

DriveClone 3 Network

User's Guide

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FarStone Technology, Inc.**U.S. Headquarters:**

6 Morgan, Suite 160
Irvine, CA 92618
Phone: (949) 458-3666
Fax: (949) 458-3633
www.farstone.com

Asia-Pacific Offices

10F-1B, No. 207, DunHua North Rd., Taipei, 105, Taiwan
Phone: 886-2-2546-9898
Fax: 886-2-2546-3838
www.farstone.com.tw

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Chapter 1: Product Overview

Drive Network is a centrally managed data backup and hard disk imaging application that creates ongoing “snapshots” and hard drive images of all systems on a local area network. This allows a network administrator to remotely backup up and restore client PCs and servers, deploy a bootable disk image, restore damaged operating systems, or even reset one or all computers in an office or classroom to an original system configuration at the end of the day.

Unwanted downloads and installations are quickly removed from computers. Deleted system and application files are restored with a few mouse clicks. DriveClone Network loads before the operating system and will continue to run even when the operating system does not.

Drive Clone Network’s suite of backup features includes:

- **Hard Drive Imaging:** Copy a PC or server hard drive as a complete disk image and save the image to a USB hard drive, a network share, or CD/DVD. A disk image contains all hard drive data, system settings, and installed applications. Because a disk image can be transferred to a new, identical-size or larger hard drive, it enables recovery from any data disaster, including hard drive failure
- **Incremental Backup:** Update saved disk images manually or by schedule without ever leaving Windows. Incremental backup points log only the changes that have occurred since the last Complete Backup
- **System Snapshots:** Back up an entire computer system automatically to a Secure Area of the hard drive. System Snapshot contents can be viewed and retrieved in Windows Explorer and offer the fastest recovery from software-related data disasters
- **File Backup:** Automatically back up all saved versions of personal files to a Secure Area of the hard drive. File Backup also lets you manually back up or schedule backup by file/folder name, file extension, etc.

DriveClone Network supports PXE and VSS. The software includes three components:

1. **The Network Manager** – The interface (GUI) for managing all clients on the network
2. **The Remote Manager** – Software that enables remote management of network backup and recovery
3. **The Client** – Centrally managed workstation and server software that performs backup and recovery, includes a Secure Area for System Snapshots, and provides a local Pre-OS recovery interface

Other Features and Benefits

- **Complete External Backup:** Store an image of an entire system on a USB hard drive or network share
- **Rapid, Controlled Recovery:** DriveClone Network supports UDMA1-5 and backs up and restores data in sectors
- **Partition Support:** DriveClone Network supports FAT32, NTFS, and other unknown partitions
- **Hardware Support:** DriveClone Network supports IDE, EIDE, SATA, and SCSI hard drives
- **100% Protection:** Restore an operating system damaged by a corrupt software installation, human error, or virus attack

Chapter 2: Installing and Uninstalling DriveClone Network

System Requirements

Minimum Operating System Requirements:

- Windows Vista (32-bit & 64-bit)
- Windows XP Home, Professional, or Media Center Edition (32-bit & 64-bit)
- Windows 2003 Server with Service Pack 2 or higher
- Windows 2000 Professional with Service Pack 4 or higher
- Windows 2000 Server with Service Pack 4 or higher

Minimum System Requirements:

- Intel Pentium processor at 133 MHz
- 512 MB of RAM (1 GB of RAM or larger for Windows Vista)
- 250 MB for the program and 5 to 10% of the total hard drive space (at least 1000 MB) for backup activities
- Internet Explorer 6.0 or higher

Installing DriveClone Network

DriveClone Network should be installed from an administrator account.

If you purchased a CD:

Insert the CD into your CD-ROM drive. The setup program should launch automatically. If it doesn't, browse the CD and double-click on Setup.exe. Follow the prompts in DriveClone Network to configure your installation.

If you purchased an electronic download:

Save the executable file to your hard drive. Double-click on the file to launch the DriveClone Network installer.

Installing the Network Manager

1. When the installation screen appears, select **DriveClone Network Manager** and click **Next**.
2. Carefully read the software license agreement. If you accept the terms of the agreement, select **I accept the terms in the license agreement** and click **Next**.
3. Enter your personal information and serial number. Clicking **Next** without entering a serial number will install a time-limited evaluation version of the Network Manager.
4. Click **Next** to install to the default folder. Click **Change** to select another location for your installation.
5. Select the **Broadcast** checkbox to send a packet of information to a client system, so that the client can connect automatically with the server.
6. Click **Install**.

**Note**

An administrator will have to log into a domain with administrative privileges to install the Network Manager on any computer within that domain. Following installation, the administrator will have to restart the computer to complete the deployment.

Installing the Remote Manager

1. When the installation screen appears, select **DriveClone Network Remote Manager** and click **Next**.
2. Carefully read the software license agreement. If you accept the terms of the agreement, select **I accept the terms in the license agreement** and click **Next**.
3. Enter your personal information and click **Next**.
4. Click **Next** to install to the default folder. Click **Change** to select another location.
5. Click **Install**.

**Note**

Be sure to install the DriveClone Network Remote Manager and the Network Manager on different computers.

An administrator will have to log into the domain with administrative privileges to install the Remote Manager on any computer within that domain. Following installation, the computer will have to be restarted to complete the deployment.

Installing the Client

1. When the installation screen appears, select the **DriveClone Network Client Module** and click **Next**.
2. Carefully read the software license agreement. If you accept the terms of the agreement, select **I accept the terms in the license agreement** and click **Next**.
3. Enter the Network Manager IP address and click **Next**. If the Broadcast function is enabled, you do not need to enter an IP address.
4. Click **Next** to install to the default folder. Click **Change** to select another location.
5. Click **Install**.

Installing in Windows Vista: For best performance, disable System Restore and Scheduled Defragmentation prior to installation. This checkbox is selected by default; if you do not wish to disable these Windows utilities, deselect the checkbox.

Installing in Windows XP: For best performance, disable System Restore. This checkbox is selected by default; if you do not wish to disable this Windows utility, deselect the checkbox.

6. Specify a size for the **Client Module Secure Area** (1000 MB or more) to store local backup data.

DriveClone Network will recommend a size for the Secure Area on each selected partition. For best performance, choose a non-system partition for your Secure Area and modify the size of the Secure Area so that it can hold enough data for your backup needs without taking up too

much hard drive space.

**Note**

The Secure Area is used to store System Snapshots and must be created on your primary/bootable hard drive.

7. Click **Finish** to complete the installation. DriveClone Network will restart the computer and create an initial System Snapshot.

**Note**

An administrator has to log into the domain with administrative privileges to install the Remote Manager.

Uninstalling DriveClone Network

1. From the Windows Start menu, select **Start → Settings → Control Panel**.
2. Double-click **Add/Remove Programs** and select **Change** or **Remove Programs**.
3. Select the DriveClone Network Manager, the Remote Manager, or the Client. Click **Remove** to begin uninstalling the associated component.

