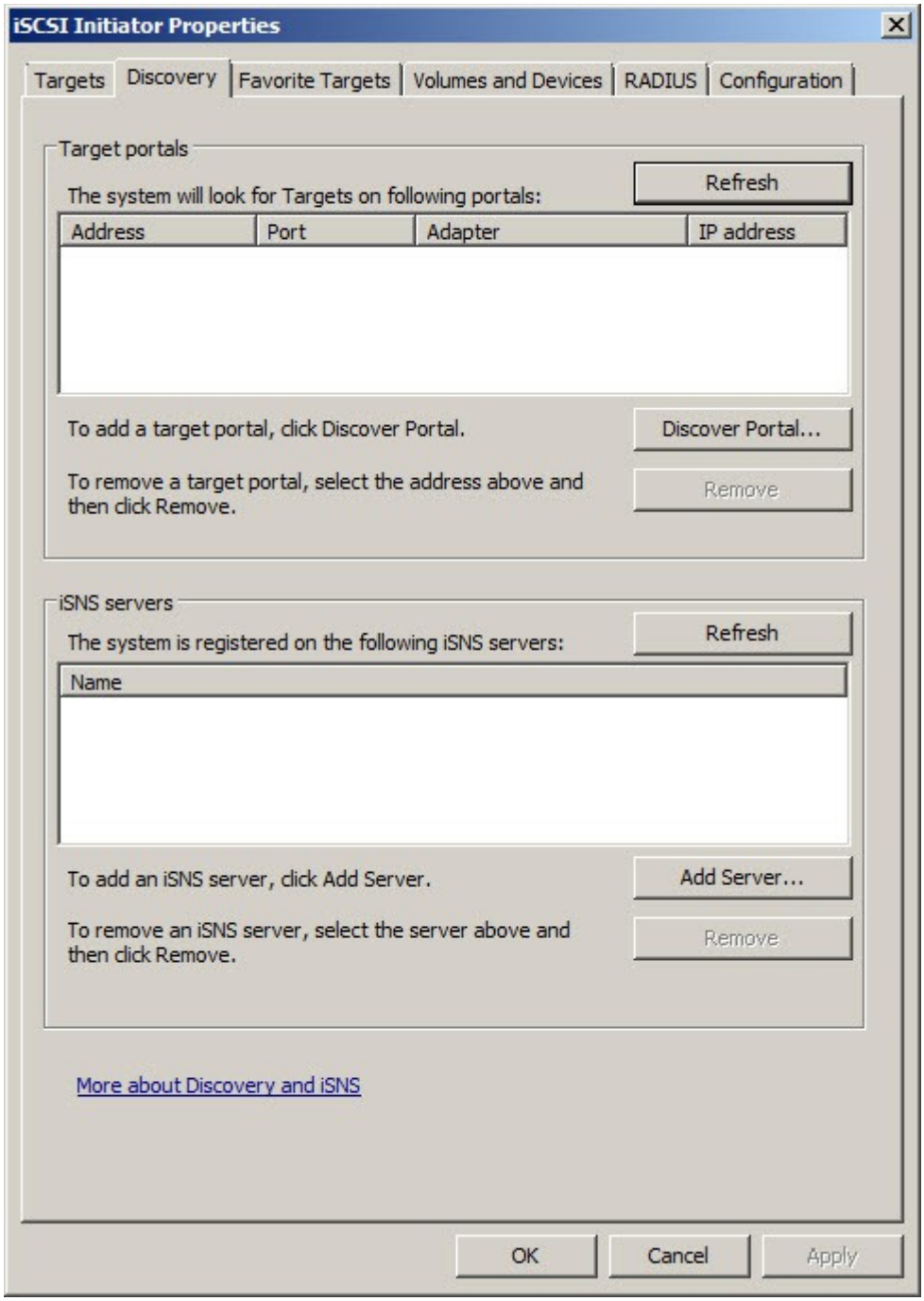


Figure 1-8

9.12 Disconnect the iSCSI Initiator

The steps of disconnecting the iSCSI Initiator are as follows:

1) First close all application programs accessing the iSCSI virtual disk.
2) Run iSCSI Initiator.
3) In the pop-up "iSCSI Initiator Properties" dialogue box, click the "Disconnect" button to disconnect the iSCSI.

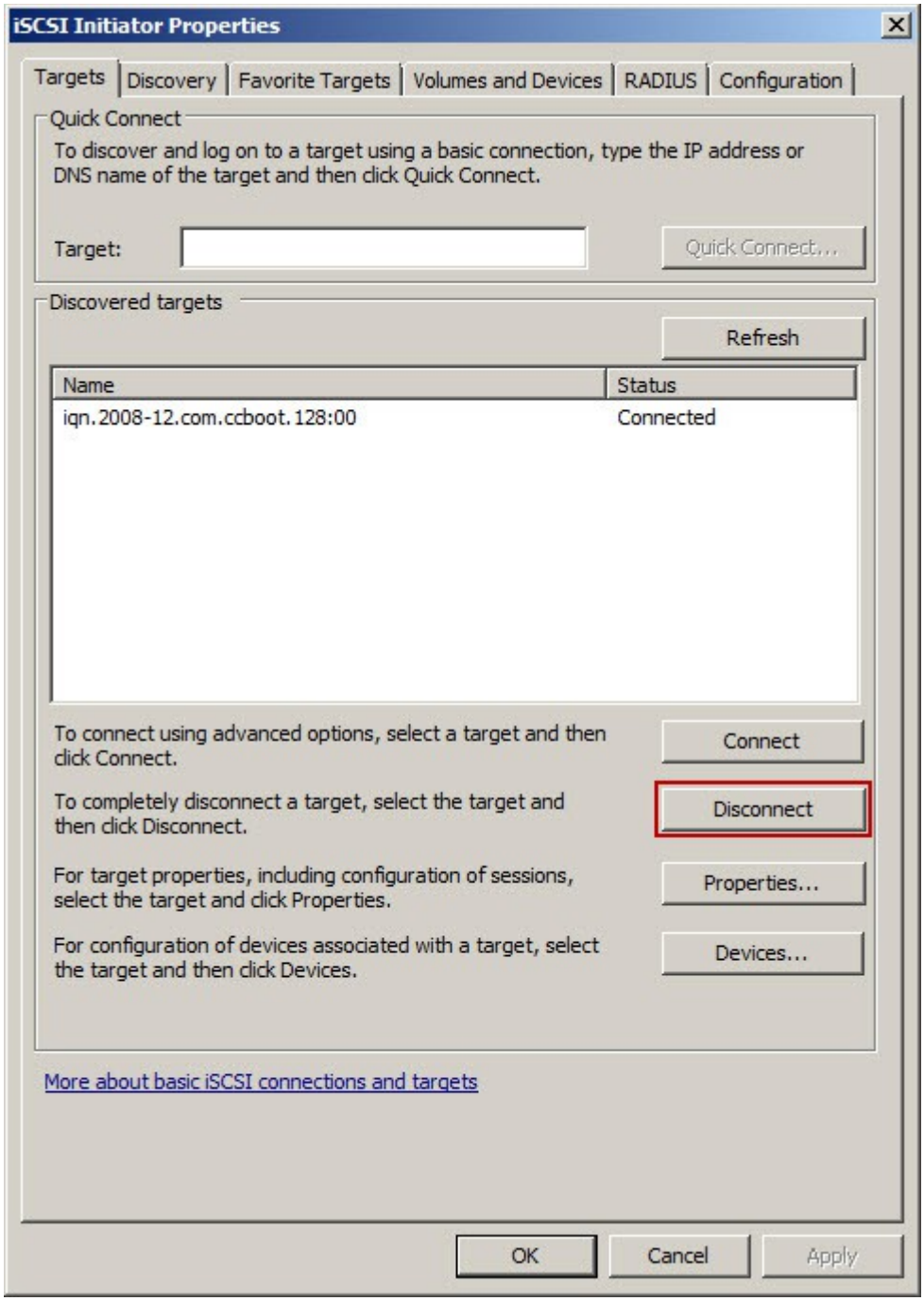


Figure 1-1

9.13 Backup Image

1) On the main interface of the CCBoot, click the "Client Manager", and then in the detailed pane on the right side, right-click the image, and click to select the "Disk Recovery".

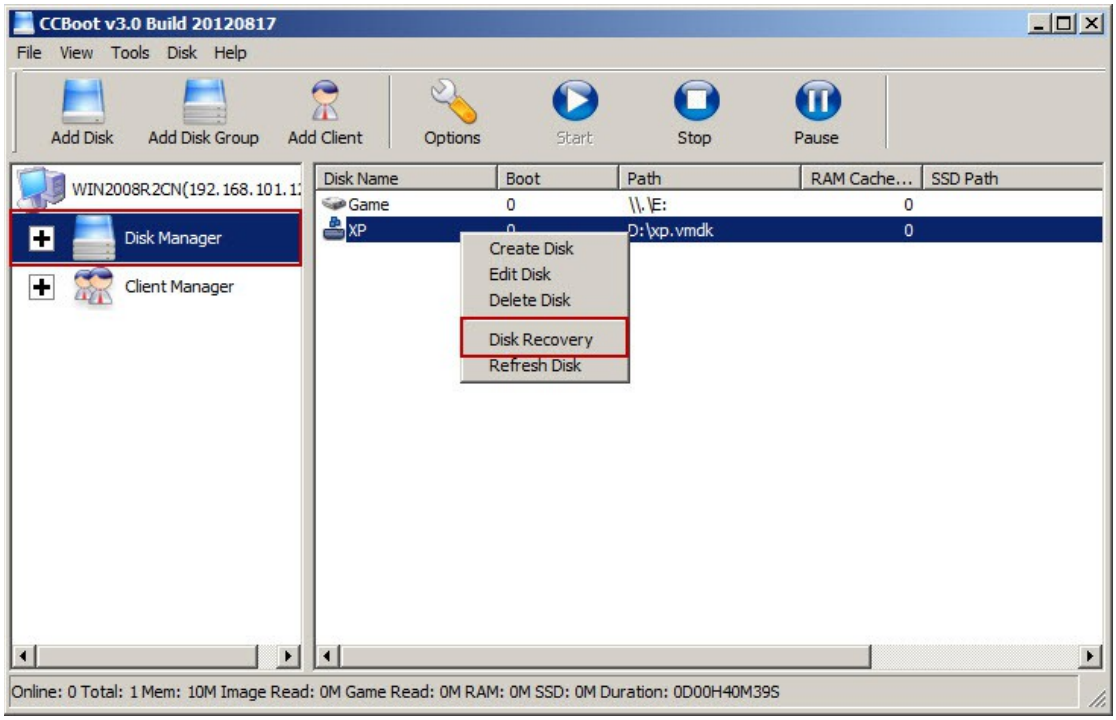


Figure 1-1

2) In the pop-up "CCBoot Recovery" dialogue box, you can see the directory of the images and recovery points, then click "Export" button to export the recovery points.

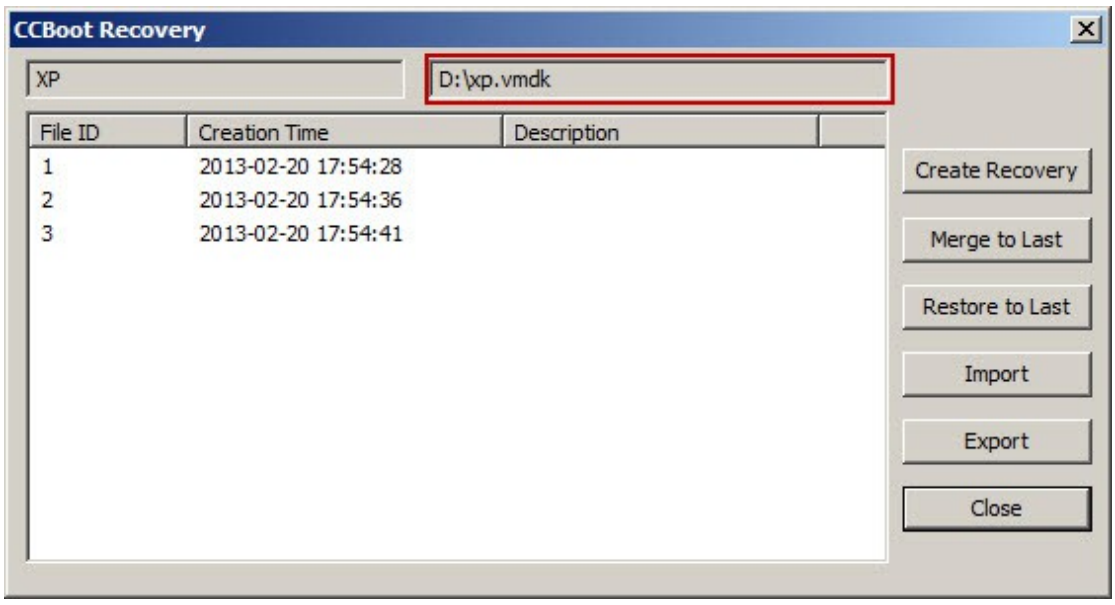


Figure 1-2

3) Open the image file directory, and backup these files (such as backup 4 files in the figure below).

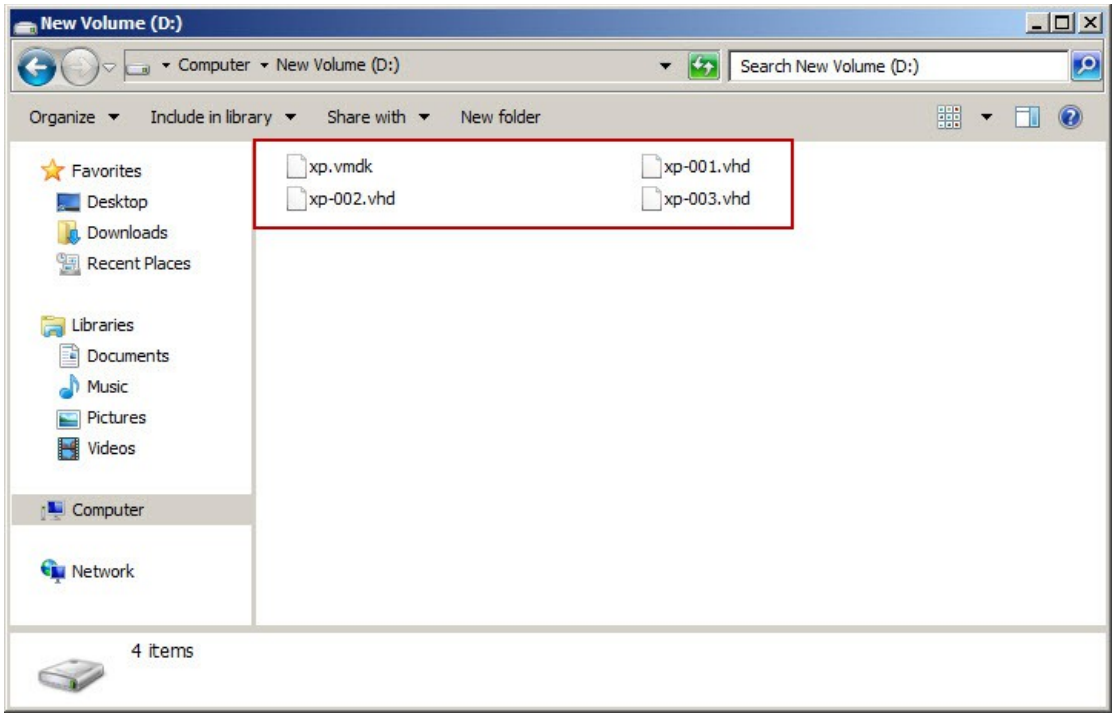


Figure 1-3

In the pictures above, xp-001.vhd, xp-002.vhd, xp-003.vhd are the recovery point files.

9.14 Change in Super Client Work Process

In CCBoot previous versions, when using super client to update image or game, after clicking the "Enable Super Client" and selecting image or game disk, then it will pop up whether to create recovery point dialog box. From CCBoot v3.0 build 20131007, the work process of super client has changed. After you click the "Enable Super Client" and select image or game disk, it will not ask you whether to create recovery point immediately, and the image would not be saved at this moment. Only after you have finished those updates, and clicked the "Disable Super Client" button, it would ask you whether to update image. If you click "Yes", then the changes you have made in this image could be effected. If you click "No", the changes could be cancelled.

The change of super client work process could let you make sure your updates in the end. Even if you have made mistakes during updating image or game, you could cancel the updates when disable super client, which will not cause any troubles to your old image. Besides, it allows you to update image or game at any time, even when the clients are online.

9.15 No Response from Server When Playing HON

Problem:
We have problem with heroes of newerth. "No response from server" when 2 or more people connect to same game.
Solution:
Enable supper client, and then go to "c:\Users\Username\Documents\Heroes of Newerth\game\" and delete the "startup.cfg" file. Finally, disable supper client.

9.16 Can't Connect to Steam Network

Problem:
I had a LOT of problems with login doesn't work when playing games in steam. It says can't connect to steam network. And this is so random, sometimes it can work great and sometimes pains.
Solution: It may because there was a file in the folder appcache that creates when you login. If you delete that file everytime steam login will work.

9.17 \BOOT\BCD Problem with Disk Signature Conflict

In some Internet cafes, when people cannot disable HDD in the BIOS, and don't want to remove the HDD, they may use other ways to disable HDD. In this circumstance, when client diskless boot, the virtual HDD may be conflict with the existing HDD, then there may be a disk signature ID conflict. Thus, when using super client to update image, it may change CCBoot image disk signature. However, in Win7, it is not allowed to change the image disk signature, and it may cause the "\BOOT\BCD" problem.

To solve this problem, you should remove the HDD physically, or try to use another PC as super client.

9.18 Intel Graphics Card Conflict

Suppose that the Intel graphics card type on your clients are different (PC01 is Intel A, PC02 is Intel B), when you install or update the graphics card driver on PC01, PC02 gets blue screen, and these two types of Intel graphics card always conflict.
This is becuase Intel A and Intel B are both from Intel, their "*.sys" and service name are the same, when you install or update Intel A, it will overwrite the "*.sys" and ".inf" files of Intel B. We revised one of the Intel graphics card driver, modified its ".inf" file and renamed its "*.sys" file name to prevent Intel A and Intel B conflict. Now, you can download the revised Intel VGA driver from http://www.ccboot.com/download/intel-vga-driver-revised.zip.

Note: If your Intel graphics card type is not inclued in our http://www.ccboot.com/download/intel-vga-driver-revised.zip (such as VEN_8086&DEV_0102 and VEN_8086&DEV_0152), you can modify the ".sys" and ".inf" files yourself according to the following steps.
We take VEN_8086&DEV_0102 and VEN_8086&DEV_0152 for example. You can download them from http://www.lacroixrouge-brest.fr/pci_ven_8086&dev_0102.rar and http://www.lacroixrouge-brest.fr/pci_ven_8086&dev_0152.rar.

1) Extract "pci_ven_8086&dev_0102.rar" file, open the extracted folder, and find the ".inf" file (Figure 1-1). (**Note: Normally, we just need to modify the lower version graphics card's ".sys" and ".inf" files**.)

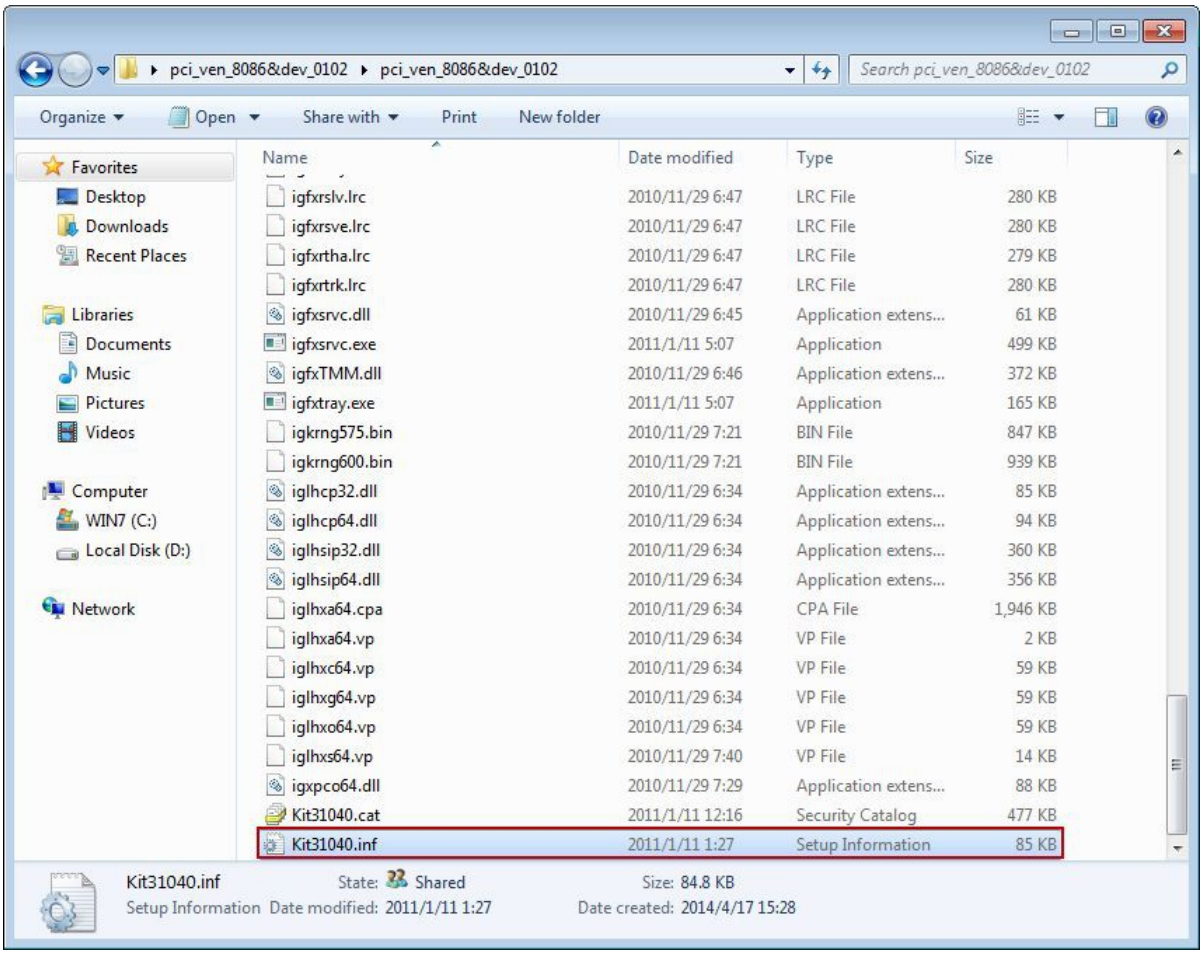


Figure 1-1

2) Open the ".inf" file with Notepad, find texts which end with ".sys" (there are three ".sys" texts, they are, "igdkmd64.sys", "ServiceBinary = %12%\igdkmd64.sys" and "igdkmd64.sys") (Figure 1-2).

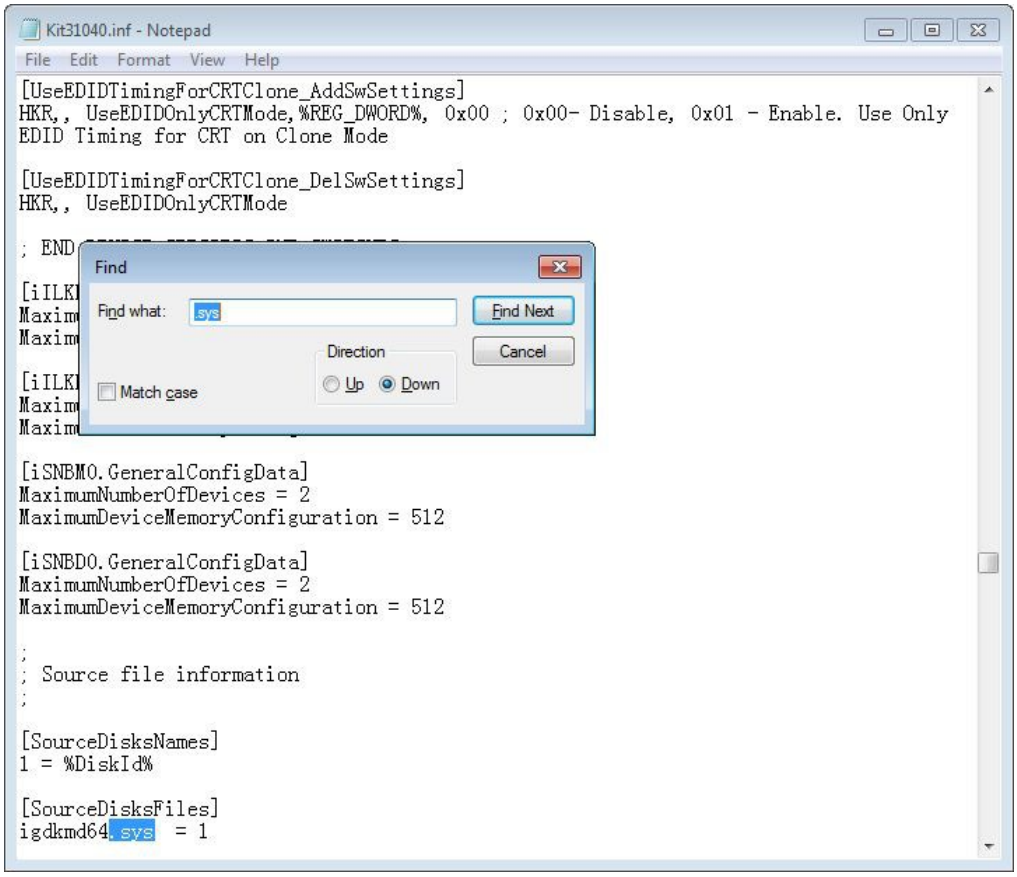


Figure 1-2

3) Modify these three ".sys" texts. For example, add "_fix" before ".sys" (Figure 1-3; Figure 1-4; Figure 1-5). Then save this ".inf" file.

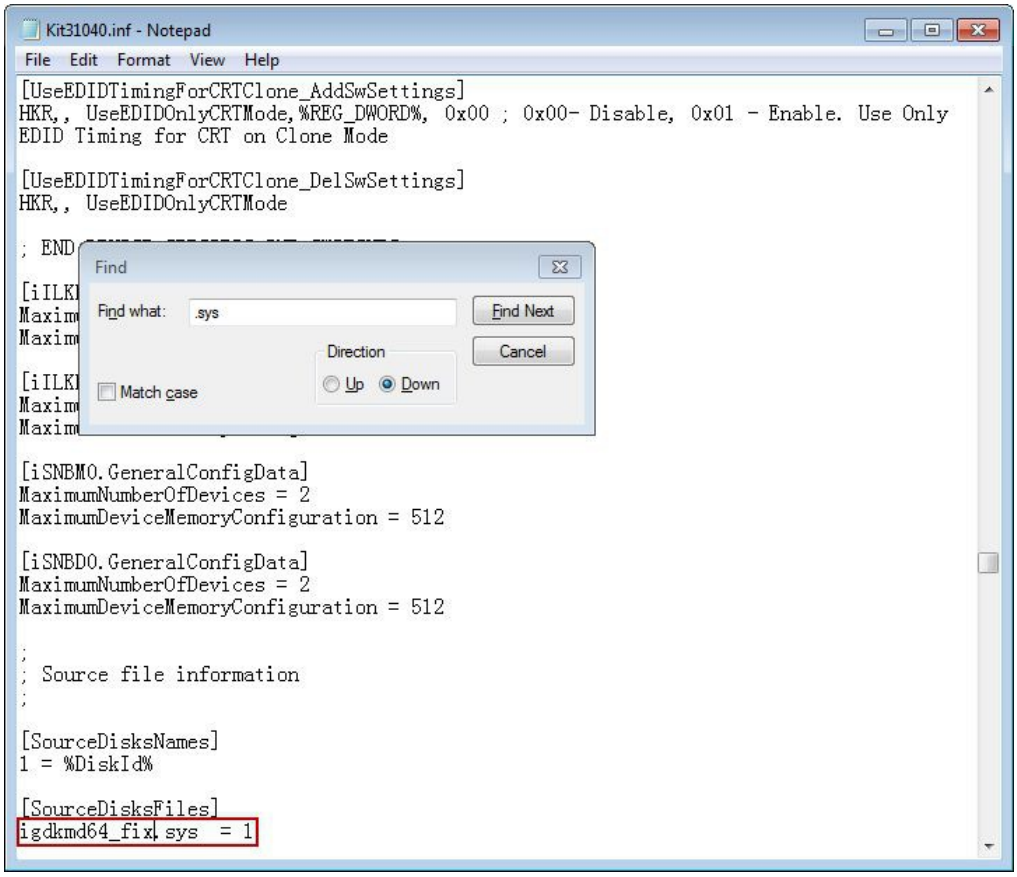

Kit31040.inf - Notepad
File Edit Format View Help
[UseEDIDTimingForCRTClone_AddSwSettings]
HKR,, UseEDIDOnlyCRTMode,%REG_DWORD%, 0x00 ; 0x00- Disable, 0x01 - Enable. Use Only
EDID Timing for CRT on Clone Mode
[UseEDIDTimingForCRTClone_DelSwSettings]
HKR,, UseEDIDOnlyCRTMode
Find
Find what: .sys
Find Next
Cancel
Direction
Up Down
Match case
[iSNBM0.GeneralConfigData]
MaximumNumberOfDevices = 2
MaximumDeviceMemoryConfiguration = 512
[iSNBD0.GeneralConfigData]
MaximumNumberOfDevices = 2
MaximumDeviceMemoryConfiguration = 512
; Source file information
[SourceDisksNames]
1 = %DiskId%
[SourceDisksFiles]
igdkmd64_fix.sys = 1

Figure 1-3

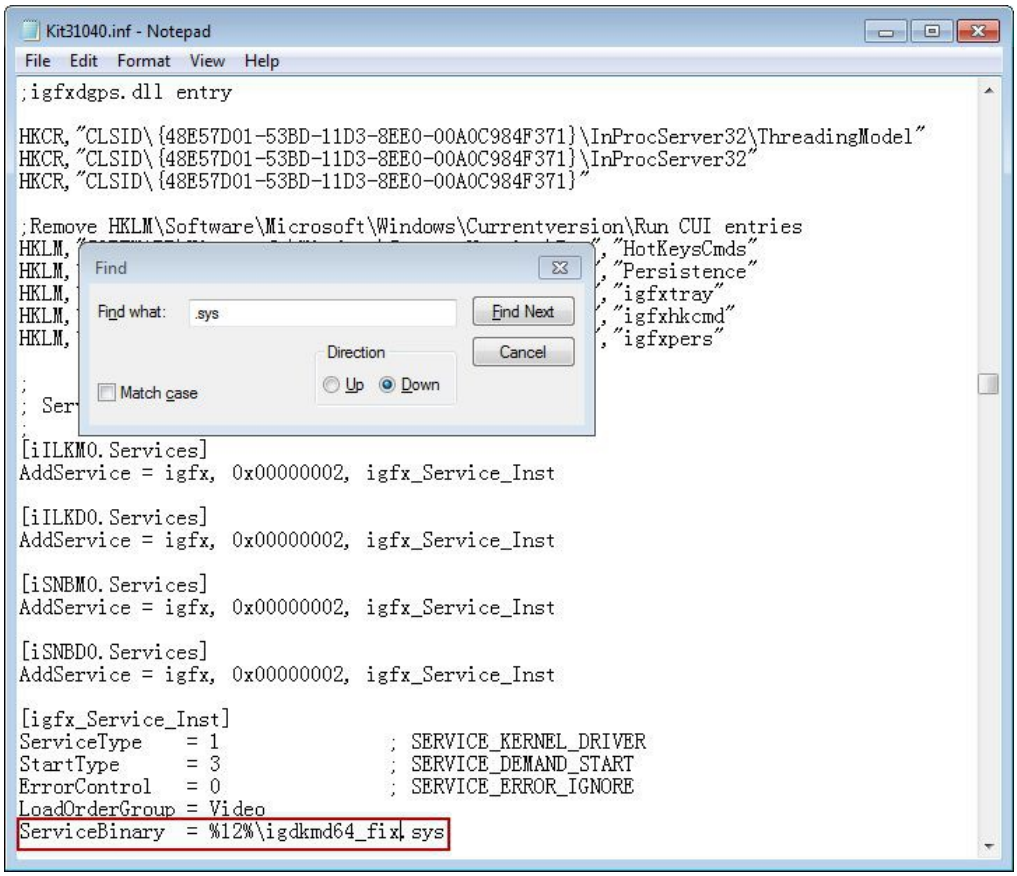

Kit31040.inf - Notepad
File Edit Format View Help
;igfxdgps.dll entry
HKCR,"CLSID\{48E57D01-53BD-11D3-8EE0-00A0C984F371}\InProcServer32\ThreadingModel"
HKCR,"CLSID\{48E57D01-53BD-11D3-8EE0-00A0C984F371}\InProcServer32"
HKCR,"CLSID\{48E57D01-53BD-11D3-8EE0-00A0C984F371}"
;Remove HKLM\Software\Microsoft\Windows\Currentversion\Run CUI entries
Find
Find what: .sys
Find Next
Cancel
Direction
Up Down
Match case
[iILKM0.Services]
AddService = igfx, 0x00000002, igfx_Service_Inst
[iILKD0.Services]
AddService = igfx, 0x00000002, igfx_Service_Inst
[iSNBM0.Services]
AddService = igfx, 0x00000002, igfx_Service_Inst
[iSNBD0.Services]
AddService = igfx, 0x00000002, igfx_Service_Inst
[igfx_Service_Inst]
ServiceType = 1 ; SERVICE_KERNEL_DRIVER
StartType = 3 ; SERVICE_DEMAND_START
ErrorControl = 0 ; SERVICE_ERROR_IGNORE
LoadOrderGroup = Video
ServiceBinary = %12%\igdkmd64_fix.sys

Figure 1-4

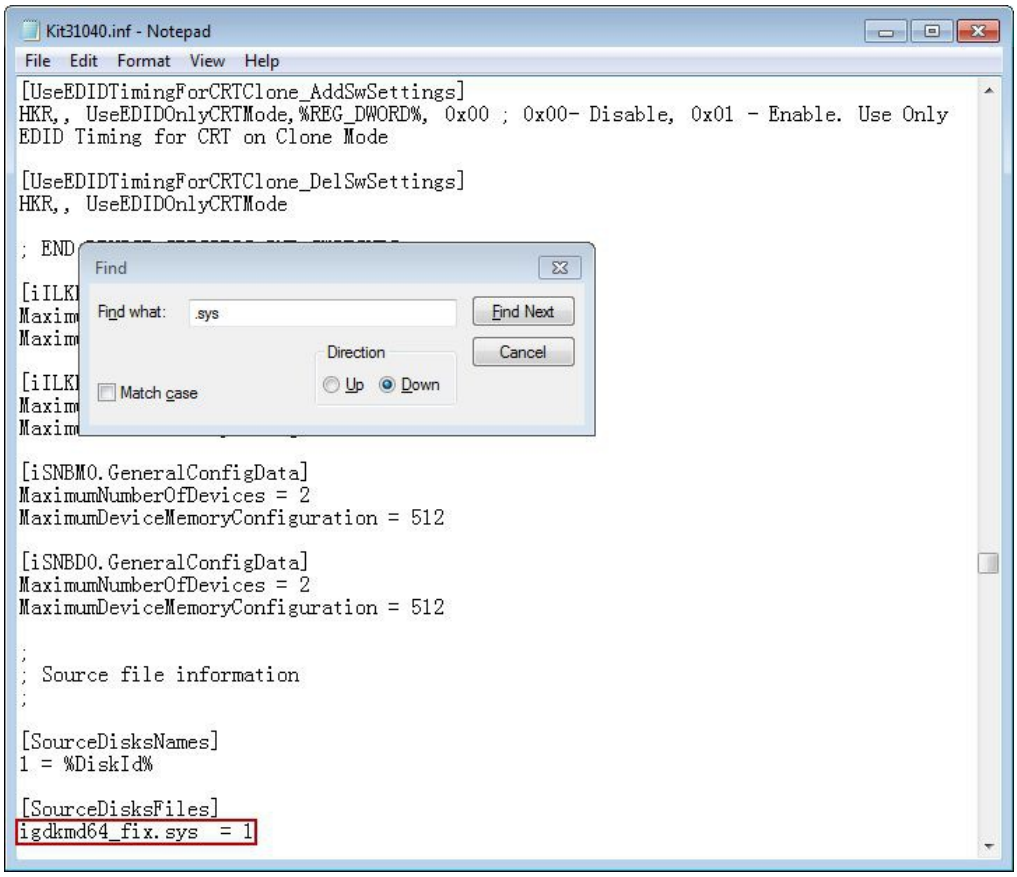


Figure1- 5

4) Find "igdkmd64.sys" in the extracted folder, and rename it as "igdkmd64_fix.sys" (Figure 1-6).

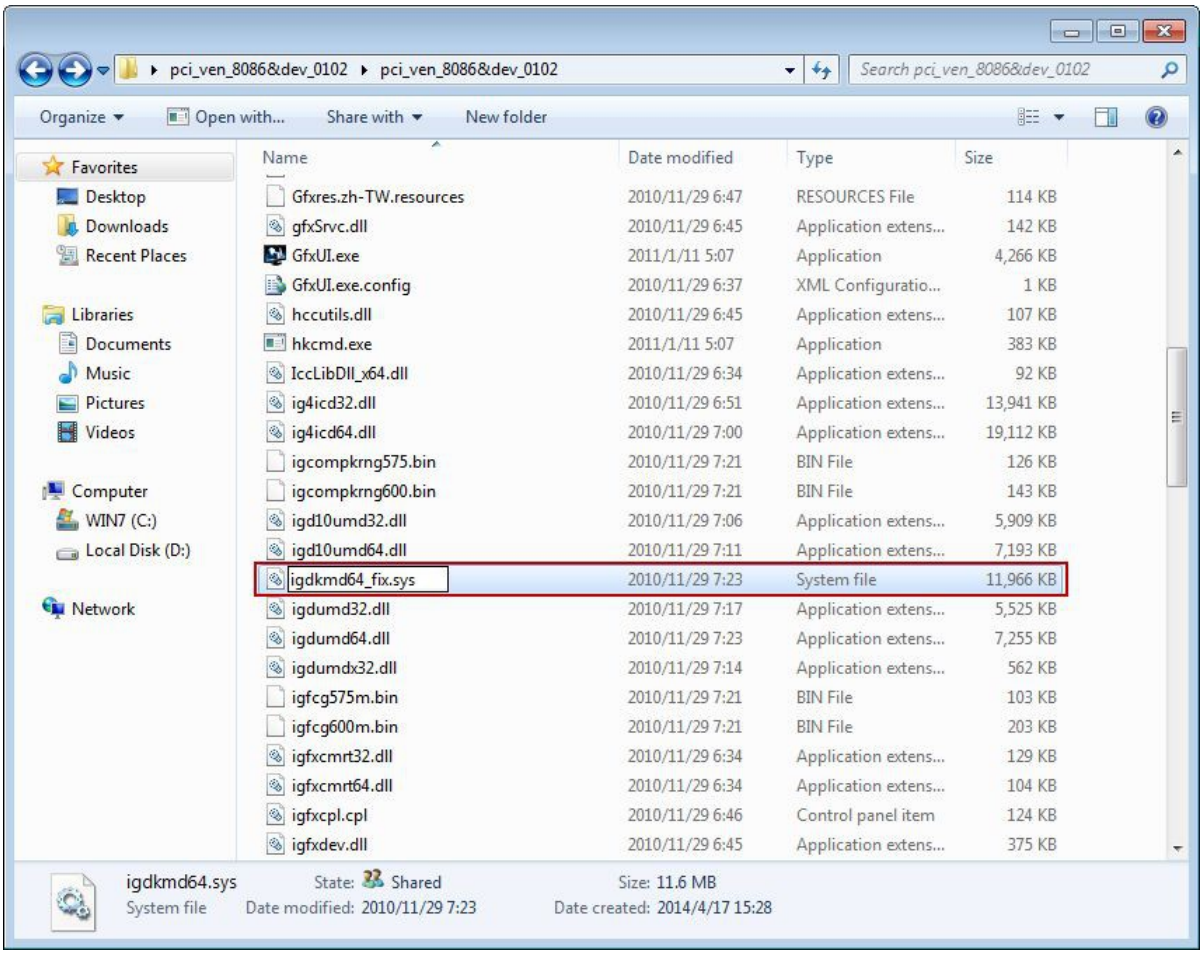


Figure 1-6

5) Open ".inf" file again, find "AddService" (there are four "AddService"), and add "_fix" after "AddService = igfx" (Figure 1-7). Finally, save the ".inf" file.

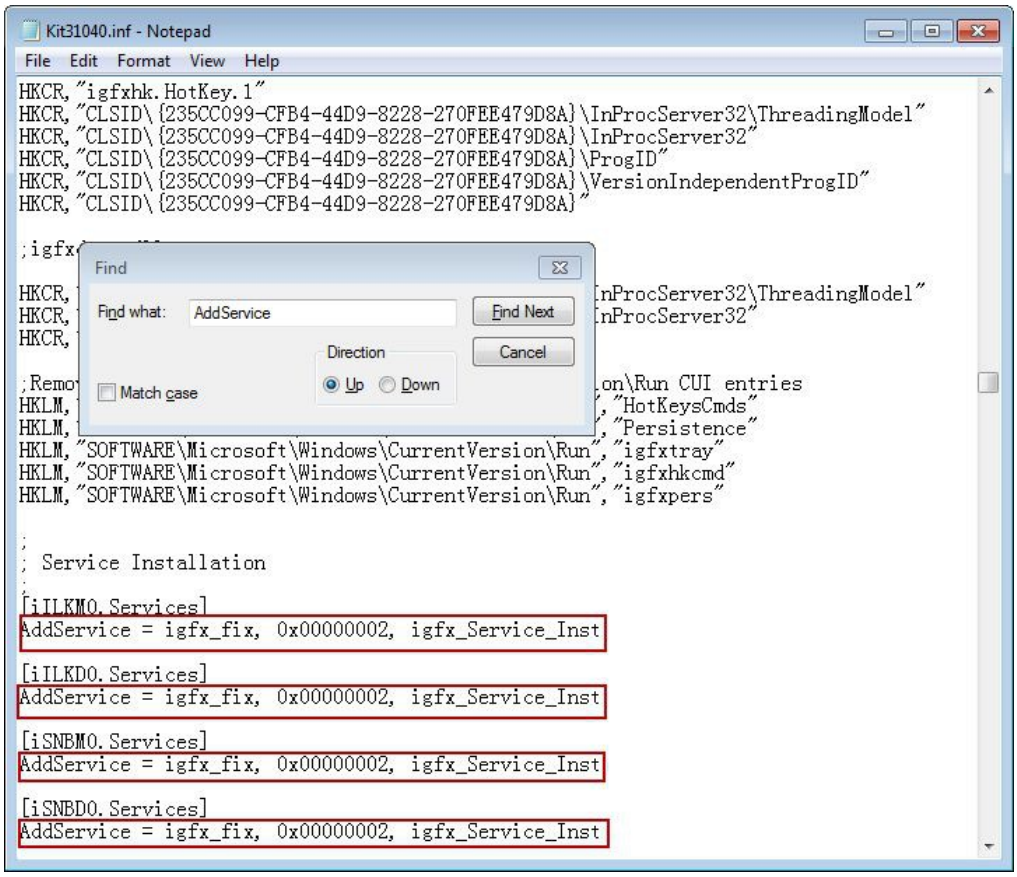


Figure 1-7

6) On the "Device Manage", install the new revised graphics card driver.

Thanks for Gaétan TALOUARN reporting this problem.

9.19 NVIDIA NIC Starts Nvnetbus before NVENETFD

NVIDIA chipsets don't view all devices on the PCI bus in a direct fashion, and there's a bus driver (nvnetbus) necessary to make the network adapter appear as a common PCI Ethernet device on the bus.

Booting Windows XP/2k/etc using the iSCSI / WinAoE driver will not work, due to a missing service (nvnetbus) not being started. While this is not a hardware issue, nor a problem with gPXE, it is included here for informative purposes.

Symptoms (iSCSI)

After installing Microsoft iSCSI Boot initiator and executing sanbootconf (and thus making sure the NVENETFD service is started at boot) booting the image over iSCSI will result in BSOD (0x0000007b). This happens even though the NVENETFD service is loaded during boot.

This was tested on Windows XP x64.

Symptoms (AOE)

After installing WinAoE and making sure the NVENETFD service is started at boot, booting the image over AoE will work well until aoe32.sys is loaded. Upon loading aoe, the system will hang without any network activity. This happens even though the NVENETFD and nvnetbus services are loaded before aoe32.sys.

This is tested on Windows XP and Vista, both 32-bit. Not tested using 64-bit, but the problem is likely to be the same.

How to Fix

The nvnetbus service has to be started before NVENETFD:

In order to do this, the user has to be familiar with CurrentControlSet\Services Subkey Entries (http://support.microsoft.com/kb/103000) and with CurrentControlSet\Control\GroupOrderList Entries (http://technet.microsoft.com/en-us/library/cc976063.aspx).

Overview of the steps required to make nvnetbus being started before NVENETFD:

1) Diskless boot one of the client PCs with super client.
2) Navigate to "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\NVENETFD", remember the value of Tag (priority) and increase it by 1.
3) Navigate to “HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\nvnetbus”, and

a. Set "Group" to "NDIS".

b. Set "Start" to "0".

c. Set "Tag" to the original tag of NVENETFD.

4) Navigate to "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\GroupOrderList\NDIS", increase the number of Tags (first four bytes), and add the new tag we just added for NVENETFD at the end of the list (you're adding four more bytes at the end).
5) Disable super client on CCBoot server.

Other Solution:

Another option is to use the RIS driver for the nForce card (not verified). The simplest fix is to simply use another network adapter.

For details, please refer to http://etherboot.org/wiki/hardwareissues.

Thanks for Qarantina Beatz reporting this problem and providing this solution.

9.20 Compact Virtual Disk File

If you want to compact a virtual disk file, here is a good way. The steps are as follows.

English:

1) Click the "Start" button, and enter "cmd" in the "Run" edit box, press the "Enter" button.
2) In the pop up "Command Line" window, enter "diskpart", then press the "Enter" button.
3) Select vdisk file="d:\YeniWin7Sp1UltimateUcgenNet.vhd"
4) Attach vdisk readonly.
5) Compact vdisk.
6) Detach vdisk.

Now you can see that you have a smaller file.

Turkish:

Server üzerinden sanal diskleri sisteme bağlayarak sıkıştırma yapabilirsiniz.
Öncelikle komut satırını açıyoruz
Başlat -> Tüm Programlar -> Donatılar -> Komut İstemi (Kısa yoldan Win Tuşu + R cmd yaz enter)
Komut isteminde Diskpart yazıp enter a basıyoruz
Disk yönetiminin komut istemi hali açılacak. Şimdi sanal diskimizi sisteme tanıtalım select vdisk file="d:\YeniWin7Sp1UltimateUcgenNet.vhd"
Imaj dosyamızı sisteme salt okunur modda ekleyelim attach vdisk readonly
Son olarak sıkıştırma komutunu verelim compact vdisk
Sistem sanal diski sıkıştırdıktan sonra diskimizi sistemden ayırabiliriz detach vdisk
Bu arada örnek olarak sıkıştırmadan önce 22,0 GB Sıkıştırmadan sonra : 14,9 GB (Dikkate değer bi fark)

Thanks for Selçuk Dere providing this solution.

10 Performance Optimization

10.1 Enable AHCI in the Server BIOS

Opening the AHCI function can improve the writing performance of the disk of the server. For details, please refer to the "Server Hardware Requirements". The following are the methods of opening AHCI function.

1) In the process of starting up the computer, keep pressing the "Delete" button of the keyboard, enter the "BIOS" setting.
2) Find the SATA interface setting option, change the "IDE" mode to "AHCI" mode; press the "F10" to save and exit.

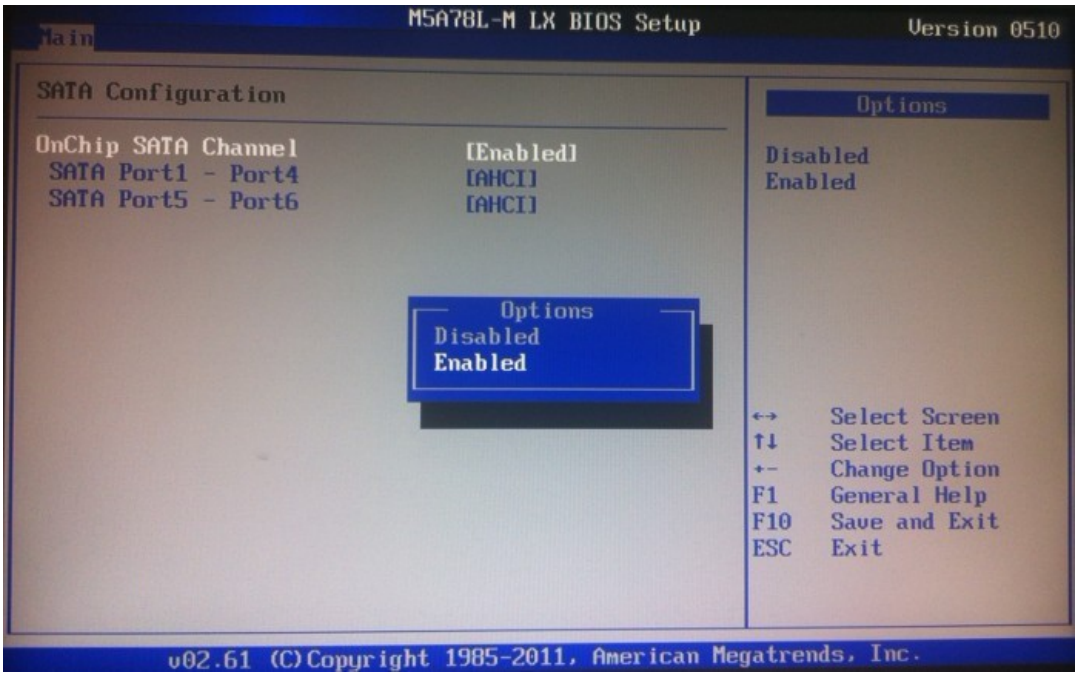


Figure 1-33

Notes: Because the BIOS versions of the main board are not the same, the positions of the "SATA interface" options are different. Recommend you can read the main board manual, and then modify the BIOS.

If the server has installed the operation system, you can set the AHCI mode in the BIOS, it will lead to the blue screen of death. The solution is as follows:

1) First set back to the original normal mode.
2) Start the server.
3) Click the "Start" button, enter "reedit" in the "Run" edition box, and click the "Enter" button.
4) In the pop-up "Registry Editor" window, position:
5) HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\msahci, and then click the "Start".

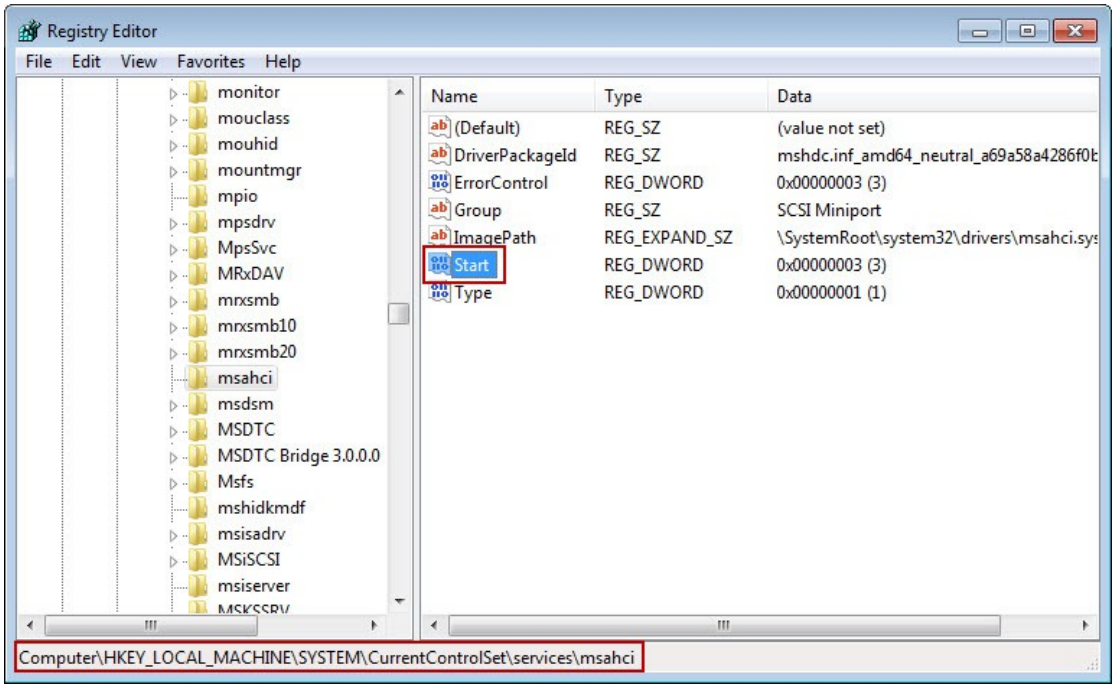


Figure 1-34

6) It will pop up "Edit DWORD Value" dialogue box, enter "0" in the "Value data" edition box, and then click the "OK" button.

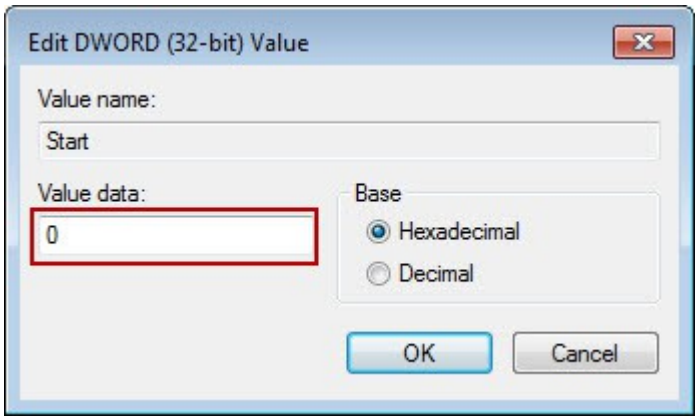


Figure 10-35

10.2 Improve the Win7 Boot Speed.

When the diskless client booted to the Windows 7 logo (the flower), it will hang on for long time. At the same time, the server shows that the client read data stopped at about 40-42M.

1) Download win7-boot-speed.zip

From http://www.ccboot.com/download/win7-boot-speed.zip

2) Boot the client with super client.
3) Extract the zip file and run the reg file on the client.
4) Shutdown the client and disable super client.

Notes: This method is not always successful. If client failed to boot after doing this settings, please recover image, and try other optimization methods. Here is a wiki about Client WIN7 System Optimization and a video about How to Optimize Win7 for Better Performance.

Thanks for Manuel Seger reporting this problem.

10.3 Server Hard Disk Allocation

Three SATA hard disks	Use a SATA hard disk as the system disk of the server, which is divided into two partitions; install the server system in the C disk; install the CCBoot and store the image package in the D disk.
	The other two SATA hard disks are used as the game disks, and the hard disks are composed of soft arrays; the disk letter is "E". Recommend not using the hard arrays.
Three SSD hard disks	One is used as the cache disk; the disk letter is "S". If you want to use the "advanced SSD initialization" function of the CCBoot, the initialization process takes about 10 minutes.
	The other two SSD hard disks are used as the "write-back" disks. All need to format. The disk letters are "I" and "J". Recommend not using any array pattern.

After allocating all the hard disks, you need to "format" all the hard disks. The steps are as follows:

1) Right-click the "Computer", clicks the "Manage".
2) In the pop-up "Computer" window, expand the "Storage" node; click the "Disk Management".
3) Right-click the disk, click "Format" to format the hard disk.

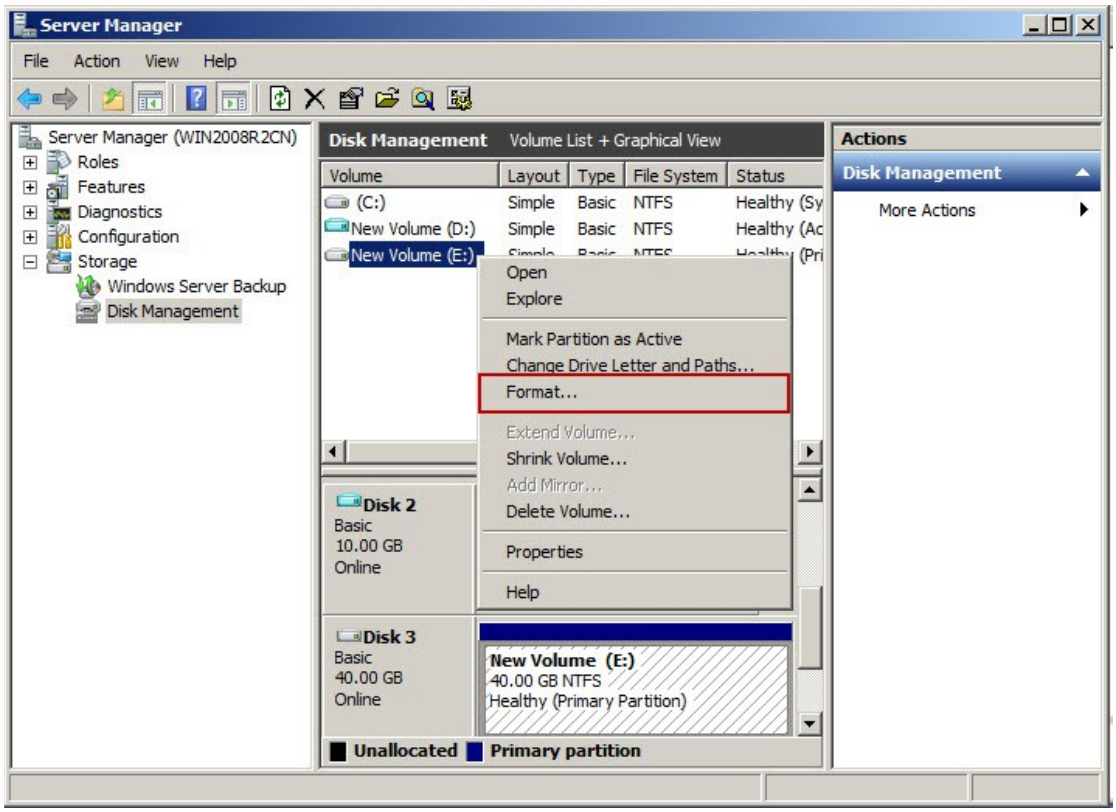


Figure 10-1

4) It will pop up "Format" dialogue box, in the "Allocation unit size" combo box; select the "32K", then clicks the "OK" button.

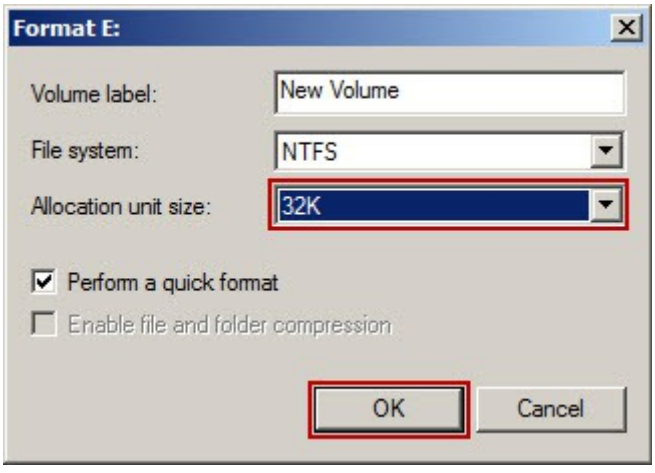


Figure 10-2

10.4 Server and Client Network Optimization

1. Network Properties

1) Click the "Start" -> "Control Panel" -> "Network and Internet" -> "Network and Sharing Center" ->"Local Area Connection"
2) In the pop-up "Local Area Connection-Status" dialogue box, click the "Properties" button.

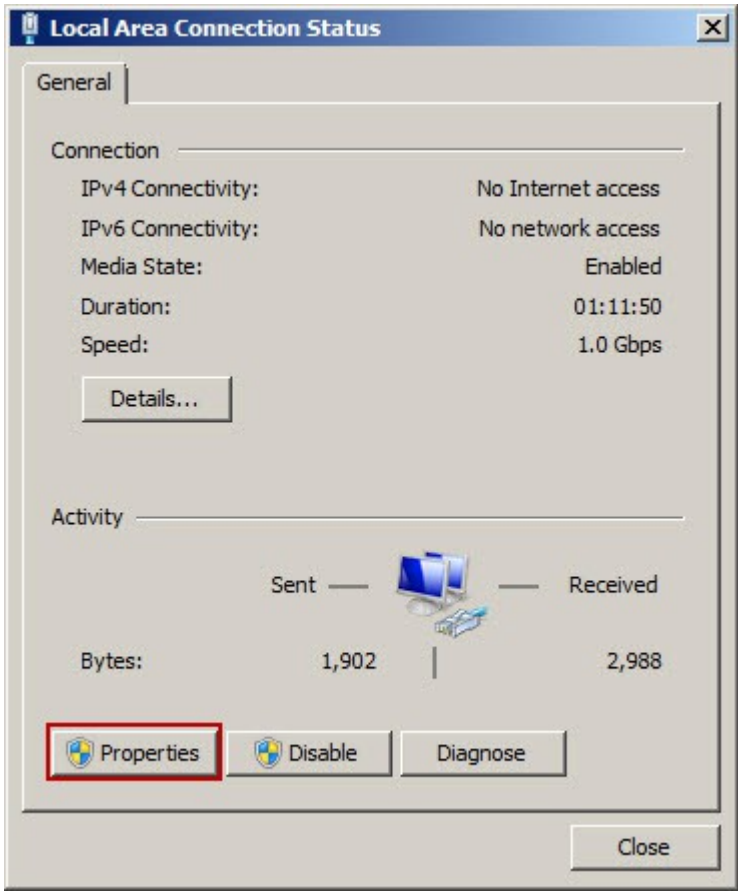


Figure 10-1

3) In the pop-up "Local Area Connection Properties" dialogue box, only retain the "Client for Microsoft Networks" and "Internet Protocol Version 4(TCP/IPv4)", and uninstall other services and protocols.

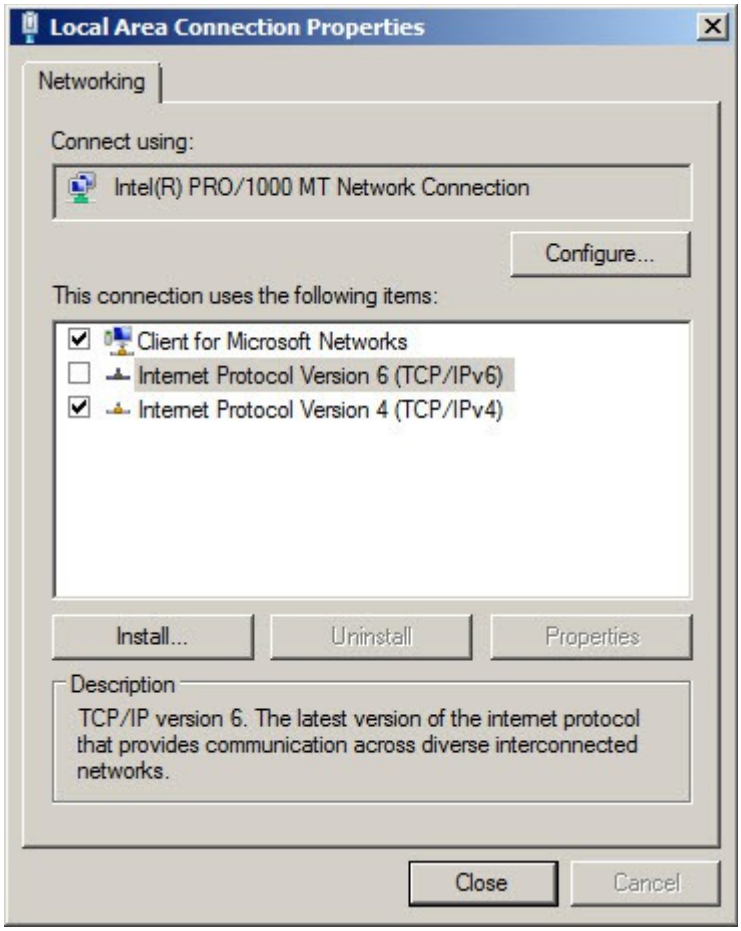


Figure 10-2

2. Network Card Properties

4) In the "Local Area Connection Properties" dialogue box, click the "Configure" button.

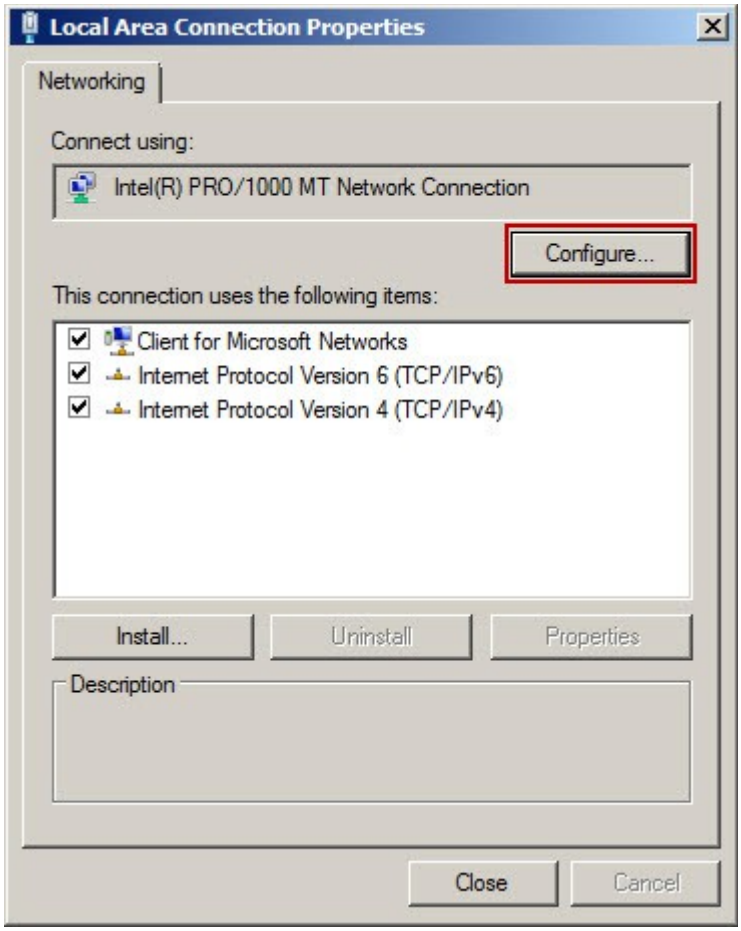


Figure 10-3

5) In the pop-up dialogue box, select the "Advanced" tab, close the function of EEE, WOL, Green Ethernet, Jumbo frame, Offloadlargesend, Flow Control, OffloadChksum, automatically shut down the PCIe, and automatically shut down the PHY.

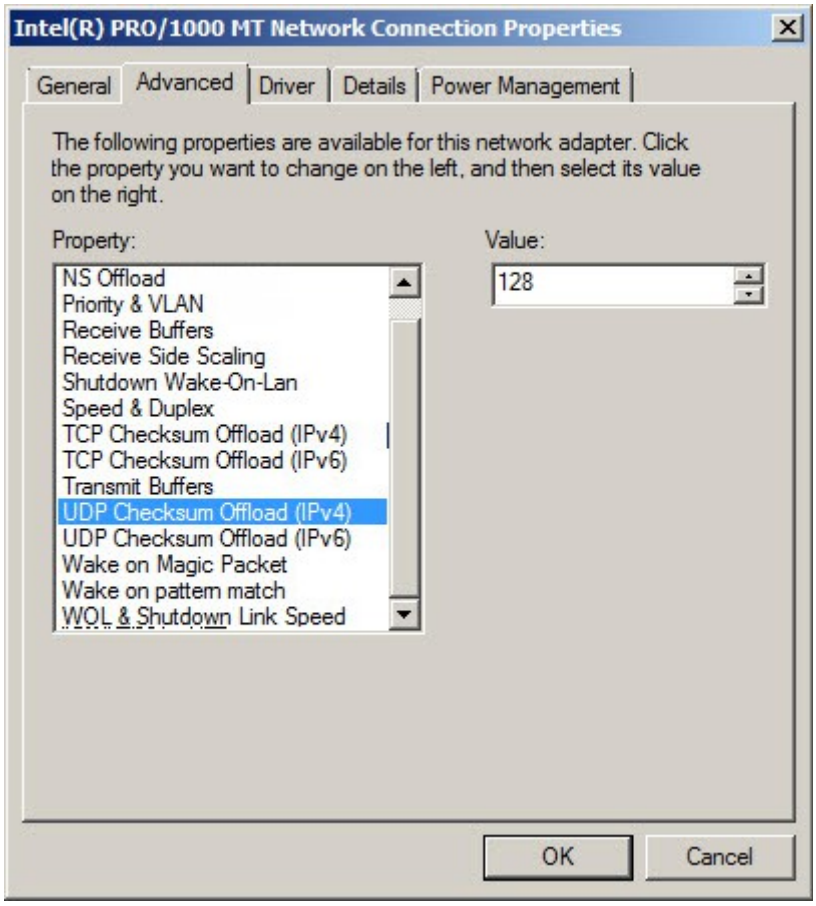


Figure 10-4

6) Choose "connection speed and duplex mode" to "automatic inspection". Please refer to the following form for detailed settings.

Realtek	EEE		Recommend closing
	Jumboframe		Recommend closing
	FlowControl		Recommend closing
	Offloadlargesend		Recommend closing
	GreenEthernet		Recommend closing
	OffloadChksum		Recommend closing
Intel	TCP/IP partial load option	Partial load receiving ChecksumRxIp	Recommend closing
		Partial load receiving ChecksumRxTcp	Recommend closing
		Partial load conveying	Recommend

		ChecksumTxTcp	closing
		Partial load TcpSegmentation	Recommend closing
		Partial load conveying ChecksumTxIP	Recommend closing
	FlowControl		Recommend closing
	AdaptiveIFS		Recommend closing
	InterrupthrootleRate		Recommend closing
	Jumbopacket		Recommend closing

Note: Most of the modifications of network card properties are under the circumstance of diskless. If you can't modify the information in diskless situation, please try to modify with disks being attached. Besides, if you failed to disable flow control on the client side even with Super Client on Device Manager, we recommend modifying before uploading image. If you have multiple specs, you need to modify every network adapter before uploading image. If the network adapter type is the same, just need to disable the flow control once.

3. Network Teaming

If there are two cards of the same type, and the switch machine supports the network teaming. It can be two card convergences. You can choose the "static mode" of the convergence pattern. Do not select the "802.3 intelligent mode". Usually, we don't recommend using network teaming if it is less than 100 client PCs.

10.5 Server Cache Setting

1. Reading Cache Setting of the Server.

The recommended configuration of 8G memory:

Cache Setting	Memory Cache	SSD Cache(80G)
Image	1024M	0
Game Disk	4096M	71680M

The recommended configuration of 16G memory:

Cache Setting	Memory Cache	SSD Cache(80G)
Image	1024M	0
Game Disk	8192M	71680M

The recommended configuration of 32G memory:

Cache Setting	Memory Cache	SSD Cache(80G)
Image	1024M	0
Game Disk	20480M	71680M

For details, please refer to:"Disk Cache Settings and Recommend".

2. Super Cache setting of the Write-back Disk

Cache Size	Block Size	Write-back Time
300-500M	32k	5 seconds

For more details, please refer to "Super Cache Installation".
Notes: If you haven't installed super cache on the server, please check "Enable System Write Cache" on the CCBoot settings.

10.6 Super Cache Installation

In some cases, you have to use super cache. For details, please refer to the article "Why You Need to Use Super Cache".

1) Download SuperCache5.1.zip file from http://cn.ccboot.com/download/supercache5.1.zip, and extract it. **Notes: DO NOT use supercache 5.0. It has a BSOD bug.**
2) Click the "Start" button, and enter "cmd" in the "Run" edit box. Right click "cmd", and click the "Run as administrator" (Figure 1-1).

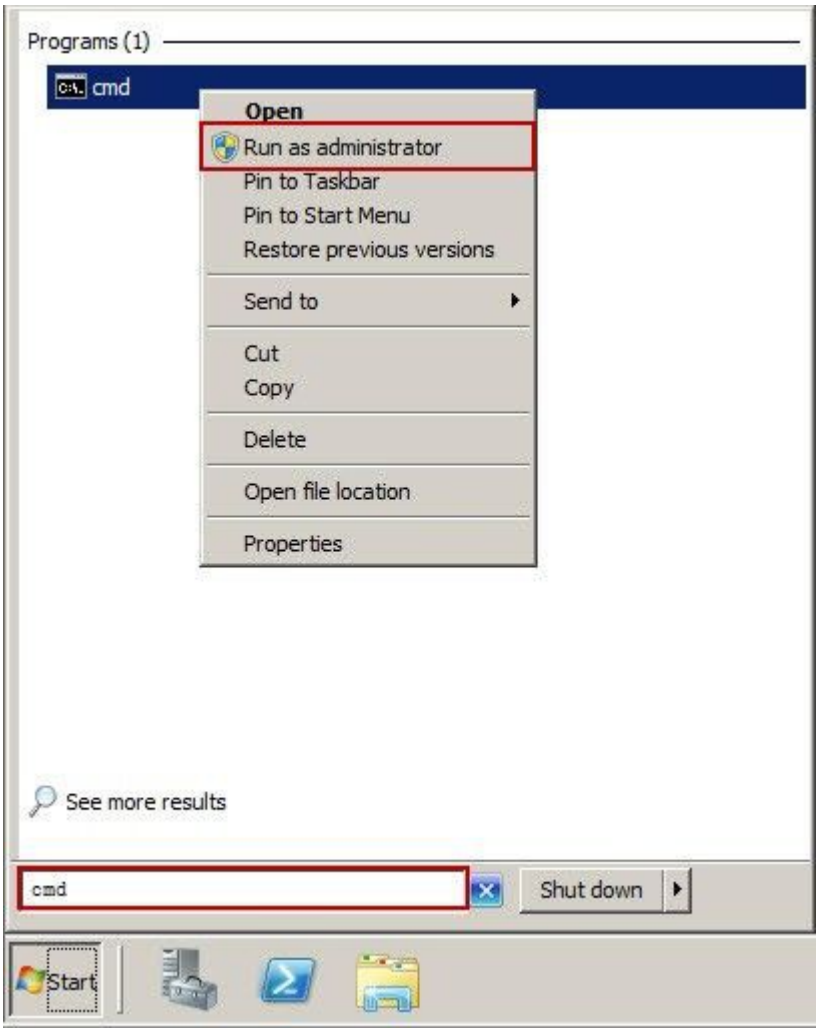


Figure 1-1

3) In the pop-up "Command Line" window, enter "bcdedit /set testsigning on", and then press the "Enter" button (Figure 1-2).

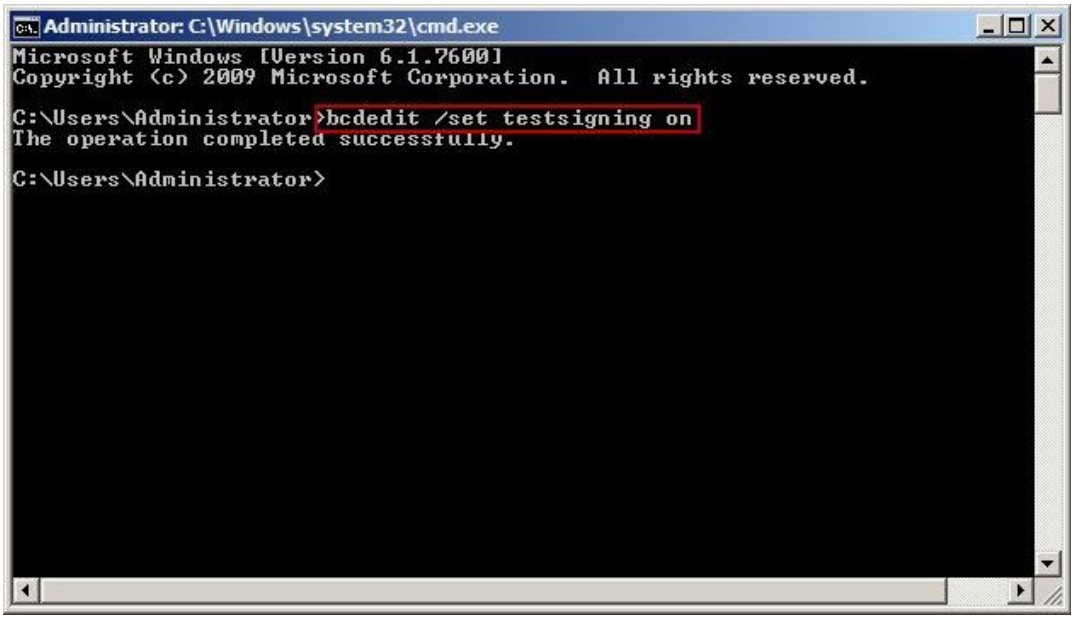


Figure 1-2

4) Double click "SuperSpeed SuperCacheServer X64 5.1.885.exe" file, and then it will pop up "SuperCache 5 for Servers - Installed Wizard" dialog box (Figure 1-3).

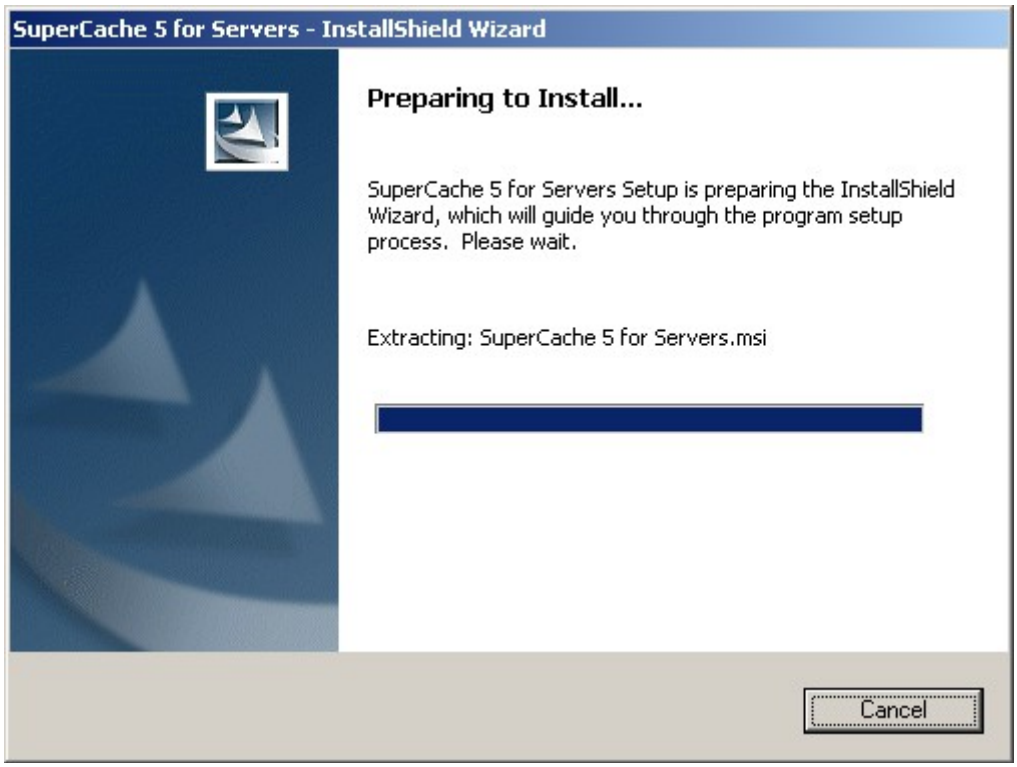


Figure 36-3

5) Click the "Next" button (Figure 1-4).

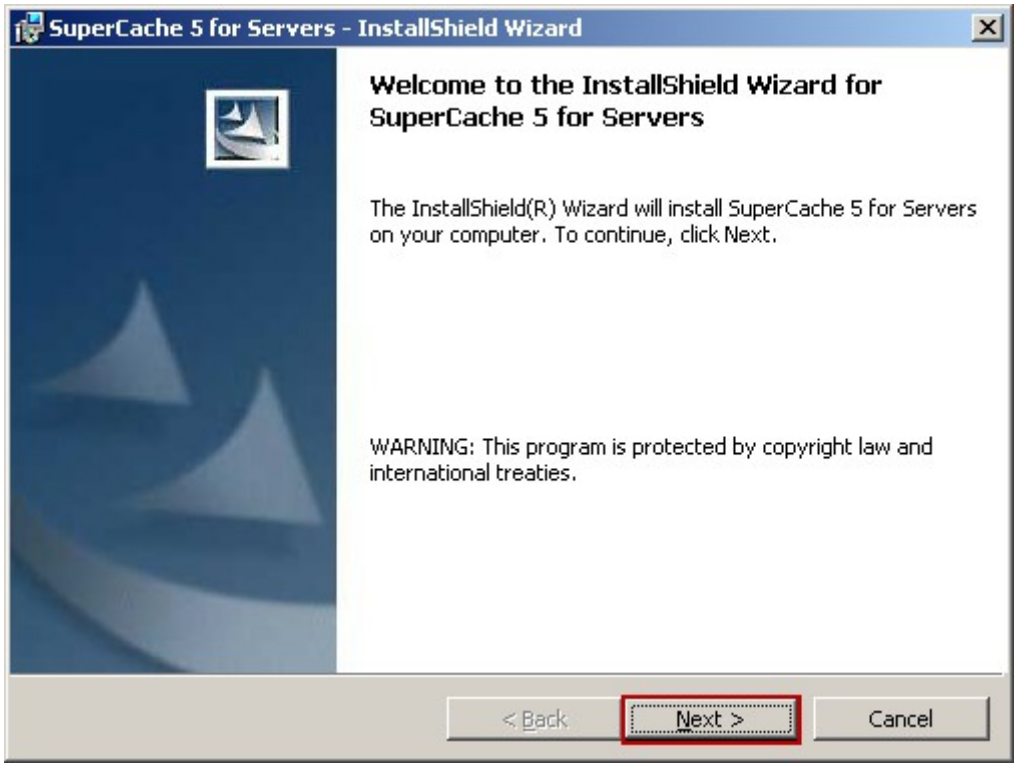


Figure 1-4

6) In the pop up pop up "License Agreement" dialog box, click the "I accept the terms in the license agreement" radio button, and then click the "Next" button (Figure 1-5).

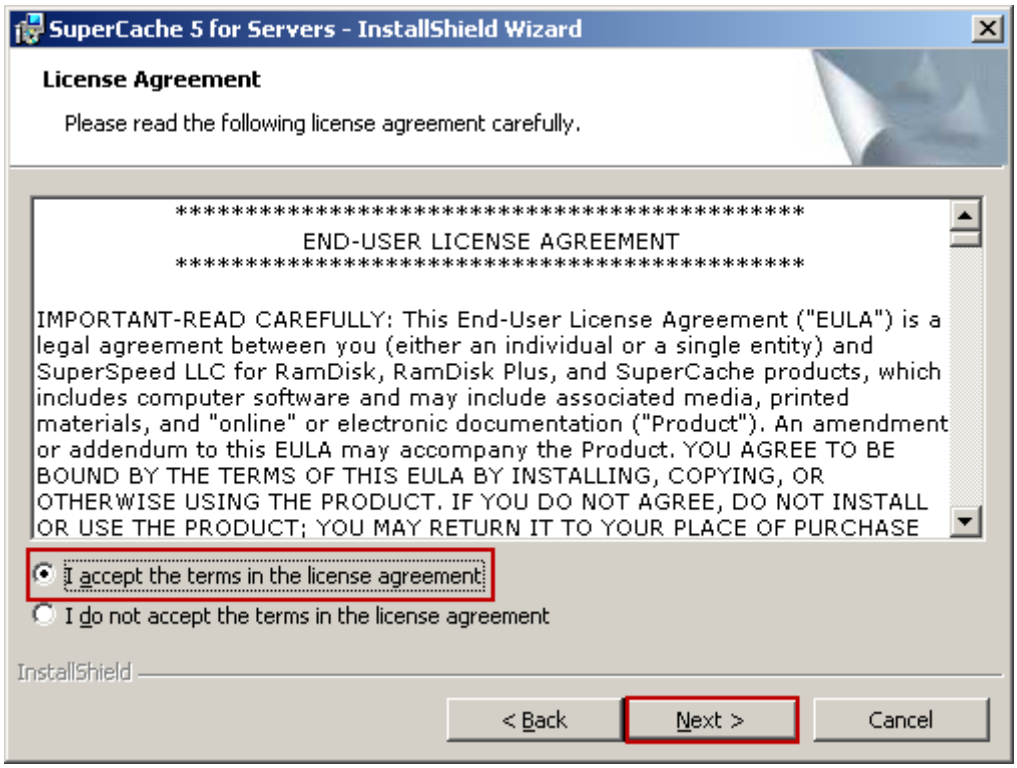


Figure 1-5

7) In the pop up "Destination Folder" dialog box, click the "Next" button (Figure 1-6).

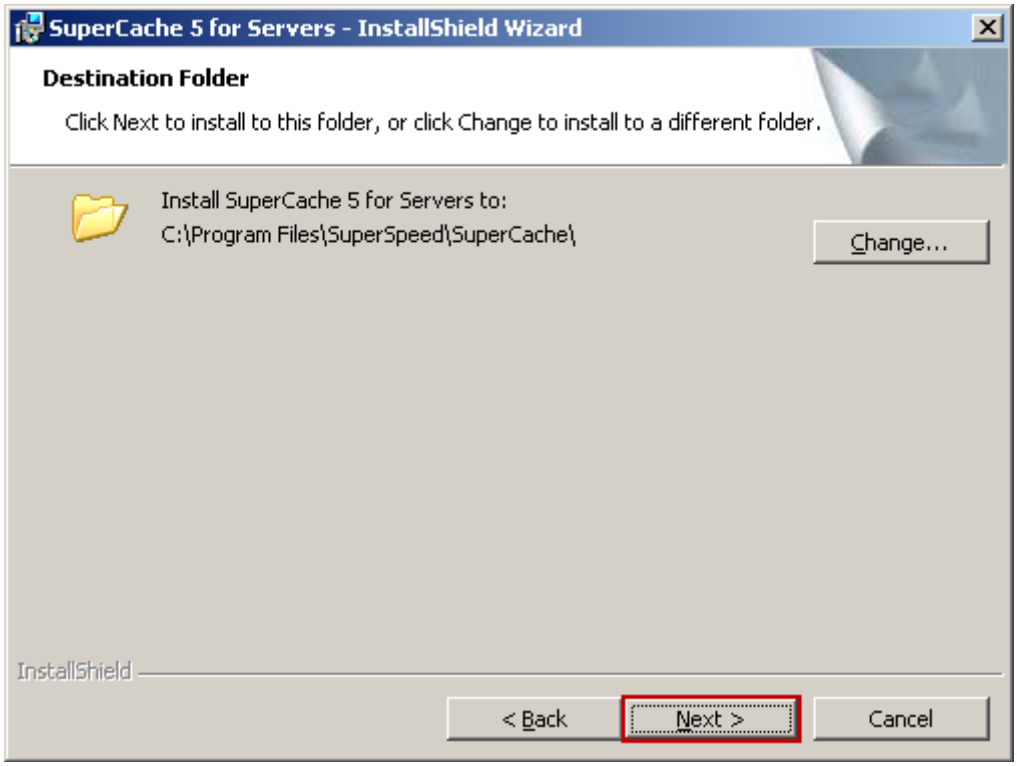


Figure 1-6

8) In the pop up "Ready to Install the Program" dialog box, click the "Install" button (Figure 1-7).

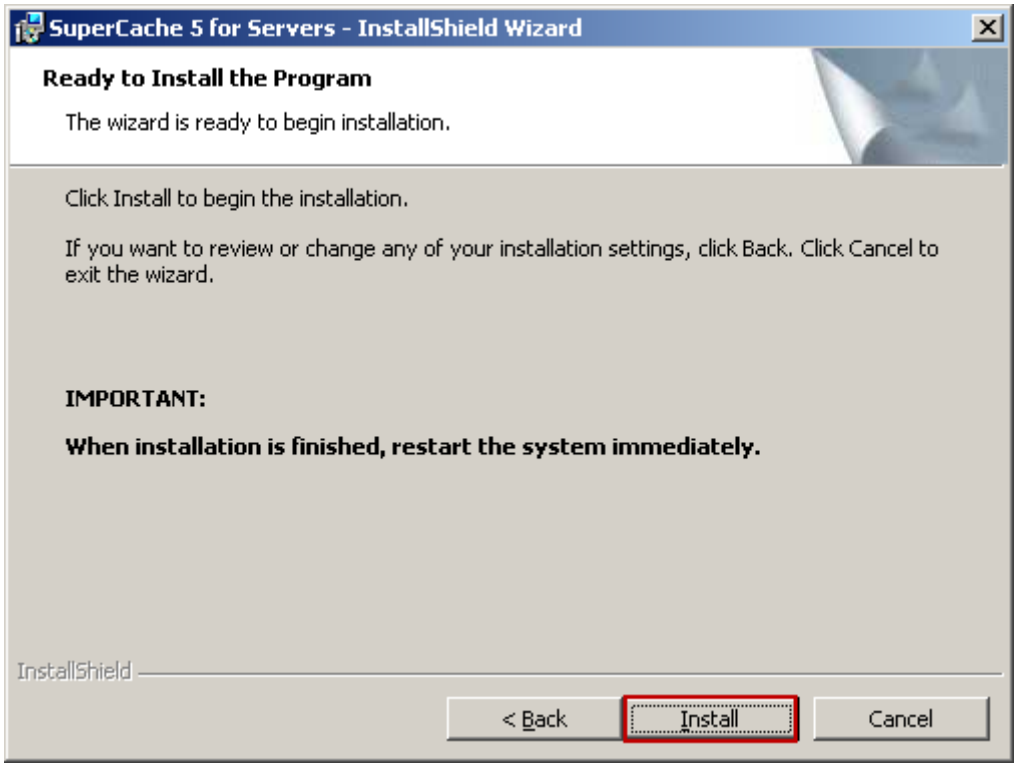


Figure 1-7

9) Installing SuperCache 5 for Servers (Figure 1-8).

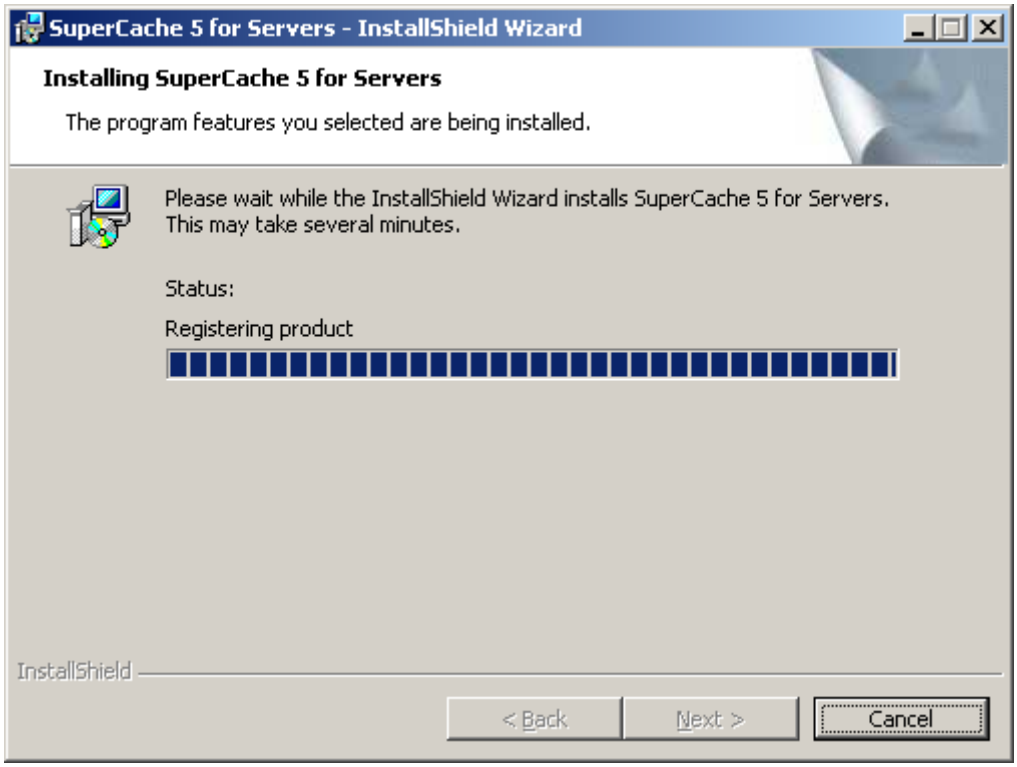


Figure 1-8

10) In the pop up the "InstallShield Wizard Completed" dialog box, click the "Finish" button (Figure 1-9).

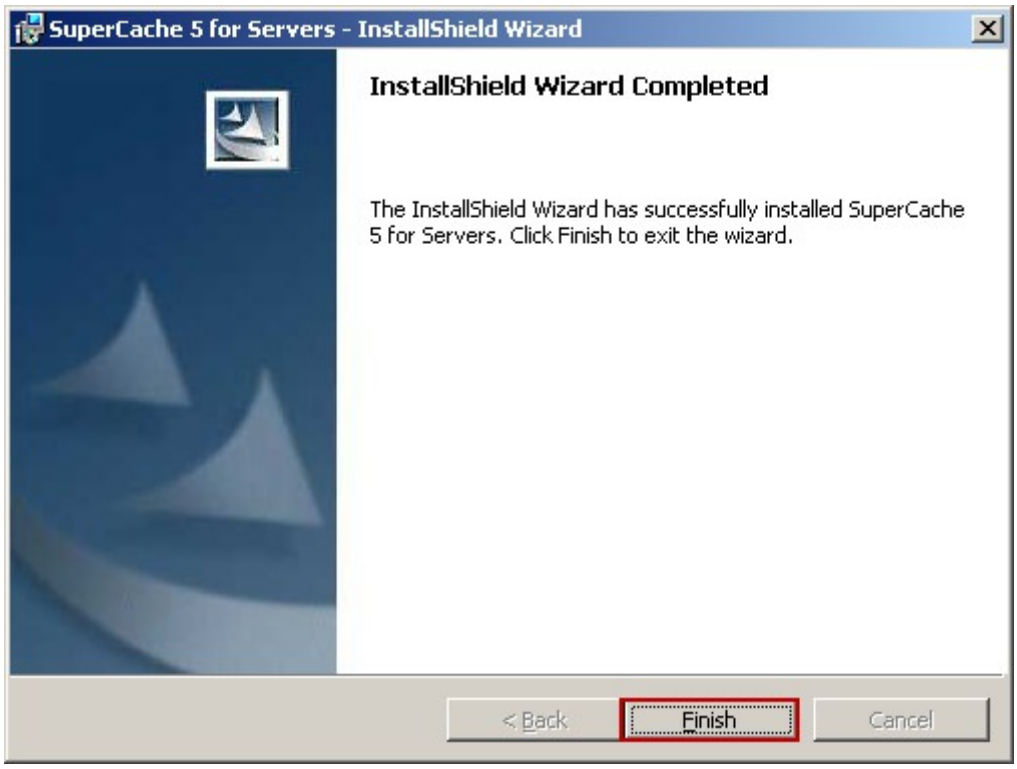


Figure 1-9

11) In the pop up "SuperCache 5 for Servers Installer Information" dialog box, click the "Yes" button to restart the computer (Figure 1-10).

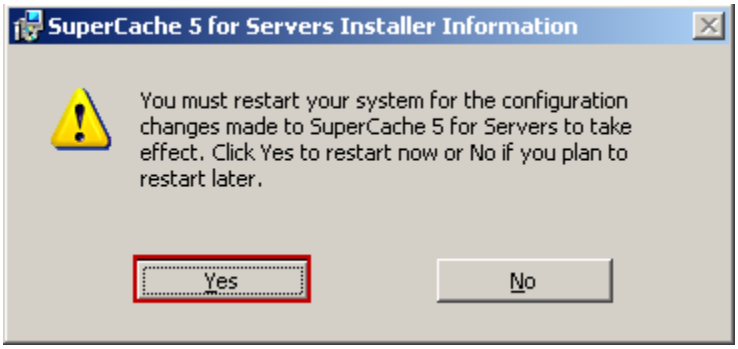


Figure 1-10

12) Double click the "Keygen.exe" file (Figure 1-11).

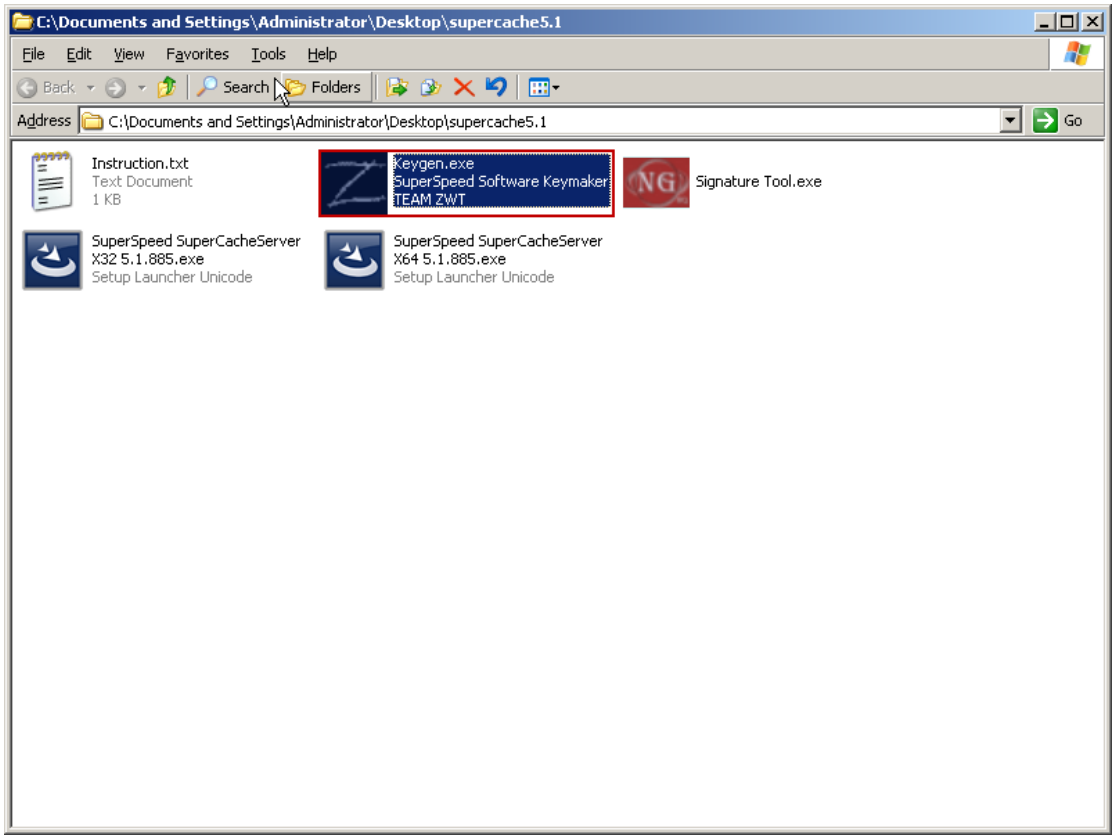


Figure 1-11

13) It will pop up "SuperSpeed LLC Products' Patch&Keygen" dialog box. Click the "Products" combo box, and select "SuperCache". Click the "Patch" combo box, and select "64 Bit". And then click the "Patch" button (Figure 1-12).

Figure 1-12

14) In the pop up "Patch Succeed!" dialog box, click the "OK" button (Figure 1-13).

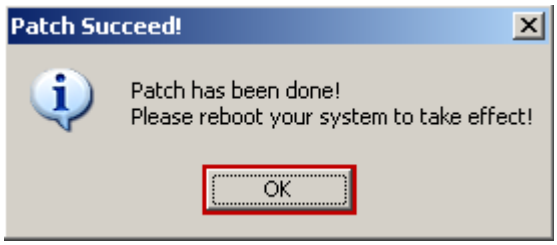


Figure 1-13

15) Click the "Generate" button to generate a license key file (Figure 1-14).

Figure 1-14

16) In the pop up "Success!" dialog box, click the "OK" button (Figure 1-15).

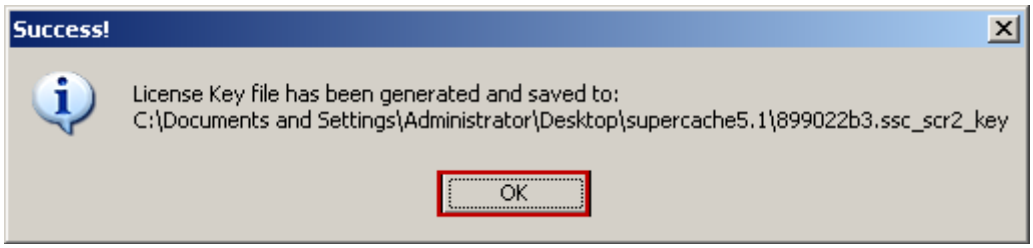


Figure 1-15

17) The license key file was generated (Figure 1-16).

