Symantec Ghost Solution Suite Getting Started

Symantec Ghost Solution Suite Getting Started Guide

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Legal Notice

Symantec Corporation

20330 Stevens Creek Blvd.
Cupertino, CA 95014 USA

http://www.symantec.com

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Contents

Chapter 1

Introducing Symantec Ghost Solution Suite

This chapter includes the following topics:

About Symantec Ghost™ Solution Suite

Symantec Ghost Solution Suite is the latest release of Symantec's award-winning imaging and migration toolset. It includes Symantec Ghost™ 11.0 and Symantec DeployCenter™ 5.7.

The combination of Ghost and DeployCenter gives you two of the most comprehensive imaging solutions on the market.

Symantec Ghost Solution Suite includes the following products:

Symantec Ghost	Symantec Ghost is a computer management tool for operating system deployment, software distribution, and user migration. It minimizes IT costs by streamlining networked server, desktop, and notebook management.
Symantec User Migration	Symantec User Migration is an application that lets you migrate user settings and files from one computer to another.
Symantec DeployCenter	Symantec DeployCenter includes a collection of tools that provide a solution for Windows deployment and system updates.
Symantec Ghost OEM version of 3Com Boot Services	The Symantec Ghost OEM version of 3Com Boot Services is included with Symantec Ghost. 3Com Boot Services lets you install a PXE server.

What's in the box

The Symantec Ghost Solution Suite includes the following content:

- Symantec Ghost Solution Suite 2.0 CD
- *Symantec Ghost Solution Suite Getting Started Guide*

About Symantec Ghost

Symantec Ghost makes PC management and deployment issues easier and more cost effective. Functionality, including computer configuration management, and computer and user migration, defines Symantec Ghost as the solution for PC management.

Symantec Ghost includes the following features:

Create image files of and restore computers	Use Symantec Ghost to create image files of and restore computers. Computers can be backed up to a network or to a wide range of hard drives and removable media, including CD/DVD drives, FireWire and USB hard drives, ZIP, and JAZ drives.
Hardware and software inventory	Manage hardware and software inventory from the centralized Console. Create detailed reports from fully customizable filters and views. Create dynamic folders to manage a group of target computers based upon hardware or software attributes to streamline operating system migration.
Client staging area	Use a directory on a client computer as a repository for Symantec Ghost image files, application packages, user profiles, or other files. Preserve the contents of a selected directory during a restore, keeping a local backup and recovery image file.
Manage computers	Remotely manage all client computers from a central Console and execute tasks on client computers from the Console or from the client.
Multicast file transfer	Transfer all files, including installation packages, using the multicasting functionality from the Console. Reduce network traffic by sending an individual file to multiple recipients simultaneously. Flexible file transfer lets you specify where a file transfer goes.
Retire disks	Wipe disks to U.S. Department of Defense standards using GDisk.

Transfer user data	Capture user files, application settings, and operating system settings from a computer and transfer them onto another computer or onto a reimaged computer.
Ghostcasting	Use the GhostCasting feature to clone computers efficiently and to help minimize the impact on network traffic.
AutoInstall	Create executable programs that install software packages.
File system support	Back up, restore, or clone FAT, FAT32, NTFS, and Linux Ext2/3 file systems.
Image file editing	Edit FAT, FAT32, NTFS, and Linux image files by using Ghost Explorer.
Restore individual files	Restore individual files from an image file by using Ghost Explorer.
SID-changing capability	Change SIDs using the Symantec Ghost utility Ghost Walker. Symantec Ghost also supports Microsoft Sysprep.
Stand-alone post-clone configuration client	Apply configuration settings to a computer directly. The stand-alone post-clone configuration lets you run a post-clone configuration without the Console.
Disk and partition management	Run GDisk from DOS or from a command shell in Windows to manage partitions and disks.
OmniFS utility	Manipulate files and directories in a locally attached NTFS or FAT file system.
GhRegEdit utility	Edit the Windows registry from DOS or WinPE by using the executable programs GhRegEdt and GhRegEdit32.
Tutorials	View the set of tutorials that are included in Symantec Ghost to provide a demonstration of the most commonly used features.