**Note**

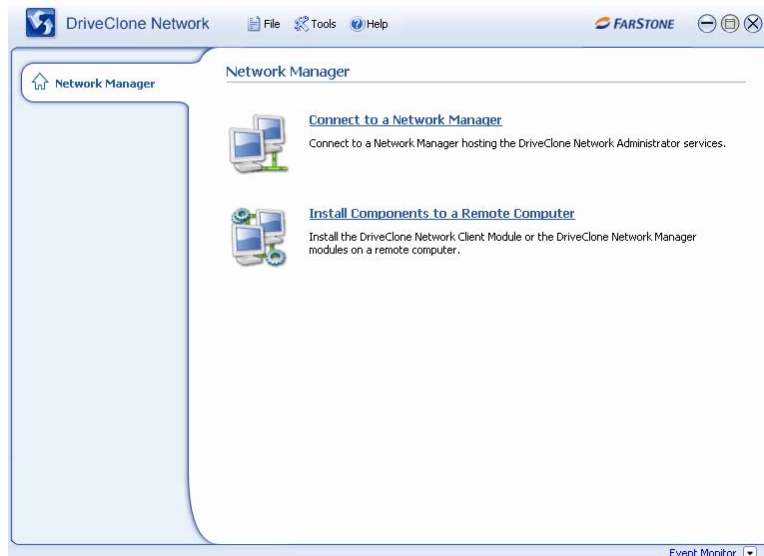
Uninstalling DriveClone Network will not delete all backup jobs you created. Some of these jobs can still be used if you re-install DriveClone Network.

If the Client Module is running a Complete Backup, System Snapshot, or File Backup, the uninstall program will terminate without uninstalling the selected component.

Chapter 3: The Remote Manager

To launch the Remote Manager, double-click the **DriveClone Network Remote Manager** icon on your desktop, or select **Start** → **All Programs** → **DriveClone Network Remote Manager** → **DriveClone Network Remote Manager**.

The Remote Manager Main Console



Connecting to the Remote Manager

4. Select **Connect to a Network Manager**.
5. Enter the computer name, the user name, and the password for the remote computer. Click **OK**.
6. Your system will connect to the Remote Manager automatically.

Remote Installation

The Remote Manager offers fast and flexible options for the remote installation of DriveClone Network components.

Note

The remote installation tool cannot deploy DriveClone Network components for Windows Vista or XP Home Edition. These operating systems require a local installation.

Before beginning a remote installation, you must:

1. Use an administrator account for the Client or Domain to confirm that the firewall has ports open for File and Printer Sharing.
2. Make sure the share name ADMIN\$ is accessible on the target computer, it will be accessed during the remote installation. The registry key value under:

HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\lanmanserver\AutoShareServer should be set to 1.

3. Remote installation requires this configuration in the client's Local Security Policy:

Network Access: Sharing and security model for local accounts - "Classic - Local users authenticate as themselves".

To remotely install DriveClone Network components:

1. From the **Remote Manager**, select **Install Components to a Remote Computer**.
2. Select the component you want to install and click **Next**.
3. Enter the computer name, the user name, and the password for the remote computer. Click **Next**.
4. Specify an installation path for the component. Click **Next**.
5. The software will now be installed. When the installation is complete, click **Finish** to exit.

Deploying the Network Manager or Client Remotely

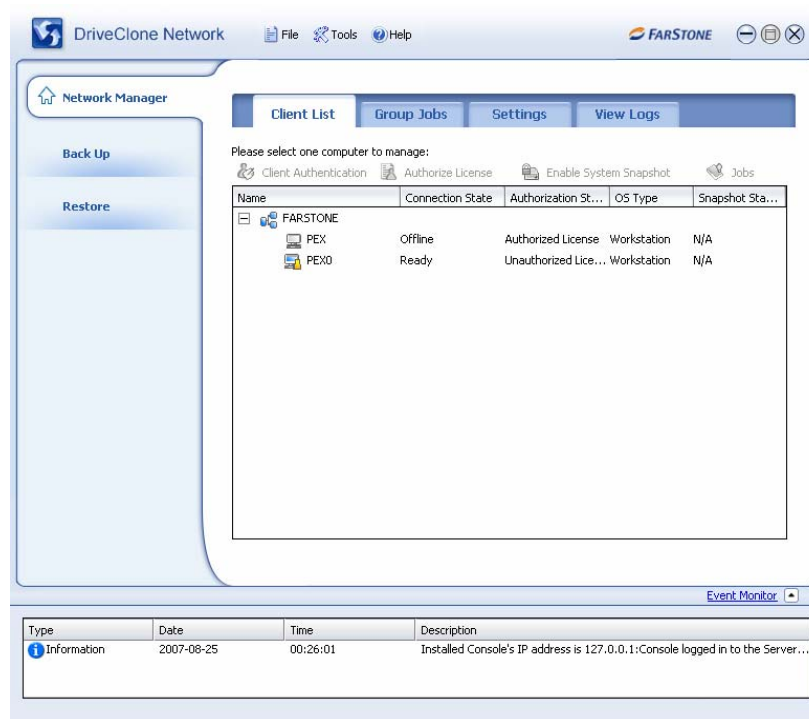
Before you can deploy the Network Manager or Client remotely, you have to install the Remote Manager on your local computer.

You must have administrative privileges and use the FarStone Remote Installation tool to perform a remote deployment. Enter your domain administrator account information to access the Admin\$ share on the destination computer. This sends the installation package to the Admin\$ share on the destination computer.

While most of the remote installation process is silent, the Client system will have to be restarted to complete the installation.

Chapter 4: The Network Manager

To launch the Network Manager, double-click the **Network Manager** icon on your desktop, or select **Start → All Programs → DriveClone Network Manager → DriveClone Network Manager**.



The Network Manager Tab

Client List

Each Client is represented by an icon showing its Connection and Authorization status, along with its operating system type and a status display of the System Snapshot feature.

Connection Status

- **Ready** means that the Remote Manager can control this client.
- **Inaccessible** means that the Remote Manager cannot control the client, even though the client is connected to the Network Manager.
- **Off-line** means that the client is not connected to the Network Manager.
- **Authorization Status** indicates whether the client has been authorized (licensed) or not.
- **OS Type** shows the current operating system as **Server** or **Workstation**.
- **Snapshot Status** shows the System Snapshot feature as enabled, disabled, or N/A.
- **Enabled** means that System Snapshot can be used.
- **Disabled** means that System Snapshot cannot be used.
- **N/A** means that System Snapshot was erased during a system restoration and cannot be used.

Selected Clients or Groups can be controlled or configured in the Client List window.

Authentication – Right-click on a client and select **Authentication**. Enter the user name and password of the client. If the computer is in a domain, it must be authenticated under an administrator account. Following authentication, the client can be authorized.

Authorize License – Right-click on a client and select **Authorize License** to issue a license to a client Server or Workstation (each will require a different type of license).

Jobs – Right-click on a client and select **Job List** to view existing Snapshot, Complete Backup, and File Backup jobs.

- **Snapshot** - Set the frequency for the automatic creation of System Snapshots, or intervals for automatic restoration.
 - **Create a Snapshot every n hour(s)** - Create a Snapshot every 1 to 24 hours.



Scheduling System Snapshots

If the system is set to create a snapshot every hour, DriveClone Network will take the first snapshot 1 hour after the creation of the most recent system snapshot.