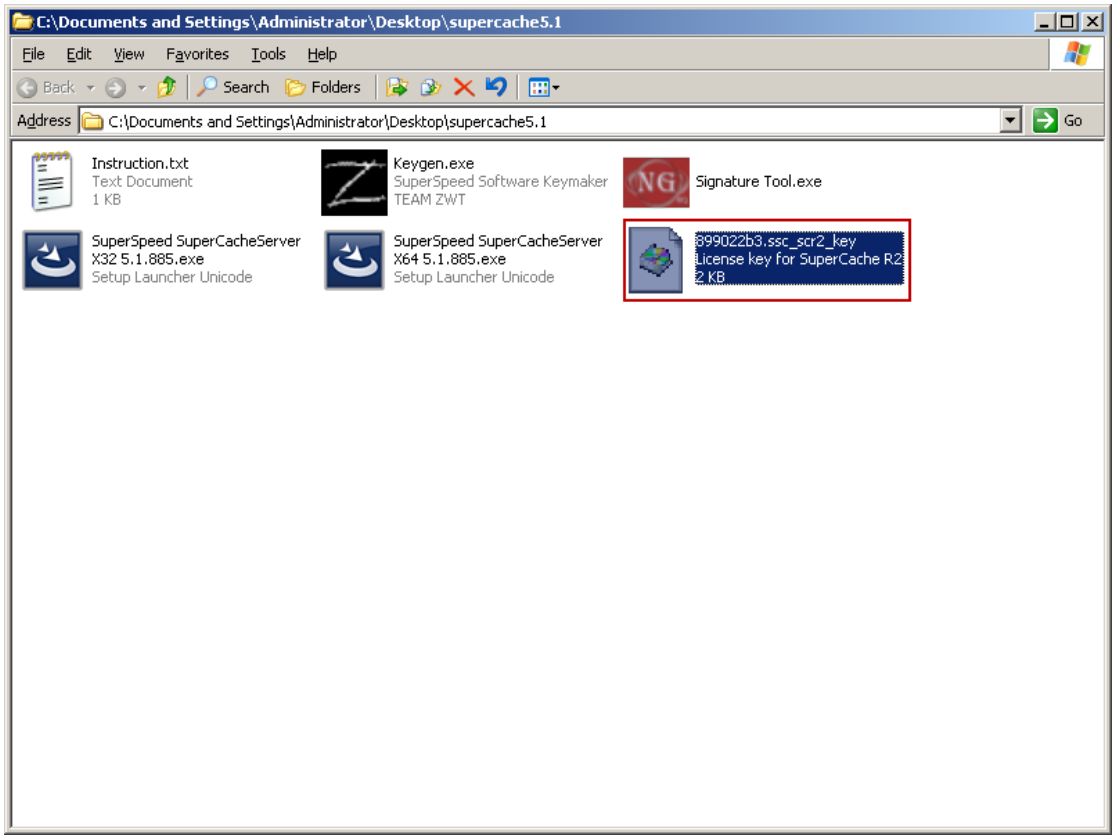


Figure 1-16

18) Double click the "Signature Tool.exe" file. In the pop up "Driver Signature Enforcement Overrider" dialog box, click the "Next" button (Figure 1-17).

Figure 1-17

19) In the pop up "Software License Agreement" dialog box, click the "Yes" button (Figure 1-18).

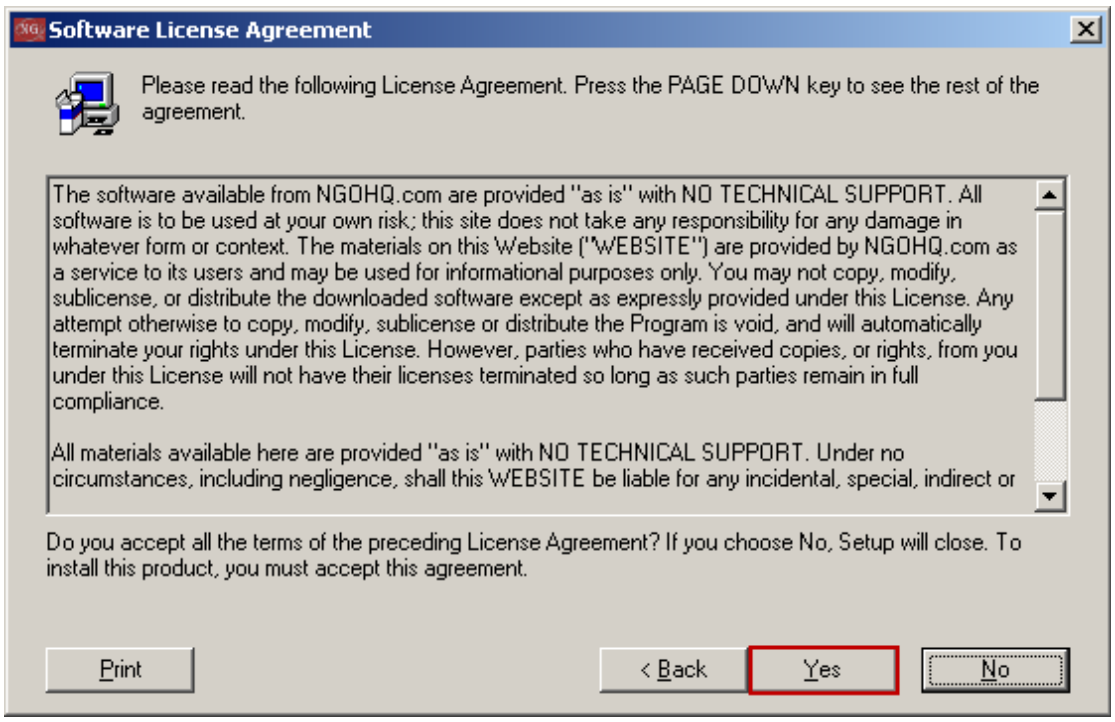


Figure 1-18

20) In the pop up "Driver Signature Enforcement Overrider" dialog box, click the "Sign a System File" radio button, and then click the "Next" button (Figure 1-19).

Figure 1-19

21) In the pop up "Insert filename" dialog box, type "C:\Windows\System32\Drivers\sscvf.sys" into the edit box, and then click the "OK" button (Figure 1-20).

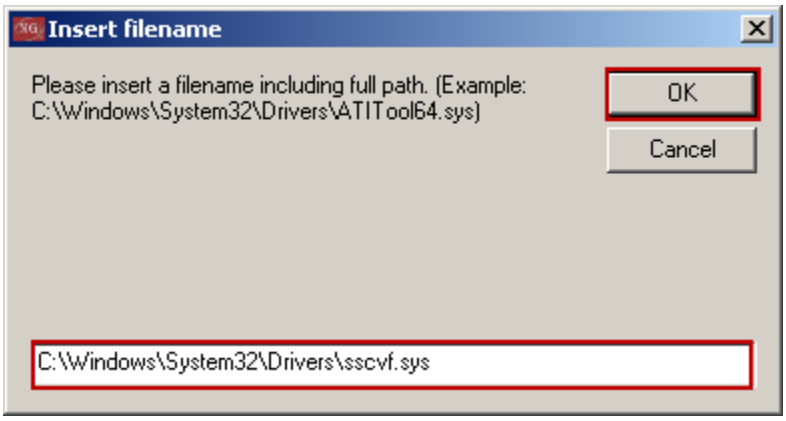


Figure 1-20

22) In the pop up "Done" dialog box, click the "OK" button to restart the computer (Figure 1-21).

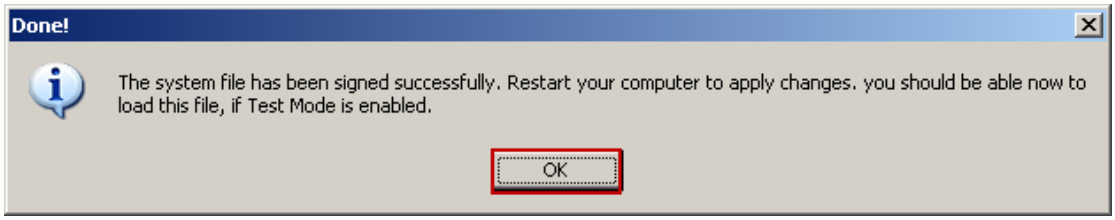


Figure 1-21

23) Double click the "899022b3.ssc_scr2_key" file. It will pop up the "Update License for SuperCache" dialog box. Click the "OK" button (Figure 1-22).

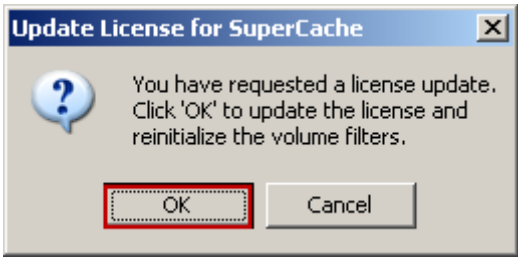


Figure 1-22

24) In the pop up "Update License" dialog box, click the "OK" button (Figure 1-23).

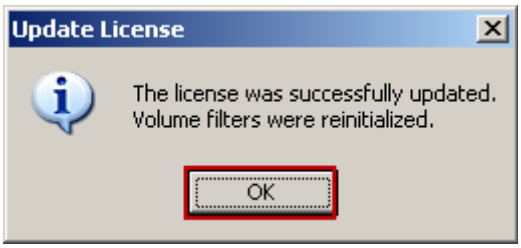


Figure 1-23

25) Right click "Local Disk (C:)" button to select "Properties" (Figure 1-24).

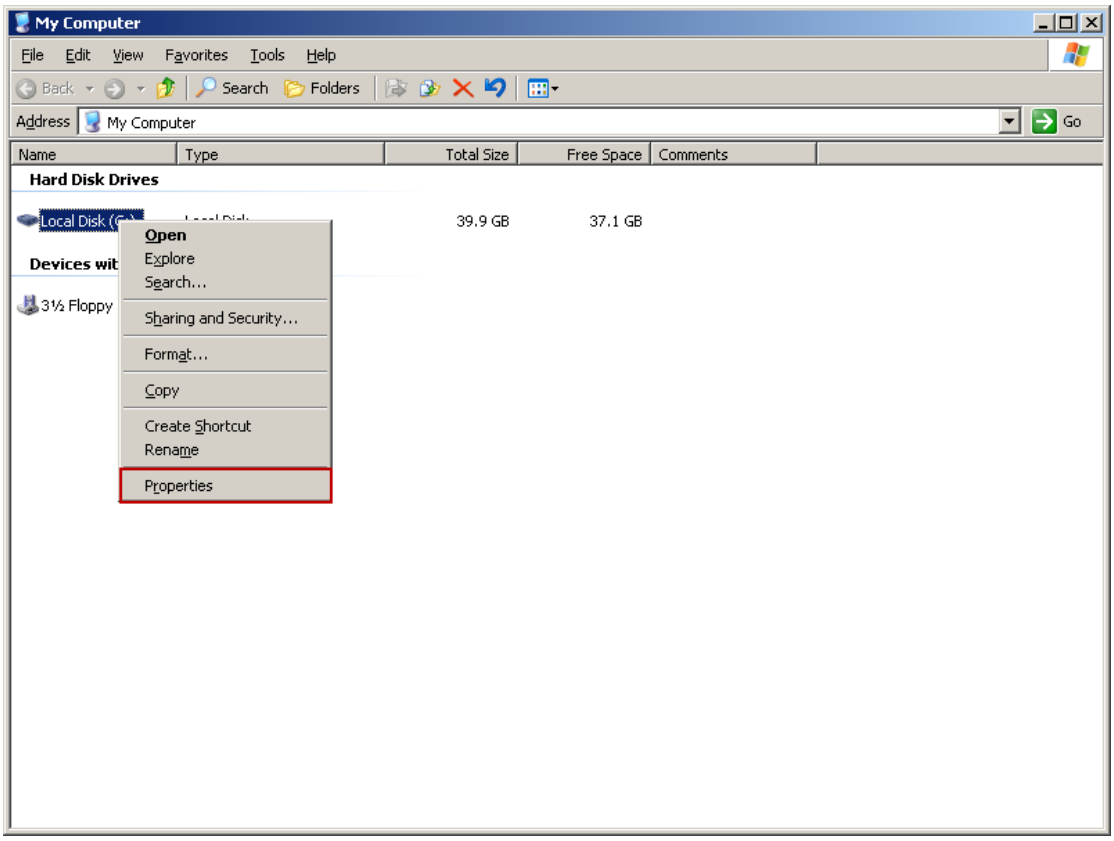


Figure 1-24

26) In the pop up "Local Disk (C:) Properties" dialogue box, click the "Super Cache" tab, and then click the "Cache" button (Figure 1-25).

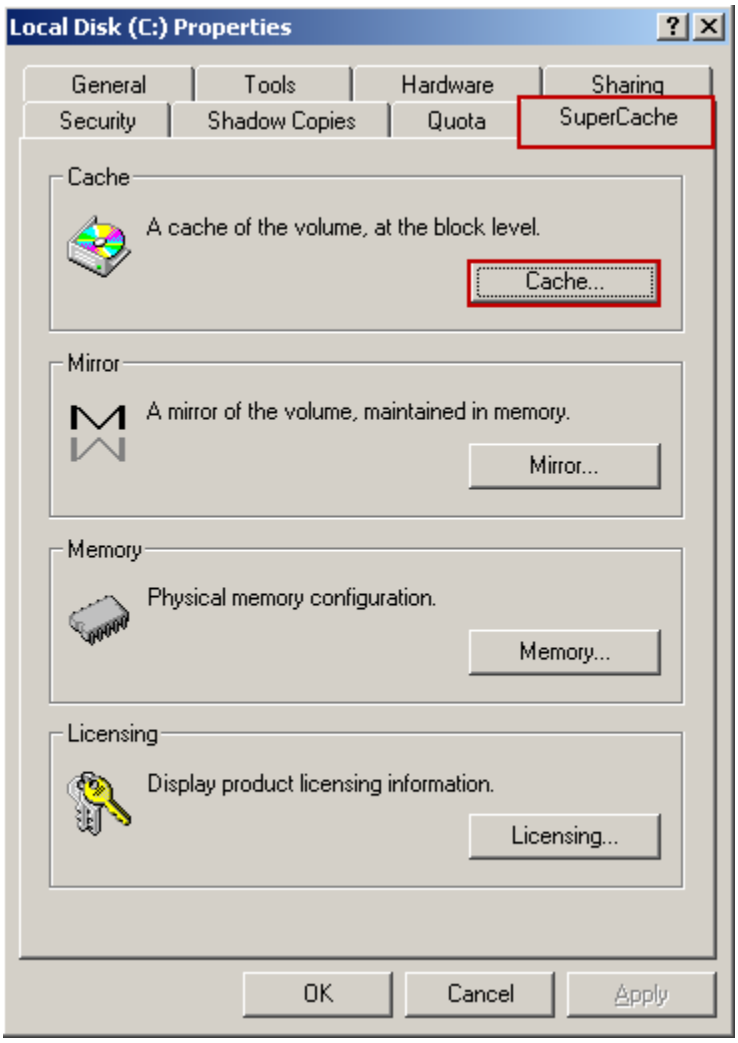


Figure 1-25

27) In the pop up "SuperCache on" dialogue box, click the "Start" button.

28) In the pop up "Start SuperCache on" dialogue box, select the "Deferred-Write Mode" check box, and then set the "Cache granularity (page size)" as 32KB. Use the down arrow of the keyboard to adjust "Main Memory Allocation" to its minimum value (When it pops up the "vfvfgDlgs" dialog box, click the "No" button, then you can get the minimum value) (Figure 1-26).

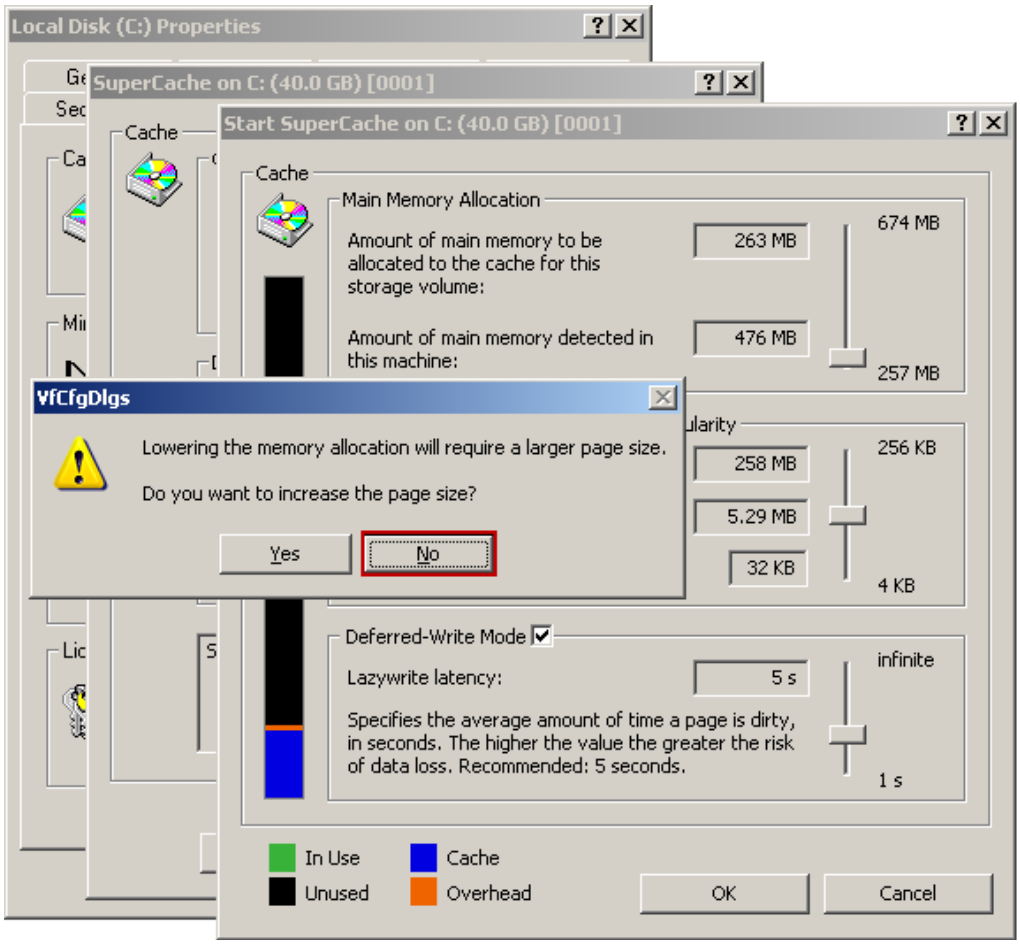


Figure 1-26

29) After completing the adjustment of the parameters, click the "OK" button. And you can use the same way to set other write-back disk.

Note: If there is old version, you have to delete it first, and delete the configuration file at the same time.

10.7 Virtual Memory Optimization

1) Right-click the "Computer", select "Properties".
2) In the pop-up "System" window, click "Advanced system settings".

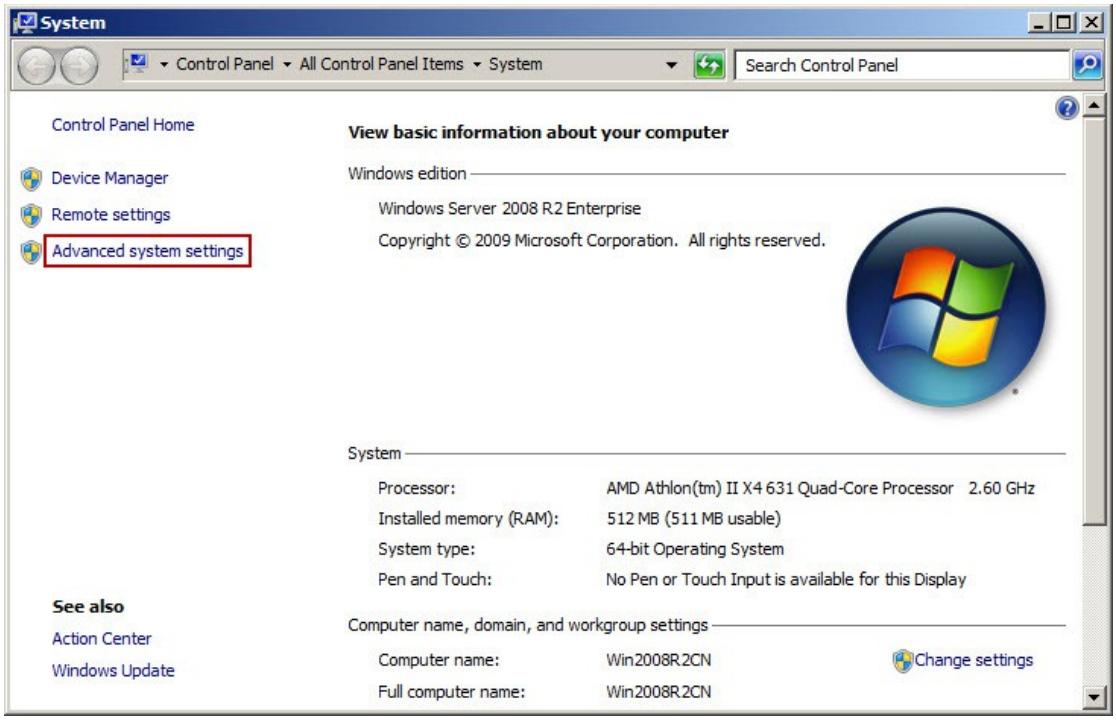


Figure 10-1

3) In the pop-up "System Properties" dialogue box, click "Advanced" tab, in the "Performance" group, click the "Setting" button.

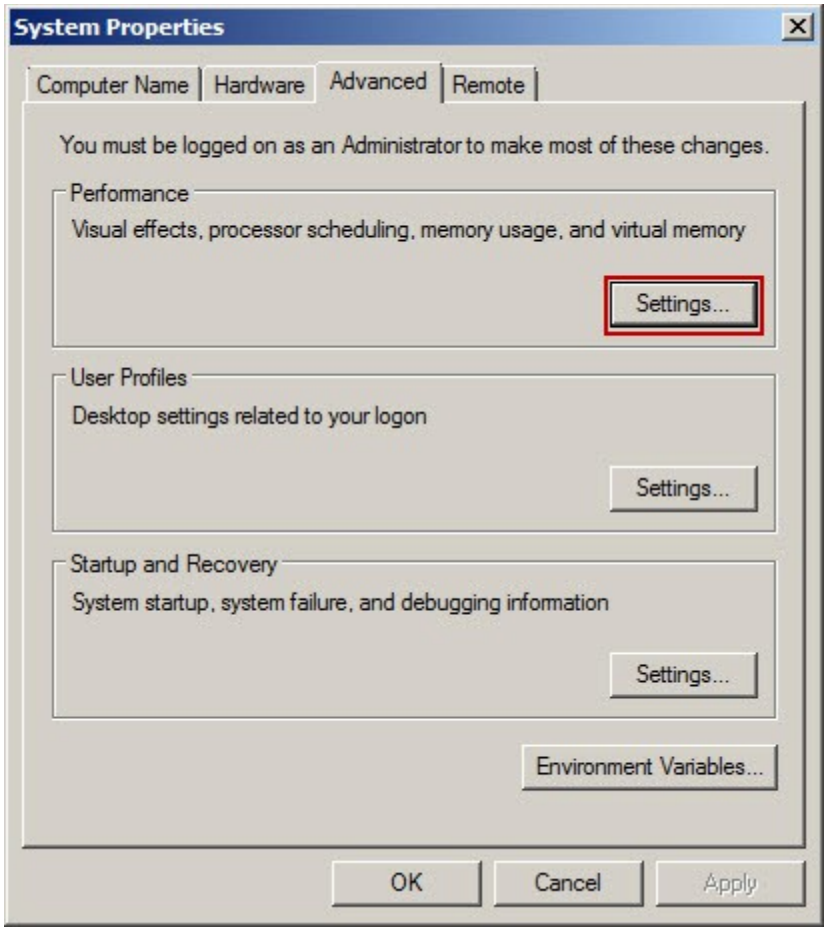


Figure 10-2

4) In the pop-up "Performance Options" dialogue box, click "Advanced" tab, and then click "Change" button.

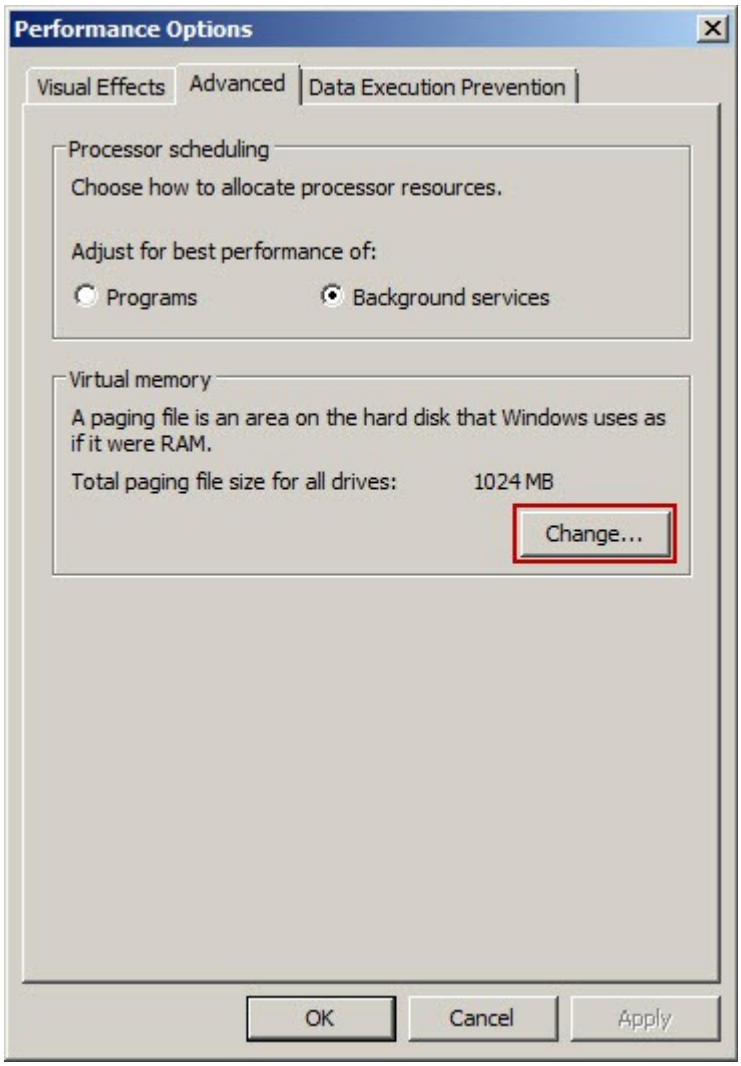


Figure 10-3

5) In the pop-up "Virtual Memory" dialogue box, uncheck the "Automatically manage paging file size for all drives" Check box, and then click "OK" button.

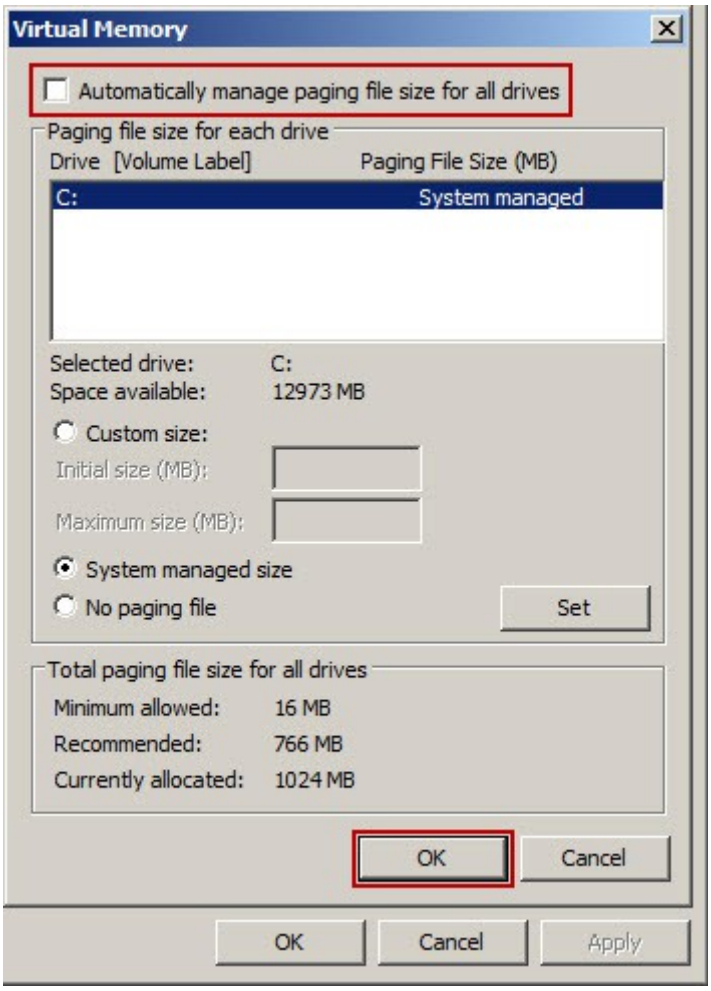


Figure 10-4

10.8 Client Local Cache Settings

Client Memory Size	Local Cache
1G	128M
2G	512M
4G	1024M

For the methods of local cache setting, please refer to "Client Cache" for details.

10.9 Client Power Options Optimization

1) Click "Start" -> "Control Panel" -> "Power Options"

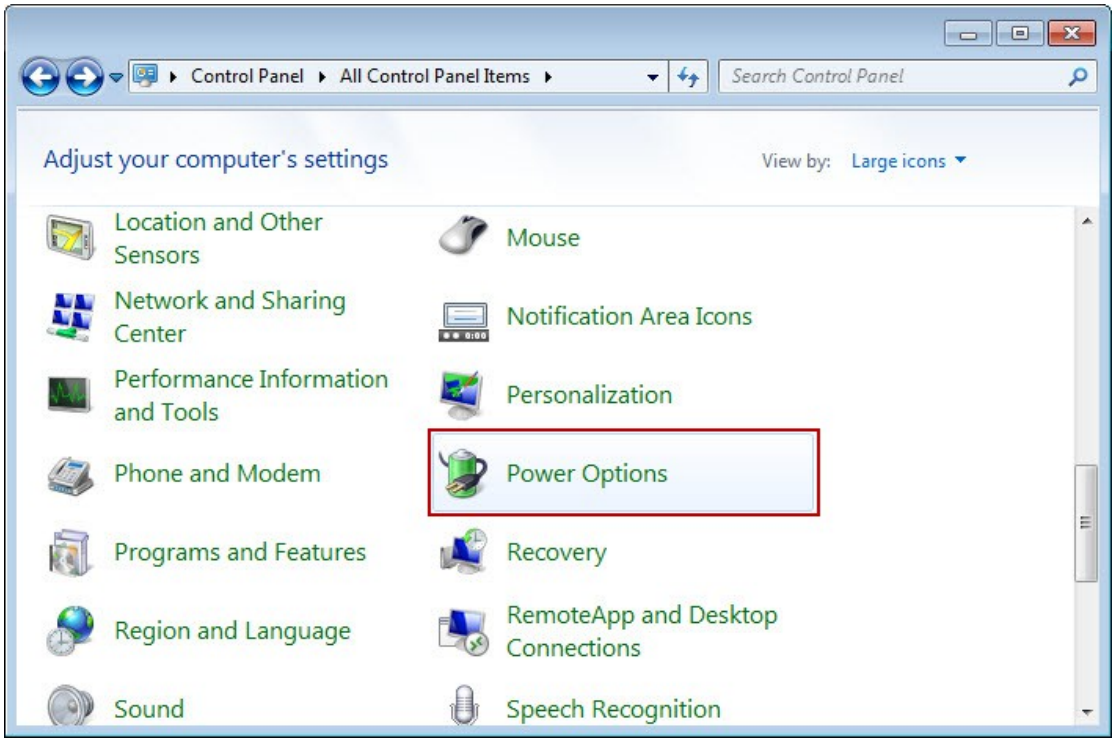


Figure 1-1

2) In the pop-up window, click "Change plan settings".

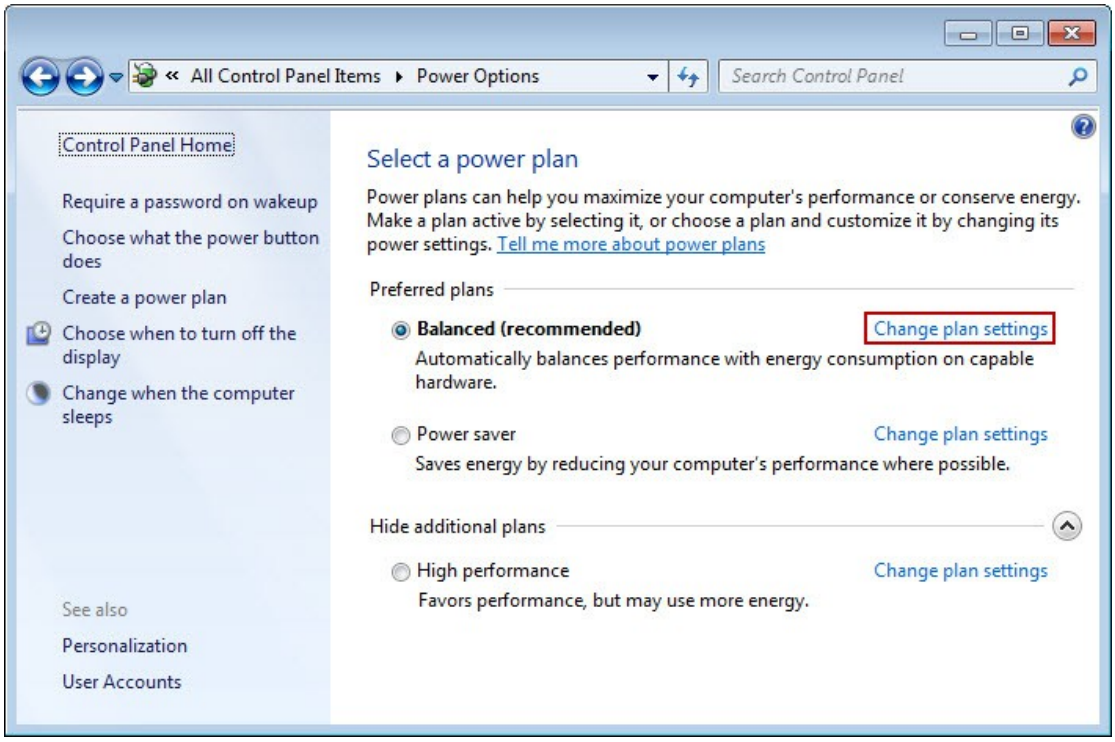


Figure 10-2

3) It wills pop-up "Chang settings for the plan" window, in the "Turn off the display" combo box, select "Never". In the "Put the computer to sleep" combo box, select

"Never".

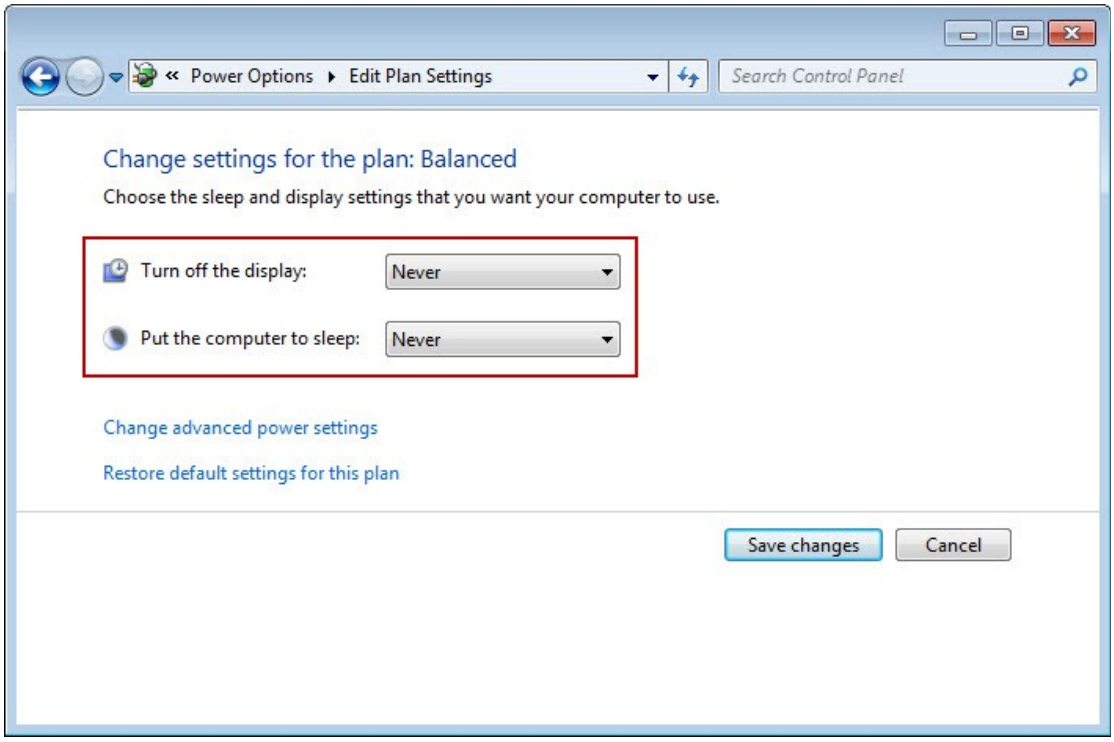


Figure 10-3

4) Click "Change advanced power settings".

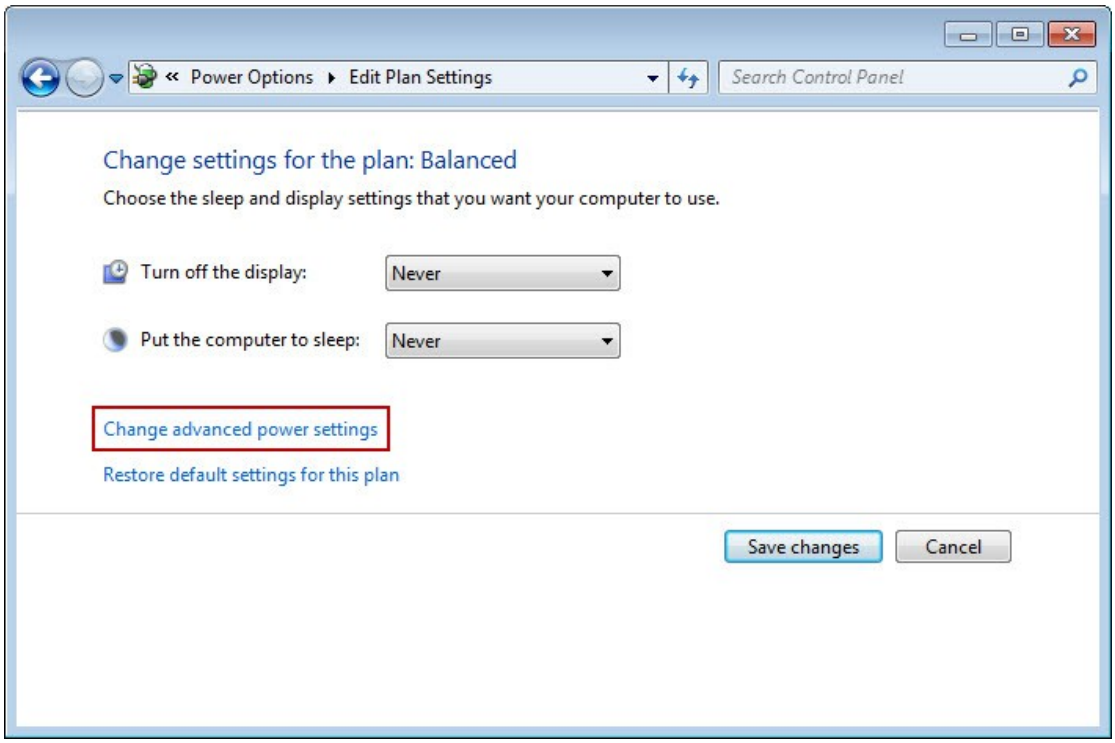


Figure 10-4

5) In the pop-up "Power Options" dialogue box, set "Require a password on wakeup" to

"No"; set the "Turn off hard disk after" to "Never". Set the "Slide show" to "Paused".

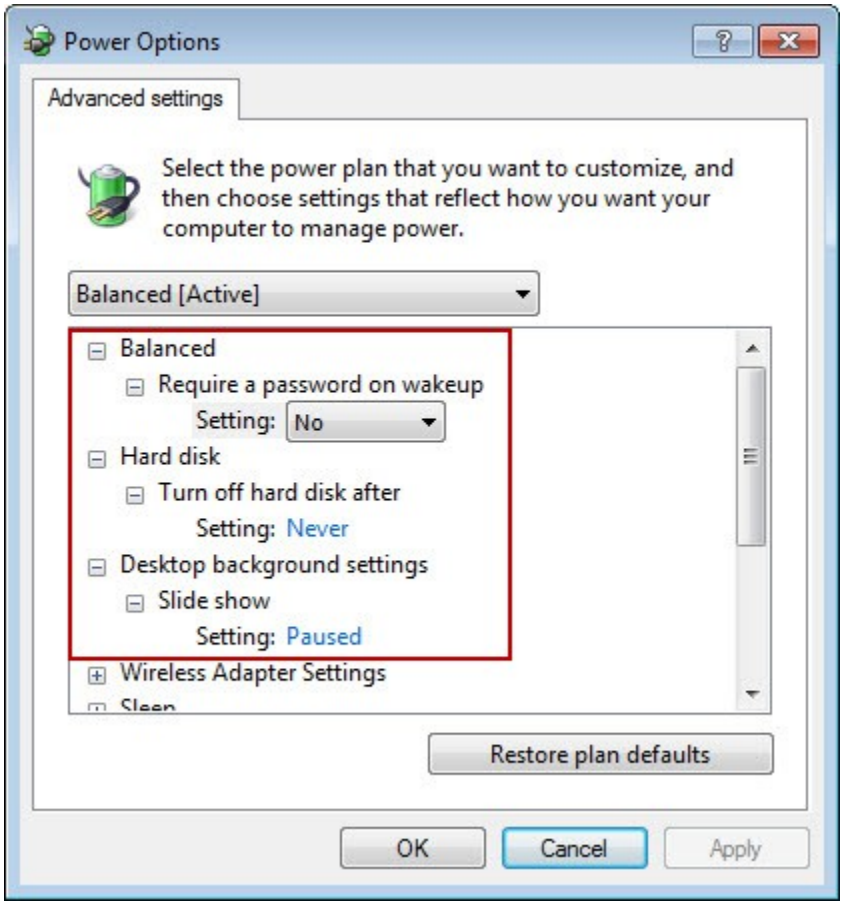


Figure 10-5

6) Set the "Sleep after" to "Never"; ser "Allow wake timers" to "Disable".

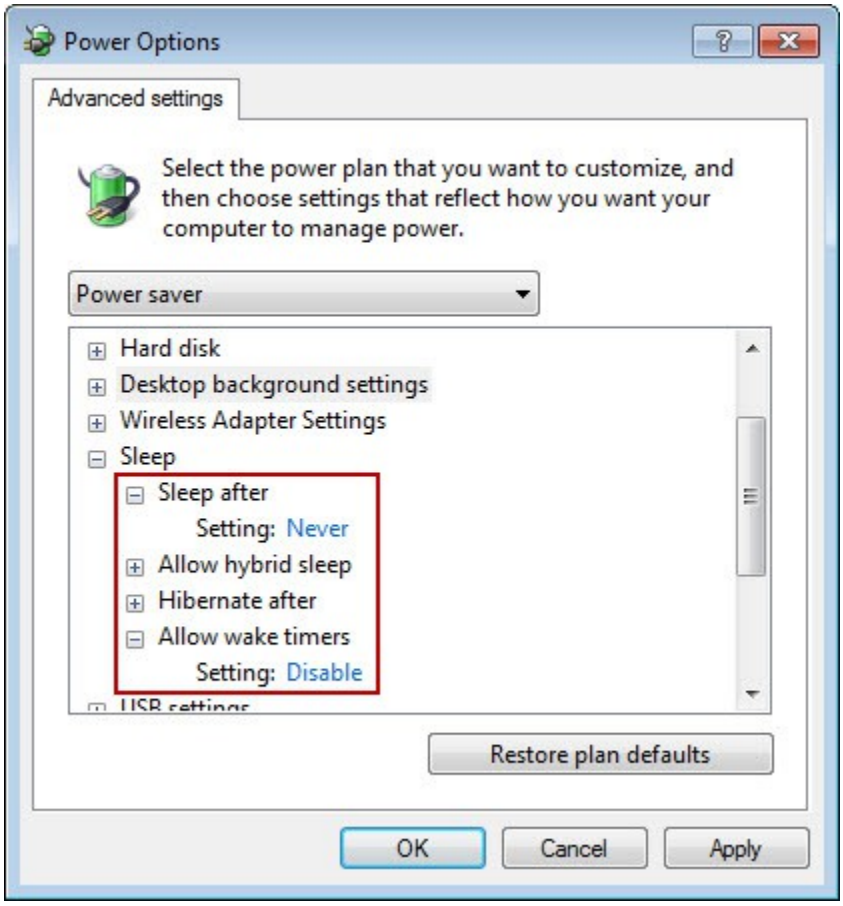


Figure 10-6

7) "Processor power management" is set to the default value.

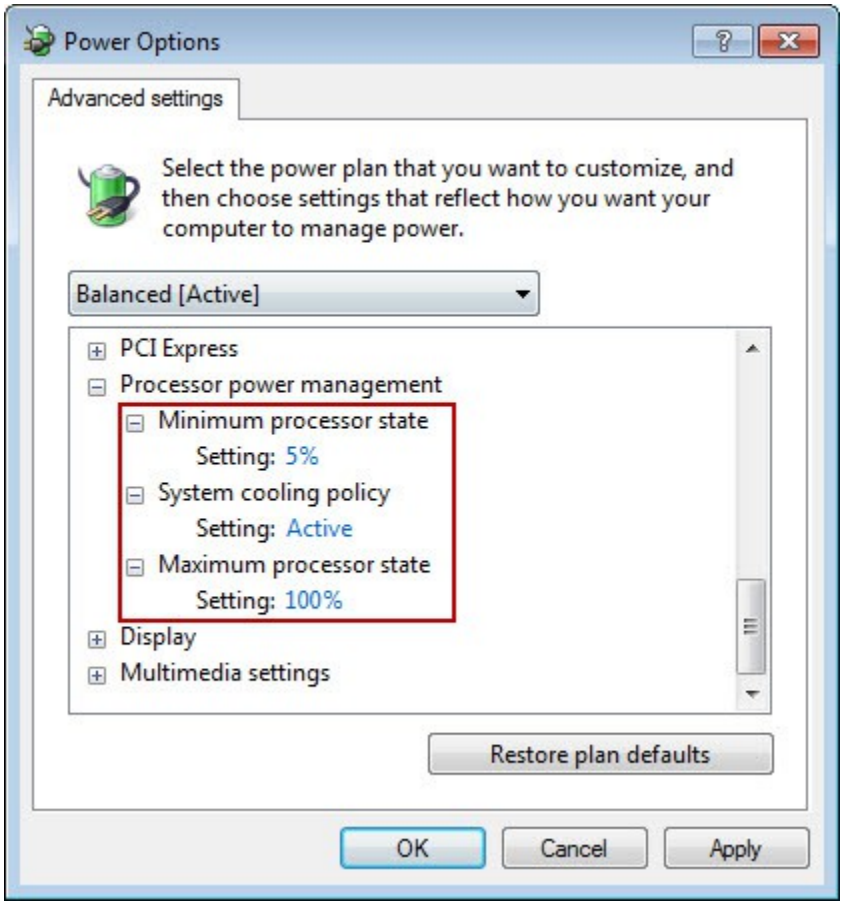


Figure 10-7

8) Set the "Turn off display after" to "Never"; "Multimedia settings" is set to the default value; and then click "OK" button.

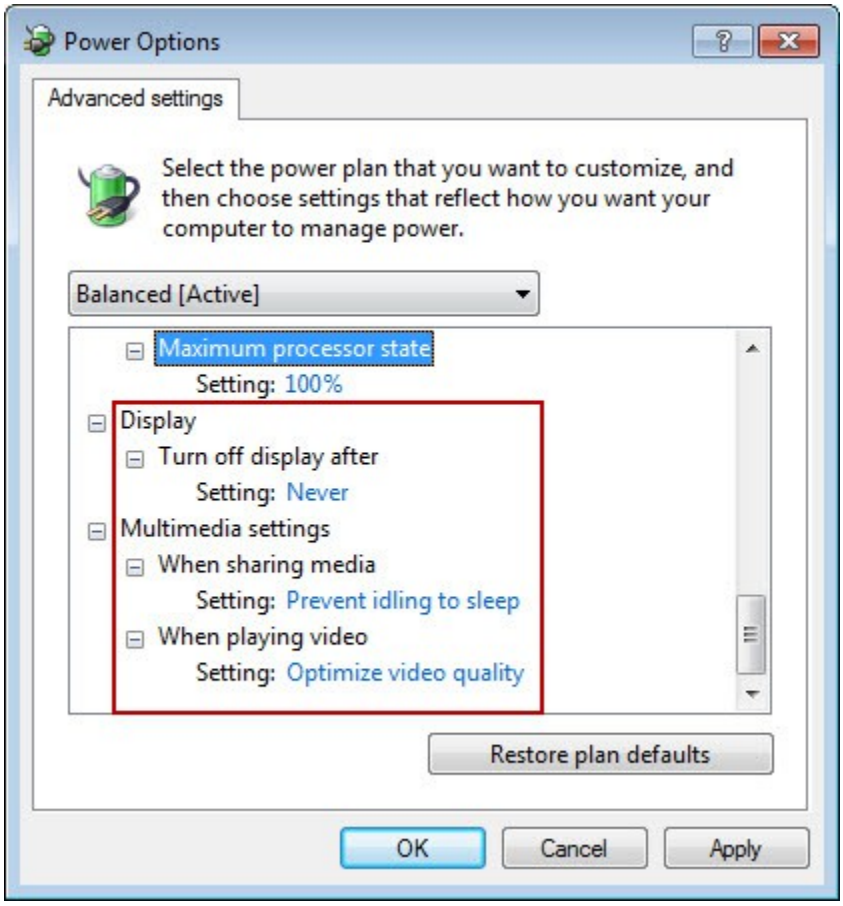


Figure 10-8

10.10 Optimize Client System Restore Point

1) Right-click "Computer", select "Properties".
2) In the pop-up "System" window, click "Advanced system settings".

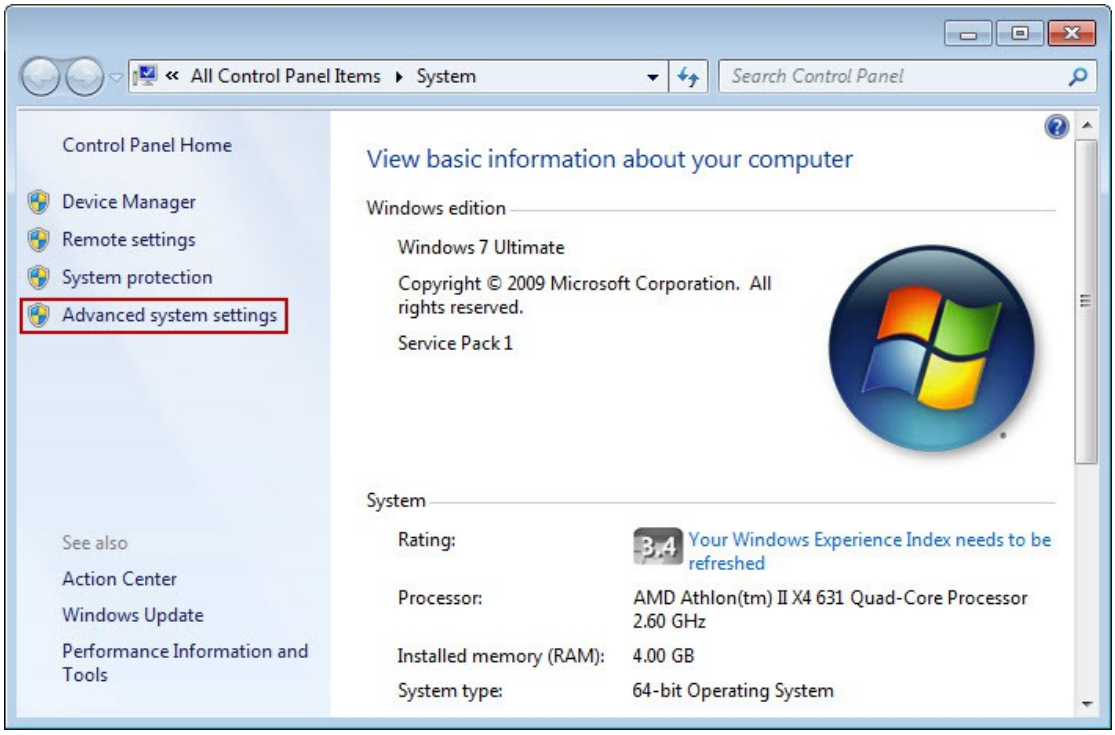


Figure 10-37

3) In the "System Properties" dialogue box, click "Configure" button, and the click "System Protection" tab.

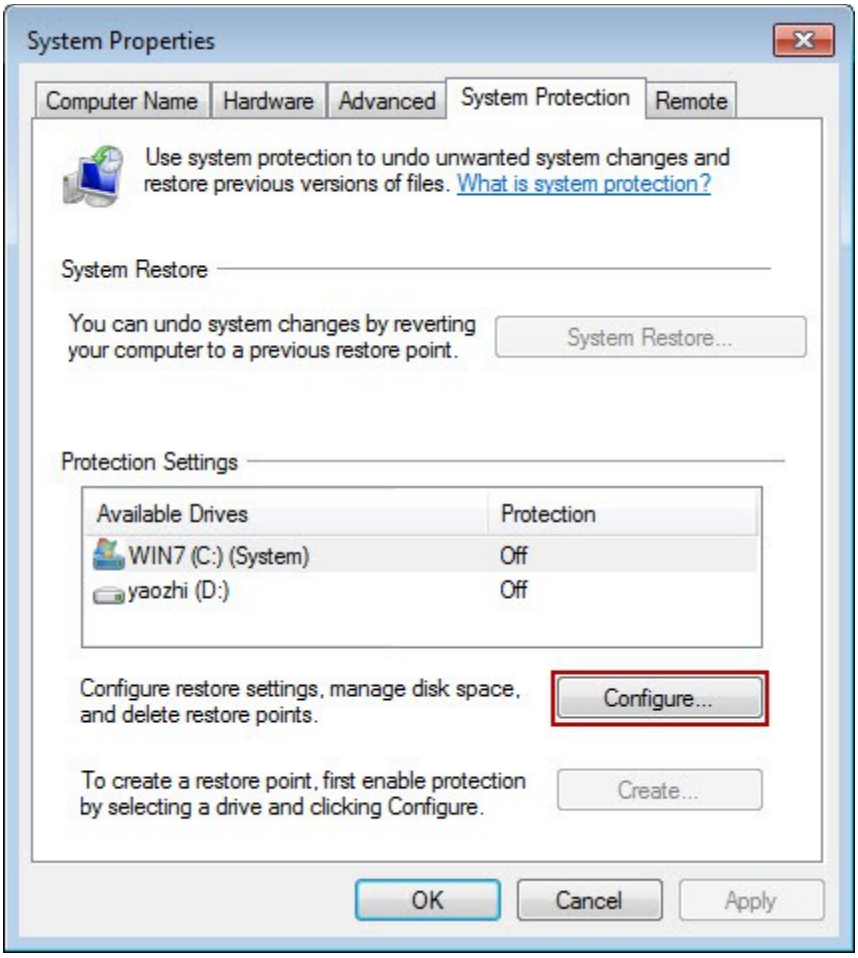


Figure 10-2

4) In the pop-up "System Protection for WIN7" dialogue box, select the "Turn off system protection" button; click the "Max Usage" slider, drag to the left; the disk space usage is set to the lowest; then click "Delete" button, delete the recovery point, then click "OK " button.

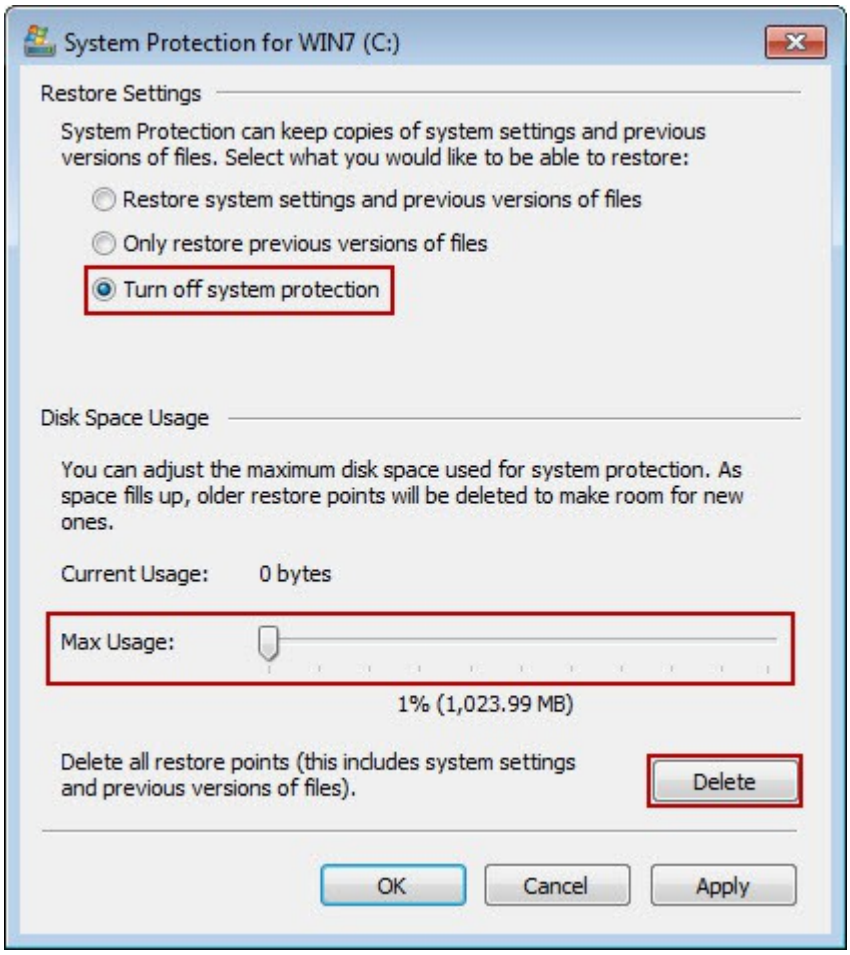


Figure 10-3

10.11 Client System Patches Installation

Operation steps:

1) Click "Start", in the "Run" edition box, enters "services.msc", and press Enter key.

In the pop-up "Service" window, double-click "Windows Update" service.

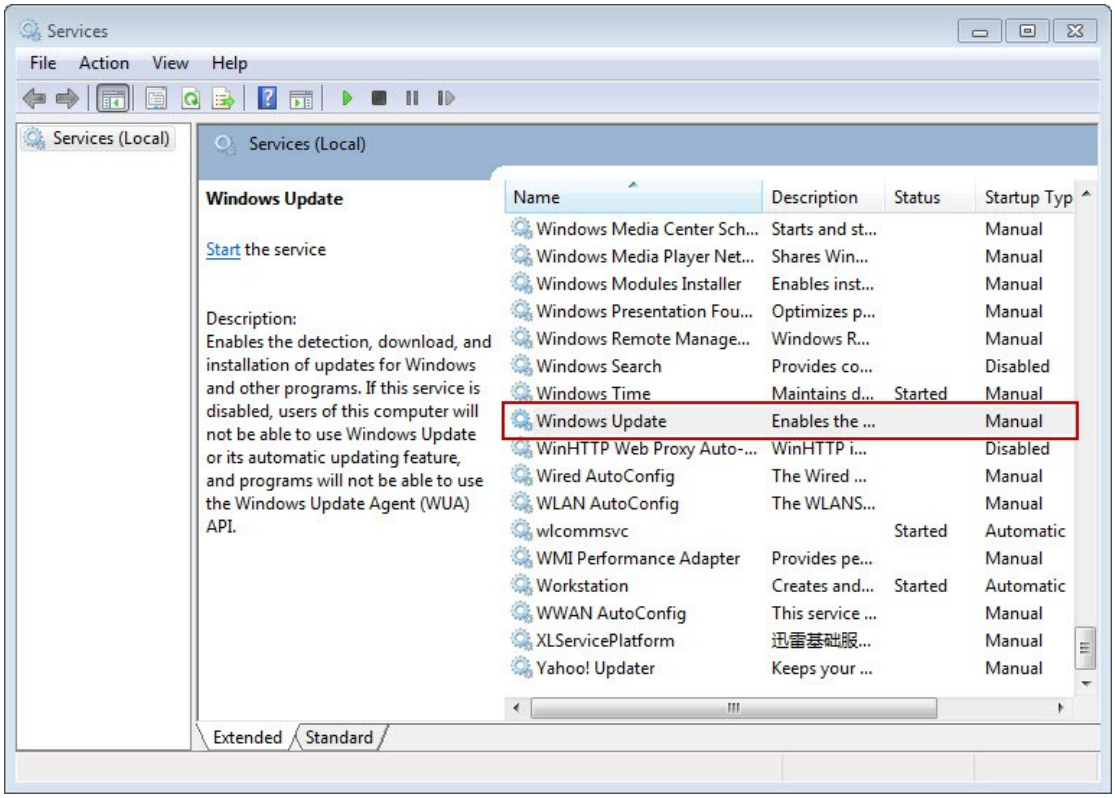


Figure 10-1

2) It will pop-up "Windows Update Properties" dialogue box, in the "Startup type" combo box, select "Manual", then click "Apply" button; Then click "start " button, start the service.

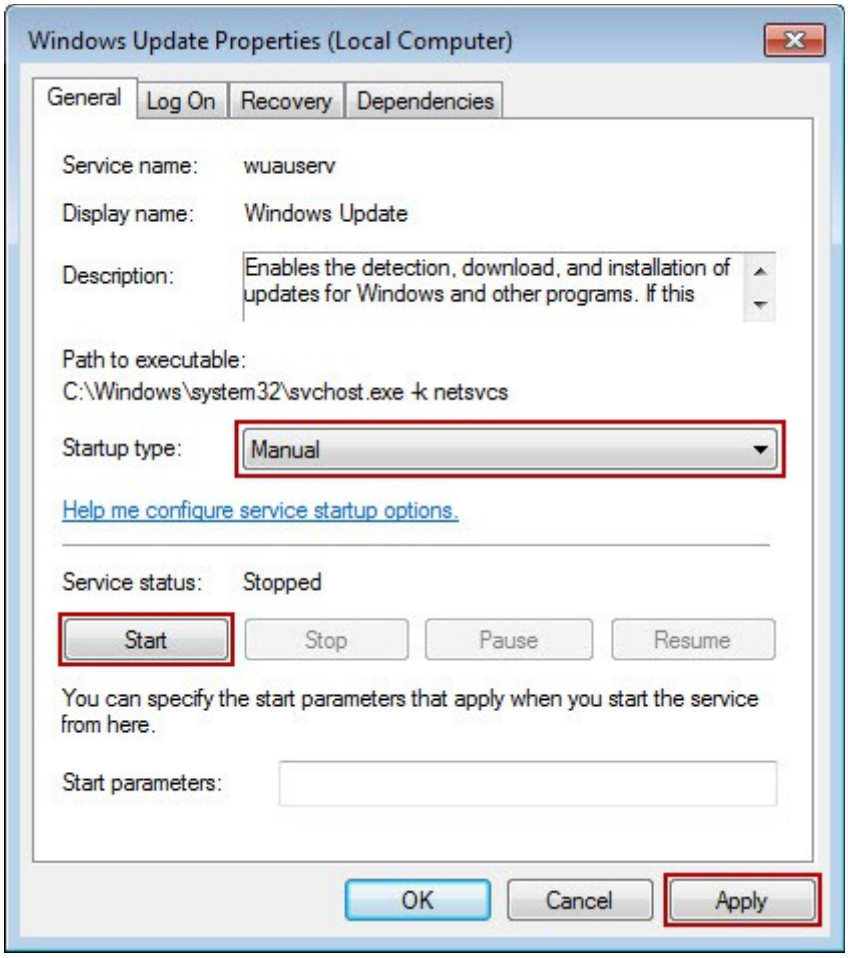


Figure 10-2

3) Click "Start" -> "Control Panel" -> "Windows Update", check for updates, and install the update.

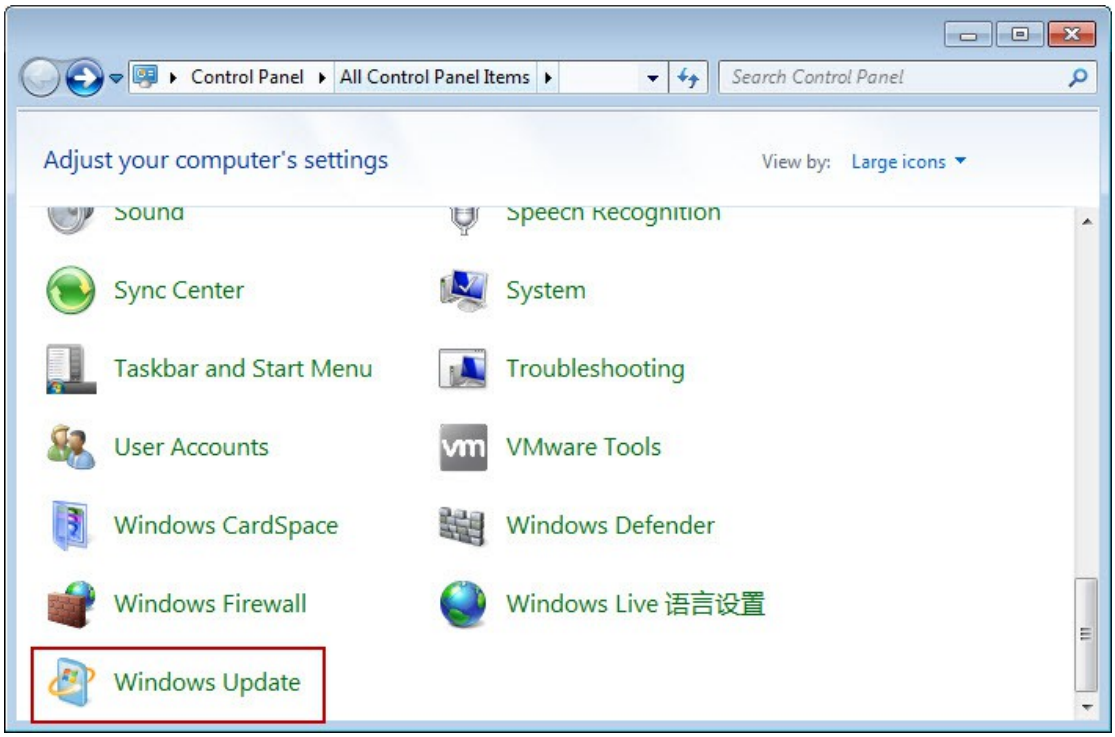


Figure 10-3

10.12 Client Services Optimization

Operation steps:

1) Download files from the website: http://www.ccboot.com/download.htm

(If the operating system is Win 7, download win 7 opt. zips; if the operating system is WinXP, download winxpopt.zip.)

2) Unzip the downloaded file, right-click "install.bat" file, select "Run as a administrator".

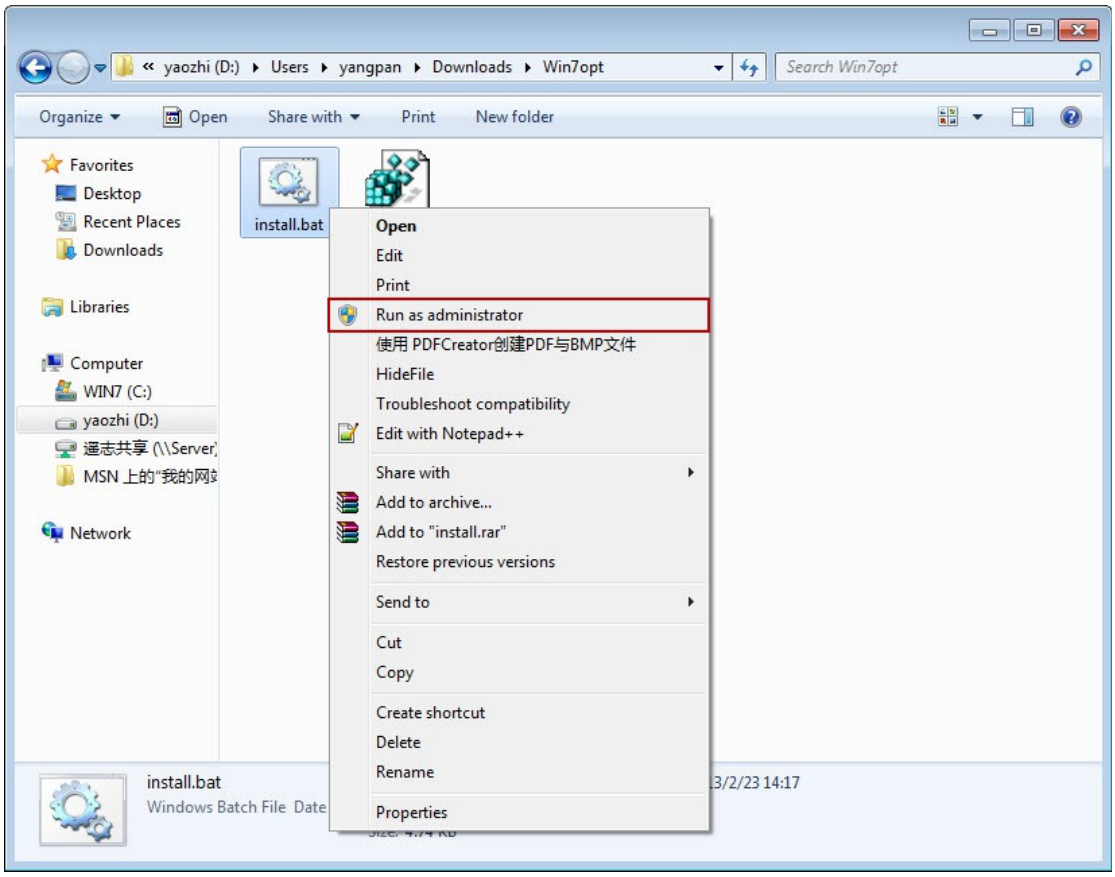


Figure 10-1

The successful operation results.

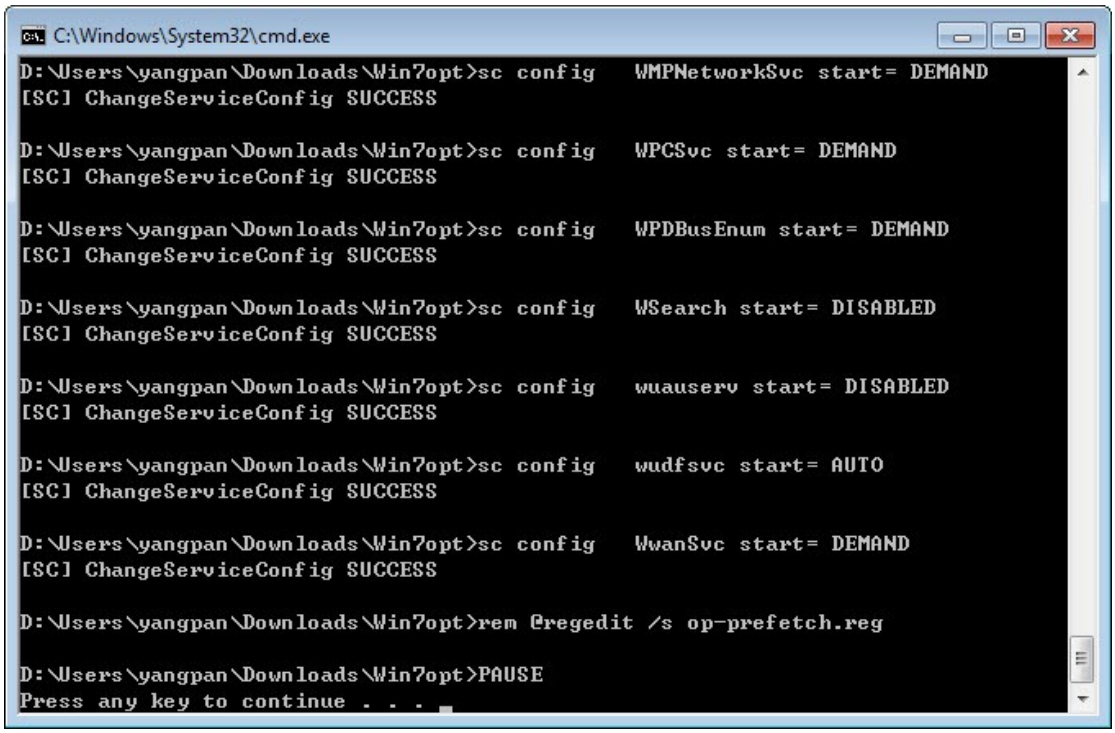


Figure 10-2

10.13 Client and Server UAC Optimization

1) Click "Start" button, in the "Run" edition box, enter "msconfig", and press Enter key.
2) In the pop-up "System Configuration" dialogue box, select "Tools" tab, and then select "Change UAC Settings"; Click "Launch" button.

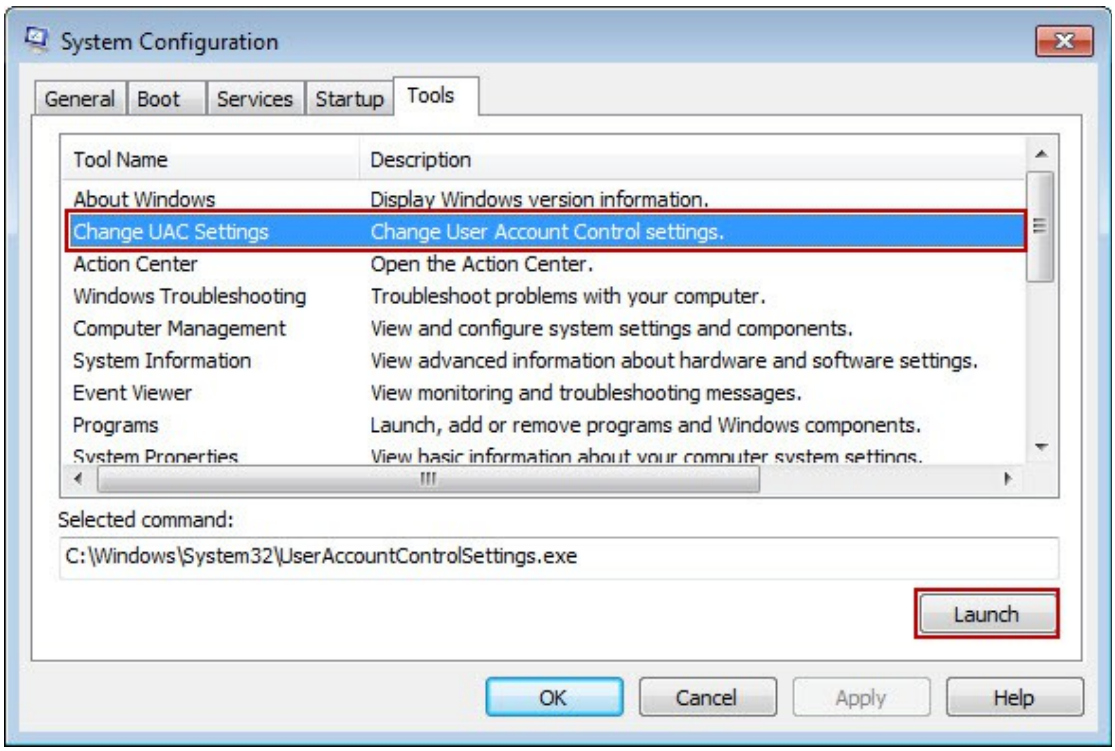


Figure 10-1

3) In the pop-up "User Account Control Settings" dialogue box, drag the slider down to set the UAC value for "Never notify."

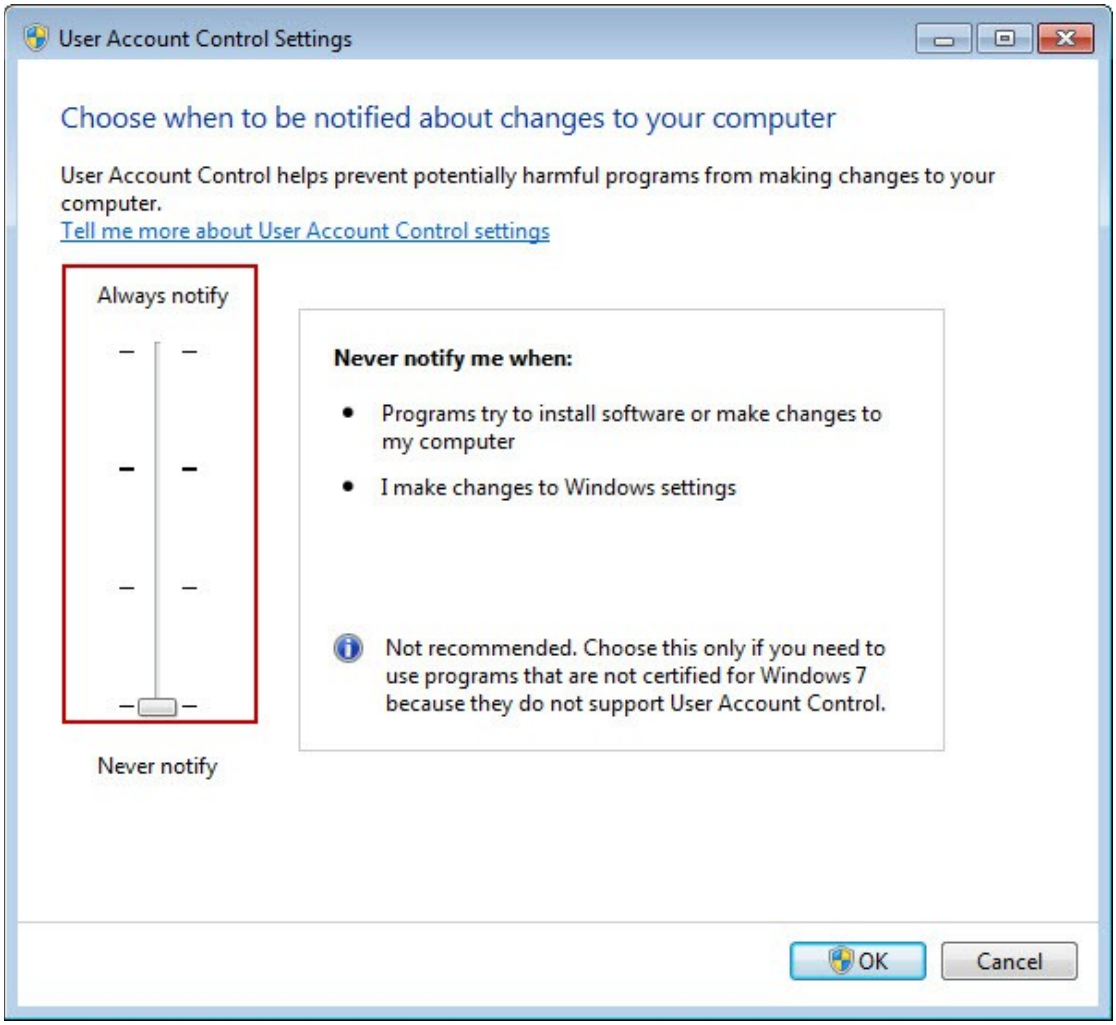


Figure 10-2

10.14 Removing Win7 x64 Watermark

In the win7-64 system, after installing the CCBoot client, it will have the "test mode" of the watermark, which is displayed in the lower right corner.

The methods of removing watermark:

1) Download RemoveWatermarkX64.zip file from the CCBoot official website. Download address: http://www.ccboot.com/download/RemoveWatermarkX64.zip
2) start the client with the super user mode (in the case of PC101))
3) Copy RemoveWatermarkX64.zip file to PC101, and extract the file, then double-click to run RemoveWatermarkX64.exe.
4) In the "Command line" window, enter "Y",and click the "Enter" button, run the program.

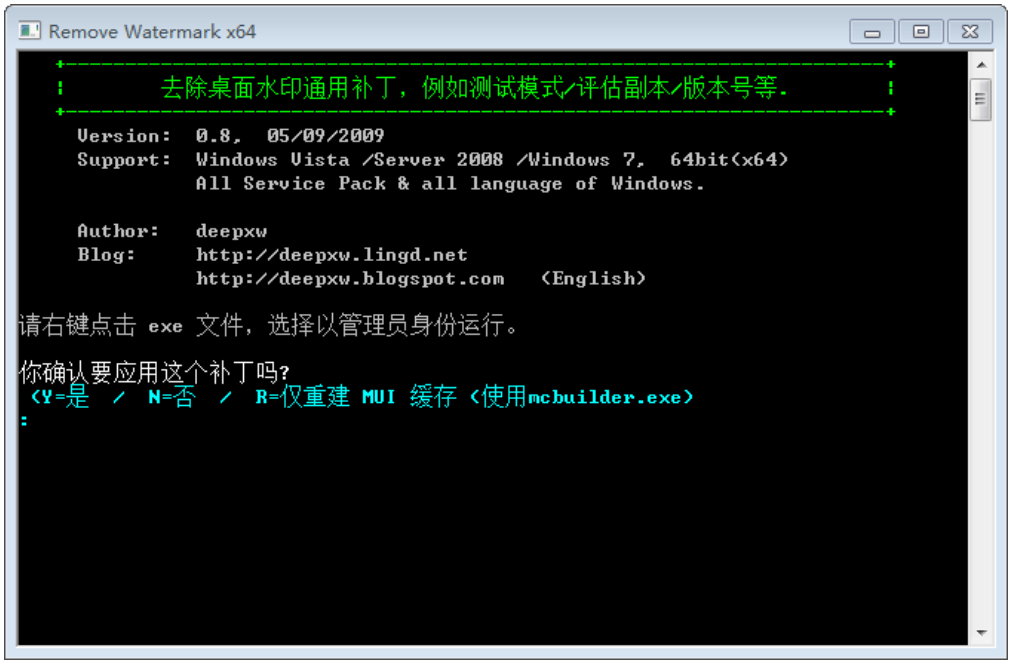


Figure 10-1

5) After the successful operation, close the client PC101.
6) On the CCBoot of the server, uncheck "super user".

10.15 Client Network Optimization

Network Properties: Please Retain the "Client for Microsoft Network" and "Internet Protocol Version 4 (TCP/IPv4) "and uninstall the other services.
Disable also the "Large Send Offload" , "Flow Control" and "Energy Efficient Ethernet" in NIC Properties.

10.16 Client XP System Optimization

In order to improve use CCBoot performance, in addition to the hardware configuration of the server and the client to improve outside another point is to do a good job system optimization.
System optimization is divided into: BIOS optimization, registry optimization, NIC optimization, optimize system settings.
Following we discuss some methods for system optimization. XP operating system, for example:

1. Client BIOS Optimization

1) If you do not connect IDE devices, "Standard CMOS Setup" in the "TYPE" and "MODE" is set to None.

2) CPU Internal Cache, External Cache is set to Enabled, open the CPU, secondary cache.
3) System Boot Up speed is set to High. The system boot speed to high speed.
4) Floopy Drive Seek At Boot is set to Disable. So start does not detect the floppy drive.
5) Above 1MB Memory Test is set to Disabled. Startup does not detect more than 1MB of memory.
6) Set the Boot Up Floppy seek Disabled. So start right floppy drive seek operations.
7) Video BIOS Shadow Enabled. Mapped into memory on the graphics card BIOS to improve the display speed.
8) System BIOS Shadow is set to Enabled. Mapped memory to improve the performance of the system BIOS.
9) Video BIOS Cacheable is set to Enable. The BIOS on the graphics card is mapped to the cache.
10) System BIOS Cacheable Enbaled. Motherboard BIOS is mapped to the cache.
11) Cache Timing Fastset.
12) SDRAM CAS Latency Time 3. Setting the delay time of the SDRAM. If your memory is not very good quality, will crash situation is greatly reduced.
13) VIA Apollo Pro Series motherboard BIOS chip, there is a "DRAM CLOCK" to change its value to HCLK +33, your memory will work under the frequency of the system FSB +33, if your CPU Celeron, that system performance will be very obvious, if your memory is not very good, you can have the value of "DRAM CLOCK" is set to "HOST CLK (system FSB) or the HOST-33." Apollo Pro series chips have a unique memory asynchronous technology.

Please carefully consider, this does not mean that each motherboard are required to do so, we proposed setting direction, according to their own environment to the correct settings.

2. Registry Optimization

2.1 Accelerate the startup and shutdown speed

1) Click the "Start" button, Run edit box, type "regedit" and press "Enter" on the keyboard keys.
2) In the Registry Editor window, expand "HKEY_CURRENT_USER \ Control Panel \ Deskto" change the "HungAppTimeout" value "200", and then change the value data "WaitToKillAppTimeout" "1000".
3) Expand the "HKEY_LOCAL_MACHINE \ System \ CurrentControlSet \ Control", change the value data "HungAppTimeout" "200", then change the value data "WaitToKillServiceTimeout" "1000".
4) Use Microsoft Bootvis.exe optimization startup speed. To Microsoft's official website to download bootVis.exe, running after decompression bootvis.exe, then select Trace under the next boot and driver delays, XP will restart the process, and record start data into a BIN file. Open this file "file \ open directory Trace election Optimize system under this optimization, please be patient.

2.2 Speed up menu display

1) Click the Start button, Run edit box, type "regedit" and press "Enter" on the keyboard keys.
2) In the Registry Editor window, expand "HKEY_CURRENT_USER \ ControlPanel \ Desktop" "MenuShowDelay" Change the value data to "0", after adjustment, if it appears the menu display too fast and not suited to those who "MenuShowDelay "change the value data to" 200 "only take effect after the restart.

2.3 make good use of CPU L2 Cache to speed up the overall performance

1) Click the Start button, Run edit box, type "regedit" and press "Enter" on the keyboard keys.
2) In the Registry Editor window, expand "HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Contro \ SessionManager \ MemoryManagement" "SecondLevelDataCache" Change the value data with the same CPU L2 Cache decimal value.
3) P4 1.6G L2 Cache is 256Kb, P4 1.6GA 512Kb L2 Cache, readers can query the network on the CPU L2 Cache information.

2.4 reduce multiple start waiting time

1) Open with Notepad "boot.ini" file in the C: \ directory under the "timeout" value by default (30 seconds) to require waiting for the digital archiving.
2) Click the "Start" button, type "msconfig" in the Run edit box in the "boot.ini" tab, modify the waiting time.

2.5 shutdown automatically shut down to stop responding program

1) Click the Start button, Run edit box, type "regedit" and press "Enter" on the keyboard keys.
2) In the Registry Editor window, expand HKEY_USERS \ DEFAULT \ Control Panel "AutoEndTasks" Value data changed to "1", canceled or restart can take effect.

2.6 shut down the system pre-reading

1) Click the Start button, Run edit box, type "regedit" and press "Enter" on the keyboard keys.
2) In the Registry Editor window, expand the "HKEY_LOCAL_MACHINE \ SYSTEM \ CurrentControlSet \ Control \ SessionManager \ Memory Management \ PrefetchParameters", the the "EnablePrefetcher" value is set to "0" to cancel the pre-reading function.

3. NIC Attribute Optimization

Mirror package, you do not do a good job, will affect client fluency; optimization of the operating system, directly affect client fluency; different network cards have different modes of operation, set different attributes allows machines diskless boot the effects, the following is the experience that, in practice, we derived.

3.1 NF NIC Advanced Settings

1) Checksum Offload: packet checksum advised to turn off.
2) Flow Control: Flow control, must be shut down.
3) IEEE802.1P Support: IEEE802.1P support the proposed closure.
4) Jumbo Frame Payload Size: The default is 1500 this is a new Gigabit network settings, hereinafter described in detail.
5) Low Power State Link Speed: the NIC energy conservation, be advised to turn off.
6) Network Address: modification of the MAC, the default does not exist, generally do not have to change.
7) Optimize For CPU / Throughput: settings for CPU, network card speed is limited, but the CPU usage will be low; the NIC performance can completely play if changed Throughput, CPU occupancy will rise a lot.
8) Segmentation Offload: be advised to turn off.
9) Speed / Duplex Settings Full Autonegotiation: generally do not have to be modified.
10) VLAN Id: defaults to "1" without modification.
11) VLAN Support: VLAN support, generally close.
12) Wake on Magic packet: Magic packet wake, it is recommended to close.
13) Wake on pattern: be advised to turn off.
14) WakeOnLAN From PowerOff: be advised to turn off.

3.2 Realtek 8168/8111 LAN Advanced Settings

1) 802.1Q/1P VLAN Tagging: be advised to turn off
2) Flow Control: be advised to turn off
3) Jumbo Frame: be advised to turn off
4) Offload Checksum: be advised to turn off
5) Offload TCP_LargeSemnd: be advised to turn off
6) Flow Control: Flow control, must be shut down

3.3 Realtek 8169/8167 NIC Advanced Settings

1) 820.1Q/1p VLAN Tagging is set to Disable
2) Flow Control is set to Disable
3) Junbo Frame is set to Disable
4) Offload Checksum set to Disable
5) Offload TCP_LargeSend set to Disable

3.4 Intel Pro 1000 NIC Advanced Settings

1) QoS Packet Tagging: set to "disabled"
2) Locally Administered Address: recommendations set "does not exist"
3) transfer descriptor: It is recommended to be set to "256"
4) wait for a connection: It is recommended to set to "ON"
5) Offload Transmit IP Checksum: recommended setting is "ON"
6) Offload Transmit TCP Checksum: recommended setting is "OFF"
7) Offload Receive IP Checksum: recommended setting is "ON"
8) Offload Receive TCP Checksum: recommended setting is "OFF"
9) wake-link settings: set to "disabled"

10) wake-up settings: set to "disabled"
11) records link status settings: set to "disabled"
12) Receive descriptor: proposed to be set to "256"
13) Jumbo Frames: It is recommended to be set to "Disabled"
14) Link Speed & Duplex: recommended setting is "1000 Mbps auto-negotiation."
15) Flow Control: recommended setting is "OFF"
16) Enable PME: recommended operating system is set to "control"
17) adaptive frame spacing adjustment: It is recommended to be set to "Enabled"
18) interrupt throttling rate: It is recommended to set to "OFF"

3.5 Other NIC common set

1) link down power saving: when disconnected off the power savings, it is recommended to enable.
2) link speed / duplex mode: connection speed NIC 10/100M adaptive, select the default of the auto negotiation. "
3) optimal performance: optimization settings, it is recommended to enable
4) receive buffer size: receive buffer size, select a maximum of 64k bytes.
5) wakeup on arp / ping wakeup on link change, wakeup using Apm mode these are the Wake on LAN feature, unwanted proposals closed.

4. Sound Card Settings

Set the sound card, cancel mute the microphone "MIC", then click "Start" -> "All Programs" -> "Accessories" -> "Entertainment" click "recorder", the test speech is normal. May encounter problems: Windows comes with a tape recorder, in 4G memory client may appear memory message, this is the Windows operating system flaws, and has not been repaired, so I do not need to care about this prompt.

5. Set the Graphics Card

Close the vertical synchronization of the graphics card.

6. NIC Settings

The close client NIC flow control, jumbo frames.
Such as Realtek NIC recommended a full range of settings:

1) Flow control must be shut down;
2) Giant frame advised to turn off;
3) Hardware efficacy and must be shut down;
4) Large Send burdens advised to turn off;
5) Environmental protection and energy saving advised to turn off.

7. Scheduled Task Optimization

1) Delete all scheduled tasks information. RealPlayer automatically update the tasks scheduled tasks exist, If you install the Sogou input method also exists Sogou input method the planned tasks, if the installation of the Google browser as well as Google input method, but also have Google software related to the timing upgrade tasks, all

the information can be deleted at the same time will not have any impact on the system.

8. Other Settings

1) Click the "Start" button in the edit box of "Run" enter "compmgmt.msc". Open the IDE ATA / ATAPI controllers. The conversion of non-automatic detection of the primary IDE channel and secondary IDE channel properties advanced settings inside.
2) To change the virtual memory to "System Management".
3) Delete the system useless files, delete system backup files: Click "Start" button in the "Run" edit box, enter "sfc.exe in the the / purgecache"; delete drive backup \ driver cache \ i386 directory of the driver cab file, which can reduce the capacity of the package.

10.17 Client WIN7 System Optimization

1. BIOS Settings

Do not disable the IDE / SATA devices, will have the chance to cause the Blue Screen WIN7 start.

2. Close Sleep

Run as administrator command prompt, manually enter "powercfg-h off, sleep mode is turned off, the the C disk hibernation file will be deleted.

3. Delete System Backup

Delete the backup, turn off system protection (Computer Right Properties - Advanced System Settings - System Protection).

4. Delete Redundant Files

C: \ Boot (13.3M) directory, a Windows startup interface with different languages, in addition to zh-CN, the other can be deleted, such as:

C:\Windows\Help
C:\perflogs\System\Diagnostics
C:\Windows\Downloaded Installations
C:\Windows\IME\IMEJP10
C:\Windows\IME\imekr8
C:\Windows\IME\IMETC1
C:\Windows\winsxs\Backup
C:\Users\Public\Music\SampleMusic
C:\Users\Public\Recorded TV\Sample Media

Files in these directories can be deleted encountered the problem of insufficient permissions, you can delete these files start with PE system.

5. Need to Shut Down the Service

Base Filtering Engine: firewall-related
DNS Clint: DNS local cache
IKE and AuthIP IPsec Keying Modules: firewall-related
IP Helper: IP V6 Related
IPsec Policy Agent: port prohibition related local security policy
Print Spooler: Printer
Security Center: Security Center
SSDP Discovery: UPNP gateway device discovery
Windows Firewall: Firewall related
Windows Update: Automatic upgrade
Memory is less than 4G disabled:
Superfetch: small file dedicated cache management
Server: Server service provides file sharing, remote management, and other services.
Computer Browser: Browse all the computers on the Network Neighborhood
Application compatibility checks Assistant Program Compatibility Assistant Service:
Windows Error Reporting Service: Windows Error Reporting
If you do not need access to sharing continue to disable the TCP / IP NetBIOS Helper Workstation.

6. Desktop Icon

WIN7 desktop IE icon, copy the following REG file, you can import
Windows Registry Editor Version 5.00
HKEY_LOCAL_MACHINE \ SOFTWARE \ Microsoft \ Windows \ CurrentVersion \ Explorer \ Desktop \ NameSpace \ {00000000-0000-0000-0000-100000000001}
@ = "Internet Explorer"

7. Virtual Memory

"Virtual Memory" dialog box, uncheck the "Automatically manage paging file size for all drives" check box and click the "OK" button (Figure 1-1).

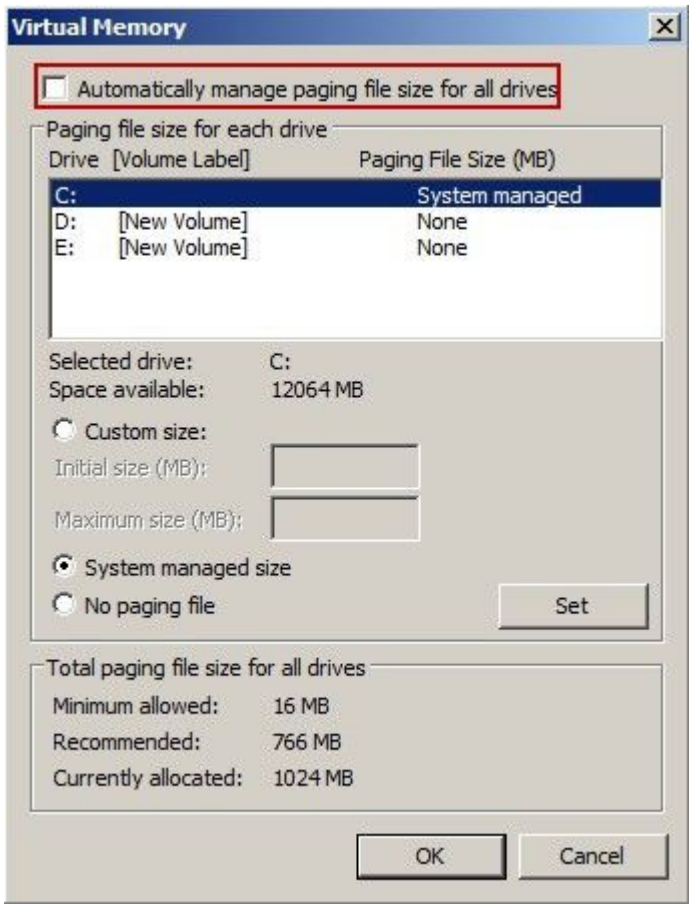


Figure 1-1

8. System Restore Point Management

Operating system restore point management: a detailed reference to the "System Restore Point Management".

9. UAC Settings

UAC settings: a detailed reference to the UAC Setup ".

10. NIC Close Flow Control

Close NIC flow control: Detailed reference "Client network optimization".

11. Service Optimization

Service optimization: a detailed reference to the "System Optimization.

10.18 Client Windows 8 System Optimization

1. UAC Optimization

Run -> msconfig -> Tools -> Change UAC Settings -> Launch -> Never notify

2. Page File Optimization
Computer -> Properties -> Advanced system settings -> Advanced -> Settings -> Advanced -> Change -> Uncheck "Automatically manage paging file size of all drives" -> System managed size -> Set -> OK

3. System Protection Optimization
Computer -> Properties -> Advanced system settings -> System Protection -> Configure -> Disable system protection -> Delete

4. Windows Defender Optimization
Ctrl + F -> Apps -> defender -> Settings -> Real-time protection-> Uncheck "Turn on real-time protection" -> Administrator -> Uncheck "Turn on Windows Defender"

5. Network Adapter Optimization
Computer -> Manage -> Device Manager -> Network adapters -> Uninstall Microsoft Kernel Debug Network Adapter

6. Network Optimization
Network -> Properties -> Uninstall all but keep "Client for Microsoft Networks", "File and Printer Sharing for Microsoft Networks", "IPv6", "IPv4". Uncheck IPv6.

7. Disable Windows Update Service
services.msc -> Windows Update -> Disabled

8. Active Center Optimization
Active center -> change action center settings -> uncheck all

9. Install CCBoot Client

10.19 Clients Virtual Memory Management

1) Right click "Computer" and select "Properties".
2) In the pop up system interface, click "Advanced System Settings".
3) Click the "Advanced" tab in the pop up "System Properties" dialog box, and then click the "Settings" button in the "Performance" column (Figure 1-1).

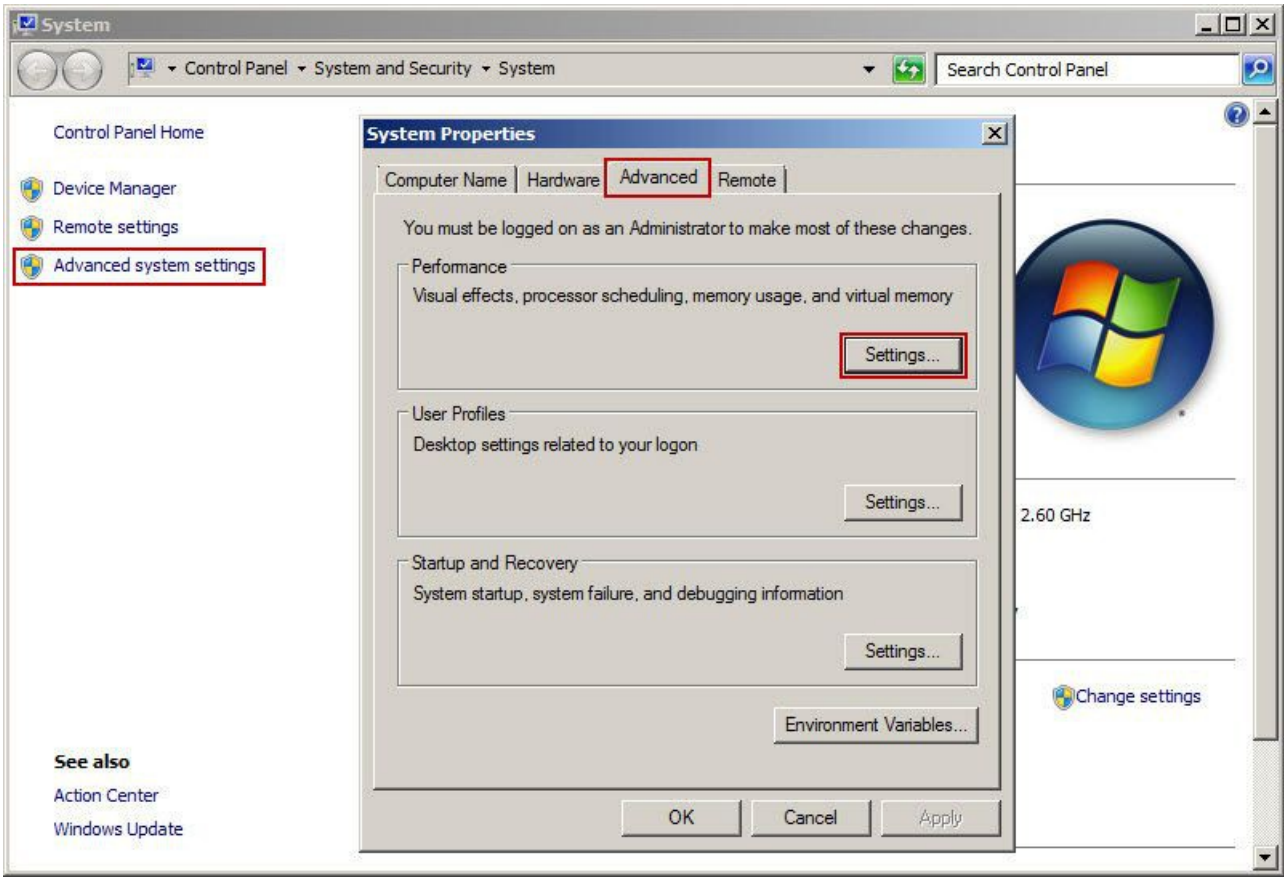


Figure 1-1

4) In the pop up "Performance Options" dialog box, click the "Advanced" tab, and then click the "Change" button.
5) In the pop up "Virtual Memory" dialog box, uncheck the "Automatically manage paging file size for all drives" check box, and click Drive C, then select the "System managed size" radio button and click the "Set" button. Finally, click the "OK" button (Figure 1-2).

