
# CASPER SECURE™ DRIVE BACKUP

## FOR PGP® WHOLE DISK ENCRYPTION

## USER GUIDE

## v2.0

Future Systems SOLUTIONS

## Copyright and Trademark Information

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# Introduction

Casper Secure™ Drive Backup for PGP® Whole Disk Encryption is a hard disk cloning solution designed specifically for users of PGP Whole Disk Encryption technology looking for a safe, secure, and dependable backup, recovery, and migration solution for their PGP whole-disk-encrypted PC.

As a backup and recovery solution, Casper Secure Drive Backup offers you these unique advantages:

- **Fast, Completely Encrypted System Backups**. Casper Secure Drive Backup creates a completely encrypted copy of a PGP whole-disk-encrypted Windows system drive. Unlike traditional backup and disk imaging solutions, which can produce only an unencrypted backup of a PGP whole-disk-encrypted PC, Casper Secure Drive Backup creates a backup which actually persists all of the encrypted data in its original encrypted state. In addition, exclusive SmartClone™ technology enables Casper Secure Drive Backup to maintain a complete backup in the same amount of time required by most traditional backup programs to perform a partial or incremental *unencrypted* backup of an encrypted disk.

- **Rapid Recovery**. In the event of a hard disk failure, a backup created by Casper Secure Drive Backup can be used as an immediate and permanent replacement for the failed hard disk. No special rescue disks or arduous data restoration processes are required to facilitate recovery, and most importantly, no lengthy re-encryption process is required.

- **Convenience**. Casper Secure Drive Backup enables complete system backups to be performed at any time without leaving Windows, so there is never a need to restart the computer or stop work to create a backup. Integrated scheduling permits the backup to be performed completely unattended in the background and exclusive 1-Click Cloning™ makes even on-demand backups a snap.

**NOTE:** This User Guide is intended to provide you with an overview of the basic operations of Casper Secure Drive Backup. For additional assistance, please refer to the detailed help files included within the program.

## System Requirements

- Windows 7, Windows Vista, Windows XP, or Windows 2000 Workstation

  NOTE: Casper Secure Drive Backup is not designed for use with Windows NT, Windows 2000 Server, and Windows 2000 Advanced Server. Background copying not supported on Windows 2000.

- PGP Desktop version 9.6x or later
- 100MB available disk space
- 128MB RAM (512MB or more recommended)
- Backup device (additional internal or external hard disk drive)

## Getting Help

The Casper Secure Drive Backup online help includes troubleshooting information. To access online help when running Casper Secure Drive Backup, select **Contents** from the **Help** menu, or press **F1**.

Additional support for Casper Secure Drive Backup is available on the Future Systems Solutions Web site at http://support.fssdev.com.

# Installing and Running Casper Secure Drive Backup

The installation process takes just a few minutes and an automated wizard will guide you through the process. The instructions below outline in detail the steps for installing Casper Secure Drive Backup.

## Installing Casper Secure Drive Backup

1. Start the **Casper Secure Drive Backup Setup** program.

   If you have a Casper Secure Drive Backup Setup CD, insert the CD and click **Install Casper Secure Drive Backup** on the setup menu. If the setup menu does not appear automatically, browse the CD and double-click **AUTORUN.EXE**.

2. At the **Welcome to Casper Secure Drive Backup Setup Wizard** dialog, click **Next**.

   The **End-User License Agreement** will appear. In order to proceed with the installation of Casper Secure Drive Backup, you must agree to the terms of the license that is displayed.

3. Read the End-User License Agreement, select **I accept the terms in the License Agreement**, and then click **Next**.

   The **Select Installation Folder** dialog will appear.

4. Choose the installation folder for the Casper Secure Drive Backup program files and click **Next**.

   The **Ready to Install** dialog will appear.

5. Click **Install**.

   The Casper files are added to your system and the **Completing the Casper Secure Drive Backup Setup Wizard** dialog will appear.

6. Click **Finish** to finalize the installation process.

## Running Casper Secure Drive Backup

1. Click the **Start** button.
2. Click **All Programs**.
3. Point to the **Casper Secure Drive Backup** menu.
4. Click **Casper Secure Drive Backup**.

# Using Casper Secure Drive Backup

Casper Secure Drive Backup makes it easy to upgrade or maintain a backup of your Windows system hard disk.

When you use Casper Secure Drive Backup to clone the Windows system hard disk to another hard disk, Casper Secure Drive Backup creates a snapshot, representing a single point-in-time view of the disk, and then clones it to the specified hard disk. The result is a hard disk that can be used as an immediate and complete replacement for the original Windows system hard disk.