- **Create a Snapshot at system startup** - Create a new System Snapshot automatically every time the computer boots up.
- **Restore computer at every startup** - Check this box if you want DriveClone Network to restore to the most recent System Snapshot every time you start your computer. You have the option of restoring just the C: drive or the entire hard drive. If you restore just the C: drive, all Snapshots created before the restore point used will be available for C: drive restoration only.
 - If you opt to restore a computer at every startup, you can also select a time to automatically restart the computer. The client computer will be restarted and restored at those set times as well as at system startup.
 - To set the time for rebooting a client computer, select **Restore Entire Hard Drive or System Partition to the latest System Snapshot at every system startup**.
- **Back Up My Computer** – After you've created a complete backup of your system, you'll see the following options:
 - **Detail** - View detailed information about the backup jobs you've created, including the description, source, destination, and scheduled settings.
 - **Edit Schedule** - Schedule incremental updates for the backup job you've created; change other scheduled settings.
 - **Back Up Now** - Start an Incremental Backup.
 - **Delete** - Delete the selected job.



Scheduling Complete Backups

1. Complete backups and incremental updates can be created according to pre-set schedules.
2. If the system is busy, DriveClone Network will not be able to perform the scheduled backup

job, and will automatically try again later.

3. If you missed a scheduled backup because you turned off your computer, DriveClone Network will perform the backup when you restart your computer.
4. If you reset your operating system clock so that you miss a scheduled backup, DriveClone Network will start the backup automatically.

- **File Backup Jobs** – After you've performed a File Backup, you'll see the following options:
 - **Detail** - View detailed information about a backup job you've created, including the job name, job location, and settings.
 - **Edit Schedule** – Change scheduled settings for the backup job you've created.
 - **Add Files** - Add file types to your File Backup list.
 - **Back Up Now** - Run the selected incremental File Backup job immediately.
 - **Delete** - Delete the selected job.



Scheduling File Back Up

1. If you reset your operating system clock so that you miss a scheduled File Backup, DriveClone Network will start the backup job automatically 10 minutes from the present time.
2. If you missed a scheduled backup because you turned off your computer, DriveClone Network will perform the backup when you restart your computer.
3. If your system is busy, DriveClone Network will not be able to initiate the backup process, and will attempt to perform the backup 5 minutes later.
4. The following files are not backed up:
 - a. Files in the Recycle Bin
 - b. Files in the System Volume Information directory, pagefile.sys, and the _\$temp directory
 - c. Hiberfil.sys
 - d. Files with ".rit" and ".tmp" extensions
 - e. Microsoft Office temporary files
 - f. Files in DriveClone Network's installation folder
 - g. Files in the Backup Destination directory of the backup job currently running
 - h. Files in the Temp directory

- **Properties** – Right-click on a client and select **Properties** to view client details like the computer name, workgroup, IP address, and connection status.
- **Event Monitor** – The link to this is located at the bottom of the Network Manager and Remote Manager. The Event Monitor displays DriveClone Network operation logs.

Group Jobs

Snapshot

- **Detail** - View the Job Name, Storage Medium, Schedule, and Computer Name of System Snapshots.
- **Delete** - Erase the System Snapshot job from the Network Manager. This has no effect on the recovery capability of client snapshots.

Complete Backup – After you perform a Complete Backup, you'll see the following options:

- **Detail** - View detailed information about the backup jobs you've created, including Description, Source, Destination, and Schedule.
- **Delete** - Delete the selected job.

File Backup - After you perform a File Backup Job, you'll see the following options:

- **Detail** – View detailed information about the backup jobs you've created, including Job Name, Destination, and Schedule.
- **Delete** - Delete the selected job.

Settings

Default Backup Location

1. Click **Browse** to change the default backup location.
2. Select a computer from the list.
3. Enter a valid user name and password and click **OK**. You can select an existing folder or create a new folder.
4. Click **OK**.

Log Size

You can set the maximum size of the log file.

You can also set "N" Days to automatically delete inactive clients from the client list.

View Logs

This feature records all DriveClone Network events from the Network Manager and the DriveClone Client, including warnings, errors, and operations.

- **Delete** - Delete the selected events.
- **Delete All** - Delete all events.
- **Save** - Export the logs and save the event record as a text file.

Back up Console

DriveClone Network backs up partitions or an entire hard drive as an image file, which can be used to restore a system. The image file can be saved on a local hard drive or network share. It supports file systems like FAT16, FAT32, and NTFS, and data compression of up to 60%.

DriveClone Network lets you:

1. **Create a System Snapshot:** Allows you to recover a system from virus attacks, malware problems, bad software installations, or unwanted system changes.
2. **Create a Complete Backup:** Back up a hard drive or select partitions on a hard drive, which can be used to restore a system or copy system information to a new hard drive. It's possible to save multiple disk images on a single USB hard drive or network share, enabling complete, centrally located back up of every system in a home or office.
3. **Back up Files:** Select files and folders to back up at scheduled intervals.

4. **Create a Start-up Disc:** Allows you to boot up a computer and restore the entire system after a system crash, even when Windows won't boot.

Create a System Snapshot

1. Launch **DriveClone Network**, select **Back Up**, and click **Create a System Snapshot**.
2. Enter a name for the System Snapshot job. Click **Next**.
3. Select the workgroup, domain, or an individual computer you want to back up. Click **Next**.



Note

If you select a computer, workgroup, or domain that has already been scheduled for System Snapshots, you'll be prompted that the new operation will overwrite the original schedule for that client. You'll need to initialize the System Snapshot manually if you continue.

Close all running applications before creating a System Snapshot.

4. After you set the schedule, click **Next**.
 - a. If you select **Start Now**, click **Next** to begin the backup process.
 - b. If you set a schedule, specify the frequency for creating or restoring to a System Snapshot automatically.

Create a Snapshot every X hour(s) - Create a Snapshot every 1-24 hours.



Scheduling a System Snapshot

If the system is set to create a snapshot every hour, DriveClone Network will take the first snapshot 1 hour after the creation of the most recent System Snapshot.

Create a Snapshot at System Startup - Create a new System Snapshot automatically every time the system starts.

Automatic Restore Setting – Select **Restore Entire Hard Drive** or **Restore System Partition to the latest System Snapshot at every system startup** to schedule automatic reboots of a Client computer.

5. Click **Finish** to complete the process.

File Backup

Creating a New File Backup job

1. Launch DriveClone Network. Click **Back Up**.
2. Click **File Backup**.
3. Select **New File Backup** to create a new job.
4. Enter a name for your new job.
5. Select one or more computers from the domain or workgroup.

**Note**

If you select more than one computer, the backup progress bar will not be displayed.

6. Select the files you want to back up. You can also click **Add File Types** to back up files by type.
 - a. Click **Add New Type**. You will need to enter a file type extension and file type description.
 - b. Click **Browse** to add a file type by icon.
 - c. Click **Add Group** to create a new file type group.
 - d. Click **Delete Type** to remove file types you don't want to back up.
7. Set the maximum number of backup versions (file revisions) you want to store and click **Next**.
8. Select a location to store the backup file, such as a shared folder or locally on the Client system.

Store on Network

- a. Select **Store on Network**.
- b. Select a computer from the list.
- c. Enter a valid user name and password to access the selected computer.
- d. Click **OK** and select a shared folder for storing the File Backup.

Store Locally

- a. Select **Store Locally**.
- b. Enter a path for your File Backup and click **Next**.

9. Set a schedule for the backup job.
 - a. **Daily** - Repeats the backup at a set time of the day.
 - b. **Weekly** - Repeats the backup at a set time(s) every week.
 - c. **Monthly** - Repeats the backup at a set time(s) every month.
 - d. **One time only** – Runs the backup at a scheduled time.
 - e. **Start Now** - Performs the backup manually.
10. Select a backup priority and set the network connection speed.