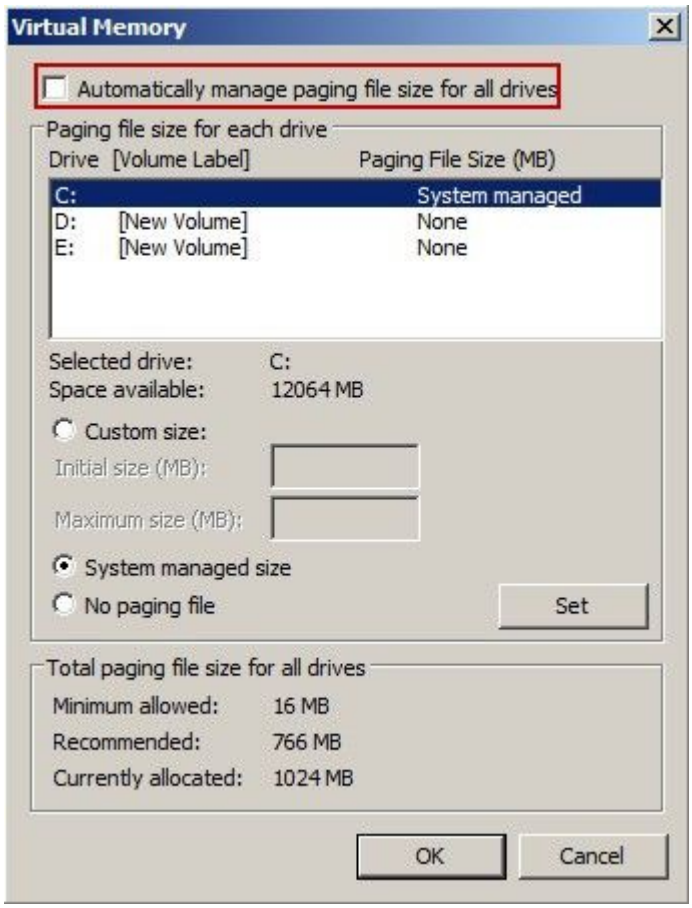


Figure 1-2

10.20 Server Optimization

Enable AHCI in the Server BIOS
http://www.ccboot.com/wiki-server-bios-sata-configuration.htm

Server Hard Disk Allocation
http://www.ccboot.com/wiki-server-hard-disk-allocation.htm

Server Network Optimization
http://www.ccboot.com/wiki-server-network-optimization.htm

Server Cache Settings
http://www.ccboot.com/wiki-server-cache-settings.htm

Super Cache Installation
http://www.ccboot.com/wiki-super-cache-installation-method.htm

Virtual Memory Optimization

http://www.ccboot.com/wiki-servers-virtual-memory-management.htm

Server UAC Optimization
http://www.ccboot.com/wiki-client-uac-setup.htm

10.21 Client Optimization

Improve the Win7 Boot Speed
http://www.ccboot.com/wiki-how-to-improve-win7-boot-speed.htm

Client Network Optimization
http://www.ccboot.com/wiki-server-network-optimization.htm
http://www.ccboot.com/wiki-client-network-optimization.htm

Client Local Cache Settings
http://www.ccboot.com/wiki-the-clients-local-cache-settings.htm

Client Power Options Optimization
http://www.ccboot.com/wiki-client-power-setting.htm

Optimize Client System Restore Point
http://www.ccboot.com/wiki-client-system-restore-point-management.htm

Client System Patches Installation
http://www.ccboot.com/wiki-client-system-patches-installation.htm

Client Services Optimization
http://www.ccboot.com/wiki-client-system-optimization.htm

Client UAC Optimization
http://www.ccboot.com/wiki-client-uac-setup.htm

Removing Win7 x64 Watermark
http://www.ccboot.com/wiki-remove-64bit-water-mark.htm

Client XP System Optimization
http://www.ccboot.com/wiki-client-xp-system-optimization.htm

Client WIN7 System Optimization
http://www.ccboot.com/wiki-client-win7-system-optimization.htm

Clients Virtual Memory Management

http://www.ccboot.com/wiki-clients-virtual-memory-management.htm

10.22 Write-back Disk Optimization

When playing online games, if the clients freeze, please check the server performance (Figure 1-1; Figure 1-2).

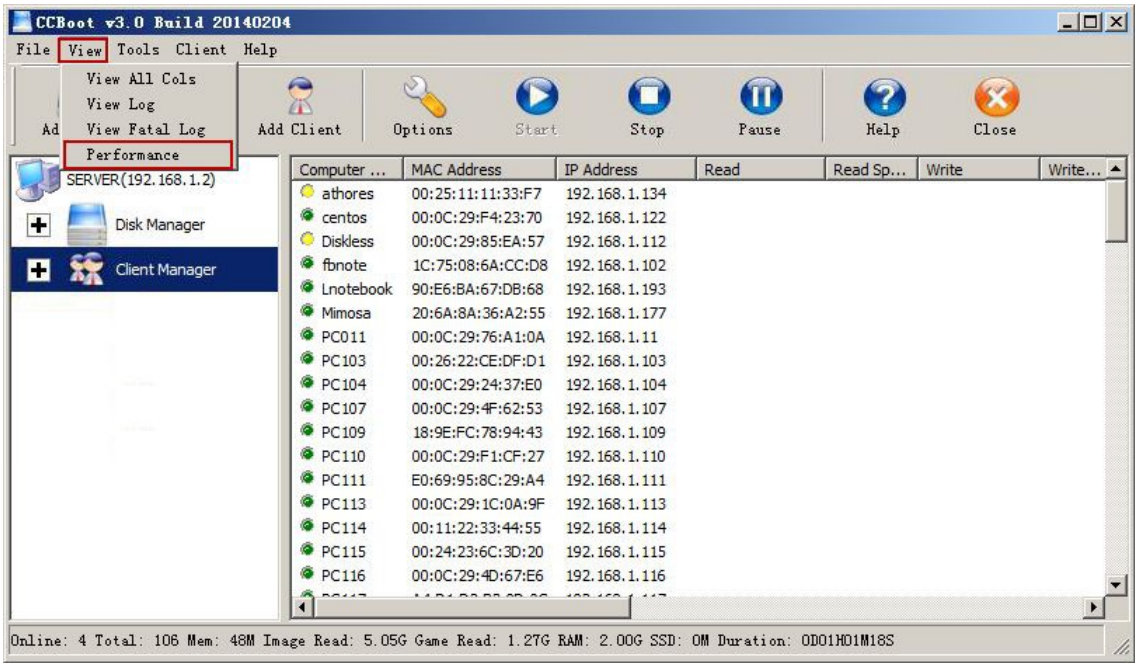


Figure 1-1

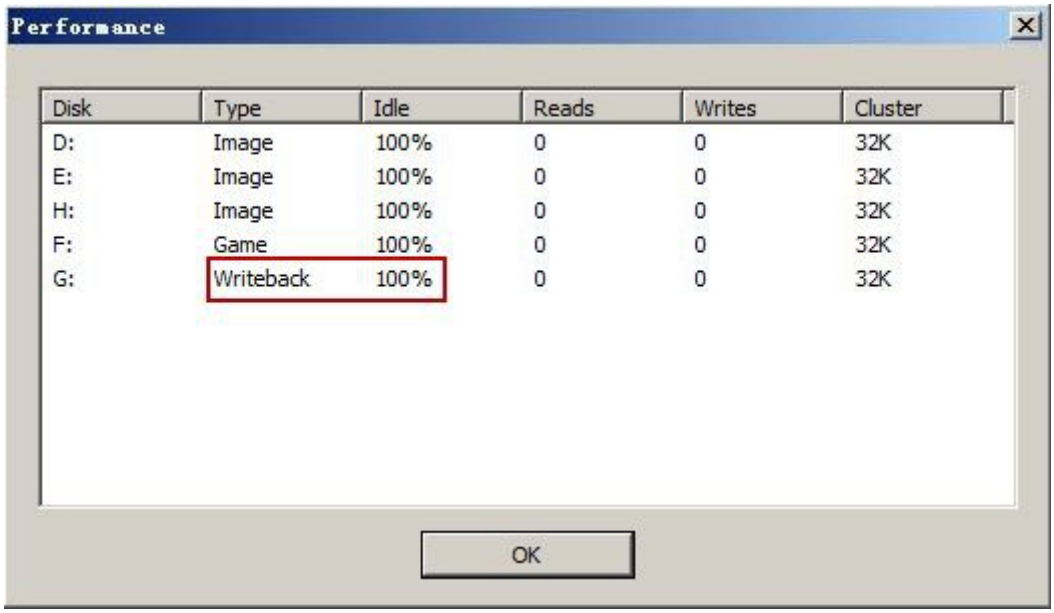


Figure 1-2

If the "Idle" Value of the Write-back disk is too low (below or around 10%) for about 20 seconds, then it may be the write-back disk problem, you should make some optimizations for it, see the following steps. [Note: If other disks' "Idle" Value is too low (Image Disk or Game Disk), it may be the disk cach settings problem, for details, please refer to "Disk Cache Settings and Recommend".]

1) Enable the client cache.
2) One write-back disk is not enough. Normally, if there are more than 25 client PCs, we recommend using two or more write-back disks. If you have mutiple write-back disks, please check whether they have been allocated properly.

a. On CCBoot main interface, right click "Client Manager", and then click "Auto Allocate Write-back" (Figure 1-3).

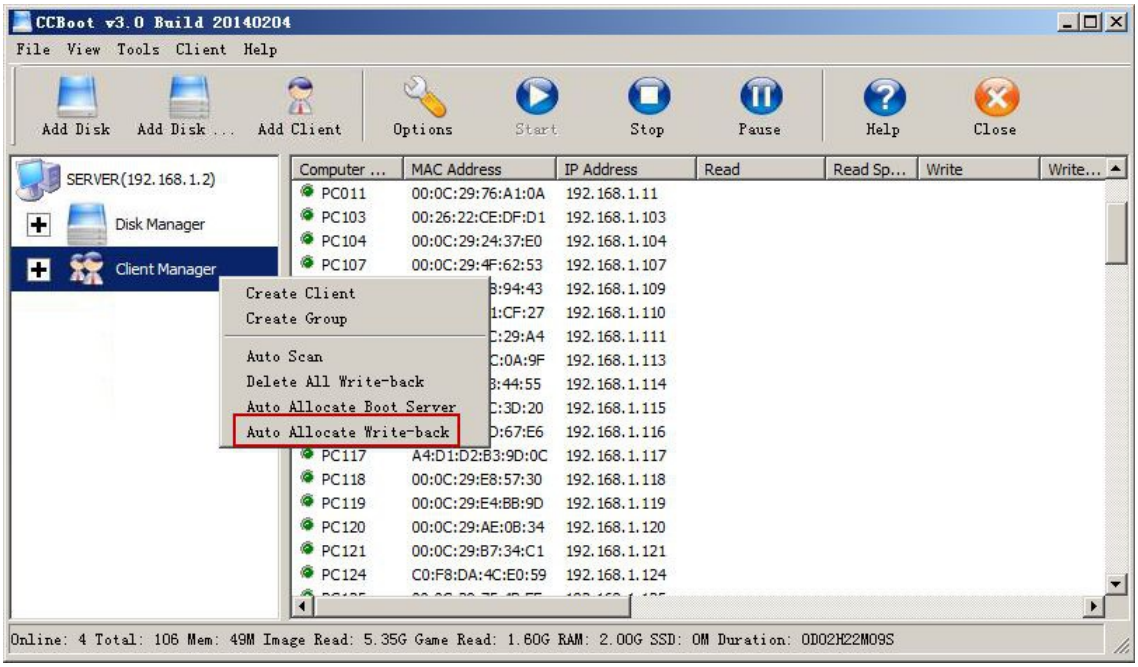


Figure 1-3

b. In the pop up "Write-back File Path Settings" dialog box, click the "Add" button to add your write-back disks, and then click the "OK" button (Figure 1-4).

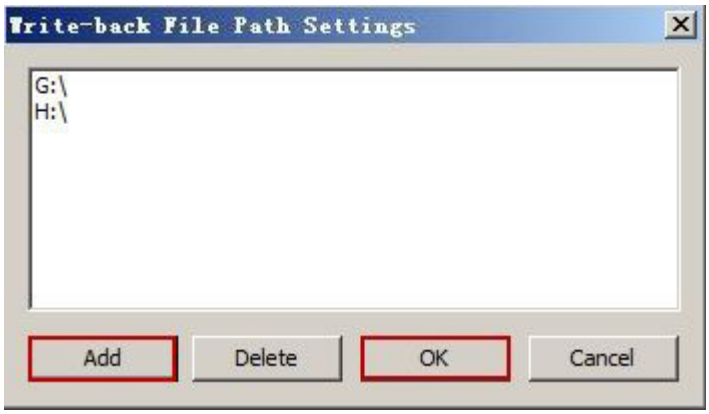


Figure 1-4

c. You will see the write-back disks have been auto allocated (Figure 1-5).

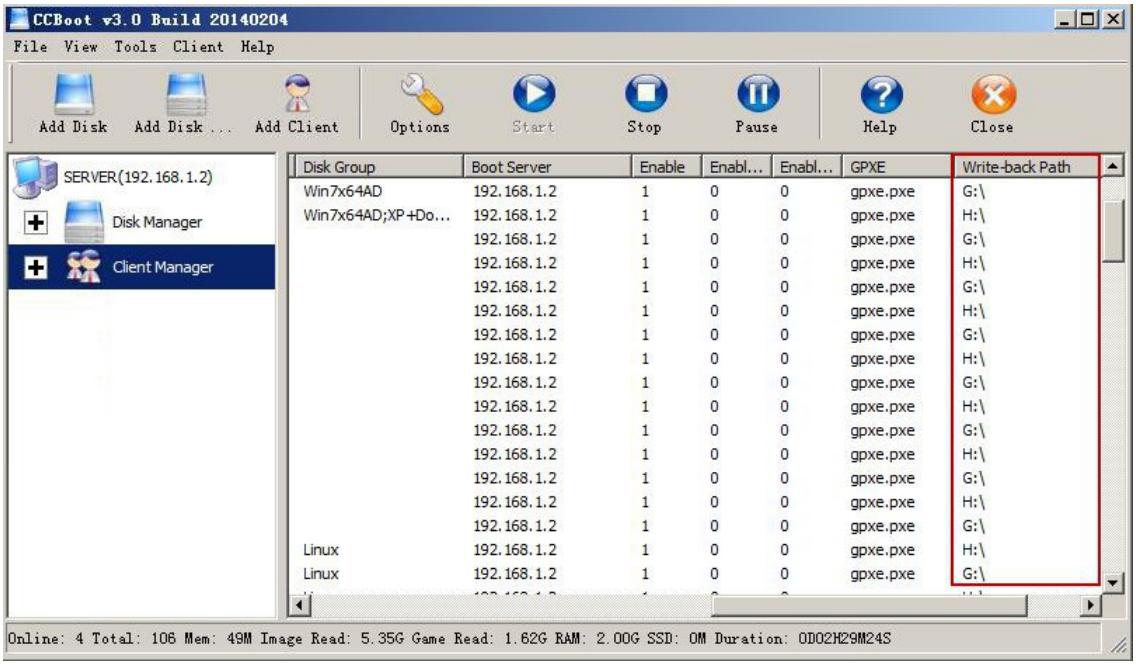


Figure 1-5

3) Enable Write-back disk cache.

Method 1: Enable system write cache (Figure 1-6).

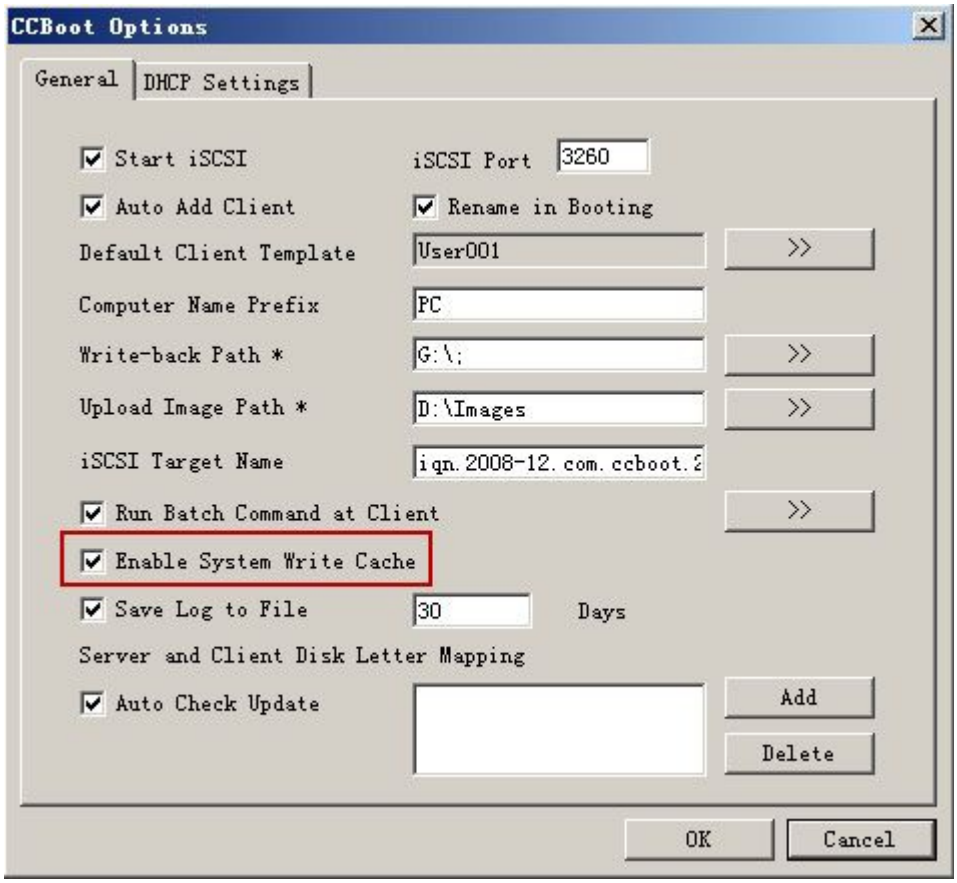


Figure 1-6

Method 2: Using super cache.

4) Check whether there is any program whose write-back speed value is very large on the client. If there is, find it and then stop its service. For details, please refer to "Find Large Write-back Speed Program". If you are using Windows 7, check whether it is installed with the latest patches. If not, please install the latest patches in your Windows 7.

11 Load balance

Before reading this chapter, please get to know the data settings for CCBoot.

11.1 Single Server and Multi NICs Load Balance

Suppose one server with two network card (IP is 192.168.1.253 and 192.168.1.254) and two write-back disks

Operation process for realizing load balance is as below:

1) Choose "DHCP Settings" tab in dialog box of "CCBoot Options", and choose "0.0.0.0" in combo box of "DHCP Server IP", then click "OK" button.

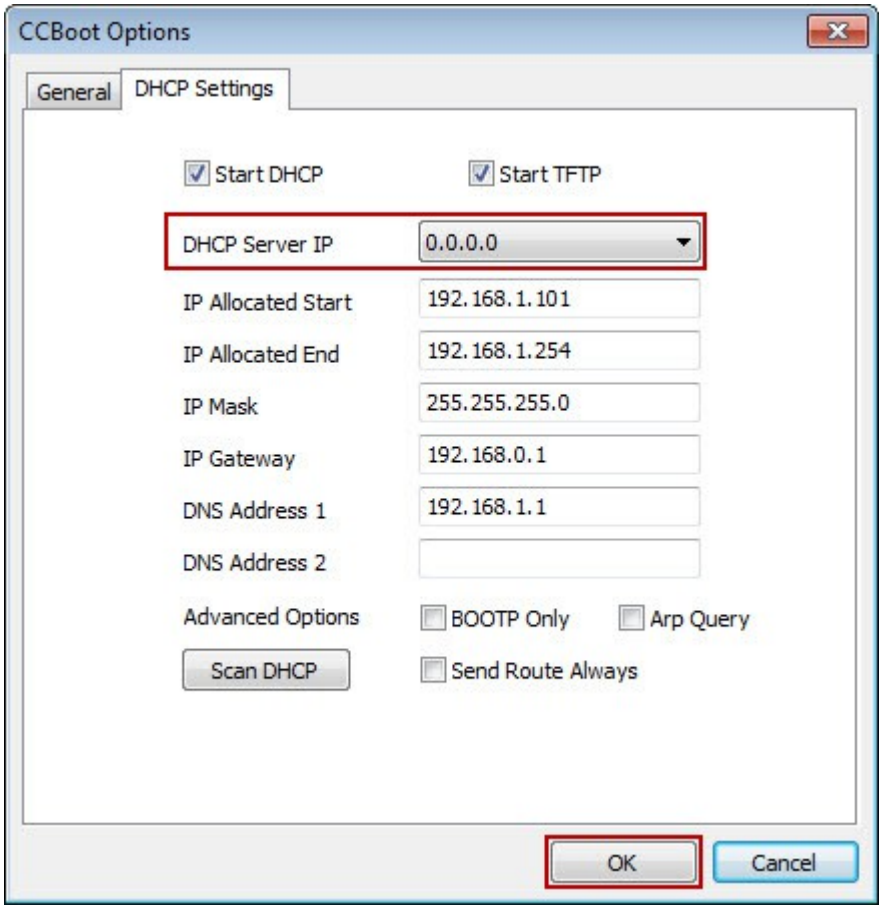


Figure 11-38

2) Right-click "Client Manager" on CCBoot main interface, then clicks and chooses "Auto Allocale Boot Server".

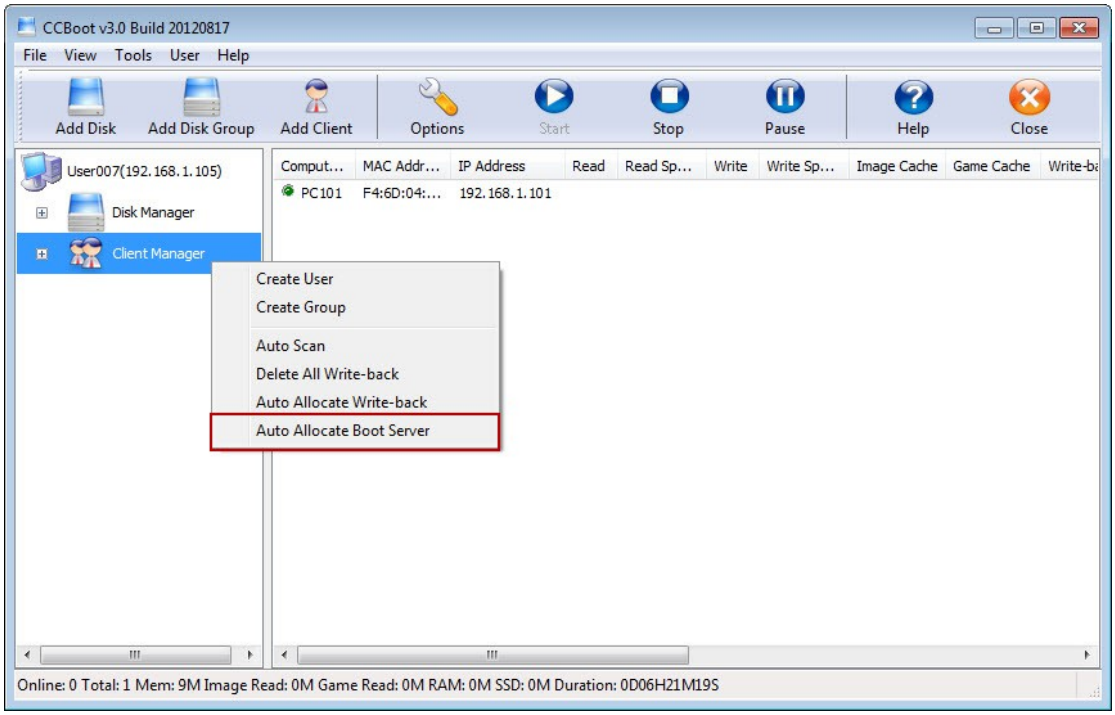


Figure 11-39

3) In popup dialog box of "Server List Settings", enter IP address for first network card of server, then click "Add" button, and then enter IP address for second network card, click "Add" button, and click "OK" button at last.

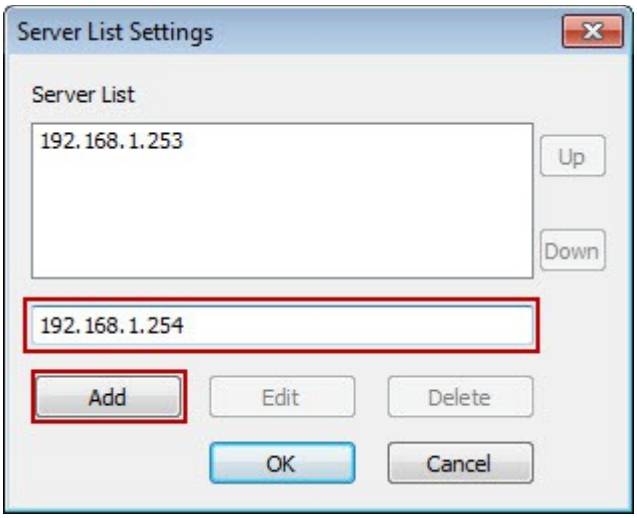


Figure 11-40

4) Right-click "Client Manager" on main interface of CCBoot, clicks and choose "Auto Allocale Write-back".

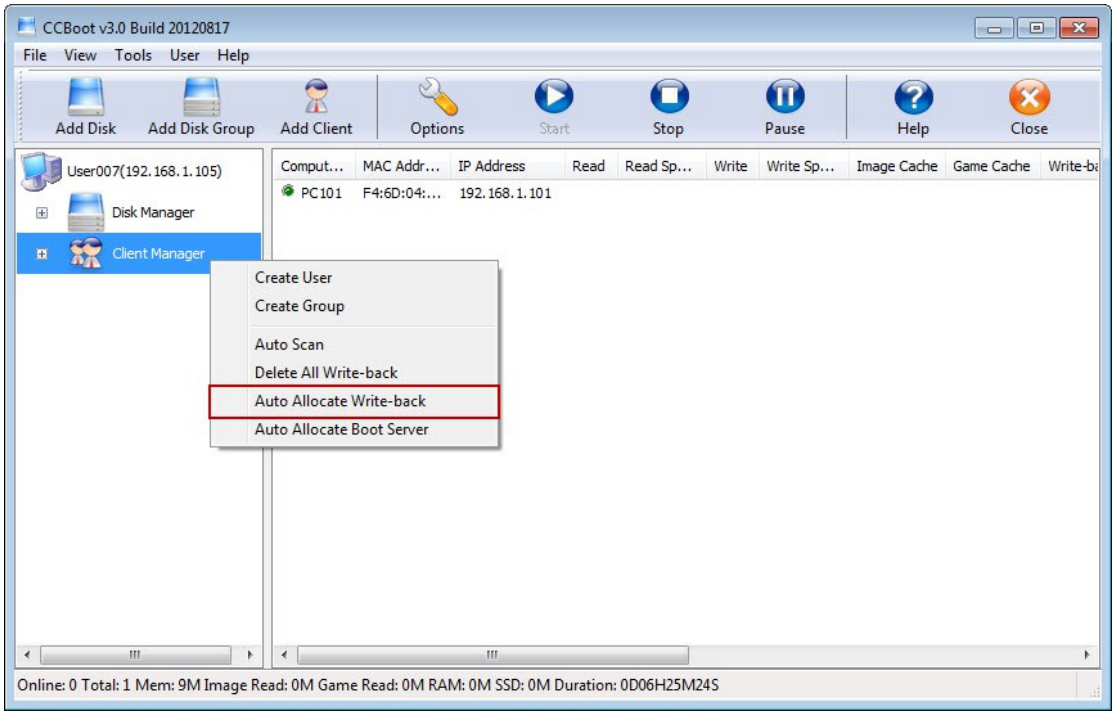


Figure 11-41

5) In popup dialog box of "Write-back File Path Settings", click "Add" button. Choose path of write-back disk (Such as: D :\), then click "Add" button. Choose another path of write-back disk (Such as: Z :\) in popup dialog box, and set several write-back disks as these procedures.

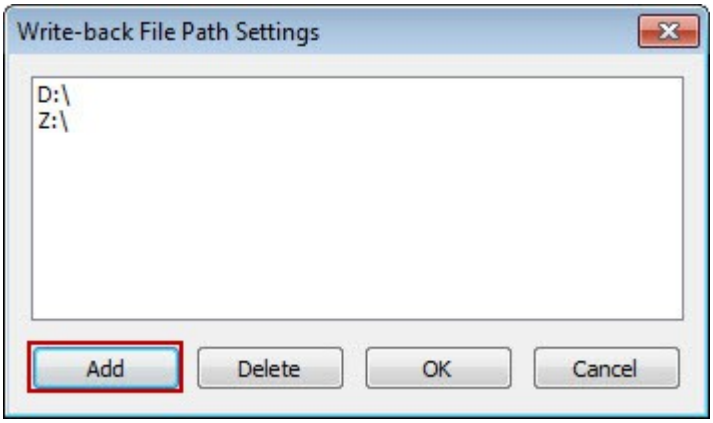


Figure 11-42

Start client-side as following process after successful settings:

1) The first client-side will be started by server with IP "192.168.1.253"
2) The second client-side will be started by server with IP "192.168.1.254"
3) The client-side will start by circularly choosing the server as above rules

Sequence of write-back file

1) The first client-side write back file to the first write-back disk of server, and the second client-side write back file to the second write-back disk of server
2) The client-side circularly write file on two write-back disk of server as above rules

11.2 Multiple Severs Load Balance

If there are two or several CCBoot servers (e.g. server A and server B), and IP for server A is 192.168.1.253, and IP for server B is 192.168.1.254. The setting procedures are as below:

1) Right-click "Client Manager" on main interfaces of CCBoot, and then click and choose "Auto Allocale Boot Server".

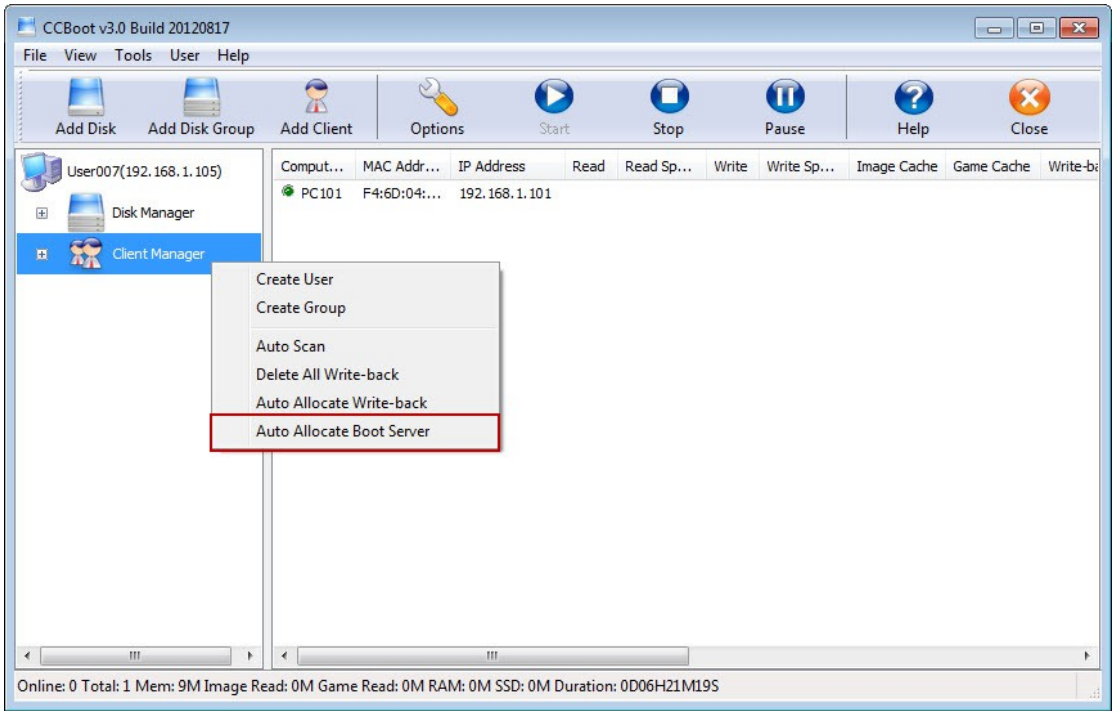


Figure 11-1

2) Enter server IP address In popup dialog box of "Server List Settings", then click "Add" button and enter server IP address, then click "Add" button, and lastly click "OK" button.

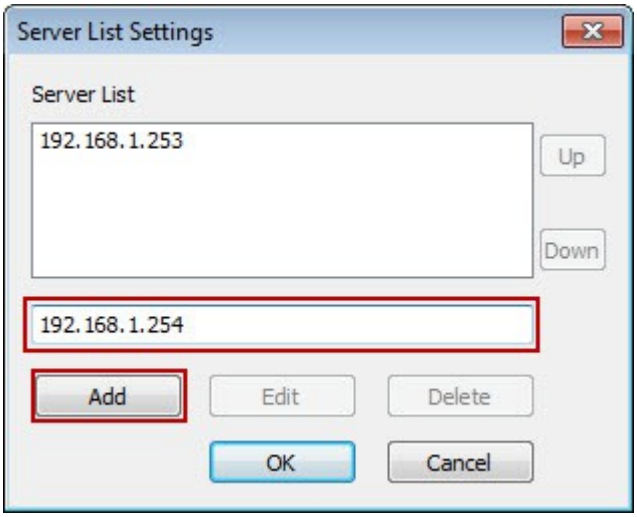


Figure 1-2

3) Right-click "Client Manager" on main interface of CCBoot, then clicks and chooses "Auto Allocale Write-back".

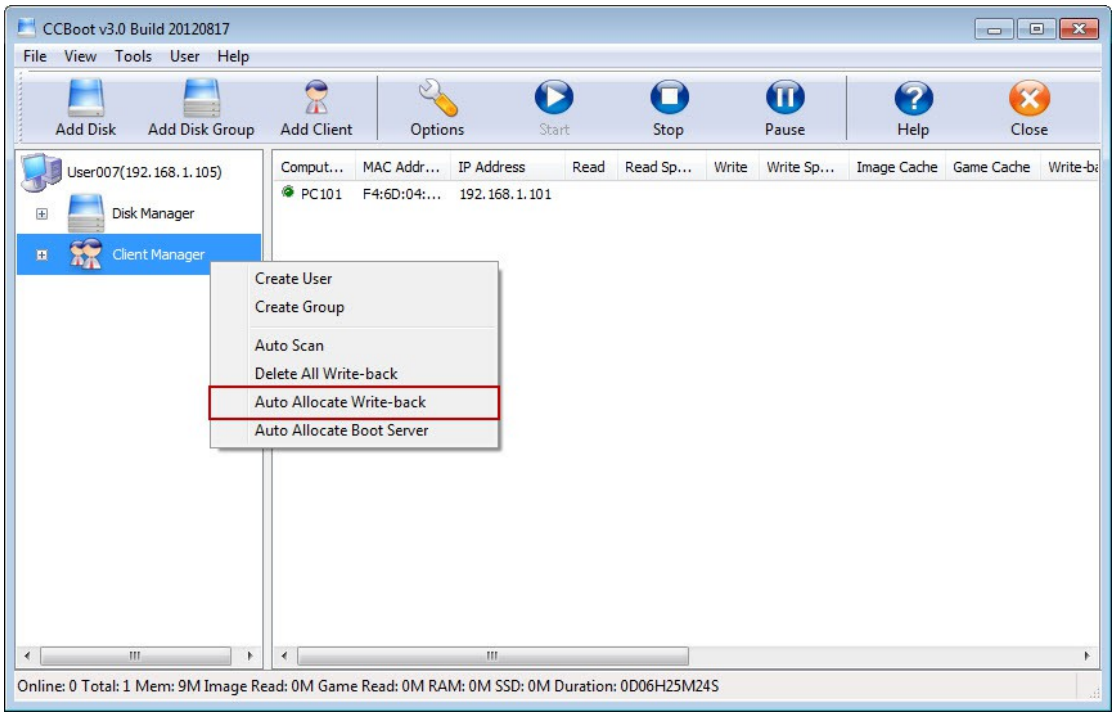


Figure 11-3

4) Click "Add" button in popup dialog box of "Write-back File Path Settings". Choose path of write-back disk (such as: D/) in popup dialog box, then click "Add" button. Choose path of another write-back disk (such as: Z/) in popup dialog box and set

several write-back disks as this procedure.

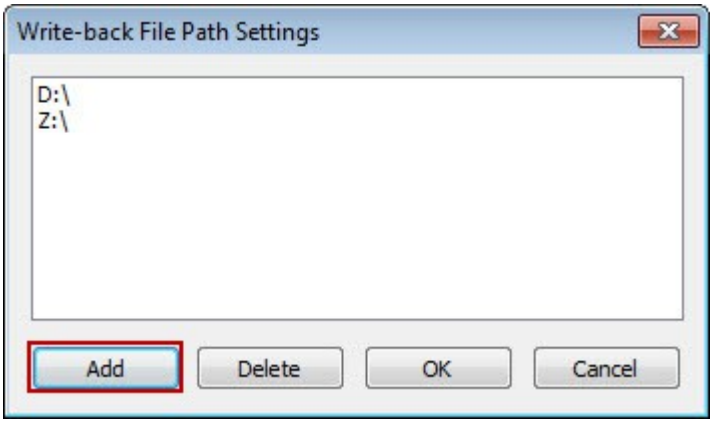


Figure 11-4

5) Open CCBoot installation catalogue of server A, and copy configuration files of "CCBoot.ini" and "db.xml".
6) Open CCBoot installation catalogue of server B, and use copied file to replace configuration files of "CCBoot.ini" and "db.xml".
7) Restart CCBoot on server B and reset CCBoot data.

After settings, the client-side will be started as following procedures:

1) The first client-side will be started by server with IP "192.168.1.253". If "192.168.1.253" is closed, then client-side will be started by server with IP "192.168.1.254", priority from "192.168.1.253".
2) The second client-side will be started by server with IP "192.168.1.254". If "192.168.1.254" is closed, then client-side will be started by server with IP "192.168.1.253", priority from "192.168.1.254".
3) Client-side will circularly choose server to start as these rules.

Sequences of write-back files

1) The first client-side write back the file to first write-back disk of server, and the second client-side write back the file to second write-back disk of server
2) The client-side circularly write file to two write-back disks of server as these rules.

12 Troubleshoots

12.1 Find PCI Vendor and Device ID of Client NIC

Right click "My Computer" -> click "Manage" to open the "Computer Management" window -> "Device Manager" -> "Network Adapters" -> double click the current network adapter to open the adapter properties dialog box -> click "Details" tab then you will find the PCI Vendor and Device ID as bellow.

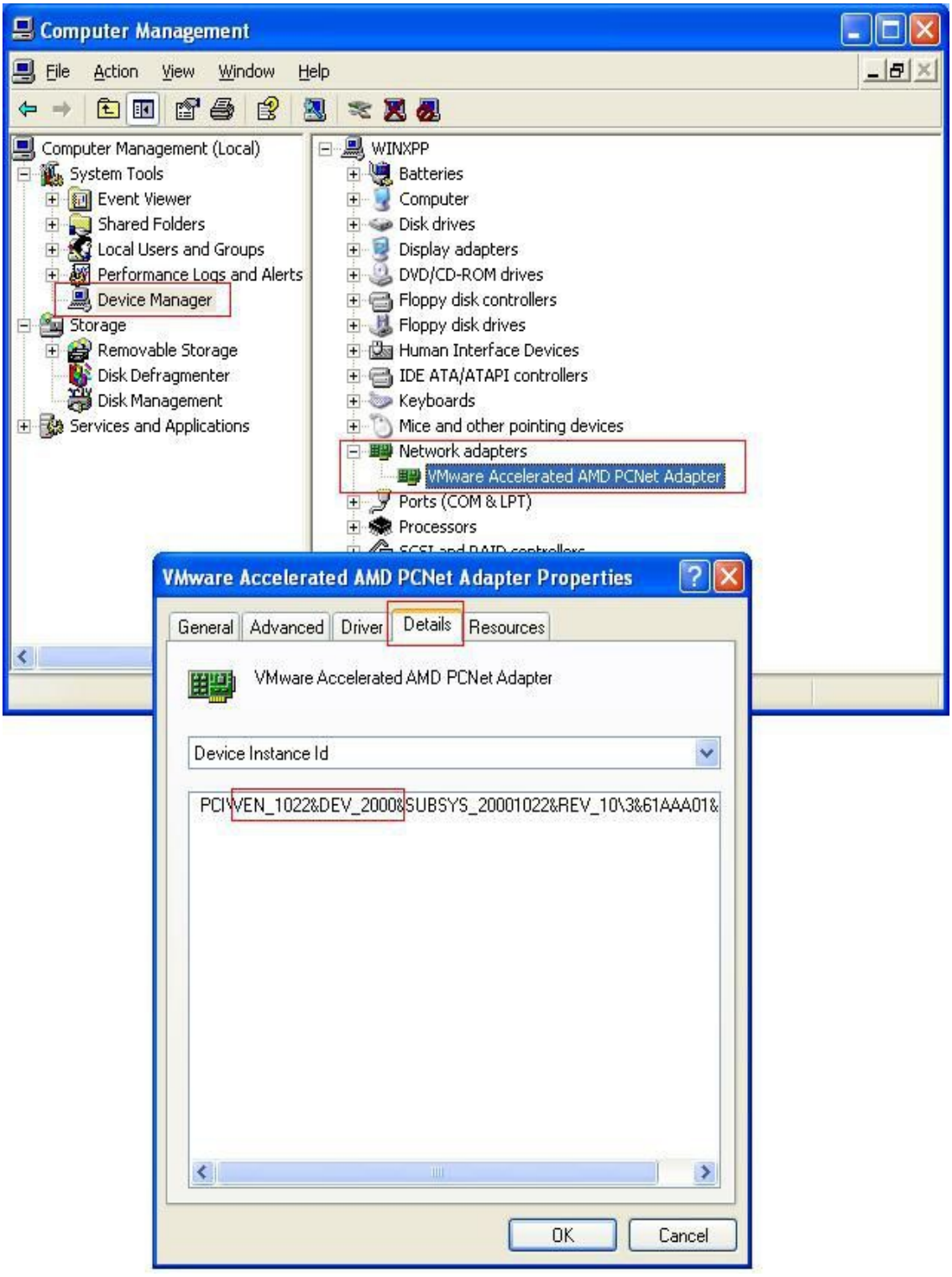


Figure 1

In Figure 1, the Vendor ID is "1022" and the Device ID is "2000".

If you are using the latest version of CCBoot, you can also obtain such VEN/DEV ID directly via CCBootPNP tool. In the CCBootClient install folder, you can find such tool, launch it and then it will show you the PCI Vendor and Device ID of the current network

adapter (NIC).

Figure 2

12.2 Atheros Network Card Problem

1. Can't Upload Image

When Atheros network card upload image of Win7-64 operation system, it can be easily switched, so the data of uploading image can be easily lost.

1) Use other brand of network card (such as Relate) to make and upload image package. For details, please refer to "Create Boot Image".
2) Install hardware, Windows and network driver on machine of Atheros network card.
3) Use CCBootoot PnP tools to collect Atheros network driver.
4) Diskless boot client-side of Realtek network by the way of super user, and combine Atheros network driver with image. For details, please refer to "Add New Machine into Boot Image".
5) The updated image can do diskless boot of machine for Atheros network.

2. Can't Shutdown for Atheros Network

After booting the diskless Atheros network card machine, shut down the computer which shows "shutting down", then the CPU fan operates continuously, however on the main interface of CCBoot, this client-side shows that it has been already shutdown.

The solution is to boot the client-side in the method of super user, offload CCBootNIC driver. The specific process is as below:

1) Use the super user way to boot the Atheros network client-side (take the example of PC101).
2) After booting the client-side diskless, operate the CCBoot Client program.
3) In the popup "CCBoot Client" dialogue box, click the "Uninstall Client" button.

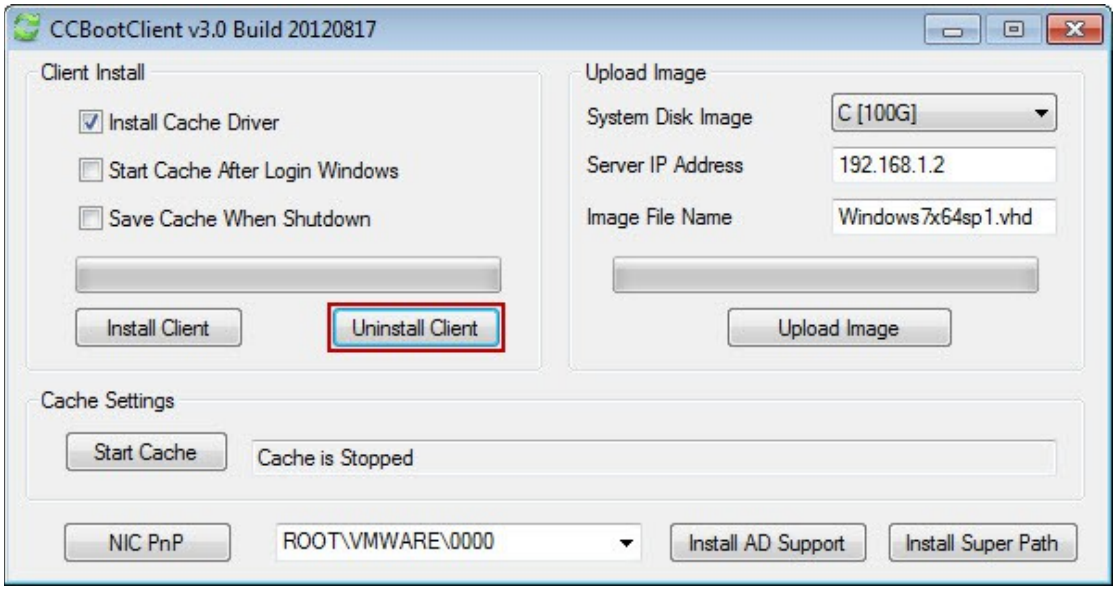


Figure 12-43

4) In the popup "CCBootClient Uninstall" dialogue box, choose the "CCBootNIC Driver" check box, and then click "OK" button.

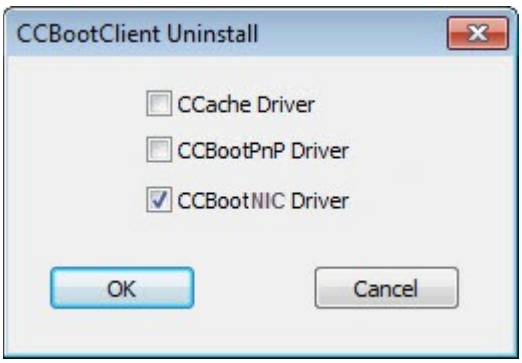


Figure 12-44

5) After the accomplishment, close the client PC101.
6) Disable "super user" on the server of CCBoot.

12.3 Realtek NIC Problems in Win7 x64

Symptoms

If the mainboard of the client is ASUS P8P67-M PRO B3 (This mainboard has integrated the realteck8168 network card), use win7 64 operation system and install the network driver offered by the Realtek. When booting the Win7 64 operation system, it's possible that blue screen will occur (especially when transferring a great quantity of data, for example, updating games, download and copy).

The solution is as follows:

Use the Realtek8168 network card driver provided by CCBoot website, change realtek network card driver and the concrete operational procedures are as follows:

1) Download file of "Rt64win7.zip". In the CCBoot official website: http://www.ccboot.com/download.htm
2) Use the Super user way to boot the client of Realtek (take the example of PC101).
3) Boot the client PC101, copy Rt64win7.zip to the desktop of PC101 and decompress Rt64win7.zip file.
4) Replace the files in the three following folders with the decompressed driver file,

C:\CCBootClient\CCBootPnP\Win7\CCBootPnP

C:\Windows\System32\drivers

C:\Windows\System32\CCBootPnP

5) After the finish of the substitution, shut the client.
6) Disable super user on the CCBoot server.

12.4 How to Solve Client Lag and Unsmooth

1. Cause of the client

For the problems caused by the client itself, the causes can be found in the following aspects:

Causes of the client network card

1) Network card brand: the network card is divided into 100Mbps network card, 1000Mbps network card, independent network card and integrated network card. The 1000Mbps network card is better than the 100Mbps network card. The independent network card is better than the integrated network card. The diskless systems are recommended to use the 1000Mbps network card, for example, the Realtek 8111 series, Realtek 8169 series, the NF, Atheros brands are not recommended.
2) Network card driver: The same network card differs in performance if using different drivers.
3) Optimization of network card: The optimization methods of different network cards have great influence on the performance of client. Please refer to "CCBoot client system optimization" for details.

Cause of the client write-back speed

1) CCBoot software can use the client's RAM to set up the client write cache. Please refer to the "Client Cache" chapter.
2) CCBoot can identify the remained physical RAM which can be used to set up the client write cache (Please refer to the "RAM above 4 G of the client" for details).

Problem of the image package

If the image package is not optimized, it will cause the unsmooth flow of the operation of

the client. The concrete optimization method: please refer to the "CCBoot client system optimization".

2. Cause of sever

1) The server system is not optimized (Please refer to the article of "Server Optimization" and the video of "CCBoot v3.0 Server's Operation System Optimization" for details).
2) The network card of the server is not optimized (Please refer to the "optimization of the server network" for details).
3) The harddisk speed of the server influences directly the client. Use the HD Tune tool to test the speed of the hard disk of the server. If the speed is less than 140 MB/s, then it should be replaced into a faster hard disk.
4) The formalized games disk and the write-back disk shall choose the 32k cluster.
5) The idleness rate of the disk influences greatly on the smoothness of the client. Use the CCBoot to "check the disk performance" and the load and cluster size can be checked.

Use the CCBoot to check the disk performance, and the procedures are as follows:

1) On the menu of "View" of CCBoot, click "Performance".

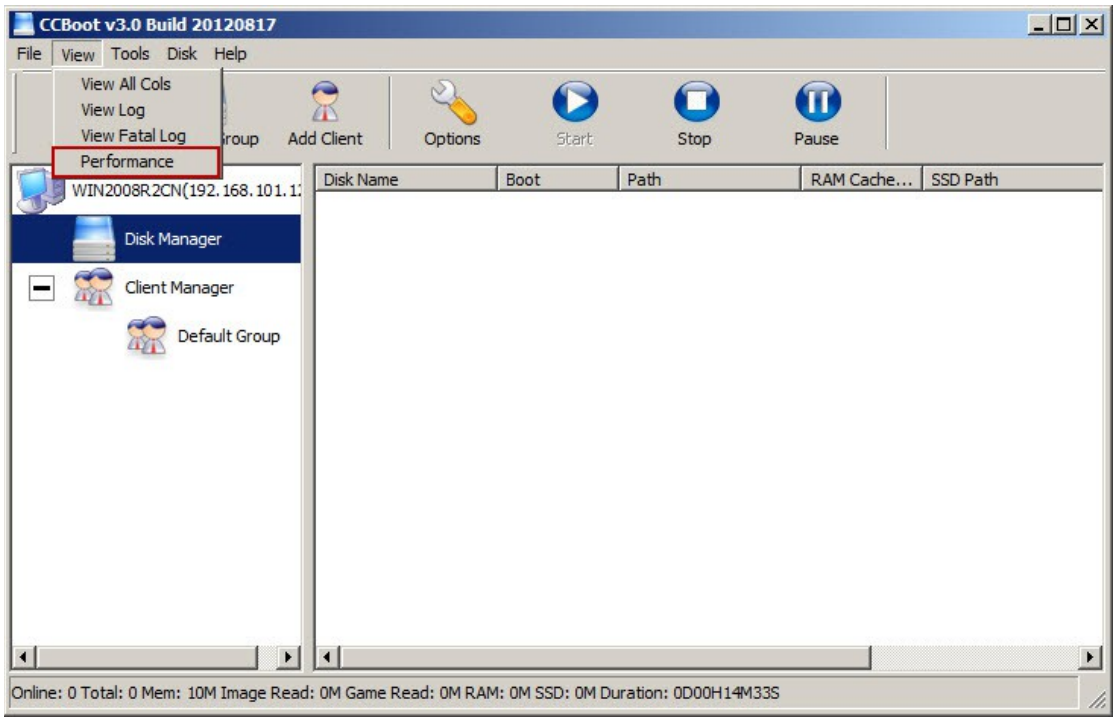


Figure 12-1

2) In the popup "Performance" dialogue box, the information of the disk can be checked...

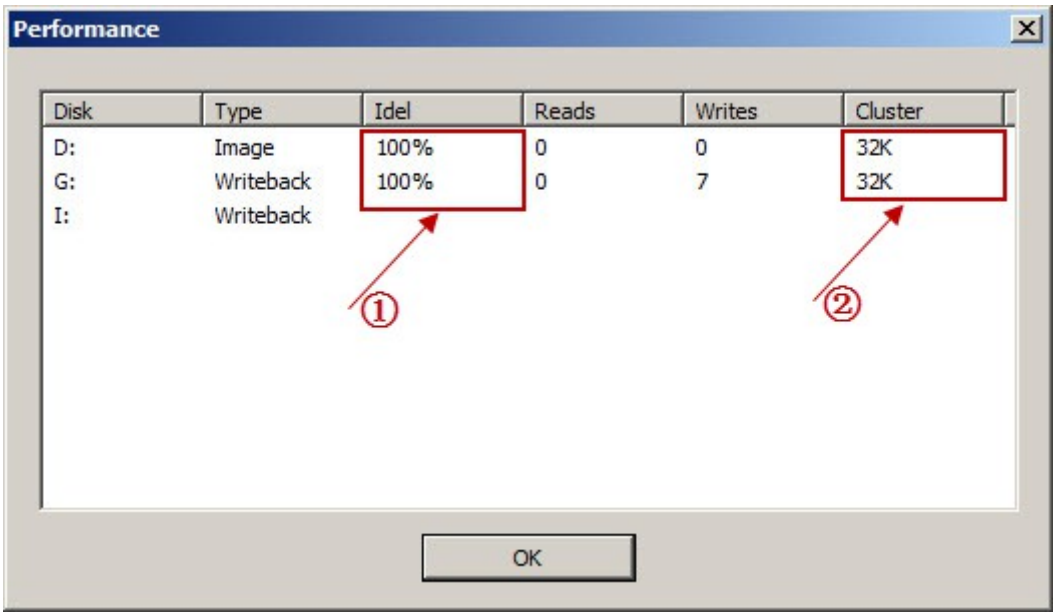


Figure 1-2

In the diagram above, the indicator ① shows the idleness rate of the disk. The bigger the percentage is, the smaller the load pressure of the disk is. The indicator ② shows the size of the formalized cluster. The normal one is 32 k.

If the idleness of the disk is lower than 70% for a long time, then the server cache setup is problematic. If the idleness of the game disk and image disk is lower than 70%, the image disk and the game disk's cache shall be set up again (For details, please refer to "Image Cache and Game Disk Cache"). If the idleness of the write-back disk is lower than 70%, the cache of the write-back disk shall be set up (For details, please refer to "Write Cache").

3. Cause of the network

Problem of the quality of the switch

1) The quality of the main switch and the sub switch's hardware can influence the speed of the client directly.
2) If the switch is aging, a new switch is needed to replace it.

The setup of the parameters of switch

1) Some intelligent switch has the function of (flow control), which can influence the speed of client, so the function should be shut.
2) Some advanced routers have the functions as flow control and terminal control. The routers should be set up again and the functions should be shut.

Problem of the Internet

1) The test of the hard disk speed of the client has two kinds of situations: The first kind is to use the switch to test the hard disk speed of the client that connected to server with switch. The other kind is to connect the client with the server directly without the

switch to test the hard disk speed of the client. By comparing the test results, so we can check whether it's the problem of the network.

2) Use HDTune tools to test the speed of the client game disk and the system disk. If the hard disk speed of the client can't reach 20MB/S, it's the cause of the network.

4. Cause of the third party software

Because of the third party software, the browse of the web by the client can slow down and the web games will not be smooth.

If the latest" Thunder Kankan" software is installed, the operation of the client will not be smooth. If the third party software is needed to be installed, then the following procedures can be referred to:

1) Boot one client with super client.
2) After boot the diskless client, install the latest "Thunder Kankan" and reboot the client.
3) After reboot the client, offload the "Thunder Kankan" player, reboot the client and shut off the client.
4) Disable the super user on the CCBoot server.

After booting the client diskless, the Thunder Kankan player doesn't exit, but the plugins of Thunder Kankan still remain in the system, which doesn't influence watching films online, but playing web games can be unsmooth.

12.5 How to Check the Server Error Log

The CCBoot has two ways for checking the error logs.

1. Check the log in the main interface

1) In the menu bar of "View" for the main interface of CCBoot, click "View Faital Log".

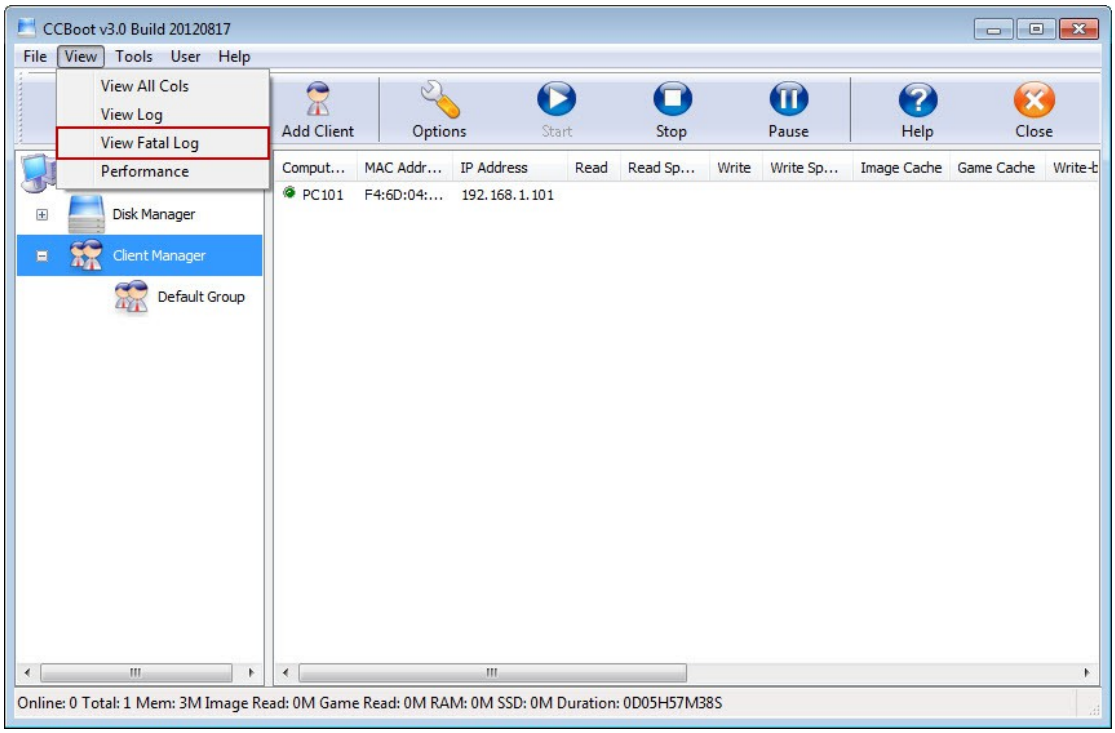


Figure 1-1

2) It will pop up the log which records the errors.

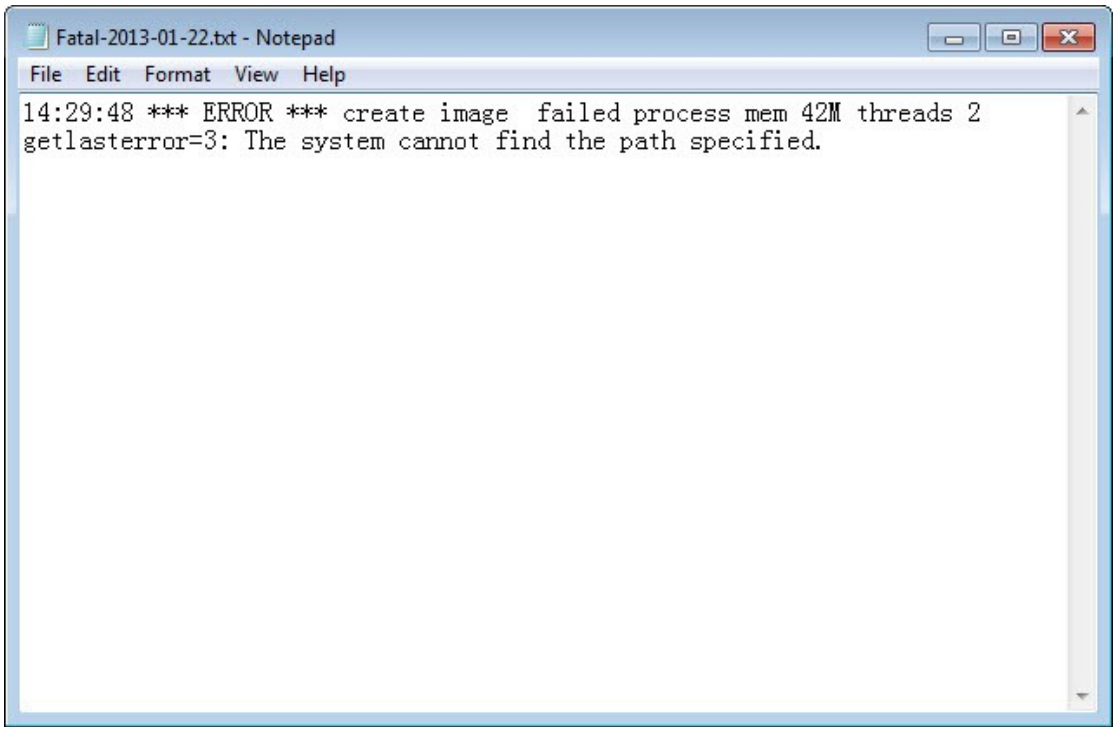


Figure 1-2

2. How to check the log in the installation folder

In the CCBoot installation folder, double-click the "Log" file. The error log starts with "Fatal" (For example, "Fatal-2013-01-22").

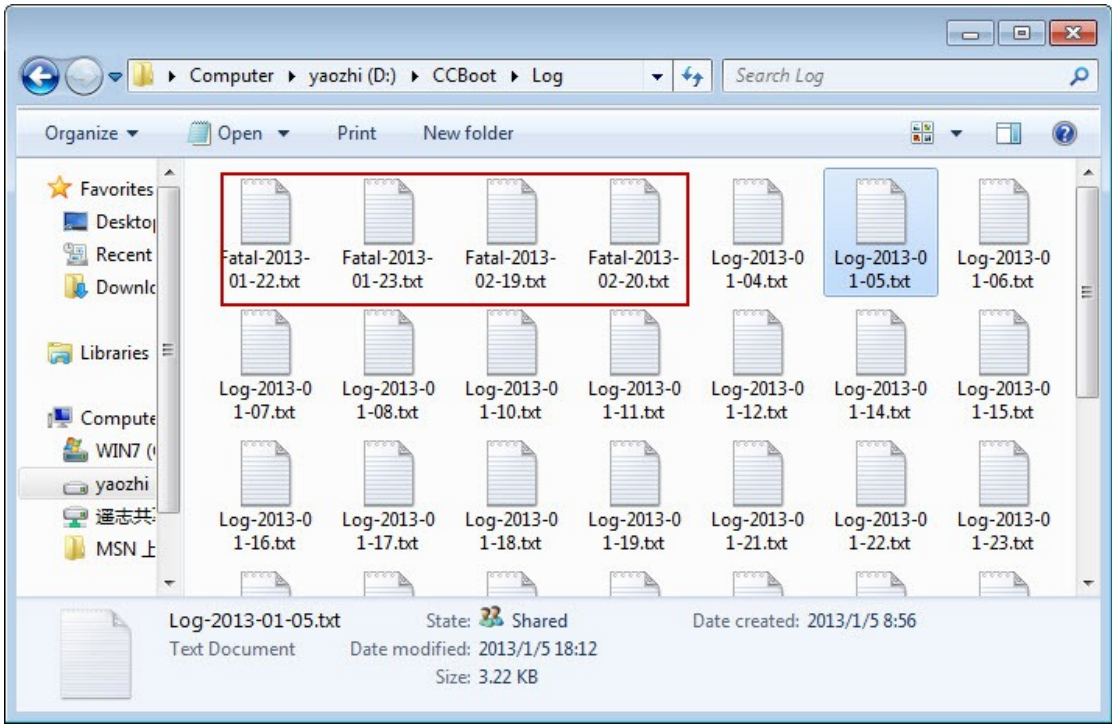


Figure 1-3

3. Common error logs

1) *** ERROR *** serviceconrolclient server to client disconnect process mem 11M threads 2

This error indicates the error log of the RAM, which belongs to procedure bug. The dump files shall be submitted to the development personnel according to the fifth procedure.

2) *** ERROR *** open write-back file? false process mem 50m threads 10

Error log of the write-back disk, possible reasons:

a) If the file of the writeback disk has error, for example, a blackout of power will cause the error of the writeback files. If the service needs to be stopped, reformat the write-back disk and restart the service.

b) If the write-back disk breaks, a new one shall take place of it...

c) If the room of the write-back memory is not enough, a bigger one shall take place of it...

3) *** ERROR *** open image D: xp.vmdk failed: A file was not found process mem 82m threads 10.

The image package read error log of the data. Possible reasons:

a) According to the log, check whether the image package exists .

b) If the image package is broken, the images shall be restored from the spare images and shall be remade.

4) Registered Failed

Checking failed error log. Possible reasons: the serial number of purchase is problematic, contact the seller.

5) There is a dump file in the installation folder of CCBoot, if the dump folder has the*.dmp files, send the compressed dump folder to support@youngzsoft.net. For details, please refer to "Solutions for Program Crash".

Note: In CCBoot recent builds, most of the dump files are related to the write-back disk problems, it may due to the write-back disk error, or because the write-back disk is full.

6) *** ERROR *** file_read error 38 process mem 683M threads 41 getlasterror=38: Reached the end of the file.

Normally, it indicates the write back disk is full at that time.

7) "14:06:00 CCBoot v3.0 Build 20120721
14:06:00 try to connect to service control on port 8001
14:06:00 try to connect to service control on port 8001"

Note: This log has no problems. It means the connection communication between Interface and Kernel Services.

8) "getlasterror=1392: The file or directory is corrupted and unreadable."

This error may because the disk is broken, please chkdsk or reformat the disk. Or it may because the disk is full at that time.

9) 13:15:01 *** ERROR *** file_write error process mem 443M threads 19 getlasterror=112: (null)
13:15:01 *** ERROR *** file_read error 38 process mem 443M threads 19 getlasterror=38: (null)

This problem may be related to write-back disk problem. Maybe the write-back disk is small or broken. Please replace a new larger HDD for the write-back disk and try again.

12.6 Client Diskless Boot Failed

1. Failure of booting from network

1) The first booting item in the BIOS is not "boot from network".
2) The electricity in the BIOS battery is not enough.
3) The BIOS setup is in a mess, please reset up the BIOS.
4) Because of the humid climate, the contact is not good. Please wipe the gold fingers in the RAM.
5) The network cable is not well plugged.

2. Stops at DHCP

The client stops at DHCP when booting and the address of the sever IP can't be obtained.

1) Problem of the network: testing method, use one computer to PING server and use the server to PING the computer.
2) Problem of the switch. Solution: check the main switch and the sub switch to see whether the power supply is normal.

3) Problem of network cable. Solution: Check whether there is a problem for the client network cable and the server network cable and make sure they have been connected to a LAN.
4) Problem of the firewall. Solution: Shutdown the firewall of the server.
5) The CCBoot service stops. Solution: Click the "start" button in the main interface of CCBoot, start the CCBoot service.
6) The server port needed by DHCP is blocked. Solution: open port 67 on the server.
7) The client is not added to the user list of CCBoot and the server of CCBoot hasn't enabled the "auto add client" option

3. Stops at the TFTP

In the process of booting of the client, DHCP can obtain the IP address of the server, but it stops at location of "TFTP" and the error of TFTP occurs.

1) CCBoot hasn't started the TFTP service.
2) The firewall of the server system does't open TFTP port, solution: to open the port 69 in the firewall.
3) Reset up TFTP. Solution: in the tool bar of the main interface of CCBoot, click "Options" button. In the popup dialogue box of "CCBoot Setting", choose the "DHCP Setting" tab, and unselect the "TFTP" check box. Click the "Yes" button, and reselect the check box of the "TFTP".

4. Stops at www.ccboot.com

PXE's loading file problem. The default PXE file doesn't support some special network card.

Solution: Change PXE file, take the examples of PC101, the concrete procedures are as follows:

1) In the main interface of the CCBoot, click "Client Manager" and double click "PC101" in the right detail box.

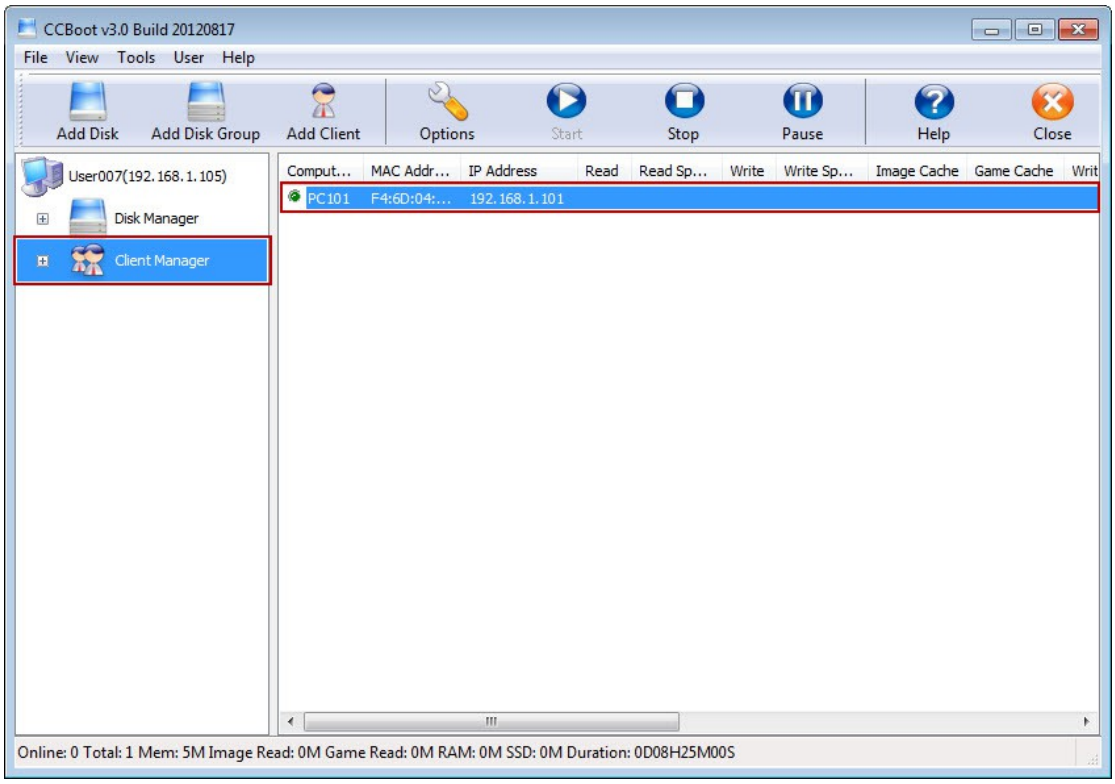


Figure 12-1

2) The "CCBoot Client" dialogue box pops up, changes the default "gpxe.pxe" in the editing box into "gpxex.pxe" and click "save" button.

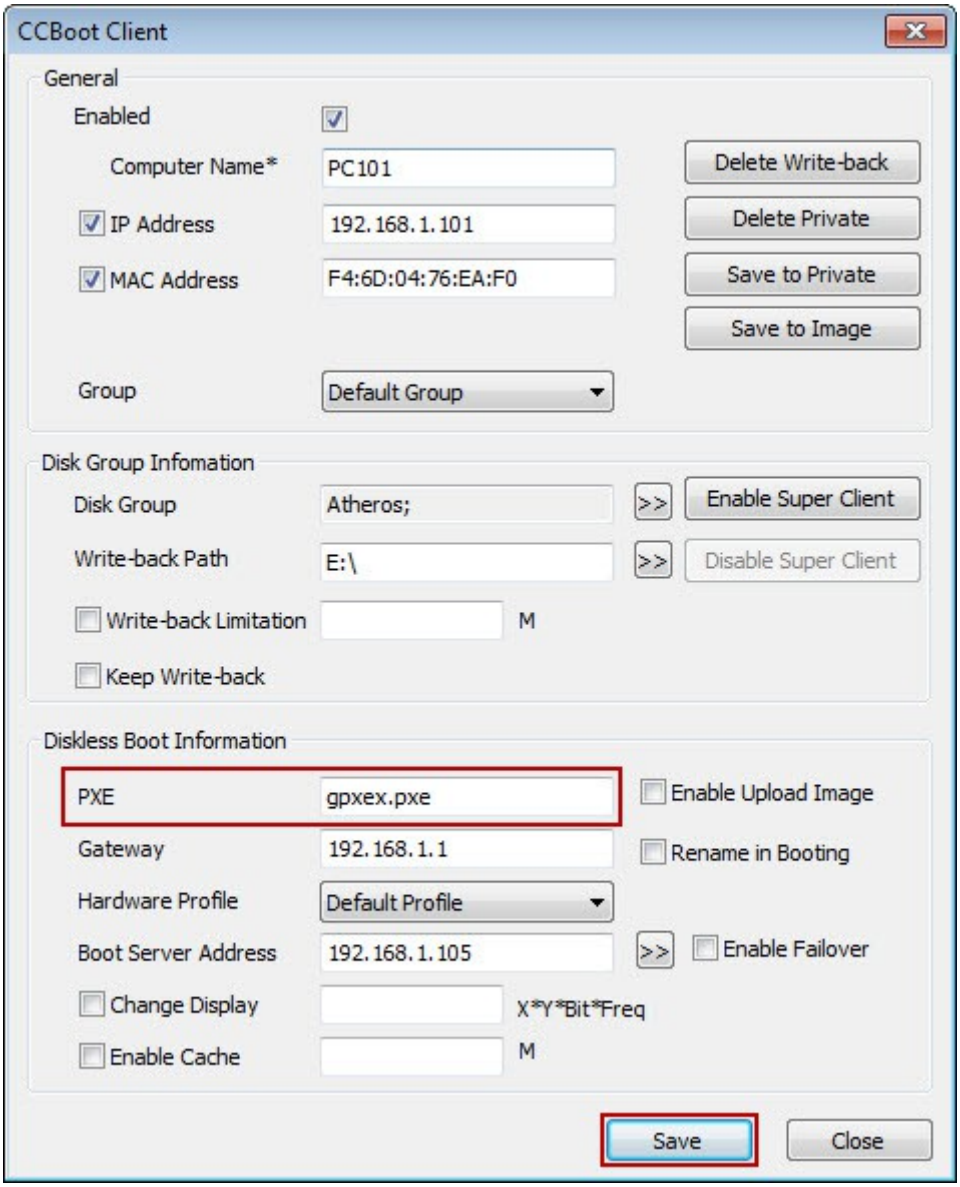


Figure 12-2

Note: It would be better to use "gpxe.pxe", but if you cannot diskless boot the client via using "gpxe.pxe", you can try to change the PXE value to "gpxe0.pxe". If this doesn't work, please modify the value to "gpxex.pxe". If you can successfully use “gpxe.pxe" in CCBoot 20120817, but failed to use it in the new build, please try ”gpxe1.pxe". From CCBoot v3.0 Build 20130710, "gpxe1.pxe" means "gpxe.pxe" of 20120817. If Realtek 8111E NIC has blue screen problem, you can try to change the PXE value to "ipxe.pxe".

5. No more network devices/iSCSI boot 192.168.0.1::3260:: error occurs

When booting the client, the error of "iSCSI boot 192.168.0.1: 3260: No more net work devices" occurs.

The reasons of error and the solution are as follows:

1) The trial version of CCBoot only supports 5 users, if the number exceeds 5, it will stop at "iSCSI boot 192.168.0.1: 3260". Solution: Purchase the serial number and register.
2) The registered number has been exceeded. Solution: Add license number.
3) In the 32 operation system, the single process shall not exceed 1.6 G. When the CCBoot process reaches 1.6 G, the CCBoot server can no longer allocate memory and then error occurs. Solution: Change the server into the 64 bit operation system.
4) The router has opened DHCP and it has disturbed the normal operation of the client. Solution: shut down the inbuilt DHCP of the router.
5) In the LAN, other software has opened DHCP functions. Solution: temporarily shut this software and reboot it after client-side is in normal startling.
6) The disturbing of the DHCP for CCBoot. For example: in the same LAN, there are two CCBoot servers, two servers are prepared for the load balance (please check the "CCBoot load balance" chapters for details). The server A has deleted the client PC 101, when the client PC101 reboots, it stops at the "No more network devices". Solution: open the installation folder of the server B, copy the "db.xml" file to the installation folder of server A and replace the file of the same name.
7) In "CCBoot Client" dialog box, the "Disk Group" hadn't been assigned. Please select a disk group.
8) Maybe the BIOS battery has no power.
9) The image has problems.
10) The client of the CCBoot property doesn’t set the "Boot Server Address".
11) Haven't set correct writeback path in the CCBoot client properties.

6. Stop at Windows Logo

For details, please refer to "Stop at Windows Logo".

7. Blue screen when the client boots

Cause and solution are as follows:

1) The physical RAM of client has problems. Solution: Change the client physical RAMS.
2) The network driver has problems. Solution: change other versions of network card driver.
3) Software conflict (for example, billing software). Solution: uninstall some software which can cause conflicts.
4) The problem of images package. Solution: Remade image package.

8. Automatic restart

Before the client boots to desktop and reboot automatically, the causes and solutions are as follows:

1) When the client writes cache setting of the client is too big, the client will start automatically. Solution: Adjust the size of client write cache.
2) Problem of network card driver. Solution: Change other versions of network card driver.

9. Stops at NTLDR is missing

The client boots with hardware profile image (Please refer to the "CCBoot single image package+ multiple settings PnP" for details). Then the client will stop at the picture shown.

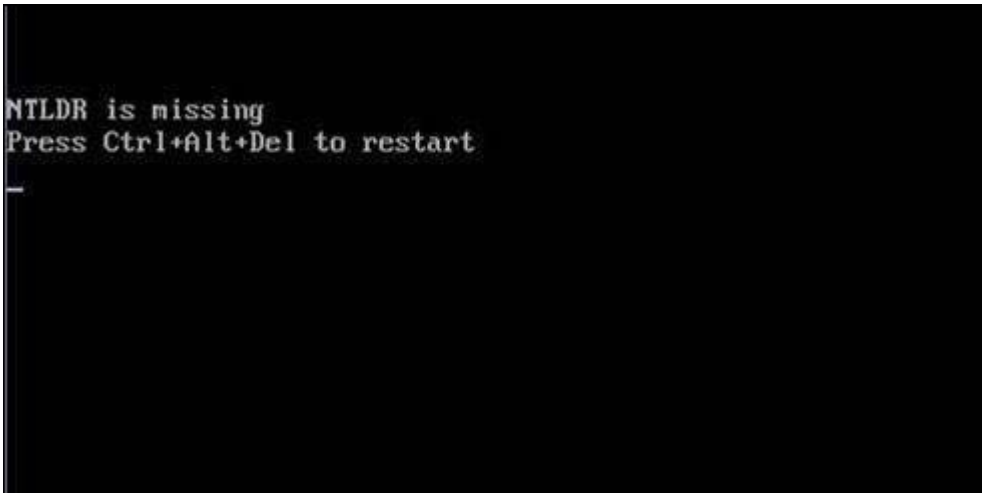


Figure 1-8

There are the following reasons for the phenomenon above:

Setting error of hardware configuration

In the properties of the client, there's no correctly written hardware ID. Solution: input the correct hardware ID.

Problem of the CCBoot version

If using the CCBoot2.1 version for setting multiple configurations of hardware, there's certain possibility for the phenomenon above. Solution: updates to the CCBoot3.0 version.

10. Stops at the PXE-MOF Exiting PXE ROM

Problem of PXE loading file

The PXE loading files of CCBoot doesn't support the diskless boot of the client. Solution: Change the PXE loading files.

Solution: Change PXE file, take the examples of PC101, the concrete procedures are as follows:

1) In the main interface of CCBoot, click "Client Manager" and double click "PC101" in the right detailed box.

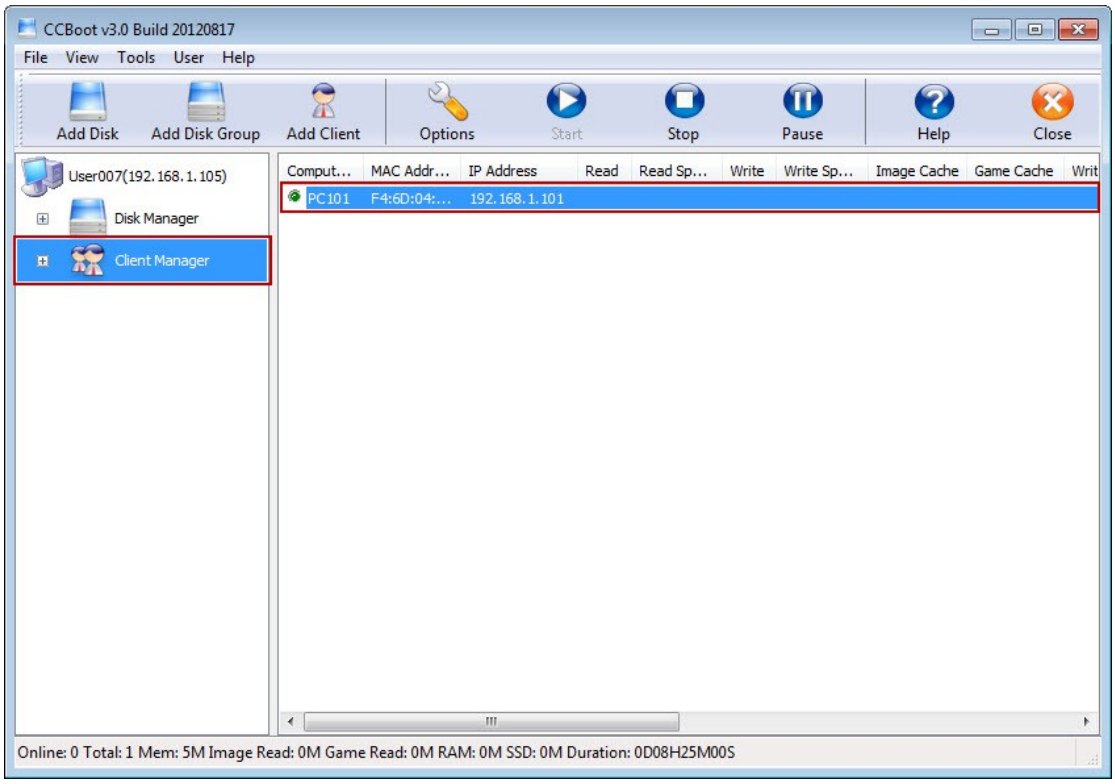


Figure 12-9

2) The "CCBoot Client" dialogue box will popup and change the default "gpxe.pxe" in the edit box into "gpxex.pxe" and click "Save" button.

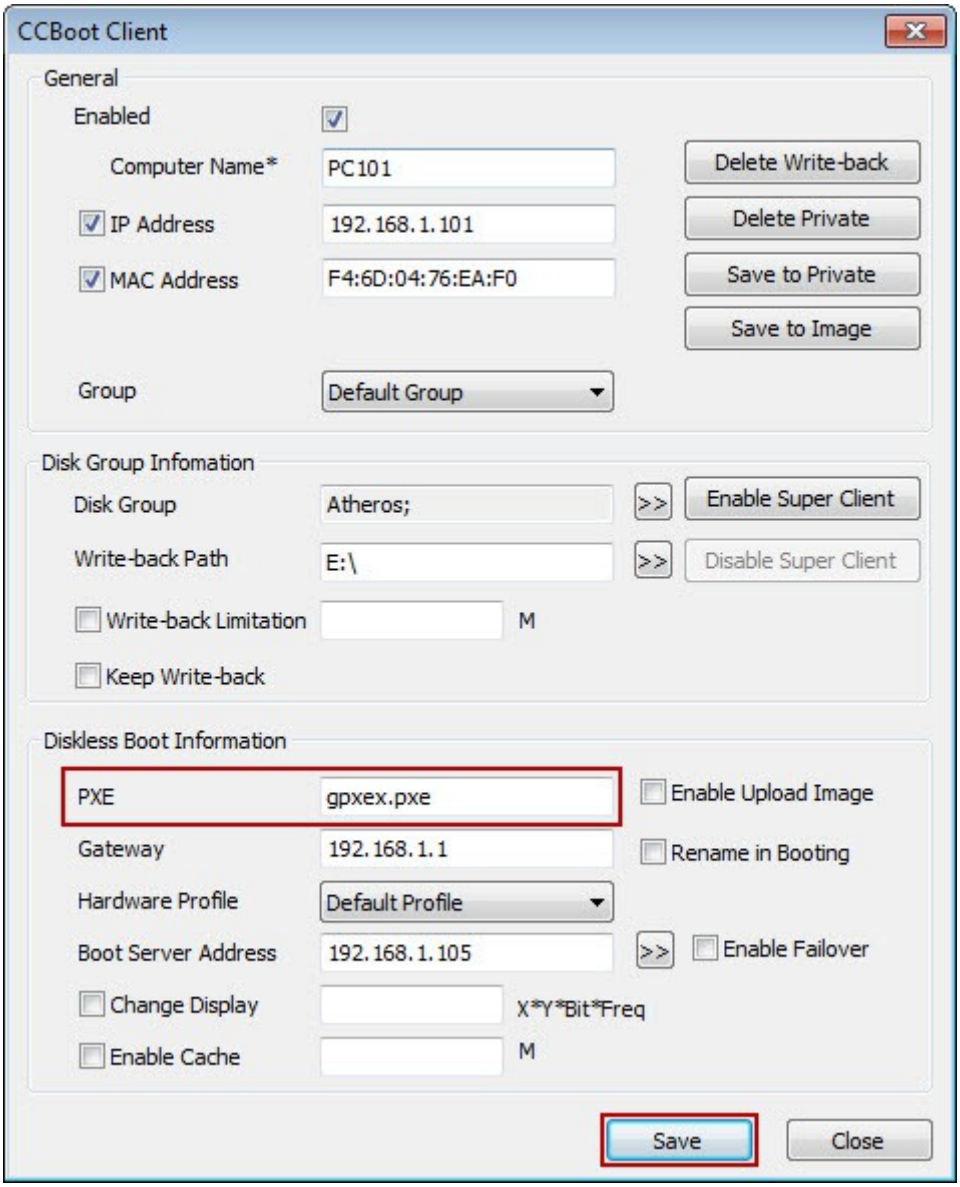


Figure 1-10

Note: If this problem still cannot be solved by using the above method, please try to update the BIOS ROM to the latest version.

11. Diskless Boot Failed with Two NICs

Problem:

If you have two NICs on the client, one is Realtek and the other is the built-in wireless card. Sometimes, after uploading image, you can not diskless boot the client successfully.

Solutions:

1) As CCBoot can not diskless boot with wireless card. You should disable the wireless card on the client first; otherwise, CCBoot will treat the wireless card as the boot NIC. You can disable the wireless card in Device Manager.
2) Install "CCBootClient" program.

3) Upload image.
4) Diskless boot the client.

Note:

If you want to use the disabled NIC in the future, after diskless booted the client successfully, you can enable super client for this PC, and then go to Device Manager to enable that NIC. Finally, disable super client. For details, please refer to "Create Client Image with Dual NICs".

12. Error Message of "Database server security does not have a computer account for the trust relationship with this workstation"

If you encountered an error message of "Database server security does not have a computer account for the trust relationship with this workstation" when diskless booting CCBoot v3.0, there may be two reasons for this problem.

Reason 1 It may because that you haven't added the computer name on CCBoot AD.

Please follow the following steps.

1) Open the CCBoot installation directory, copy "CCBootAD.exe" files to the domain server.
2) Run the "CCBootAD.exe" program on the domain server.
3) Click the "Add" button in the popup "CCBoot AD" dialog box (Figure 1-11).

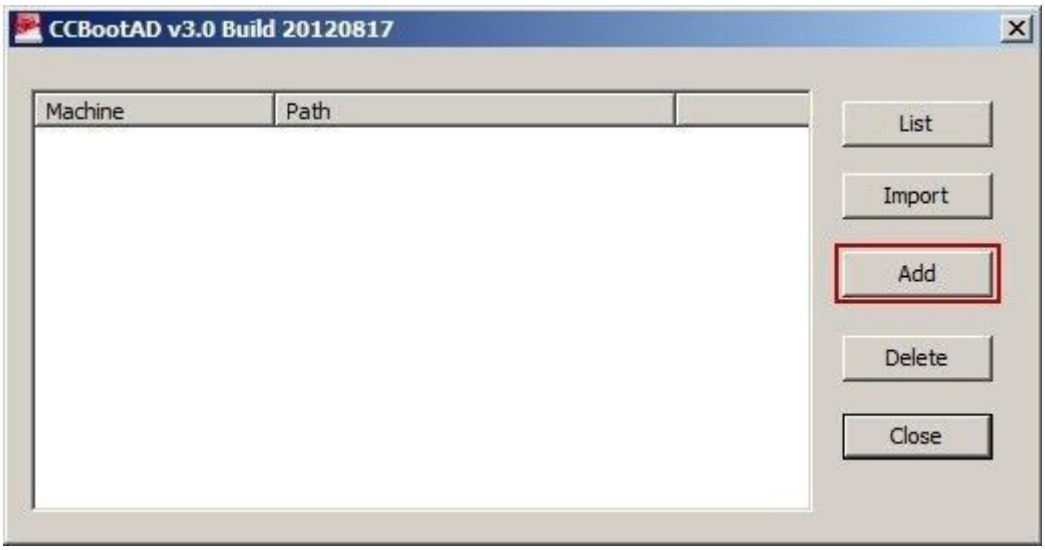


Figure 1-11

4) Click the "..." button in the popup "CCBootAD Machine" dialog box to select domain "Computers", type PC101 into the "Machine Name" edit box, and click the "OK" button, then the operation is completed (Figure 1-12).

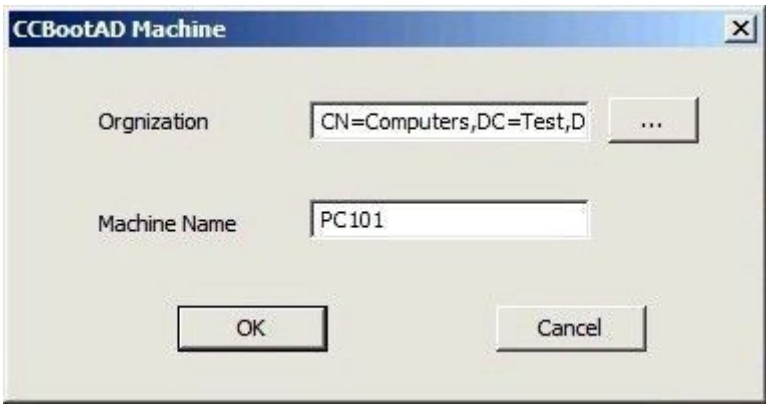


Figure 1-12

5) If you want other clients to join the domain as well, you can repeat the above operation steps.
6) Add a domain user of User001.
7) Add other domain users.

Reason 2 It may because that you haven't added "joindomain".

Please follow the following steps.

1) Click the "Options" button on the toolbar of CCBoot main interface (Figure 1-13).

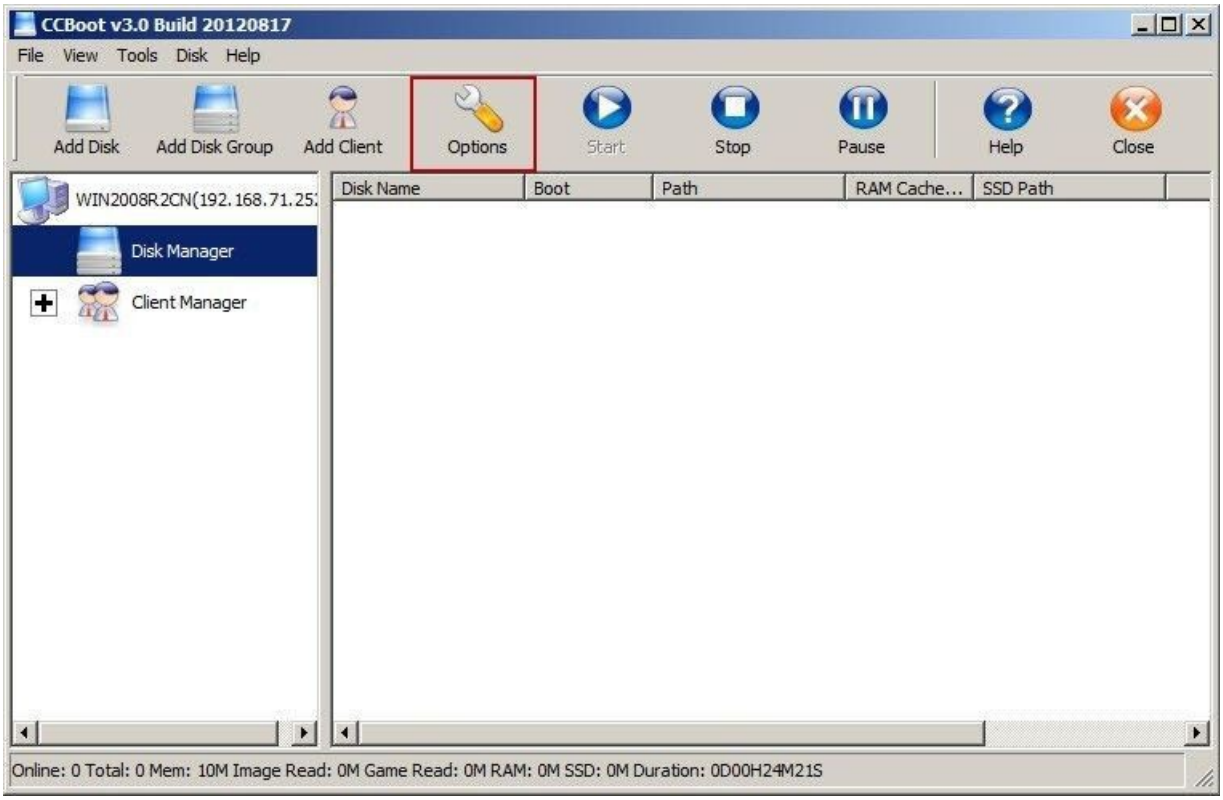


Figure 1-13

2) In the popup "CCBoot Options" dialog box, click the "General" tab, select the "Run Batch Command at Client" check box, then click the ">>" button in the right side of

the "Run Batch Command at Client" (Figure 1-14).

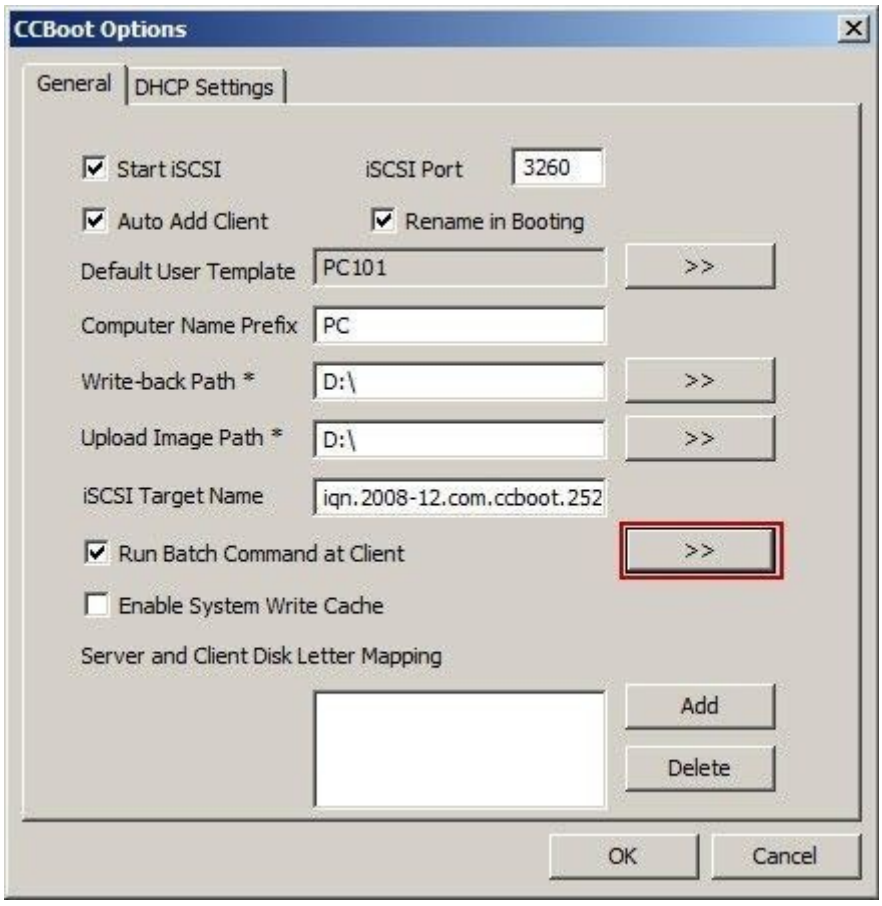


Figure 1-14

3) Add an order of "joindomain domain name" at the bottom of the popup "public - Notepad" (E.g. "joindomain test.com"), and enable clients to join the "test.com" domain (Figure 1-15).

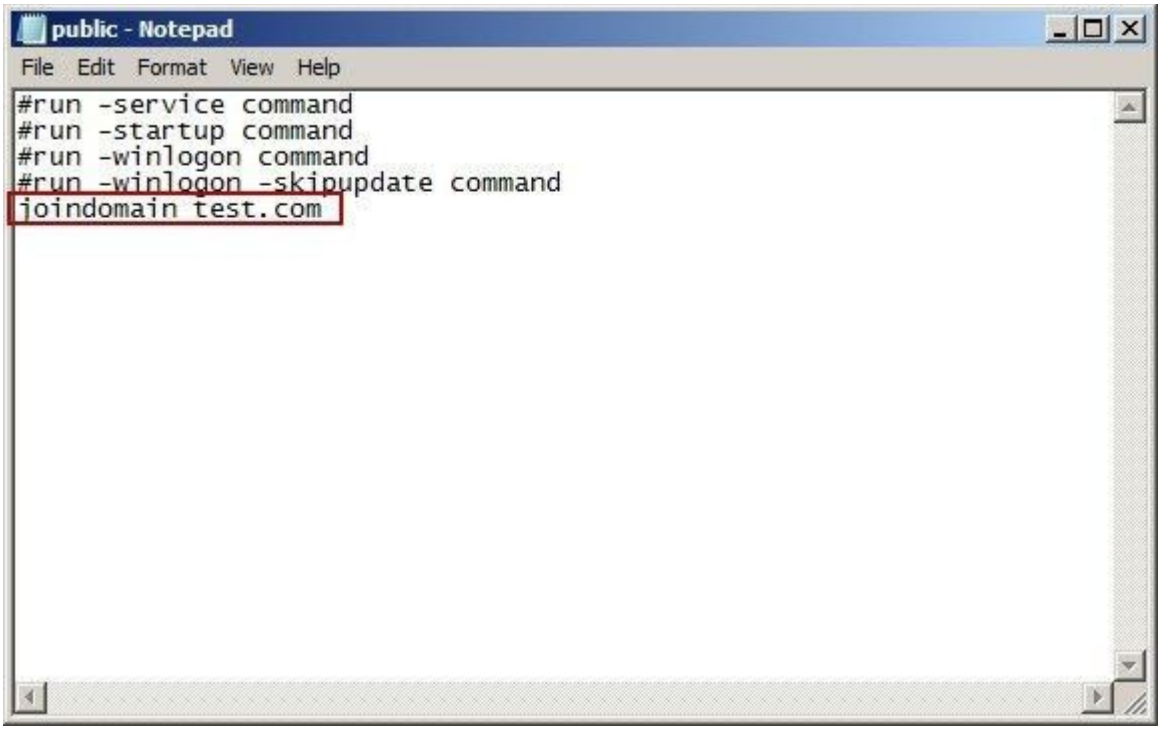


Figure 1-15

Note: You can also watch the video of "How to Use CCBoot in Windows Domain" (about 06:55).