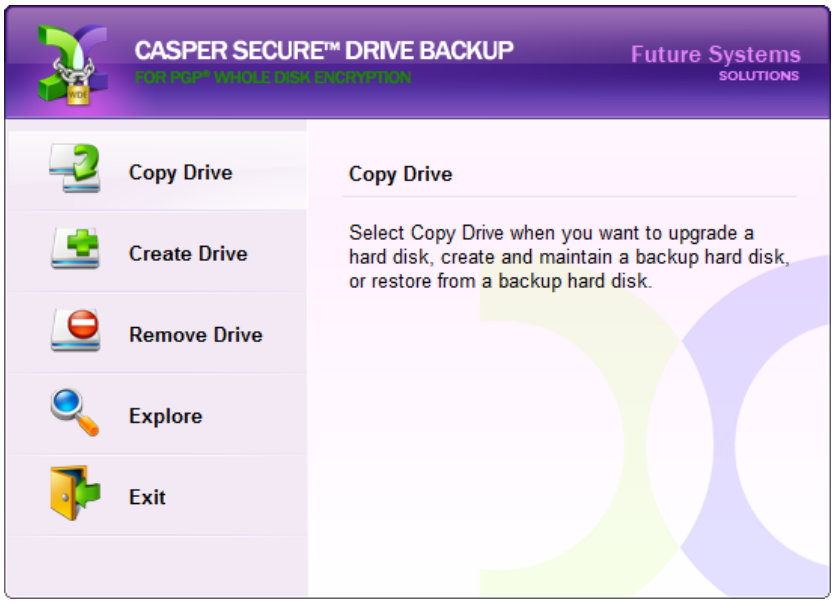
## Upgrading a Hard Disk

The procedure for upgrading a hard disk is basically the same whether you are upgrading a hard disk in a desktop or a notebook. For a desktop system, the new hard disk is temporarily installed as a secondary hard disk in the computer. For example, a standard IDE hard disk may be installed either as a slave to the existing master on the primary IDE controller or as a master or slave on the secondary IDE controller. For a notebook computer, a secondary media bay or external USB, Firewire, eSATA, or PCMCIA hard disk enclosure is required to mount and attach the new hard disk to the notebook.

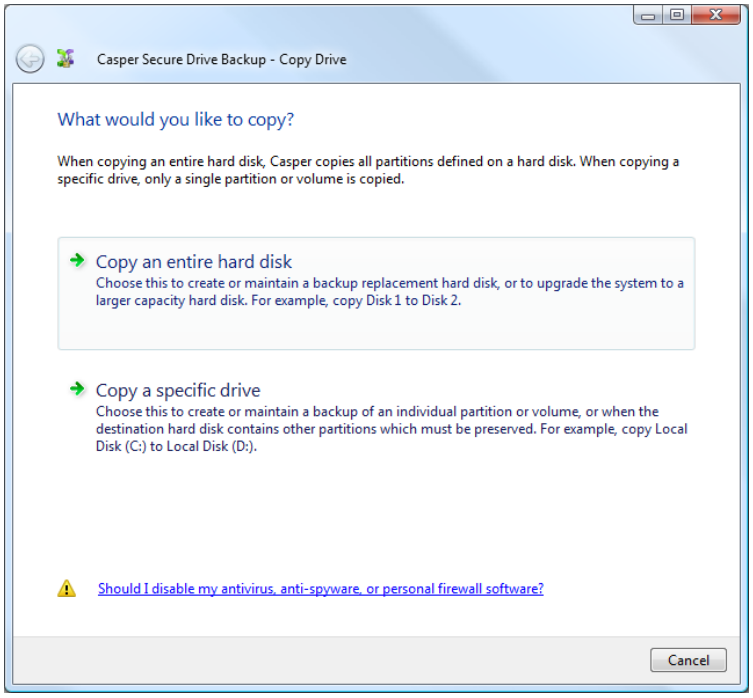
Assuming the new hard disk is currently installed or attached to the system, the following procedure illustrates how Casper Secure Drive Backup may be used to clone the original hard disk to the new hard disk and complete the upgrade.