**Note**

You can set the priority of backup processes by making a process run faster or slower. The default network speed is 0.

11. Review your information and settings and click **Next**. For best results, close all the files you want to back up prior to starting your backup job.

Updating a File Backup Job

1. Launch **DriveClone Network**. Click **Back Up**.
2. Click **File Backup**.
3. Select **Incremental File Backup** and click **Next**.
4. Select individual computers or the workgroup or domain from the list.
5. Select a job from the Job List. (Refer to **Jobs for File Backup** for details.)

Backing Up Client Computers

Creating a Complete Backup

1. Start the Remote Manager. Select **Back Up** and click **Back Up My Computer**.
2. Select **Complete Backup** and enter a job name.
3. Enter a name for your new Complete Backup and click **Next**.
4. Select one or more computers from the list.
5. Select the hard drive or partition(s) you want to back up.



Note

If you select more than one computer, you can back up the only the system partition or the entire hard drive. If you back up just one computer, you can image one or more partitions simultaneously.

6. Store the backup file on a network share or locally on the client.

Store on the network

- a. Select **Store on the Network**.
- b. Select a computer from the list displayed.
- c. Enter a user name and password for the selected computer.
- d. Click **OK** and select a shared folder.

Store Locally

- a. Select **Store Locally**.
 - b. Enter a path for your file backup and click **Next**.
7. Select a compression setting of **None**, **Medium**, or **High**, and click **Next**. Compressed images will save disk space, but take more time to create and restore.

(Optional) Select **Enable Password Protection** to protect your image files. Once the password is set, you'll need to enter your password each time you access that image file.

(Optional) Select a file size for a single volume of the split image. If you select "automatic," DriveClone Network will automatically split the image according to the file system of the destination partition.

(Optional) Select **Check the data integrity of the Image file when backup is complete**

to verify the backup file's integrity once the job is complete.

(Optional) Add a description to the backup file in the Image File Description box.

8. Set the backup priority at Low, Normal, or High and choose a network connection speed.
9. Set a schedule for your backup job.
 - a. **Daily** - Repeats the backup at a set time of the day.
 - b. **Weekly** - Repeats the backup at a set time(s) every week.
 - c. **Monthly** - Repeats the backup at a set time(s) every month.
 - d. **One time only** – Runs the backup at a scheduled time.
 - e. **Start Now** – Performs the backup manually.
10. Review your information and settings and click **Next**.

Creating an Incremental Backup

1. Start the DriveClone Network Remote Manager. Select **Back Up** and click **Back up My Computer**.
2. Select **Incremental Backup** and click **Next**.
3. Select one or more computers from the list.
4. Select an existing job from the Job List. (Refer to **Complete Backup Jobs** for more information.)

Creating a Start-up Disc

1. Launch DriveClone Network. Select **Back Up** and click **Start-up Disc**.
2. Select the CD/DVD drive you'll be using to create your Start-up Disc and click **Next**.
3. Click **Finish** to complete the process.

Using the Start-up Disc

1. Insert the Start-up Disc. Restart your computer to enter the BIOS or confirm that the boot order is set with the CD/DVD-ROM drive as the first boot device.
2. Your system will enter DriveClone Network Pre-OS.



Note

Only licensed users can access the Start-up Disc.

3. Choose a local or network location and select an image file from which you'll restore your drives.

Restoring Client Computers

- **Restore System:** Restore a partition or entire hard drive from an image file. This restores all data in the partition, including the files, directories, and registry settings.

- **Restore Files:** Restore any file(s) that may have been accidentally overwritten, corrupted, or deleted.
- **Restore from an Incremental Backup Point:** If the data in any partition or file you backed up has changed, you can restore it from an Incremental Backup Point.
- **Preview Backup Image:** Browse a saved image to extract and restore files or folders without restoring the entire partition or drive.

Return to a System Snapshot

1. In the Network Manager, click **Restore**.
2. Click **Return to a System Snapshot**.
3. Select the computer you want to restore and click **Next**.
4. Select a date from the Calendar and the System Snapshot you want to restore from. Click **Restore System**.
5. You can restore the entire hard drive or just the C: drive. Click **OK** to begin the process.



Note

If you restore just the C: drive, DriveClone Network will restore only the files on the active partition. From that point on, all Snapshots created before the selected Snapshot will be able to restore the C: drive only.

6. Your computer will have to restart to complete the process.

Restore Files

1. Launch **DriveClone Network**. Click **Restore**.
2. Click **Restore Files**.
3. From the list displayed, select a computer to restore and click **Next**.



Note

You can select only one computer at a time.

4. Select a restore point from the list, or click **Browse** to select an image file stored on a network share. Click **Next** to continue.
5. Select files from a Backup Job and click **Next**.
6. Select the file(s) you want to restore from.
7. Select a location to save the restored files:
 - a. If **New folder on Desktop** is selected, the restored files will be saved in a new folder on the client's desktop, with the folder hierarchy preserved exactly as it was backed up.
 - b. If **Original location** is selected, the restored files will be saved to their original folder and will overwrite existing files in that folder with the same name. It is recommended that you back up the folder prior to restoration. If several versions of a file are selected, they will be restored to the same location with the version number added to the file name.
 - c. If **Choose a Network Share Folder** is selected, browse for a folder on the network. The restored files will be kept in their original folder hierarchy.

8. Click **Next** to begin the restore process.

Restore My Computer

To restore a partition or the entire hard drive:

1. Launch DriveClone Network. **Select Restore** and click **Restore My Computer**.
2. From the list, select the computer you want to restore and click **Next**.

Note

You can restore just one computer at any given time.

3. Select a restore point from the list, or click **Browse** to select an image file stored on a network share. Click **Next** to continue.
4. Select a Complete Backup point or any Incremental Backup point to restore from and click **Next**.
5. Select whether you'll restore a single partition or the entire hard drive and click **Next**.
6. Select a destination partition to restore the image file to and click **Next**.

Note

An image file may contain backup data of more than one partition. You have the option of selecting and restoring a single partition at a time.

7. If you want to restore the entire hard drive, click just the drive entry. Click **Next** to begin the restoration process.
8. Click **Finish** to complete the process.

Preview a Backup Image

1. Open the DriveClone Network Manager, click **Restore**, and select **Preview Backup Image**.
2. Select the image you wish to preview and click **Next**. You can select any Complete or Incremental Backup point. Click **Next** to continue.
3. Select a drive letter for the preview partition and click **Mount**.
4. Once the image is mounted, you'll be able to preview and browse it in Windows Explorer, and extract the files or folders you want to restore from the Complete or Incremental Backup point.
5. To close the preview partition, click **Tools** (in the main interface) and select **Unmount Image**.

Check Image Integrity

Use this function to check if an image file is valid and restorable.

1. In the main interface, select **Tools** → **Check Image File Integrity**.
2. Select an image from the default shared folder and click **Next**.
3. You can validate any Complete or Incremental Backup point. Click **Next** to continue.
4. Click **Finish** to complete the Image Integrity Check.

Chapter 7: The Client

1. **View/Change DriveClone Network Manager IP Address:** If the Client computer fails to connect to the Network Manager automatically, right-click on the DriveClone Network system tray icon and select **View → Change DriveClone Network Manager IP Address**. Enter the new IP address for the Network Manager and click **Save**.