13. Connect Host Failed

Please check whether the client and server can ping each other successfully or not. Also, you can try to change the client IP address, and delete the old client on CCBoot server, and then auto scan the new changed IP. Besides, please check whether the Windows firewall has been turned off.

14. PXE Boot Windows 8 Failed

For details, please refer to
http://www.ccboot.com/how-to-solve-pxe-boot-windows-8-failed.htm.

15. "Failed to Start TFTP" and" Failed to Start DHCP"

If the server IP address was changed, it will report the error of "Failed to Start TFTP" and" Failed to Start DHCP". You can solve this problem according to the following steps.

1) On CCBoot main interface, click the "Options" button.
2) In the pop up "CCBoot Options" dialog box, click the "DHCP Settings" tab, and then click the "DHCP Server IP" combo box, and select the right IP address (Figure 1-16).

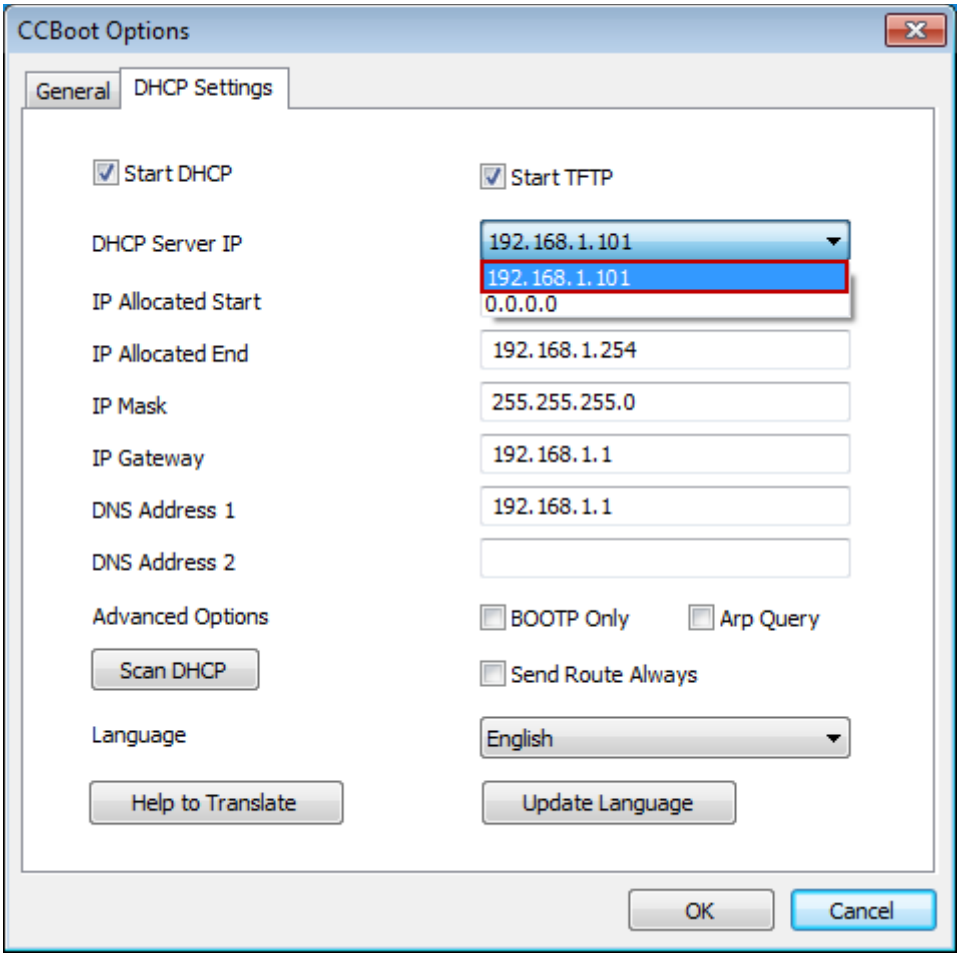


Figure 1-16

12.7 Solutions for Blue Screen

Stoppage information

"***STOP:0x000000C2 (0x00000007,00000CD4,0x2FC0031,0x816D7828) KMODE_EXCEPTION_NOT_HANDLED ***"（e.G.)

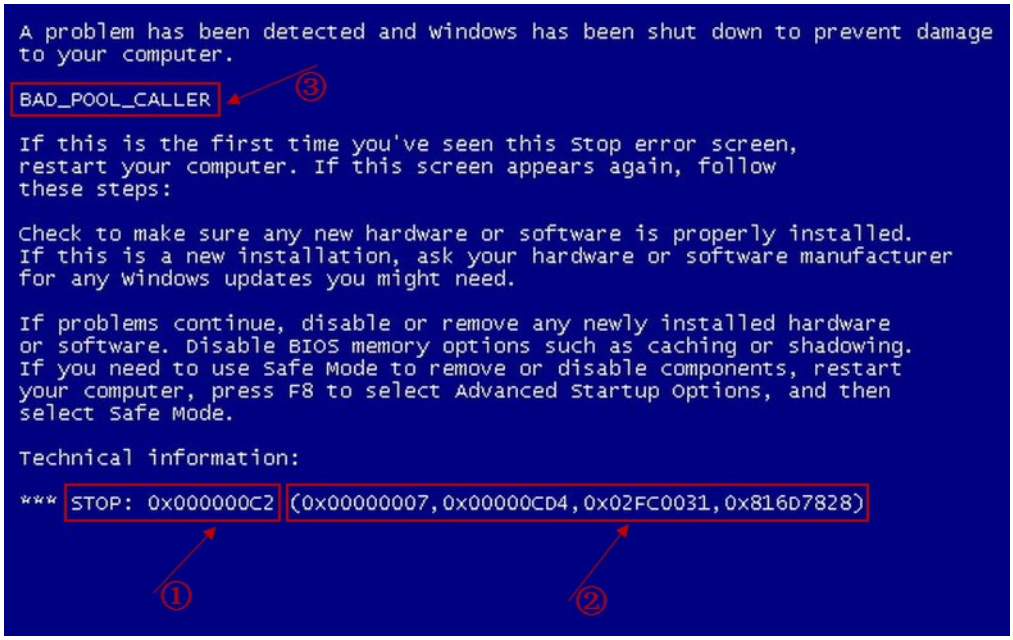


Figure 1-1

The errors are divided into three parts:

1) Halt code (Sign ①), we call it "blue screen code", which is used for distinguishing existed error types.
2) The second part (Sign ②) is the 4 number groups included within the brackets, which is the data defined by development staff.
3) The third part (Sign ③) is the name of error, the specific file name of driver program will be shown in some conditions.

We usually use blue screen code and name of error as search term in Google to find the relevant solutions.

1. Blue screen when booting

0X000007B blue screen code

Blue screen occurs when booting, and can't get into the system. Check the blue screen code and it is mostly as 0X000007B, which is due to network card driver error or stoppage of network card itself.

Solutions:

1) Change network card driver, and download proper driver to replace original driver on official website of network card.
2) Extract network card, clean the golden finger of network card, then insert it into slop on mainboard or change slop. If it is the board load network card, it has to change mainboard or add individual network card.

Not 0X000007B blue screen code

If it is not 0X000007B blue screen code, then there will be various reasons, such as installation of antivirus software, simplified system, wrong operations for uploading image, etc.

Solutions:

1) Download completed version system or use installation version, and reinstall system and make a good patch, as well as unload software for no use.
2) When uploading image, it needs stable network. If the network is not stable, so it will cause problem for uploading image, and as a result, it will be lead to blue screen.

0X000000A5 Blue Screen Code

Solution: This may because AHCI was disabled in the BIOS. Please enable AHCI in the Server BIOS.

0X0000004E Blue Screen Code

Solutions: Normally, this is because of the graphics card driver problem. Please try the latest graphics card driver. If this problem exists on the same brand graphics card, it is the VGA driver problem. If not, it may be the memory-chip problem, please take the memory-chip out and clean it.

2. Blue screen for NV graphics card

Most of blue screen for NV graphics card code are 0x000000B4（can't start graphics card driver）and 0x000000EA (damage of graphics card or driver program error）

Solutions: change driver, suggest to use NV graphics card driver provided on CCBoot official website http://www.ccboot.com/nvidia-display.htm, and remove speeding up of flash hardware.

Method for Removing Flash Hardware Speeding

1) After open a website video, right-click video image, then click and choose "Settings".
2) In popup dialog box of "Adobe Flash Player Settings ", unselect the selection of "Enable hardware acceleration" check box.

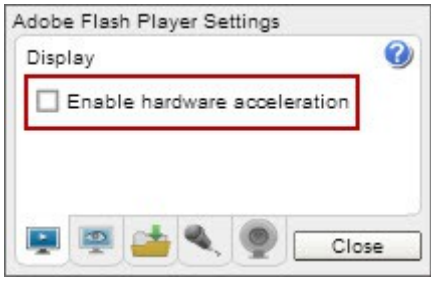


Figure 1-2

3. Multiple Specs in Single Image Blue Screen

When boot the client by multiple specs in single image, if the driver is not correct, then it will lead to boot of blue screen.

Solutions: Change driver.

4. Blue Screen in Playing Games

When large -scale games runs, blue screen occurs for games image

Firstly, confirm that if it is can play large-scale games for hardware, and if it is correct for settings. If all these are without problems, then the causes for blue screen will be errors of network card driver, problems of RAM, or high temperature for computer case.

Solutions: change network card driver, RAM, CPU fan, suggest using Kingston RAM due to its high stability.

5. Blue Screen at Random

1) If there is no any sign or blue screen during playing games, and the code keeps changing

Reason:

Contact problem for RAM, not stable for output of power supply voltage, or bad heat dissipation condition for CPU fan.

Solution:

Reinsert RAM, change power supply, CPU fan.

2) If it is the fixation of 0x0000008E blue screen code.

Solution:

Reduce size of page file, refresh cache.

6. Blue Screen for 8111E NIC

Sometimes you may encounter blue screen while using 8111E NIC. Beginning with CCBoot v3.0 Build 20130710, this problem has been solved. Please follow the instructions below.

1) On CCBoot main interface, click the "Client Manager", and then click the user group. In the details pane, double click one of the Client PC (such as PC101).

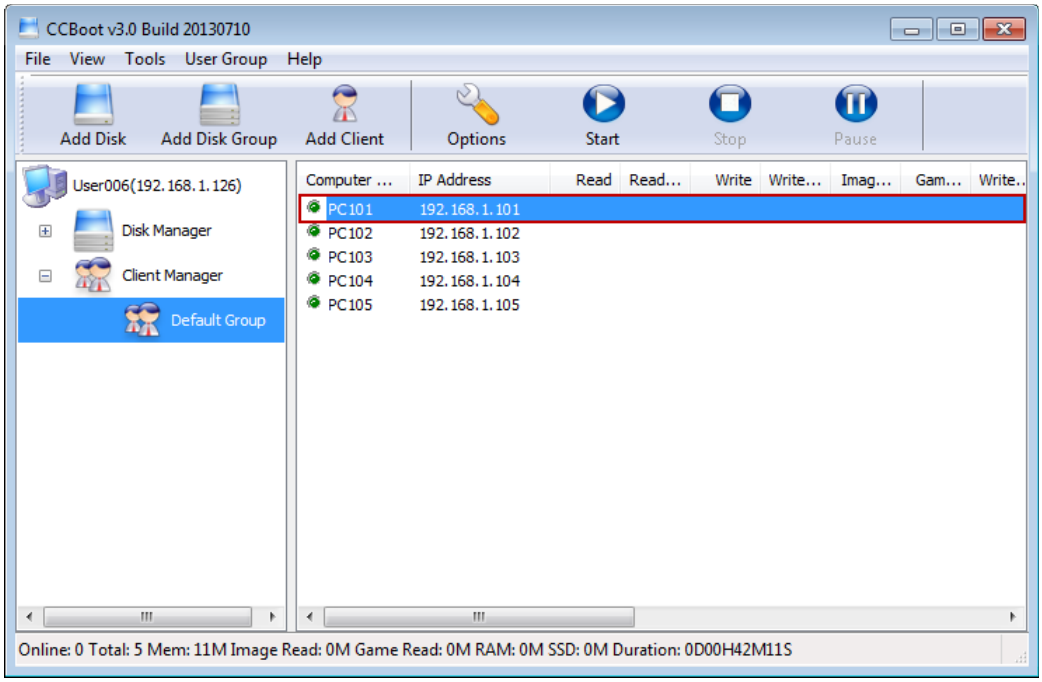


Figure 1-3

2) In the pop up "CCBoot Client" dialog box, in the "PXE" edit box, modify "gpxe.pxe" to "ipxe.pxe". Then click the "Save" button to save the settings.

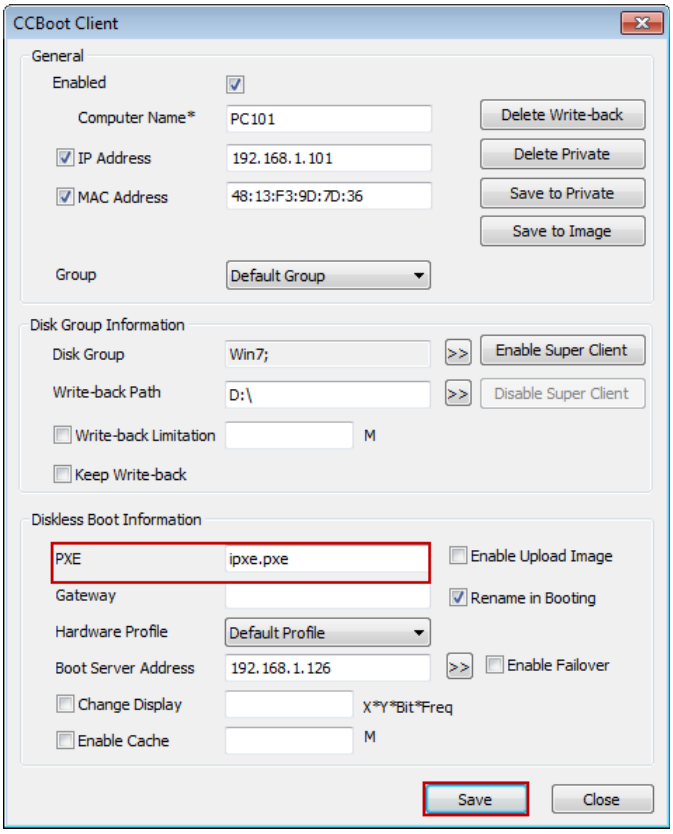


Figure 1-4

7. Blue Screen for Client Cache Was Set Too Large

If the client cache was set too large, it may cause blue screen too. We recommend setting it as 512M or 1024M.

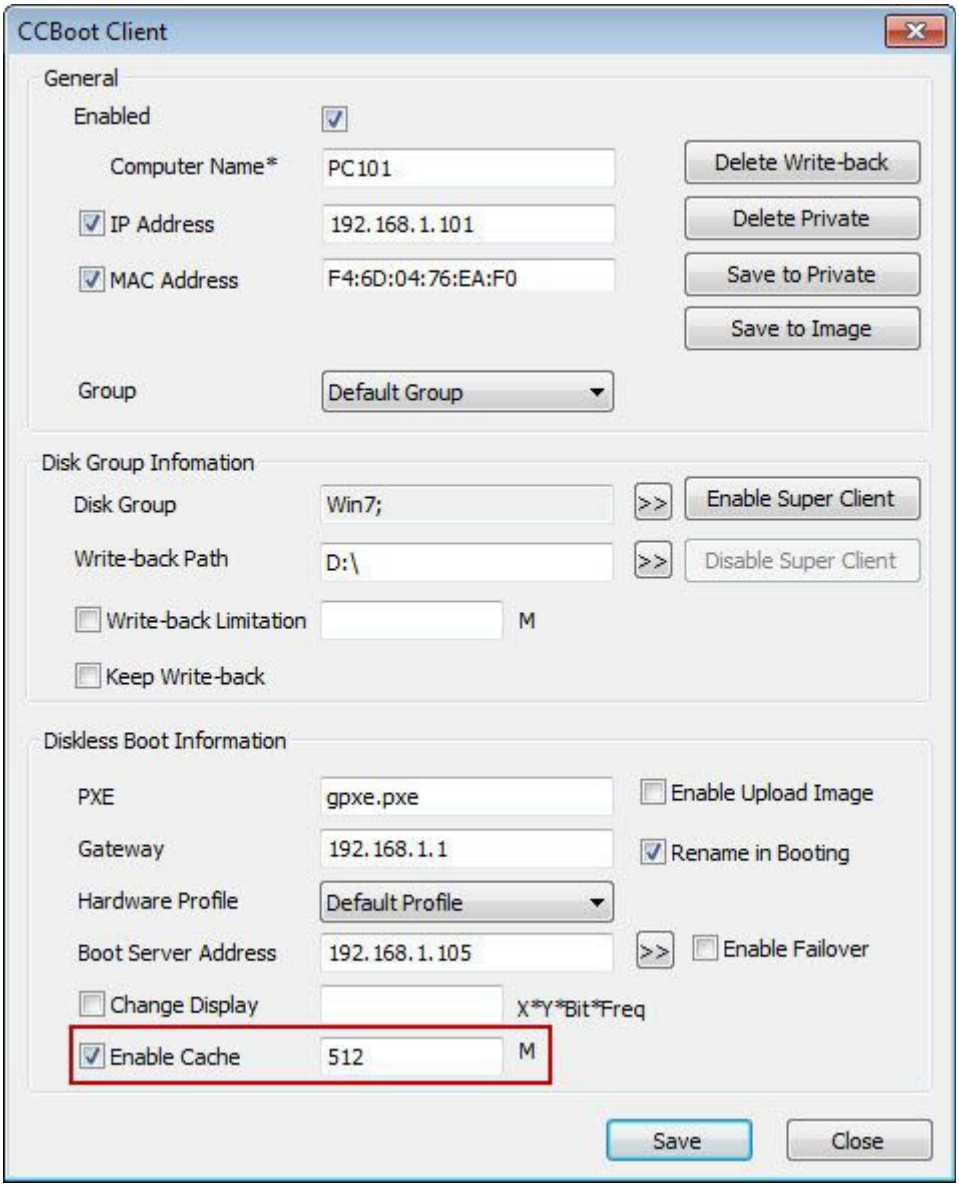


Figure 1-5

8. Paging File Settings Problem

The paging file size should be set as system managed size. If the paging file size wasn't big enough, it may cause blue screen too.

1) Right click "Computer", and select "Properties".
2) In the pop up "Control Panel Home" window, click the "Advanced system settings" (Figure 1-6).

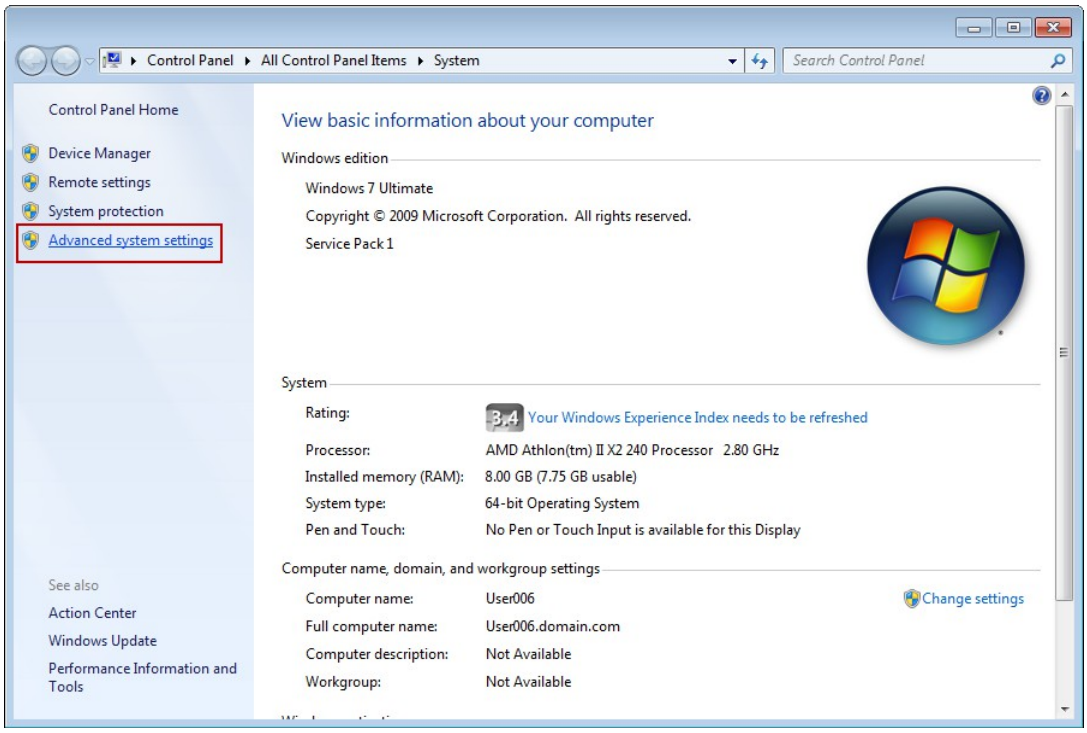


Figure 1-6

3) In the pop up "System Properties" dialog box, click the "Advanced" tab, and then click the "Settings" button (Figure 1-7).

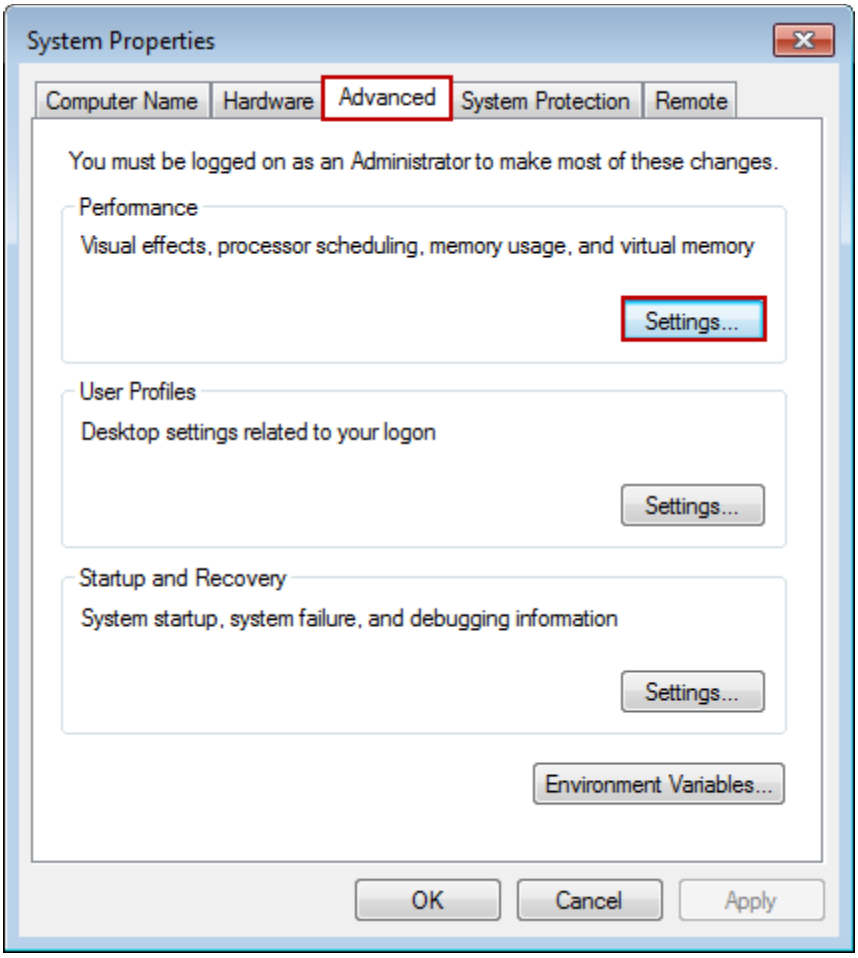


Figure 1-7

4) In the pop up "Performance Options" dialog box, click the "Advanced" tab, and then click the "Change..." button (Figure 1-8).

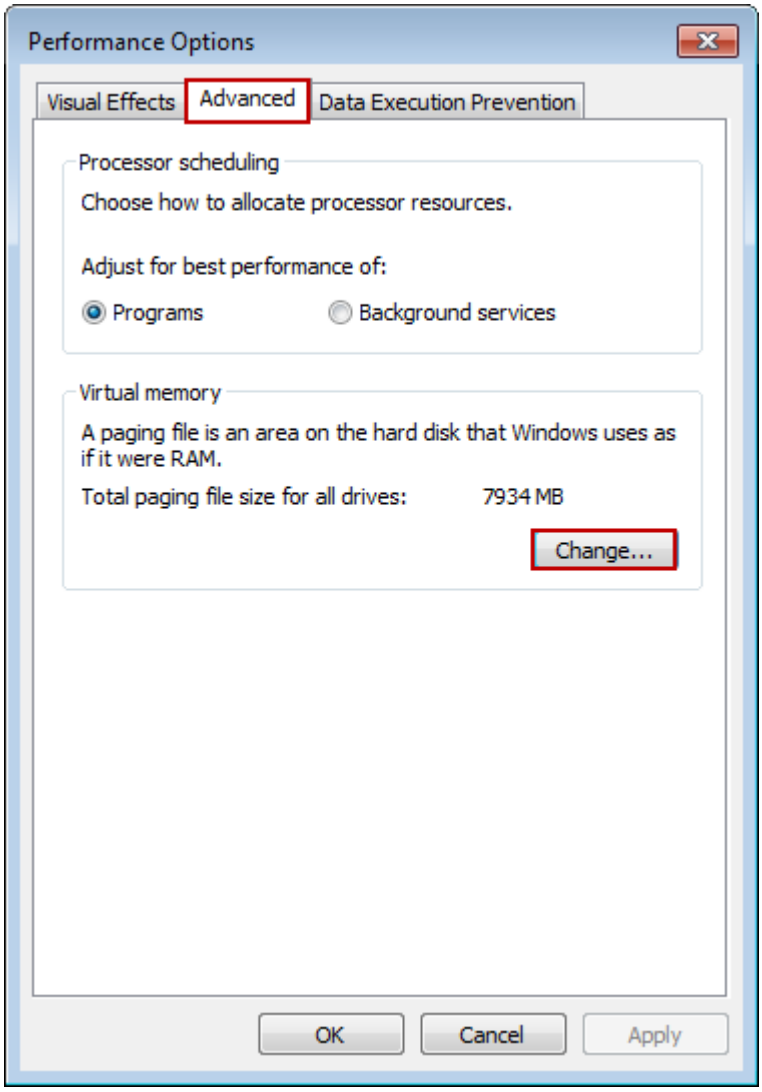


Figure 1-8

5) In the pop up "Virtual Memory" dialog box, uncheck the "Automatically manage paging file size for all drives" check box. Select Drive C, and then click the "System managed size" radio button, and click the "Set" button. Finally, click the "OK" button (Figure 1-9).

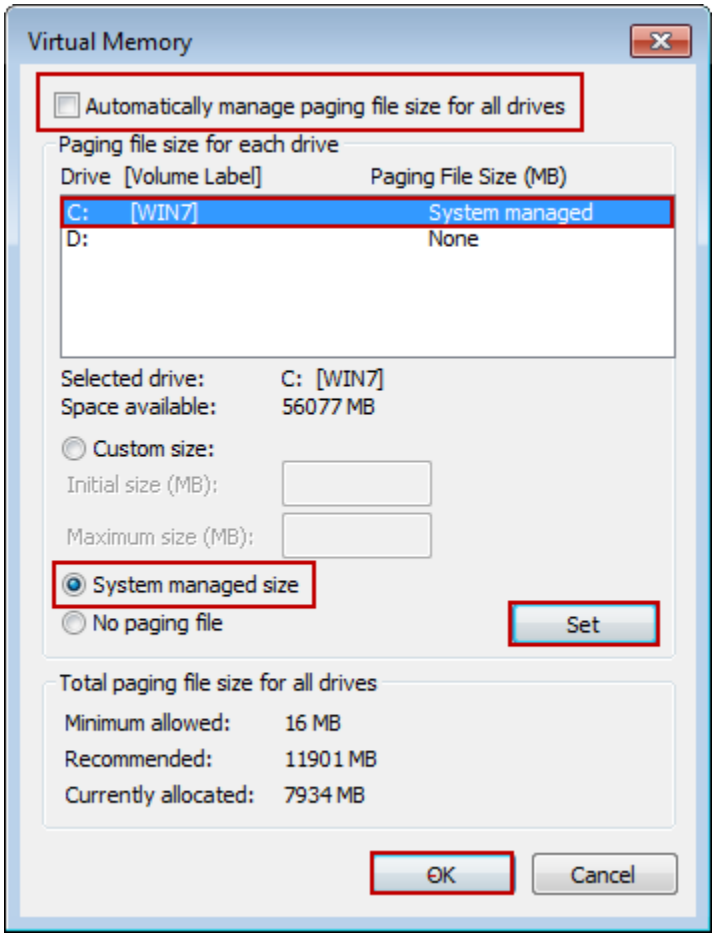


Figure 1-9

9. Blue Screen after Copying Big File

If a blue screen happened after copying big file, it may because of the client NIC driver problem, please download the latest NIC driver from www.ccboot.com/download.htm.

12.8 Invalid Hotkey ALT+Tab

When playing games, if we use the ALT+Tab hotkey to switch the window, it is possible for it to fail to operate. Through changing images, this problem can be changed.

Take the example of PC101, the solution procedures are as follows:

1) On the website of "http://www.ccboot.com/download/alt-tab-no-lag.zip, download alt-tab-no-lag.reg file
2) Use the super user method to boot the client which uses the Atheros network card (Take the example of PC101).
3) After booting the client PC101 without disk, release "alt-tab-no-lag.reg" and boot it.
4) After the finish of the operation, reboot PC101 and shutdown client.
5) Unselect "super user" on the CCBoot server.

12.9 How to Activate Windows License

How to use Genuine License of Windows on CCBoot?
If you are using Windows XP, please choose Windows XP Volume License. CCBoot supports XP volume license directly.
If you are using Windows 7 or above version, please use Volume License, such as Microsoft KMS, and refer to the following steps.

Detailed Steps of Windows 7 License Activation

1) Install new win7 on Master PC A.
2) Active its license. The license should be volume license.
3) Install NIC driver.
4) Install CCBootClient and upload image.
5) Boot another PC B with this image with super client. (If this pc has a different NIC, you should use CCBootPnP.exe get and merge the NIC driver to the image first).
6) Of course, this client will require windows license activation. You don't need to active it. You run sysprep from command line, choose "OOBE" and "generalize" in sysprep. Shutdown PC B.
7) If there is another PC C, D and etc, you need to repeat 5-6.
8) When all PCs finished sysprep. Boot PC a diskless with super client, input the username, add domain, and install applications.
9) You will find that this image will boot all PCs and without need to activation.
10) If you want to update the image, you can update it directly with any PCs on the LAN.

Related Information: "Microsoft Windows and Office License for Diskless"; "Autocad and Other Software License in Diskless".

12.10 USB & PnP Devices Initial Installation

Problem

Some times, it takes a long time for Windows to perform the initial installation and configuration of USB and other PnP devices when booting systems.
If it is performing the initial installation of the mouse and keyboard USB device, then you can't do anything during this period of time.

Solutions

1) On the CCBoot server, enable the super client for a client PC (such as PC101).
2) Diskless boot PC101.
3) Install the USB or other PnP devices.
4) Click the "Start" button, and in the "Run" edit box, type "regedit".
5) In the "Registry Editor" form, navigate to "HKEY_LOCAL_MACHINE\SYSTEM", and then click the "CCBootPnP", in the right form, double-click the "PnPUSB". (Figure 1-1)

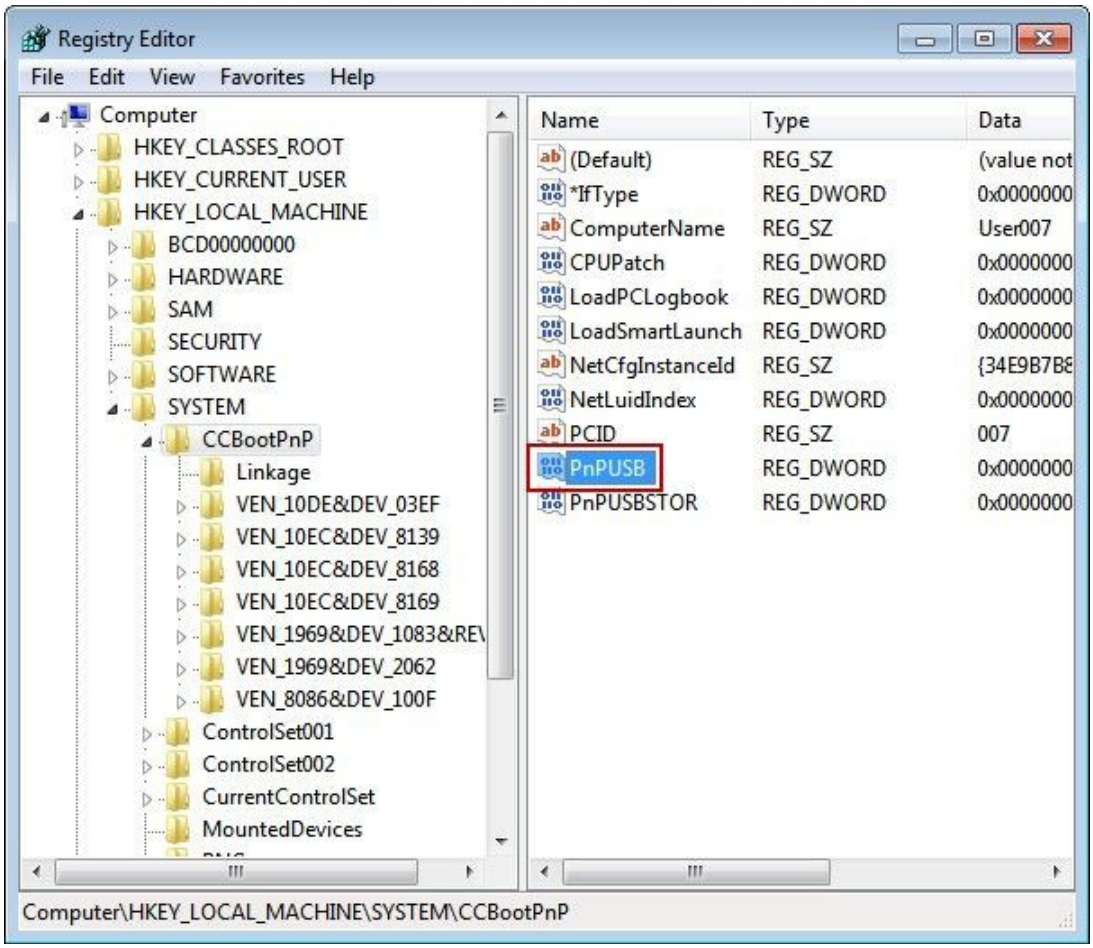


Figure 1-1

6) It will pup up the "Edit DWORD Value" dialog box, in the "Value data" edit box, modify "0" to "1". (Figure 1-2)

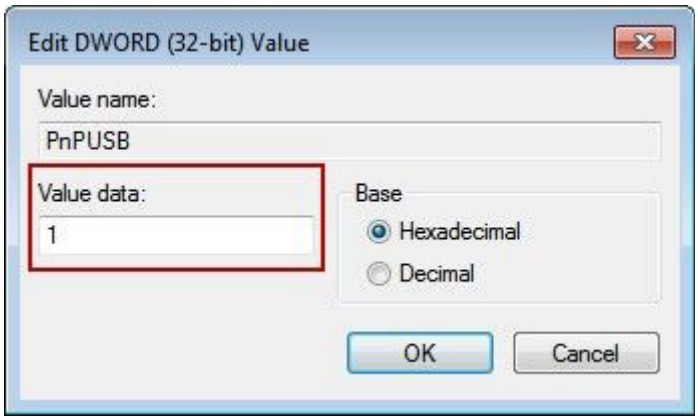


Figure 1-2

If it is the "USB disk" problem, you need to double-click the "PnPUSBSTOR", and after that, it will pop up the "Edit DWORD Value" dialog box, in the "Value data" edit box, modify "0" to "1".

7) Shutdown PC101

8) On the CCBoot server, uncheck the super client.

Note: After modifing the registry, some compatible problem may show up. (For example, there may be some problems in using video camera.)

12.11 It is Slow When Updating Games

Problem

Sometimes, it would be very slow when you use the client to update games without installing "Super Cache".

Solutions

1) On the main interface of CCBoot, click the "Options" button. (Figure 1-1)

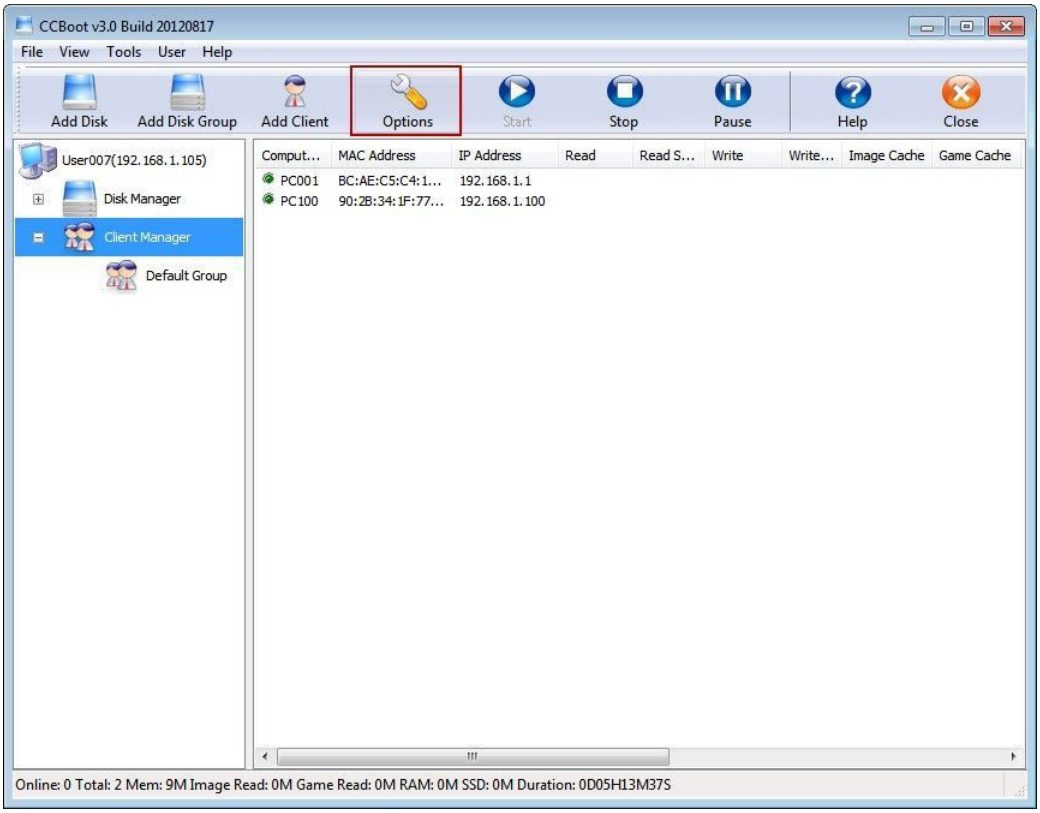


Figure 1-1

2) In the pop up "CCBoot Options" dialog box, select the "Enable System Write Cache" check box, and click the "OK" button. (Figure 1-2)

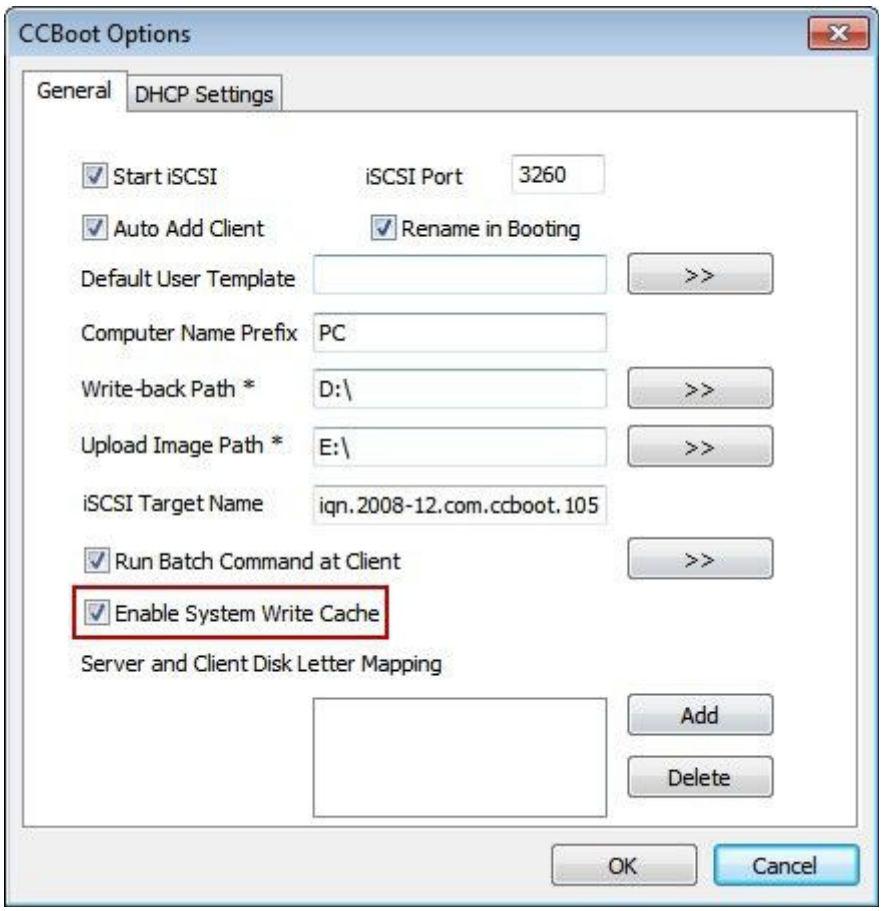


Figure 1-2

After the above steps, the speed of games updating will become faster.

12.12 Client Failed to Access to the Internet

1) In the "CCBoot Options" dialog box, please check the "IP Gateway" address. (Figure 1-1)

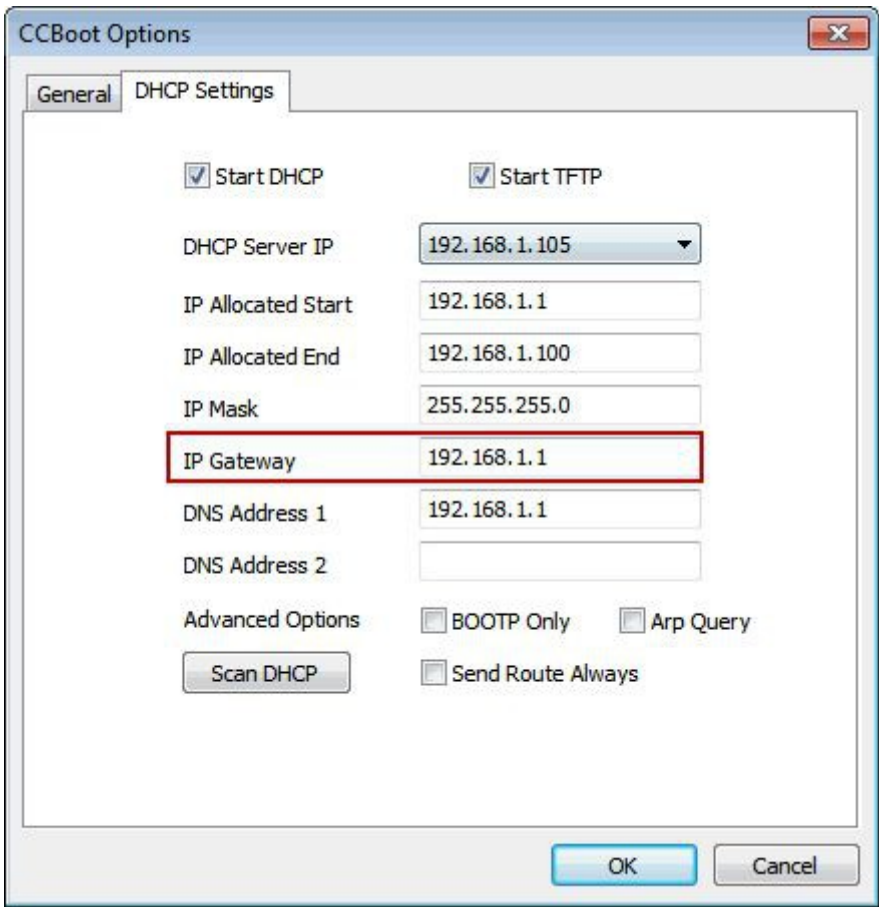


Figure 1-1

2) In the "CCBoot Options" dialog box, please check the "DNS Address" . (Figure 1-2)

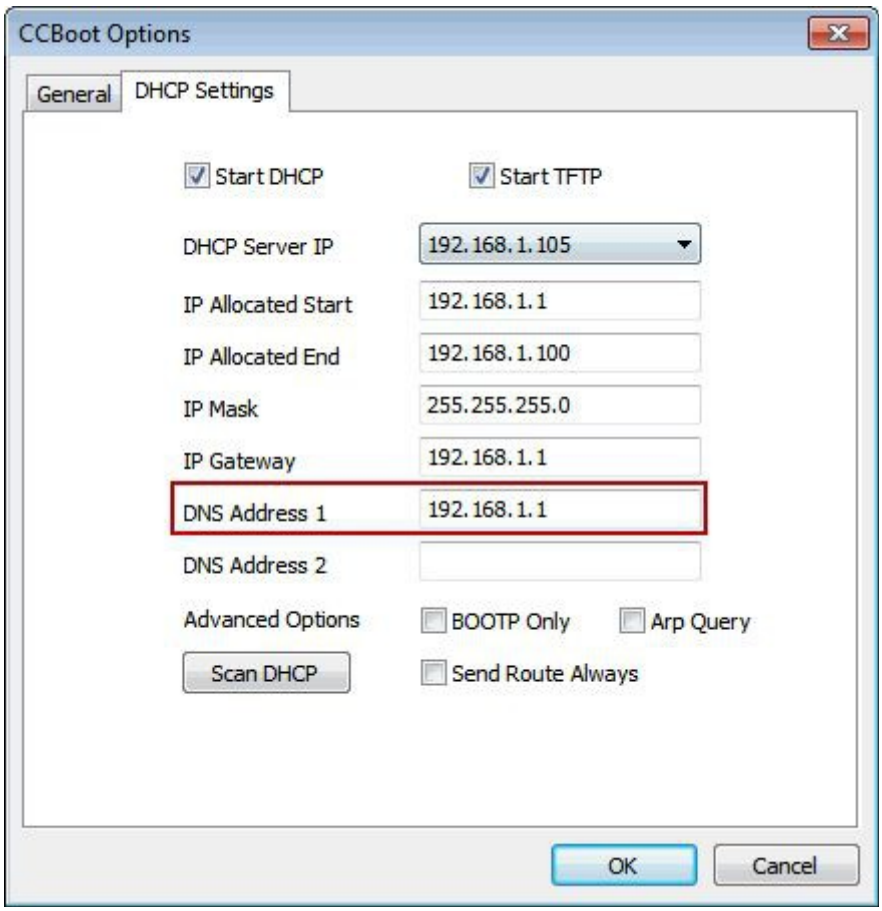


Figure 1-2

3) On the CCBoot server, double-click the client which can not access to the Internet, and in the pup up "CCBoot Client" dialog box, if you have set the "Gateway", please check it. (Figure 1-3)

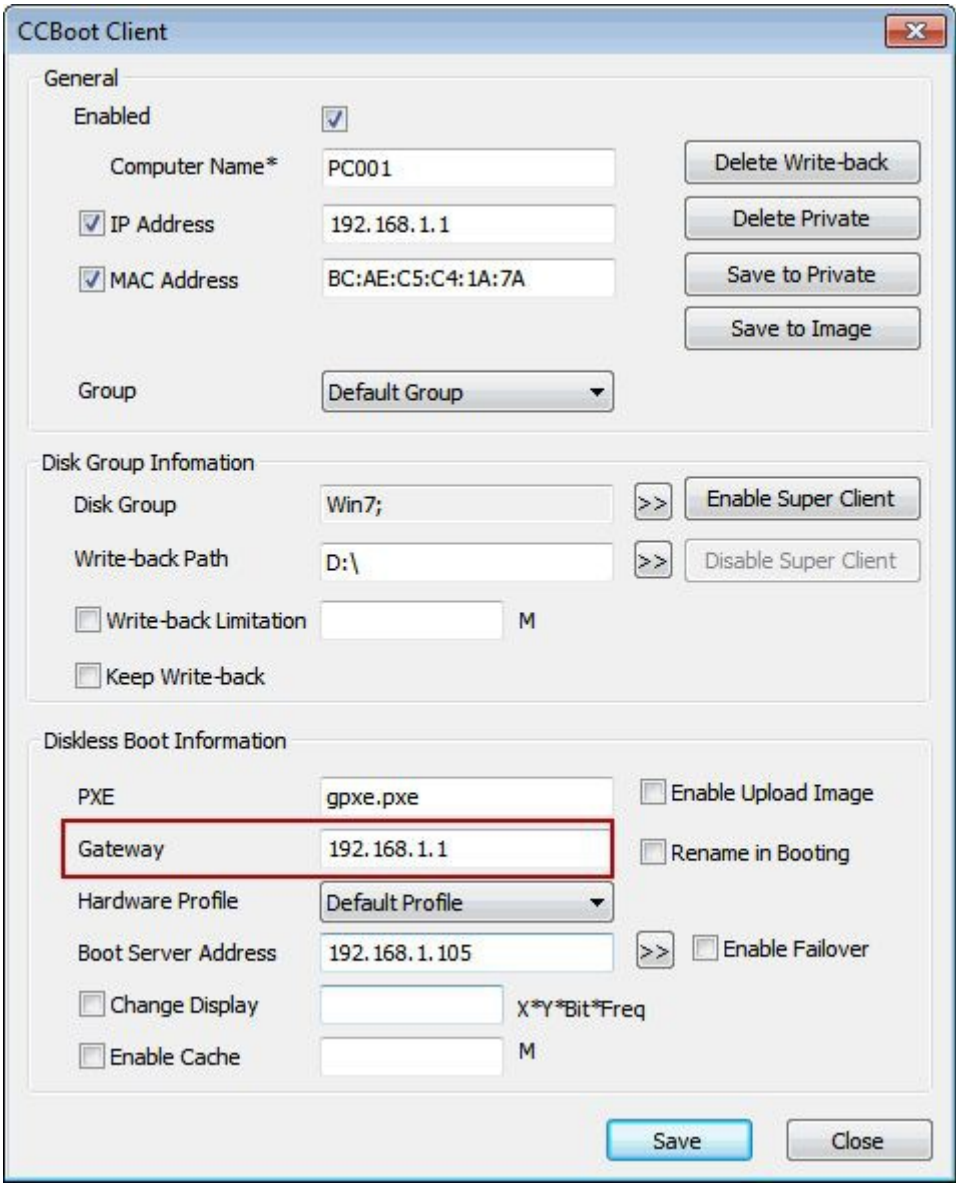


Figure 1-3

4) Within the LAN, please check whether there are other "DHCP" devices, if there are, please disable them.

12.13 Solutions for Failing to Wake on LAN

1) Enable super client for PC101.
2) Diskless boot PC101, then run the CCBootClient program.
3) In the pop up "CCBootClient" dialog box, click the "Uninstall Client" button (Figure 1-1).

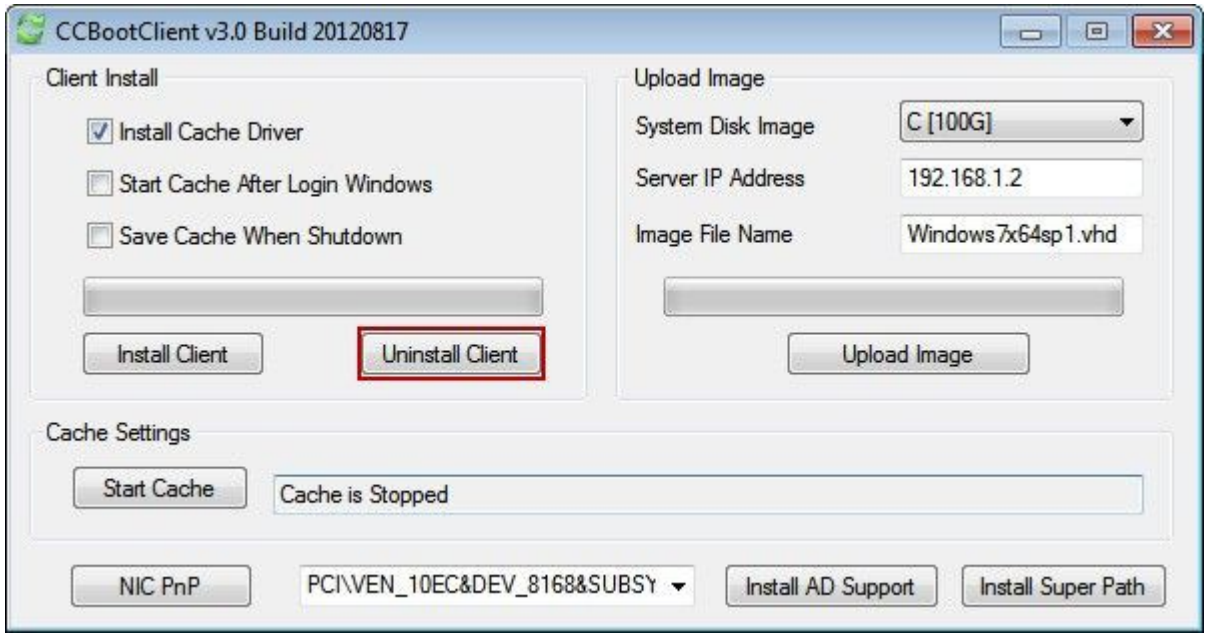


Figure 1-1

4) In the pop up "CCBootClient Uninstall" dialog box, select the "CCBootNIC Driver" check box, then click the "OK" button and uninstall CCBootNIC Driver (Figure 1-2).

Figure 1-2

5) Shutdown PC101.
6) On the CCBoot server, disable the super client.

After finishing the above steps, diskless boot all of the clients and then shutdown them. Now, you can use the Wake on LAN function.

Note: Sometimes, you may encounter the problem that the client PCs will auto restart after shutdown. Normally, this problem is related to the NIC drivers, and it mostly happens to the ASUS mother board. And the ASUS mother board provider is seeking for the reasons and solutions.

12.14 About the License

Reinstalled Windows or Changed Hard Drives

If you have reinstalled Windows or changed hard drives, you can simply enter your license code in the register interface. The license code is combined with the machine ID. And it doesn't need reactivation.

Changed the Machine

If you want to put your license into another machine, please provide the license code for us, and we will help you to reactivate it for free, then you can continue using it.

Windows License Requirements

Q: If we have installed CCBoot on Windows Server 2008 R2. Do we still need CAL for all clients?

A: Yes, if you have installed CCBoot on Windows Server 2008 R2, you still need CAL for all clients.

Q: Do we need RDS license too?

A: It is enough with CAL, so RDS license is not very necessary.

12.15 Upgrade the User Number

Question: Once I have purchased a license for 20 computers. And now, I need to upgrade the user number from 20 to 30. How much do I have to pay?

Reply: You only need to pay for us the additional 10 users, and we will help you to create a new license for the total 30 computers.

12.16 Find Large Write-back Speed Program

Problem

Sometimes, when you boot the client to the desktop process, about 5 minutes later, CCBoot's Write Speed value will be very large(For example, its value would be above "10M".) If this happens, you can solve this problem according to the following steps. (Figure 1-1)

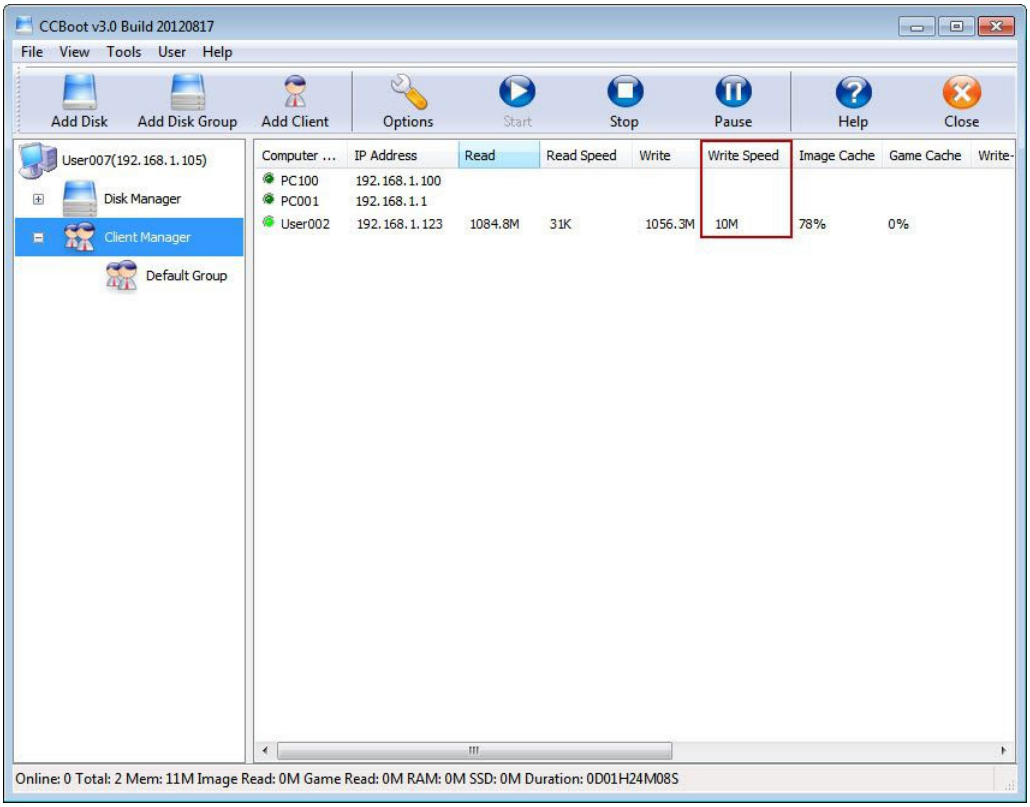


Figure 1-1

Solutions

1) On the CCBoot server, enable the super client for PC101.
2) Diskless boot PC101.
3) After booting the client, open the "Windows Task Manager".
4) Select the "Performance" tab, and then click the "Resource Monitor" button. (Figure 1-2)

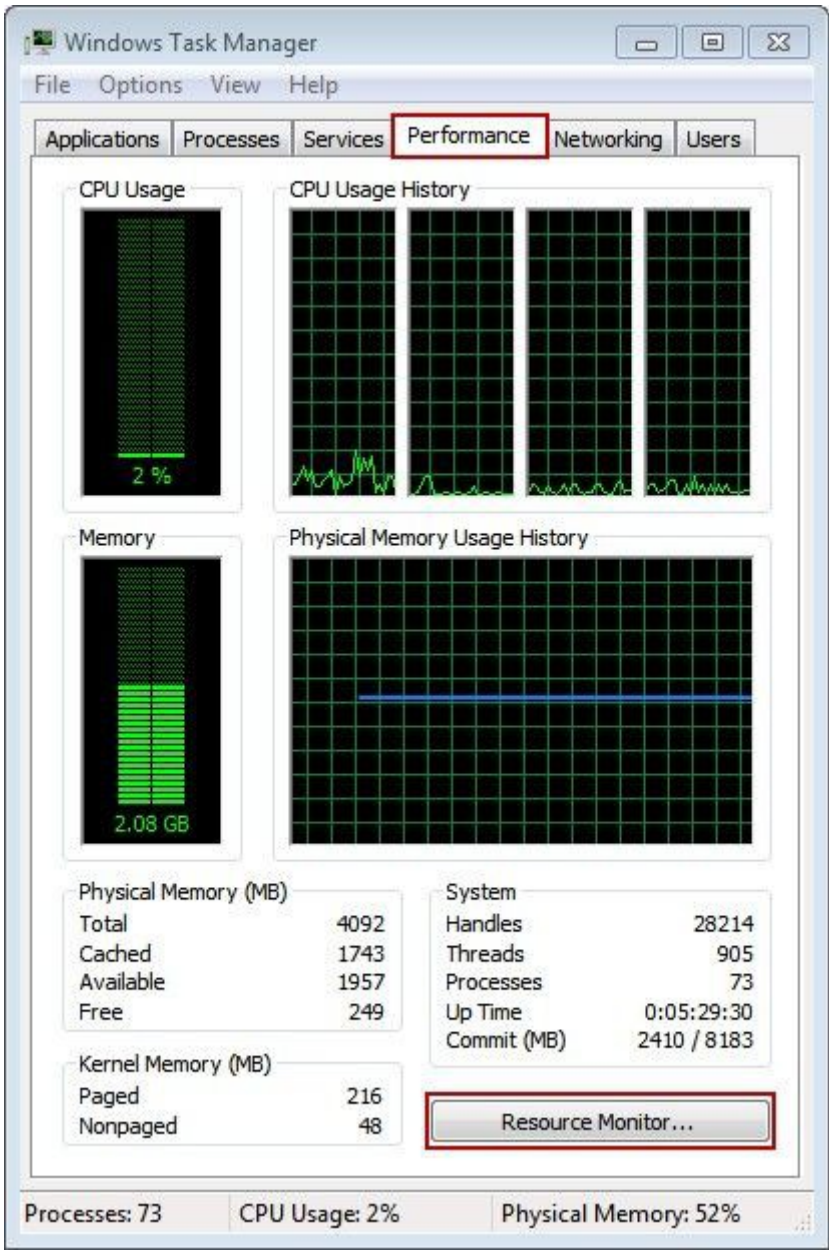


Figure 1-2

In the pop up "Resource Monitor" dialog box, select the "Disk" tab, then click the "write" to sort, and to find the "PID" value of large write-back speed. (Take "Chrome.exe" for example, its PID value is 824.) (Figure 1-3)

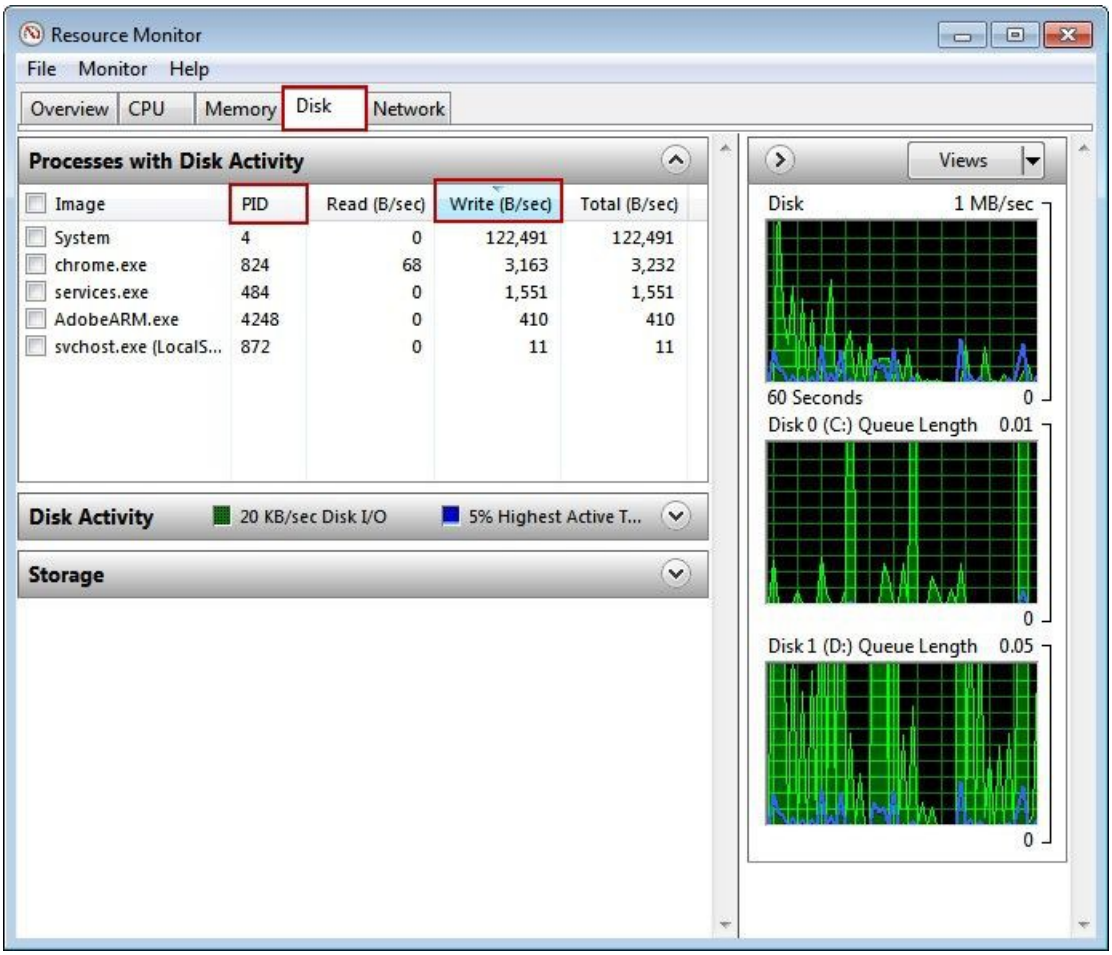


Figure 1-3

In the "Windows Task Manager" dialog box, select the "Processes" tab, click the "PID" to sort, right-click the "824", at last, select the "Open File Location". (Figure 1-4)

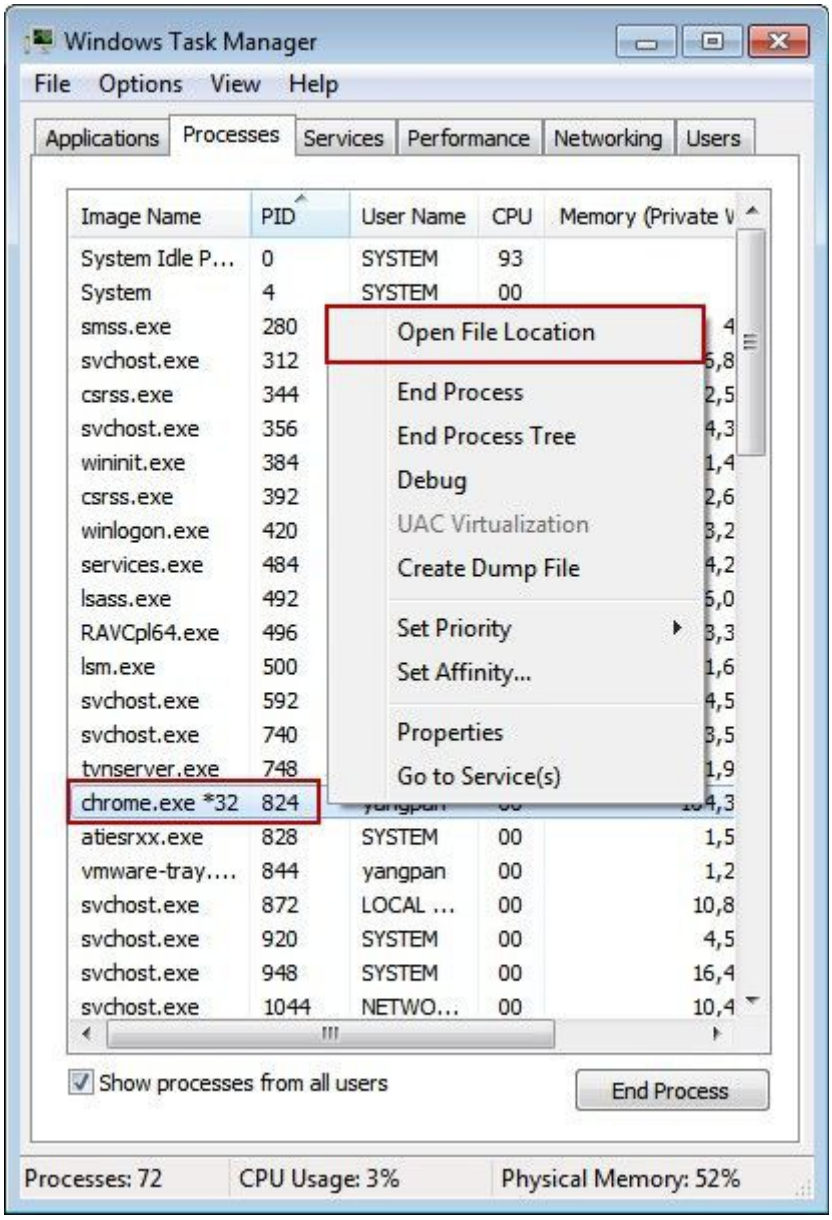


Figure 1-4

Thus, you will find the large write-back speed's program directory.
Uninstall this program, and then shutdown the computer.
On the CCBoot server, disable the super client.

12.17 Solutions for TPLINK NICs' Failing Reboot

Sometimes, if the client's NIC type is TPLINK-8139 or TPLINK-8169, after rebooting the client, you may find that the NIC indicator light is off, what's worse, clients can't connect to the CCBoot server, and you have to disconnect the power and reboot the computer. If this happens, you can solve this problem according to the following methods.

Upgrade the NIC Driver

If the above problem happens in the TPLINK-8169 NIC, then you need to upgrade the NIC driver to version 5.719.

Update the client NIC drive version to version 0817 or higher.

PXE ROM

Upgrade the PXE ROM.

12.18 Win7 Boot Failure with Intel NIC

If clients are using Intel NIC, they cannot boot win7x64 or win7x32. That is mainly because the NICs provided by Intel producers cannot be used for diskless booting. However, the NIC drive coming with Windows7 can be. So here is the solution:

1) While installing Windows7 OS, please do not install Intel NIC drive. Instead, you should let the Win7 OS distinguish Intel NIC automatically and install the NIC drive that comes with the Win7 operating system. But some user reports Intel NIC Driver v18.2 can support Intel NIC 82579v diskless booting.
2) You can install the latest CCBoot client software, for it has integrated the Intel NIC drivers.

Note: If you need to install CCBoot client software to the latest version, please enable "Super Client" for this client. For details please refer to "Update Image by Super Client".

12.19 CCBoot Stops Working at 400KB

When the clients are diskless booting, on the main interface of CCBoot, the data of "Read" in client is around 400K. Besides, the cursor of client is flickering on the top left corner (Figure 1-1). If that happens, you can solve it according to the instructions below.

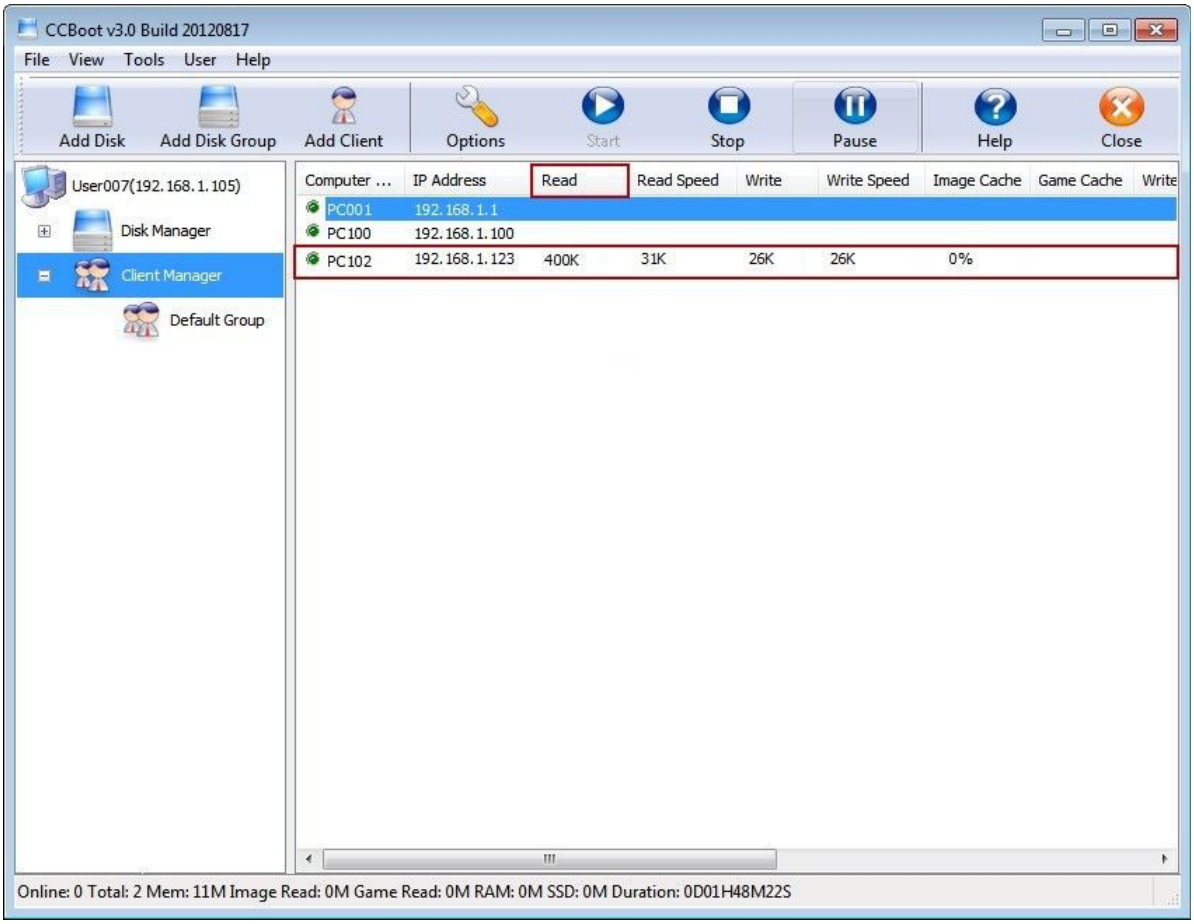


Figure 1-1

Solutions:

1) Setting up Windows7 Ultimate directly and install the latest patch. In this way, the failure of diskless booting can be avoided.
2) If you need to update from Windows7 Home version to Windows7 Ultimate, you should install the latest patches, then the failure of diskless booting can also be avoided.
3) For the above problem, if you are using CCBoot server 0817 with Windows 7, please try to modify the default PXE value of "gpxe.pxe" to "gpxe0.pxe" or "gpxex.pxe" (Figure 1-2).

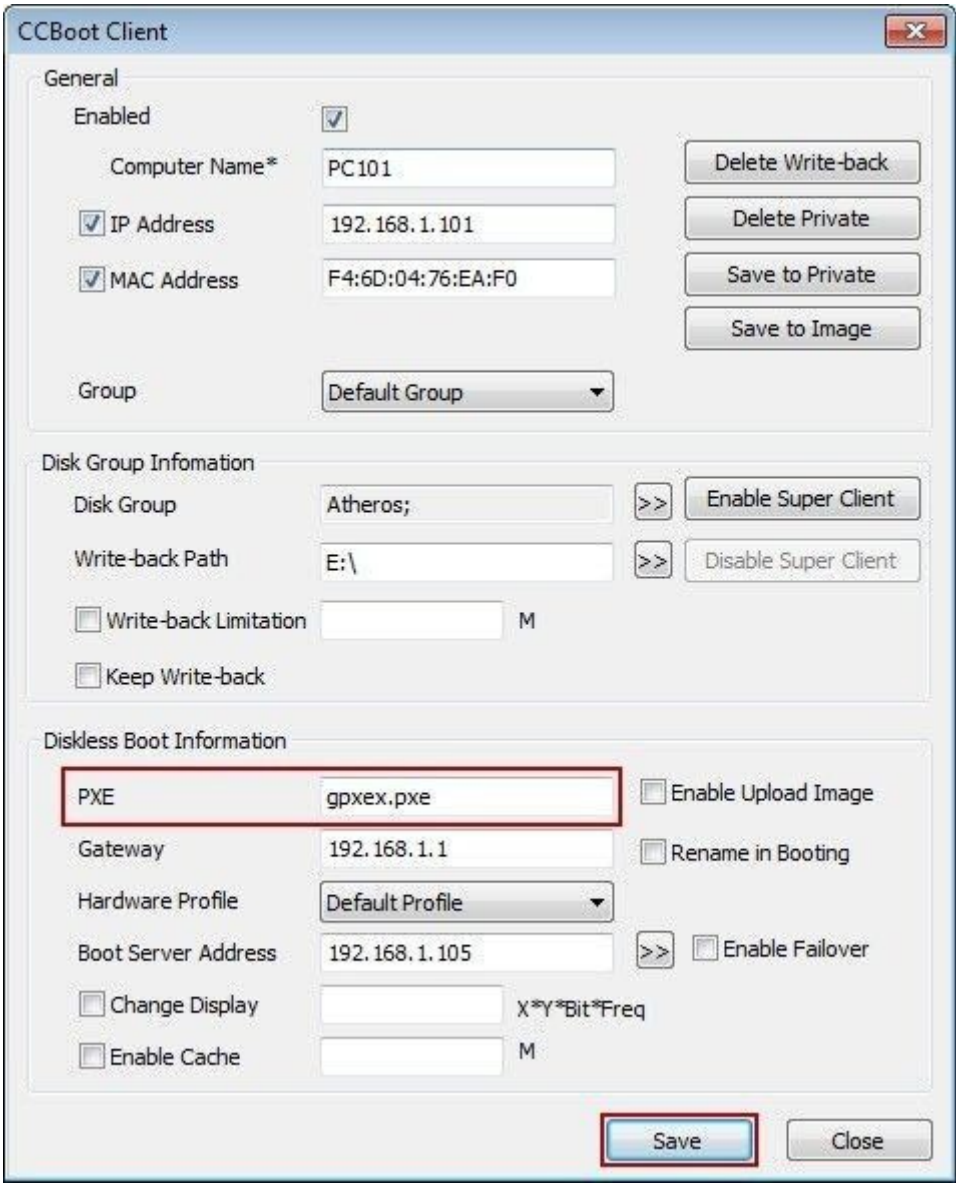


Figure 1-2

12.20 App Failed to Run Under Virtual Machine

While playing games, if such error as "this application cannot run under a virtual machine" popping up, please solve the problem according to the following instructions.

1. Uninstall VMware NIC Driver

1) On the CCBoot server, enable "Super" for PC101.
2) Diskless boot clients.
3) Run "CCBoot Client".
4) In "CCBoot Client" dialogue box, click "NIC PnP" button (Figure 1-1).

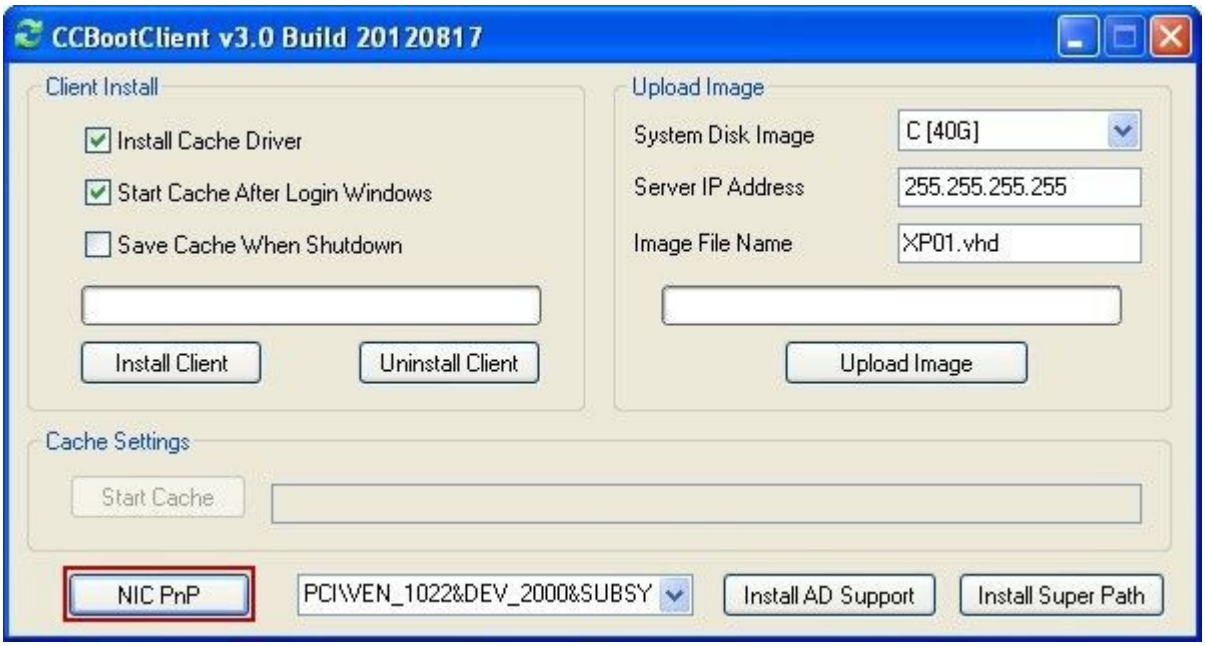


Figure 1-1

5) In the popup "CCBootPnP" dialogue box, click "Install Known NIC" button(Figure 1-2).

Figure 1-2

6) In the "NIC Drivers" dialogue box, uncheck "VMware PCI Ethernet Adapter" check box, and then click the "OK" button (Figure 1-3).

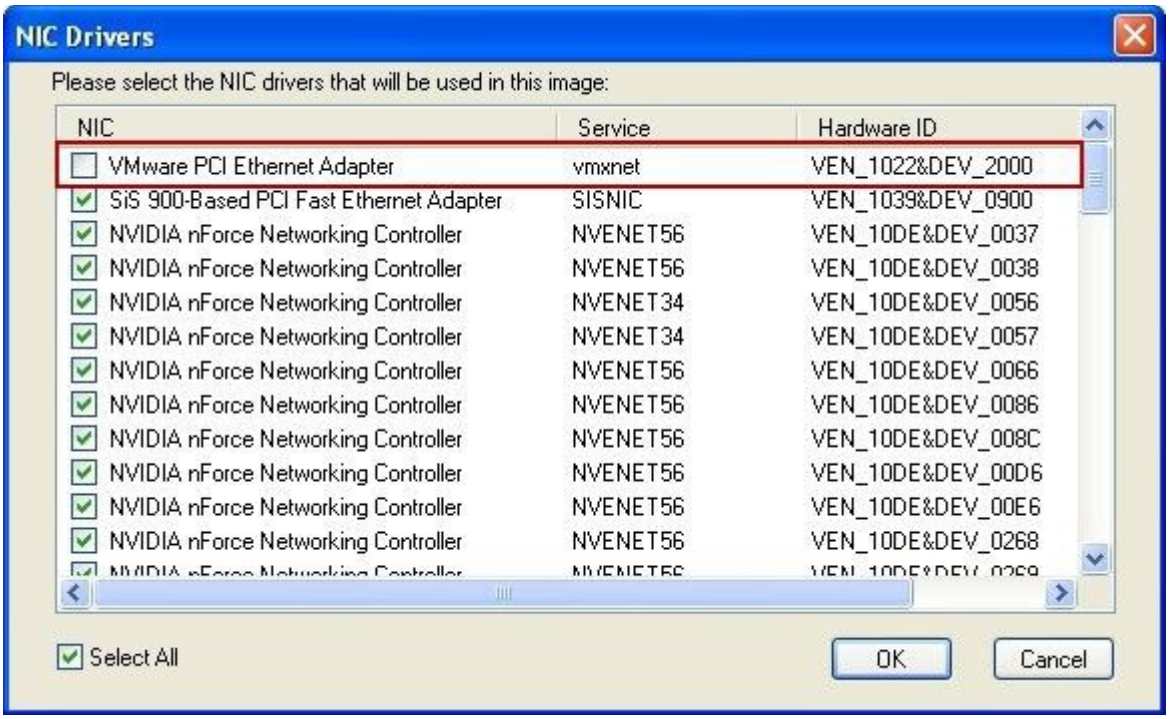


Figure 1-3

7) Click "Start" button, in "Run" edit box type "regedit", then press the "Enter" key.
8) Navigate to " HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services", expand it, right-click "vmxnet", select "Delete" (Figure 1-4).

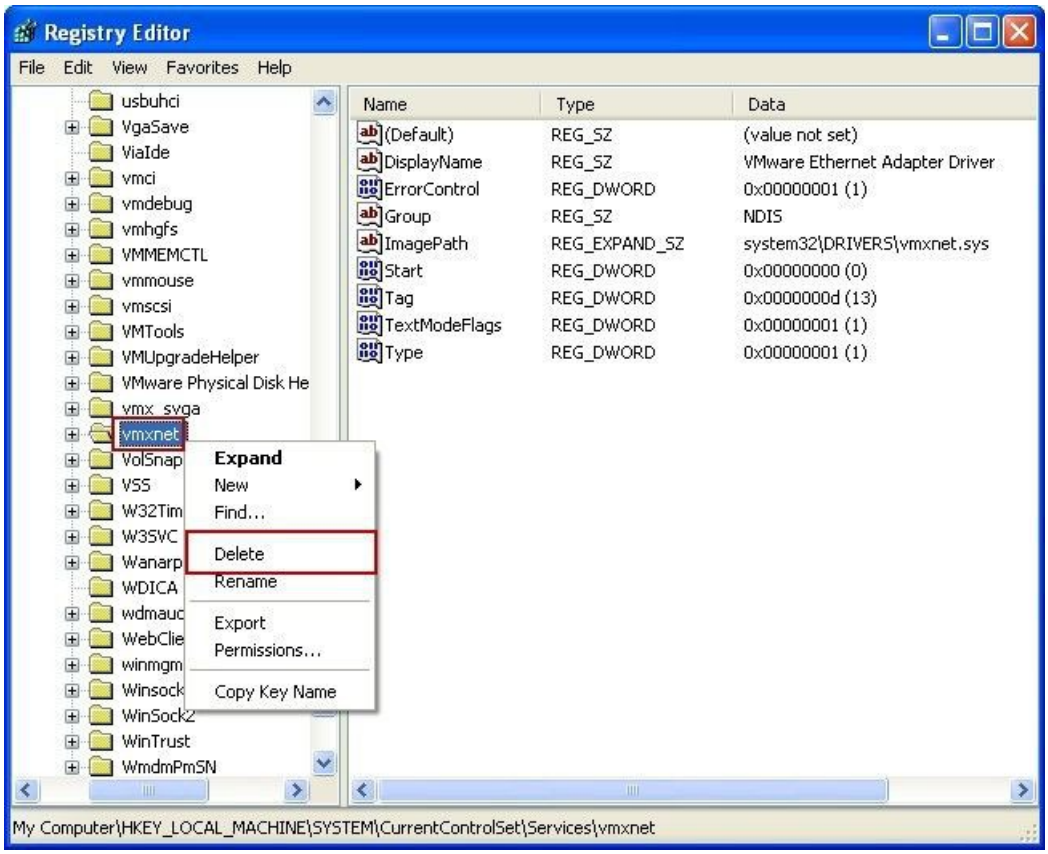


Figure 1-4

Note: In the "Registry Editor" dialog box, you should also search out all the "vmxnet" files, and then delete them.

2. Uninstall VMware Tools

Check if there is VMware Tools and virtual machine in Image package. If there is, please uninstall them.

12.21 Why You Need to Use Super Cache

1) When the write-back speed becomes very slow, you can use Super Cache to improve it.
2) If you haven't installed Super Cache, then, in the "CCBoot Options" dialog box, you need to select the "Enable System Write Cache" check box.(Figure 1-1)

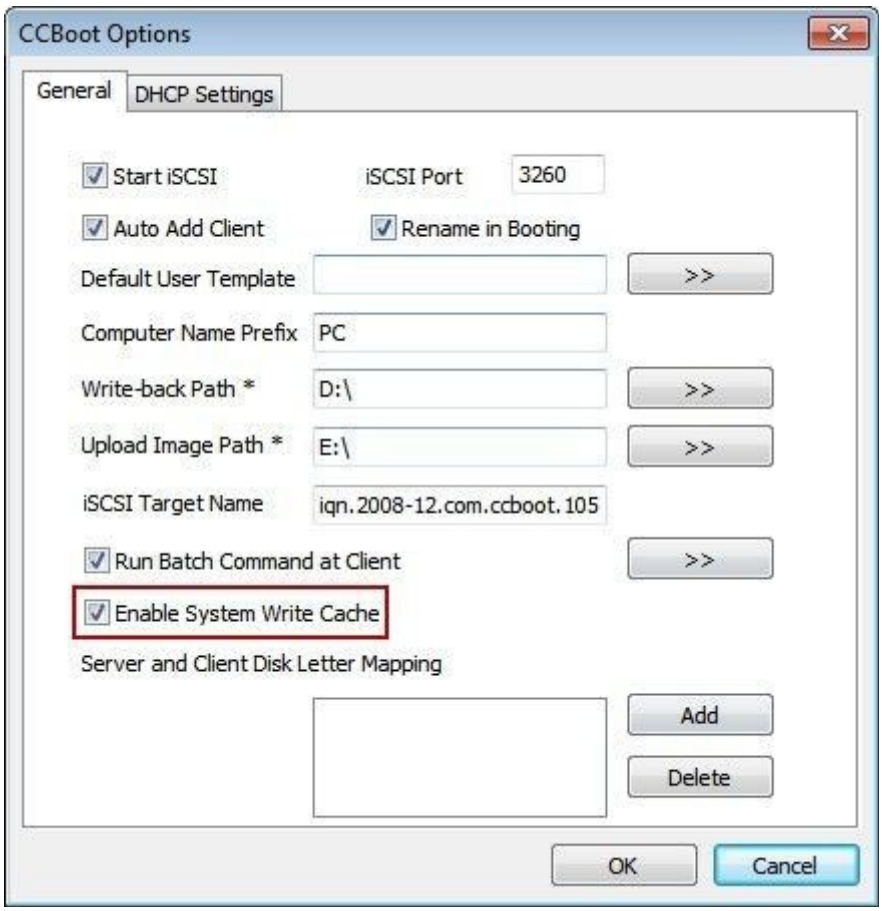


Figure 1-1

12.22 CCBoot Client Upgrade Steps

1) Enable super client for a PC (such as PC101).
2) Diskless boot PC101.
3) On PC101, install the latest version of CCBoot client program.
4) In the pop up "CCBoot Client" dialogue box, click the "Install Client" button (Figure 1-1).

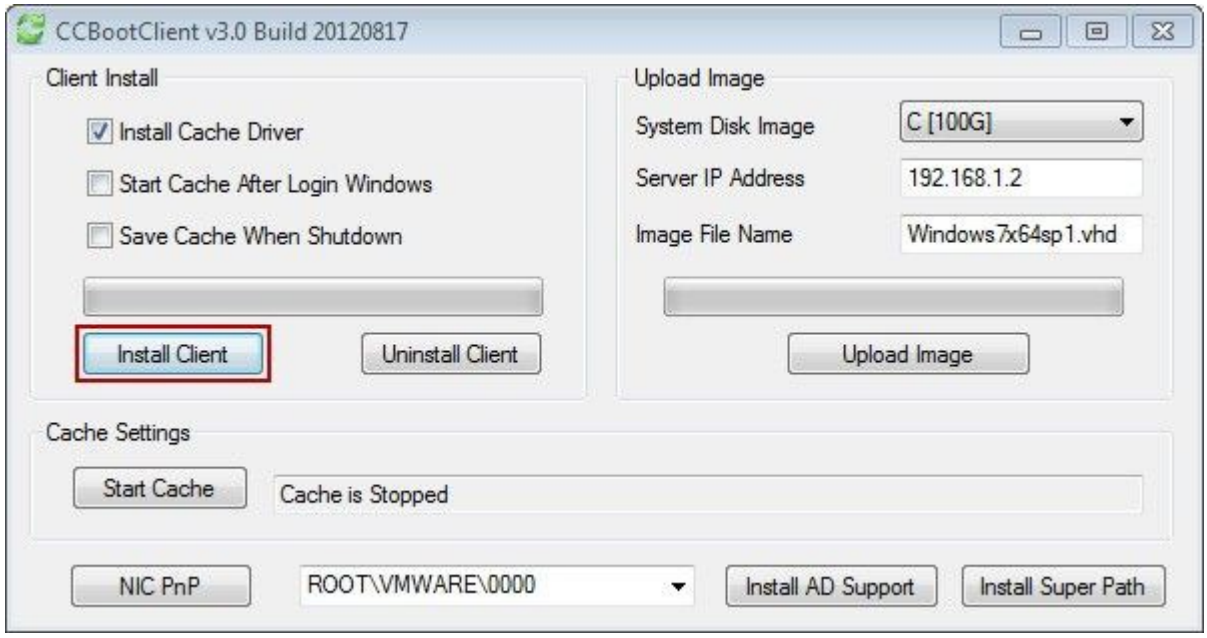


Figure 1-1

Note:
Even if you have collected "NIC PnP" before, you have to collect the "NIC PnP" again. For details, please refer to "Add New Machine into Boot Image".

5) After you finished installing CCBoot client program, please shutdown PC101.
6) Disable super client on the CCBoot server.

12.23 Steps of Removing NIC Drivers

We take removing "NVIDIA nForce Networking Controller" NIC driver as an example.

1) On the CCBoot server, enable super client for a PC (such as PC101).
2) Diskless boot PC101.
3) Run the "CCBootClient" program.
4) In the "CCBootClient" dialog box, click the "NIC PnP" button (Figure 1-1).

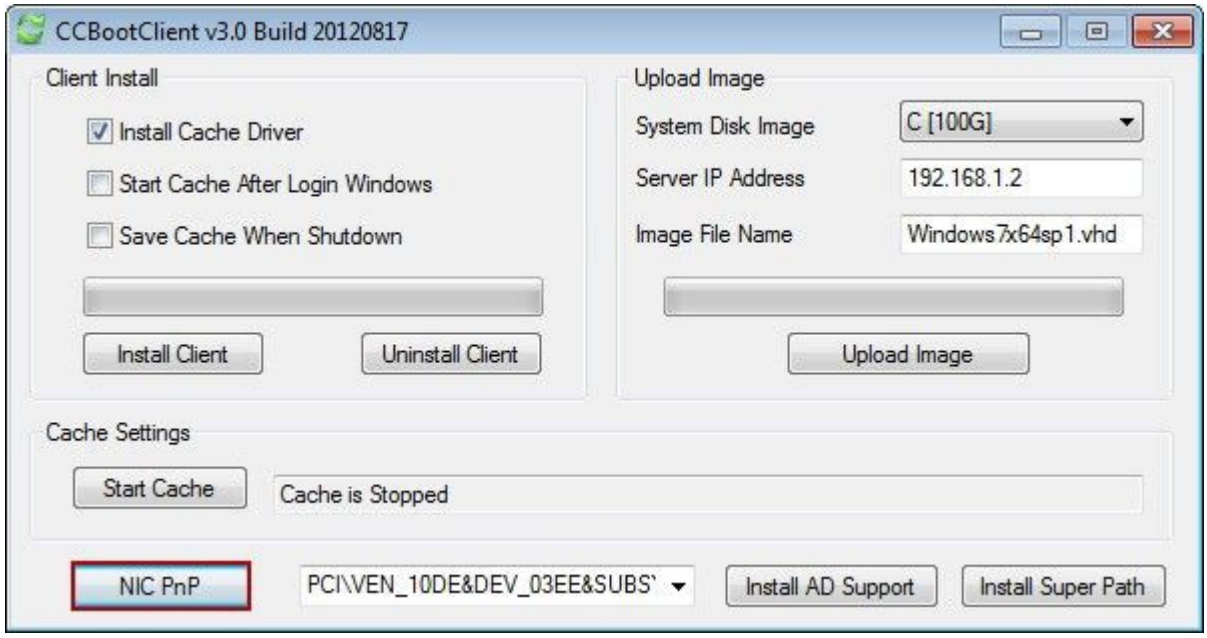


Figure 1-1

5) In the pop up "CCBootPnP" dialog box, click the "Install Known NIC" button (Figure 1-2).

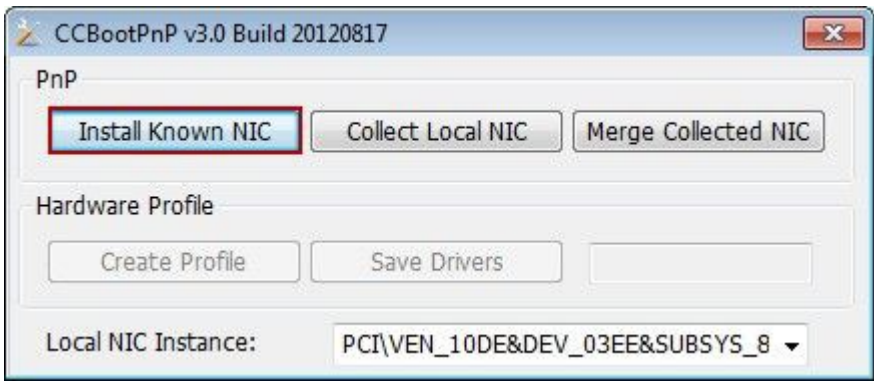


Figure 1-2

6) In the pop up "NIC Drivers" dialog box, uncheck the "NVIDIA nForce Networking Controller" check box, and then click the "OK" button (Figure 1-3).

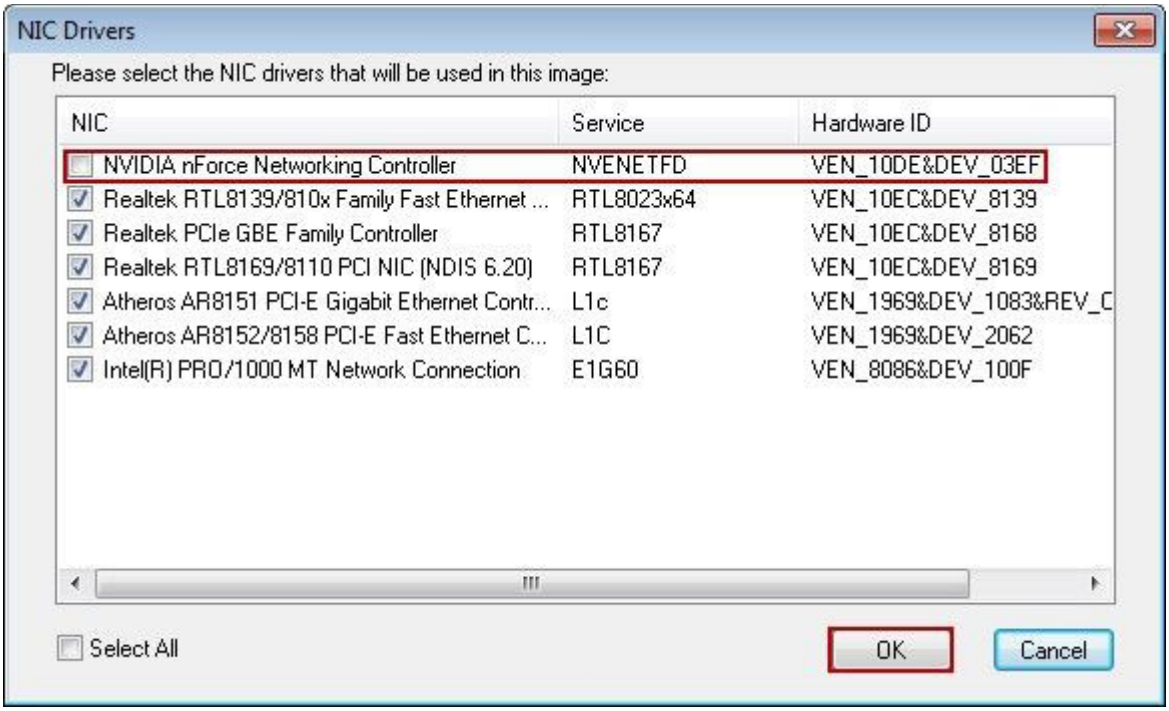


Figure 1-3

7) Shutdown PC101.
8) On the CCBoot server, disable supper client.