What's new in Symantec Ghost

Symantec Ghost 11 includes the following features:

Windows Vista support	Adds full support for imaging and computer management in Windows Vista.
NTFS file editing	Lets you modify NTFS images with new and updated content.
Updated inventory filters and reports	Adds new inventory filters to let you group computers that are Vista-compatible.
GPT support	Includes support for GPT disk structures within Ghost.

Integration of Symantec Client Migration	Lets you migrate user desktop settings and application settings, files, and registry settings from the Console. Symantec Client Migration is integrated into the Ghost Console as the User Migration feature. The User Migration feature replaces the Move the User feature and is backward-compatible with the Move the User feature.
User Migration Wizard	Lets you migrate user desktop settings and applications settings, files, and registry settings directly from computer-to-computer or to and from a migration package.
Increased RAID support	Updates Ghost32 to increase support for preconfigured RAID arrays.
Multiple Network Card (NIC) support	Updates the Console client to add support for multiple NIC cards.
Template tasks	Lets you create template tasks. You can save a task that has incomplete data, and then run it from the command line.
Increased support for mapped network drives	Includes support for mapped network drives for peer-to-peer and GhostCast operations.
GhostWalker32	Lets you assign unique security identifiers (SIDs) from Windows PE by using GhostWalker32.
GDisk support for NTFS	Lets you format NTFS partitions through GDisk.
Increased functionality for GDisk32	Lets you run GDisk operations that were previously available only in DOS.

About Symantec DeployCenter

Symantec DeployCenter helps you deploy an exact image of a hard drive and manage multiple workstation images. You can use DeployCenter to deploy or upgrade Windows workstations; create a standard, customized work environment for faster deployment of new computers; and easily introduce new systems to the network.

DeployCenter includes the following features:

Backup and restore computers	Create and restore image files and copy information from an existing disk to a new one during a hardware upgrade.
Deploy images simultaneously	Deploy an image to multiple machines simultaneously.

Edit image files	Create and copy image files, copy partitions within image files, compress/uncompress partitions, and restore individual files from images.
Microsoft Sysprep support	Use DeployPrep to aid in the use of Microsoft SysPrep for deploying images with Windows 2000 or Windows XP. Automate the testing of a SysPrep configuration and also add additional configuration options to Microsoft SysPrep.
Report on a hard disk	Generate a diagnostic report that includes information about your hard disk.
Diagnostic and utility support	The Symantec Deploy Toolkit provides the following features: ■ Perform unattended imaging ■ Manipulate partitions ■ Create and modify a virtual boot environment that eliminates the need to visit workstations ■ Generate partition diagnostics ■ Access hidden or unsupported partitions ■ Adapt processes based on environment variables ■ Restore individual files and directories from within images ■ Modify files within images

Where to find more information

Each application includes guides and online help. The guides are also available on the Symantec Ghost Solution Suite CD.

You can also find more information about Symantec Ghost on the Symantec Ghost user forums at the following URL:

http://forums.symantec.com/discussions/forum.jspa?forumID=109

Symantec Ghost documentation

Symantec Ghost documentation includes the following guides in PDF format:

Symantec Ghost Implementation Guide

Symantec User Migration Implementation Guide

Symantec DeployCenter documentation

Symantec DeployCenter documentation includes the following guides in PDF format:

Symantec DeployCenter User Guide

Symantec Deploy Toolkit Manual

Chapter 2

Symantec Ghost concepts and features

This chapter includes the following topics:

How Symantec Ghost works

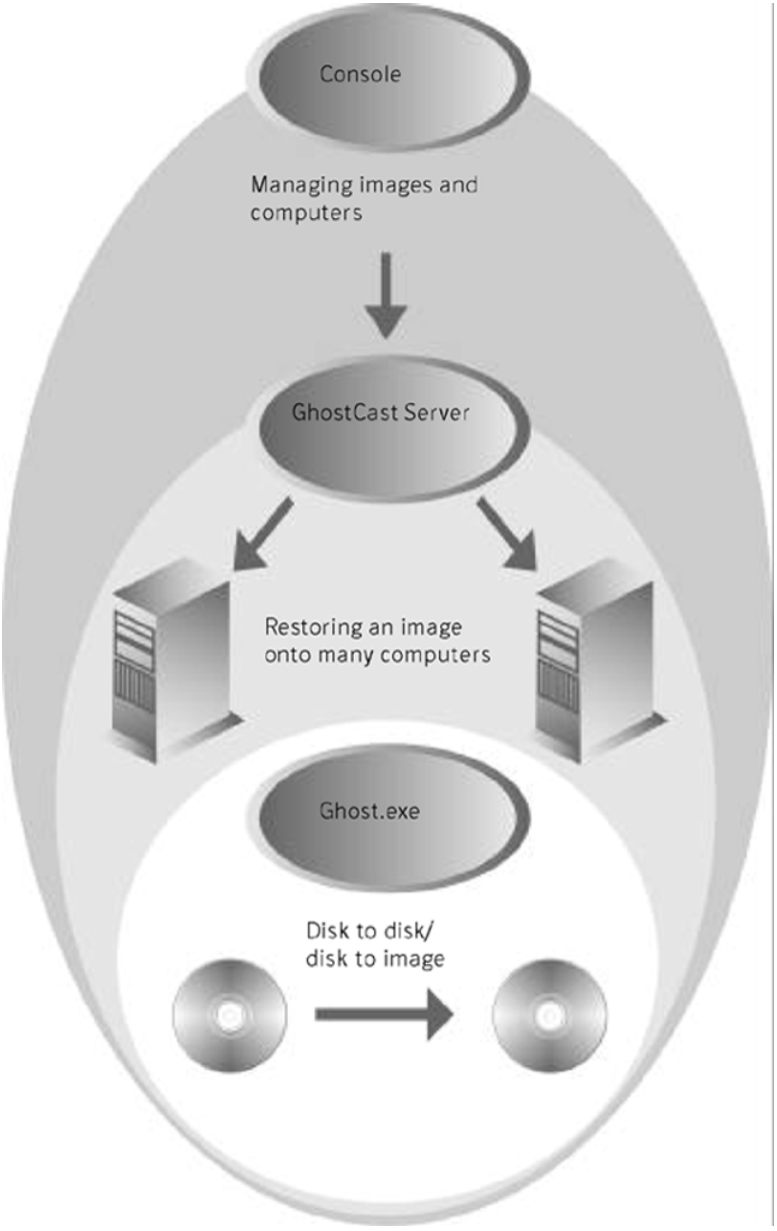
Symantec Ghost uses the cloning functionality in Ghost.exe that creates an image file that contains all of the information that is required to recreate a complete disk or partition. Image files store and compress images of model system configurations (computers with all of the necessary software installed and configured), or create backup copies of complete drives or partitions. The image file can be restored to one or more partitions or disks, replacing existing data.

GhostCasting extends this functionality to cloning multiple computers simultaneously across a network, thereby rolling out a standard image file to a group of computers.

Leveraging the cloning and GhostCasting functions, Symantec Ghost lets you manage computers from a central Console. Once the Symantec Ghost client software is installed on the client computers, you can execute operations from the central Console without revisiting the clients.

Figure 2-1 describes the relationship between the Symantec Ghost console, the GhostCast Server, and Ghost.exe.

Figure 2-1 Symantec Ghost component relationships



Symantec Ghost concepts and features

If you are a first-time user of Symantec Ghost Solution Suite, you might it helpful to review the following concepts and scenarios

Backing up, restoring, and cloning

Backing up, restoring, and cloning are the most basic functions of Symantec Ghost. They involve taking an exact copy of a partition or disk and copying it directly onto another partition or disk, or saving it to an image file.

This occurs in the following ways:

- Directly, by cloning from one disk to another or from one partition to another
- Indirectly, by backing up a disk or partition to an image file, then restoring the image file to another disk or partition

An image file consists of a copy of a disk or partition, the image file name, and an image description.