Note

If you select the checkbox at the bottom before you save the IP address, the client will stop receiving broadcasts from the Network Manager.

If the checkbox remains unchecked, the client will continue to receive broadcasts.

2. **Initialize System Snapshot:** If a Complete Backup has restored the partitions containing the DriveClone Network Secure Area, you can right-click on the displayed icon to select **Initialize System Snapshot**.

You'll need to restart the computer to complete the restoration process. A pop-up window will inform you of the time remaining before your computer will be restarted.

A DriveClone Network Client user can enter the local DriveClone Pre-OS area by pressing the space bar when prompted during system startup.

Launching the Client Pre-OS Manager

Method 1

Press the **space bar** after system POST (Power-On-Self-Test), but before the Windows splash screen begins to load.

Method 2

Insert the Start-up Disc and restart your computer. Enter BIOS or verify that it is configured to boot a CD/DVD ROM as the first boot device. The system will enter DriveClone Network Pre-OS.

Enter your password, if required, and click **OK** to access the DriveClone Network Main Console.



Note

If you did not install System Snapshot, the **Return to a System Snapshot** and **Uninstall** features in Pre-OS mode will be disabled or will not be displayed.

Restore DriveClone Client Module in Pre-OS

Return to a System Snapshot in Pre-OS

1. Click on the **Return to a System Snapshot** icon in the Pre-OS Main Console to display a list of System Snapshots. The first System Snapshot listed will be the most recent.
2. Select a System Snapshot and then choose whether to restore the entire hard drive or the C: drive only.

3. Click **OK** to start the restore process.

A complete restore can take from 20 seconds to 10 minutes or longer, depending on the amount of data. Once the computer has restarted, it will be restored to the selected System Snapshot. All file modifications and additions made after the date of the System Snapshot will be removed from the hard drive.

Restore My Computer in Pre-OS

You can select a complete backup point stored on CD/DVD, local hard drive, or network share to restore your computer.

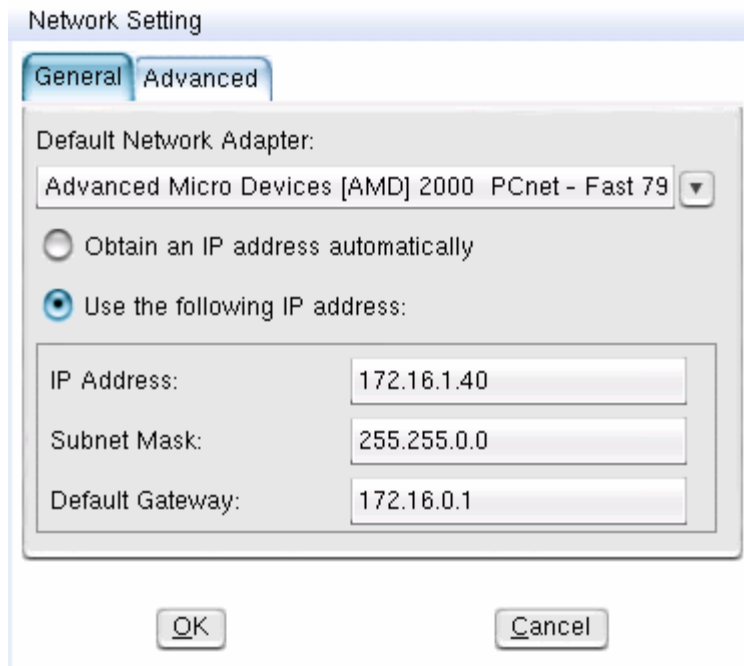
1. Click the **Restore My Computer** icon in the Pre-OS Main Console.
2. Click **Browse** to select the complete backup points you want to restore from. Click **Next** to continue.

The Client can also be restored from a network location. To use this feature, you may need to configure network settings.

Modifying Network Settings

There are two tabs in the Network Settings window:

General



Network Setting

General Advanced

Default Network Adapter:
Advanced Micro Devices [AMD] 2000 PCnet - Fast 79 ▼

Obtain an IP address automatically

Use the following IP address:

IP Address:	172.16.1.40
Subnet Mask:	255.255.0.0
Default Gateway:	172.16.0.1

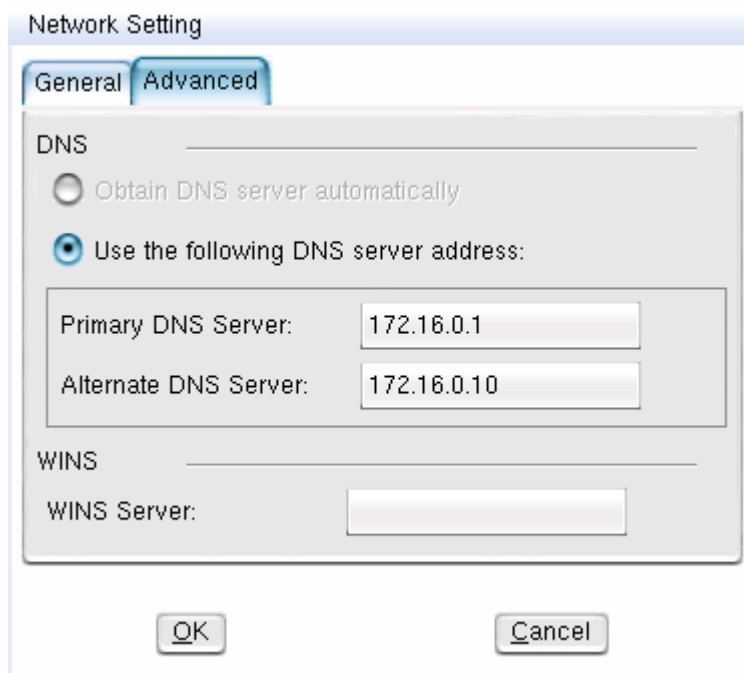
OK Cancel

Here, you can select your network adaptor and specify the IP Address, Subnet Mask, and Default Gateway. If you have more than one network adaptor on your system, use the dropdown menu to select an adaptor.

IP Settings:

- **Obtain an IP address automatically:** If your network supports DHCP (Dynamic Host Configuration Protocol), choose this option to obtain an IP address automatically from a DHCP server or a Point-to-Point Protocol (PPP) dial-up network access server. The DriveClone Network Client Module uses DHCP as the default option and will obtain the IP address of your computer automatically.
- **IP address:** Use this option to manually enter an IP address for your network, in case automatic IP address recognition fails or there is an IP address conflict.

Advanced



DNS settings:

- **Obtain DNS server automatically:** DNS (Domain Name System) is an Internet service that translates domain names into IP addresses. By default, the Client Module uses this option to obtain the DNS sever address automatically from the network.
- **Use the following DNS server addresses:** Choose this option to manually enter the DNS server addresses.

WINS: Enter an IP address for a WINS server. Windows Internet Naming Service (WINS) is a system that determines the [IP address](#) associated with a particular [network computer](#). It supports [network client](#) and [server computers](#) running [Windows](#) and can provide name resolution for other computers with special configurations. It uses a distributed database that is automatically updated with the names of available computers and assigned IP addresses.