12.24 About iSCSIPrt Failed

If there are error messages which appear in the event viewer like below, please don't be worry, because these are the normal phenomena.
1. Event 5, IscsiPrt: Failed to setup initiator portal. Error status is given in the dump data.
2. Event 45, volmgr: The system could not sucessfully load the crash dump driver.
3. Event 46, volmgr: Crash dump initialization failed!

Note: There are two reasons for these errors. One is that we use diskless solution, and the clients visit the server's disks through iSCSI, and sometimes the network may be disconnected. The other reason is that when the server gets started and while it changes from Real Mode to 386 Mode, the network will be disconnected which is unavoidable, and clients can not connect to the server, which caused the network traffic/congestion. But we have Disk Manage Service, and the iSCSI has restatement mechanism, once the network is disconnected, it will automatically reconnect later. Please don't worry about this problem, it doesn't matter much.

12.25 The Diskless Server Load Calculation and Adjustment

Client reads the package does not cause a lot of pressure on the diskless server and high hit rate can easily be done using the snapshot mode. The diskless server pressures includes the following two aspects:
1) write-back disk
2) game disc pressure
Factors: increased pressure to the server, including temporary files, virtual client processing and client download page caching.
Solution:
1) CCBoot terminal with memory cache can greatly reduce these pressures, 2G memory client can be set to 512M memory as cache, 1G memory can be set to 128-256M of memory as cache (recommended client memory upgrade to 2G because now in the disk environment, 1G memory of the computer playing games are card). CCBoot support multi-disk write-back, allows different clients written back to disk, so there are a lot of benefits, such as: a write-back disk contained only affects the client under the write-back disk without affecting the global . Under normal circumstances a SATA hard drive with 20 client is not a problem.
2) the type of game disk game very much, cache is more difficult to achieve a high hit rate, so the computer multiple RAID sets with large memory cache to improve the speed, of course, can use our two SSD cache technology to improve the speed, CCBoot this technology has been great.
Server state, how to determine which disk overload.
1) The easiest is to use the disk test tools HDTUNE, real-time detection of disk speed, and write-back disk test curve has long been lower than 15M already in overload status, the need to increase the write-back disk to share write-back pressure.
2) to monitor the performance of the operating system viewer, if the disk is idle rate is often less than 30%, it also shows that the disk is in overload status.
In short, read and write the pressure determines the server's disk configuration. Back to the requirements and the number of disk write to appropriate CCBoot read and write by sector, the terminal cache hit rate and efficiency of virtual memory is very high, 2G memory client set 512M of memory as cache normal playing games, the server almost did not write back.

12.26 Atheros NIC Solution Failed to Create Image

When you are uploading Windows 7 64bit system and using some network interface card

"Atheros". The image uploading will easily loss or interrupted, You can easily create image by combining other network card drivers with "Atheros" driver by using "CCBoot PNP". The solution is as follows.
Boot Client PC with HDD that is installed with "Atheros" NIC and then install Windows Operating System, drivers and CCBoot client.
To Optimized "Atheros Network Card" Go to Atheros NIC properties and Turn off or Disable "Flow Control" and "QOS".
Run CCBoot PNP.exe in this PC, click "Collect local NIC" button and then a "OK" will pop up, press "OK" button and then you will find the folder named "Drivers" in the CCBoot client directory, Insert USB flash drive in this PC and then copy and paste this folder "Drivers" In to your USB key.

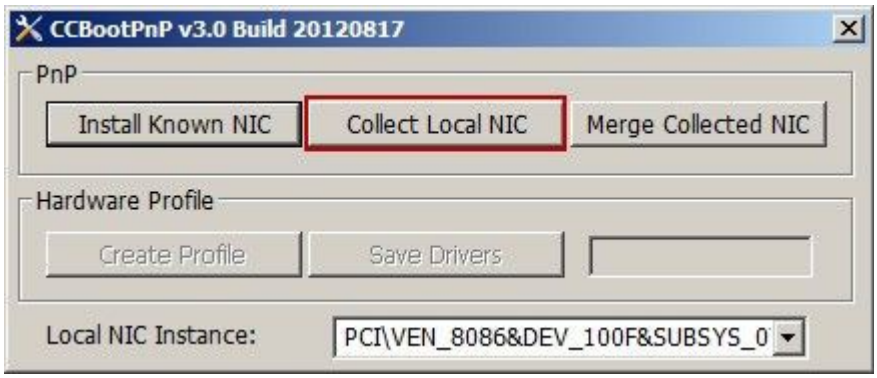


Figure 1-1

Supposed you have an image that can diskless boot "Realtek" NIC.
Click "Client Manager" in CCBoot Server Main Interface, choose this PC002 with "Realtek NIC" and double click to open the client properties and then click "Enable Super Client" a pop message will appear "Do you want to create Recovery for Image?" press "Yes" then input the Description.
Diskless boot this PC002 with "Realtek" NIC, insert your USB flash drive in this PC that you have use to collect the "Atheros" NIC driver, Copy the folder name "Drivers" and paste it inside the CCBoot client installation directory "c:\CCBootClient" and then run "CCBoot PNP.exe". Press "Merge Collected NIC" in CCBoot PNP then press "OK" after merging of NIC driver, shutdown this PC.
Go back to CCBoot Server, click "Client Manager" double click again the PC002 (with Realtek NIC) to open the client properties then click "Disable Super Client" and "Save".
Now Diskless boot the client PC that is using "Atheros NIC" to test in diskless booting if success.

12.27 How to Choose the Payment Method

We offer several payment methods for you to purchase our software more smoothly.

Such as PayPal, Credit Card, Shareit, Western Union, and Bank Wire Transfer etc. Then, how to choose the payment method? Please refer to the following instructions.

1) If you have got a PayPal account, it's easy for you to purchase from our site. And you can also pay us directly to our PayPal account - support@youngzsoft.net
2) PayPal supports credit card, so if you have a credit card, you can pay via PayPal.
3) If you have enjoyed a discount, or you need to add User Number to your existing license, please make payment at "Youngzsoft - Customized Payment". It supports paying by PayPal and Credit Card.
4) In case that you failed to pay via PayPal, please use Shareit.
5) If you failed to pay via Shareit either, please turn to Western Union or Bank Wire Transfer. We recommend you choose Western Union, because the payment may reach us in about 10 minutes, while Bank Wire Transfer needs more time.

Note: If you choose Bank Wire Transfer, please leave the "Remittance Purpose" blank, or only write "Computer Technical Service" there. And please send us an email after you made the payment.

12.28 CCBoot Works with Truecafe

Test tells us that CCBoot can work with Truecafe successfully. However, sometimes, you may encounter a problem that when you use Truecafe on CCBoot, it always stops at Windows logo. In this case, please follow the instructions below.

1) Install Operating System on your client PC.
2) Install CCBoot client program on you client PC, and then reboot the client PC.
3) Install Truecafe on your client PC.
4) Reboot the client PC, and then upload image.

Note: Please operate according to the above steps in sequence, and do not reverse step 2 and step 3. Moreover, it does not support installing Truecafe under the circumstance of diskless.

12.29 How to Work with Truecafe

CCBoot can work with Truecafe successfully. Please follow the instructions as below.

1) Install CCBoot on your server PC.

2) Install CCBoot client program on you client PC, and then reboot the client PC with super client.

3) Install Truecafe server on your server PC.

4) Install Truecafe client on your client PC, double click the Truecafe client, input the server IP in the pop-up "Truecafe client" dialog box and select the "Diskless system" radio button (Figure 1-1).

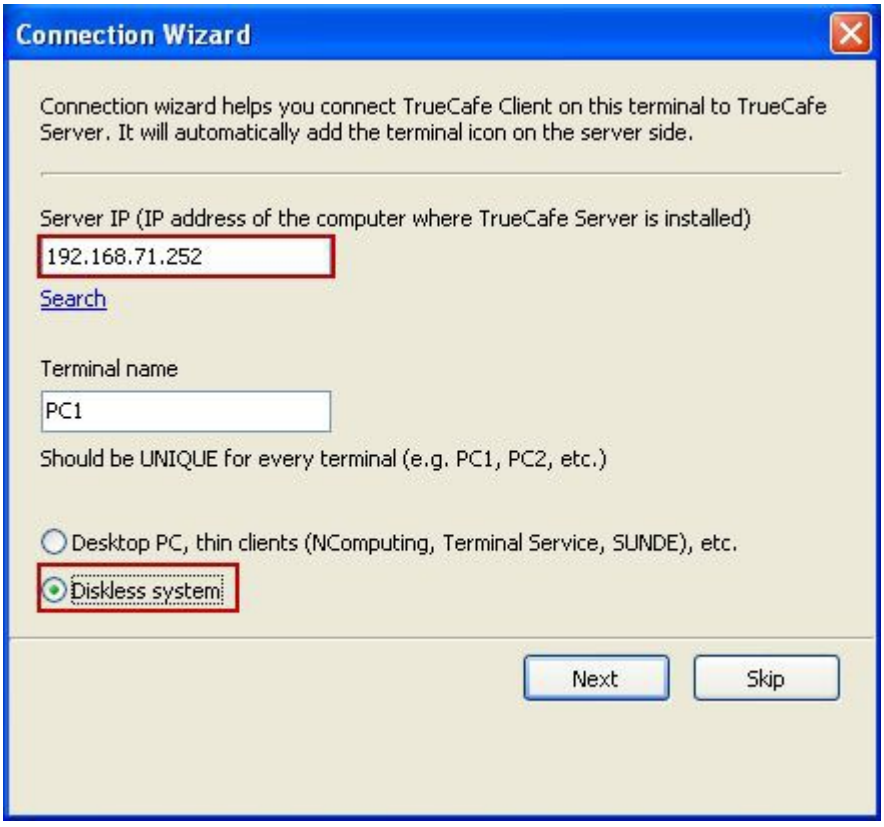


Figure 1-1

5) Click the "Next" button in the pop-up "Connection Wizard" dialog box (Figure 1-2).

Figure 1-2

6) Turn off the client PC and disable the super client on server PC.

7) Reboot client PC. In the Truecafe details pane, double click the client PC, in the pop-up "New Session" dialog box click the "Add time" button and select the proper time (Figure 1-3).

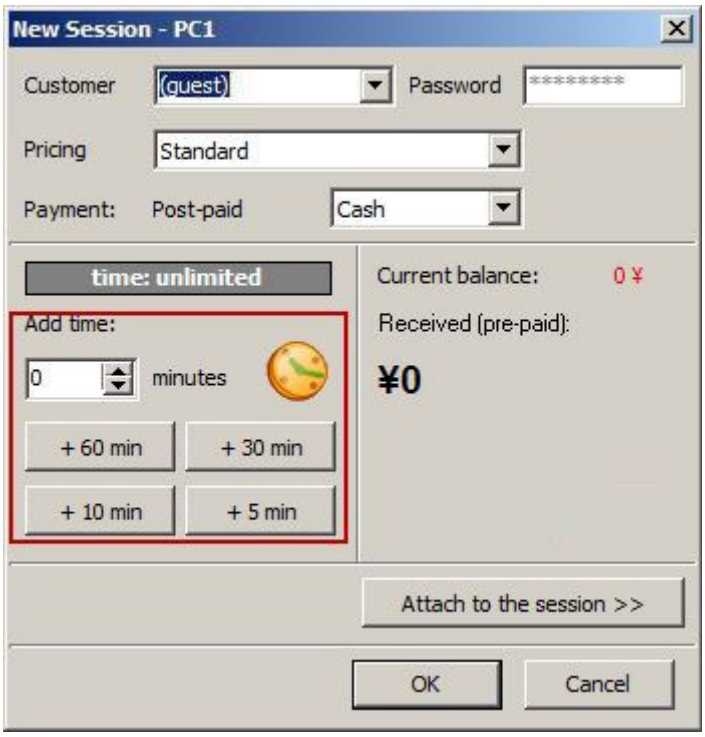


Figure 1-3

8) On the client PC when you can see the "Welcome" , you can use Truecafe with CCBoot now (Figure 1-4).

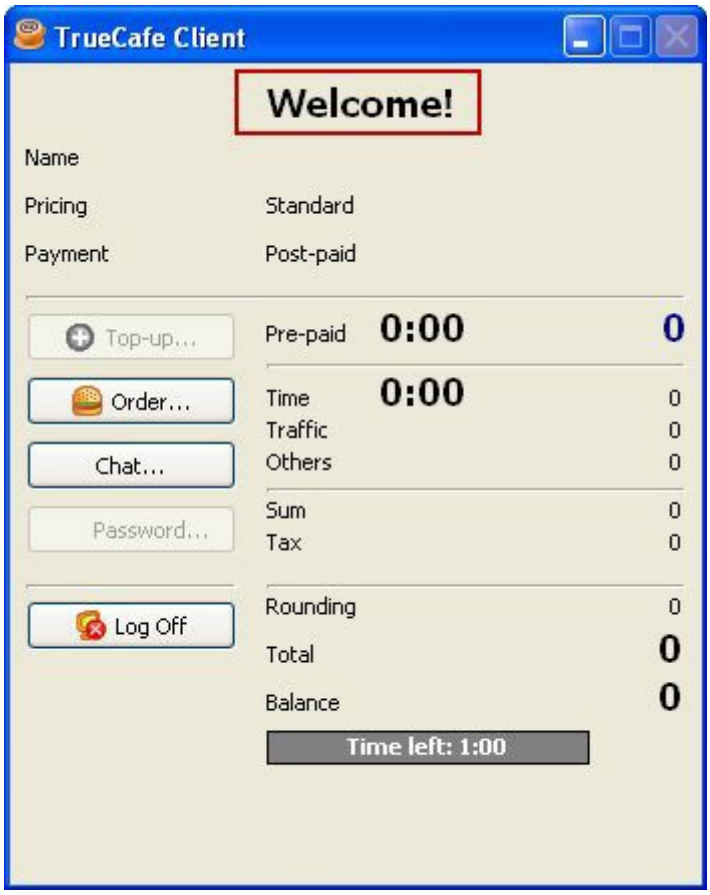


Figure 1-4

Note: Please operate according to the above steps. Moreover, Truecafe can work under the circumstance of diskless and HDD. When you boot the client with CCBoot diskless solution, you should choose the "Diskless system“ radio button in the pop-up "Connection Wizard" dialog box.

12.30 Load Slow When Internet Disconnected

If clients/server don't detect there is Internet connection (like internet gets disconnected), some games like nba 2k12/2k13, battlefield 2, teamfortress loads very slow what usually takes 1-2 min loading will now take 5-15 minutes depending on games. You need to enable iSCSI service in Windows 7. Please refer to the following steps.

1) Please boot the client with super client.
2) Type "iscsi" in the Windows "Start" menu, choose "iSCSI Initiator" and click it. (Figure 1)

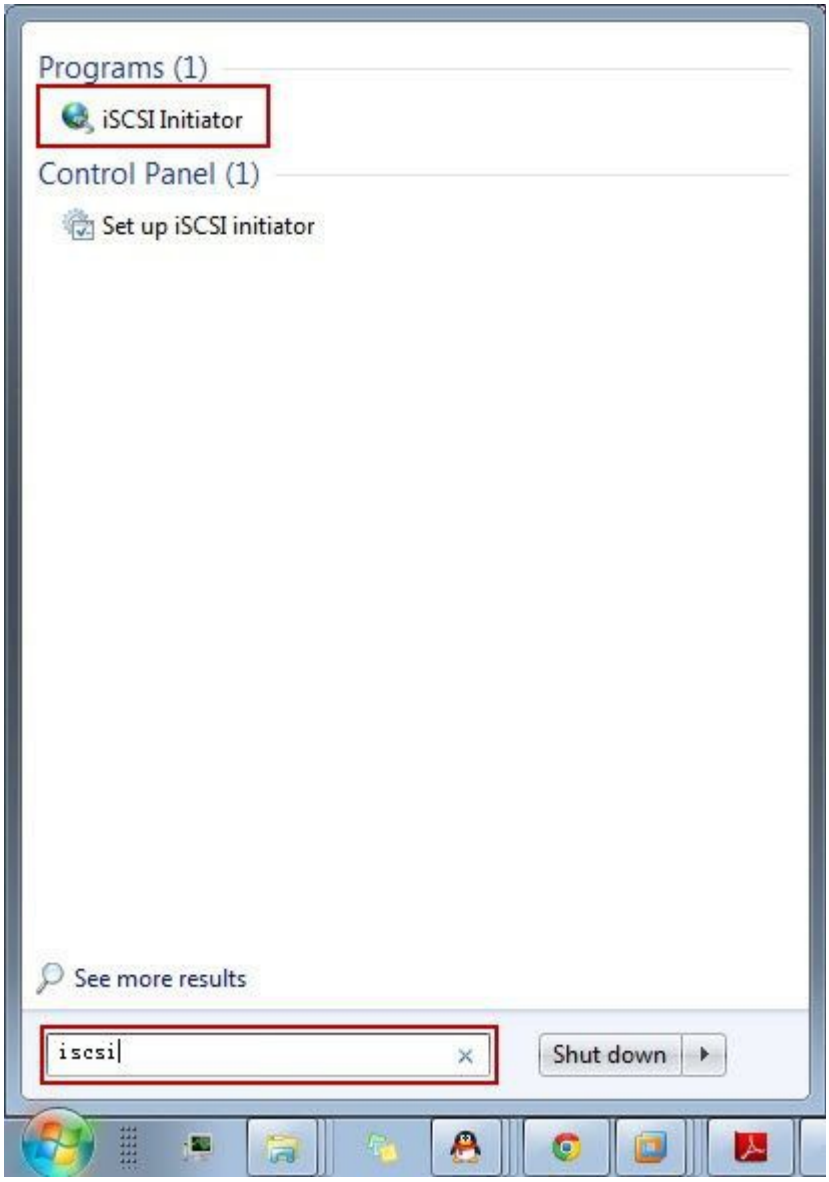


Figure 1

3) Click "Yes" button. (Figure 2)

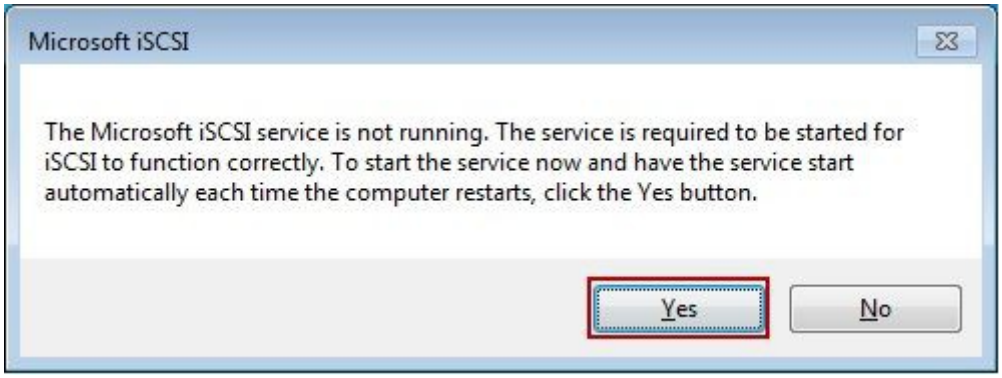


Figure 2

4) Shutdown the client PC and disable Super Client.

Now the client will load that games fast even without Internet.

-Thanks for Mark Chua reported this.

12.31 How to Install Smartlaunch in CCBoot

1) At first, please install the ccbootclient with v3.0 20120817 or above.
2) "Start" > "Run" > "regedit".
3) Navigate to HKLM\System\CCBootPnP.
4) Add a key "SmartLaunchPath" (String type).
5) Edit "SmartLaunchPath" value and input the Smartlaunch client application path. (i.e. C:\Program Files\Smart Launch 4.5\Client)

12.32 Copyright Certificate

Unlike some BXP-based diskless kernels, or Linux kernel + application configurations, Youngzsoft diskless system, CCBoot, was made from lines of codes from the bottom. Regardless of the service kernels or functional applications, they can be corrected and improved at any time, which also means that we can modify and respond timely according to users' needs and experiences.

CCBoot was not developed from the PXE old diskless transfer mode, it was based on the latest diskless transfer mode, that is, gPXE + iSCSI protocol. No matter the design concept or protocol architecture, CCBoot is leading the peers. You can find our software copyright below (Figure 1-1).

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证书号：软著登字第018880号

软 件 名 称：遥志无盘系统软件
[简称：CCBoot]
V1.8

著 作 权 人：朱尧坤

开发完成日期：2009年11月03日

首次发表日期：2009年11月03日

权利取得方式：原始取得

权 利 范 围：全部权利

登 记 号：2010SR000529

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2010年01月05日

Figure 1-1

This certificate proves the copyright of Youngzsoft diskless system software, CCBoot for short. According to the “Computer Software Protection Regulation” and “Registration of Computer Software C”, CCBoot copyright is protected and certificated by National Copyright Administration of the People's Republic of China in Jan. 5th, 2010.

12.33 Why You Cannot Access Game Disk

Problem:
When enabled Super Client to update game disk, the game disk can not be accessed again even if disabled Super Client and shut it down. Only after restarting CCBoot service, the game disk can be accessed again.

Reason:
On the server, when you use Super Client to update game disk, the game disk will be locked, so you can not access it at that time. If you can not access the game disk of the client PC, it may because the Super Client was not disabled properly, and the game disk needs to be restored. Please pay attention to shutdown the client PC and disable the Super Client after you updated the game disk. You can try to restart CCBoot service (click the "Stop" button and then click the "Start" button on the CCBoot toolbar).

12.34 Write-back Cache Shows as 0%

Problem:
On CCBoot server, it always shows the Write-back Cache as "0%".

Reason:
If you use other write-back cache (such as Super Cache) instead of CCBoot write-back cache, it may show the write-back cache as "0%". If you didn't make any special configurations for write-back cache, though the "write-back cache" shows as "0%", it is a normal phenomenon. Don't worry about this.

12.35 Install CCBootClient in x64 OS

Sometimes, if you install CCBootClient directly in x64 system, the uploaded image will not be able to boot the client. You can follow the steps at below.

1) Before install CCBootClient, click the Windows "Start" button, enter "CMD" in the "Run" edition box, right-click "cmd", and click the "Run as administrator".
2) In the pop-up "command line" window, enter "bcdedit /set testsigning on", and press "Enter" key.
3) Reboot client PC.

4) You will see that it will have the "test mode" of the watermark, which is displayed in the lower right corner. You can remove watermark by this method.
5) Install CCBootClient and DO NOT click "Install CCBoot Client" button now.
6) Open the directory C:\CCBootClient\ccache\amd64, right-click on the ccache.sys file, and select "Properties" in the pop-up "ccache.sys properties dialog box", select the "digital signature" tab, click the details button; pop-up "Digital Signature details" dialog box, click the "View Certificate" button; "certificate" dialog box will pop-up, click the "install Certificate" button; "certificate Import Wizard" dialog box will pop-up, always click the "Next" button until completed.
7) "Install CCBoot Client" and Upload image.

12.36 TFTP Open Timeout Error When Diskless Boot

Situation 1

When I try to diskless boot client, it gets hanging here:

CLIENT MAC ADDR:00 23 CD 9D DF 76
GUIDCLIENT IP:192.168.1.101 MASK:255.255.255.255.0 DHCP IP:192.168.1.242
GATEWAY IP:192.168.1.1
PXE-E32:TFTP open timeout
PXE-E32:TFTP open timeout
PXE-E32:TFTP open timeout
PXE-M0F:Exiting PXE ROM.
DISK BOOT FALLURE INSERT SYSTEM DISK AND PRESS ENTER

Reason Analysis: Sometimes when CCBoot server starts, it can not get the server IP you have set in CCBoot. This will lead to such "TFTP open timeout" error. For example, if you have forgotten to plug the network cable, you will get this error.

Solution 1: Just restart CCBoot service to fix it.
Solution 2: If this problem is about network optimization, please re-enable large send offload.

Situation 2

Figure 1-1

Solution: Try to downgrade the BIOS and Realtek boot agent version. For example, downgrade Realtek boot agent v.2.32 to v.2.24.

Thanks for Ricky J. Anwar providing this solution.

12.37 Clear the Watermark on Windows 8

Sometimes there maybe watermark (Some ads or something that has no relationship to the desktop on the desktop background) on Windows 8. You can remove this Windows 8 watermark by using the tool on http://www.softpedia.com/progDownload/My-WCP-Watermark-Editor-Download-210191.html.

12.38 Principle of Game Disk Auto Locked

Phenomenon

When enable super client to update game disk, sometimes, the game disk would be locked and could not be accessed.

Principle

1) If you have enabled super client to update game disk, and forgot to disable super client, then, when start the server, the game disk would be auto locked. In this case, the game disk could not be unlocked unless stopping CCBoot service.

2) If you have disabled super client before starting CCBoot server, then the game disk would not be auto locked when the server starts. Under this circumstance, if you enable super client to update game disk, and disable super client after the update completed, the game disk would be auto unlocked. But this is not always successful, particularly when there are many clients online.

12.39 PXE Boot Windows 8 Failed

Before installing Windows 8 on the client, you need to do the following four steps first.

1) bcdedit /debug off
2) Press Win + R
3) compmgmt.msc
4) In the left side of the "Computer Management" form, click the "Device Manager". Then, in the right side of the form, expand "Network adapters", right click the "Microsoft Kernel Debug Network Adapter" and select "Disable" (Figure 1-1).

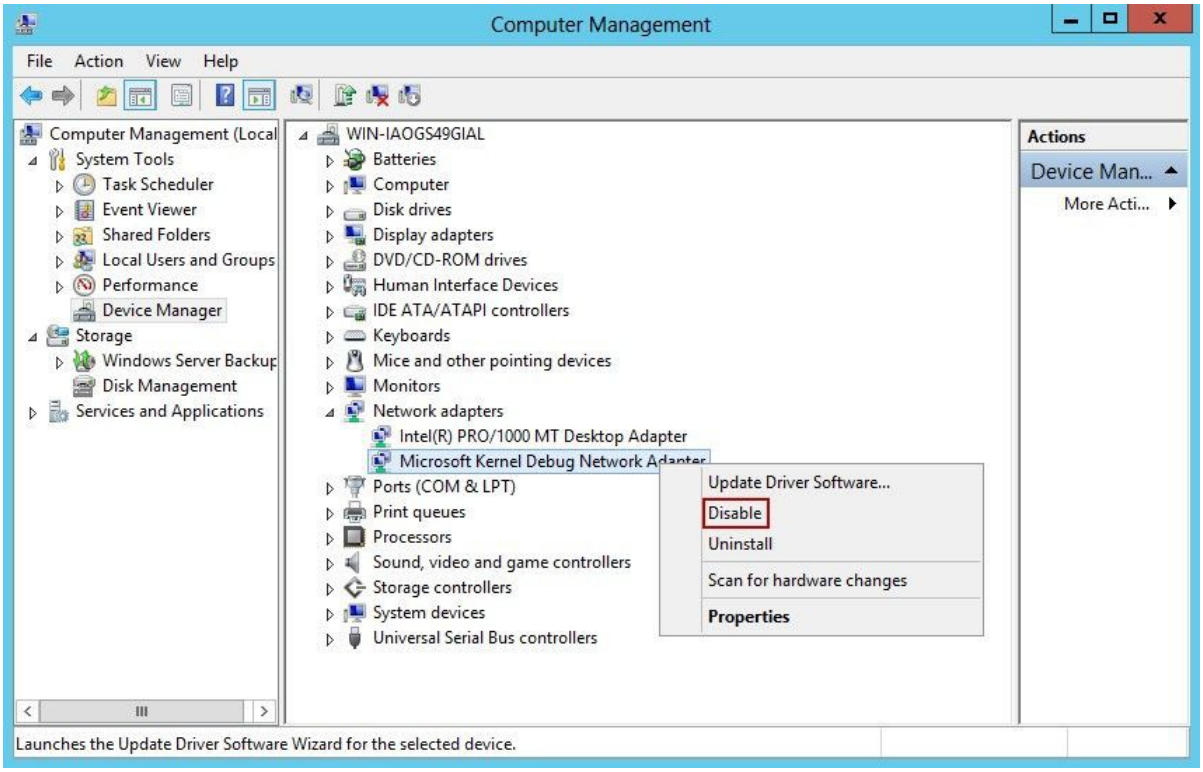


Figure 1-1

Sometimes, you may encounter the problem that the client with Windows 8 OS installed cannot PXE boot successfully. It is because that the bootmgr is stored in the hidden partition rather than C:. But you cannot simply remove the hidden partition. Instead, you have to move the bootmgr and restore it to C. The steps are as follows.

1) Assign a drive letter to the hidden partition (such as e:\).
2) Run cmd as administrator.
3) Type reagentc /disable
4) Type dir /a C:\Windows\System32\Recovery to see whether winre.wim is in the recovery folder.
5) Type reg unload HKLM\BCD00000000
6) Type robocopy e:\ c:\ bootmgr (Note that there is a space between c:\ and bootmgr).
7) Type robocopy e:\Boot c:\Boot /s
8) Type dir c:\ /ah to check if the bootmgr and Boot folder is in the C:
9) Type bcdedit /store c:\boot\bcd /set {bootmgr} device partition=C:
10) Type bcdedit /store c:\boot\bcd /set {memdiag} device partition=C:
11) Close cmd.
12) Go to diskmgmt.msc to remove the hidden partition drive letter e:\, and then mark C: as active (Note: Restart the client PC first, then delete the hidden partition).
13) Run cmd as administrator.
14) Type reagentc /enable
15) Run diskmgmt.msc to delete the hidden partition.
16) Try to restart the client PC again to see if it can boot to the desktop.

By following the procedures above, now, you can PXE boot Windows 8 successfully.

12.40 Windows 8 Shutdown Problem

After you shutdown Windows 8, you may find that about 1 minute later, it will go back to the Windows desktop again. And the computer has not been actually turned off. You can solve this problem according to the following instruction.

1) In the Control Panel, click the "System and Security" (Figure 1-1).

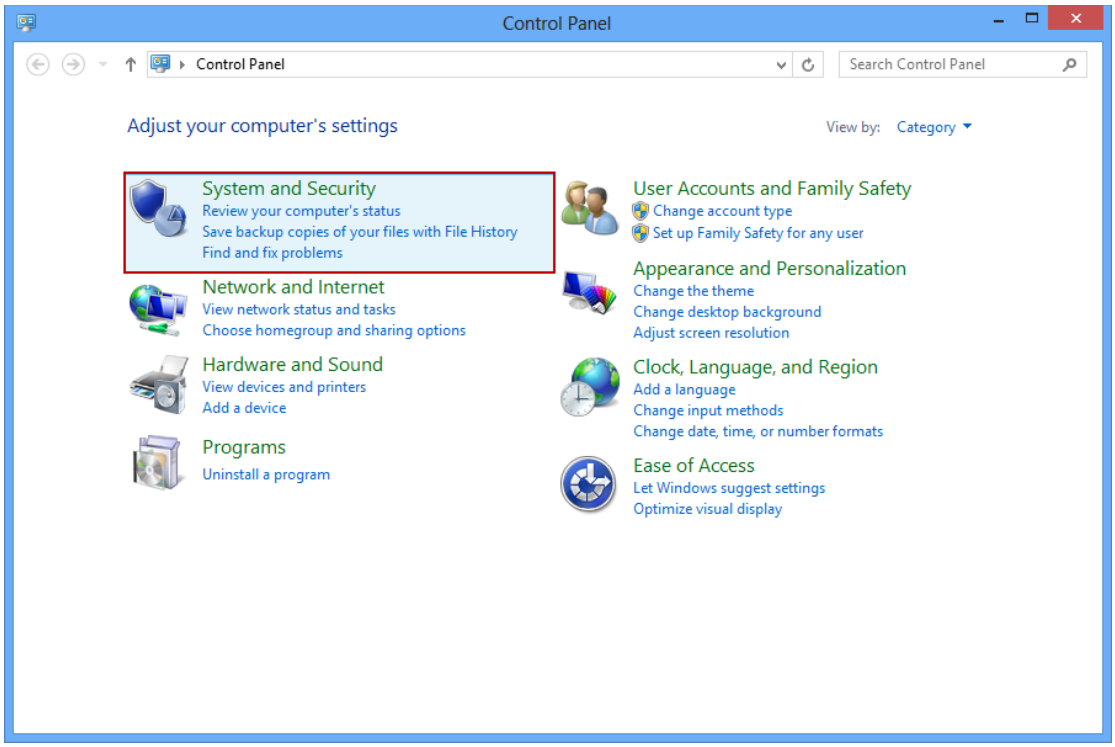


Figure 1-1

2) It will pop up the "System and Security" window. Click the "Change what the power buttons do" in the "Power Options" (Figure 1-2).

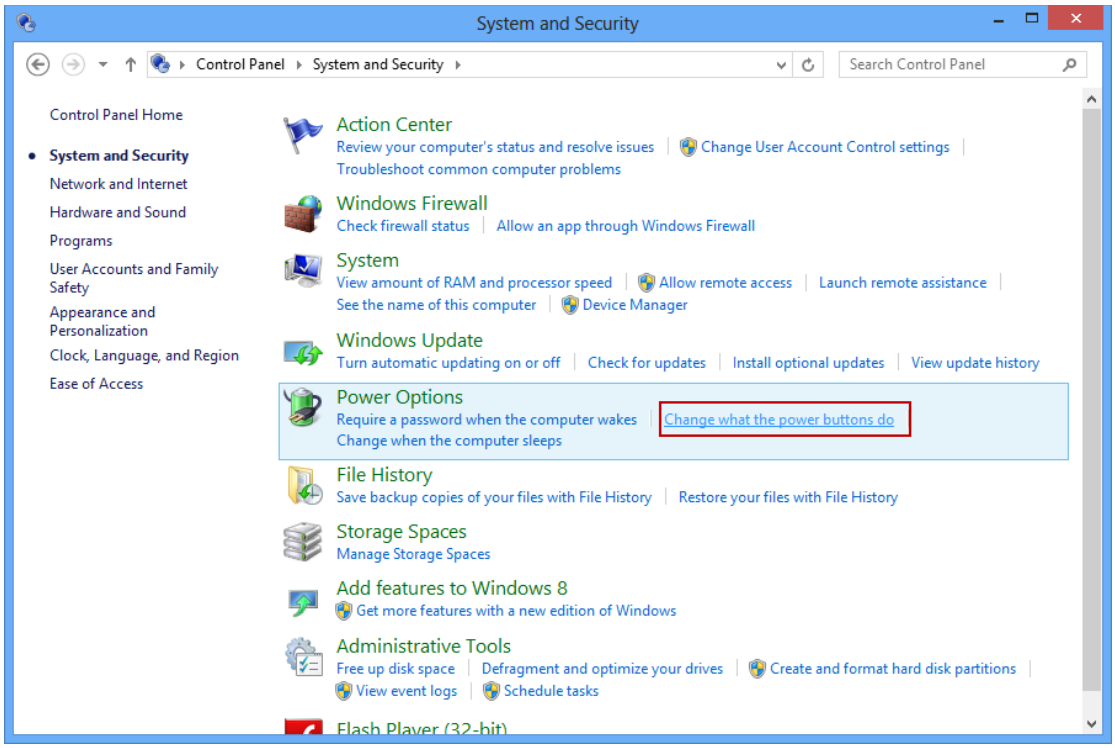


Figure 1-2

3) In the pop up "System Settings" window, click the "Change settings that are currently

unavailable" (Figure 1-3).

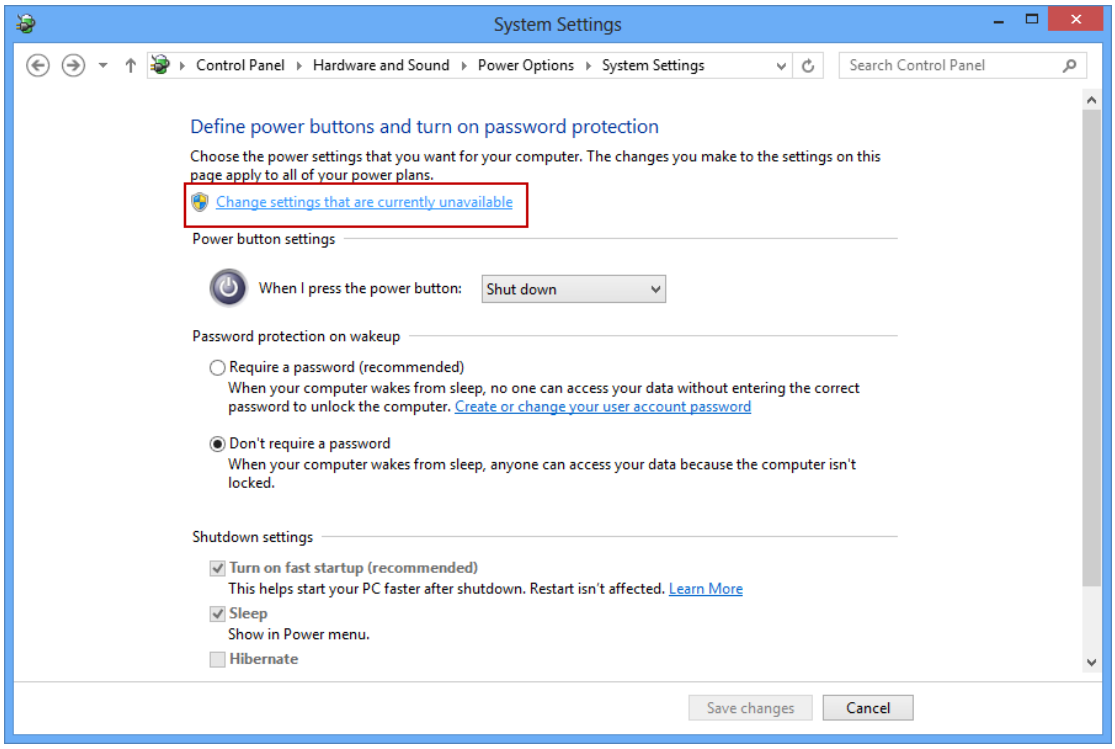


Figure 1-3

4) In the "Shutdown settings", uncheck the "Turn on fast startup (recommended)" check box, and then click the "Save changes" button (Figure 1-4).

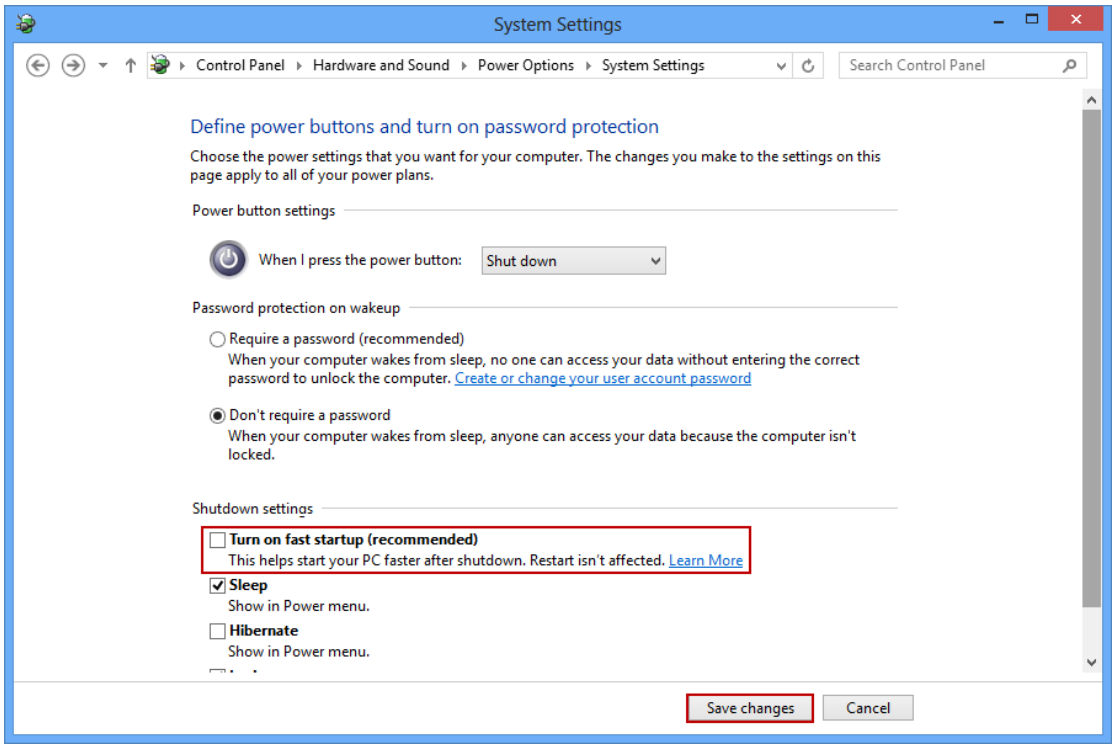


Figure 1-4

After doing the above steps, you can shutdown Windows 8 normally.

12.41 Problems with Cracked CCBoot License

CCBoot has anti-piracy function which is triggered occasionally, no matter how you modify the host file or overwrite by the cracked file, it can be detected. If you are using the cracked CCBoot license, there will be some problems as follows.

Problem 1:
After a certain period of time, the cracked CCBoot will become unregistered and the license will be removed.
Problem 2:
After running CCBoot about one week, the client PCs will get blue screen randomly.

Solution:
Please contact us or resellers to purchase a genuine license. We will provide a reasonable price for you.

Note:
If you used cracked CCBoot version before, and now, purchase and use CCBoot genuine license and version, then, you need to do the following steps.
1. Download CCBoot server and client setup files from http://www.ccboot.com/download.htm, install and setup CCBoot again.
2. Make sure that the server is connecting the Internet.
3. If you have blocked CCBoot site on /system32/drivers/etc/host before, please delete it rather than just comment it.

12.42 NIC Driver Warning When Install CCBoot Client

Problem:
When install CCBoot client, there is an exclamation mark problem on the NIC driver.

Solutions:
1. Please check whether there are other NICs, just keep the NIC which is used for diskless boot, and disable other redundant NICs in the Device Manager (Figure 1-1).

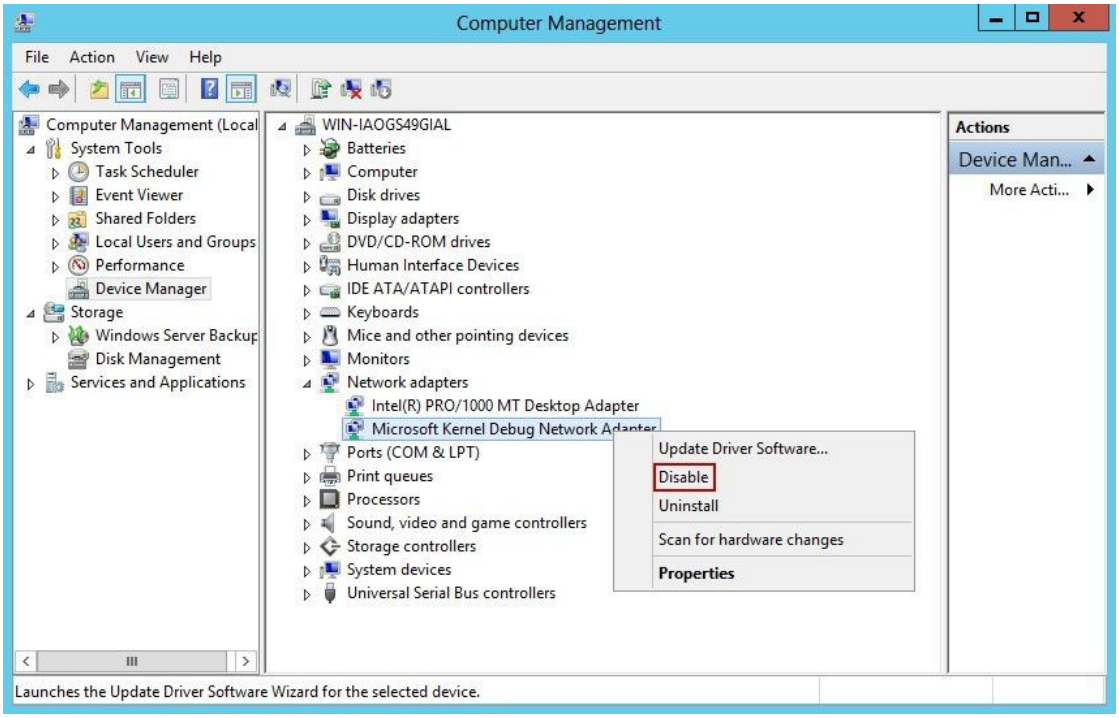


Figure 1-1

2. If the problem is not related to solution 1, when install CCBoot client, in "CCBootPnP" dialog box, please do not click the "Install Known NIC" button (Figure 1-2).

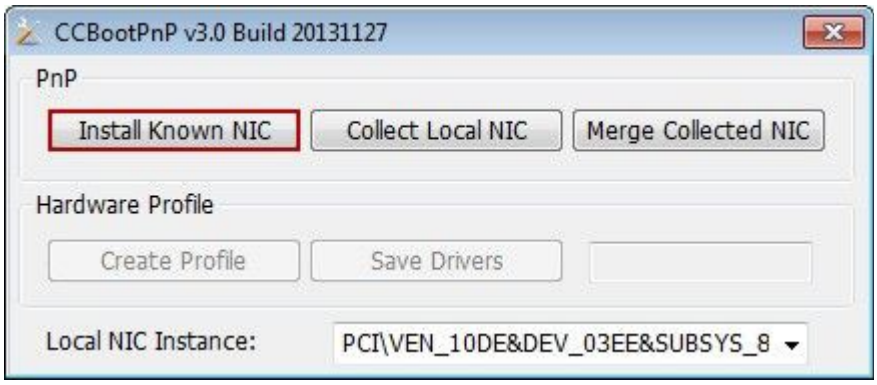


Figure 1-2

12.43 Failed to Lock the Game Disk

Problem:

Failed to locak the game disk, and got the following error.

*** ERROR *** lock volume \\.\J: failed

Reasons:

1. Paging File Settings Problem

The paging file size should be set as system managed size. If it is set as Drive D (No Paging File Size), it will cause the above problem.

1) Right click "Computer", and select "Properties".
2) In the pop up "Control Panel Home" window, click the "Advanced system settings" (Figure 1-1).

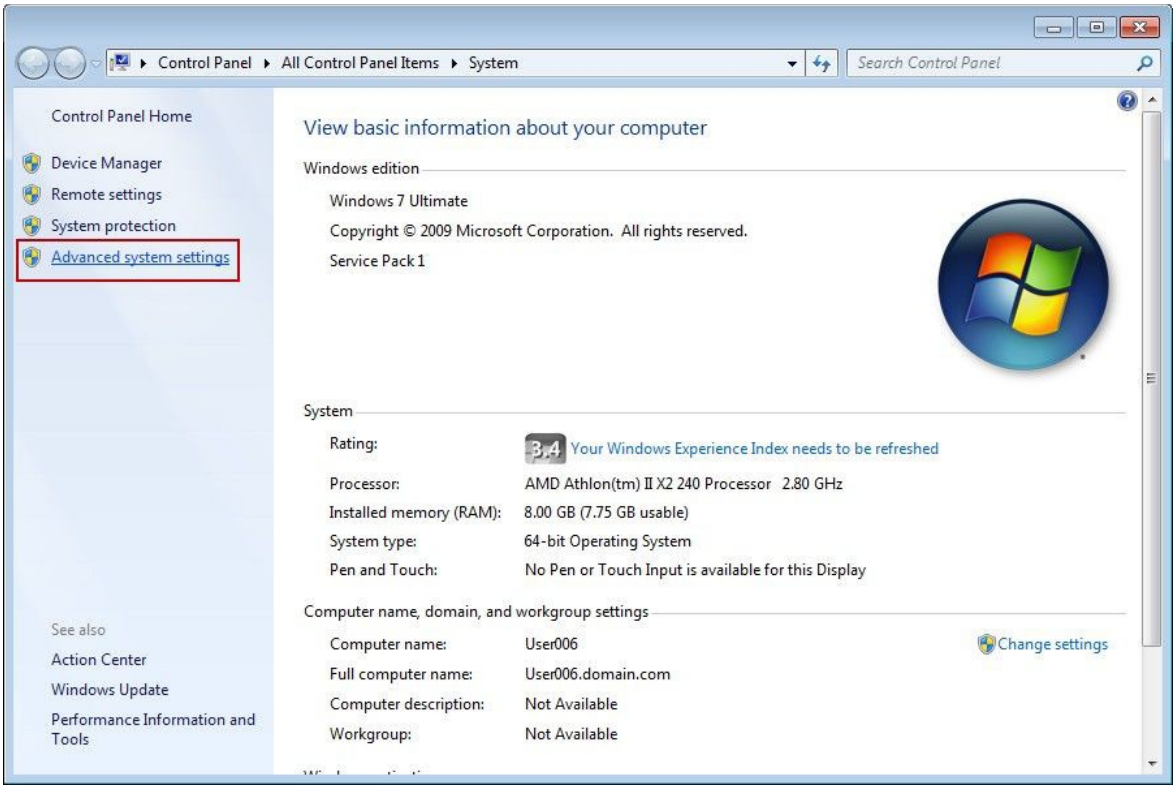


Figure 1-1

3) In the pop up "System Properties" dialog box, click the "Advanced" tab, and then click the "Settings" button (Figure 1-2).

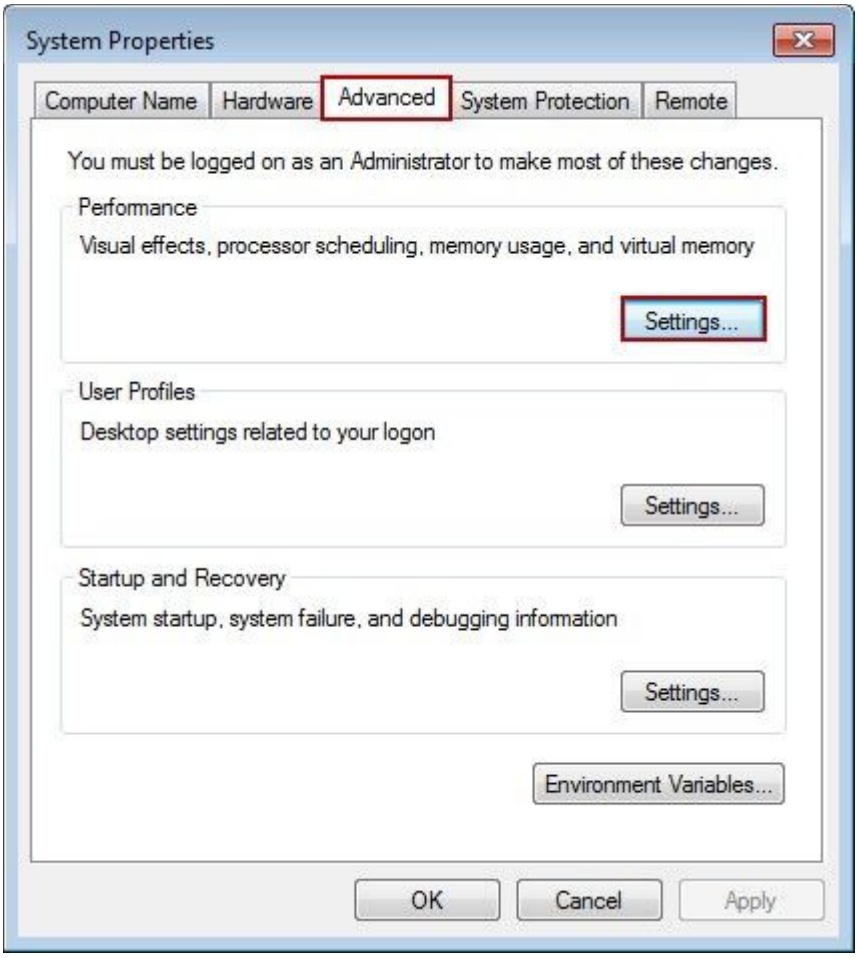


Figure 1-2

4) In the pop up "Performance Options" dialog box, click the "Advanced" tab, and then click the "Change..." button (Figure 1-3).

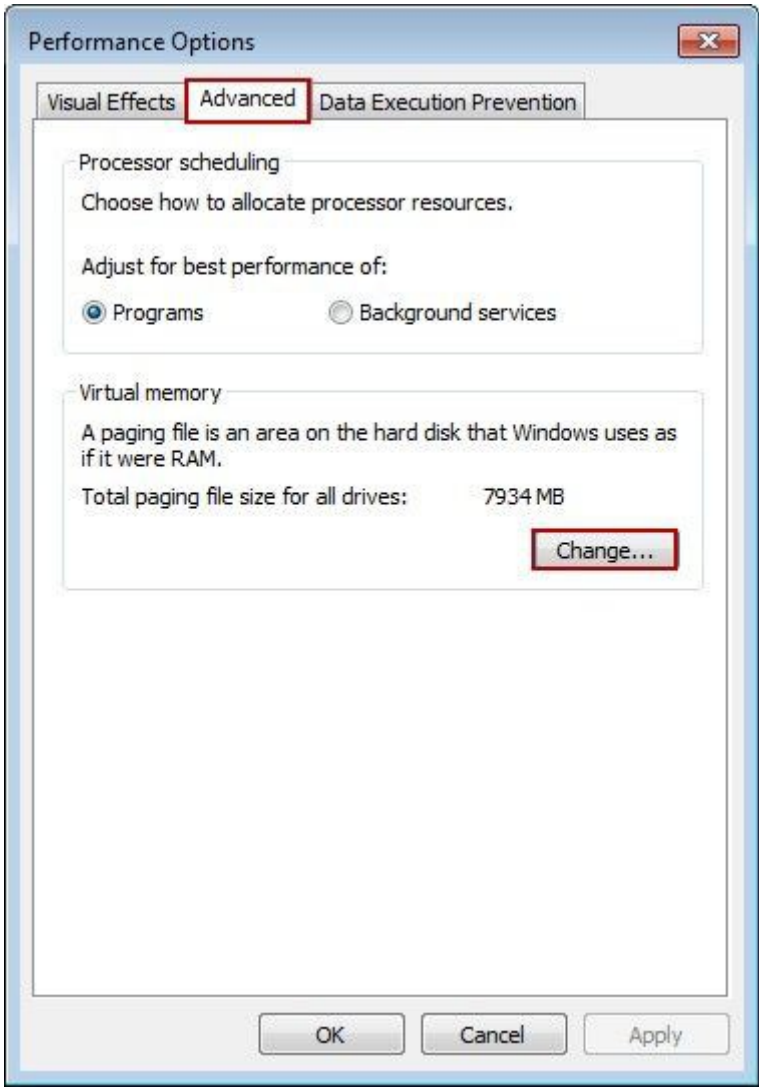


Figure 1-3

5) In the pop up "Virtual Memory" dialog box, uncheck the "Automatically manage paging file size for all drives" check box. Select Drive C, and then click the "System managed size" radio button, and click the "Set" button. Finally, click the "OK" button (Figure 1-4).

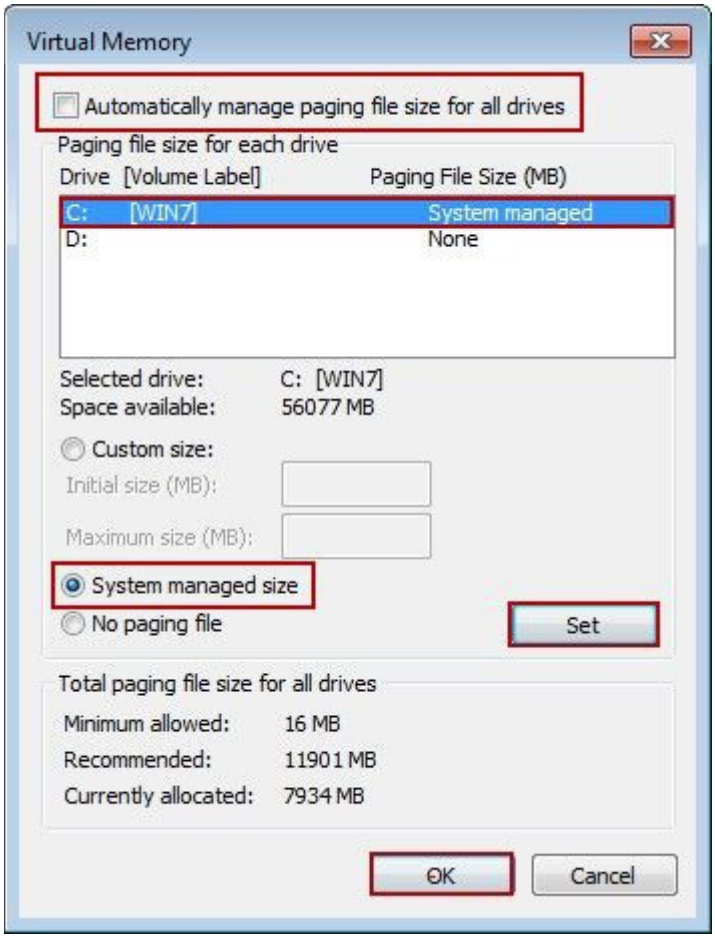


Figure 1-4

2. Other Programs Are Reading the Game Disk

If there are other programs reading the game disk, it will also cause failing to lock this disk. So, you need to end these processes.

1) Open Windows Task Manager, and click the "Performance" tab, and then click the "Resource Monitor..." button (Figure 1-5).

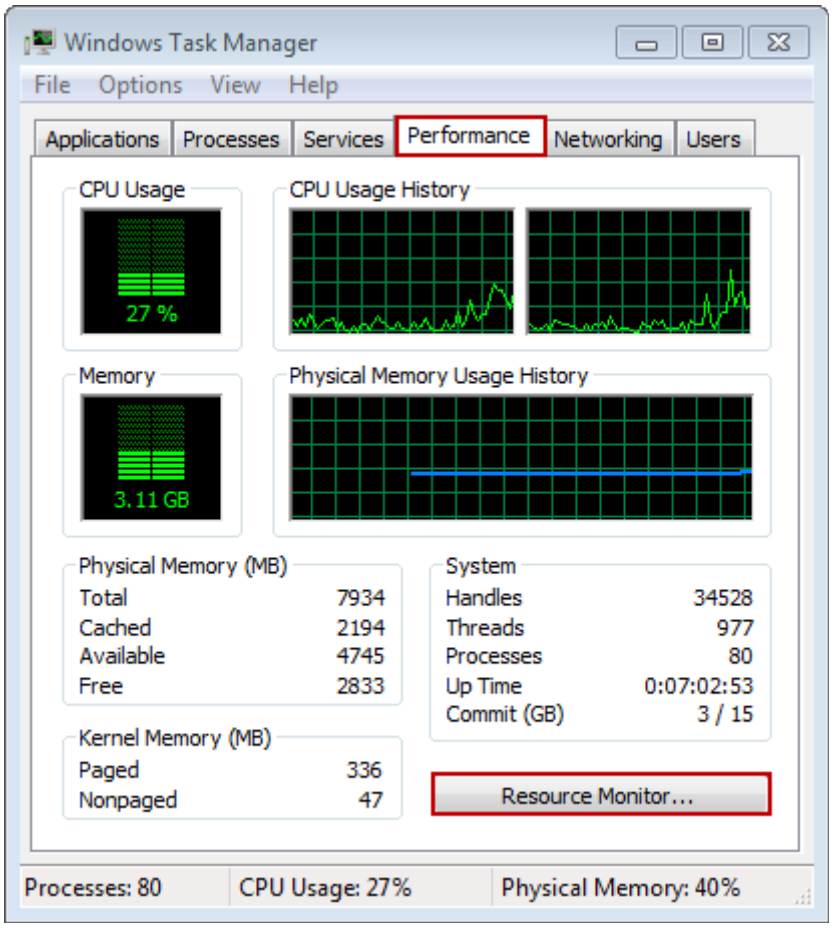


Figure 45-5

2) In the pop up "Resource Monitor" dialog box, click the "Disk" tab, find which programs are accessing the game disk, and then end these processes (Figure 1-6).

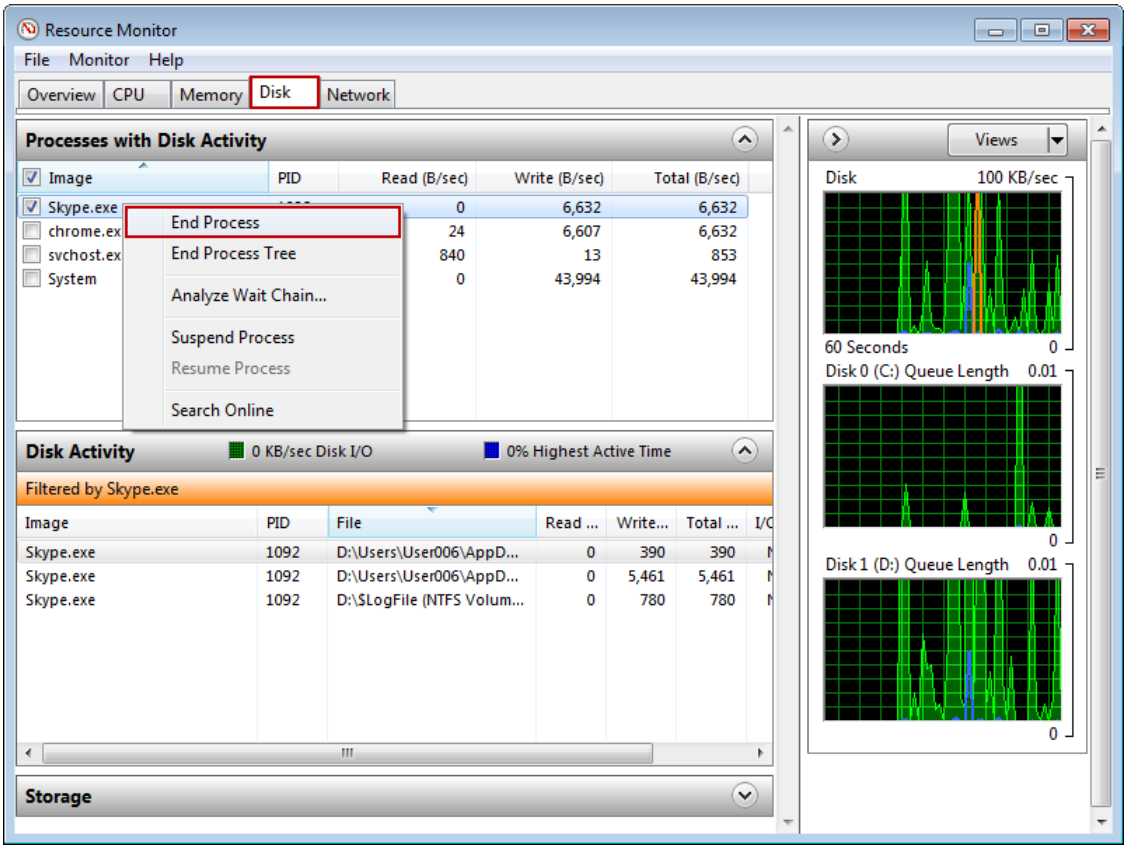


Figure 1-6

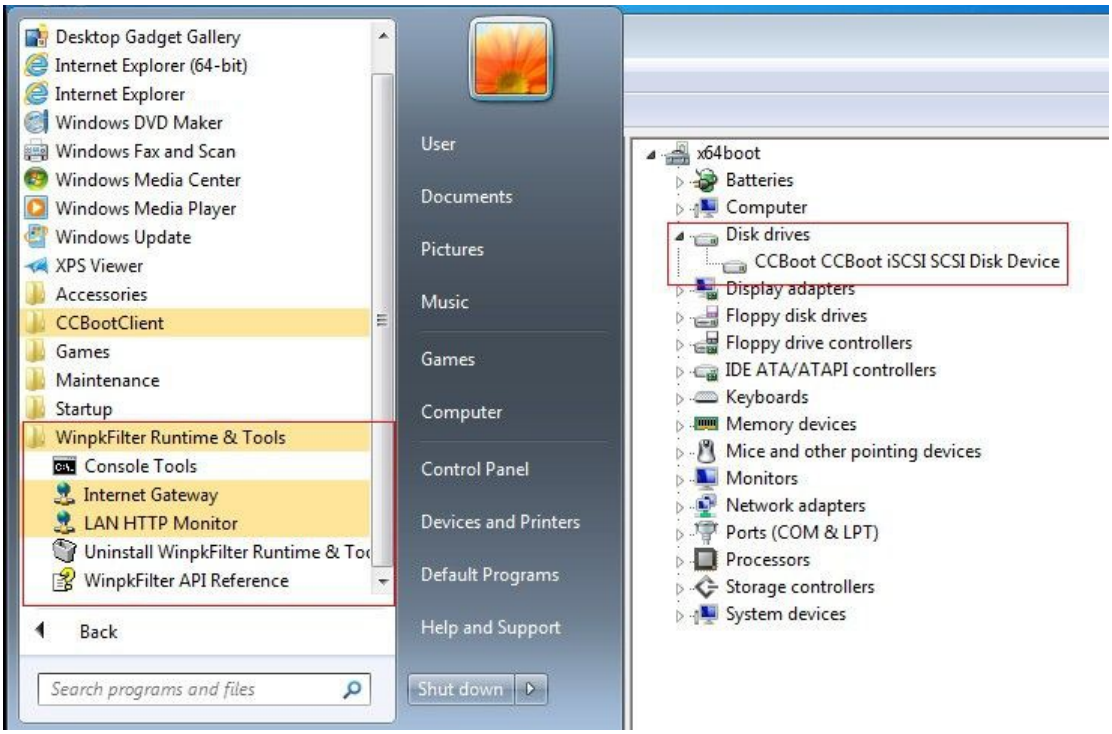
3. Monitoring Software and RDP Sharing Problem

If the monitoring software and RDP have been set the sharing function, it will cause the game disk unable to be locked too.

12.44 Work with WinpkFilter

If you are using TRedFilterCafe, you will encounter boot diskless failed. TRedFilterCafe is based on WinpkFilter driver. So we need to do some changes in registry.

1) Diskless boot the PC with super client.
2) Install TRedFilterCafe, when done, don't reboot it.
3) Navigate to HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\ndisrd2.
4) Change "Start" to 0.
5) Shutdown the PC and disable super client.



12.45 Mouse Does Not Work After Windows Loading

Problem:

Client PC system boots normally, but after loading about 2 or 3 minutes, the mouse does not work.

Solution:

1) Start a client PC with super client, click the “Start” button, and enter “regedit” in the “Run” edit box, and then press the “Enter” key.
2) In the pop up "Registry Editor" form, navigate to "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon", in the right side of the form, double click "userinit", delete "C:\CCBootClient\CCBootClient.exe -init," from "C:\Windows\system32\userinit.exe,C:\CCBootClient\CCBootClient.exe -init," (Note: Only keep the first comma, the second comma should be delete.) (Figure 1-1).

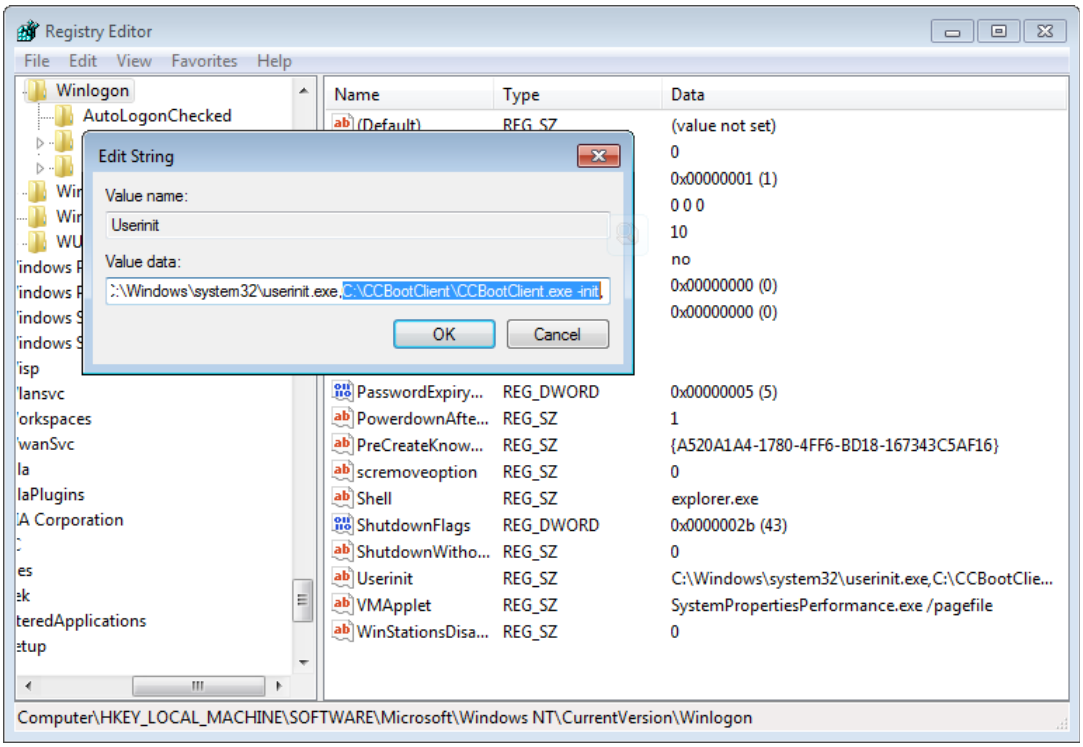


Figure 1-1

3) Close the “Registry Editor” form and shutdown this client PC.
4) On CCBoot server, open CCBoot main interface, click the “Client Manager”, in the right side of the details pane, find the client PC you have just enabled super client. Double click this client, in the pop up “CCBoot Client” dialog box, uncheck the “Enable Super Client” check box to disable super client.

12.46 Why exe is Not a Win32 Valid Application

Question: When collect the NIC driver from one Windows XP boot, the system prompts that ".exe is not a Win32 valid application", how to solve this?

Reply: You need to download CCBootPnP.exe(32bit) from http://www.ccboot.com/download.htm and use it instead of CCBootPnP.exe(64bit).

12.47 How to Get USB ID

If the server cannot be online for some security or special reasons, please contact us, we can do a USB license for you, and save a verification code in your USB key, but you have to get your USB ID first. The steps are as follows.

1) Insert your USB Memory Stick to the server, right click "Computer" and select "Manage".
2) In the pop up "Computer Management" form, click "Device Manager", then in the right side of the form, expand "Disk drives", click the "USB Device" and select "Properties" (Figure 1-1).

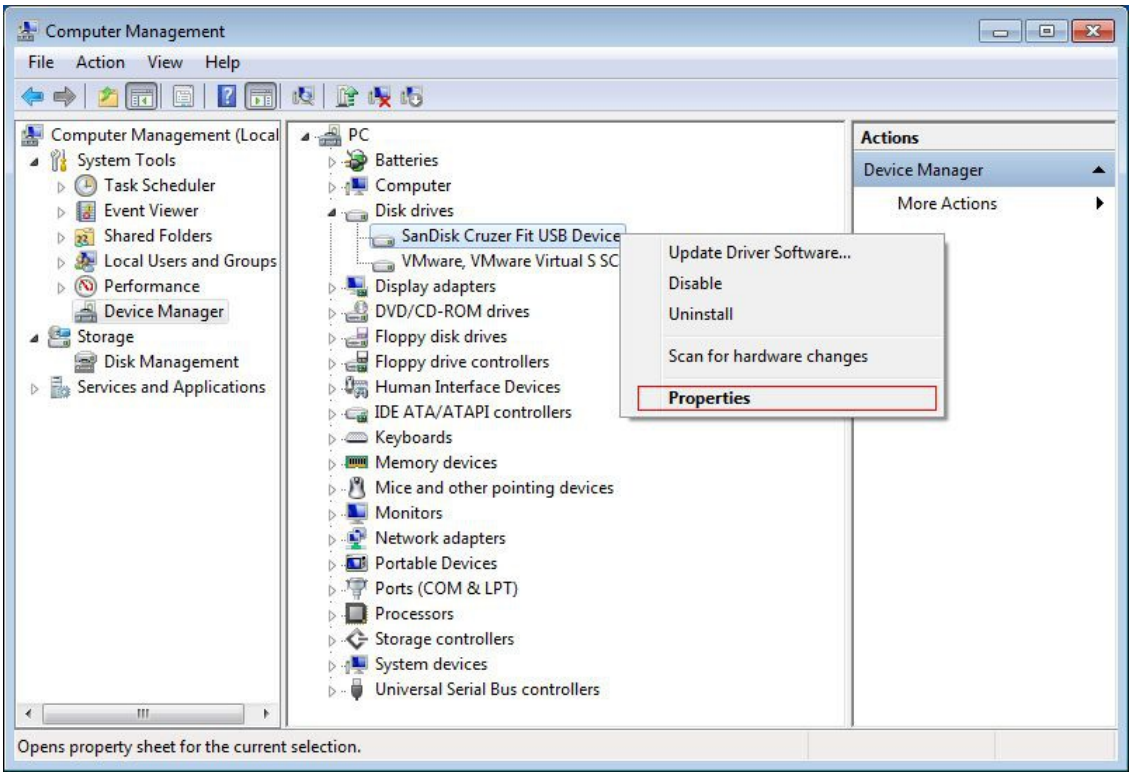


Figure 1-1

3) It will pop up the USB Device Properties dialog box. Click the "Details" tab, then click the "Property" combo box, and select "Parent". Finally, right click the USB value, copy it and save it to a txt file (Figure 1-2).

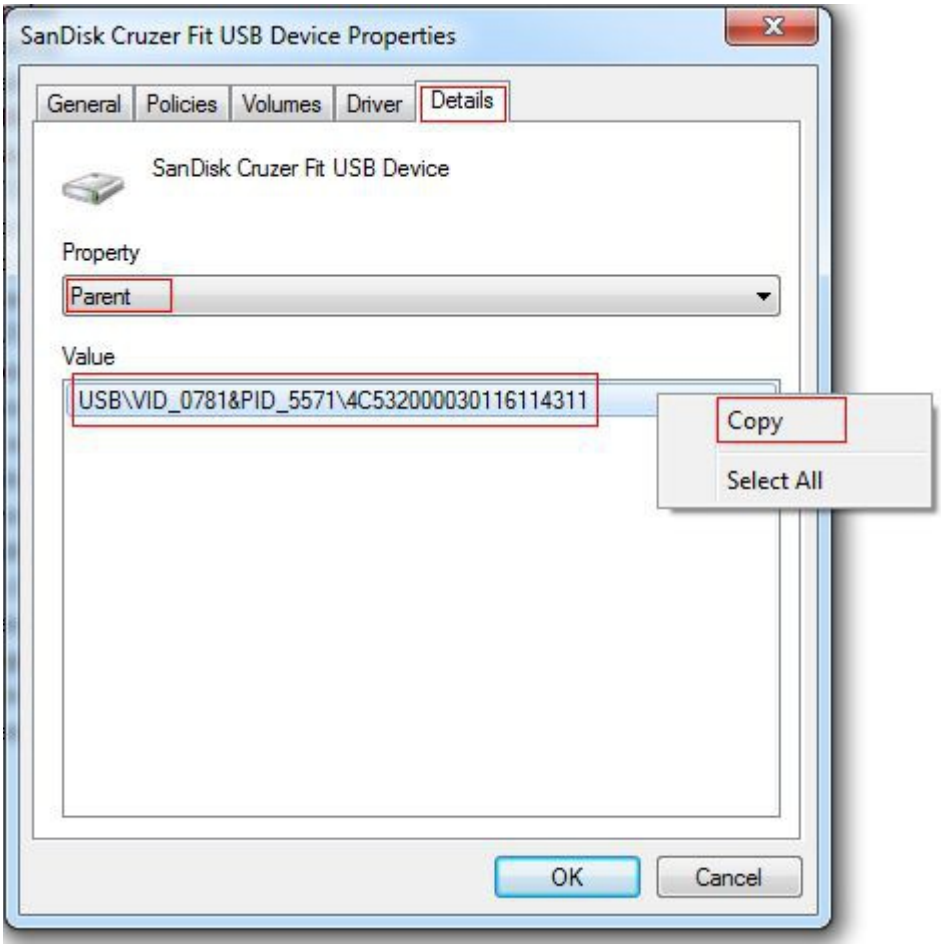


Figure 1-2

After got the USB ID, you can go to "CCBoot USB License" and follow its instructions.

12.48 Game CD Key Conflict

1) Download fixreg.bat file from http://www.ccboot.com/download/fixreg.bat.zip, and then copy fixreg.bat file to the client Windows startup folder, so every time when the clients boot, the bat file will run automatically.
2) Download reg file from http://www.ccboot.com/download/reg.zip, extract the reg.zip file, and then put it to the client game disk.
3) Generate the keys for other LAN Games.

Thanks for Andrian S. Laping providing the above solution. And also thanks for Selçuk DERE's following extra solution.

In the above solution, computer name must be in pc-01 type, if its name is COMPUTER-05, the code cannot run, and you have to change the reg file name or computer name. For this problem, here is the solution.

The fixreg.bat file content as below.

_____fixreg.bat_____

```
::THIS BAT FILE EXTRACTS COMPUTER NUMBER FROM THE END OF THE COMPUTER NAME
:: SO YOU HAVE NOT TO CHANGE THE COMPUTER NAME TO "PC- "
:: FOR EXAMPLE, COMPUTER NAME = OYUNARSIVI-05, THIS CODE EXTRACTS THE COMPUTER NUMBER 05
::FINAL CODE BECOMES LIKE THIS: "regedit /s d:\reg\ra3pc05.reg"

set COMPUTERNAME=%computername%
echo.%COMPUTERNUMBER%
set COMPUTERNUMBER=%COMPUTERNUMBER:~-2%
echo.%COMPUTERNUMBER%

regedit /s d:\reg\ra3pc%COMPUTERNUMBER%.reg
regedit /s d:\reg\hlpc%COMPUTERNUMBER%.reg
regedit /s d:\reg\gzpc%COMPUTERNUMBER%.reg
regedit /s d:\reg\cod4pc%COMPUTERNUMBER%.reg
```

12.49 Import Call of Duty Registry Key

If you have a keygen of Call of Duty 2, please follow the following steps.

1) Diskless boot one client PC (such as PC01), and then locate the Call of Duty 2 registry.
2) Export the Call of Duty 2 registry.
3) Let's say the Call of Duty 2 Registry is as below.

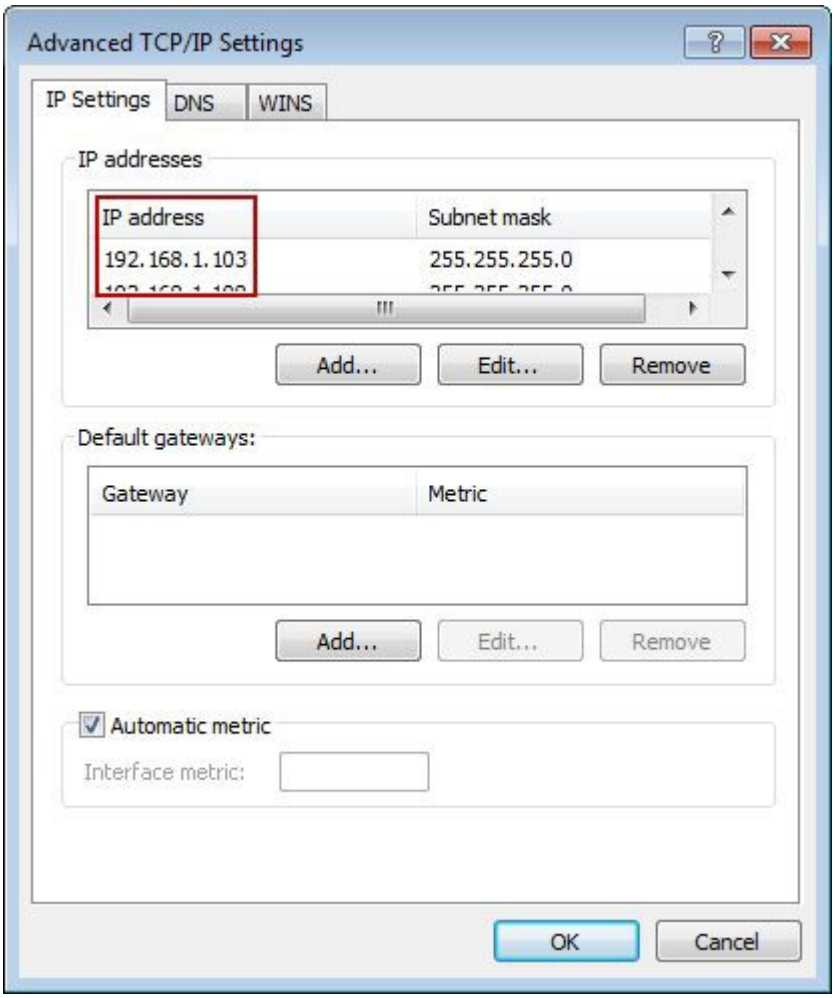
```
Windows Registry Editor Version 5.00
[HKEY_LOCAL_MACHINE\SOFTWARE\Activision\Call of Duty 4]
"codkey"="UY2JS44UMTGJ2P8EAF85"
```

4) Launch the Call of Duty 2 "keygen", then copy and paste the key to the Call of Duty 2 registry, and name it as cod2pc01.reg.
5) Do step 4 again and again to make cod2pc02.reg, cod2pc03.reg and so on prior to the number of your client PC to create Call of Duty 2 registry.
6) After exporting the Call of Duty 2 registry, please edit those registry to manually import the key of the Call of Duty 2, add d:\reg\cod2%computername%.reg under the regedit /s, so every client PC can have a different key for Call of Duty 2.

Thanks for Andrian S. Laping providing this solution.

12.50 Client PC has Multiple IPs

If there are multiple IPs in the "Advanced TCP/IP Settings" of client PCs, and you can't diskless boot the clients successfully, please refer to "Set the DHCP Client" for solution.



Note: Normally, you can still diskless boot clients with CCBoot successfully if there are multiple IPs. If it doesn't work, it may because there is other DHCP service on the LAN, especially the DHCP service in the router. Please disable other DHCP services.

12.51 Clients Cannot Connect to the Internet

If you encounter the problem that the client PCs cannot connect to the Internet, this may not due to multiple IPs, it may because there is other DHCP service on the LAN, especially the DHCP service in the router. Please disable other DHCP services.

12.52 Stop at Windows Logo

When the client boots, if it always stops at Windows Logo, and no longer read data from the server, you can find some causes and solutions below.

1) The client NIC driver is not proper. You can install the latest NIC driver before uploading image (You can download the latest NIC driver from CCBoot Related Download Center). Sometimes you need to install the "RISC" type driver of the NIC (such as NVIDA and BROADCOM).
2) The client IP is conflict with other LAN IP addresses. You can re-assign another IP to the client.
3) Some smart switches have IP-MAC binding function. You can cancel the switch IP-MAC binding or rebind all machines IP and MAC addresses.
4) When the hard installed machine boots diskless, then error occurs. Solution: Remove the hard disk or disable HDD on BIOS.
5) If the operation system of the client is Windows 7 x64, before install ccbootclient, please install the Windows latest updates even your system is already install SP1.
6) In "CCBoot Options" dialog box, click the "DHCP Settings" tab, and then click the "Scan DHCP" button to check whether there is other DHCP service on the LAN, if so, please disable other DHCP service, especially in the router.
7) When you use different switches, some can diskless boot successfully, some stops at Windows Logo when booting, you can try to change the PXE value from "gpxe.pxe" to "ipxe.pxe" in "CCBoot Client" property (Figure 1-1).

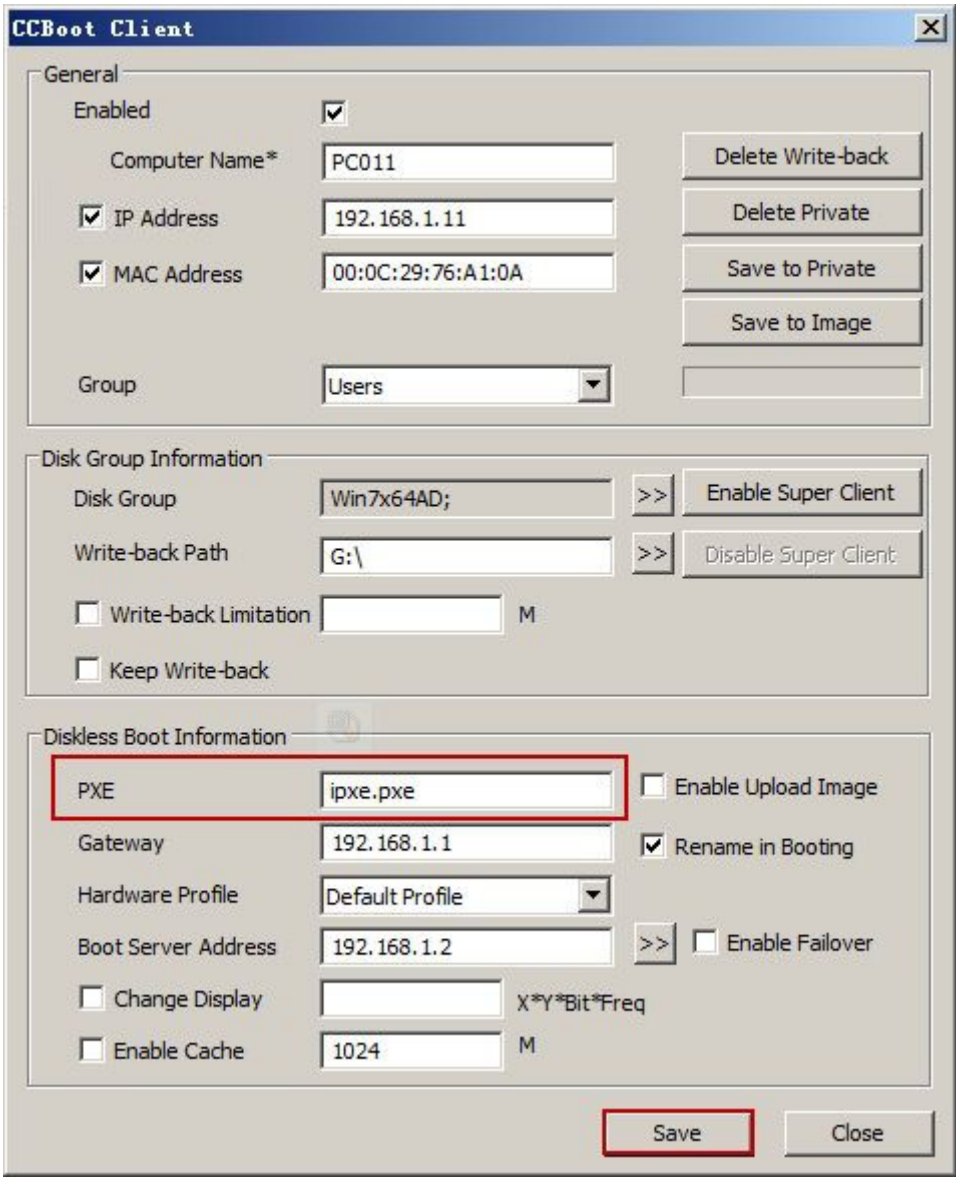


Figure 1-1.

8) If you have wireless card or multiple NICs, just leave the NIC used to boot from LAN, and disable the other NICs in Device Manager before installing CCBoot client, and then upload the image.
9) Sometimes, some billing softwares, filter softwares, Windows firewall and antivirus software etc. may also cause diskless boot failed. We have tested the following softwares, and they work with CCBoot successfully. If your software is not in the following list, you can send an email to support@youngzsoft,net, tell us your software, let us check it and find a solution.

CCBoot works with these billing softwares: CafeSuite, SmartLaunch, Cyber Cafe Pro, Handy Cafe, Pinoy Big Timer, Easy Cafe, Antamedia, PC Time Logger, Timer Professional, CMS and Truecafe etc.

CCBoot works with these filter softwares: TRedFilterCafe and WinpkFilter (For details, please refer to "TRedFilterCafe and WinpkFilter").

10) The ARP driver has been installed. Solution: Remove the installed ARP driver.
11) If the client gets IP from thrid part DHCP, sometimes, you cannot boot it. Windows 7 creates an explicit route to your iSCSI target using your default gateway. This means if your target is on the same LAN, your router must be prepared to route local LAN traffic (which normally it would not do as the initiator and target could communicate directly). Some strict firewall settings or router will prevent this kind of routing which will cause Windows 7 booting failure. For example, using Shorewall you need to enable the "routeback" setting on the LAN interface. If using OpenWrt (without shorewall) add this to /etc/firewall.user (create this file if absent):

iptables -A forwarding_lan -i br-lan -o br-lan -j ACCEPT

Another solution: Don't set gateway on the third part DHCP, and just set gateway in the CCBoot client properties.

12.53 Problem with Skype Video Calls

Problem:

Open two or more Skypes on the clients, only one client PC could make Skype video call, other PCs couldn't do this.

Solution:

Delete the "C:\Users\Administrator\AppData\Roaming\Skype\shared.xml" file in the image with super client.

12.54 Printer Problem after Client Services Optimization

Sometimes, you may encounter the problem that after client services optimization, the printer cannot be used. This may because the print spooler is disabled after the optimization. Please check the following steps.

1) Enable super client for one of the client PCs (such as PC101).
2) Diskless boot PC101.
3) Right click "Computer", and select “Manage".
4) It will pop up the "Computer Management" form. In the left side of the form, on the directory tree, click the "Services and Applications" node, expand the directory tree, and select the "Services" node (Figure 1-1).

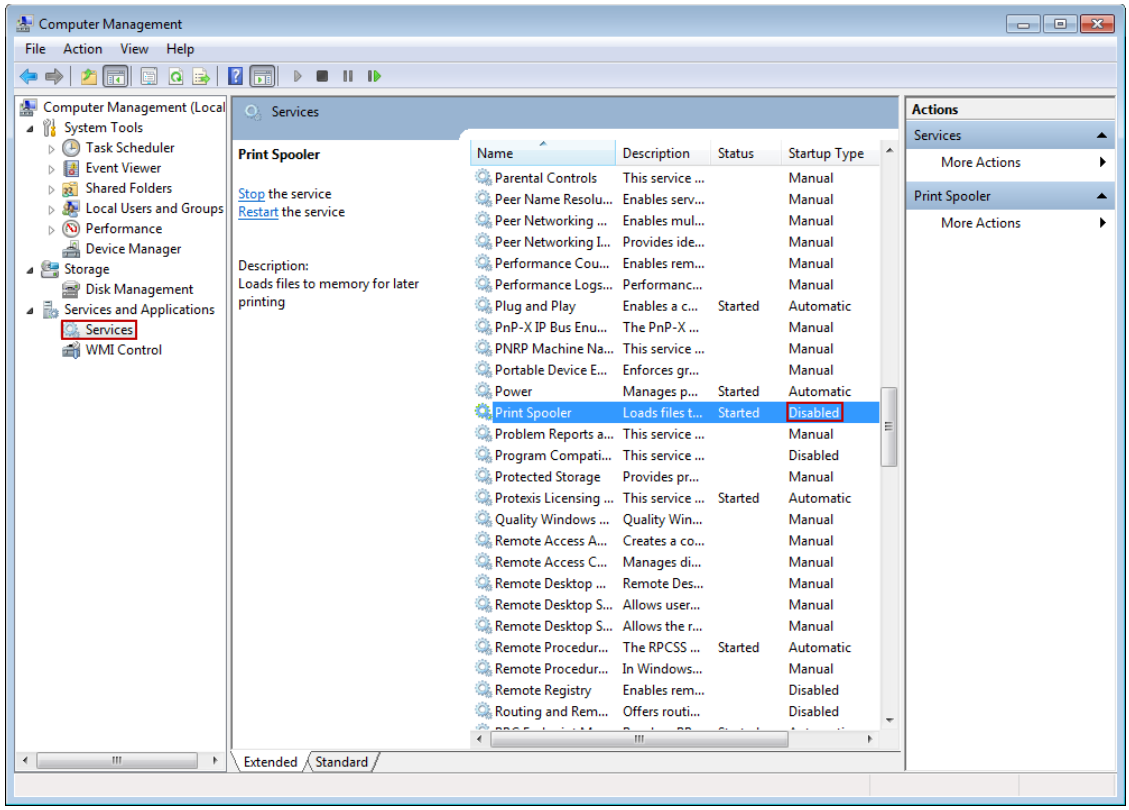


Figure 1-1

5) Find "Sprint Spooler" in the right side of the form. If its "Startup Type" is disabled, please double click it. In the pop up "Print Spooler Properties" dialog box, click the "Startup type" combo box, and select "Automatic" or "Manual". Finally, click the "OK" button (Figure 1-2).

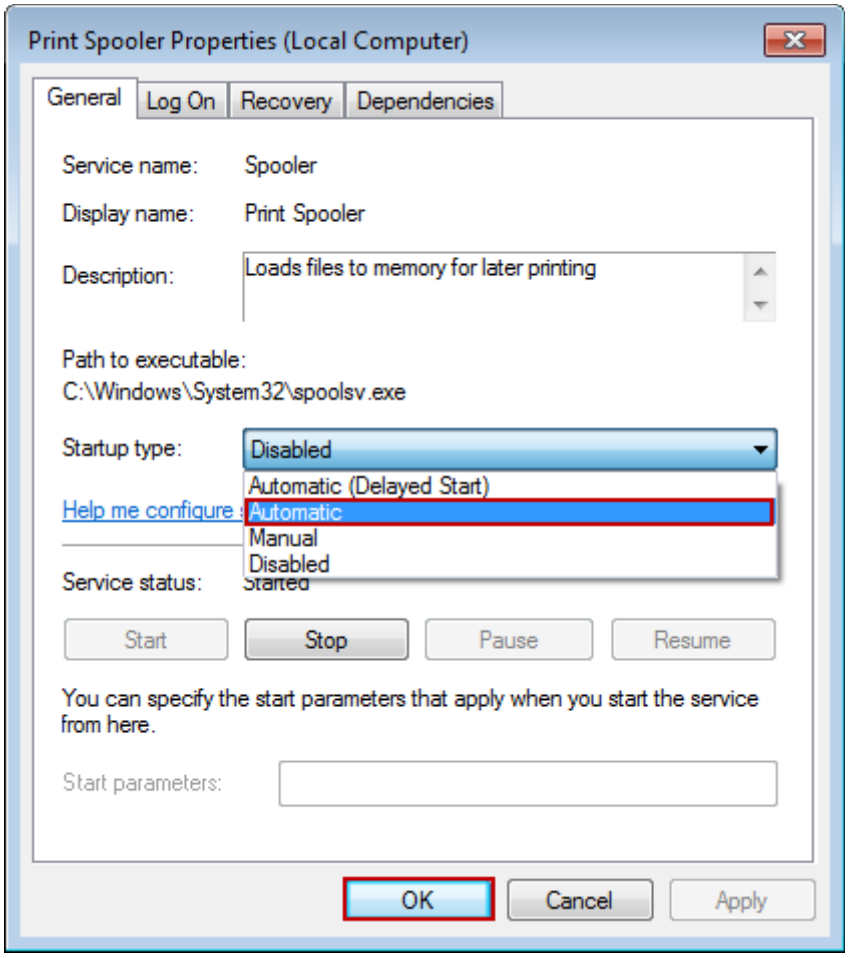


Figure 1-2

6) Now, the Print Spooler service is automatically or manually started (Figure 1-3).

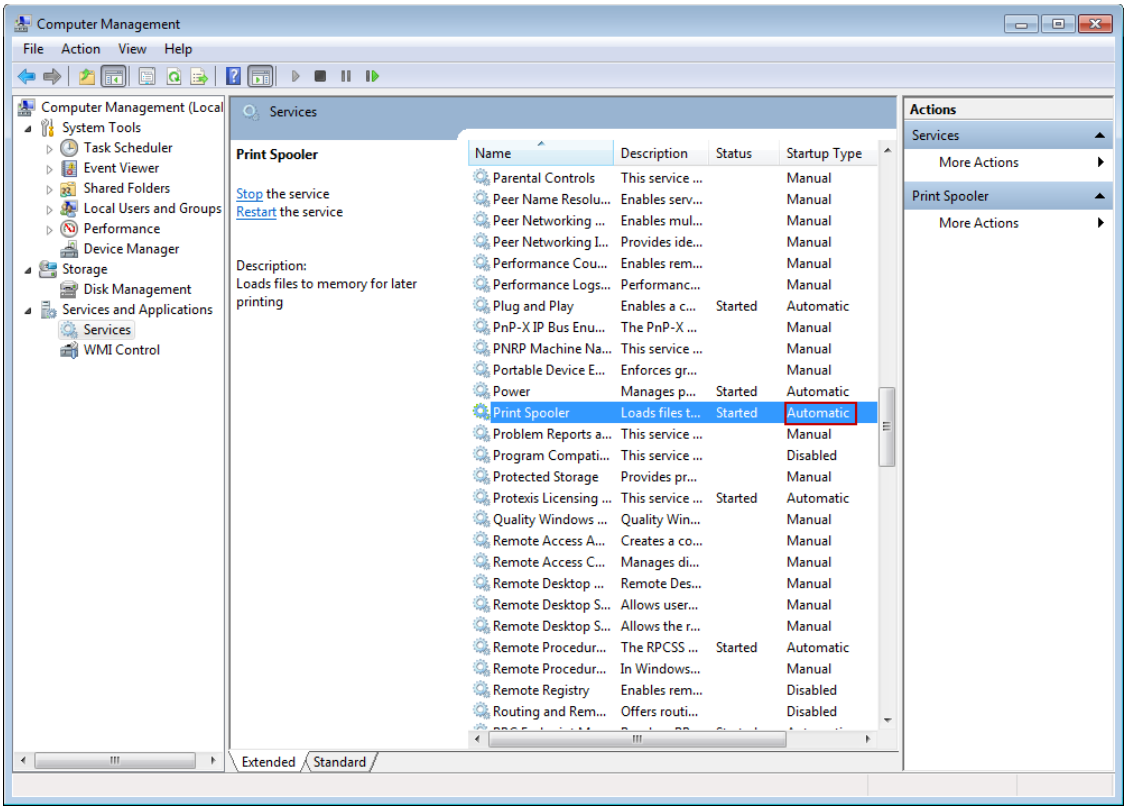


Figure 1-3

7) Shutdown PC101.
8) Disable super client on CCBoot server.

12.55 Disable Auto-restart when BSOD

If the client gets blue screen, but it does not show the BSOD code and then just auto-restarts, you can follow the following steps to disable client automatically restarts when BSOD. So you can get the BSOD code and search it on Google or send it to us to find the corresponding solutions.

1) Right click "Computer", and select "Properties".
2) In the pop up "Control Panel/All Control Panel Items/System" form, click the "Advanced system settings".
3) In the pop up "System Properties" dialog box, click the "Advanced" tab, and then in the "Startup and Recovery" column, click the "Settings..." (Figure 1-1).

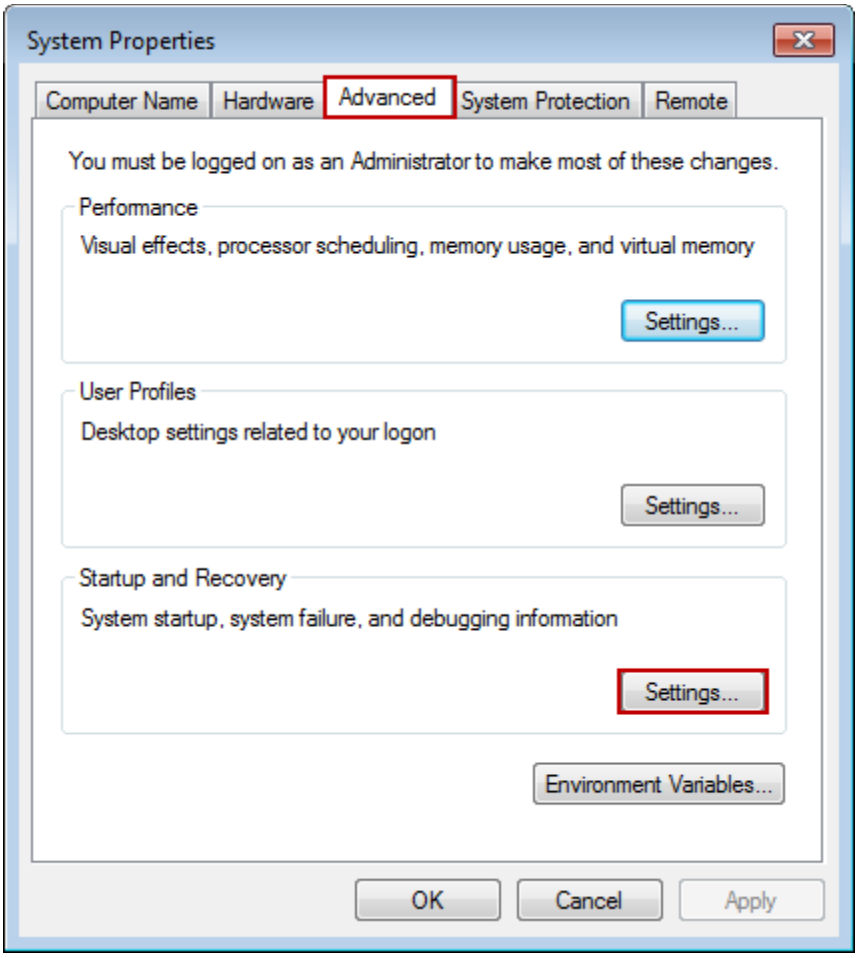


Figure 1-1

4) In the pop up "Startup and Recovery" dialog box, uncheck the "Automatically restart" check box, and then click the "OK" button (Figure 1-2).