Cloning directly to a computer or restoring an image file to a disk or partition overwrites all existing data on the target disk or partition. This is a data destructive operation for the target computer.

Symantec Ghost lets you avoid lengthy installation of software. An image file that has been created that contains an operating system and all required software packages can be copied onto the target computers.

Note: This requires similar or identical hardware on both computers.

PC management

Symantec Ghost lets you remotely manage all networked computers company-wide. Using the Symantec Ghost Console, you can perform a number of tasks to manage computers. From the Ghost Console server, you can do the following:

- Manage hardware and software inventory from a centralized Console.
- Create detailed reports from fully customizable filters and views.
- Create dynamic folders to manage a group of target computers based upon hardware or software attributes.
- Roll out Ghost images, application packages, user profiles, or other files to a directory on a client computer for local tasks.
- Preserve directories during a restore.
- Roll out software.
- Upgrade operating systems.
- Migrate user settings.
- Back up computers.
- Execute commands remotely.

As an administrator, you can efficiently manage networked computers by grouping them within the Symantec Ghost Console. The Symantec Ghost Console leverages all Ghost functionality as described in this guide.

Ghost executable

The Ghost executable, Ghost.exe, is at the heart of Symantec Ghost. Ghost.exe is a small executable run from DOS that contains all of the functions that you need to do the following:

- Clone disk to disk.
- Clone partition to partition.
- Back up or restore using LPT, USB, FireWire, TCP/IP, or a mapped network drive.

Ghost32.exe is a Win32 version of Ghost.exe and is designed to run on Microsoft Windows Vista/PE/XP/2000/NT/98.

Console client computers

Console client computers are managed from the Symantec Ghost Console. A client must have the Console client installed and be connected to a network.

Client staging area

A Console client can be the repository for backup files, installation packages, user data, and settings. If the client is restored with an image file, selected files can be preserved, thereby keeping a local backup and recovery image. This reduces network bandwidth by not having to repeatedly push images over the network. You can also migrate computers without having to back up user data to a network server.

Client Inventory

The Symantec Ghost Client Inventory functionality obtains information from the Windows Management Interface (WMI) repository on each Console client computer. You can choose which information you want to collect and the computers from which to collect it.

The information that you collect is stored in a database on the Console server and is updated on request. You can query this database to identify the computers that have certain properties. For example, you can search for computers that have at least x amount of available memory and can use the selected computers as the target of a task. For example, you can identify the computers that do not have the required specifications for Microsoft Vista.

GhostCasting

The GhostCast Server lets you send image files to multiple computers. The GhostCasting feature leverages the functionality of the Ghost executable program to help restore multiple computers quickly and efficiently. You can use GhostCast Server to create an image file of a client computer.

You can then deliver the image file to multiple computers using one of the following options:

Unicast	One stream of data is sent for each client computer.
Directed broadcast	The data is sent to all computers on a specified subnet. If more than one subnet is targeted, one stream is sent to each subnet.
Multicast	The data is sent to all of the computers on the network that have requested the data. Only one stream of data is sent.

By selecting one of these options, you can optimize Ghost traffic to match your environment and network bandwidth.

User migration

The Symantec User Migration Wizard lets you migrate user files, operating system and application settings, and registry entries. You can run the Wizard in a direct computer-to-computer operation, or you can save settings and files to a package. The settings are restored for those operating systems and applications that Ghost supports. This feature helps reduce the amount of time that users spend on restoring files and settings after their computers are updated.

Ghost virtual partition and Ghost boot partition

A client computer must have a Ghost partition to be managed from the Symantec Ghost Console. There are the following types of Ghost partitions:

Ghost virtual partition	Use the virtual partition on client computers that have an operating system installed. The virtual partition is created automatically when the Console client is installed.
Ghost boot partition	Use the boot partition on client computers that have no operating system installed. If there is no operating system installed, then you cannot install the Console client directly onto the computer. However, you can create a Ghost boot partition that contains the Console client and then connect to the Console.