Gateway: Enter an IP address for a default gateway. A default gateway is a local IP router that is used to forward packets to destinations beyond the local network.

1. Click **Next** and select the Complete Backup point or any Incremental Backup point to restore from.
2. Select a Source partition or hard drive and the Destination partition or hard drive. Click **Next**.
3. Click **Start** to begin restoring the computer.

Check Image Integrity

This allows you to determine if the backup data in your image file is valid.

1. Click the **Check Image Integrity** icon in the Pre-OS Main Console.
2. Browse for the image file you want to check and click **Next**.
3. Select a backup and click **OK** to return to the Pre-OS Main Console.
4. The Client can also check an image file stored on a network share. To use this feature, you should first configure your network settings (please refer to the **Network Settings** section).

Uninstalling the Client in Pre-OS

Click **Uninstall**. The Client component will be removed after your computer reboots to Windows.

Appendix A: PXE Restore

Introduction to PXE

Almost every corporate PC purchased since 1998 is “Wired for Management” (WfM) compliant. WfM is an industry standard, initiated by Intel to improve the manageability of client module PC systems, and is part of the Intel and Microsoft PC98 specification. The Preboot Execution Environment (PXE) is part of the WfM specification.

PXE is an open industry standard developed by a number of software and hardware vendors. It was initially designed by Intel, with input from several other vendors including 3Com, HP, Dell, Compaq, and Phoenix Technologies. PXE works with a network interface card (NIC) in the PC, and makes the NIC a boot device. The PXE vision is to “Make the network interface a standard, industry-accepted PC boot device.” This means adding the NIC to the traditional list of standard boot devices, such as floppy drives, hard disks, and CD-ROMs, that load the operating system or set up programs on the PC. It allows the client module PC to “network boot.” Booting from the network opens up a vast array of management and support features.

PXE boots the client PC from the network by transferring a “boot image file” from a Network Manager. This file can be the operating system for the client module PC or a pre-OS agent that performs client management tasks. Since PXE is not operating system-specific, the image file can load any OS. It provides support for network booting, of embedded and other operating systems.

Because PXE works with the NIC, the server requires a NIC and the client requires a PXE-supported NIC. Most currently available NICs do support PXE, including those from 3Com, Intel, Digital, RealTek, and SMC. PXE is available either as a boot ROM chip that you add to the NIC, or as part of the system BIOS if the network interface is on the motherboard. PXE is specific to a type of NIC; a boot ROM for one type (for example, a 3C905C) will not work on another type of NIC.

System Requirements for PXE

- Intel 486 (or compatible) processor or higher
- VBE2.0 Display Card or higher
- 256 MB of RAM or higher

Configuring PXE Restore

If a Client PC won't boot up after a system crash, the Client can enter the Network Manager's Pre-OS mode and use PXE (Pre-boot Execution Environment) Restore to return its entire system to working condition.

To do this, the Network Manager PC and Client PC must have a network card supporting PXE Boot. You will also need to configure a DHCP Server and a TFTP Server for PXE Restore.

Configuring the TFTP Server

1. Set the IP address of your Network Manager (example: 192.168.0.1). For best results, start the IP address with **1**.
2. Insert the DriveClone installation disc. Create a folder for PXE Restore; for instance, you can copy to **C:\pxe_boot**. (You can create the folder anywhere on the TFTP Server and give it any

- name). Click **Extract PXE Bootable Image File Installation** and select the **C:\pxe_boot** folder to begin copying pxelinux.0, spc_kern, spc_root to C:\pxe_boot.
3. Set the configuration file to match the client PC. Create a new folder named pxelinux.cfg in C:\pxe_boot. Next, create a text file in the pxelinux.cfg folder. This text file must be named with the MAC Address of client the P.C. For example, if the MAC Address is 00-14-2a-3a-c9-9c, the file name must also be 01-00-14-2a-3a-c9-9c. The file should not be given a file extension.
 4. The content of the text file is shown below:
 - a. DEFAULT install
 - b. PROMPT 1
 - c. LABEL install
 - d. KERNEL spc_kern
 - e. APPEND initrd=spc_root rw root=/dev/ram0 vga=788 ramdisk_size=102400 APPT=0 console=/dev/null
 5. Select a tsize option for the TFTP Server.

Configuring the DHCP Server

1. Set the Boot File as pxelinux.0.
2. Configure the Boot Server with the IP address of your TFTP Server.
3. Create a new port for the DHCP Server. The port can have any name. Set the IP Address to that of the TFTP Server, such as 192.168.0.1.

Configuring a Client PC

Enter the client BIOS and set the boot mode as **LAN Boot**.

Initiating the Restore Process

1. Turn on the DHCP and TFTP Servers. Restart the client PC so that it can enter Pre-OS for PXE Restore.
2. In pre-OS, specify your USB settings, network settings, and restore drives or partitions.

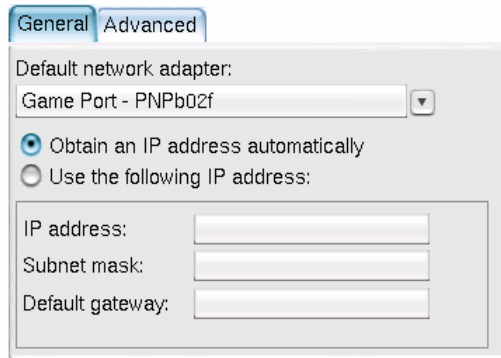
Network Settings

DriveClone Network can back up to or restore from a network location. To use this feature, you should first configure your network settings.

To do this, click **Network Settings**.

There are two tabs in the Network Settings window:

General



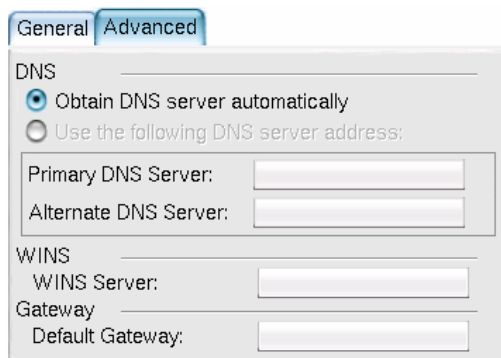
From here, you can set up your network adaptor, IP address, Subnet mask, and Default gateway.

If you have more than one network adaptor on your system, select the adaptor to be used.

IP Settings:

- **Obtain an IP address automatically:** If your network supports DHCP (Dynamic Host Configuration Protocol), choose this option to obtain an IP address automatically from a DHCP server or a Point-to-Point Protocol (PPP) dial-up network access server. DriveClone Network uses DHCP as the default option.
- **IP address:** Choose this option to manually enter an IP address for your network. This option can be used when an IP address cannot be obtained automatically or there is an IP address conflict.

Advanced



If your computer is on a Local Area Network (LAN), you can configure the LAN settings so that you can back up images to or restore from a network location.

DNS settings:

- **Obtain DNS server automatically:** DNS (Domain Name System) is an Internet service that translates domain names into IP addresses. By default, DriveClone Network uses this option to obtain a DNS sever address automatically from the network.

- **Use the following DNS server addresses:** Choose this to enter DNS server addresses.

WINS: Enter an IP address for a Windows Internet Naming Service (WINS) server. WINS is a system that determines the IP address computer on the network. It supports network client and server computers running Windows and can provide name resolution for other computers with special arrangements. It uses a distributed database that is automatically updated with the names of computers currently available and the IP address assigned to each one.