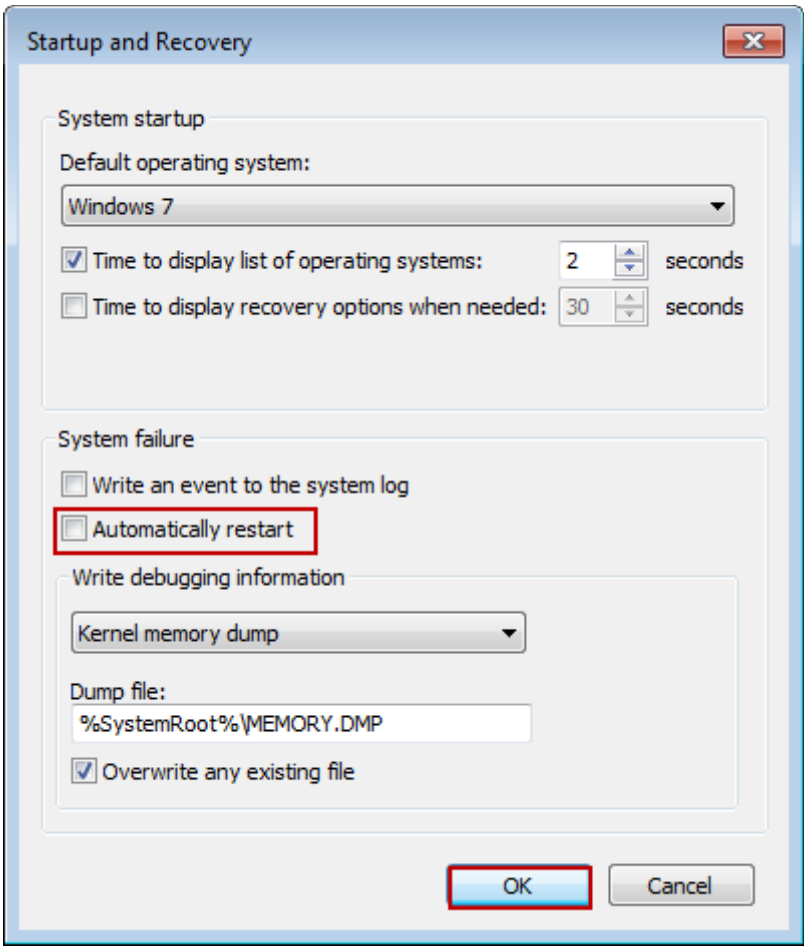


Figure 1-2

12.56 Cannot Play Warcraft on Local LAN

If you cannot play Warcraft on local LAN (or cannot join host network) with CCBoot, the root cause about this problem is the Warcraft games, and we suggest you to change the Warcraft games installer.

12.57 ARP Timeout in Windows 7

If you got the following error messages when diskless boot Windows 7
pxe-e11: arp timeout
pxe-e38 : tftp cannot open connection
pxe-m0f : exiting intel pxe rom

you can solve this problem by installing Windows 7 TFTP client on the server, then you can get the gpxe.pxe file from CCBoot server by using "tftp -i gpxe.pxe get [server_ip]".

After that, please reboot the client PCs.

Thanks for Henry Eko providing this solution.

12.58 Clients Boot Simultaneously too Slow

Problem:
It takes about 1 minute to boot one client PC, but when all clients boot simultaneously, it takes a very long time (about 15 minutes to boot 50 client PCs). The clients boot speed is too slow.

Solution:
Please check whether the flow control is disabled in the switch and server NIC properties. If not, please disable it.

12.59 Avoid Network Disconnection

Problem:
My network disconnects intermittently. I suspect it is because of the network auto sleep. I enabled super client to disable auto sleep and power save, but after I restarted the client, it reverted back to the old settings.

Solution:
1) Diskless boot one client PC with super client.
2) Disable the "Power Options" in the network properties. For details, please refer to "Client Power Options Optimization".
3) Run CCBoot PNP tool. Click "Collect Local NIC", and then click "Merge Collected NIC".
4) Shutdown the client PC, and then disable super client on CCBoot server.

Note: If the network disconnected after computers worked for a while, it may be related to the DHCP service in the router. Please disable other DHCP service on the LAN, especially the DHCP service in the router.

Thanks for Reyno Lee reported this problem.

12.60 Problem When Login League of Legends

Problem:
I have an issue about League of Legends, it won't let people login, and it is something about server certificate authentication error.

Solution:
If you have set a manual IP when you made the image on the client, please change it to "Obtain an IP address automatically", and only change the DNS server address in that client "Internet Protocal Version4 (TCP/IPv4) Properties" dialog box. Then, update the image.

Thanks for Ethan Judd reported this problem and provided this solution.

12.61 CCBoot Works with Antamedia Internet Cafe

1) Diskless boot one of the client PCs (such as PC101) with super client.
2) Download Antamedia Internet Cafe Software from http://www.antamedia.com/download/cafe, and install the Internet Cafe Client on CCBoot client (PC101). Note: When the installation is finished, please do not reboot the client PC.
3) Open "Registry Editor", and navigate to "Computer\HKEY_CURRENT_USER\Software\Antamedia\AIC" (Figure 1-1).

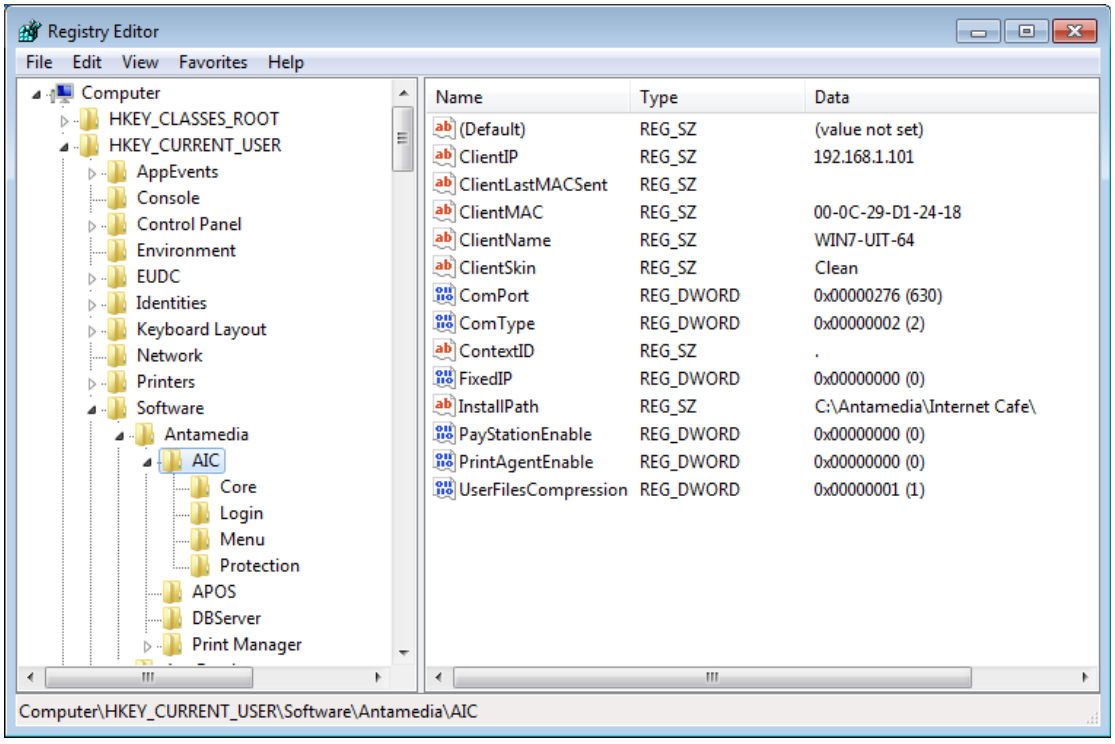


Figure 46-1

4) On the right side of the form, double click the "Client IP" key.

5) In the pop up "Edit String" dialog box, delete the client IP (192.168.1.101) from the "Value data" edit box, and click the "OK" button (Figure 1-2).

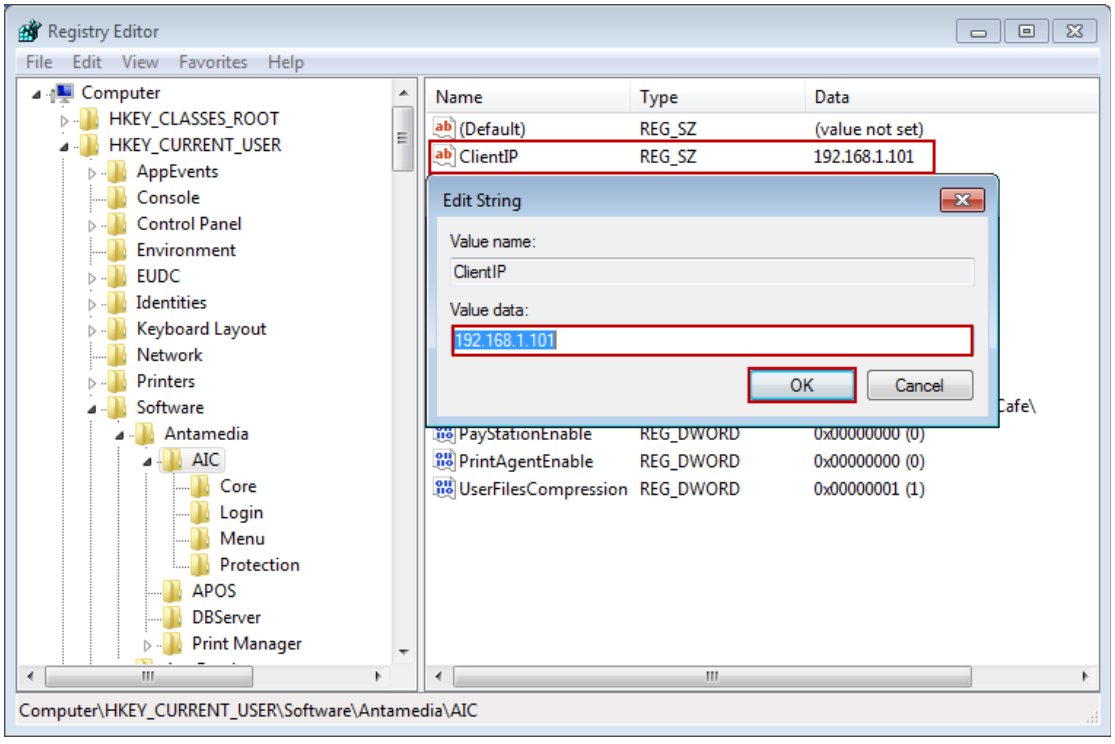


Figure 1-47

6) Delete the "Value data" of "ClientMAC" and "ClientName" with the same method of Step 5.
7) Now, you can see that the "Value data" of "Client IP", "ClientMAC" and "ClientName" are empty (Figure 1-3).

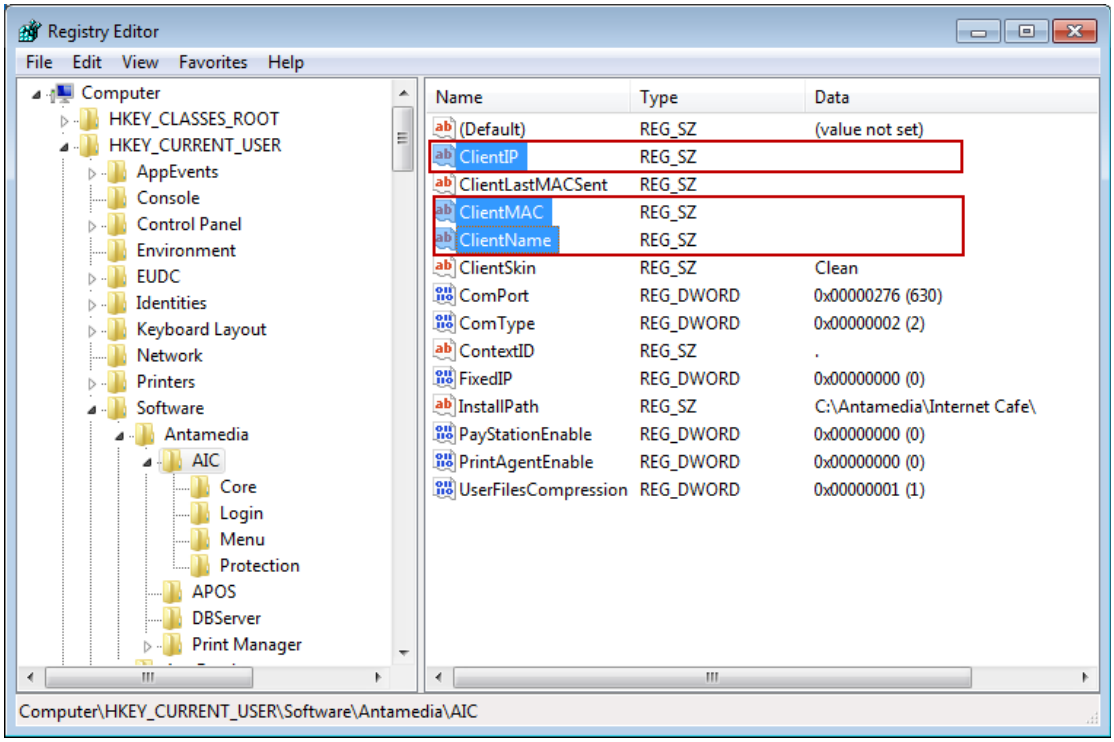


Figure 1-48

8) Close the "Registry Editor" form, and shutdown the client PC101.
9) Disable super client on CCBoot server.
10) Diskless boot client PC101, you can run Antamedia Internet Cafe Client on it now.

12.62 CCBoot Works with EZ Timebilling

1) On CCBoot server, download EZ Timebilling server from http://www.ezsoft.web.id/billing/download/Installer_Server%20v2.0.zip, and then extract the file.
2) Close all running applications in order not to conflict with the installation of EZ Timebilling software.
3) Run the "setup.exe" file, and follow the instructions to complete the installation of billing server.
4) Run EZ Timebilling server.
5) Diskless boot one of the client PCs with super client (such as PC1).
6) Download EZ Timebilling client from http://www.ezsoft.web.id/billing/download/Installer_Client%20v1.3.1.zip, and then extract

the file.

7) Run the "setup.exe" file, and follow the instructions to complete the installation of billing client. (Note: Do not select "Launch Client Shield" when the installation is finished.)
8) Download the "ccboot-for-ez-timebilling.zip" file from http://www.ccboot.com/download/ccboot-for-ez-timebilling.zip, and extract it.
9) Copy the "CCBoot-for-EZ-Timebilling.exe" file from the extracted file to "C:\Program Files (x86)\Client Shield".
10) Run the "CCBoot-for-EZ-Timebilling.exe" file, and then run the "EZShield.exe" file.
11) Enter the Workstation number (eg. 1).
12) Enter the server IP.
13) Enter the server port, the default port is 2021. And then click the "OK" button.
14) Shutdown PC1 normally. Disable super client and save the updated image on CCBoot server.
15) Diskless boot all client PCs.

12.63 BSOD is the NIC or Other Device Driver Problem

If the write data reset to zero from 7k, it is because of other device driver conflict, not the NIC driver problem. Please uninstall and reinstall other device driver. Normally, it's caused by vga driver conflict.

If the write data always stop at 7k, it's the NIC driver problem. Please download and reinstall the latest NIC driver from its official website.

13 Active Directory

13.1 CCBoot Works with Active Directory

Preparation

1) Has successfully installed CCBoot and realized diskless boot. CCBoot server's IP address is 192.168.10.2.
2) The server of Windows Domain has already been installed, and the domain server's IP address is 192.168.10.3. (For details, please refer to "Install Windows Domain Service").
3) CCBoot server can be on the same computer with Windows domain server, or not. on the same computer.
4) Prepare two Clients, the IP address of PC101 is 192.168.10.101, and the IP address of PC102 is 192.168.10.102.
5) Set administrator password for the client.

1 CCBoot Settings

1) Click the "Options" button on the toolbar of CCBoot main interface. (Figure 1-1)

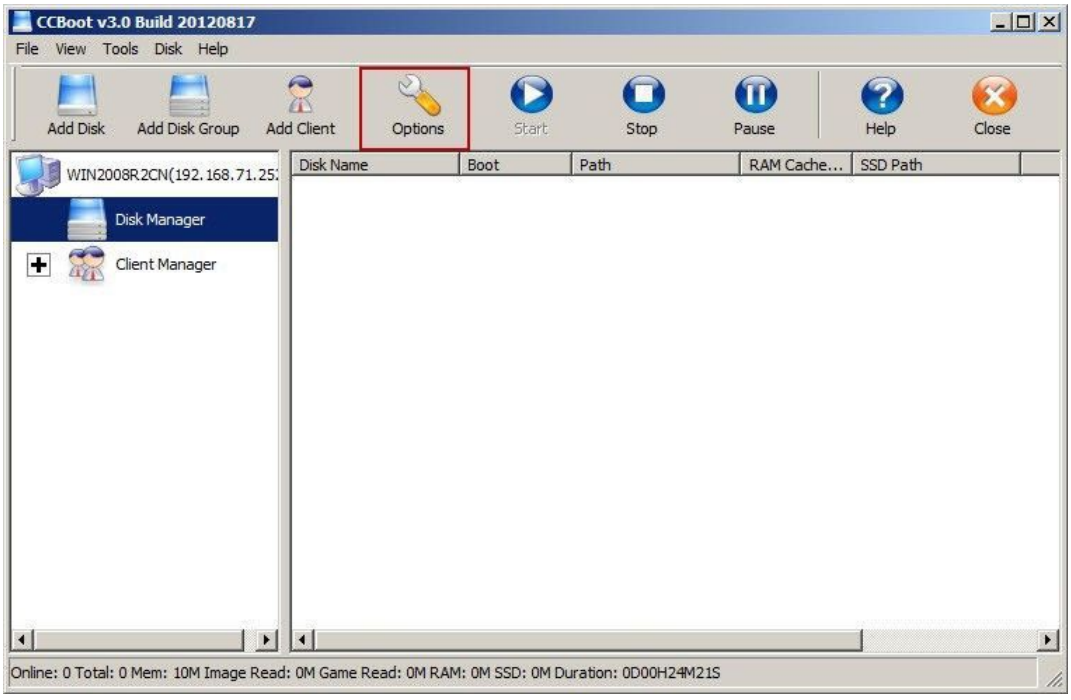


Figure 1-1

2) In the popup "CCBoot Options" dialog box, select the "DHCP Settings" tab, and type the domain server's IP address into the "DNS Address 1" edit box, then click the "OK" button. (Figure 1-2)

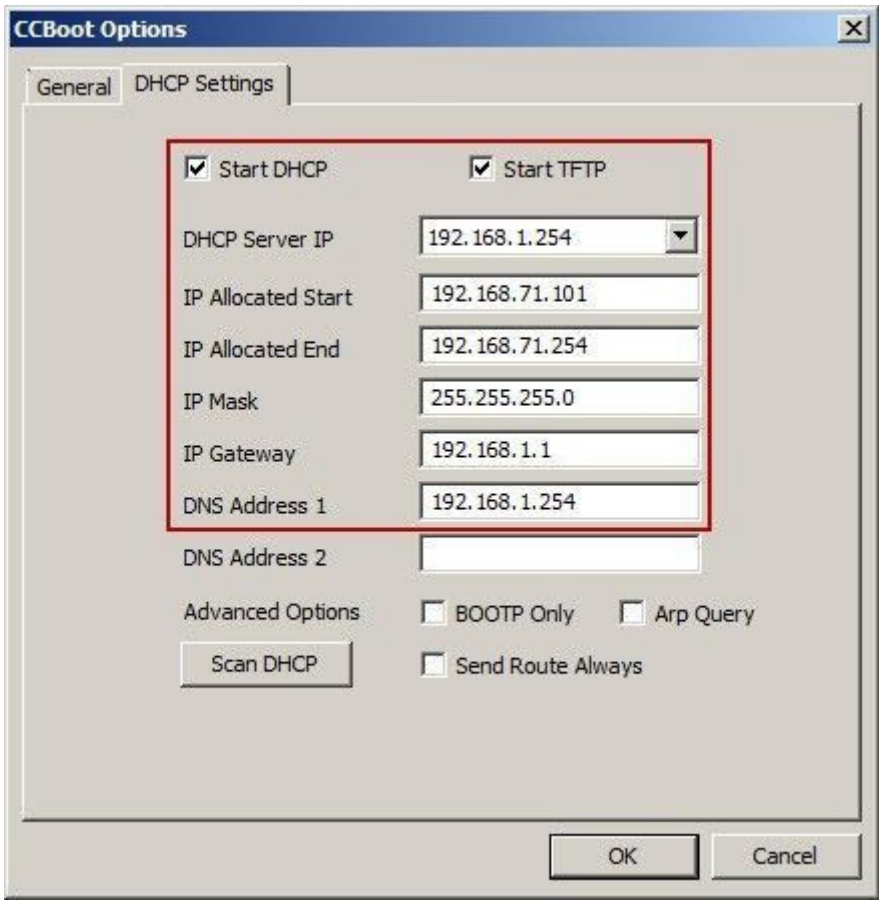


Figure 1-2

2 Update Image

1) Set a personal disk for PC101. Please refer to "The usage of personal disk" for details.
2) Diskless boot PC101 with super client.
3) Login PC101 with the local account of administrator.
4) Initialize and format the personal disk, create D:\Users folder.
5) Click the "Start", type "regedit" into the "Run" edit box type "regedit", and press the enter key.Enter.
6) In the popup "Registry Editor" form, navigate to "HKEY_LOCAL_MACHINE\SOFRWARE\Microsoft\WindowsNT\CurrentVersion\ProfileList", in the right form. and double click the "ProfilesDirectory". in the right form. (Figure 1-3)

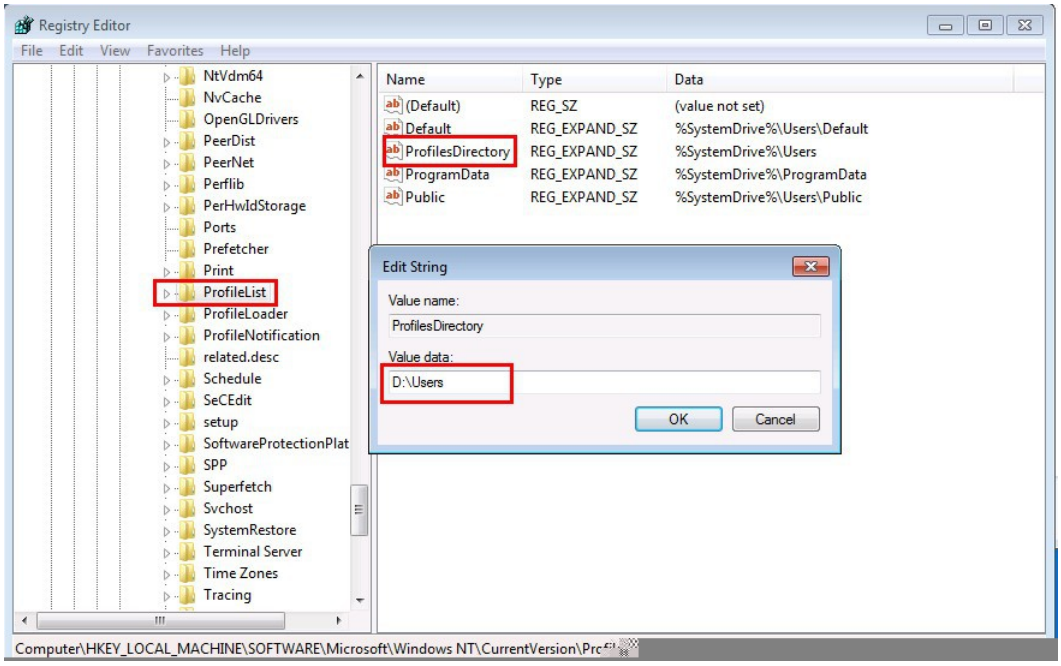


Figure 1-3

7) In the popup "Edit String" dialog box, change the "ProfilesDirectory" value data to "D:\Users".
8) Reboot PC101.
9) Run the C:\CCBootClient program, in the "CCBoot Client" dialog box.and click the "Install AD Support" button in the "CCBoot Client" dialog box. (Figure 1-4)

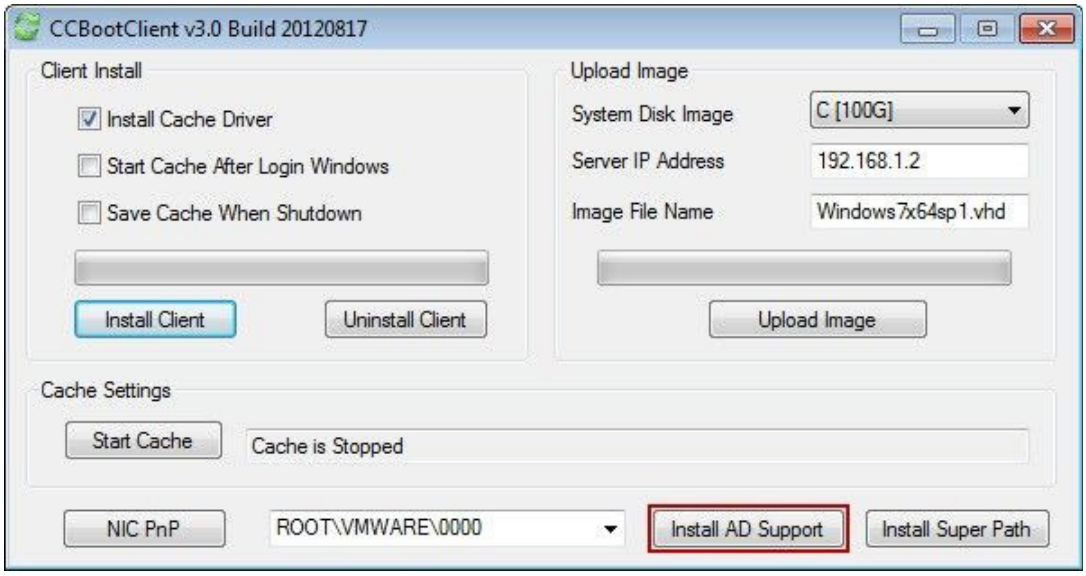


Figure 1-4

10) Shutdown CCBootClient.
11) Right-click the "Computer", select the "Properties".
12) In the popup dialog box, click the "Advanced system settings". (Figure 1-5)

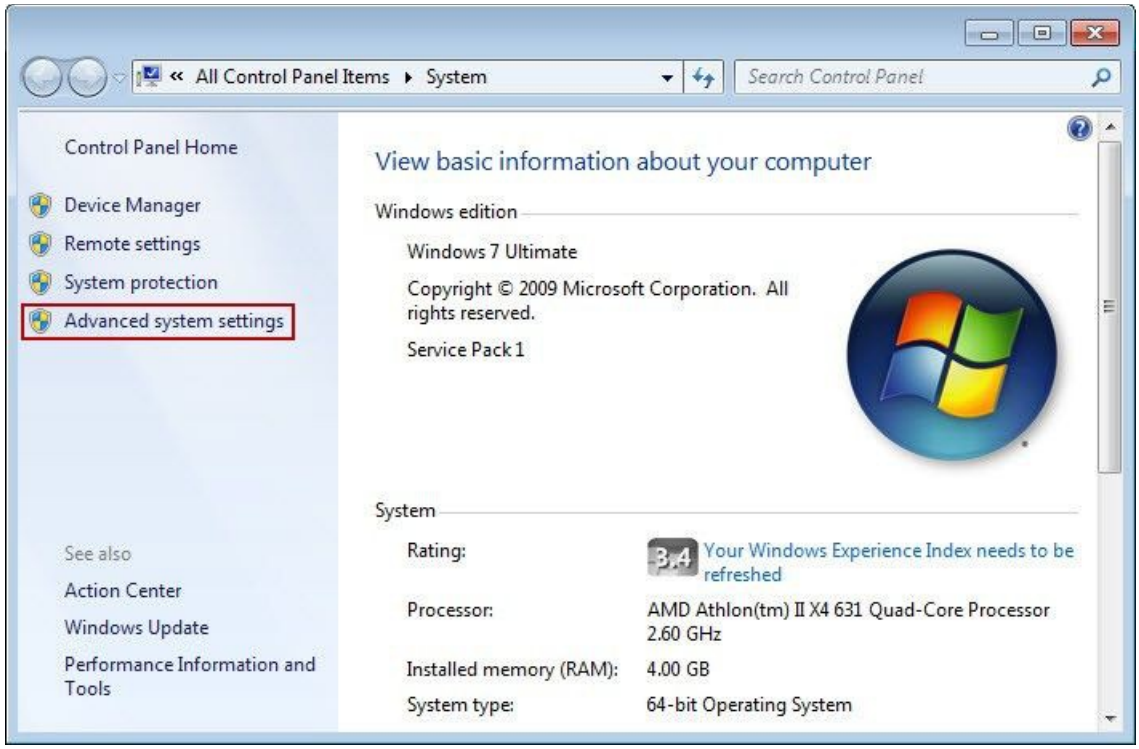


Figure 1-5

13) In the popup "System Properties" dialog box, select the "Computer Name" tab, and then click the "Change" button. (Figure 1-6)

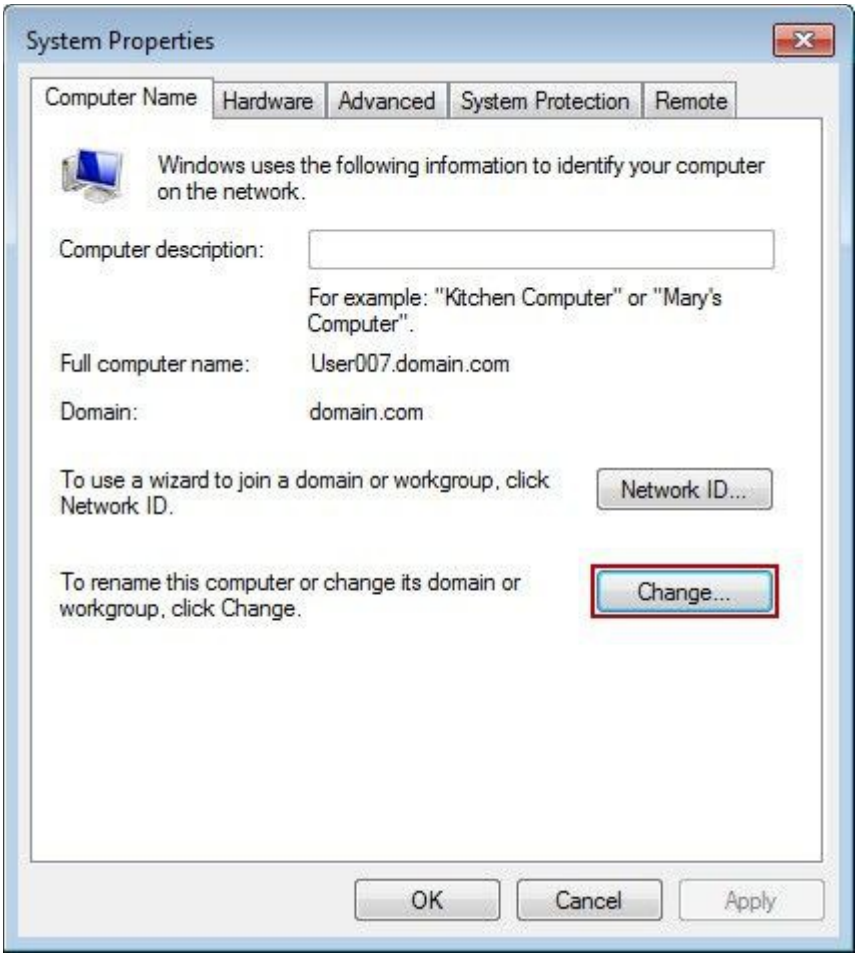


Figure 1-6

14) It will popup the "Computer Name/Domain Changes" dialog box, type the domain name into the "Domain" edit box, and then click the "OK" button. (Figure 1-7)

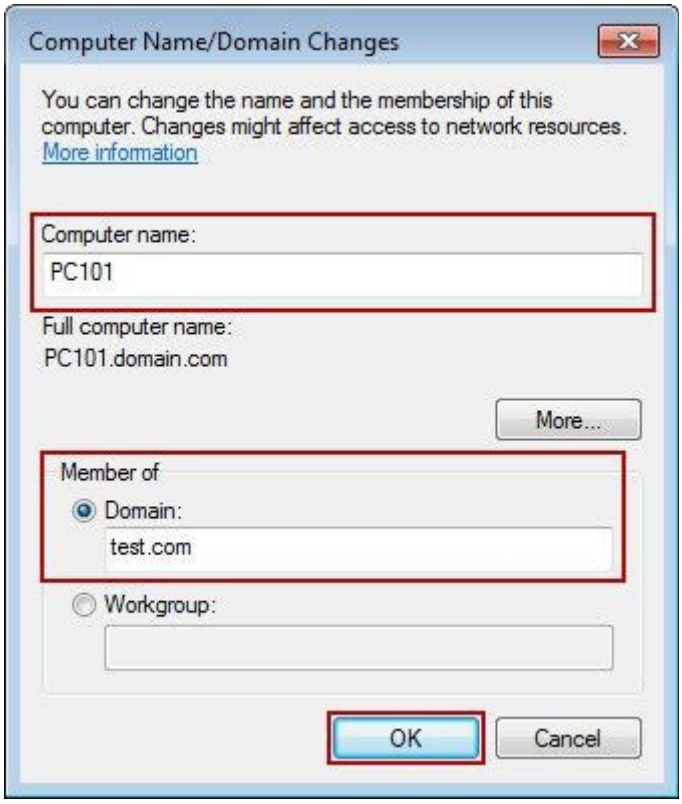


Figure 1-7

15) In the popup "Windows Security" dialog box, enter the name and password of the "Domain Administrator", then click the "OK" button. (Figure 1-8)

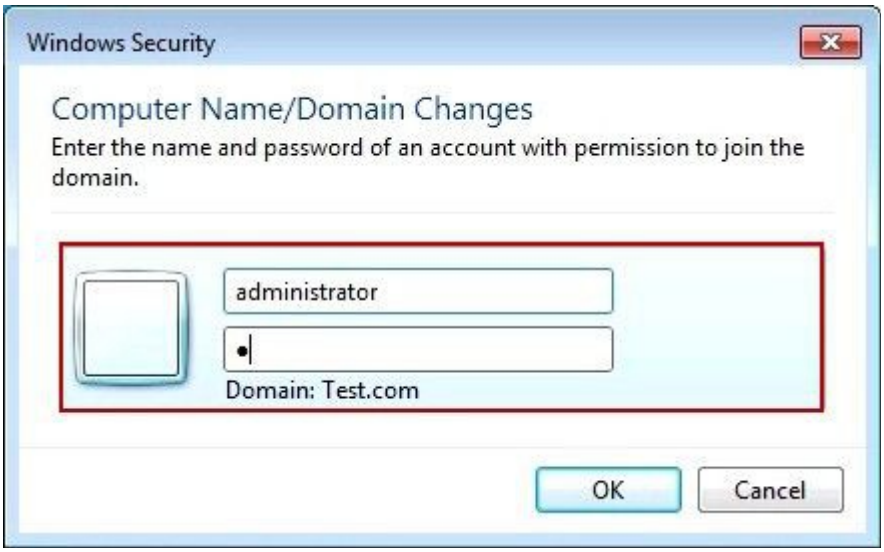


Figure 1-8

16) When popups the "Welcome to the Test.com domain" dialog box, it means that you have joined the domain successfully, then shutdown your computer. (Figure 1-9)

Figure 1-9

3 Domain Server Settings

1) Open the CCBoot installation directory, copy "CCBootAD.exe" files to the domain server.
2) Run the "CCBootAD.exe" program on the domain server.
3) Click the "Add" button in the popup "CCBoot AD" dialog box. (Figure 1-10)

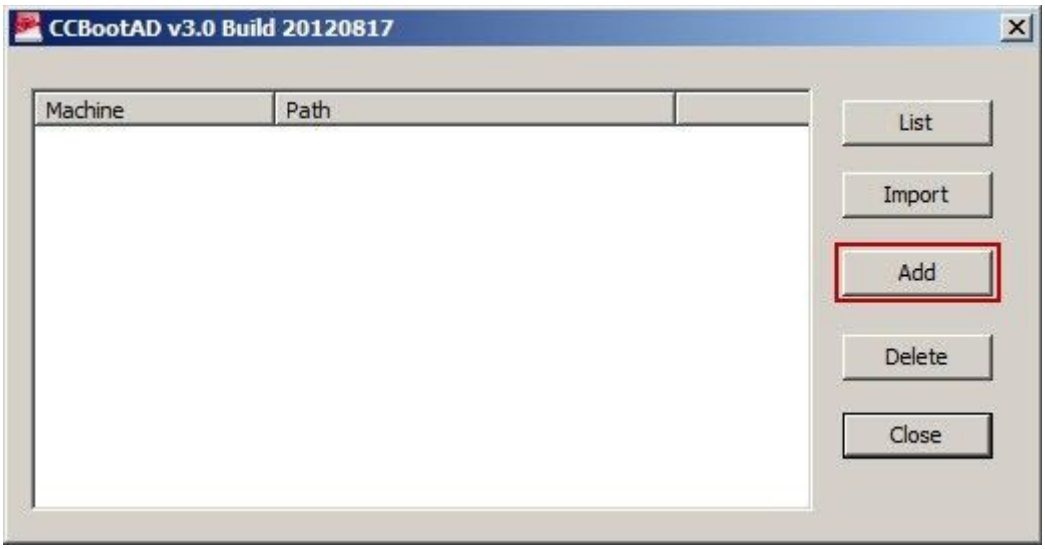


Figure 1-10

4) Click the "..." button in the popup "CCBootAD Machine" dialog box to select domain "Computers", type PC101 into the "Machine Name" edit box, and click the "OK" button, then the operation is completed. (Figure 1-11)

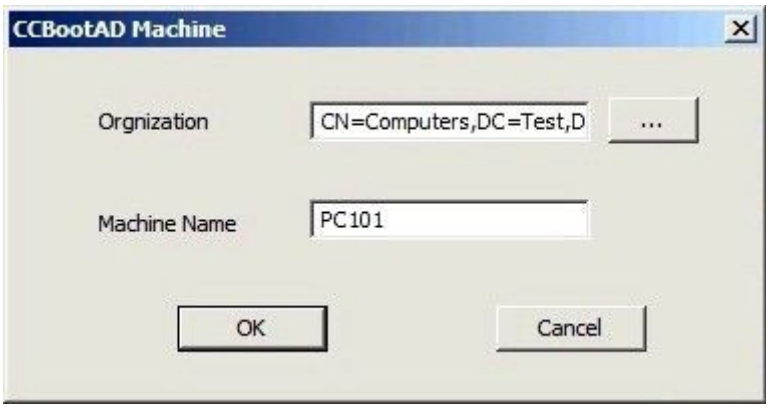


Figure 1-11

5) If you want other clients to join the domain as well, you can repeat the above operation steps.
6) Add a domain user of User001.
7) Add other domain users.

4 Set the Boot Parameters

1) Click the "Options" button on the toolbar of CCBoot main interface. (Figure 1-12)

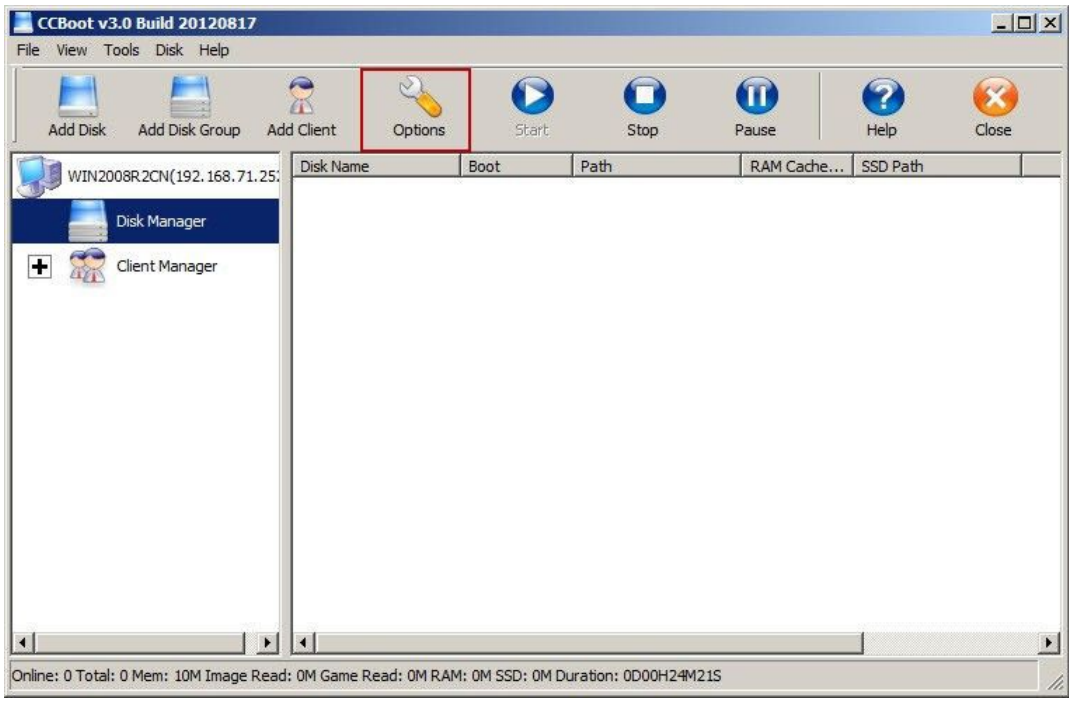


Figure 1-12

2) In the popup "CCBoot Options" dialog box, click the "General" tab, select the "Run Batch Command at Client" check box, then click the ">>" button in the right side of the "Run Batch Command at Client". (Figure 1-13)

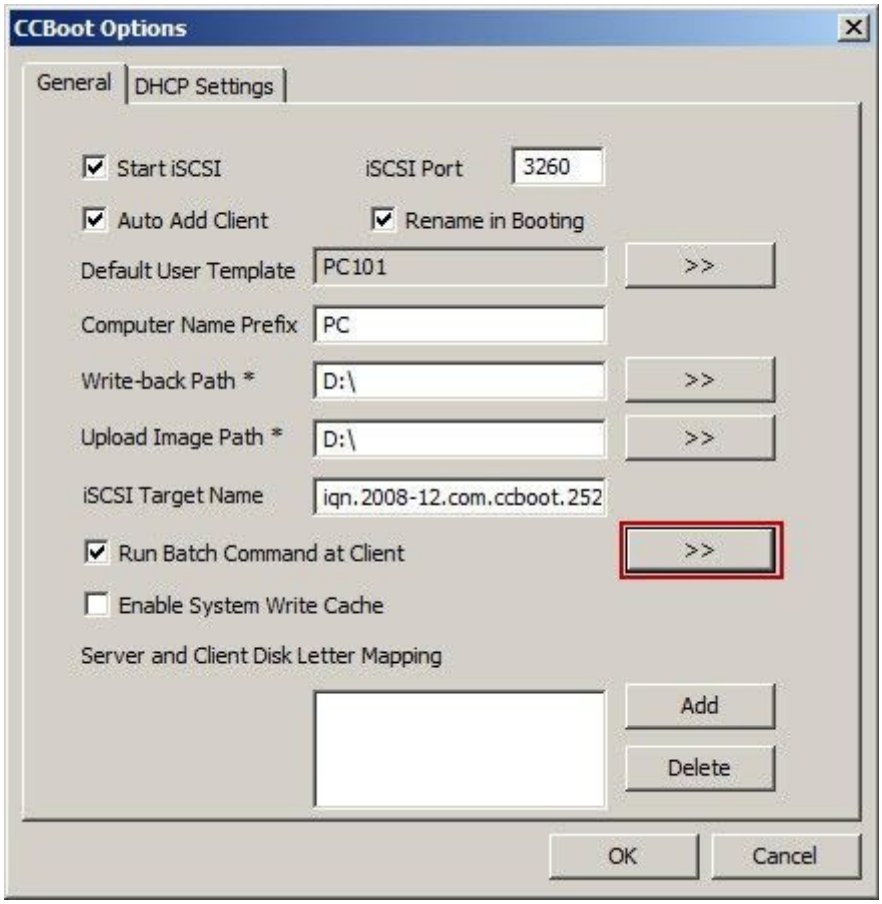


Figure 1-13

3) Add an order of "joindomain domain name" at the bottom of the popup "public - Notepad" (E.g. "joindomain test.com"), and enable clients to join the "test.com" domain. (Figure 1-14)

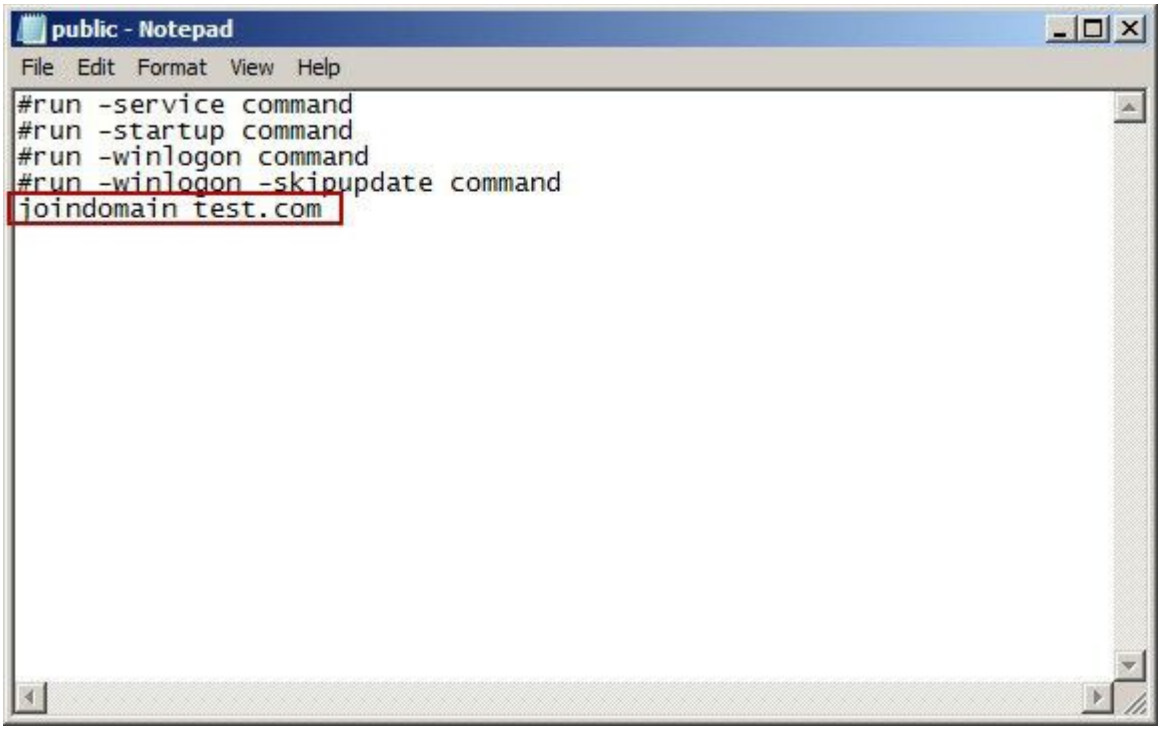


Figure 1-14

5 Domain Account Login

1) After rebooting PC101, a prompting of "Press CTRL + ALT + DELETE to log on" will pop up. (Figure 1-15)

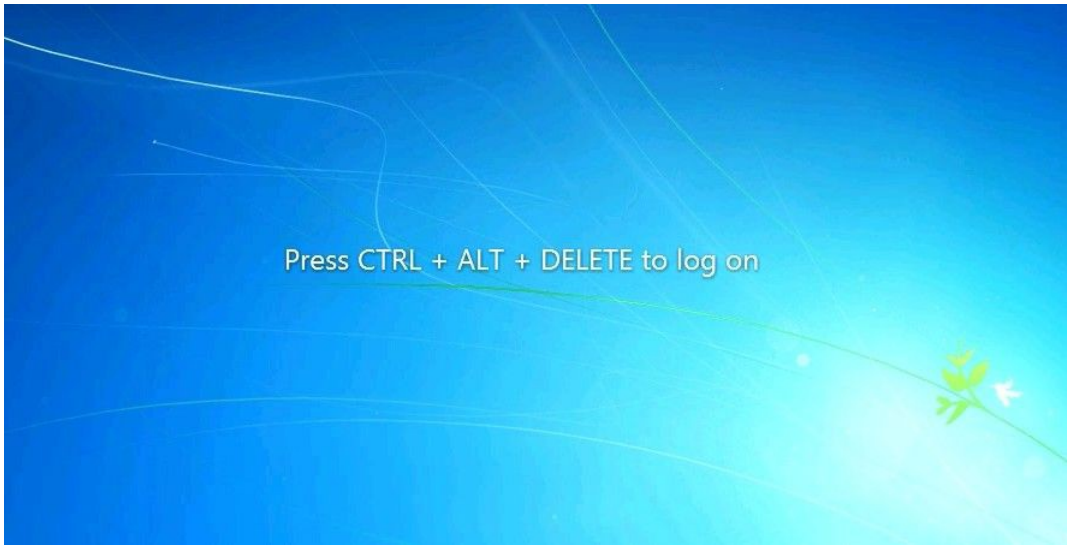


Figure 1-15

2) Login the computer with the domain account of User001.
3) Login PC101 with other domain accounts.
4) Disable super client on the CCBoot server.

Note: The computers, which are needed to join the domain, should be set the correct

time, otherwise it will be failed to join the domain.
We have created a video - "CCBoot Works With Active Directory"

6 Temporary Warning Message

If you login the other PCs with the same domain account into other machines again, you will receive a warning message of "You have been logged on with a temporary profile".
E.g. After booting PC102, if you use the domain account of User002 to log on, the "temporary" warning message will pop up. (Figure 1-16)

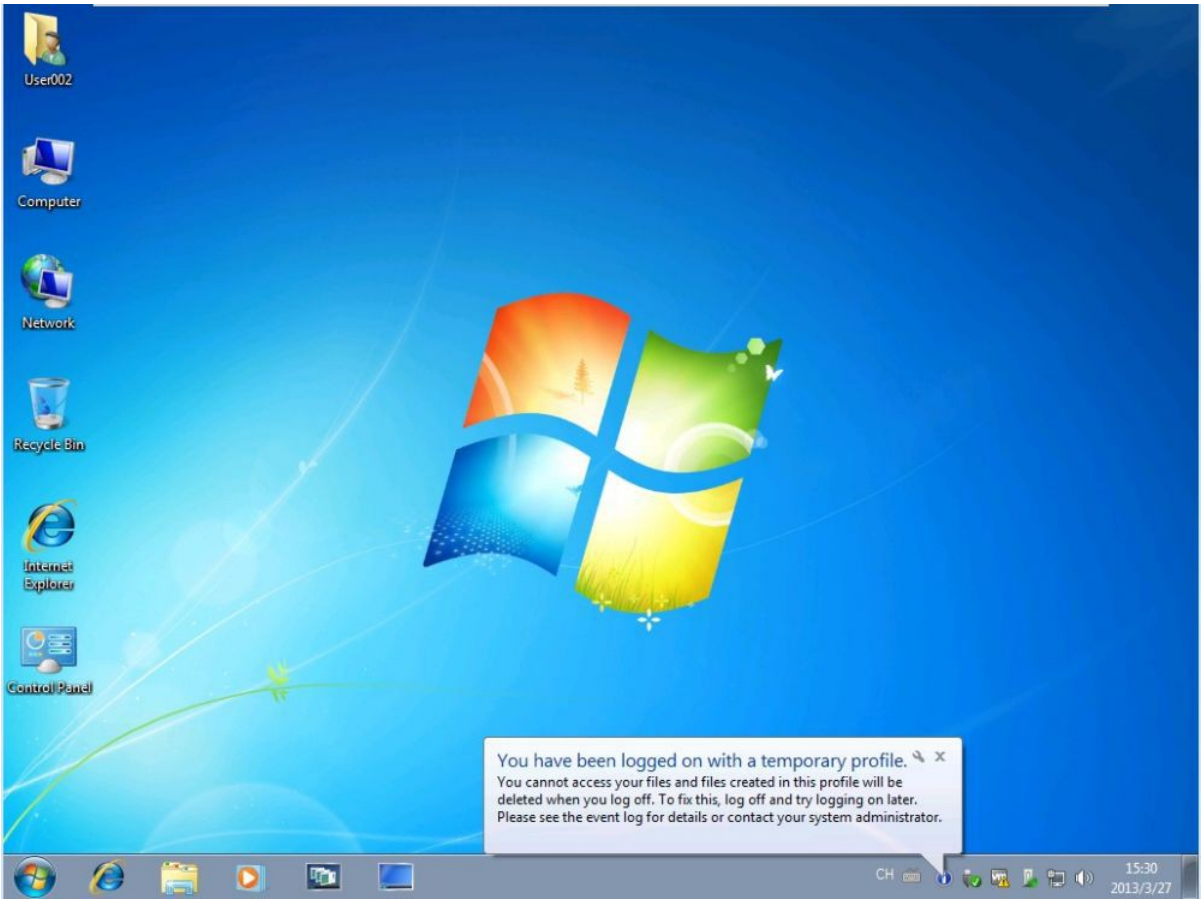


Figure 1-16

Solutions:

1) Reboot PC102.
2) Login the computer with the administrator account.
3) Initialize and format the personal disk.
4) Click the "Start" button,in the "Run" edit box type "regedit" into the "Run" edit box, and then press the enter key.
5) In the popup "Registry Editor" dialog box, navigate to "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\ProfileList", expand each branch and click each node one by one to find the node whose key "CentralProfile" value is "\\server\users\User002.V2", and delete it. (Figure 1-17)

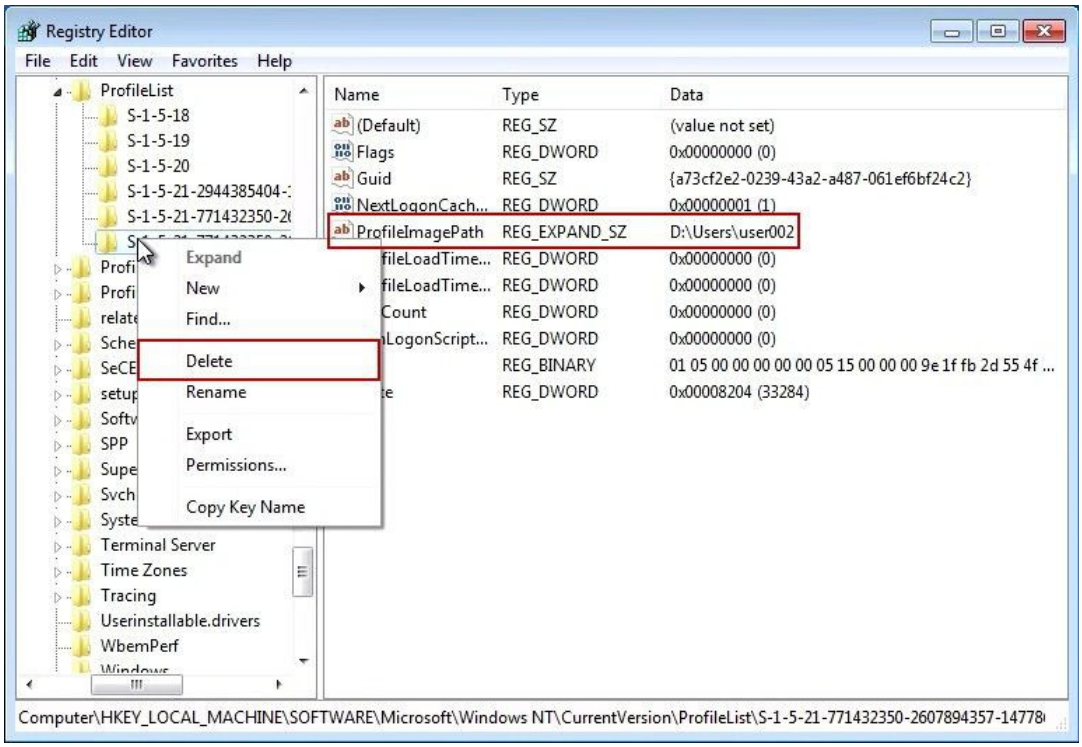


Figure 1-17

6) Logoff the computer, you will find that the warning message will not pop up anymore even if you login the computer with the domain account (User002).

7 Add a New Machine

1) Add a new machine to join domain.
2) Run the "CCBootAD.exe" on the domain server.
3) In the popup "CCBootAD" dialog box, click the "Add" button. (Figure 1-18)

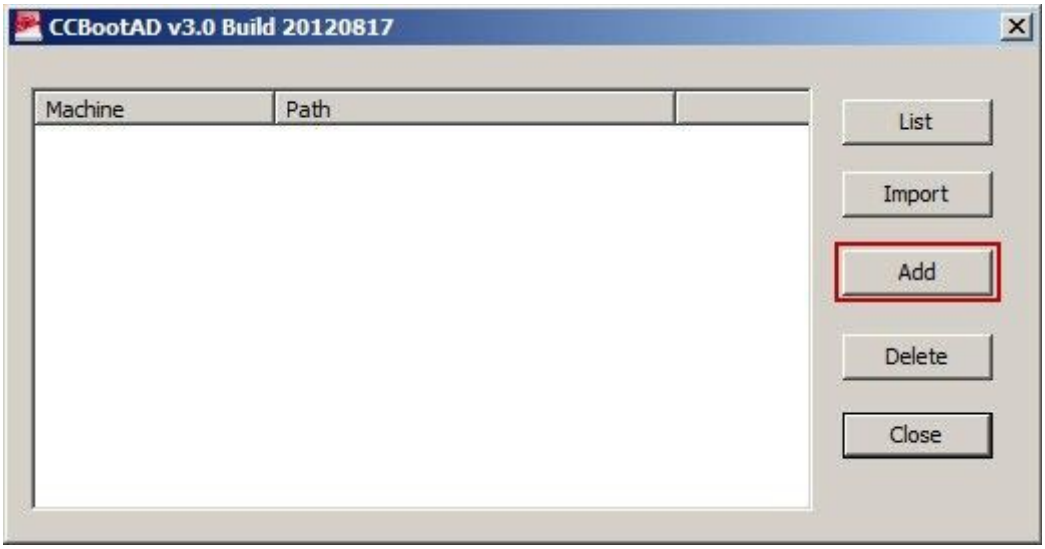


Figure 1-18

4) Click the "..." button in the popup "CCBootAD Machine" dialog box to select domain

"Computers", type the machine name into the "Machine Name" edit box, and click the "OK" button, then the operation is completed. (Figure 1-19)

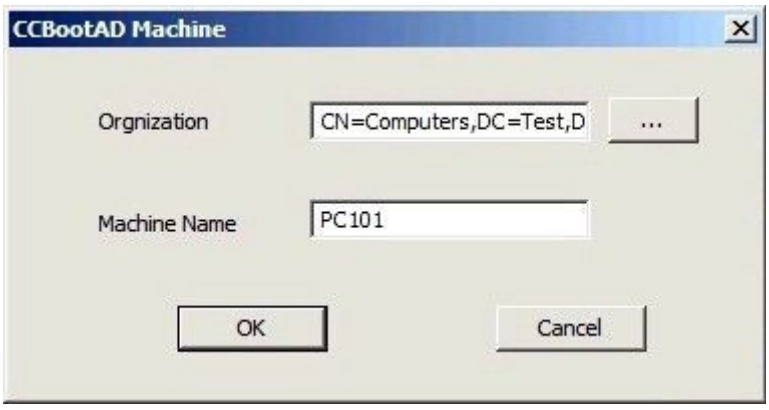


Figure 1-19

5) After logging on the newly added machine with the administrator account, please initialize and format the personal disk.

8 Add a New User

1) Add a new domain account on the domain server.
2) Enable super client for PC201 on the CCBoot server.
3) Login PC201 with the newly added domain account.
4) Disable super client on the CCBoot server.

Notes:

1. The computers, which are needed to add into domain, should be set for the right time, or it will be failed to add.

2. Use Win2008 system as domain server, XP system as client, please process following operations on domain server:

1) Log in domain server of Windows Server 2008.
2) Click "Start" and enter "gpmc.msc" in edit box of "Run", then press "Enter".
3) Unfold "Domain Name" in popup window of "Group Policy Management", then right-click "Default Domain Policy", and click to choose "Edit". (Figure 1-20)

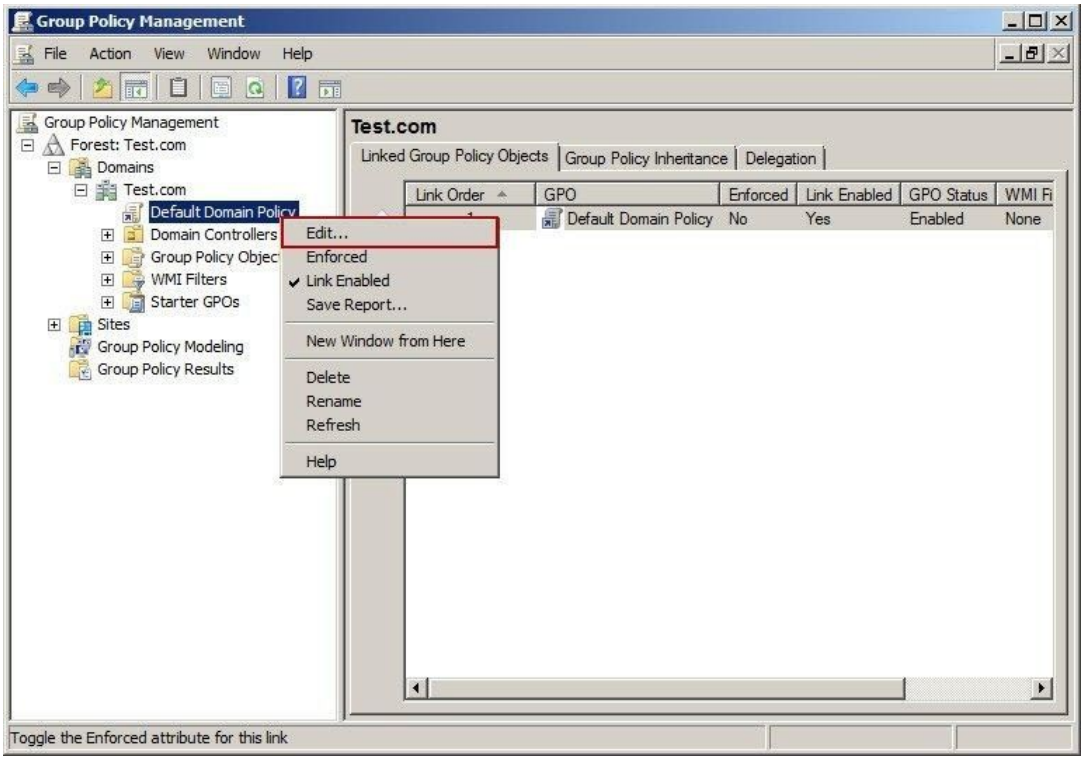


Figure 1-20

4) Unfold "Computer Configuration"->"Policies"->"Administrative Templates"->"System" in popup dialog box of "Group Policy Management Editor", then click "NetLogon", and double-click "Allow cryptography algorithms compatible with Windows NT 4.0" in detailed windows at right side. (Figure 1-21)

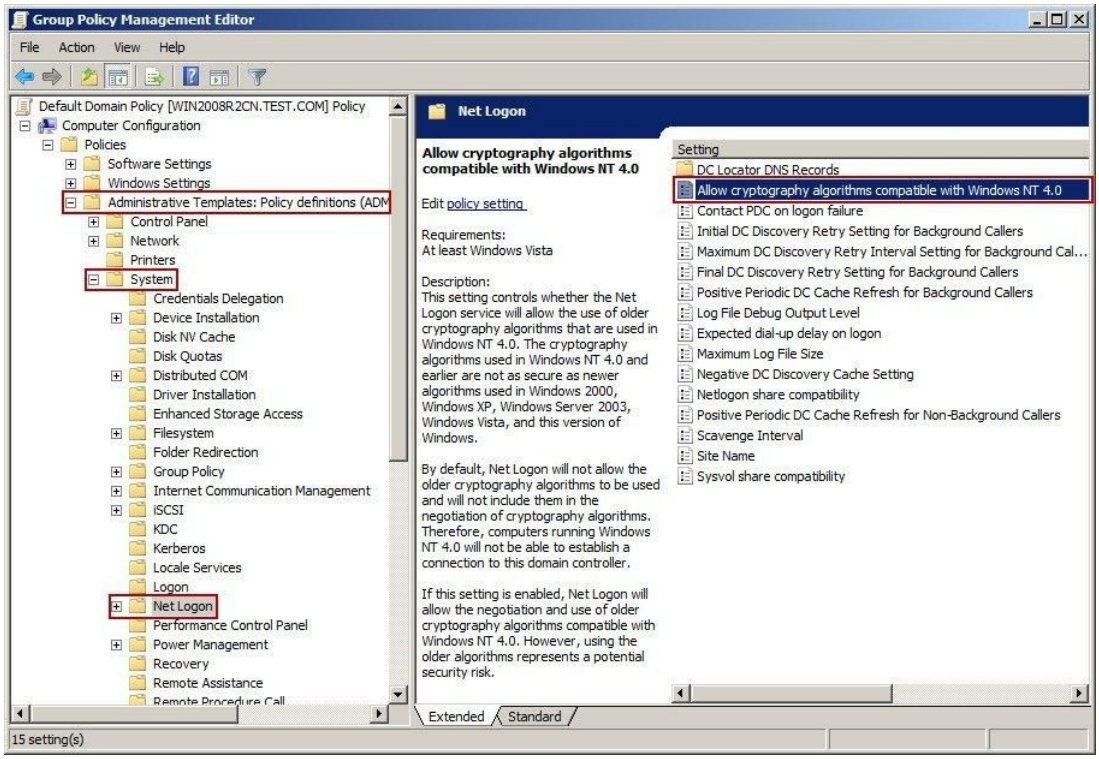


Figure 1-21

5) Choose "Enabled" radio button in popup dialog box of "Allow cryptography algorithms compatible with Windows NT 4.0", then click "OK" button. (Figure 1-22)

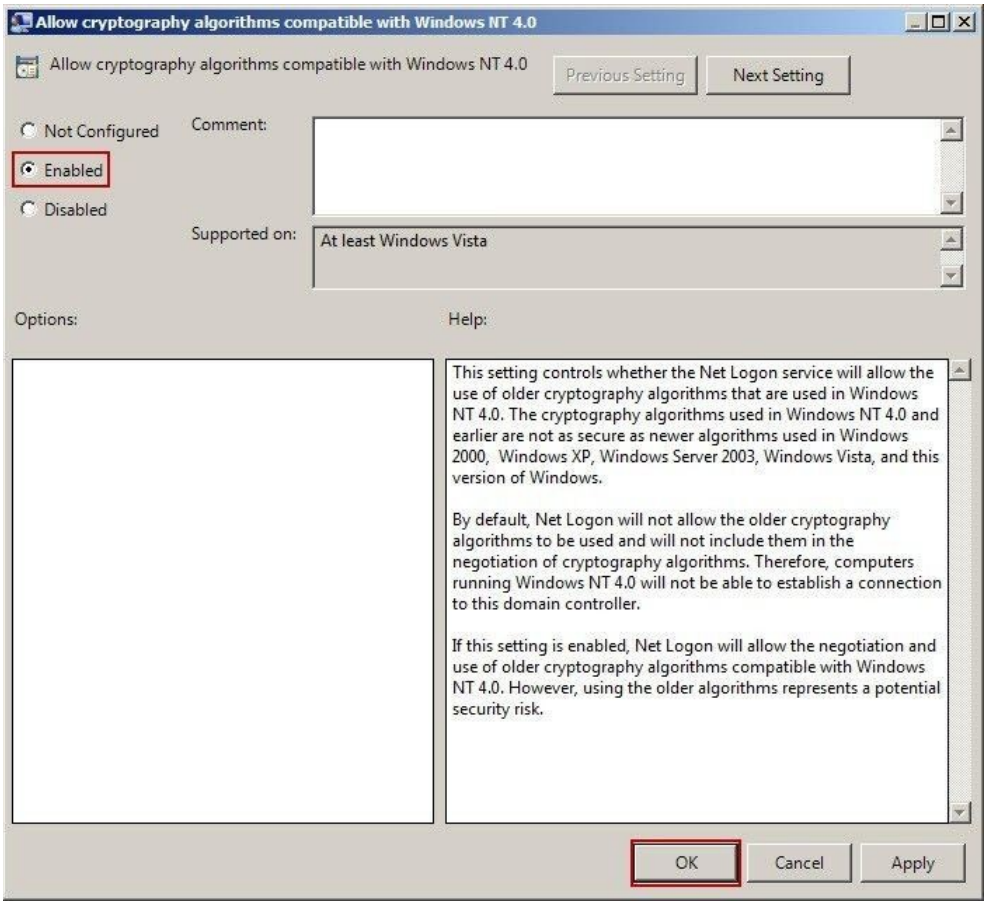


Figure 1-22

6) Close all dialog boxes at last.

13.2 Win7 Domain User Profile Roaming

"Roaming User Profiles" refers to that the domain users can login on more than one terminal, and can read and save its own personal configuration. Personal disk combined with CCBoot, not only can realize the domain user configuration, but also can realize quick login.

1. Preparations

1) On the AD domain server, create a directory, as save path for all user profiles, for example, D: \\Users.
2) A network share this directory, set permissions for everyone to read and write.

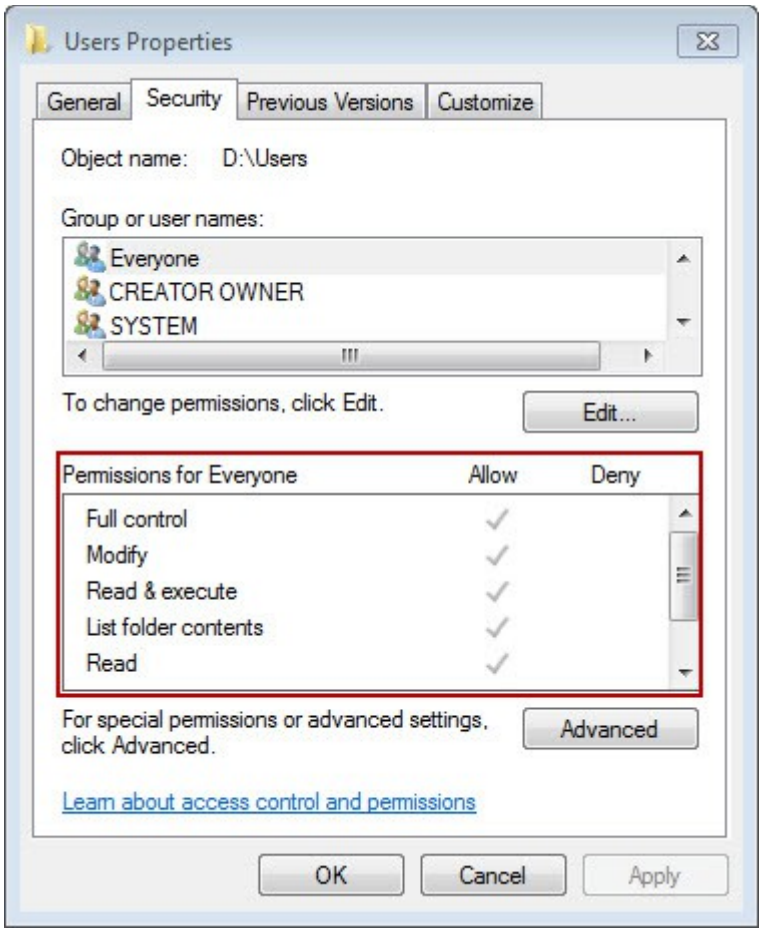


Figure 13-49

3) Set roaming path for each domain user. For example, wandering path for domain user "User" is set as \\Server\Users\User, where \\Server\Users is a shared network address of the user configuration file directory, "User" is a directory name of domain user.

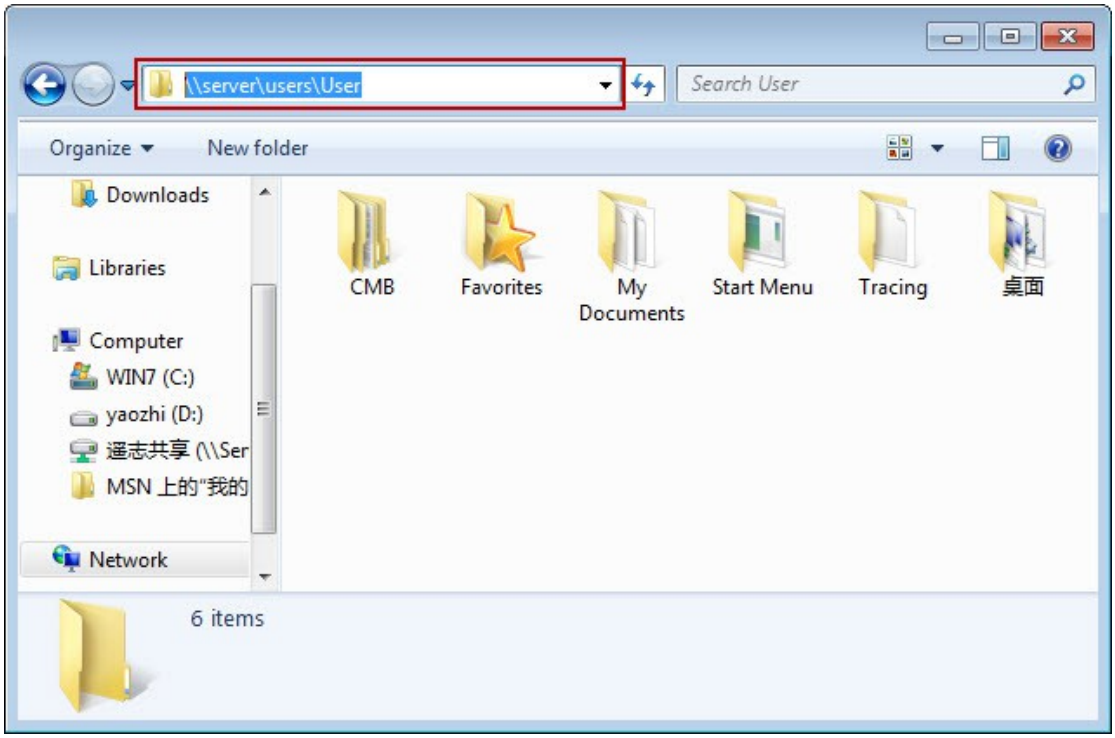


Figure 13-50

2. Setting methods

1) On the CCBoot server, add personal disk for each client-side, how to add personal disk. Details please refer to "usage of personal disk".

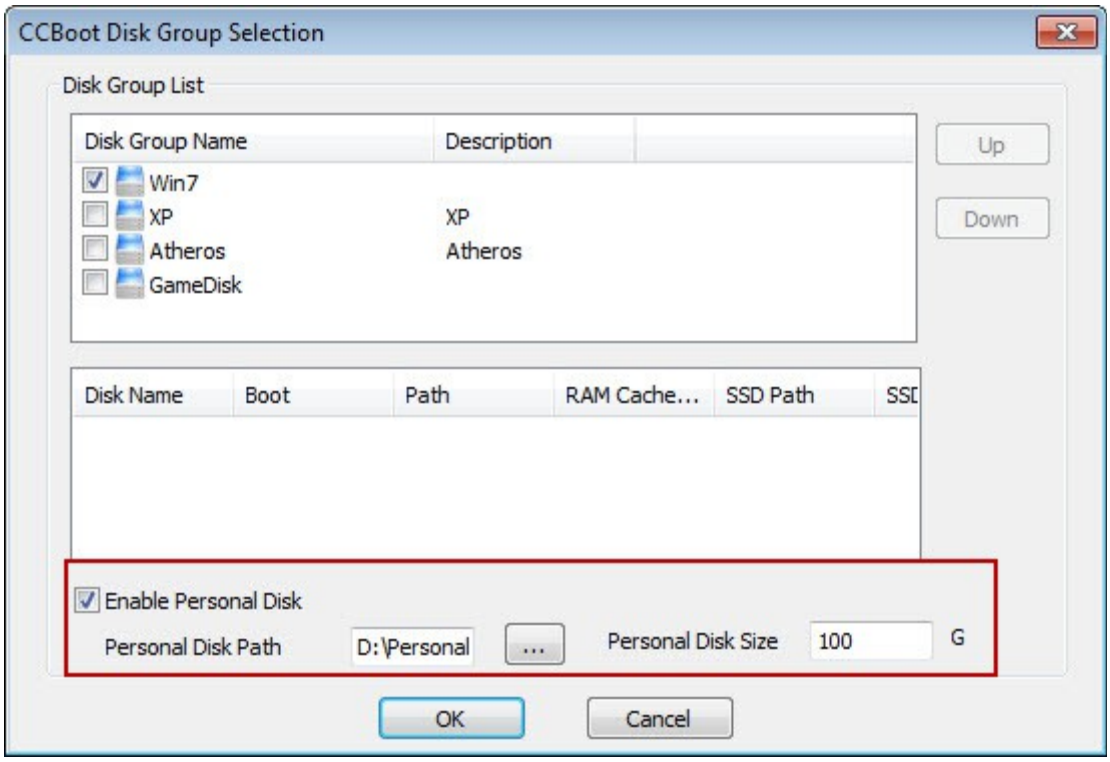


Figure 13-51

2) Start client-side in super user mode (in the case of the PC101), login with the local Administrator user.
3) In the "Disk Management" window, format individual disk.

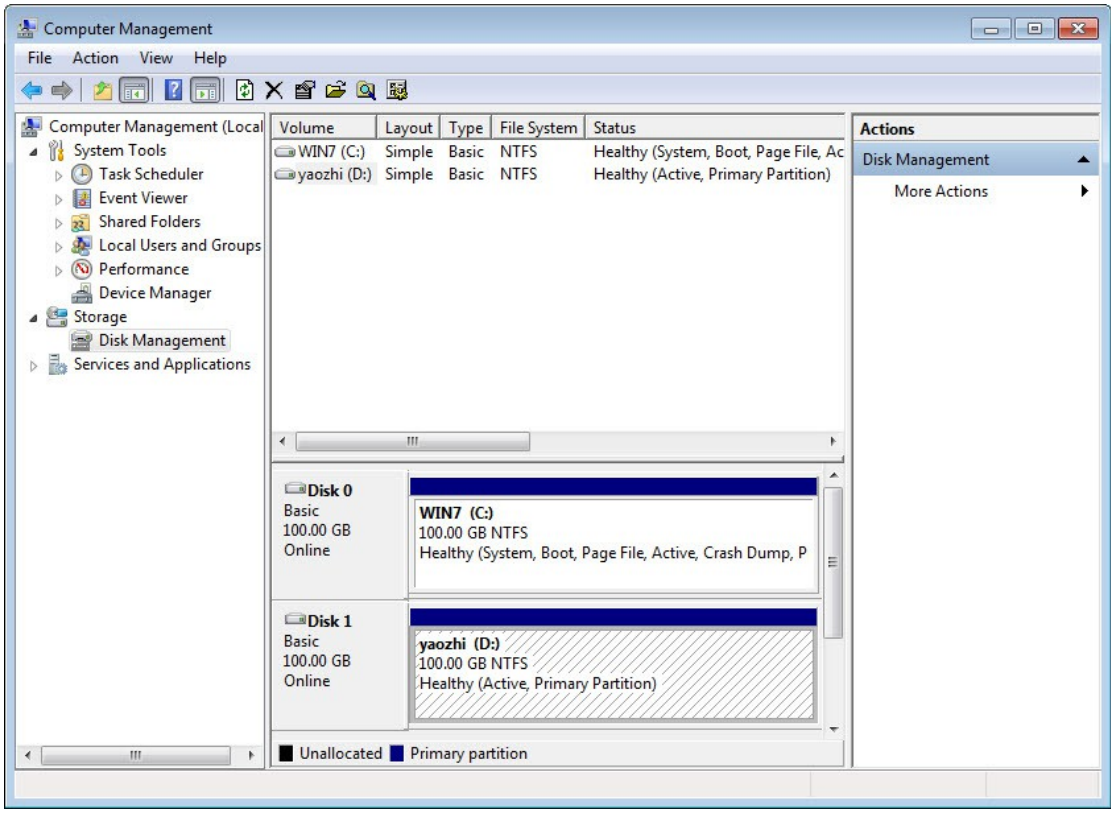


Figure 13-52

4) Click "Start" button, type "regedit" in the "Run" edit box, press enter.
5) In the pop-up "Registry Editor" window, navigate to: "HKEY_LOCAL_MACHINE\SOFRWARE\Microsoft\WindowsNT\CurrentVersion\ProfileList", then double-click "ProfilesDirectory".

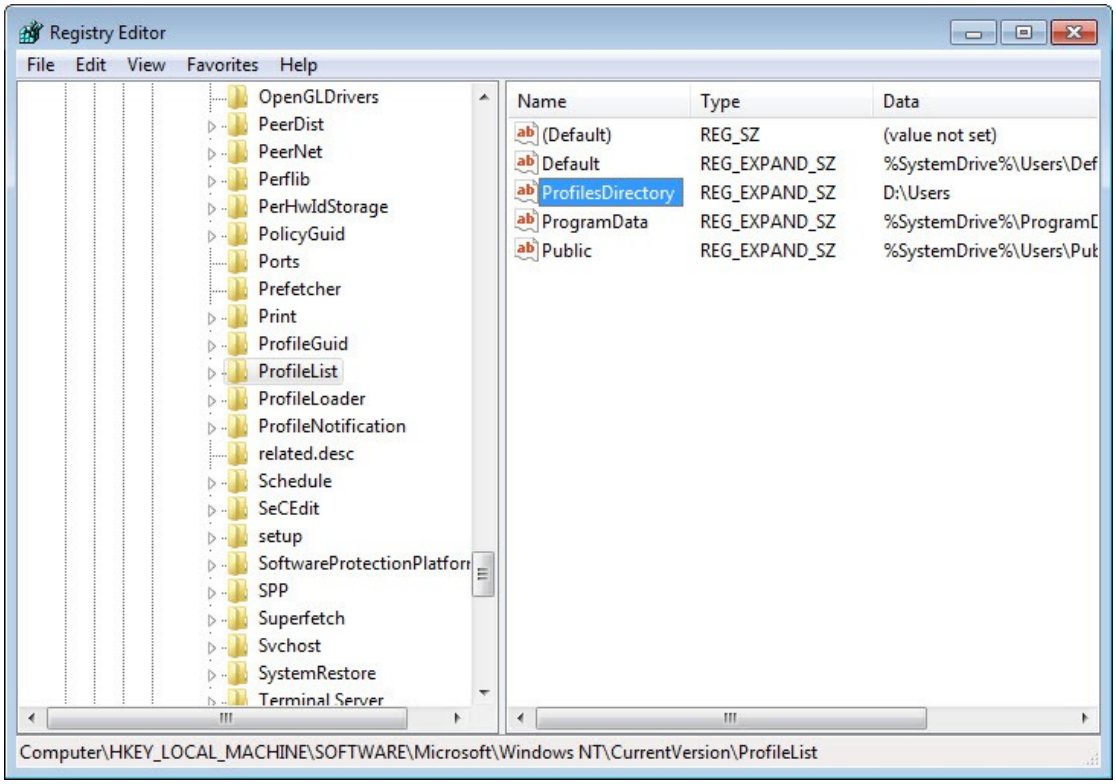


Figure 13-53

6) In the pop-up "Edit String" dialog box, change the numerical data of ProfilesDirectory" into "D:\Users".

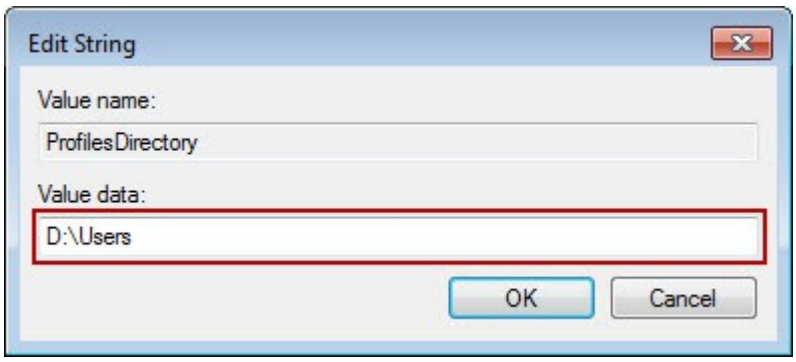


Figure 13-54

7) Restart the client-side.
8) Login with all the domain users and logout one time.
9) And then login with "Administration".

10) Check the D:\Users directory; you can see the configuration folder of the user.

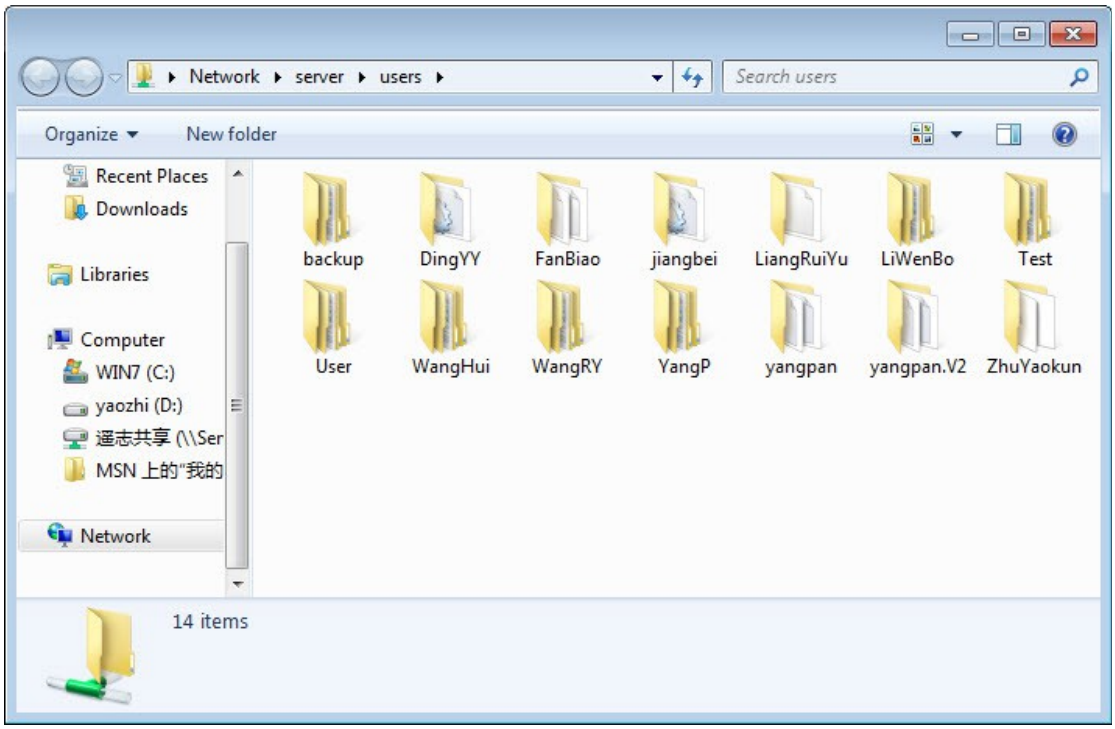


Figure 13-55

11) Close the client-side.
12) On the CCBoot server, disable "super user".

3. How to do if prompt "Logged on with a temporary profile"?

After diskless boot of client-side, if the domain account (fanbiao) never login on the machine, then the warning will appear.

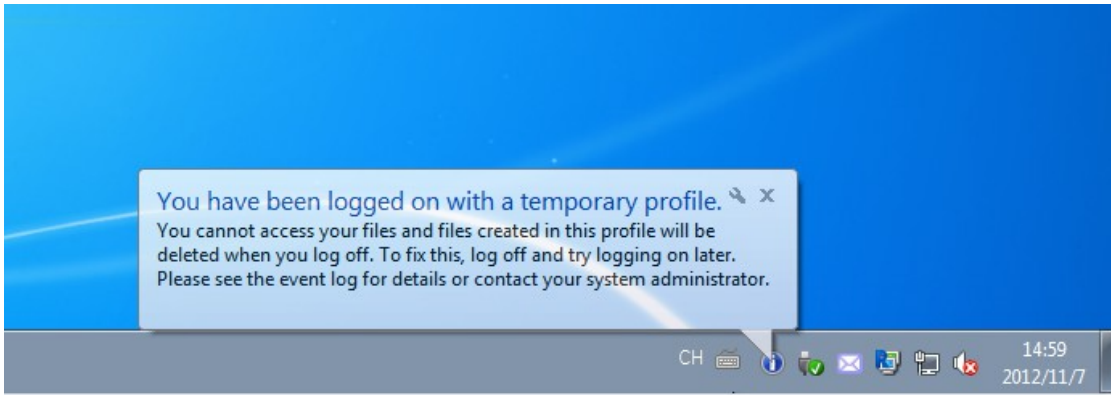


Figure 13-56

Solutions:

1) When there is a warning shown, reboot the machine.
2) Use the administrator account to login the system.

3) Click the "Start" button, type "regedit" in the "Run" edit box, and then press enter.

4) In the pop-up "Registry Editor" dialog box, navigate to: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\ProfileLis" , expand all the branches, click each branch node one by one, find the branch with "CentralProfile" value of "\\server\users\fanbiao.V2", and delete that branch node.

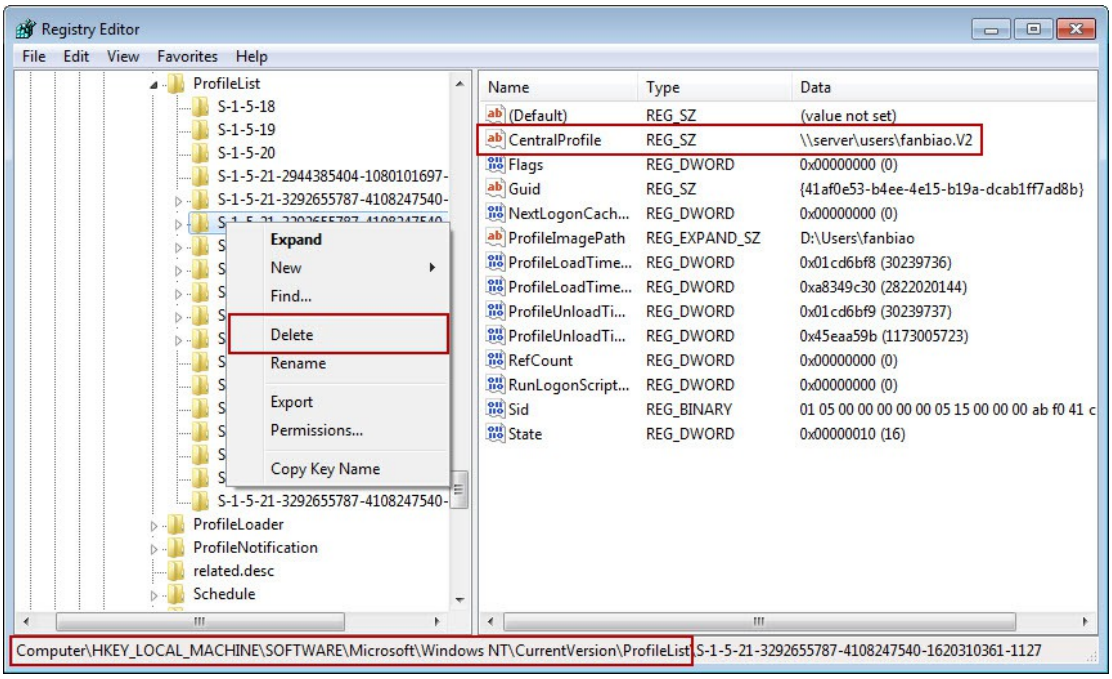


Figure 13-57

5) Logout the machine, then after using the domain account (fanbiao) to login the system, you won't get "warning".

4. Domain User Profile Resetting

After using CCBoot domain account for a period of time, the user configuration file is too big, which affects the client-side boot speed, resetting the configuration file can solve this problem.

Take the domain account "fanbiao" as an example, the steps are as follows:

On the domain server, delete "fanbiao. V2" file

1) On the domain server, open the domain user roaming configuration file path D: \\ Users.

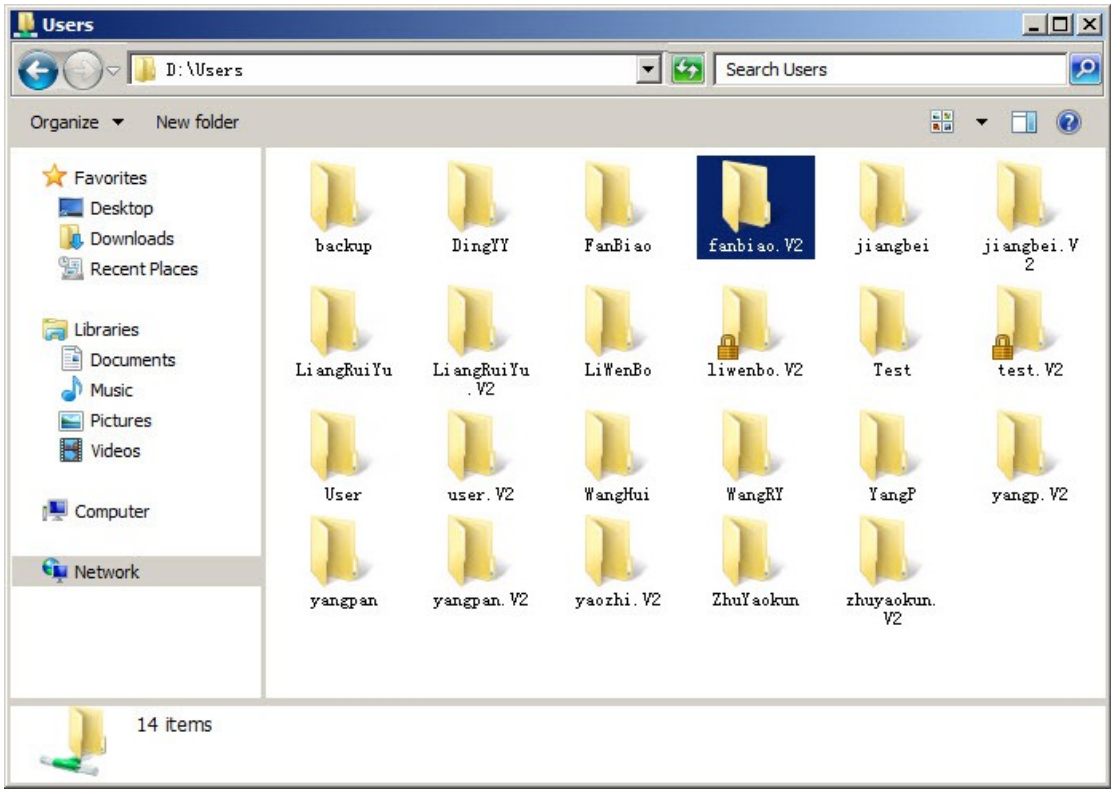


Figure 13-58

2) Right-click on "fanbiao.V2", click on "Properties".

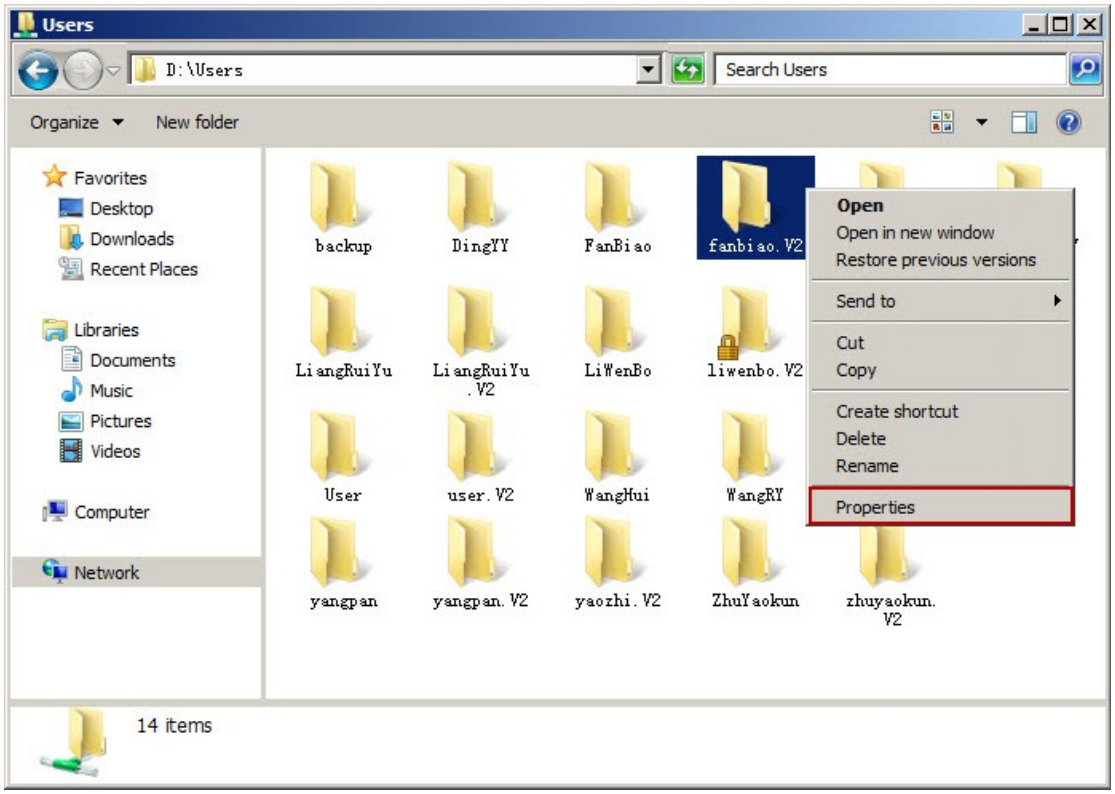


Figure 13-59

3) In the pop-up "Properties" dialog box, click the "Security" tab, and then click "Content" button.
4) In the pop-up "Advanced Security Settings" dialog box, select "Administrators (DOMAIN\Administrators)", then select "Replace owner on subcontainers and objects" check box, and then click "OK" button.

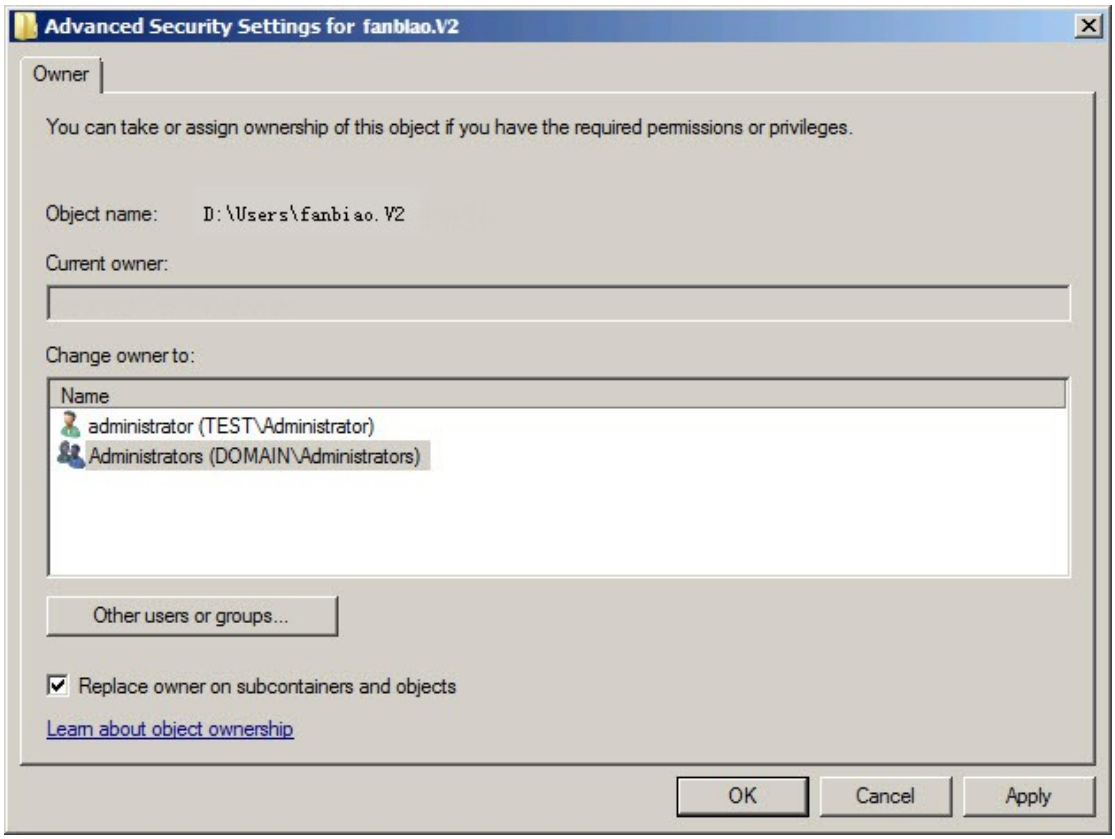


Figure 1-60

5) In the pop-up "Error Applying Security" dialog box, click the "Continue" button.