The Ghost virtual partition and the Ghost boot partition offer the same functionality. Only one is required on a client computer.

Boot package

A boot package contains the files necessary for performing Ghost functions on a client computer.

A boot package can be stored in a Ghost image file, ISO image, or PXE image or on a floppy disk set, CD/DVD, or USB flash drive.

A boot package is always created using the Ghost Boot Wizard, which guides you through the process of selecting the type of boot package required.

For example, you might want to back up a computer using a USB cable. You must create a boot disk set using the Ghost Boot Wizard that contains Ghost.exe and the driver files required to write to a CD/DVD. Start the computer with the boot disk set, and Symantec Ghost lets you write to a CD/DVD.

The Ghost Boot Wizard includes a Universal Network Driver (UNDI), which supports most PXE-capable network cards. You can create a single boot package that lets you start any computer on your network in DOS, regardless of the different network cards.

Tasks

You create and execute tasks from the Symantec Ghost Console. Tasks leverage the features of Symantec Ghost to perform functions efficiently and quickly.

You can run tasks on a group of computers and perform a number of functions within the same task. You can also schedule tasks to run automatically, or you can run them from the command line.

You can create a task to do any of the following actions:

- Backing up or restoring
- Applying configuration settings
- Rolling out software
- Transferring files
- Executing a command
- Moving desktop and application settings and user files

Rolling out software with AutoInstall

AutoInstall lets you create executables that apply software packages to client computers. You can create an executable and then use the Symantec Ghost Console to roll it out to client computers. The executable runs on the client computers and installs the software on the client computers.

Ghost tools

Symantec Ghost Solution Suite includes the following tools to help you manage your computers:

GDisk	GDisk is a utility that lets you create partitions, reinitialize master boot records, delete data, and wipe your disks. GDisk lets you securely retire your hard disks to U.S. Department of Defense standards.
OmniFS	OmniFS lets you manipulate files and directories in a locally attached NTFS or FAT file system from DOS or WinPE. OmniFS supports FAT hidden partitions.
GhRegEdit	GhRegEdit lets you edit Windows registry keys and values.
Ghost Walker	Ghost Walker lets you assign statistically unique security identifiers (SIDs) to restored and cloned Microsoft Windows Vista/XP/2000/NT workstations.

Common user scenarios

There are some common ways in which Symantec Ghost is used.

- Migrating computers to Vista company-wide
- Retiring a hard disk securely
- PC management, including remote control, migration, and configuration
- Deploy security patches
- Provisioning new computers
- Restore computers to a known state
- Restore a non-networked computer

Migrating computers to Vista company-wide

You can use Symantec Ghost to migrate all users within your organization to Microsoft Vista.

Symantec Ghost helps assist you with the following steps in the migration process:

- Identify the computers that need hardware upgrades for Vista
- Create an image file of the Microsoft Vista operating system and any required applications
- Capture individual user settings and files
- Multicast the Microsoft Vista image to client computers
- Restore user settings and files

The first step of the migration is to identify those computers that do not have the minimum hardware specifications for Microsoft Vista. From the Ghost Console you can use a built-in filter and apply it to a Dynamic Machine Group to identify specific groups of computers.

For example, you might want to create the following Dynamic Machine Groups using the built-in filters:

- A group that includes those computers that have the minimum specifications to install Microsoft Vista Enterprise
- A group that includes those computers that have the minimum specifications to install Microsoft Vista Business
- A group that includes those computers that do not have the minimum specifications to install Microsoft Vista.

These filters are built-in to the Symantec Ghost Console and you need only apply them to a Machine Group to pinpoint the Vista-readiness of your hardware company-wide. From the Console you can then print a report that provides this information to your technicians who can then upgrade and replace computers as indicated.

For those computers that become redundant you can do the following steps:

Safely retire hard disks	See "Retiring a hard disk securely" on page 21.
Replace with new computers and run a bare-metal restore	See "Provisioning new computers" on page 22.