Gateway: Enter an IP address for a default gateway. A default gateway is a local IP router that is used to forward packets to destinations beyond the local network.

Restore Drives

1. Click **Restore Drives** to restore drives from an image file.
2. Select an image file. Click **Browse** to select the image you want to restore from. Click **Next** to continue.
3. Select the **Source** and a **Destination**.
4. Click **Next** to confirm your settings, and **Start** to begin restoration.
5. Click **OK** to complete the process.

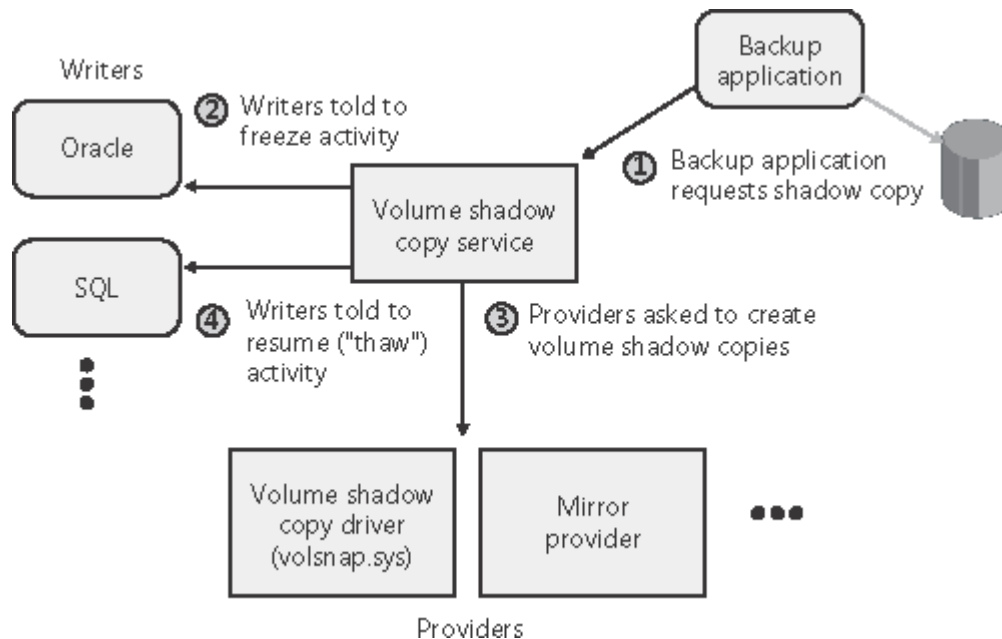
Appendix B: VSS

VSS (Volume Shadow Copy Service) is a storage technology first introduced in Windows 2003 Server. By adding snapshots to a Volume Management module, VSS can create an image based on a Point-In-Time for quick backup and recovery. Because of its excellent performance, VSS is also used in Windows Vista.

During backup, when files are open or the system is writing to files, backup data for those files may not be intact, or you may not be able to back up those files at that time.

DriveClone Network uses VSS to solve the problems mentioned above.

VSS Concepts



VSS contains 4 parts:

1. The **Requestor**, which creates the initial shadow copy. If different issues must be resolved, different Requestors may be used.
2. The **Writer**, which maintains the consistency of the data. If applications continue to write data to disk while the shadow copy is being created, the data will be inconsistent. VSS controls the Application Writer to ensure operational efficiency and consistent data.
3. The **Provider**, which creates the shadow copy. This can be based on Storage Array (Hardware mode) or Operating System (Software mode). VSS has different Providers, arranged accordingly:
 - a. Bottom: the Hardware Provider
 - b. Middle: the Software Provider
 - c. Top: The System Software Provider.

4. **The Core module of Volume Shadow**, which organizes different modules so that they work together.

VSS Limitations

VSS has several limitations :

1. Only VSS compliant applications can benefit from a VSS framework.
2. VSS is a local solution working within a single host. Remote applications aren't controlled by VSS.
3. VSS currently works to its full capacity on Windows 2003 Server only.
4. There must be a NTFS partition in the system.

Appendix C: Glossary

- **DriveClone Network Image**
A DriveClone Network image is a file containing a complete copy of a computer's hard drive or partitions on that hard drive. With this image, you can transfer the contents of a hard drive to a portable medium such as a recordable CD/DVD, USB drive, or to another hard drive, for later restoration when needed.

- **Secure Area**
The Secure Area is a Virtual Partition on the primary hard drive. It uses dispersed free hard drive space to create a logically continuous storage area. This area is hidden in Windows and protected and accessible only by DriveClone Network.

- **System Snapshot**
System Snapshots are incremental points-in-time of a computer system's state at a given moment. DriveClone Network monitors all sector-level changes from the last Snapshot and writes any changes to a new Snapshot. This backup usually takes only seconds to complete. Snapshots offer the quickest way to restore a damaged Windows system to a working state.

Appendix D: Frequently Asked Questions

Q. How long does it take DriveClone Network to back up or restore a system?

A: That depends on the amount of data on your system. However, DriveClone Network's technology minimizes the time it takes to perform a backup.

Q. I launched DriveClone Network in Windows immediately after installation completed, but a message says that I have to restart my computer in order to run it. Why?

A: You have to restart your computer after installing DriveClone Network, in order for all configuration changes to take effect.

Q. When I restored a partition from an image file, DriveClone Network prompted me that "There is not enough space on the Destination Partition." But I'm sure the free space on the Destination Partition is larger than the used space in the Source Partition. Why am I getting this prompt?

A: If data at the end of the source partition cannot be moved, DriveClone Network will prompt you with this notice.

Q. I installed DriveClone Network on my computer with two operating systems: Windows 2000 and XP. I removed DriveClone Network from Windows 2000. Why is the program unusable on Windows XP?

A: Uninstalling DriveClone Network from one operating system will remove it from other operating systems as well.

Q. Are there any limitations to DriveClone Network when I restore from an image over the network?

A: DriveClone Network can restore from an image file size smaller than 2GB over the network. When backing up an image to a network location, DriveClone Network splits the file into several volumes with a maximum size of 2GB each. You can restore from the first volume of this image, but if you have an image larger than 2GB on the network share, you cannot restore from it over the network. You must copy all volumes back to your local computer or a locally attached device prior to restoration.

Q. Why can't I find all jobs in my Jobs List?

A: One of two things may be happening:

1. The core files of your system partition were lost or re-initialized after you restored the system partition.
2. The partition that you backed up has since been resized.

In both scenarios, the backup files containing old partition information are no longer valid and were therefore removed from the Jobs List.

Q. Do I need to do anything before installing the Client component?

A: We recommend that you run Windows CheckDisk to scan for hard drive errors. CheckDisk can be started by running Chkdsk.exe from a command prompt or by using the Client Module Pre-Installation Checklist.

Q. Bad Sectors have already been detected on a hard drive. How does this affect my backup and restore options?

A: As DriveClone monitors changed sectors, backs up used sectors and restores in sector increments, it's always best to image to and from error-free drives. DriveClone will however attempt to copy all used sectors when performing a Complete or Incremental backup, but it may not be able to overcome all problems. You may be prompted to skip a bad sector or a job could fail due to bad sectors. It's recommended to run Windows Check Disk command to detect and repair hard drive errors, or use utilities provided by your hard drive manufacturer, when attempting to resolve this type of problem. It cannot be guaranteed that an image of a drive containing bad sectors will be successfully restored.