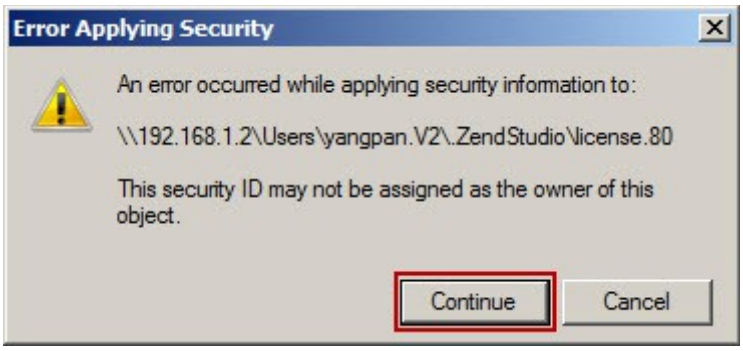


Figure 1-61

6) After obtaining permission to delete the file, delete the file "fanbiao.V2".

Login the client-side with the local administrator account, and delete the local files

and registry entries

1) On the client-side machine, login with the administrator account, login interface.

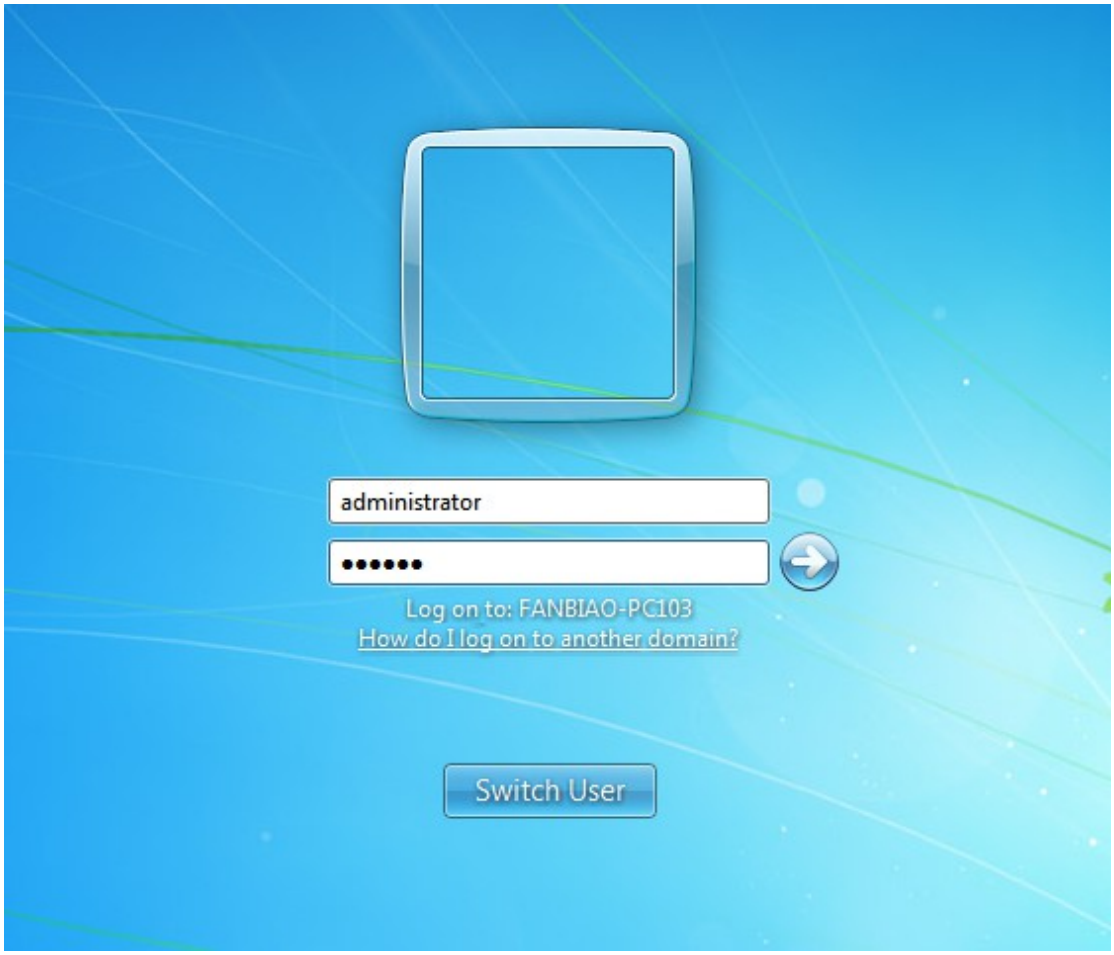


Figure 1-62

2) Open the "D:\Users\fanbiao" directory, and copy the "Desktop" files under the "fanbiao" folder to D root directory as backup.
3) Right-click on the "fanbiao" folder, click to select "Delete".
4) Click on the "Start", type "regedit" in the "Run" edit box, press enter.
5) In the pop-up "Registry Editor" dialog box, locate to: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\ProfileLis" , expand all the branches, click each branch node one by one, find the branch with "CentralProfile" value of "\\server\users\fanbiao.V2", and delete that branch node.

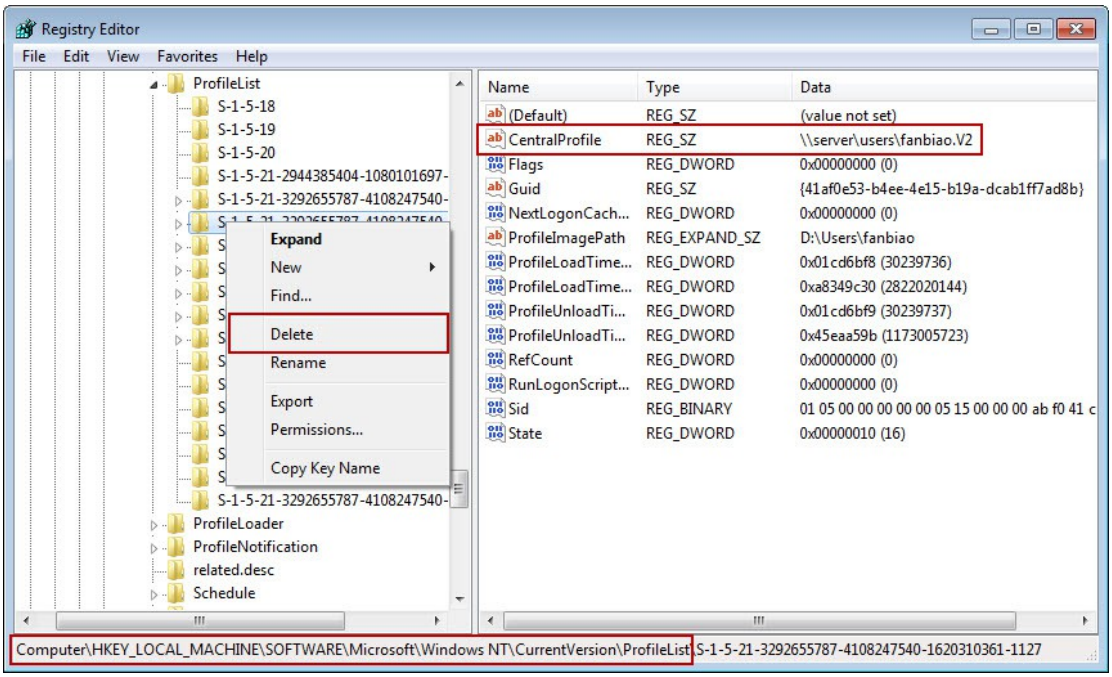


Figure 1-63

6) Logout the machine.
7) Login the system with a domain account; it will automatically generate a new "fanbiao" folder at the "D:\Users" directory. At the same time, in the domain user profile roaming path of the server will also produce a "fanbiao.v2" directory.
8) Copy the "desktop" folder of D root directory to the D:\Users\fanbiao directory, and replace "desktop" folder under the "D:\Users\fanbiao" directory.
9) Close the client computer.

13.3 Win7 Domain User Profile Save Locally

With this function, under the circumstance of domain (active directory), you can save the desktop data of Win7 domain users, and the data will not be lost even after rebooting clients.

Setup Steps

1) On the CCBoot server, add personal disk for each client (Figure 1-1). For details please refer to "Use of Personal Disk".

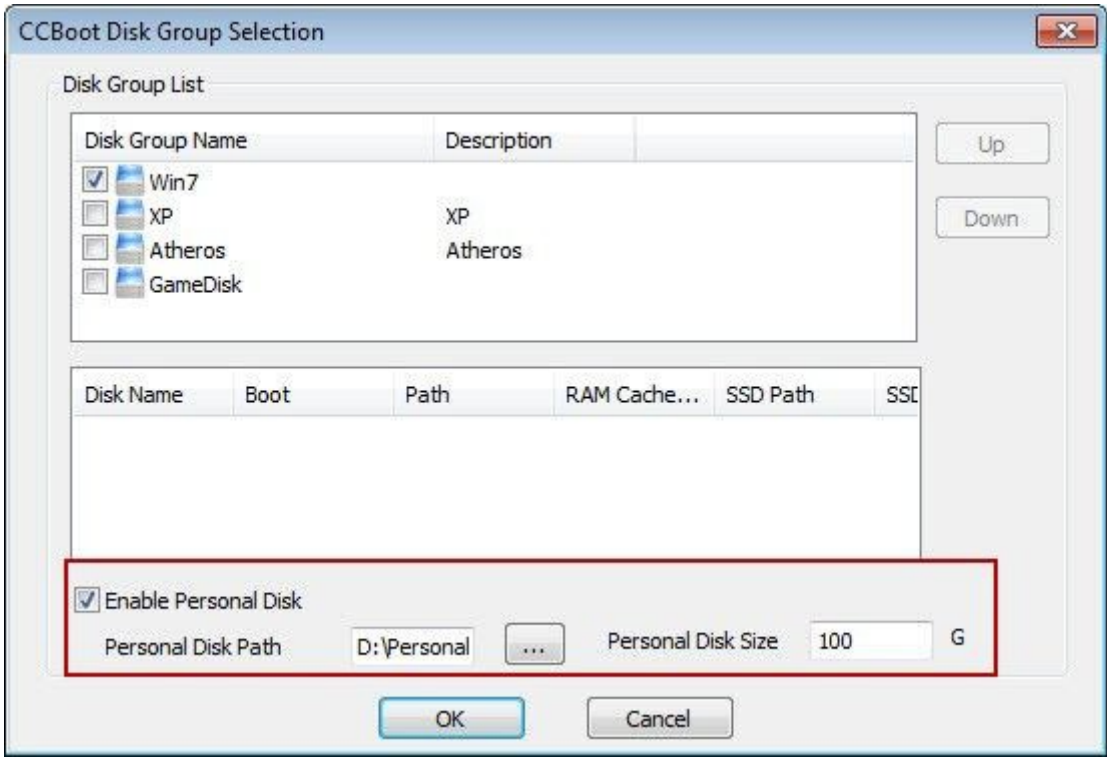


Figure 1-1

2) Diskless boot one of the client PCs with super client (such as PC101), and login with the local Administrator user.
3) In the "Disk Management" window, format the personal disk (Figure 1-2).

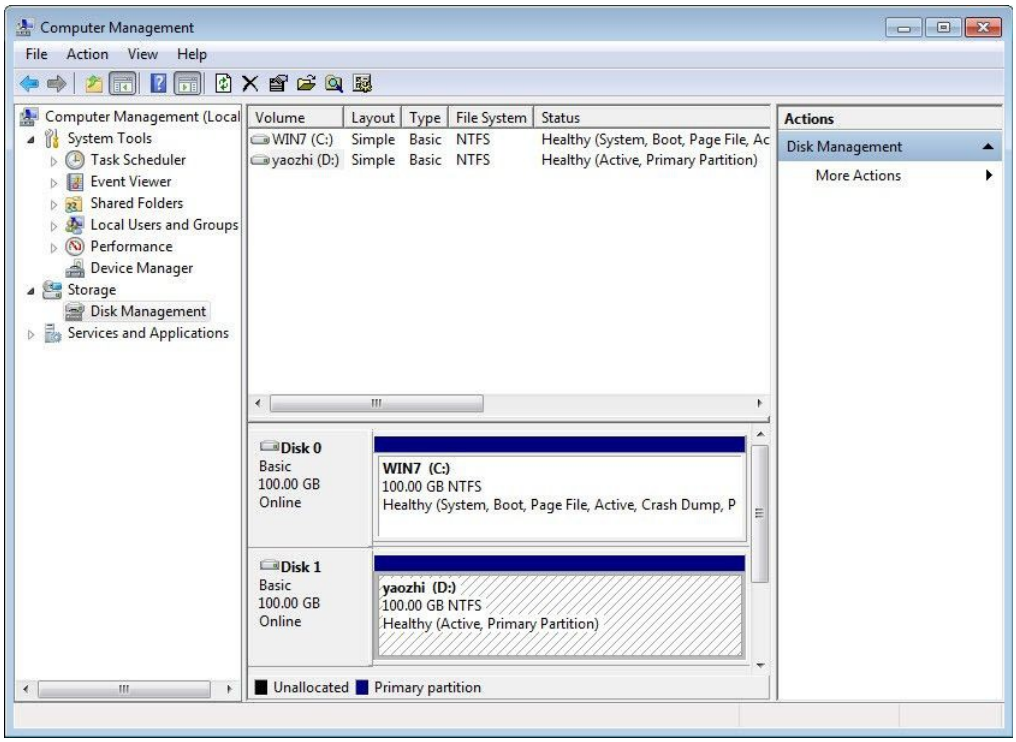


Figure 1-2

4) Click "Start" button, type "regedit" in the "Run" edit box, and press "Enter".
5) In the pop up "Registry Editor" window, navigate to "HKEY_LOCAL_MACHINE\SOFRWARE\Microsoft\WindowsNT\CurrentVersion\ProfileList", then double click "ProfilesDirectory" (Figure 1-3).

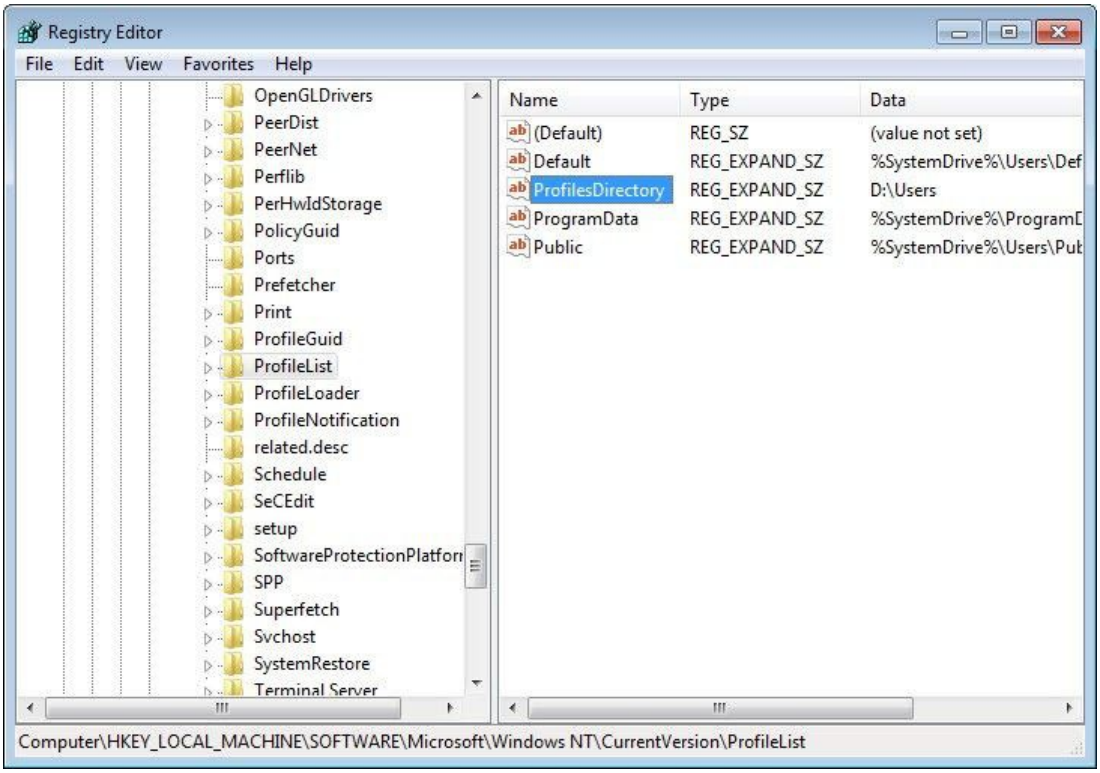


Figure 1-3

6) In the pop up "Edit String" dialog box, change the "Value data" of "ProfilesDirectory" to "D:\Users" (Figure 1-4).

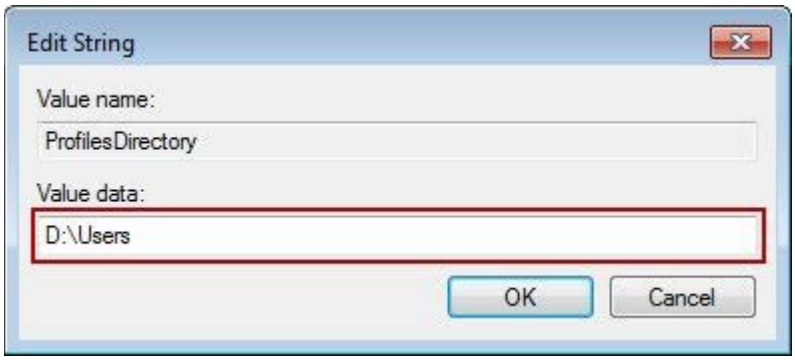


Figure 1-4

7) Reboot the client PC.
8) Login all the domain users accounts one by one, and then logoff them .
9) Login with "Administrator" account.
10) Check the "D:\Users" directory, you can see the configuration directory of the users

(Figure 1-5).

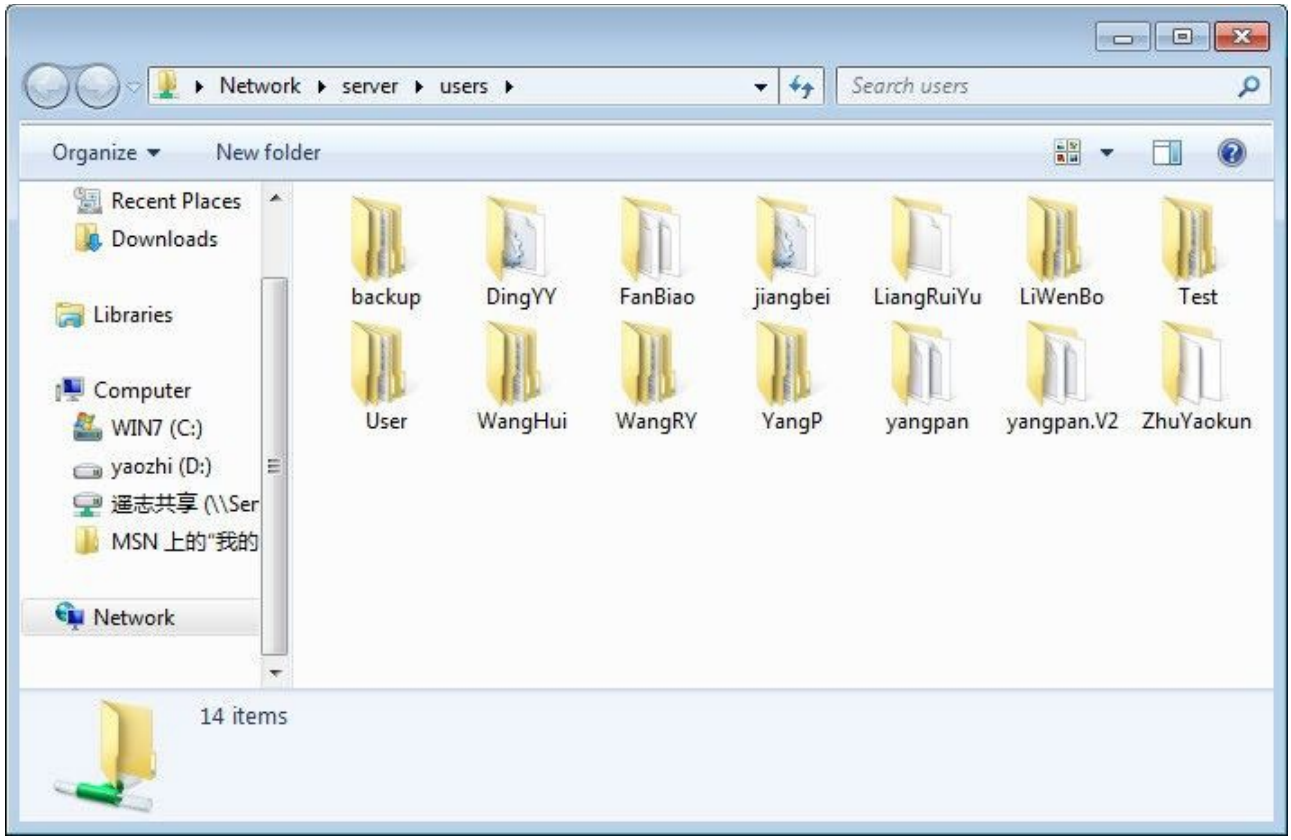


Figure 1-5

11) Shutdown the client PC.
12) On the CCBoot server, disable super client.
13) Diskless boot other client PCs, format their personal disks on "Disk Management" one by one.

Add a New Machine

1) Add a new machine to join domain.
2) Run the "CCBootAD.exe" on the domain server.
3) In the pop up "CCBootAD" dialog box, click the "Add" button (Figure 1-6).

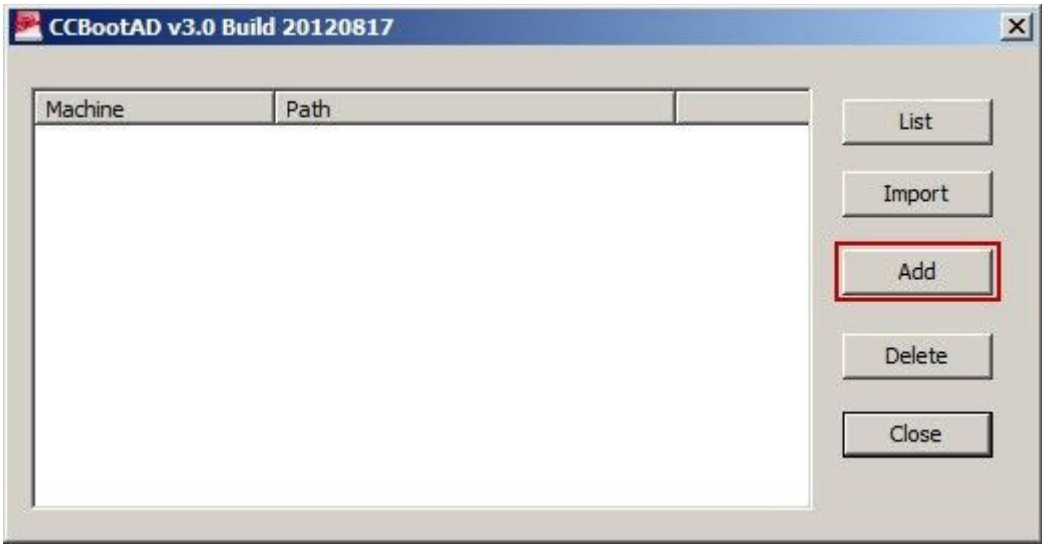


Figure 1-6

4) Click the "..." button in the pop up "CCBootAD Machine" dialog box to select domain "Computers", type the machine name into the "Machine Name" edit box, and click the "OK" button (Figure 1-7).

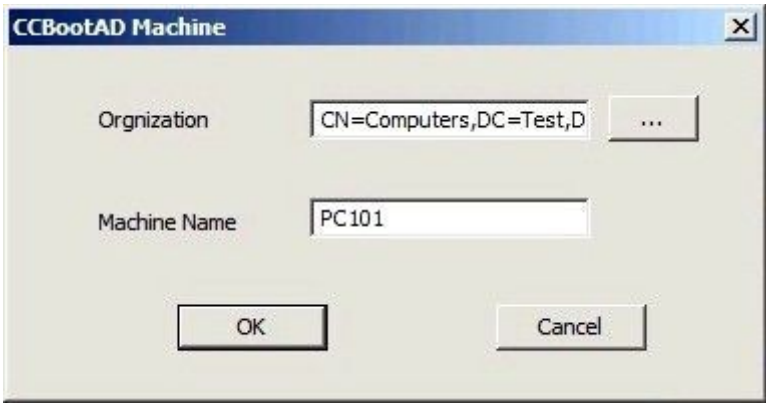


Figure 1-7

5) Login the newly added machine with administrator account, initialize and format the personal disk.

Add a New User

1) Add a new domain account on the domain server.
2) If the new domain account will be used on PC201, then enable super client for PC201 on CCBoot server.
3) Login PC201 with the newly added domain account.
4) Disable super client on CCBoot server.

Temporary Warning Message

After diskless boot client PC, if the domain account (fanbiao) never login on the machine, then the warning message of "You have been logged on with a temporary profile" will

appear (Figure 1-8). In this circumstance, the data will be lost after rebooting the client. So, you need to do the following steps.

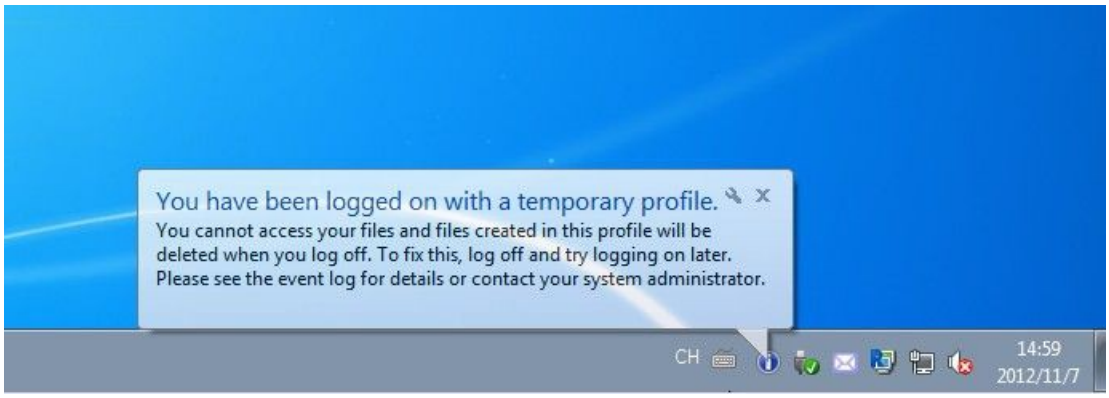


Figure 1-8

1) When there is a warning, reboot this client PC.
2) Use the administrator account to login the system.
3) Click the "Start" button, type "regedit" in the "Run" edit box, and then press "Enter".
4) In the pop up "Registry Editor" dialog box, navigate to "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\ProfileLis", expand all the directory trees, click the nodes one by one, find the node of "CentralProfile" with its value as "D:\users\fanbiao", and then delete this node.
5) Logoff the client PC, then when using the domain account (fanbiao) to login the system, you won't get that "warning" and the data will be saved.

Domain User Profile Resetting

1) On the client PC, login with the administrator account. See the login interface (Figure 1-9).

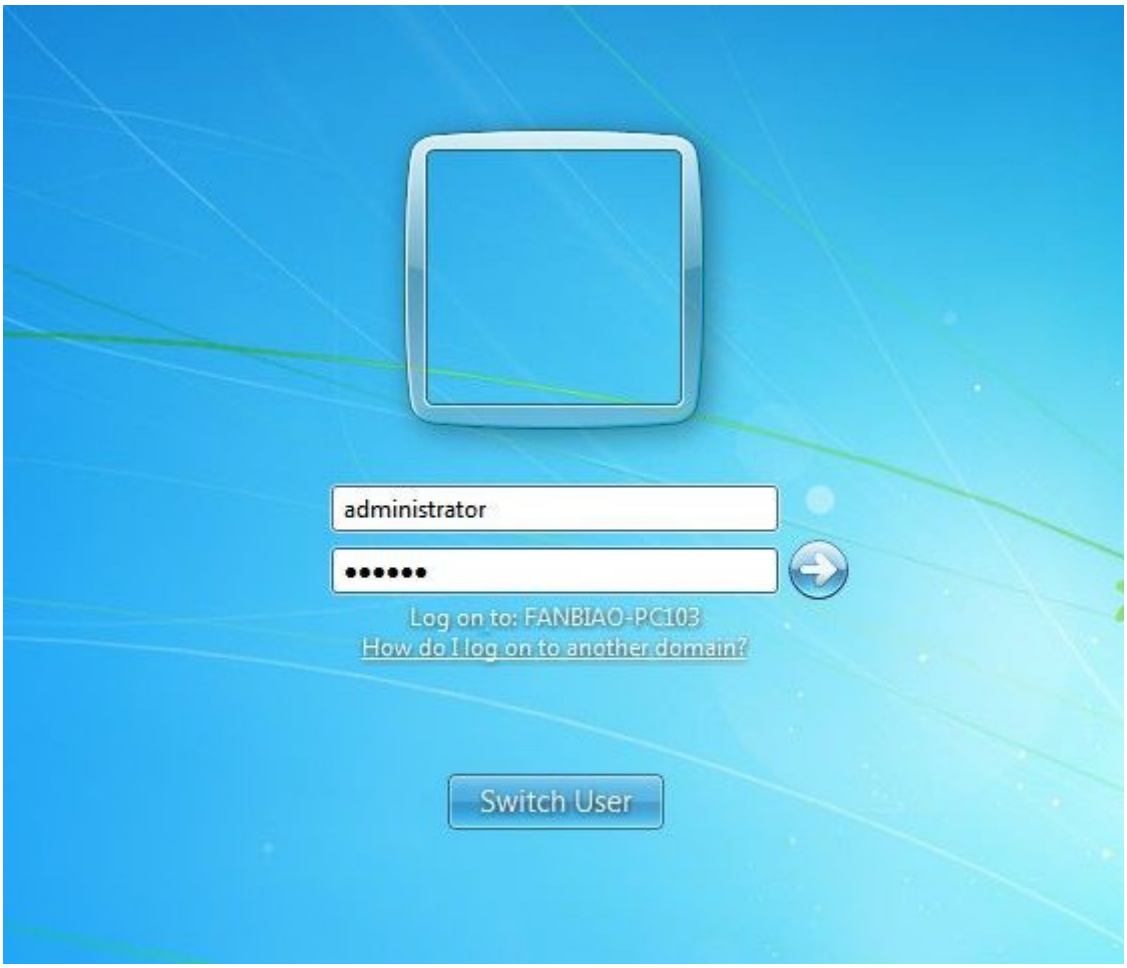


Figure 1-9

2) Open the "D:\Users\fanbiao" directory, and copy the "Desktop" and "My Documents" folders under the "fanbiao" directory to D root directory as backup.
3) Right click the "fanbiao" directory, and select "Delete".
4) Click the "Start" button, type "regedit" in the "Run" edit box, and press "Enter".
5) In the pop up "Registry Editor" dialog box, navigate to "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\WindowsNT\CurrentVersion\ProfileList", expand all the directory trees, click the nodes one by one, find the node of "CentralProfile" with its value as "D:\users\fanbiao", and delete this node.
6) Logoff the client PC.
7) Login the system with a domain account. It will automatically generate a new "fanbiao" directory at the "D:\Users" directory. At the same time, in the domain user profile roaming path of the server, it will also get a "fanbiao" directory.
8) Copy the "Desktop" and "My Documents" folders of D root directory to the "D:\Users\fanbiao" directory, replace the "Desktop" and "My Documents" folders under the "D:\Users\fanbiao" directory.
9) Shutdown the client PC.

13.4 Install Windows Domain Service

Installation steps are as follows:

1) Select a computer as the server. Install Windows 2008 R2 system.
2) Assign a static IP. (Click on the "Start" - > "Control Panel" - > "Network and Internet" - > "Network and Sharing Center" - > "Local Area Connection"; in the pop-up dialog box, click "Properties"; in the pop-up dialog box, double-click the "Internet Protocol Version 4 (TCP/IPV4)", an "Internet Protocol Version 4 (TCP/IPV4) Properties" dialog box will pop up).

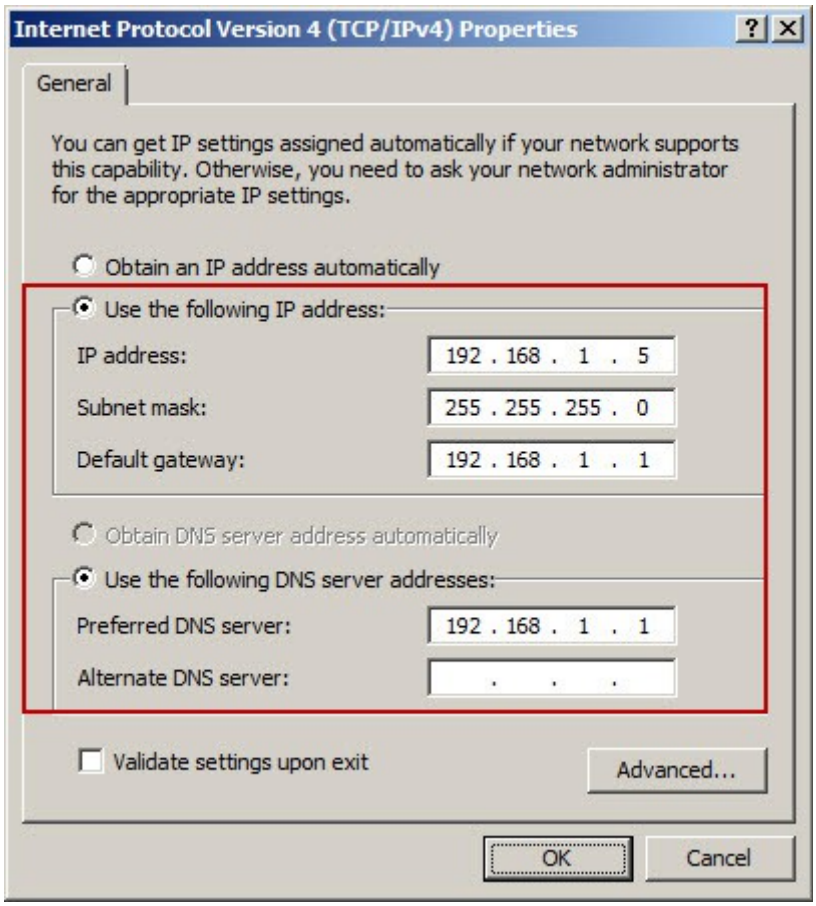


Figure 13-1

3) In the command line window, run "net user administrator /passwordreq:yes".

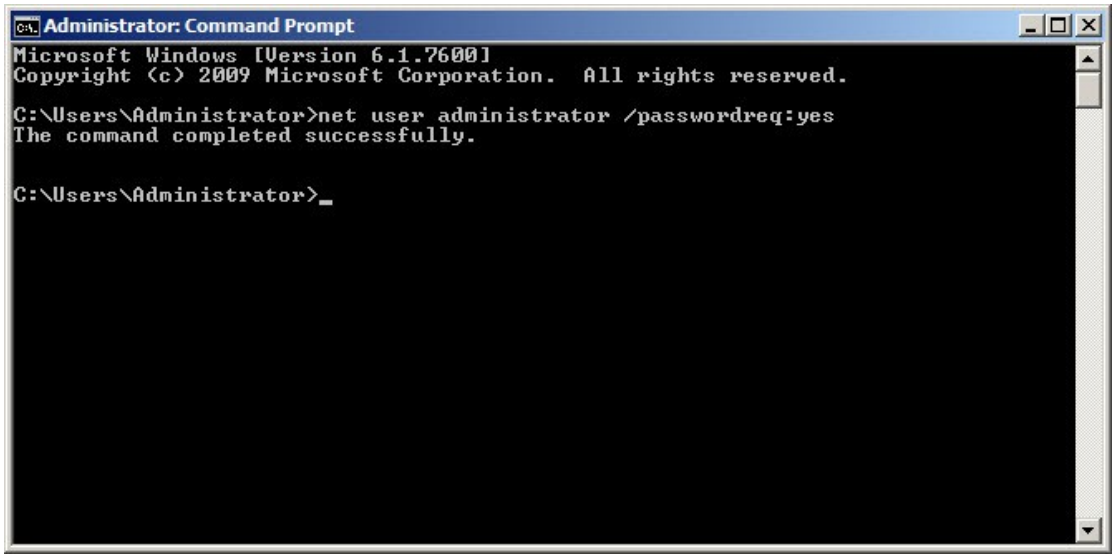


Figure 1-2

4) Set up a complex password for Administrator: the password must be "digital + capital and small letters + special symbols", such as "123qweASD @#!", and the password length must be longer than 8.
5) Click on the "Start", type "dcpromo" in the "Run" edit box, press enter.

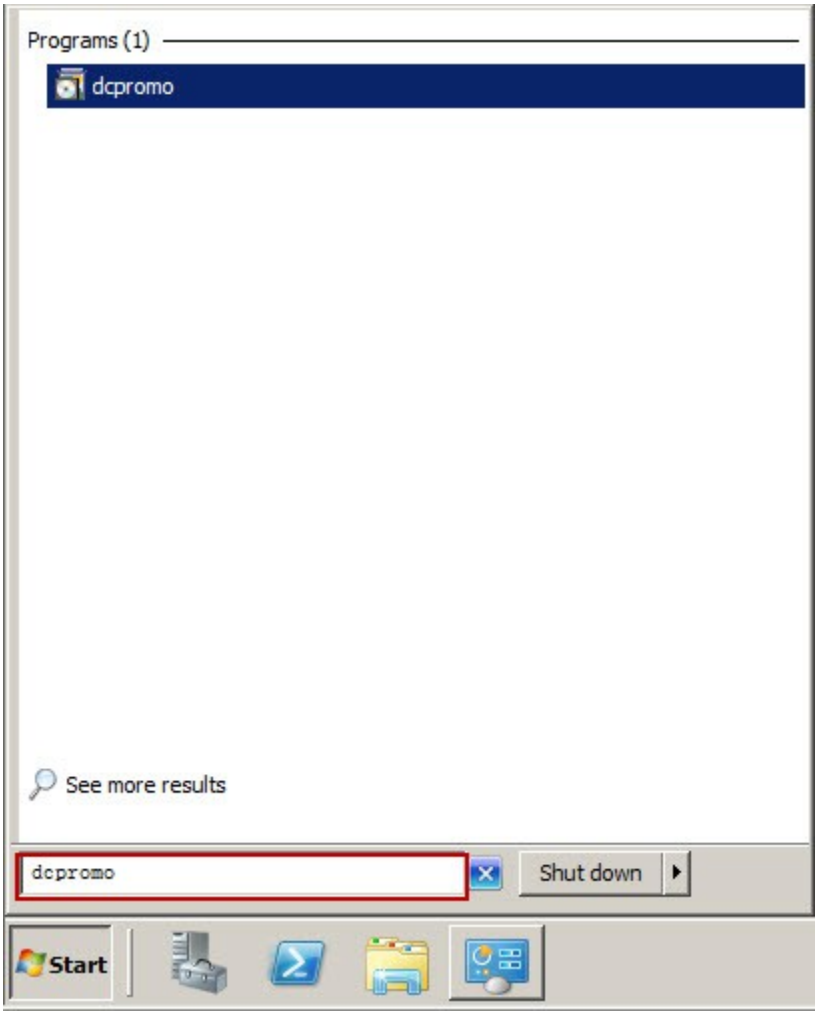


Figure 13-3

6) Wait for the "Active Directory Domain Services" installation wizard.

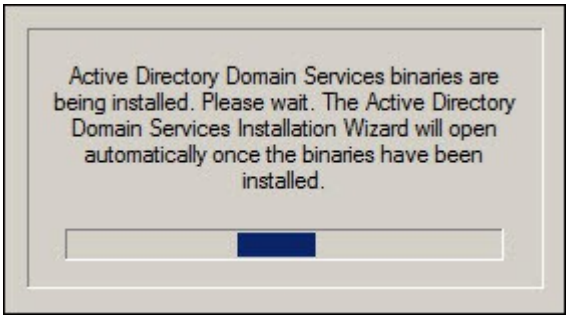


Figure 13-4

7) In the pop-up "Active Directory Domain Services Installation Wizard" dialog box, click "Next" button.

Figure 13-5

8) In the "Choose a Deployment Configuration" dialog box, select the "Create a new domain in a new forest" radio button.

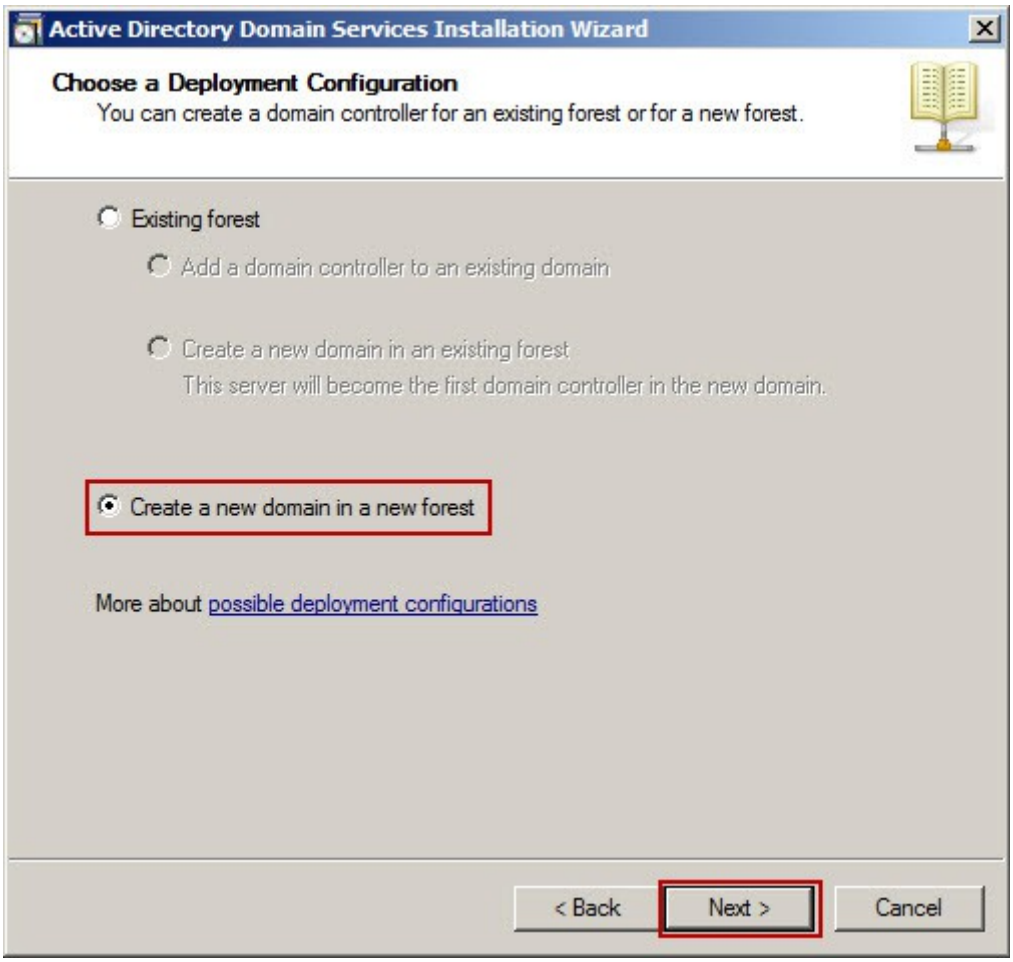


Figure 13-6

9) In the "Name the Forest Root Domian" dialog box, after typing Domain Name, click "Next" button.

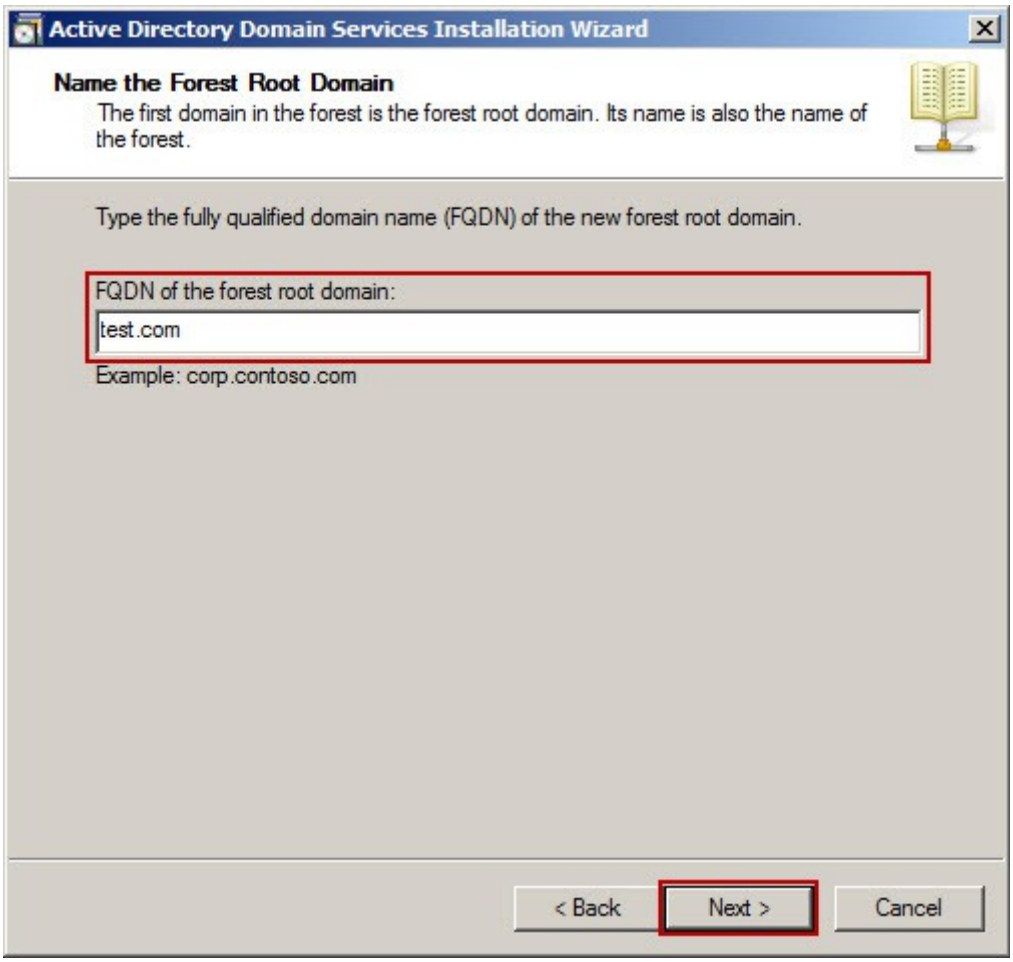


Figure 13-7

10) In the "Domain NetBIOS Name" dialog box, click the "Next" button.

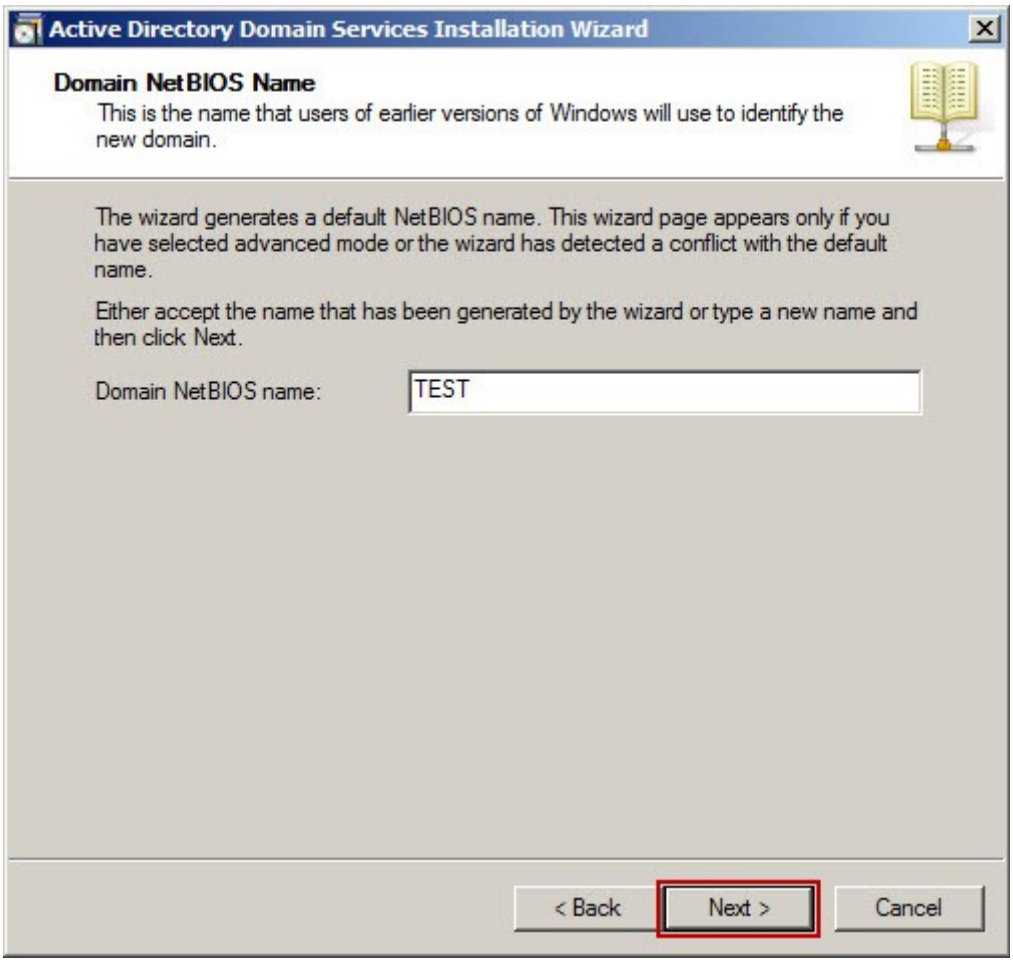


Figure 13-8

11) In the "Set Forest Functional Level" dialog box, leave the default settings, click "Next" button.

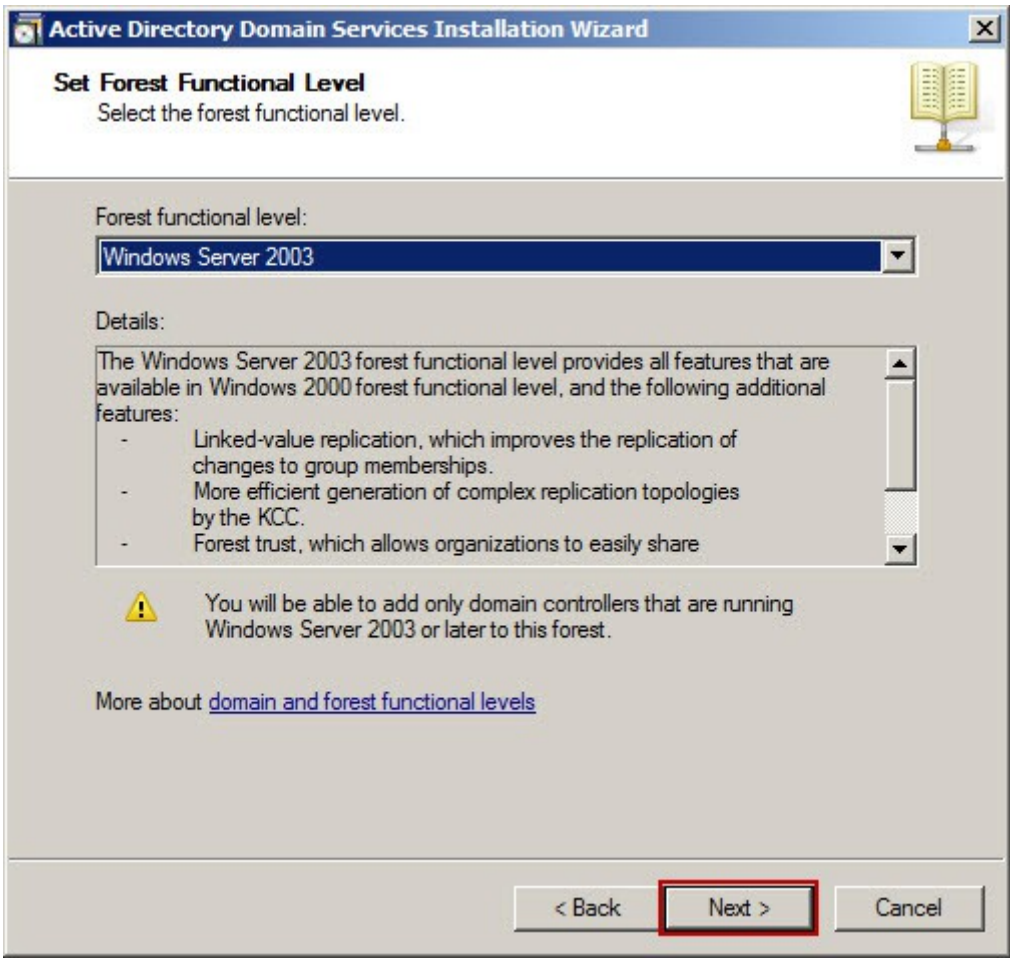


Figure 13-9

12) In the "Additional Domain Controller Options" dialog box, select the "DNS server" check box, and click the "Next" button.

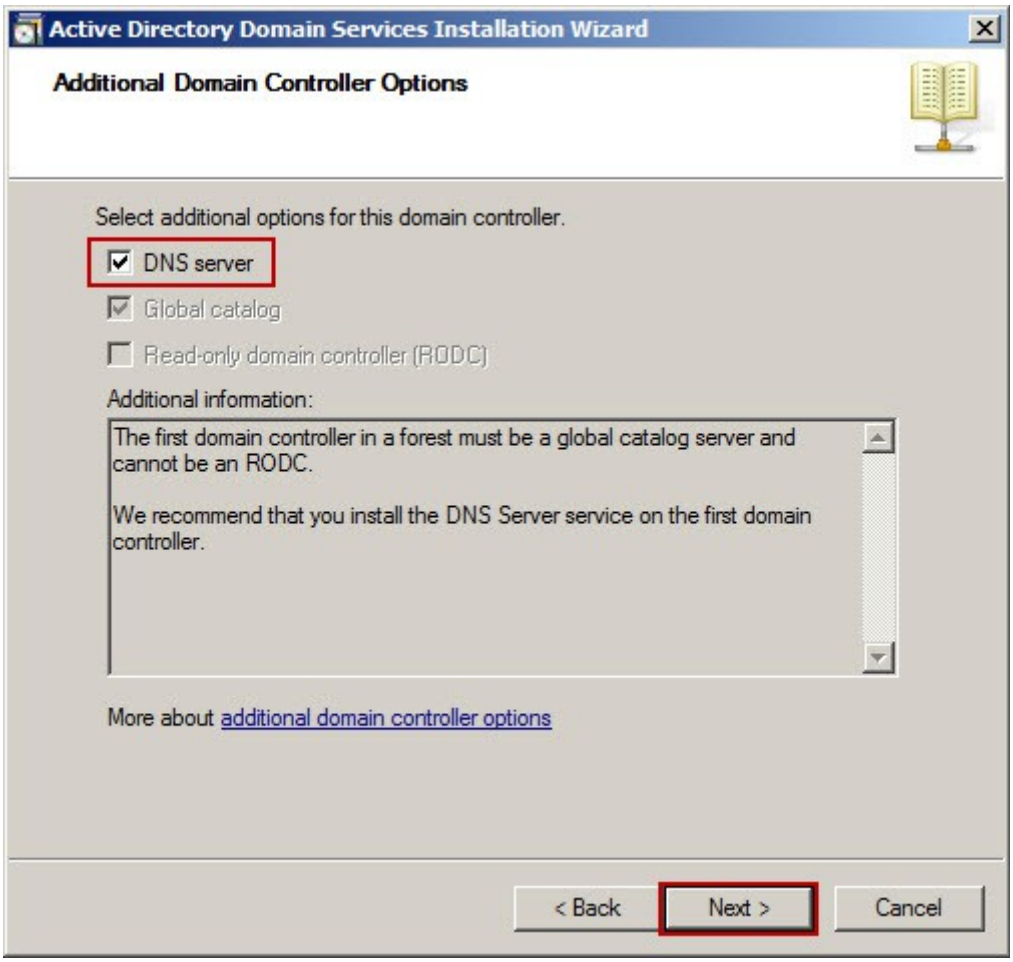


Figure 1-10

13) In the pop-up "Active Directory Domain Services Installation Wizard" dialog box, click the "Yes" button.

Figure 13-11

14) In the "Location for Database.Log Files.and SYSVOL" dialog box, leave the default settings, click "Next" button.

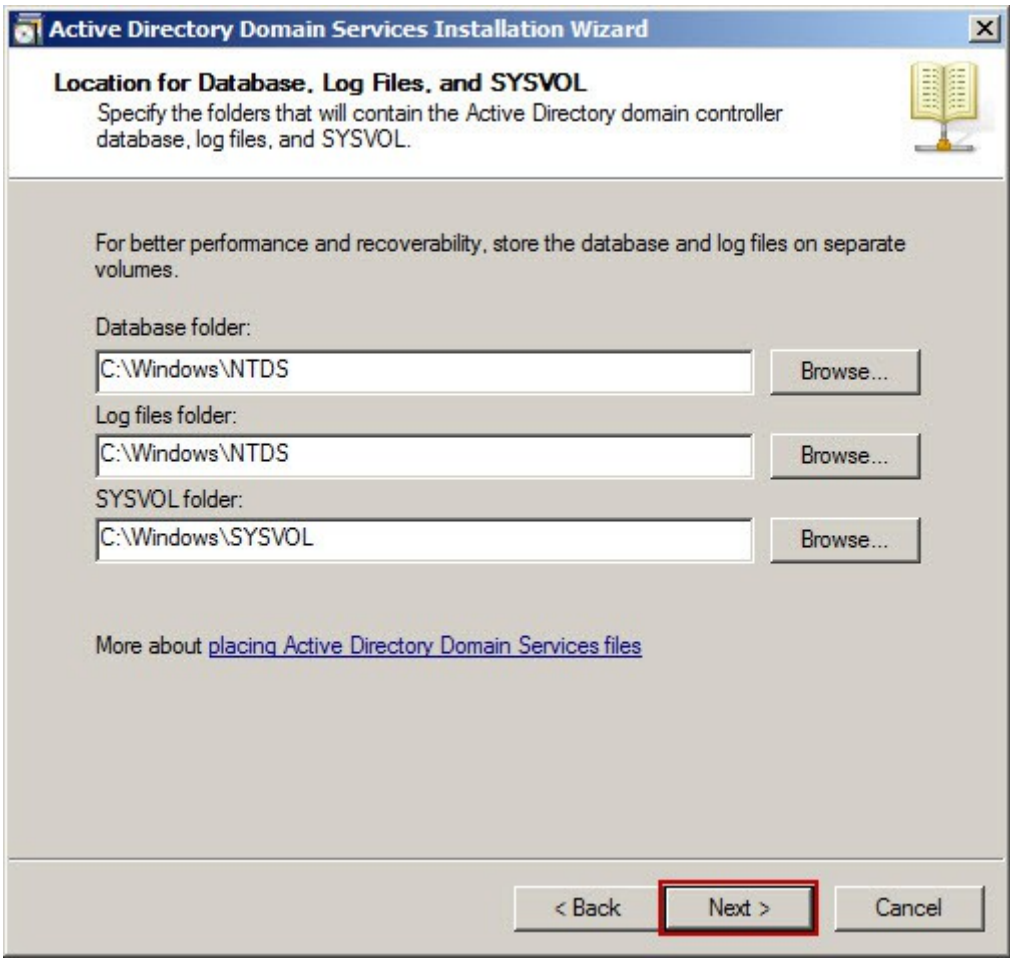


Figure 13-12

15) In the "Directory Services Restore Mode Administrator Password" dialog box, type the password, click the "Next" button.

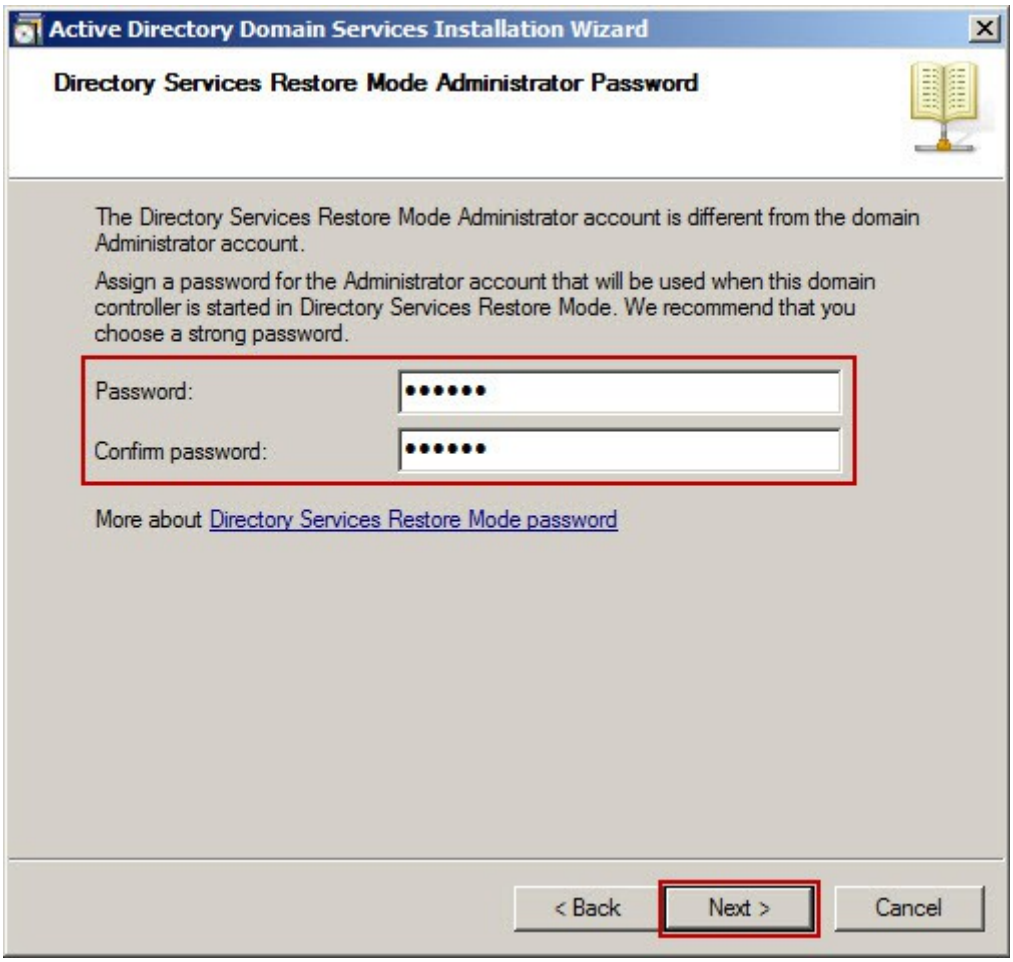


Figure 13-13

16) Wait for the installation process.

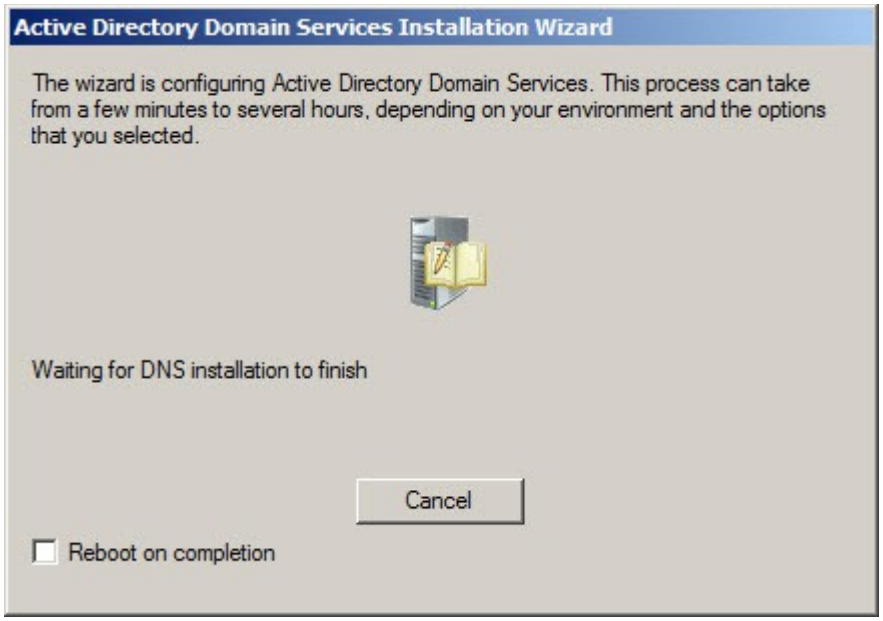


Figure 13-14

17) After the installation is finished, click "Finish" button.

Figure 13-15

18) Reboot the computer.
19) Click on the "Start", type "gpmc.msc" in the "Run" edit box, press enter.
20) In the pop-up "Group Policy Management" window, after unfolding the "Forest", you can see the test.com domain, which also shows the successful installation.

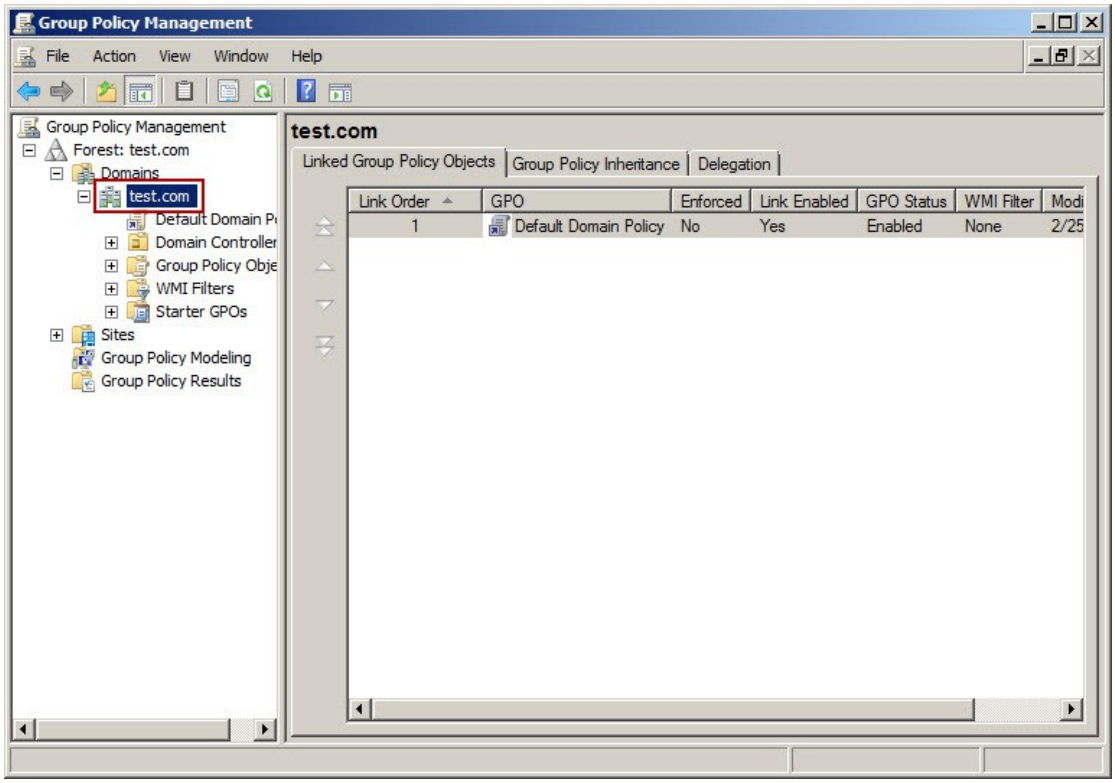


Figure 13-16

13.5 Problem when Domain Account Login

Problem:

Diskless booting Win7 Enterprise x64, local account login works.

Set up Active Directory Domain Controller with Server 2008, and can join physical workstations to it and log in domain accounts to workstations. Works fine. This is the same server that CCBoot is running on.

Followed steps found at http://www.ccboot.com/wiki-ccboot-active-directory-steps.htm until "5 Domain Account Login", "2) Login the computer with the domain account". This is where it fails:

#1 - Ctrl-Alt-Del screen

#2 - Enter domain account name and password

#3 - Welcome screen

#4 - Preparing desktop screen

#5 - Not a desktop background screen (solid color, no picture, Test Mode watermark in lower right corner)

#6 - Logging off screen

Workstation then goes back to #1. Total time to go from screen #2 through screen #6 is about 3 seconds.

This issue occurs with both physical workstations AND virtual machines running under ESXi v5.1.

Solution:

1) Diskless boot a client PC with super client, click the "Start" button, enter "regedit" in the "Run" edit box, and then press the "Enter" key.
2) In the pop up "Registry Editor" form, navigate to "HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows NT\CurrentVersion\Winlogon", in the right side of the form, double click "userinit", delete "C:\CCBootClient\CCBootClient.exe -init," from "C:\Windows\system32\userinit.exe,C:\CCBootClient\CCBootClient.exe -init," (Note: Only keep the first comma, the second comma should be delete.) (Figure 1-1).

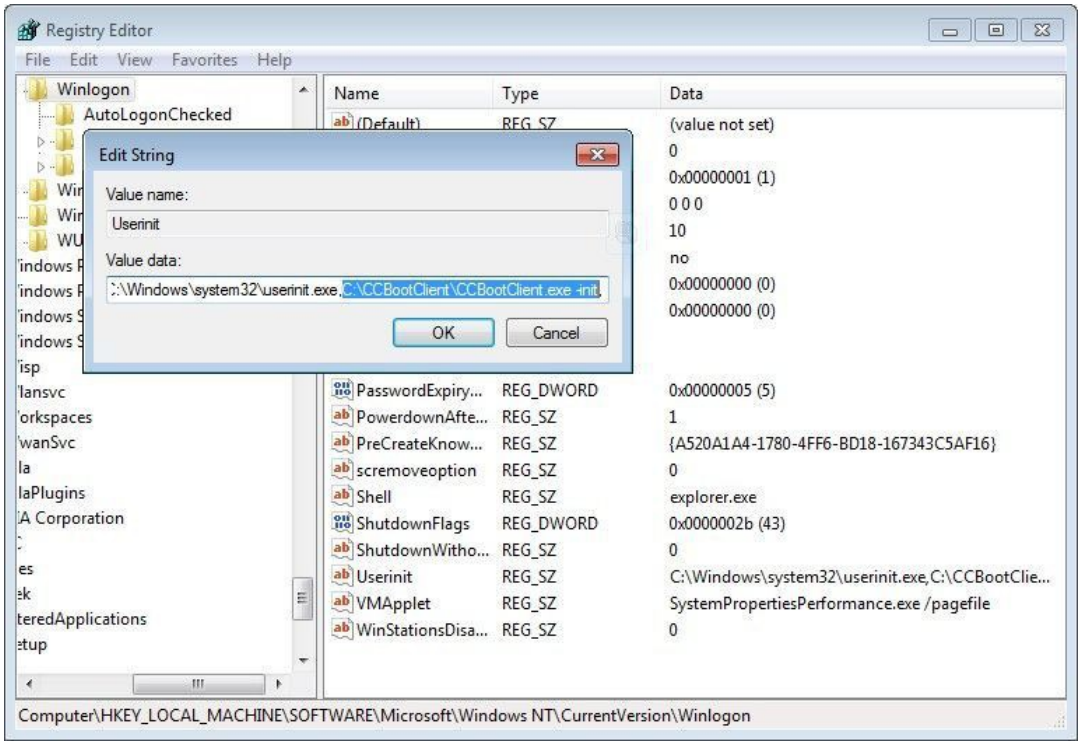


Figure 1-1

3) Close the "Registry Editor" form and shutdown this client PC.
4) On CCBoot server, disable super client for this client PC.

Thanks for Douglas reported this problem.

13.6 Trust Relationship Problem When Joining Domain

When joining domain, if there is a problem that "the security database on the server does not have a computer account for this workstation trust relationship", please follow the instructions below.

1) Please check whether you have added this client PC's CCBootAD.exe to the domain server. For details, please refer to "3 Domain Server Settings".
2) Please check whether the command of join domain was set correctly or not. If not, please correct it.

Add a command of "joindomain domain name" at the bottom of the popup "public - Notepad" (E.g. "joindomain test.com"), and enable clients to join the "test.com" domain. If the computer is under the organization, you need to input the OU string (e.g. "joindomain test.com OU=testOU,DC=domain,DC=Domain,DC=com") (Figure 1-1).

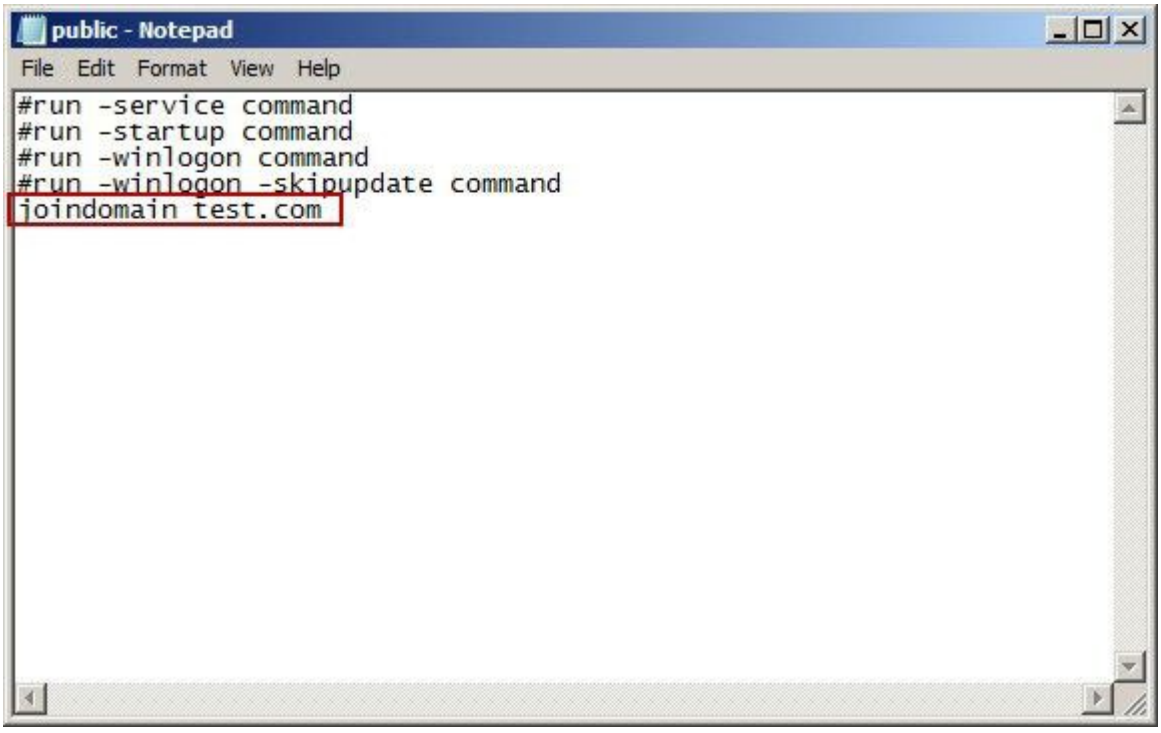


Figure 1-1

3) Go to C:\CCBootClient\Log, open the latest log of this client PC, if it joined domain successfully, it will show "The operation completed successfully" in the log (Figure 1-2). If this client PC failed to join domain, it will show the reason there, so we can find a solution regarding this problem accordingly.

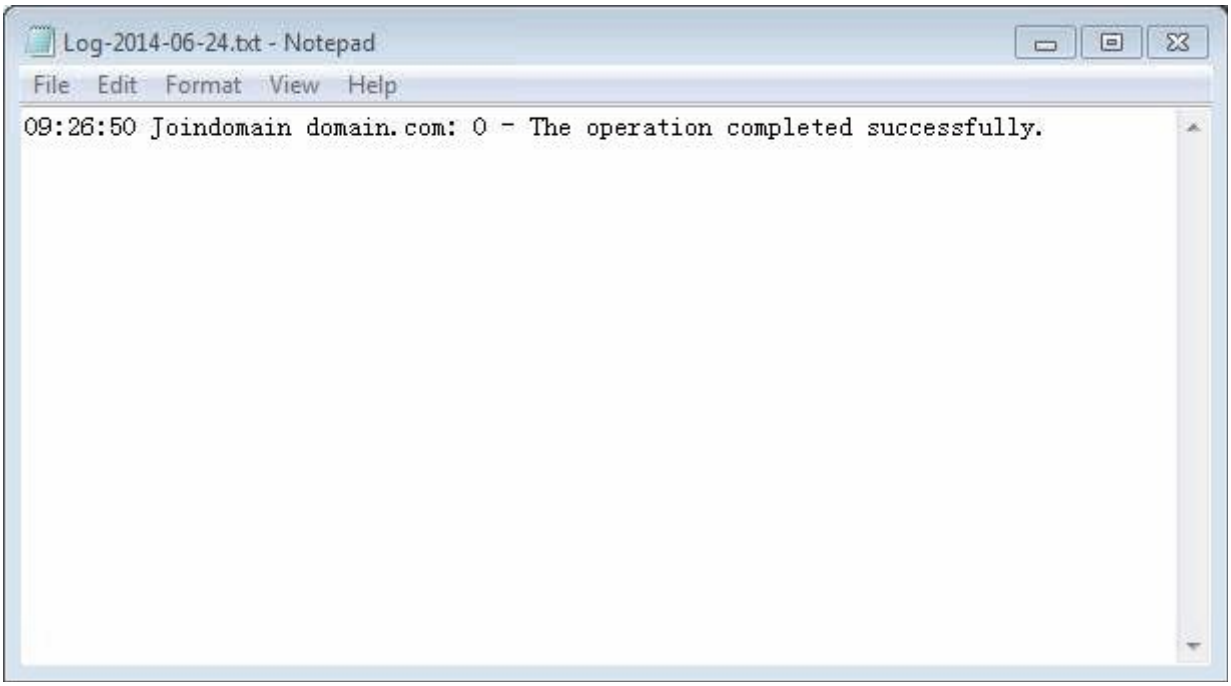

Log-2014-06-24.txt - Notepad
File Edit Format View Help
09:26:50 Joindomain domain.com: 0 - The operation completed successfully.

Figure 1-2

14 3rd Party DHCP and TFTP

14.1 CCBoot Works with 3rd Party DHCP

First, please use CCBoot v3.0 build 20130404 or the above if you want it works with 3rd party DHCP. Please follow the following steps.

1) Please refer to Configuring MS DHCP first. Notes: You DONOT need to set any DHCP options in MS DHCP (such as root-path, next-server and etc).
2) Click the "Options" button on the CCBoot Server (Figure 1-1).

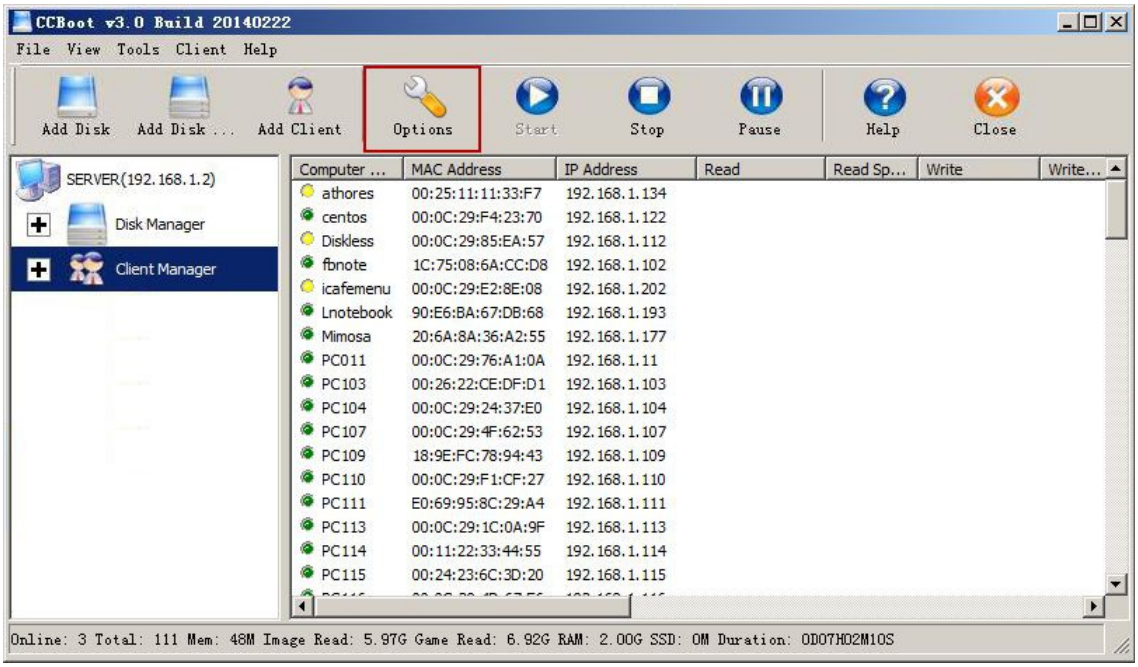


Figure 1-1

3) In the pop up "CCBoot Options" dialog box, click the "DHCP Settings" tab, uncheck the "Start DHCP" check box.

3.1 If CCBoot server and DHCP server are not on the same server, please select the "Start Proxy DHCP" check box, and then click the combo box next to the "Start Proxy DHCP", and select 67 (Figure 1-2).

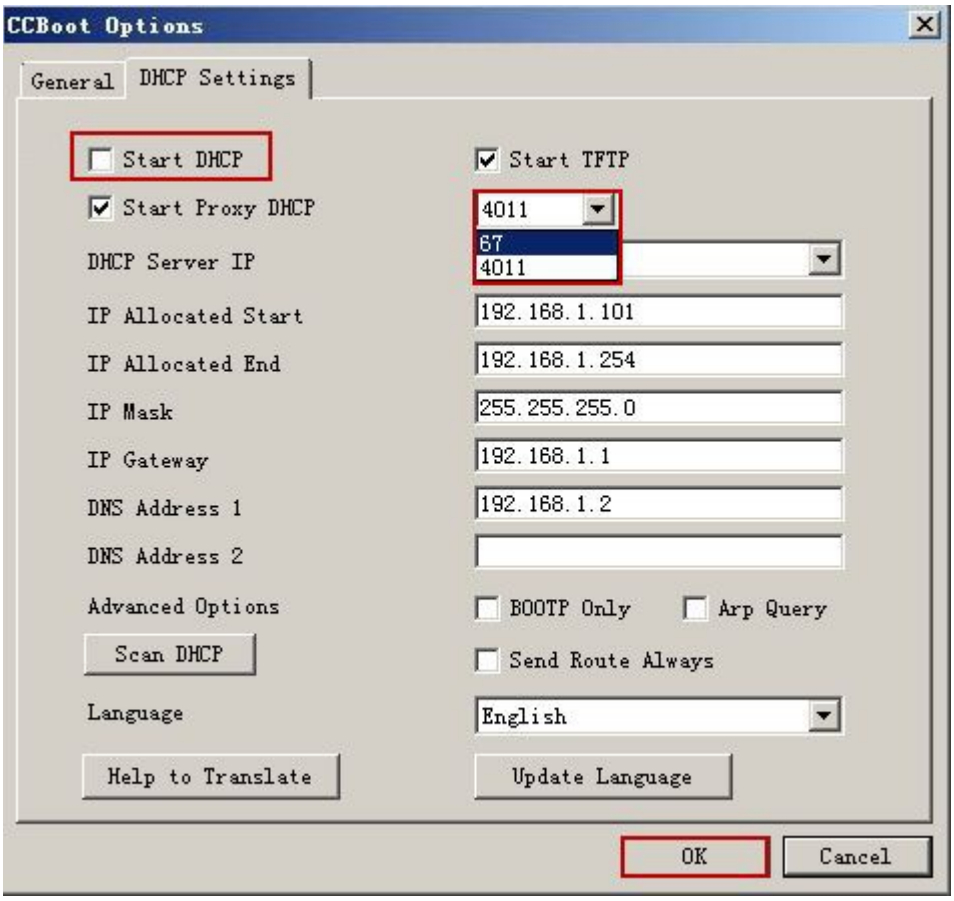


Figure 1-2

3.2 If CCBoot server and DHCP server are on the same server, please select the "Start Proxy DHCP" check box, and select 4011. Configuring MS DHCP please refer to "Configuring MS DHCP".

4) Set "IP Allocated Start", "IP Allocated End", "IP Mask", "IP Gateway", "DNS Address1", and "DNS Address2" same as MS DHCP. Keep other values as default settings, and then click the "OK" button.
5) You need to check the client IP settings. If it's not allocated by DHCP, you need to refer to "Set the DHCP Client".

Note: If the client gets IP from third part DHCP, sometimes, you cannot boot it. Windows 7 creates an explicit route to your iSCSI target using your default gateway. This means if your target is on the same LAN, your router must be prepared to route local LAN traffic (which normally it would not do as the initiator and target could communicate directly). Some strict firewall settings or router will prevent this kind of routing which will cause Windows 7 booting failure. For example, using Shorewall you need to enable the "routeback" setting on the LAN interface. If using OpenWrt (without shorewall) add this to /etc/firewall.user (create this file if absent):

iptables -A forwarding_lan -i br-lan -o br-lan -j ACCEPT

Another solution: Don't set gateway on the third part DHCP, and just set gateway in the CCBoot client properties.

14.2 Installation of MS DHCP

Dynamic Host Configuration Protocol, DHCP is a LAN networking protocol, and it use UDP protocol to work. Its two main usages are: a) distribute IP address for LAN computers, b) centralized management for all computers.

Take MS DHCP service of Windows 2008 R2 operating system as example.

Right-click "Computer" - > "Manage".

1) In the popup "Server Manager" dialog box, click the "Roles", and then click "Add Roles" on the right.

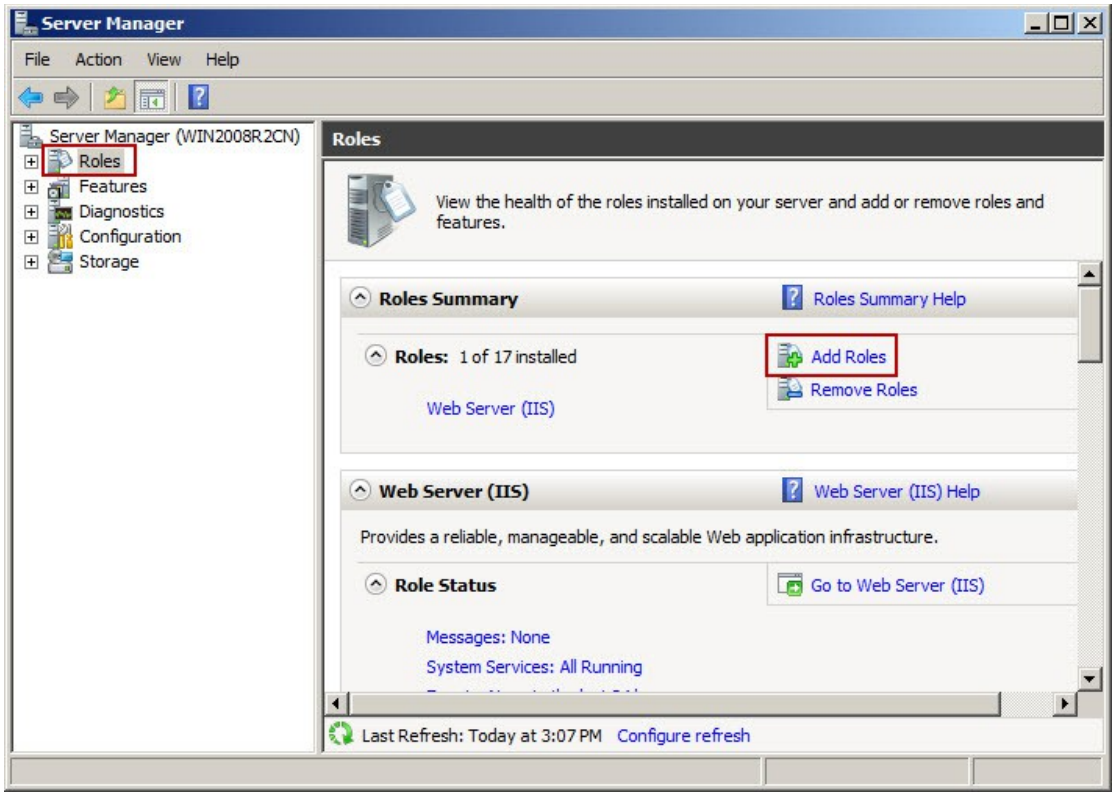


Figure 14-64

2) In the popup "Select Server Roles" dialog box, select the "DHCP Server" check box and then click "Next" button.

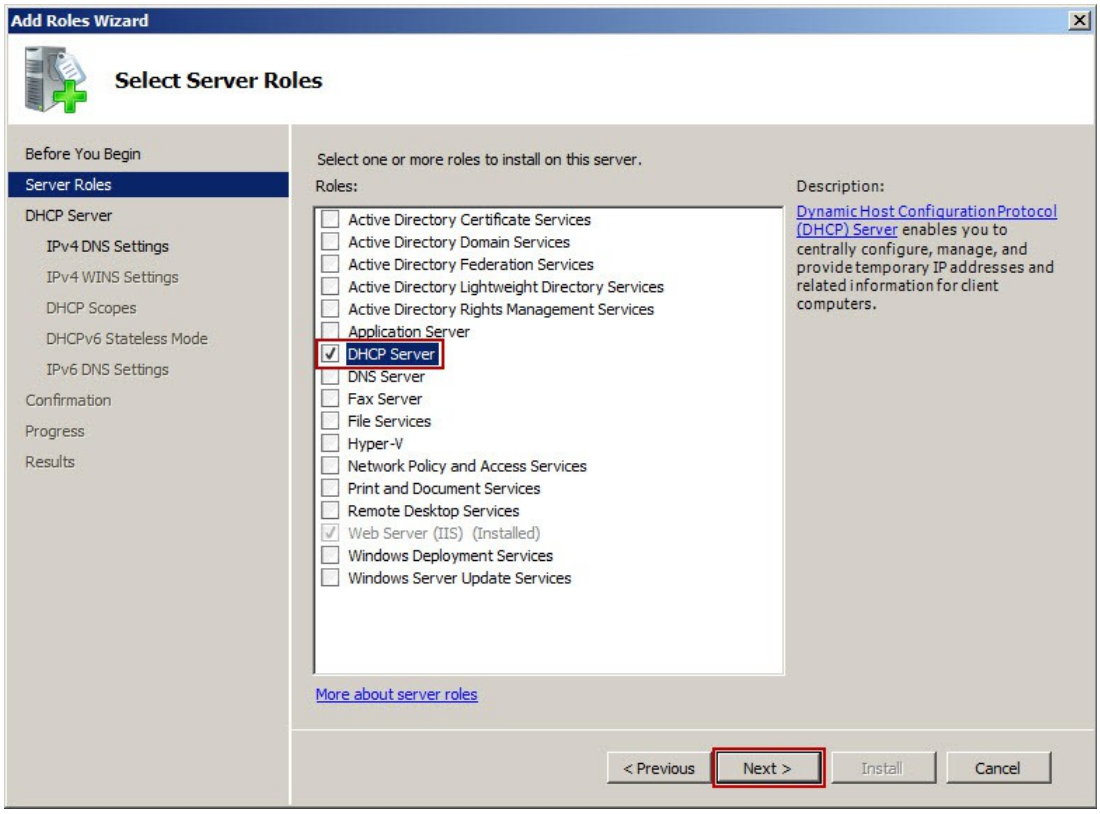


Figure 14-65

3) "Specify IPv4 DNS Server Settings" dialog box will pop up, and then type the corresponding domain name (such as test.com) in the "Parent domain" edit box. Type the DNS address in the "Preferred DNS server IPv4address" edit box, and then click "Next" button.

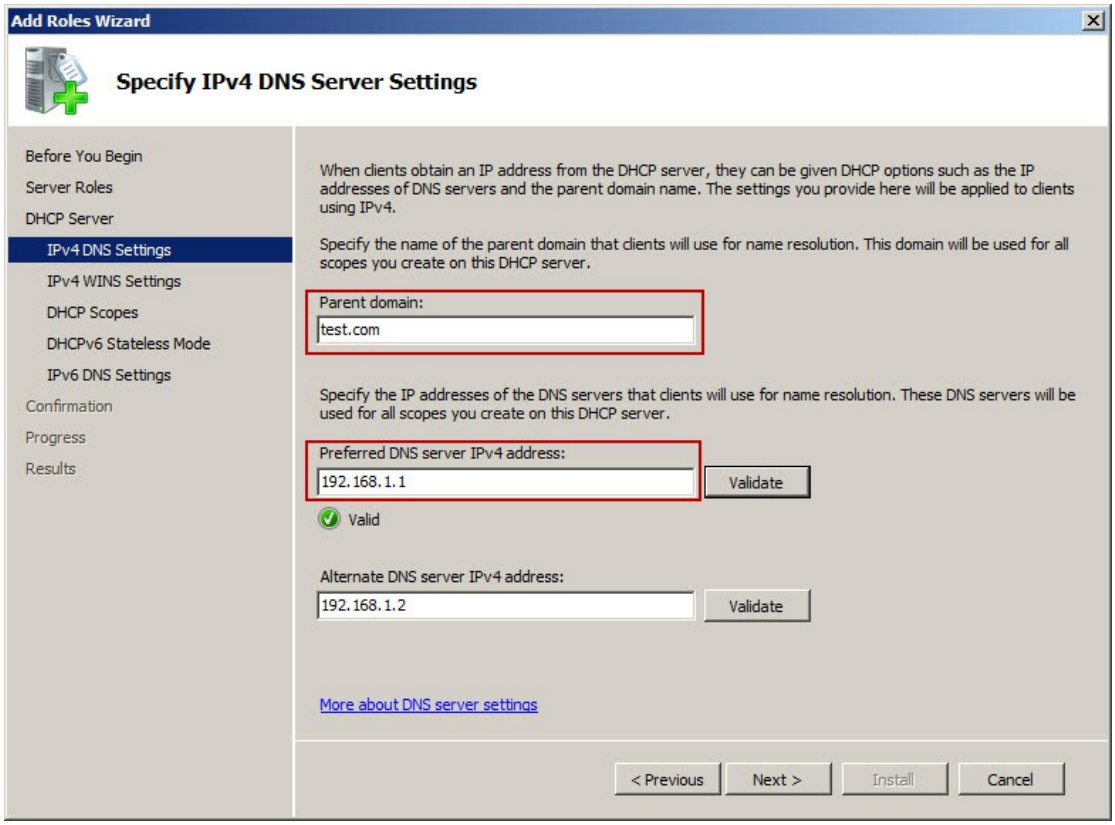


Figure 14-66

4) "Specify IPv4 DNS Server Settings" dialog box will pop up, and select the" Wins is not required for applications on this network" radio button, then click "Next" button.

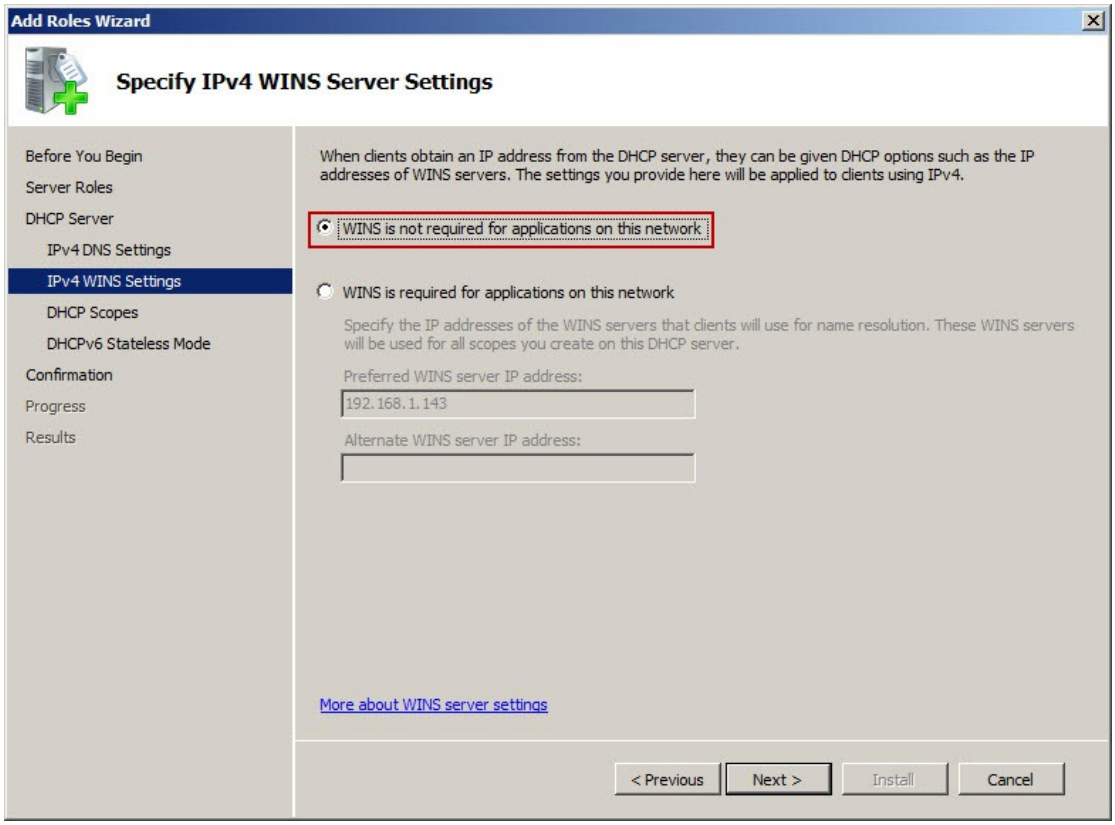


Figure 14-67

5) Click the "Add" button in the popup "Add or DHCP Scopes" dialog box, and then it will pop up "Add Scope" dialog box, input relevant information, and click "OK" button.

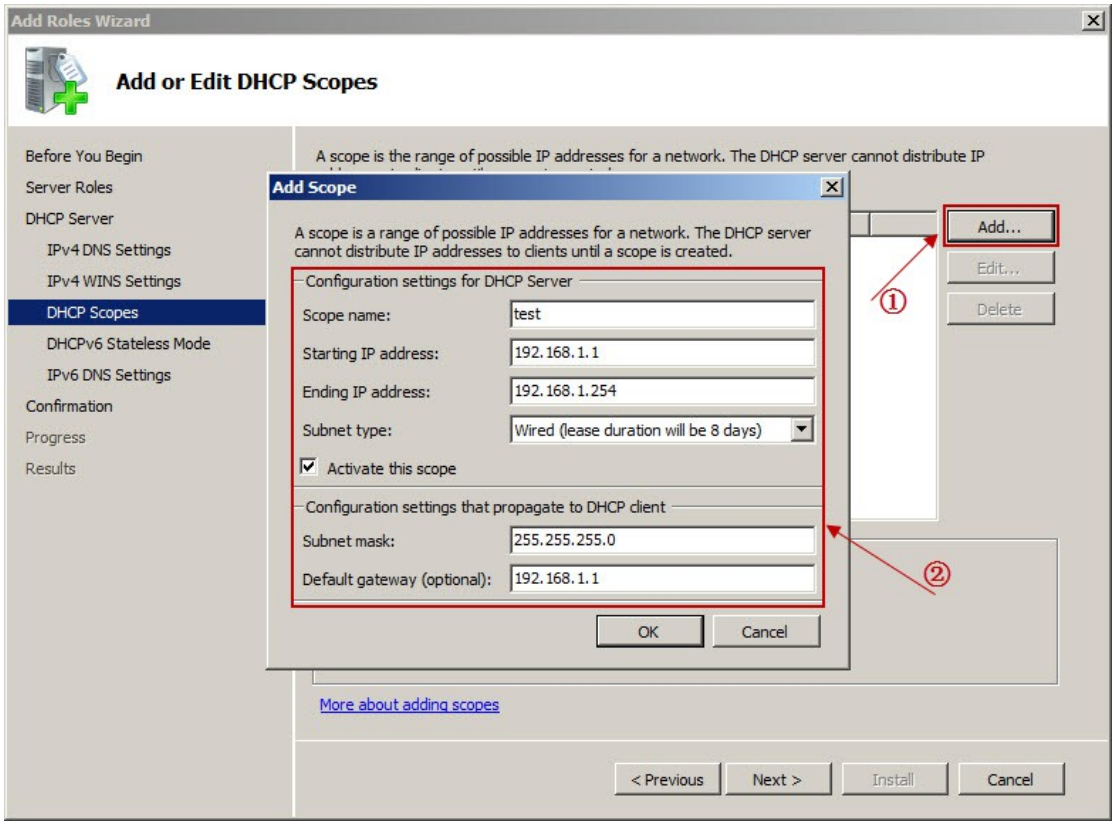


Figure 14-68

6) Click the "Install" button in the popup dialog box of "Confirm Installation Selections".