The second step of your migration is to create a model computer with Windows Vista installed and the required applications. Depending upon your organization you may require more than one image, for example, an accounting department is likely to require different applications to call support staff. An alternative to creating multiple images is to create one image with Vista and then use AutoInstall to roll out installation packages of specific applications to target computers.

The third step is to deploy the Vista image file to client computers. This step can be done in combination with User Migration Capture and Restore tasks.

In one task, launched from the Console, you can do the following steps:

- In a User Migration: Capture step, capture user settings and files and store them in the client staging area on the client computer
- In a Clone step, clone client computers with the Vista image file
- In a User Migration: Restore step, restore user settings and files on the client computer
- In a Configuration step, configure computers

Using the multicast functionality to deploy the image lets you simultaneously clone all targeted computers. By using the data transfer options in the Console you can optimize the rollout to fit your environment.

Retiring a hard disk securely

The GDisk utility helps you securely retire disks to the following standards:

- U.S. Department of Defense NISPOM (National Industrial Security Program Operating Manual), DoD 5220.22-M, January 1995.
  The NISPOM document is available at the following URL:
  http://www.usaid.gov/policy/ads/500/d522022m.pdf

- Assistant Secretary of Defense, Memorandum of Disposition of Unclassified DoD Computer Hard Drives, 4 June 2001

PC management, including remote control, migration, and configuration

The Symantec Ghost Console lets you manage computers remotely on a network. Once you have installed the Console client, which can be done remotely, you can then perform any of the following tasks from the Console:

- Clone computers.
- Create image files of disks or partitions. Images can be stored on either the client computer or on the Console server.
- Restore computers from an image file.
- Set computer configurations. The configuration can be from a template, default settings, or reset from original settings.
- Roll out software packages using Symantec Ghost AutoInstall.
- Create detailed reports on hardware and software inventory. This lets you group computers , for example, those that are installed with a specific operating system.
- Migrate users, application settings, and registry entries.
- Transfer files and run commands on client computers.

Deploy security patches

You can use the Symantec Ghost Console to deploy security patches. You can use the inventory feature in the Ghost Console to identify the computers that are not patched properly. For example, you can identify the computers that do not have the latest hot fix from Microsoft installed. You can then use File Transfer and Execute Command from the Ghost Console to transfer the security patch to the computers and install it.

Provisioning new computers

Symantec Ghost help you minimize the amount of work that is required to provision new computers. You can create an image to deploy the operating system and any required software applications to your target computers.

For example, you can provision your new computers with Microsoft Vista and your organization's standard software as follows:

- Set up the new computers as Console clients with the boot partition.

- Create a model computer that has Windows Vista and the required applications installed.

  You can create different images for the different functional groups across your organization. For example, the accounting or HR department might have different software requirements than other departments.

  Alternatively, you can create one image to deploy Vista to all your target computers. You can then use AutoInstall to deploy installation packages that contain the specific applications that you want to install on each target computer.
- Create a clone image of the model computer and deploy it to the target computers.

Restore computers to a known state

Some organizations require their computers to be reset daily. For example, an educational environment might have five classrooms that each contain 20 computers. Every day the computers are reset to a clean state with the software that is required for the subject that is taught in each room.

The first step in this process is to create a machine group for each classroom and add the client computers to the appropriate groups. Then, create a model computer for each classroom that includes an operating system, the Console client, and the software and data that is required for each classroom.

From the Console, create an image file of this model computer and then transfer the file to the client staging area of each computer. By storing the file in the client staging area, you remove the need to transfer the image file across the network each time you want to restore the computer. This technique helps reduce the amount of network traffic. After you create and deploy the image you can schedule a task to restore each computer automatically in the evening or early morning.

Restore a non-networked computer

You can use the Ghost executable to get a non-networked computer that has had a failure up and running again quickly. You can restore the computer by cloning it with an image stored on removable media. Use the Ghost Boot Wizard to create a boot disk package on a floppy disk set, USB flash drive, or a CD/DVD. You can then start the computer with the boot disk package, and use Ghost.exe to restore the computer from an image file on the removable media.