Q. After I installed DriveClone Network and restarted my computer, my system crashed. How can I install DriveClone Network so that it doesn't crash my system again?

A: You may have assigned all of the free space on your C: drive to the Secure Area. If all of free disk space on C: is assigned for the Secure Area, the operating system has no room to run. You should reserve at least 200 MB of free space on your C: drive to avoid this problem. For best results, if your primary hard drive is partitioned with multiple drive letters or there is sufficient, unallocated free space available, do not specify Secure Area space from the C: drive.

Q. I installed the Client component on a Compaq PC. When I restart the computer, the following error message appeared: "You have installed vb twice. Please uninstall and review FarStone's FAQs." How can I fix this?

A: Some computers come with system backup/restore software already pre-installed. These programs may cause conflicts with DriveClone Network and interfere with installation. We recommend that you remove all other system backup/restore software before attempting to install DriveClone Network.

Q. I'd like to get help from FarStone technical support. What kind of information should I give the technician?

A: Please send us the following files: Dpssetup.log, PartitionCut.log, Autosetup.log, Vbptask.log and Diskdata.log. These files are located in the same folder as the DriveClone Network application.

Q. Can DriveClone Network fix my system after my hard drive has been accidentally formatted or repartitioned?

A: Yes — if DriveClone Network was installed prior to the incident.

Q. Can I use disk tools such as F-disk, PartitionMagic and Norton Speed Disk after installing DriveClone Network on my computer?

A: While there are no known resource conflicts with those utilities, DriveClone Network may not work properly as long as they're on your system.

Q. I've installed three operating systems on my computer, including Linux. Can DriveClone Network protect all three systems?

A: DriveClone Network protects multiple Windows operating systems, but not non-Windows systems.

Q. Does DriveClone Network work in Windows Safe Mode?

A: DriveClone Network does not work in Windows Safe Mode.

Q. What should I do if my antivirus software constantly launches a virus warning when I'm installing DriveClone Network?

A: During installation, DriveClone Network's setup program writes data onto your hard drive. Some antivirus programs see this as an attack. We recommend that you disable real-time protection before installing DriveClone Network. You can enable your antivirus software again when installation is complete.

Q. Why do I see a "0xe2" error when I try to install DriveClone Network on a computer with four operating systems?

A: A maximum of four operating system entries can reside on a single computer. If all four entries are filled, DriveClone Network cannot be installed.

Q. Can DriveClone Network protect my PC from a destructive virus?

A: Yes, in a way. While DriveClone Network can't prevent the actual virus attack, it can restore your computer to a point before the attack occurred, recovering your files and effectively removing the virus.

Q. Why did my computer crash when DriveClone Network was loading the hard drive driver?

A: This problem will occur if the computer hard drive does not support UDMA3. Please disable UDMA in CMOS setup to resolve this and try again.

Q. I had a large hard drive (equal to, or greater than 137GB) on my computer. Why was DriveClone Network automatically uninstalled when I restarted my system?

A: Your BIOS may not support a large capacity hard drive. Try contacting your computer manufacturer to upgrade the BIOS.

Q. I've installed DriveClone Network on Windows 2003 Server. Why can't I back up data through VSS?

A: VSS requires an NTFS partition in the system. Please check to see if your computer has an NTFS partition and that all other VSS requirements are met.

Q. I'm trying to back up data to a computer on the network. Why can't I access the network share after I have entered a valid user name and password?

A: Follow these steps to reconfigure the Local Security Settings of the remote computer:

Configuration

1. Select **Start** → **Control Panel** → **Administrative Tools** → **Local Security Policy**.
2. Locate **Security Settings** → **Local Policies** → **Security Options** from the directory in the left window.
3. Double click on **Network access: sharing and security model for local accounts**.
4. In the dialog box, select **Classic - local users authenticate as themselves** and click **Apply**.

Q. Why am I not able to authenticate in my client list?

A: Check your account. If your computer is in a domain, you'll have to log in within the domain and try again.

Q. Why does it take more time to install DriveClone Network on my computer than on other systems?

A: If there are too many dispersed/fragmented files in your system partitions, DriveClone Network will defragment them to free up continuous space for the application's kernel file. This may take several minutes. Moreover, when you install System Snapshot on a FAT32 partition, DriveClone Network will divide the Secure Area, which takes a much longer time than an installation on NTFS partitions.

Q. Why couldn't I run the Network Manager following installation?

A: Two or more Network Managers may have been installed on the same LAN. DriveClone Network will allow only one Network Manager to operate at any given time.

Q. Why couldn't I find the backup file I wanted after I ran a backup for several computers?

A: Backup for different systems varies according to network times and the size of the backup. You may have to wait for the entire backup job to finish before you can locate the file in question.

Q. Why can't I find certain image files within a Complete Backup stored on my hard drive?

A: If the image file has been stored in a compressed NTFS partition, it can be restored in Windows or in Pre-OS. However, if the image file has been stored in a partition yet to be compressed, it isn't recognized in Pre-OS.

Q. How can a Client connect to DriveClone Network automatically?

A: Use "connect automatically (broadcast)". If this doesn't work, you may have to turn off the broadcast feature and connect from the Client manually.



Note

When the Client connects automatically (using broadcast), the computer hosting the Network Manager can use a dynamic IP address. When Client connects manually, the computer hosting the Network Manager should use a static IP address.

Q. How can a Client PC be restored following a data disaster?

A: There are three ways to boot the Client:

1. Press the space bar upon boot up to enter Pre-OS.
2. Use a start-up disc to enter Pre-OS.
3. Configure PXE and remotely boot the Client to Pre-OS.

Upon entering Pre-OS:

1. Select a System Snapshot to restore from.
2. Connect to the network or other locally attached storage and select a Complete or Incremental Backup Image to restore from.

Q. When do I have to manually initialize the Secure Area of a Client PC?

A: The Secure Area is hidden on the hard drive. If a restoration results in changes to the partitions that hold the hidden files, the Secure Area will have to be initialized. When the Client computer restarts, a prompt to initialize the Secure Area will appear.

Q. How can I back up and restore without having a DHCP Server on the network?

A: If the DHCP service is not running on the LAN, you'll have to manually enter a static IP address to access the network in Pre-OS.

Q. Is there anything I should be aware of when I back up and restore domain servers?

A: Backing up domain servers may destroy the Active Directory. If this happens, you'll have to recreate the Active Directory.

Q. What happens if a Client PC misses a scheduled backup?

A: If a Client PC is turned off at the time of a scheduled backup, DriveClone Network will create the next scheduled backup point.

Q. Does the DriveClone Network Client conflict with any other applications?

A: Compatibility and performance issues may be encountered with the following applications: Norton GoBack, Kaspersky Anti-Virus, RecoveryGenius, Utimaco SafeGuard, Acronis OS Selector, SafeguardV4.2, OSL2000

Q. Why do I have to authenticate (license) DriveClone Network on a Client PC after I restored it from a System Snapshot?

A: When you restore from a System Snapshot, all data from the backup point you select is recovered, including your old authentication status. If that authentication status shows the Client as unlicensed, you'll have to re-enter the serial number.

Q. Which partition types does DriveClone Network recognize?

A: NTFS and FAT.