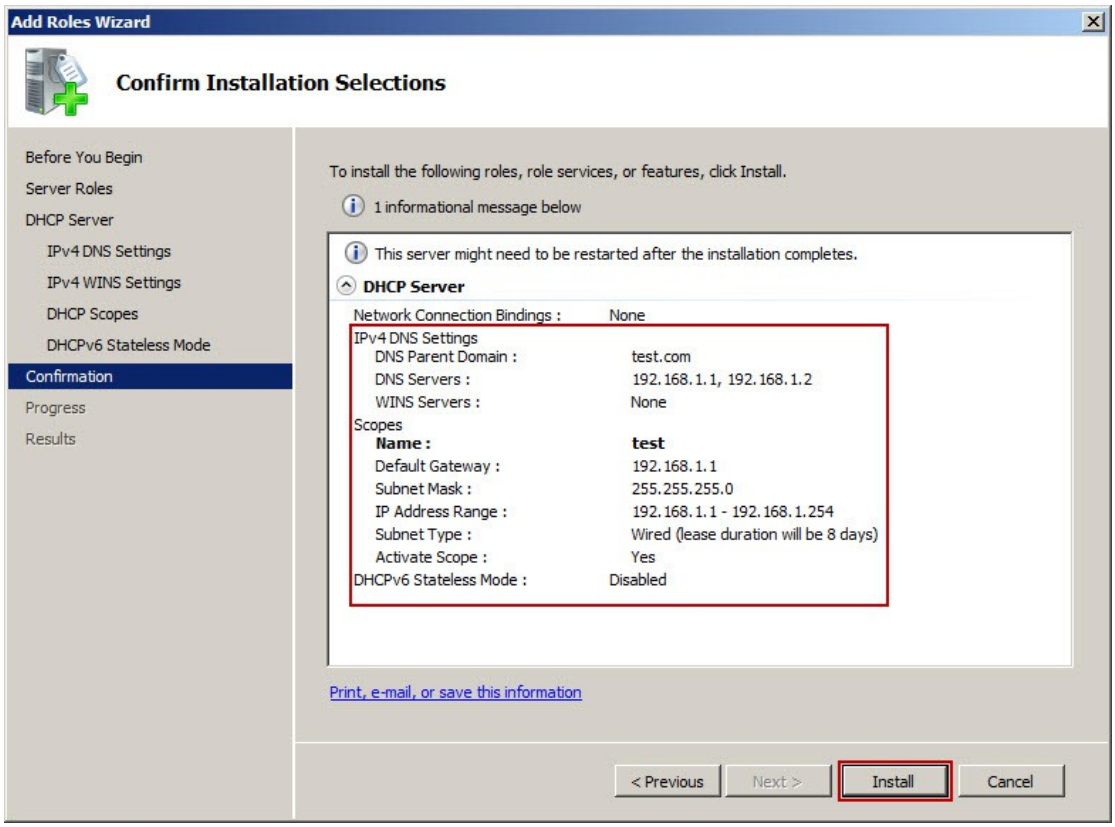


Figure 14-69

7) Installation process.

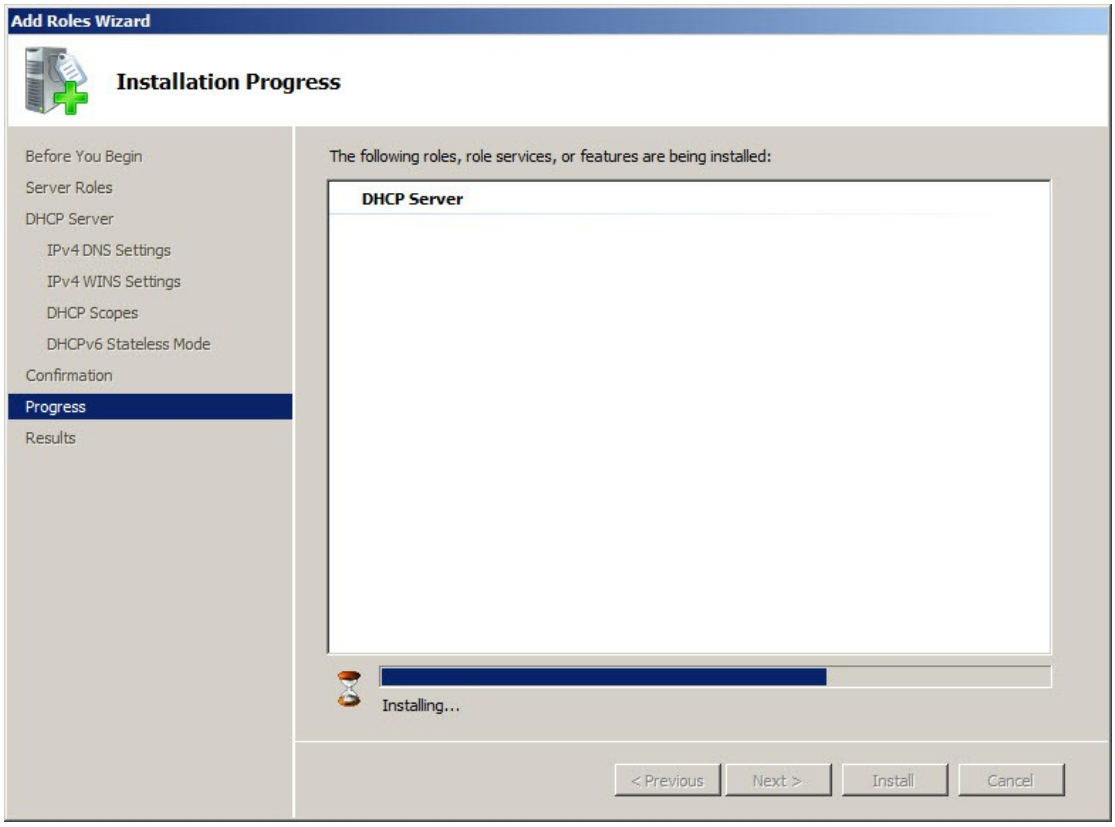


Figure 14-70

8) After the installation is finished, restart the server.

14.3 Configuring MS DHCP

If you want to use MS DHCP as third party DHCP, please use CCBoot 20130404 or later version (Please refer to "3rd Party DHCP on CCBoot 0404" for information). The steps of configuring MS DHCP are as follows.

1) Right-click "Computer" -> "Manage".
2) Click the "Roles" node in the "Server Manager" dialog box, unfold the directory tree.
3) Click "DHCP Server" node, and unfold the directory tree.
4) Click "Win2008r2cn" node, unfold the directory tree.
5) Click the "IPv4" node, unfold the directory tree.
6) Right-click "Scope", click "Properties".

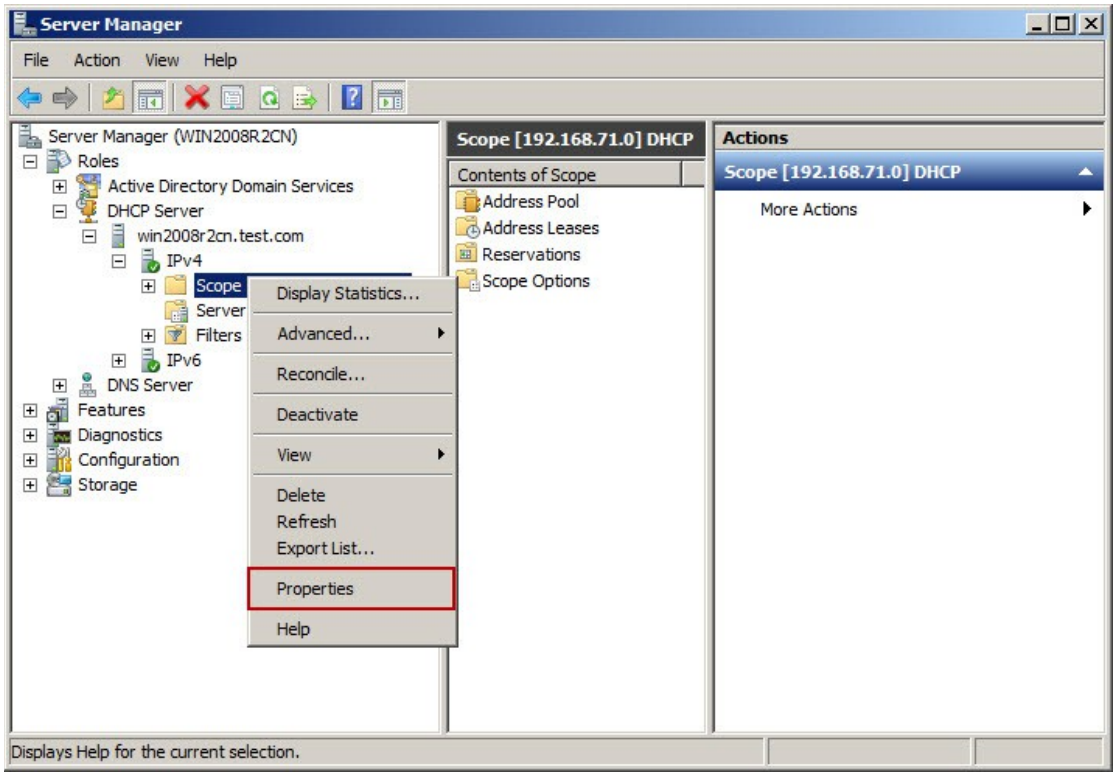


Figure 14-1

7) In the popup "Scope DHCP Properties" dialog box, click the "Advanced" tab, and then select "Both" radio button, then select "Unlimited" radio button, and click "OK" button at last.

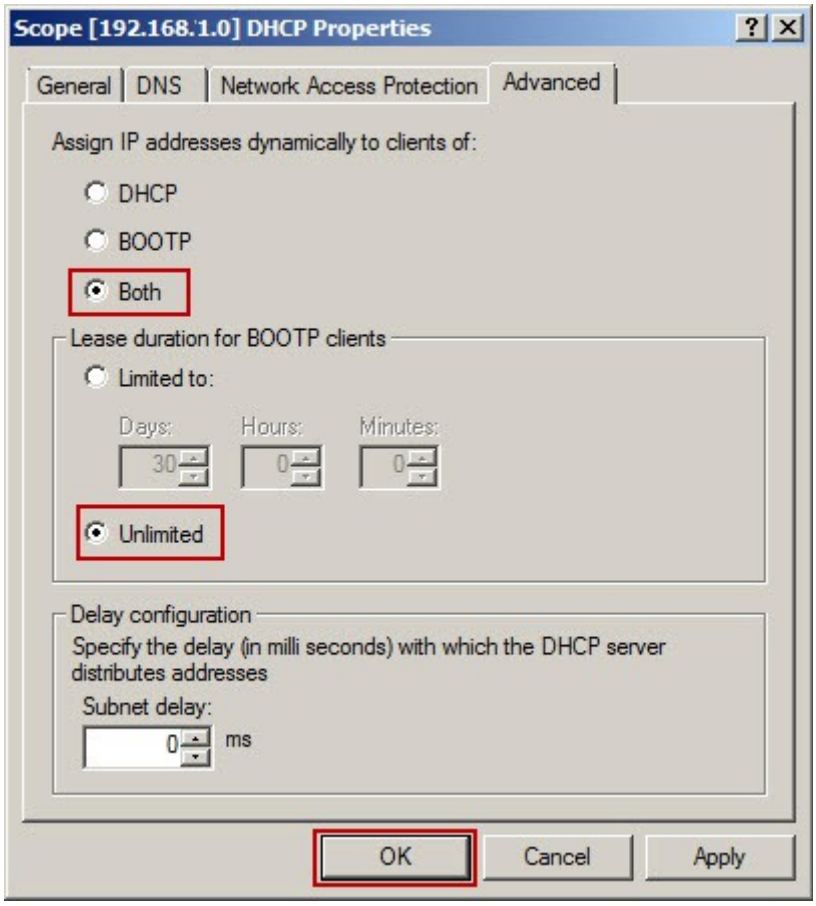


Figure 14-2

By here, MS DHCP setting is finished.

14.4 Set the DHCP Client

When the client-side is uploading images, if the value of "DHCP Enable" in the dialog box of "Network Connection Details" is "Yes", then you do not need to do the following settings.

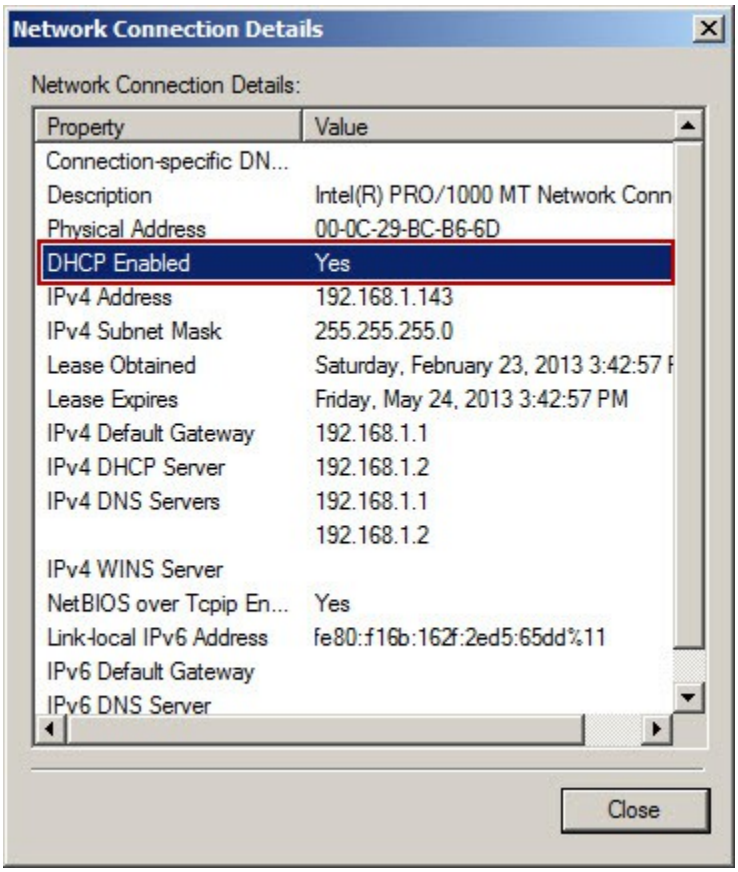


Figure 1-1

If the value of "DHCP Enable" in the "Network Connection Details" dialog box is "NO", you need to do the following adjustments:

1) Use "super user" to launch a client-side.
2) Confirm if the client-side DHCP service is on.
3) Click the "Start", type "services.msc" in the "Run" edit box, and then press enter.
4) In the "server window", double-click the "DHCP Client".

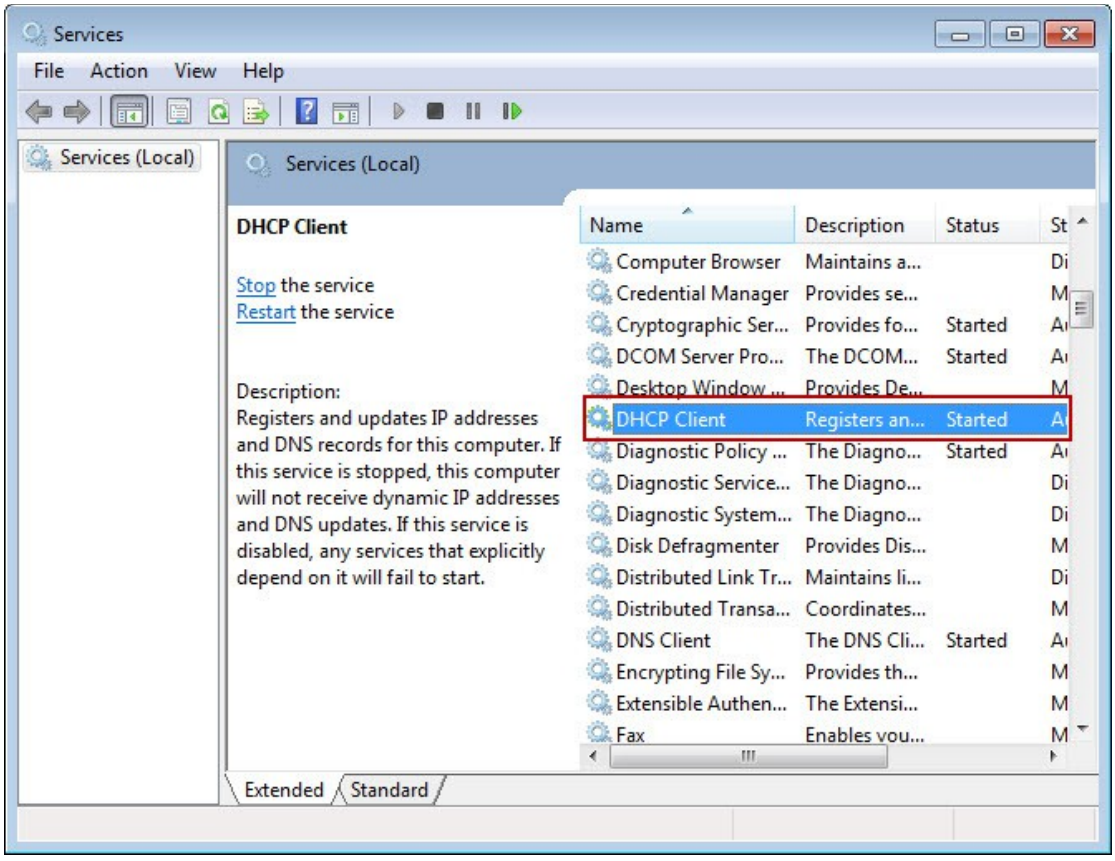


Figure 14-2

5) In the "DHCP Client Properties" dialog box, check the value of "Startup type" is "Automatic" or not, and the status of "Service started" is "started" or not.

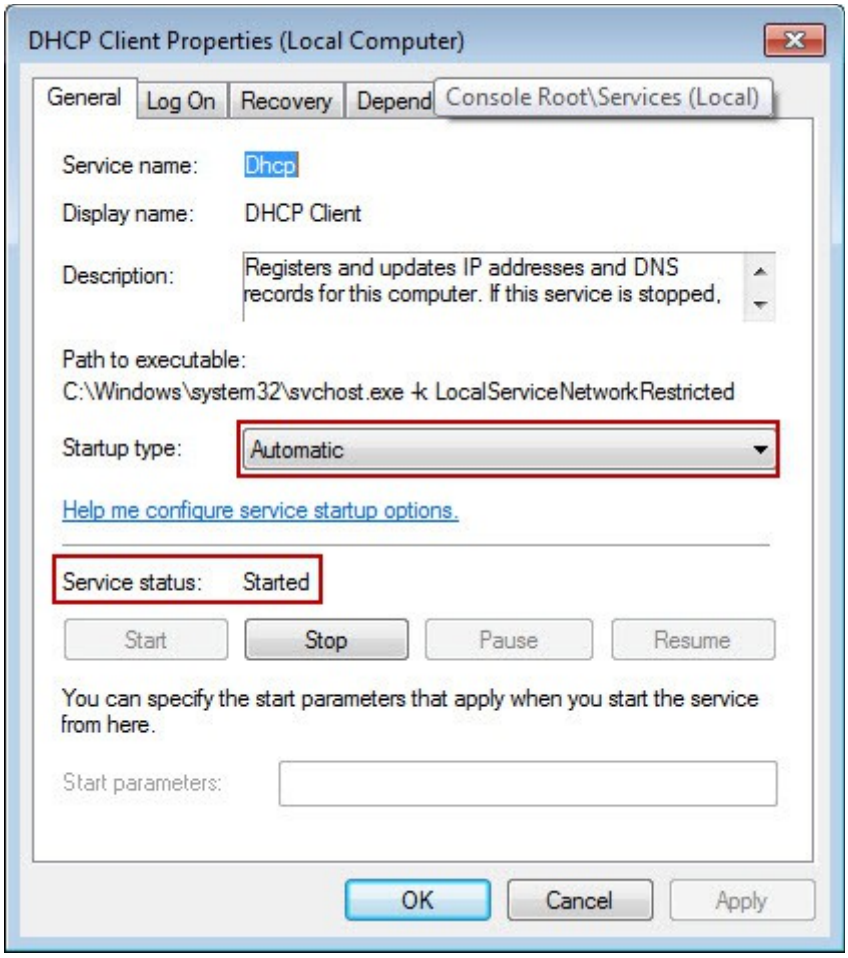


Figure 14-3

6) Click the "Start" button, type "regedit" in the "Run" edit box, and then press enter.

7) In the popup "Registry Editor" window, fix position to:

\
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Tcpip\Parameters\Interfaces, there are a lot of branches below, expand one by one, find the value of "IPAddress" is a branch of "local IP address", then double-click "EnableDHCP".

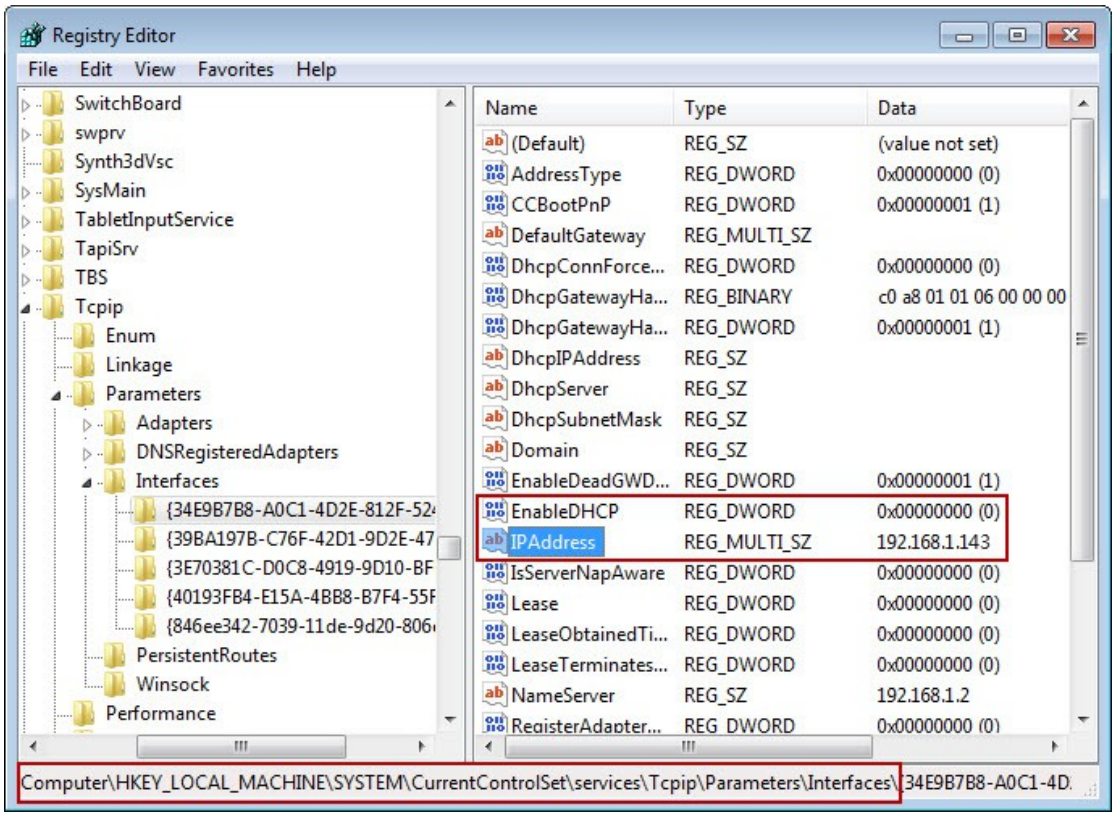


Figure 14-4

8) It will pop up "Edit DWORD (32-bit) Value" dialog box, type the number "1" in the "Value data" edit box, and then click "Ok" button.

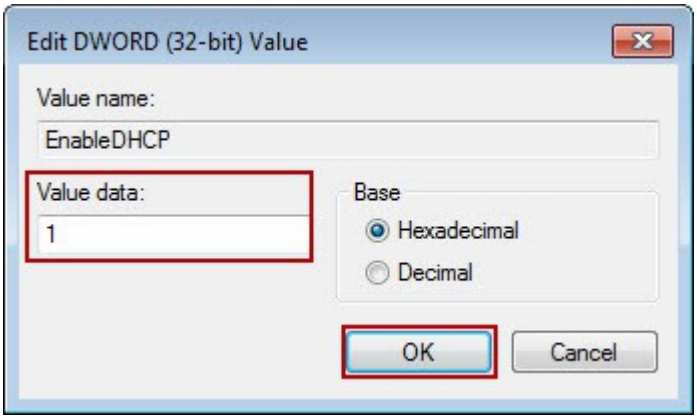


Figure 14-5

9) Close the registry editor window.
10) Close the client-side.
11) In the CCBoot server-side, shut down "super user".

14.5 CCBoot + TFTP of the Third Party

Let's take Solarwinds TFTP as an example

CCBoot setting is as follows:

1) In "CCBoot Options" dialog box, click "DHCP Settings" tab, uncheck "Start TFTP" check box, and then click the "OK" button.

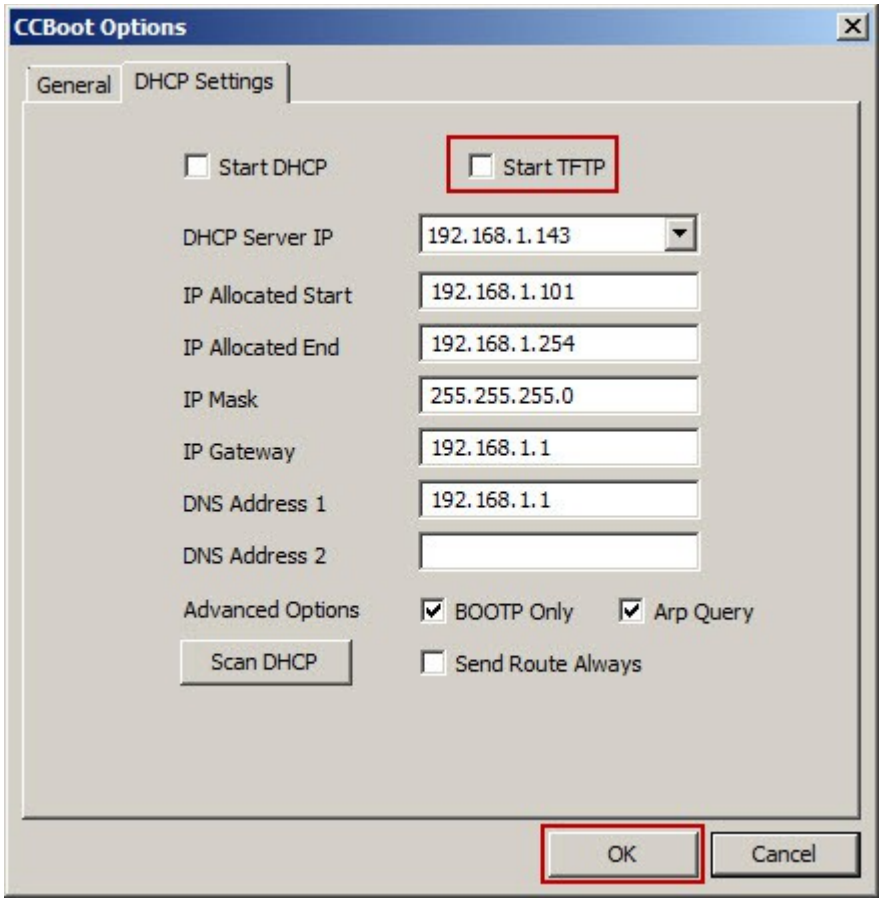


Figure 1-71

2) Download two files of "gpxe.pxe" and "newip.cfg" from CCBoot official website, and then unzip.
3) Download link: http://www.ccboot.com/download.htm ("PXE startup file download" and "NewIP File Download").
4) After installing Solarwinds, copy the two downloaded files to C:\TFTP -Root directory (If Solarwinds installation directory is customized, then copy the two files (gpxe.pxe, newip.cfg) to Solarwinds installation directory), and then start the Solar winds.

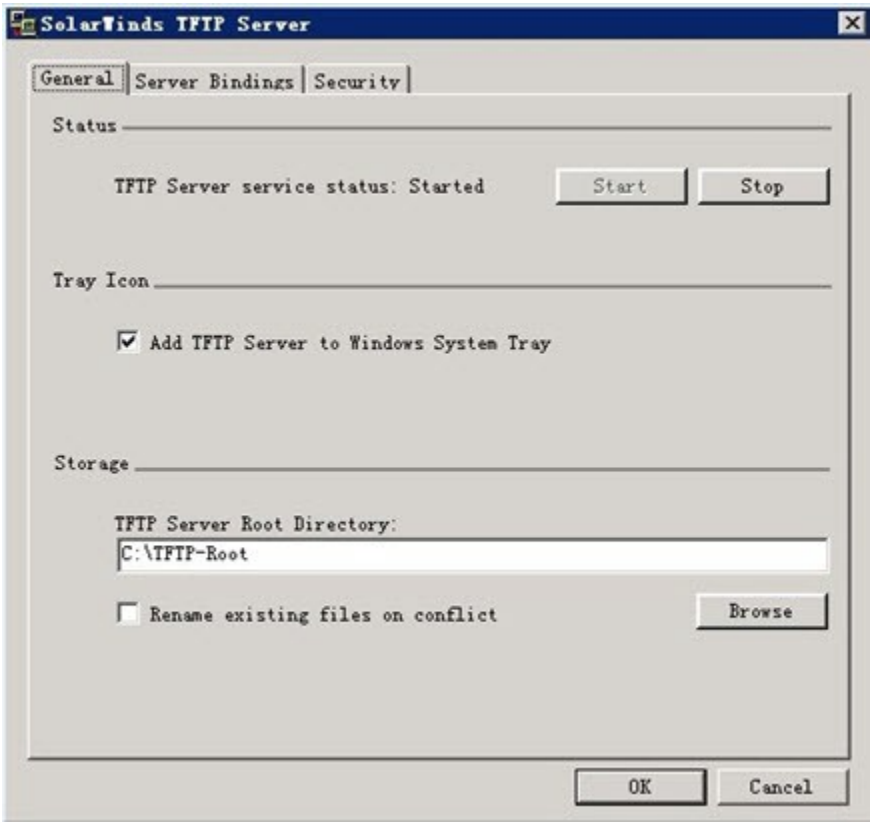


Figure 14-2

5) Solarwinds running state.

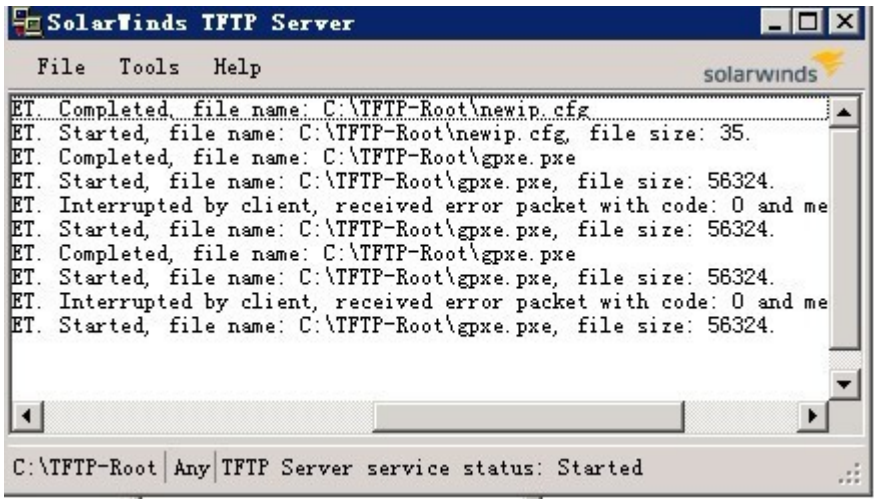


Figure 14-3

15 Failover with Super Path

15.1 Setup Failover in CCBoot

The function of Super Path can realize that two servers can work at the same time. If one server has some stoppage, then the other one can take place it immediately, and will not influence the client-side in use (no need for restart of client-side).

Prepartion:

1) Two servers: CCBoot server procedures are installed on two servers.
2) CCBoot has been successfully installed and diskless booting has been realized.

Procedures are as below:

1) Diskless boot one client with "Super Client".
2) After diskless booting of client-side, run "CCBootClient.exe" program.
3) Click "Install Super Path" button in popup "CCBoot Client" dialog box (installation of Super Path should be in the condition of diskless).

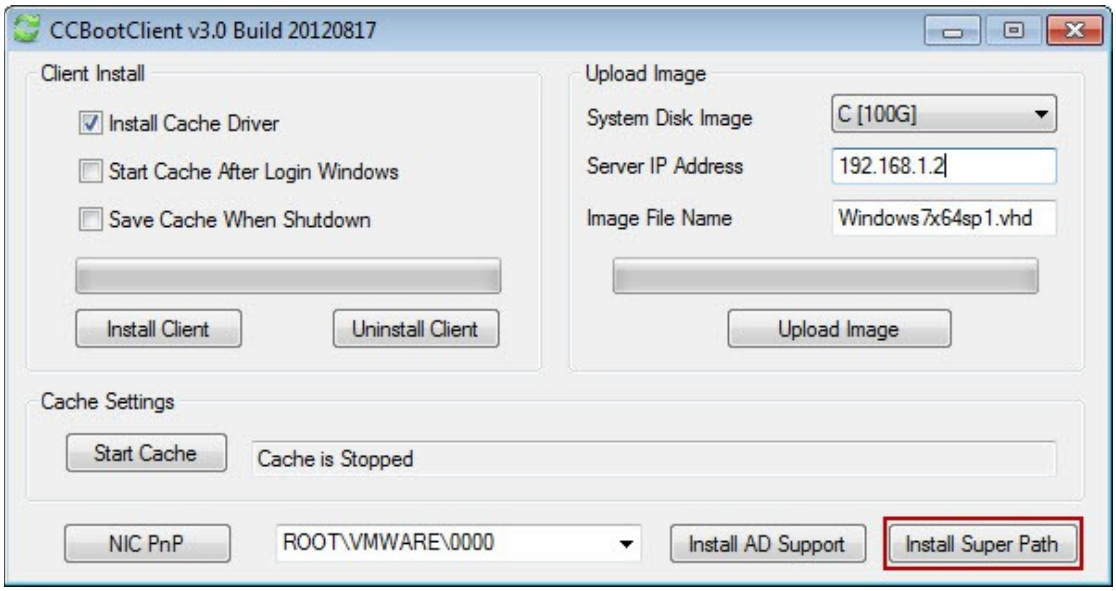


Figure 15-72

4) After installation of "Super Path", restart the client-side, and then shut down the computer.
5) Disable the "Super Client" on CCBoot server.
6) If restore point is set up, please merge restore point firstly. (For merge restore point, please refer to "How to Merge Image"). Copy the merged image file on another server (Notes: The name and path of image file for two servers should be the

same).

7) Edit each client-side properties on the first CCBoot server. Open the dialog box of "CCBoot Client", and enter IP of two servers in edit box of "Boot Server Address". Use semicolon to separate each IP and choose check box of "Enable Fallover".

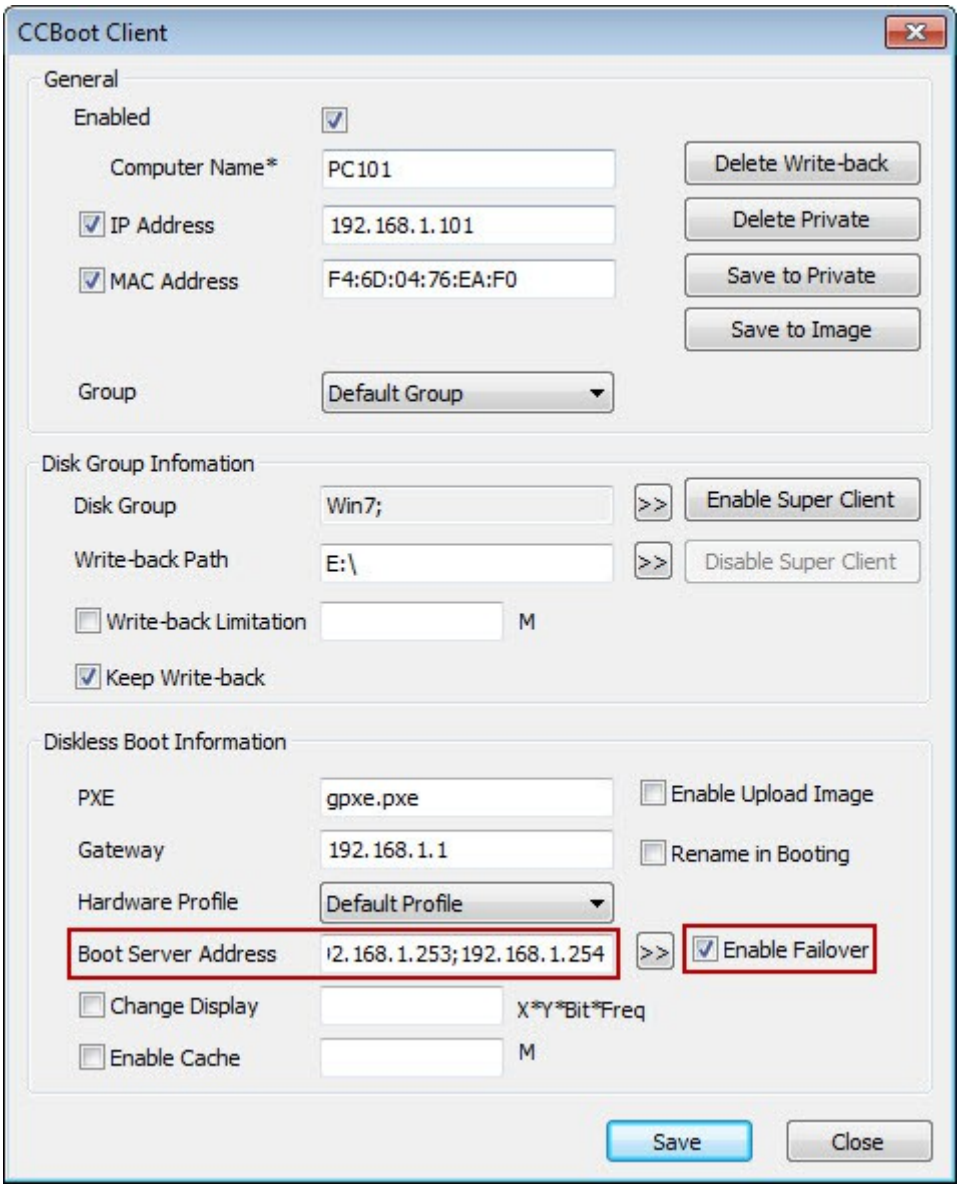


Figure 15-73

8) After setting, copy CCBoot.ini and db.xml on the second server to cover CCBoot.ini and db.xml file on CCBoot installation catalogue.

9) Restart CCBoot of the second server and reconfig the settings of CCBoot.

All client-side will start from the first server. If the first server is closed, then client-side will automatically switch to second server for access of data.

15.2 Switch Super Path Quickly

After the above procedures, super path function can be in normal use, but will be delay by about 5 seconds, but how to swiftly switch Super Path function?
The method is very sample. Only need to download "superpath-no-lag.reg" file on official website of CCBoot, then double-click for running, so the Super Path function can be swiftly switched.
superpath-no-lag.reg download address:
http://www.ccboot.com/download/superpath-no-lag.zip

16 VLAN and Multiple LANs

16.1 Dual NIC and Dual LAN

There are two network cards and two different LAN environments (LAN A and B) in the server.

NIC A works in LAN a, and the IP is 192.168.1.254, and the gateway address is 192.168.1.1.

NIC B works in LAN B, and the IP is 192.168.0.254, and the gateway address is 192.168.0.1.

The settings of CCBoot server are as follows.

1) Set the configuration parameter of CCBoot LAN A, and then take a client-side of LAN A (eg. PC101) as a "default user template"

2) Then, start the client-side of LAN an in order, number the client in CCBoot and add it to its users list, and the client takes effect only to the new added ones after setting the default user template.

The operate steps are as follows.

LAN A

1) Click "Options" on the toolbar of CCBoot's main interface.

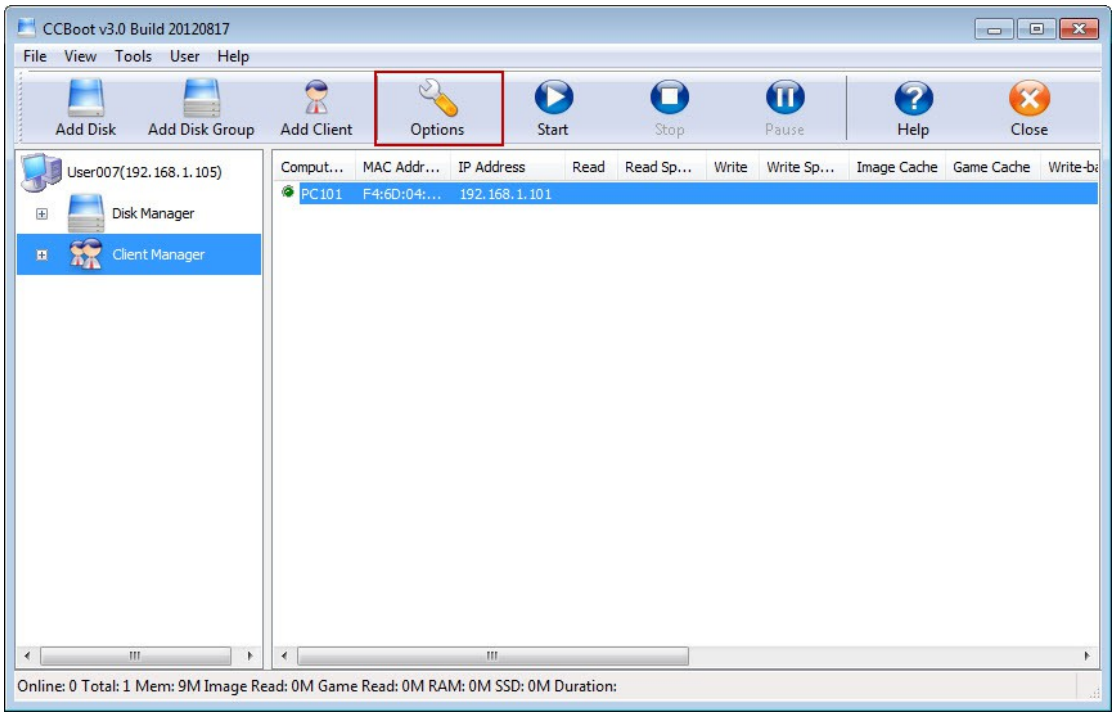


Figure 16-74

1) Select "Auto Add Client" in the check box when pop-ups the dialog box "CCBoot Options".

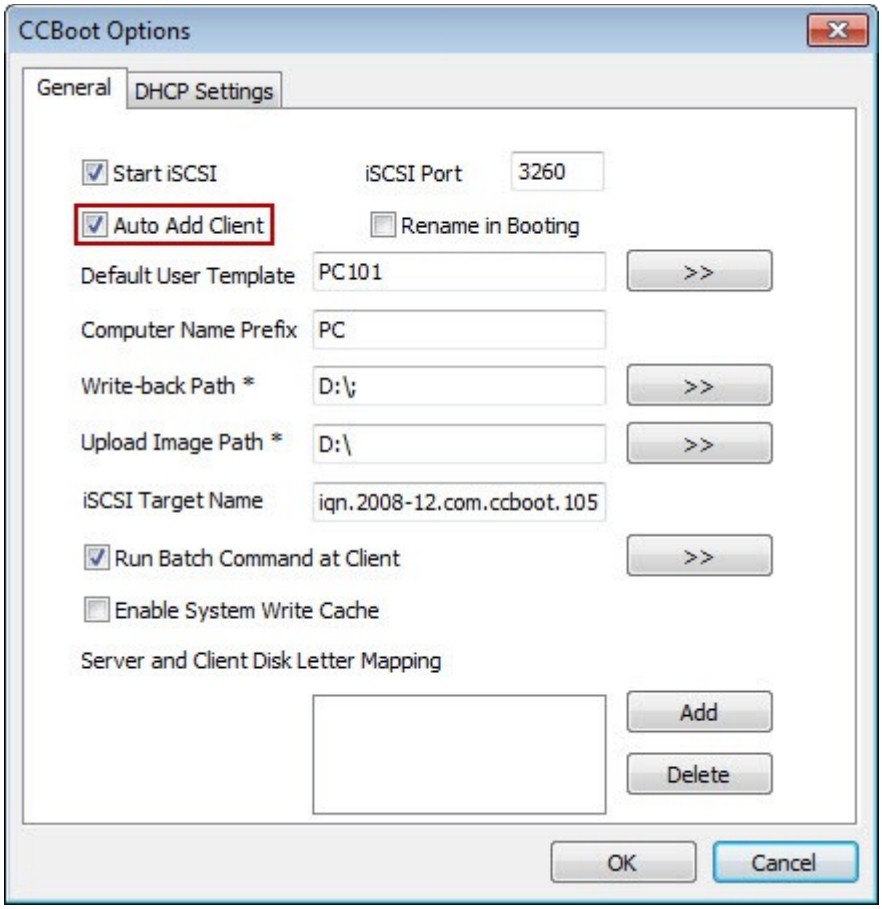


Figure 16-75

2) Select "DHCP Settings", and choose "0.0.0.0" in the combo box "DHCP Server IP". Then input the initial address "192.168.1.101" and "192.168.1.254" of LAN A to the edit box of "IP Allocated Start" and "IP Allocated End".

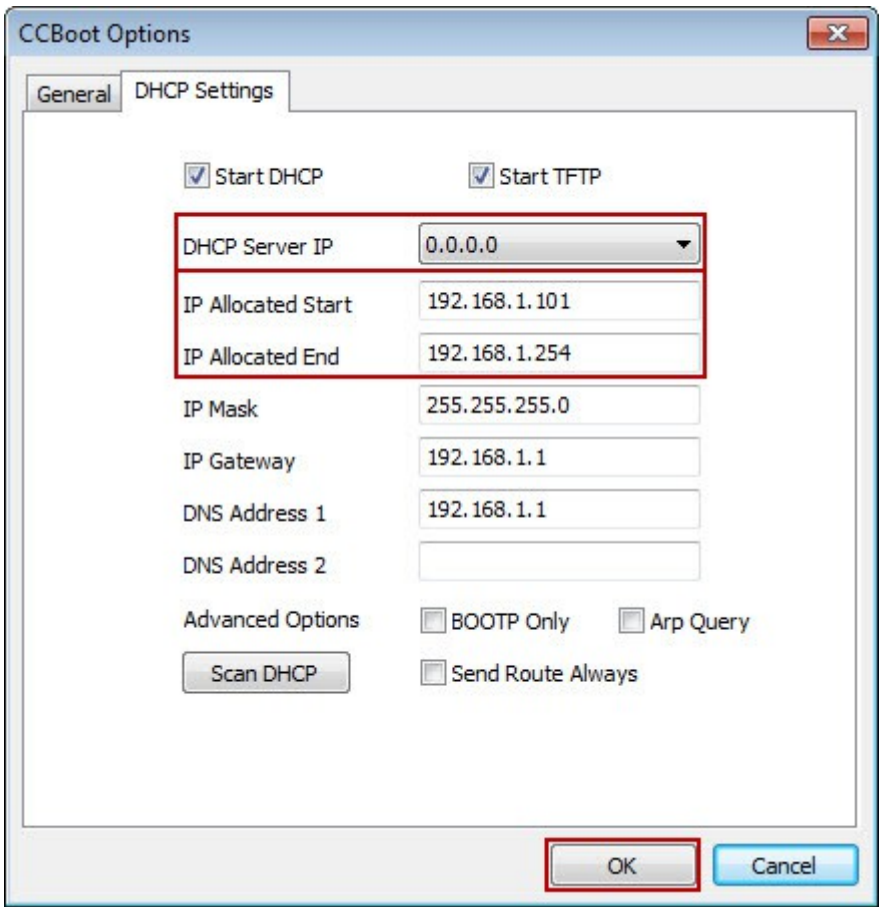


Figure 16-76

3) Click "Client Manager" on the main interface of CCBoot. And double-click a client (like PC101) in the details pane.
4) Input the CCBoot server IP 192.168.1.254 of LAN A to the edit box "Boot Server Address" in the dialog box "CCBoot Client", and input 192.168.1.1 to the "Gateway", then click "Save" to store this information.

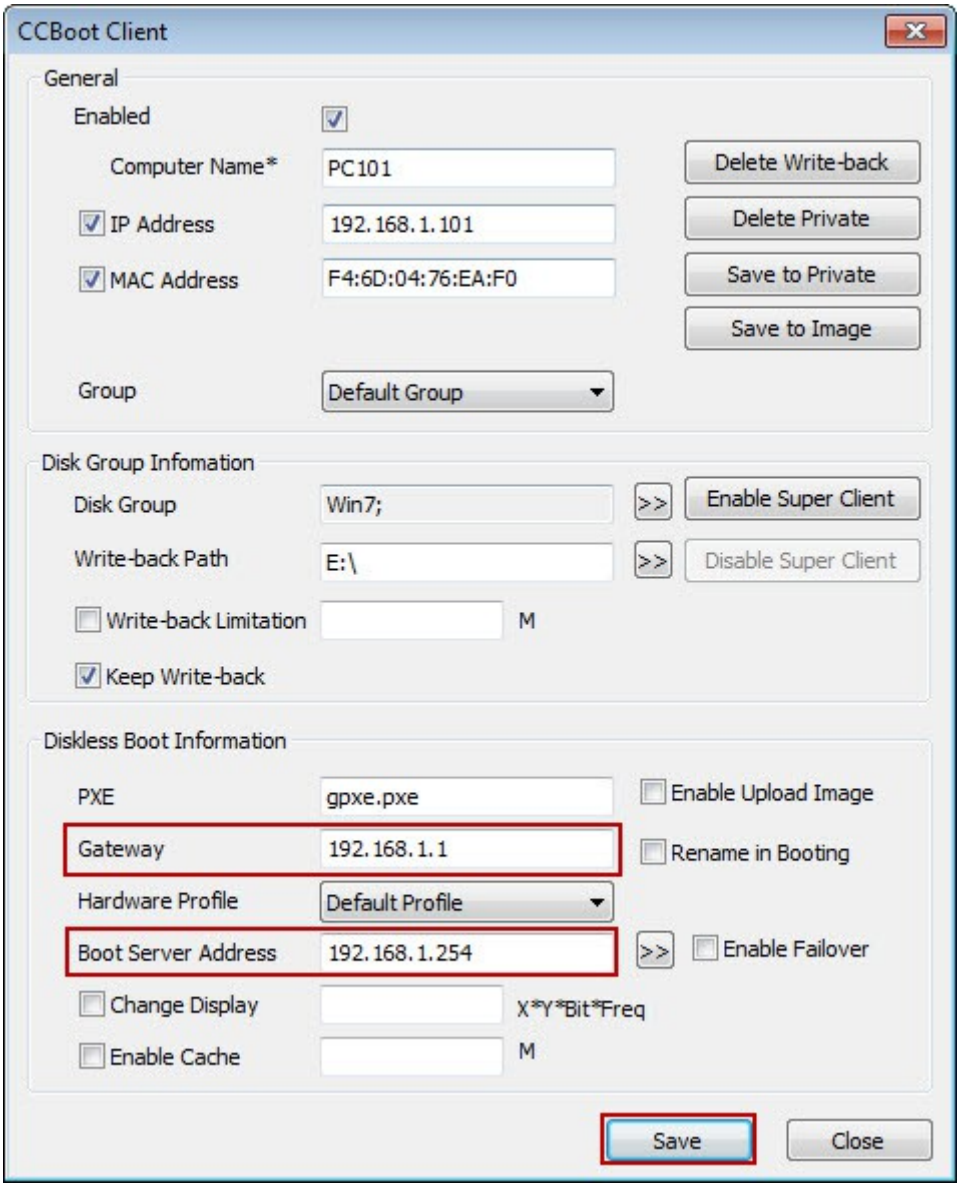


Figure 16-77

5) Click "Options" on the toolbar of CCBoot's main interface.

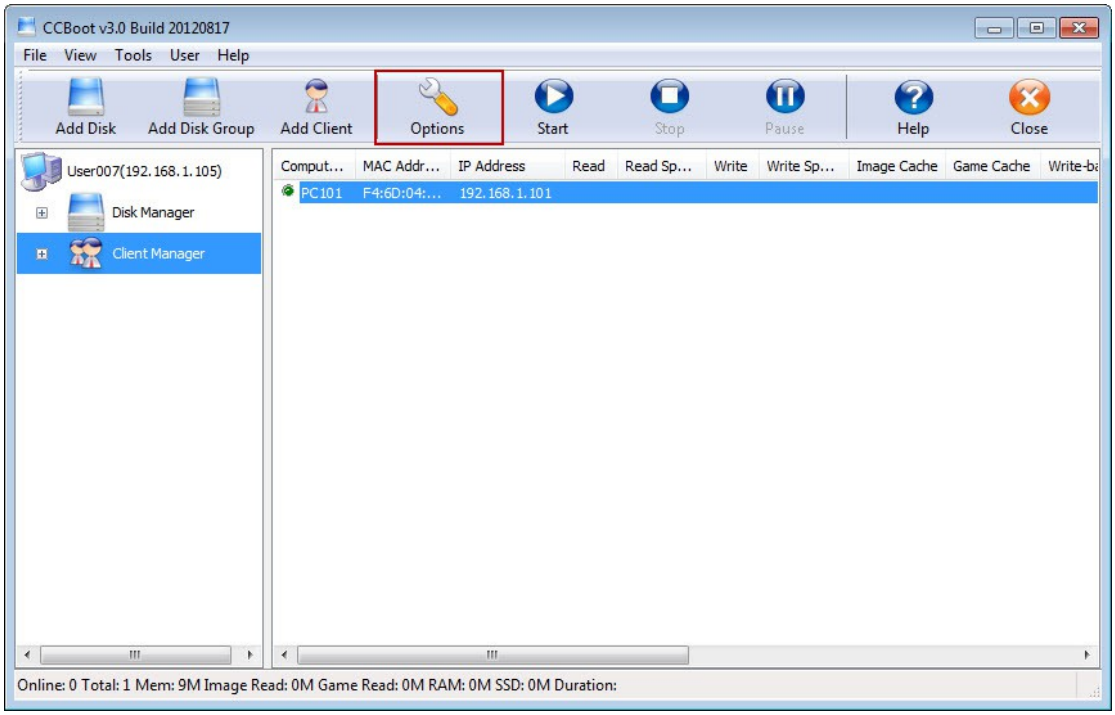


Figure 16-78

6) Click the button ">>" which exists in the right side of "Default User Template" when pop-ups the dialog box "CCBoot Options".

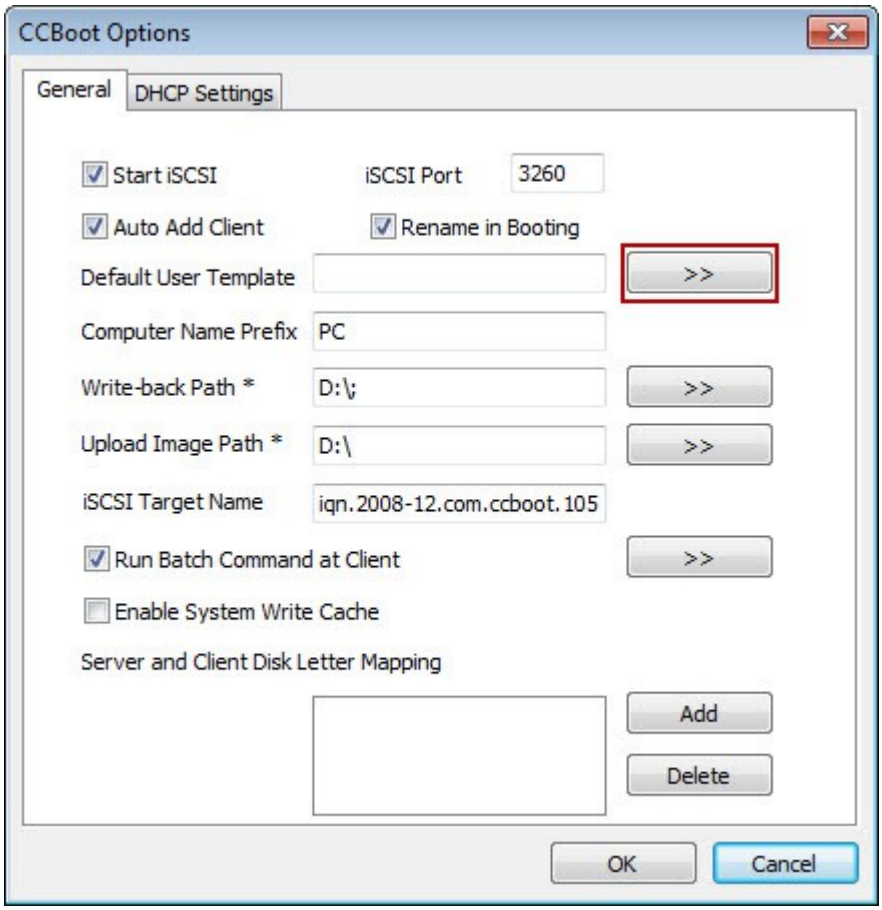


Figure 16-79

7) Select "PC101" in the dialog box of "CCBoot User List", and then click "OK". Finally, click "OK" in "CCBoot Options" to save this setting.

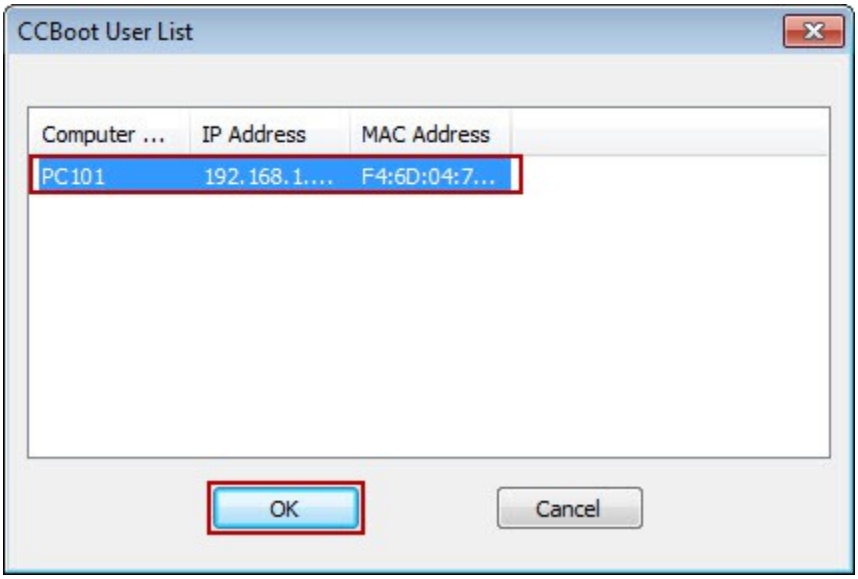


Figure 16-80

8) Gradually start the machine in LAN A, number the CCBoot server client and add it to the user list.
9) All of the client-sides of LAN A can start to work when the above operations are finished.

LAN B

1) Select "DHCP Settings" in the dialog box "CCBoot Options", and choose "0.0.0.0" in the combo box "DHCP Server IP ". Then input the IP address "192.168.0.1" and "192.168.0.100" of LAN B to the edit box of "IP Allocated Start" and "IP Allocated End". And also input "192.168.0.1" to "IP Gateway", and then click "OK" to save this information.

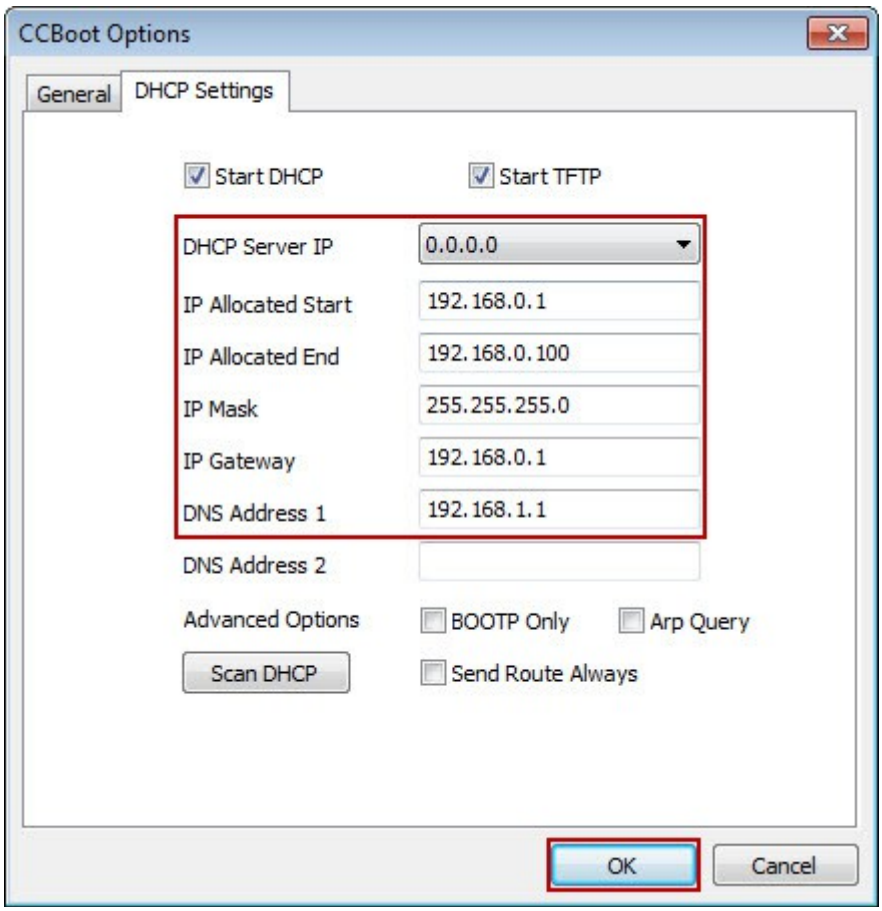


Figure 16-81

2) Click "Client Manager" on the main interface of CCBoot. And double-click a client (like PC101) in the details pane.
3) Input the CCBoot server IP 192.168.0.254 of LAN B to the edit box "Boot Server Address" in the dialog box "CCBoot Client", and also input 192.168.0.1 to the "Gateway", then click "Save" to store this information.

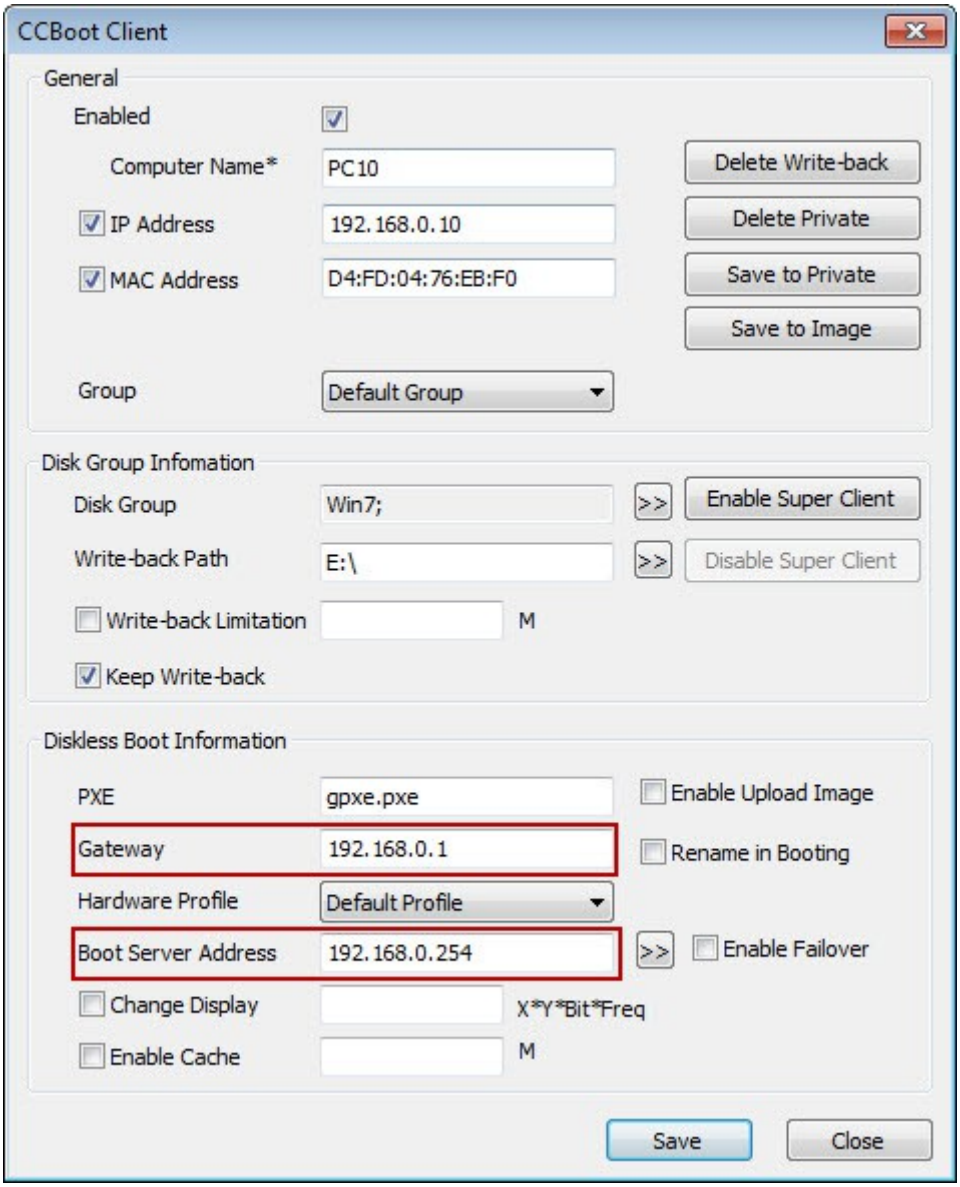


Figure 16-82

4) Click "Options" on the toolbar of CCBoot's main interface.

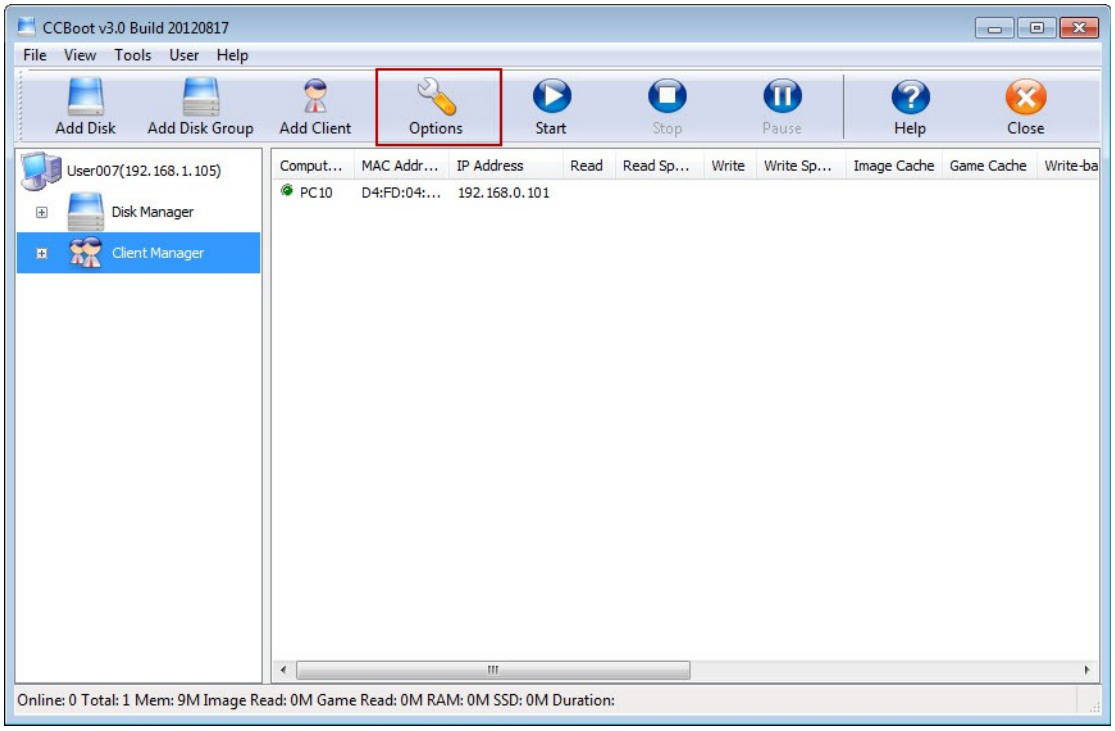


Figure 16-83

5) Click the button ">>" which exists in the right side of "Default User Template" when pop-ups the dialog box "CCBoot Options".

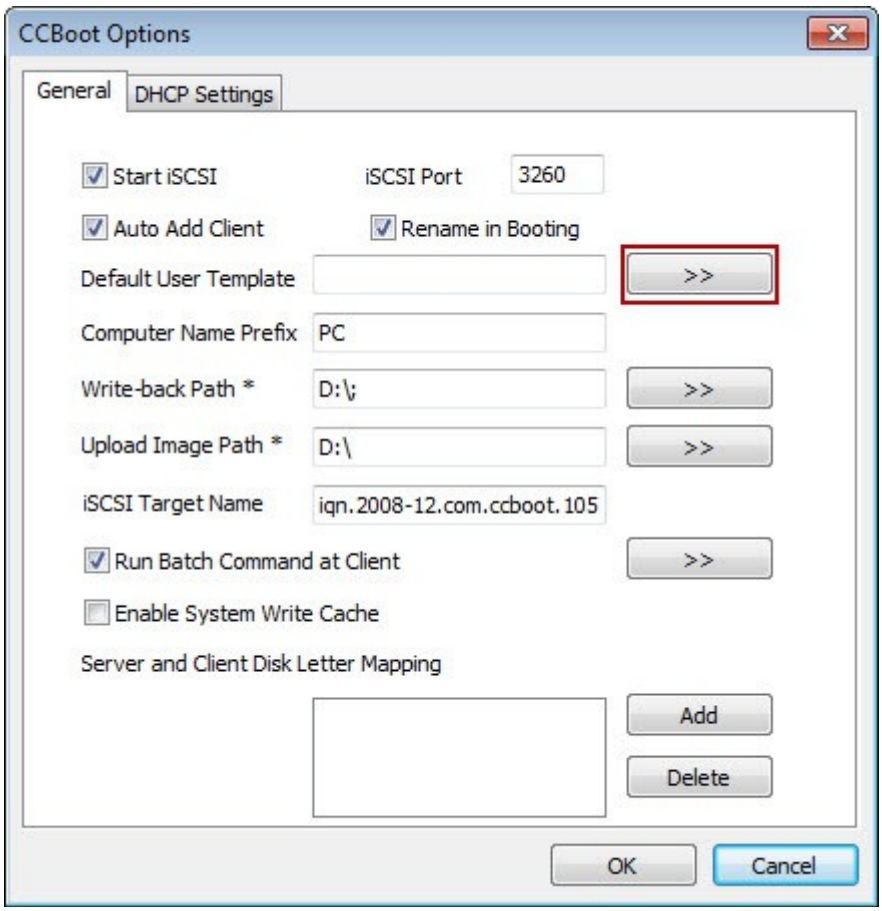


Figure 16-84

6) Select "PC10" in the dialog box of "CCBoot User List", and then click "OK". Finally, click "OK" in "CCBoot Options" to save this setting.

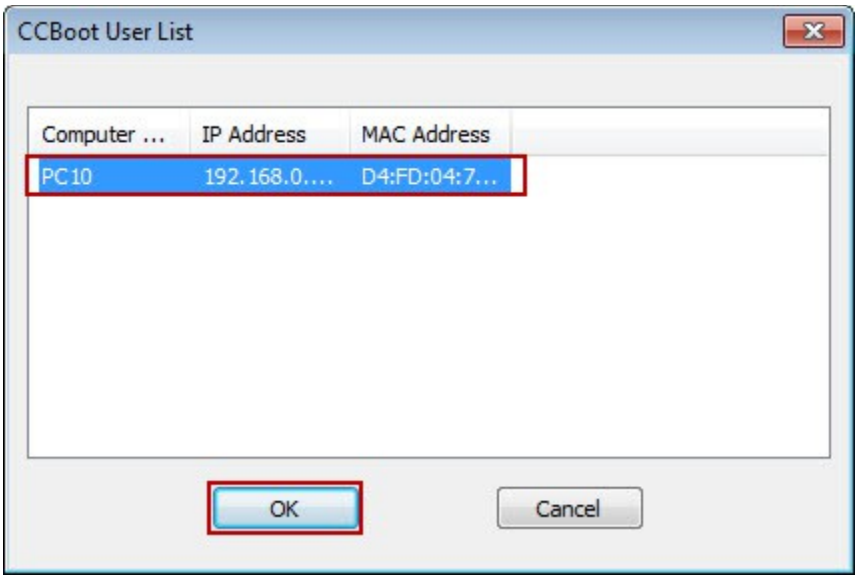


Figure 16-85

7) Gradually start the machine in LAN B, number the CCBoot server client and add it to the user list.
8) All of the client-sides of LAN B can start to work when the above operations are finished.

In this way, we can achieve to serve two LAN machines by using a CCBoot server‘s two NIC.

16.2 Dual LANs Segment

A Server PC installed with two different network cards, CCBoot server settings are as follows:
Such as the two Server LANs IP are: 192.168.1.254; 192.168.0.254
Gateway correspond to: 192.168.1.1; 192.168.0.1
1. ON the CCBoot Server open the Main Interface click "Options" , DHCP settings, select 0.0.0.0 DHCP server IP saved, others cannot set.
2. Open the user management, click client settings interface, start the server in the IP which fills the need to start the server IP. For example, 192.168.0.254, fill the custom gateway: 192.168.0.1.
3. May fill in first a client, and then select the default, then the client can start from the NIC, belong to the local area network; start the server and then modify the default client IP and gateway, for example: server IP changed to: custom gateway 192.168.1.254 to: 192.168.; so restart the client from 192.168.1.25
This network connection has started.
This will achieve the dual cards Dual LANs with a single server machine.

16.3 Using CCBoot on the VLAN

1. VLAN Background Knowledge
VLAN (Virtual Local Area Network) is an emerging data exchange technology, which divides the LAN equipment into small network segments logically to complete a virtual work group.

VLAN topological graph (Figure 1-1)

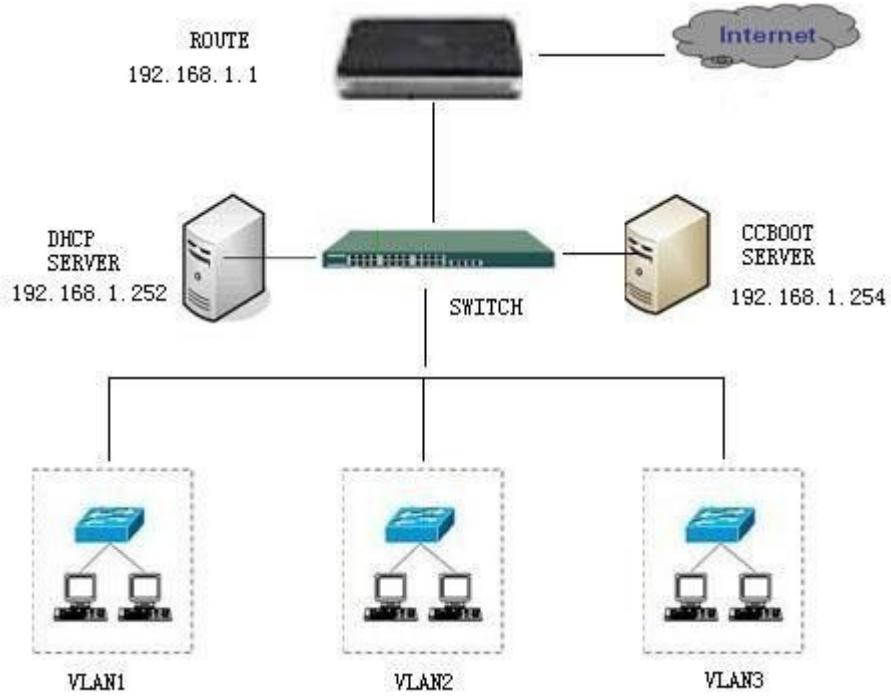


Figure 1-1

2. CCBoot Settings

If you are using other DHCP service, please refer to CCBoot Works with 3rd Party DHCP. If you are using DHCP service of CCBoot, please ignore these steps.

3. VLAN Settings

1) If CCBoot server and clients are in the same VLAN, just configure as the above steps is OK.
2) If the server and clients are in different VLANs, e.g, the server is in VLAN1, and clients are in VLAN2, you need to find the interface of VLAN2 in the switch, and then configure ip helper-address command for this interface. The command should be like this (suppose CCBoot DHCP server IP is 192.168.0.1), "**ip helper-address 192.168.0.1**", so the DHCP broadcast requests from VLAN2 could be forwarded to CCBoot server on VLAN1, and then the DHCP reply from CCBoot server will be forwarded to VLAN2. For more information about ip helper-address, please refer tohttp://en.wikipedia.org/wiki/UDP_Helper_Address..

17 Server Maintain

17.1 How to Migrate or Change Server?

Sometimes, we want to change server for some reasons such as hardware upgrade or maintain the problem server. We need to backup and restore the CCBoot server settings.

How to backup CCBoot server settings?

1) Backup C:\CCBoot\db.xml.
2) Backup the boot images. We recommend to merge the boot images before backup.
3) If you want to keep the restore points of the boot images, please export the restore points first. For more details, please refer to "Restore Point Management". Notes, if you have multiple images with restore points, you need to export the restore points multiple times.

How to restore CCBoot server settings?

1) After install CCBoot server in the new server, copy db.xml from the backup media.
2) Click "Options" button, and click "OK" to reload the db.xml.
3) Copy the boot images from the backup media to the same path as the old server.
4) If the images have restore points, please import the restore points files from the backup. For more details, please refer to "Restore Point Management".

17.2 Solutions for Program Crash

In case that some programs crashed suddenly on the CCBoot server, please follow the instructions below.

1) After opened the CCBoot installation folder, please double-click the "dump" folder (Figure 1-1).

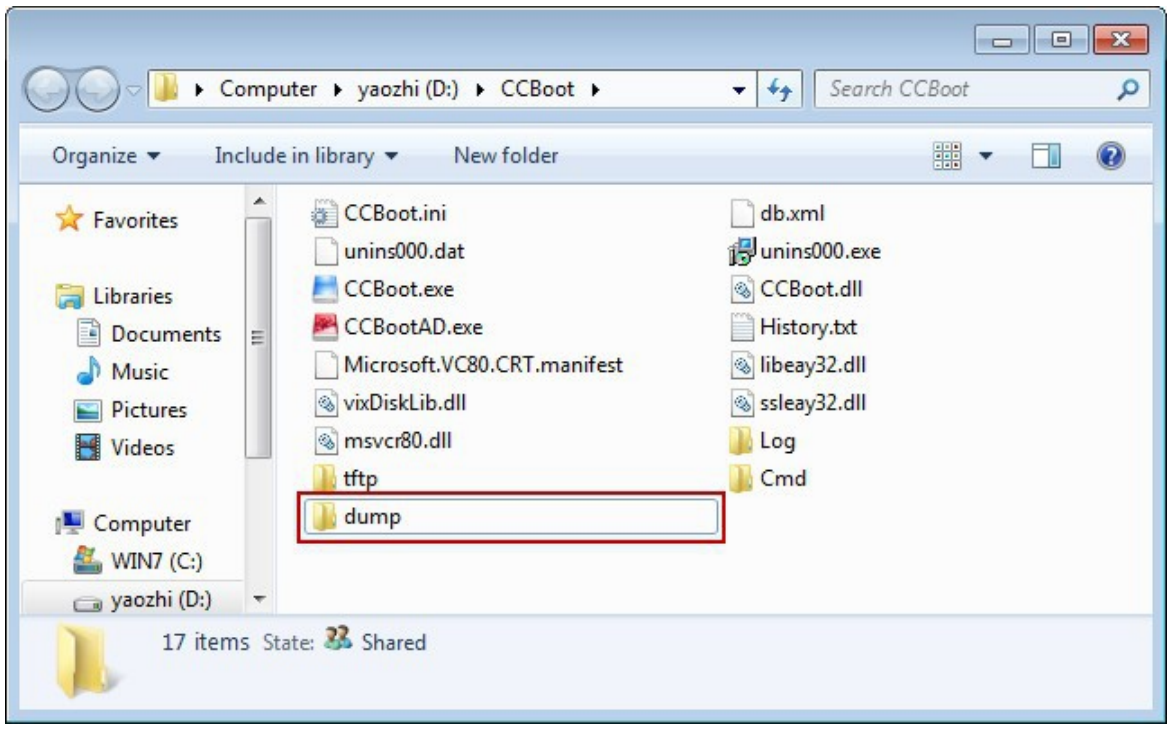


Figure 1-1

2) In the "dump" folder, check if there are any files whose file extension is ".dmp". If there are, please zip the "dump" folder and send it to support@youngzsoft.net. So our technical person could analyze the folder and find out the problem (Note: Please zip CCBootdll.pdb and CCBoot.pdb as well) (Figure 1-2).

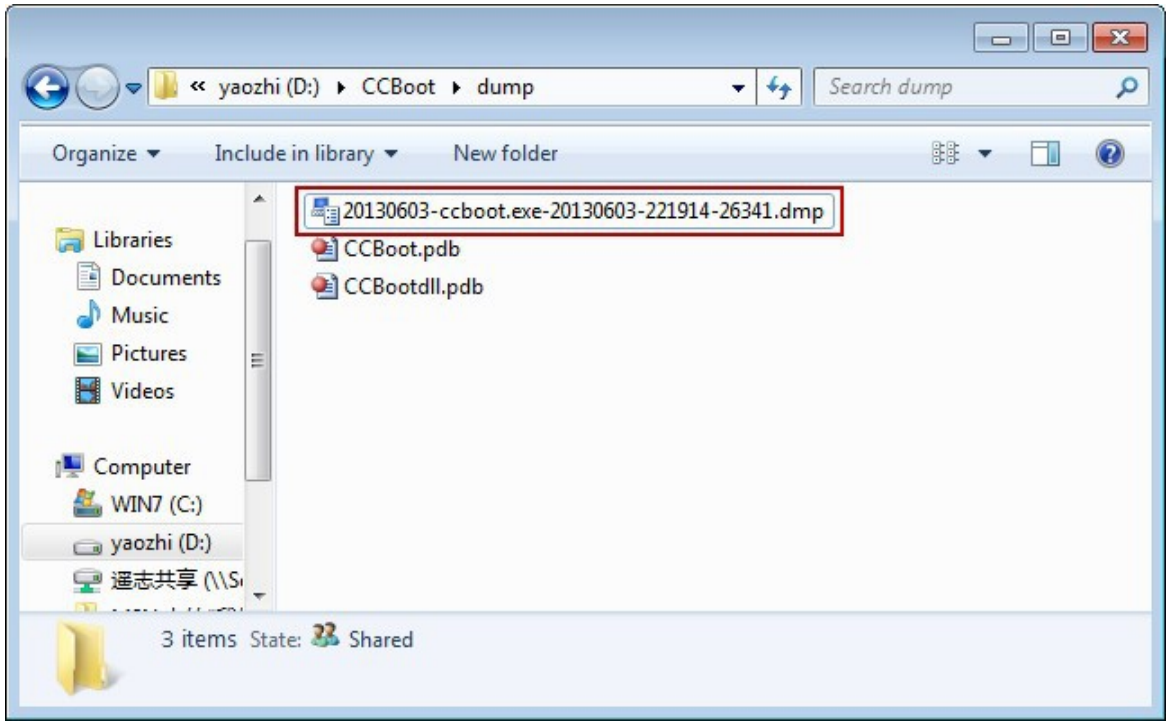


Figure 1-2

Note:
If the OS version of the server is too low (such as Windows 2000) or simplified, the "dump" file would not display normally, so we cannot analyze the problem well. It is recommended to use the higher OS than Windows 2000.

17.3 CCBoot Load Balance and Super Path

CCBoot v2.1 supports load balance, but doesn't support super path. While CCBoot v3.0 has both of load balance and super path function.
The operating principle of load balance is mostly the same as super path. There is only a little difference between them, that is, you need to reboot the client when using load balance, but super path doesn't need this operation.
For more details, please refer to the articles of "Load Balance" and "Failover with Super Path" on Wiki, and the video of "Failover with Super Path in CCBoot v3.0" on Youtube.

17.4 How to Use the Pause Service

If you have multiple CCBoot servers, you can use these "Pause" features of CCBoot to do some maintenance for your server.
Conditions: you must have more than one CCBoot server in the LAN and also the load balancing is working well (Please refer to the help documentation for "Load Balance")
Example: an Internet Cafe has two servers "A" and "B", and two servers are already use for load balancing. Server "A" is need to maintain for example you have to replace the "Server A" Write-back disk, but there is online and connected client PC in this server, so you cannot close the server "A" and maintenance it. At this point, we can use the CCBoot "Pause services" function to pause the server "A", and then the new clients will boot from server "B".
CCBoot "Pause" function is initiated against new client starts on Server A, and does not affect clients that are currently in use on the server. You can wait all clients on server A leave or ask they reboot. Because server A is paused, it will not accept new clients booting request. You can maintain the "Server A" now, without affecting the entire business of Internet cafes.
Here is the following steps bellow:
1) In the CCBoot Main Interface toolbar click the "Pause" button (Figure 1-1).

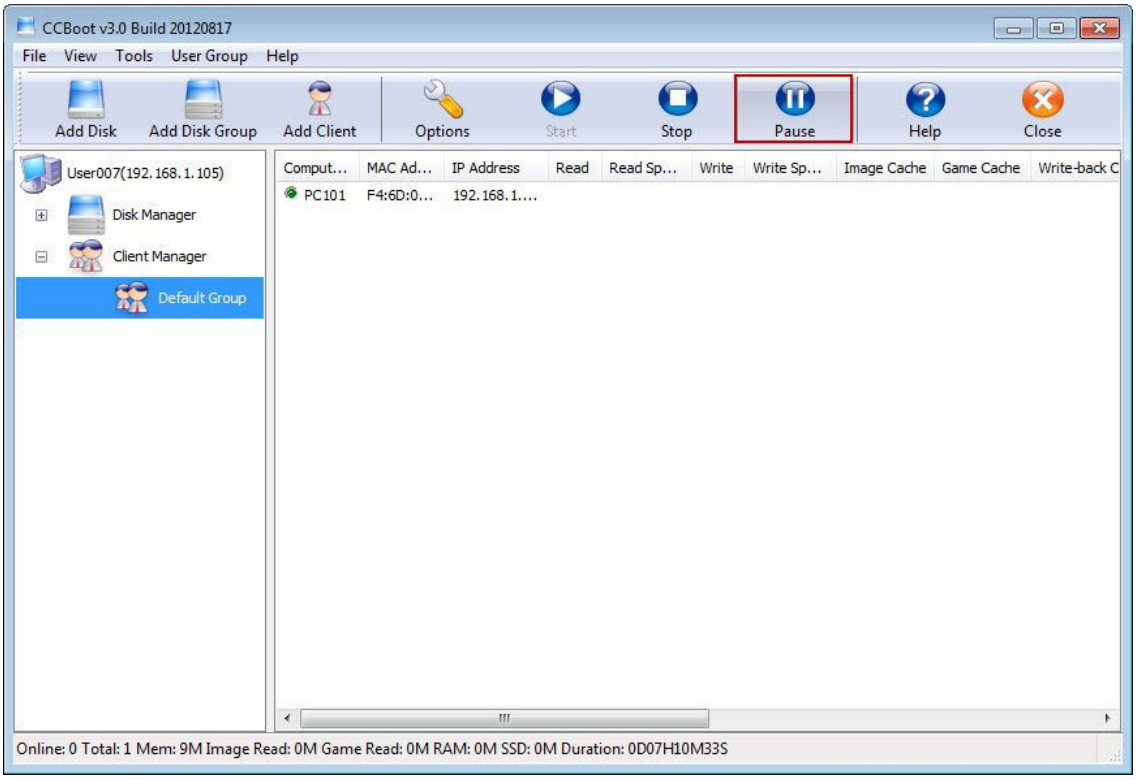


Figure 1-1

2) "CCBoot" pop-up dialog box, click the "Yes" button (the Figure 1-2).

Figure 1-2

After completion of the above two steps. When the clients reboot or the new clients boot, it will start from Server B. When there is no online client on Server A, you can maintain server A.

After the Server maintenance is complete, click the "Start" button in the toolbar (Figure 1-3), after the client is restarted, server A and B will restore the original settings for load balancing.

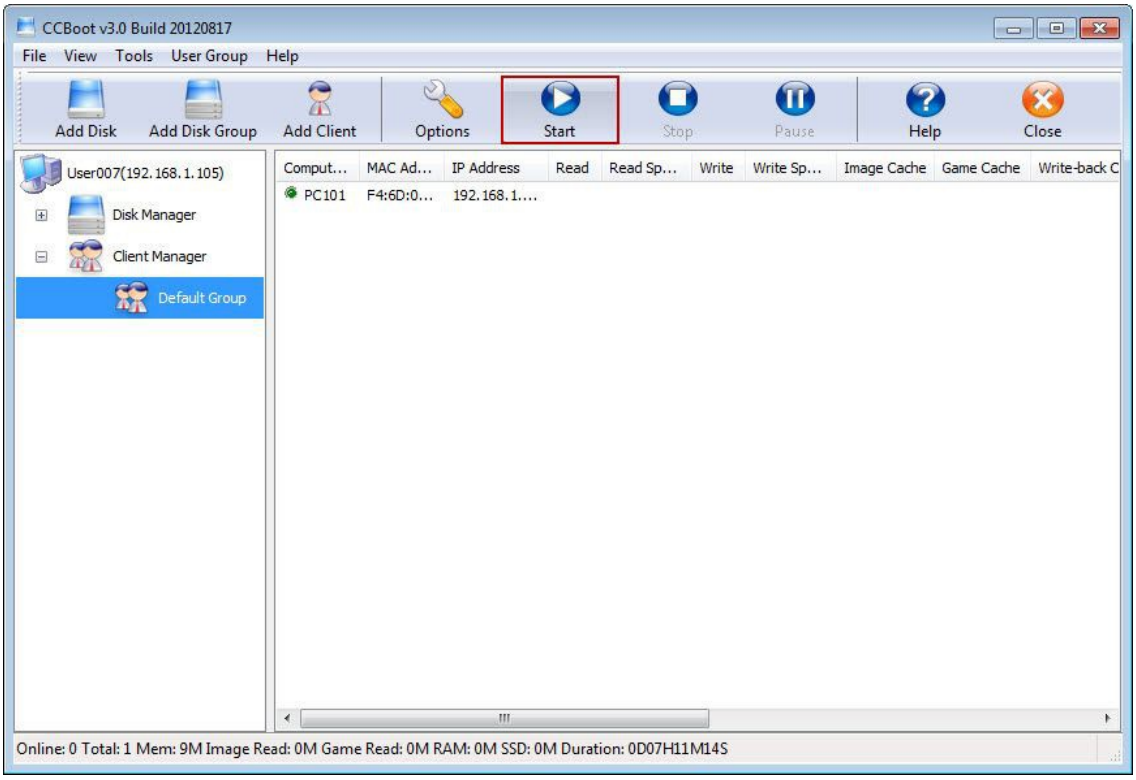


Figure 1-3

17.5 Upgrade from CCBoot v2.1 to v3.0

1) If you have created restore points for image before, please merge these restore points first. (For details, please refer to "Merge Image".)
2) Uninstall CCBoot v2.1 program, and install CCBoot v3.0 to the same installation folder of the old CCBoot v2.1. Then, import Users of csv file. (For details, please refer to "Add Client by Importing from File".)
3) Re-add Disks and Disk Groups. (For details, please refer to "Add Disk" and "Add Disk Group".)
4) Select an already created disk or disks for "Disk Group" (Figure 1-1).

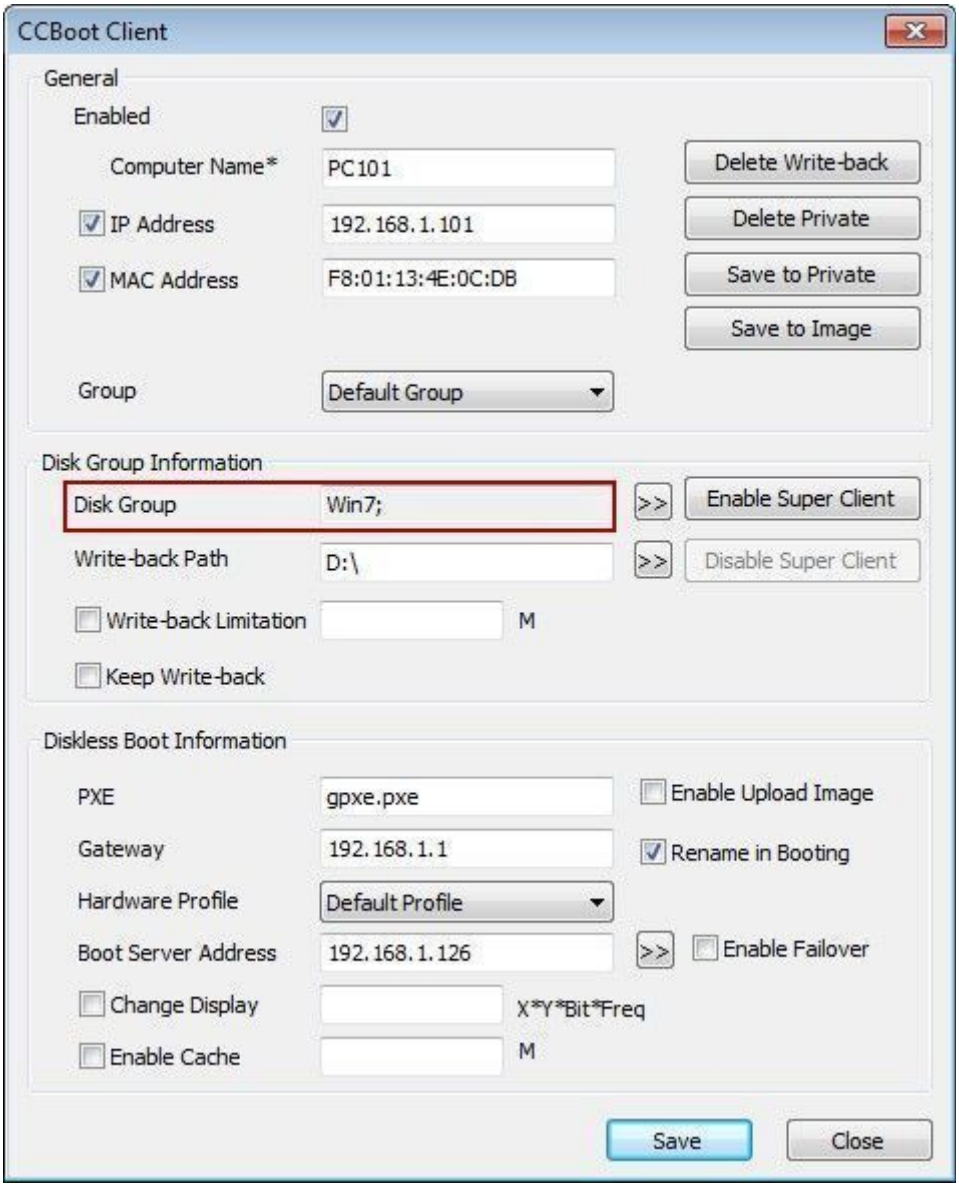


Figure 1-1

5) Check whether the "General" information on "CCBoot Options" has been correctly set or not (Figure 1-2).

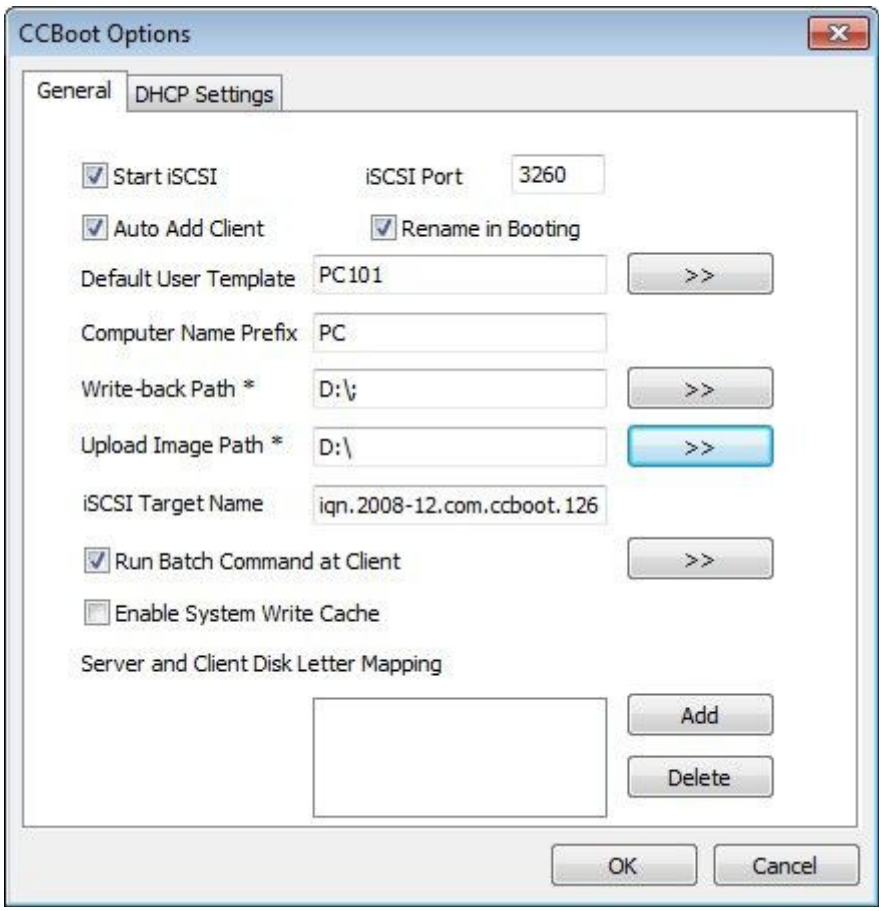


Figure 1-2

6) Check whether the "DHCP Settings" on "CCBoot Options" has been correctly set or not (Figure 1-3).

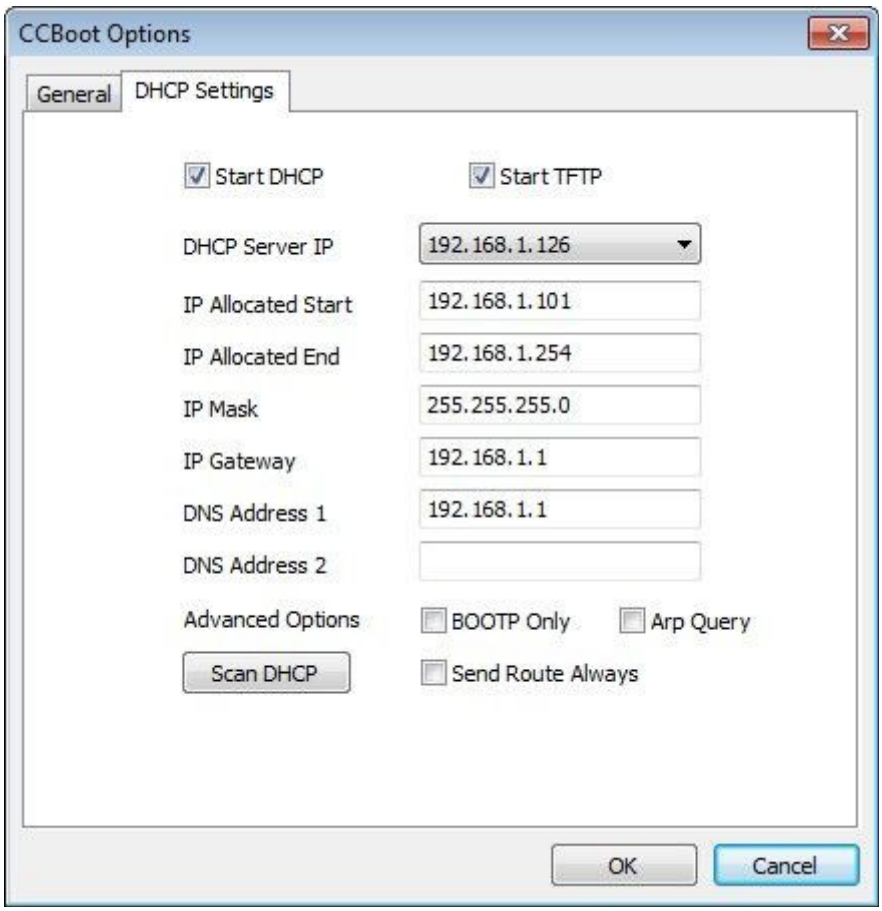


Figure 1-3

7) Convert the "VMDK" format to "VHD" format. (For details, please refer to "Convert VMDK to VHD File".)