## Example 1: Upgrading a Hard Disk

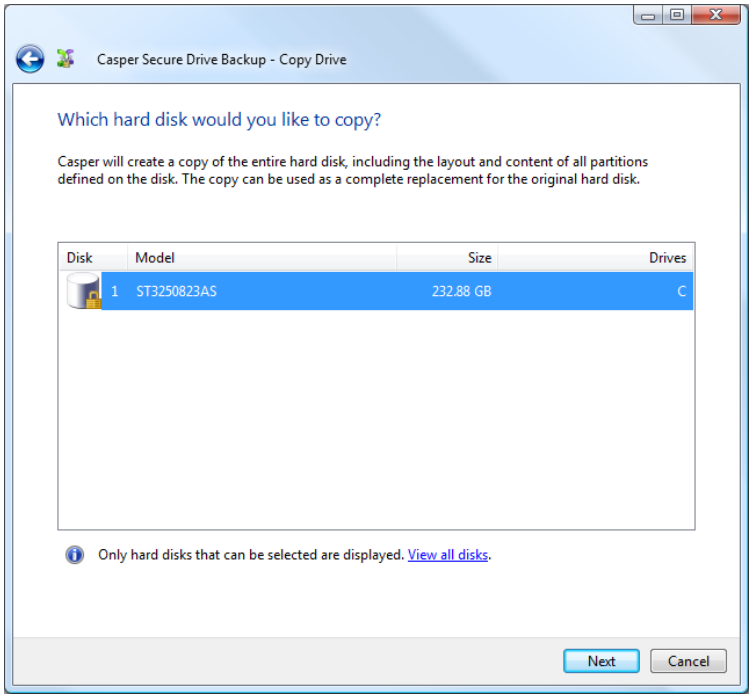
1. Select **Copy Drive**.



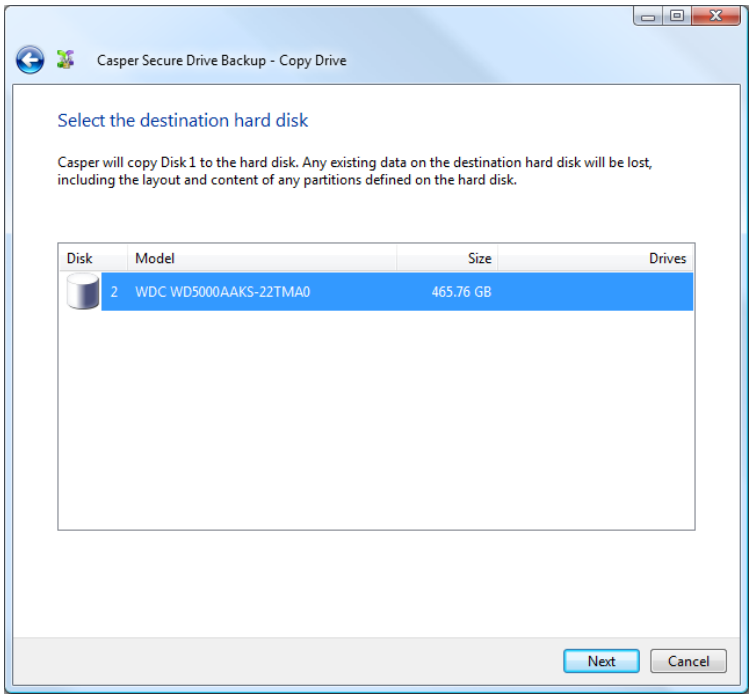

2. Select **Copy an entire hard disk**.



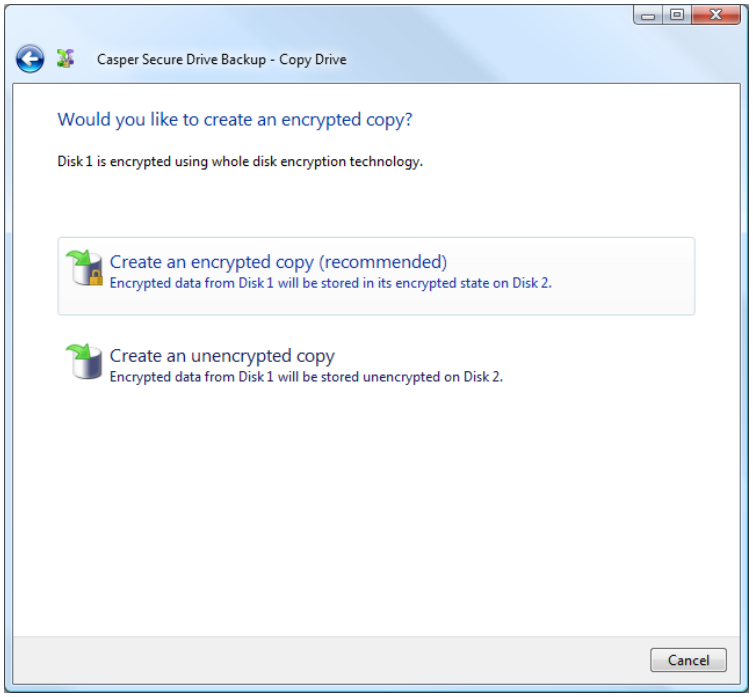
3. Select the hard disk to be upgraded (e.g. the hard disk on which Windows is installed) as the disk to copy, and click **Next**.



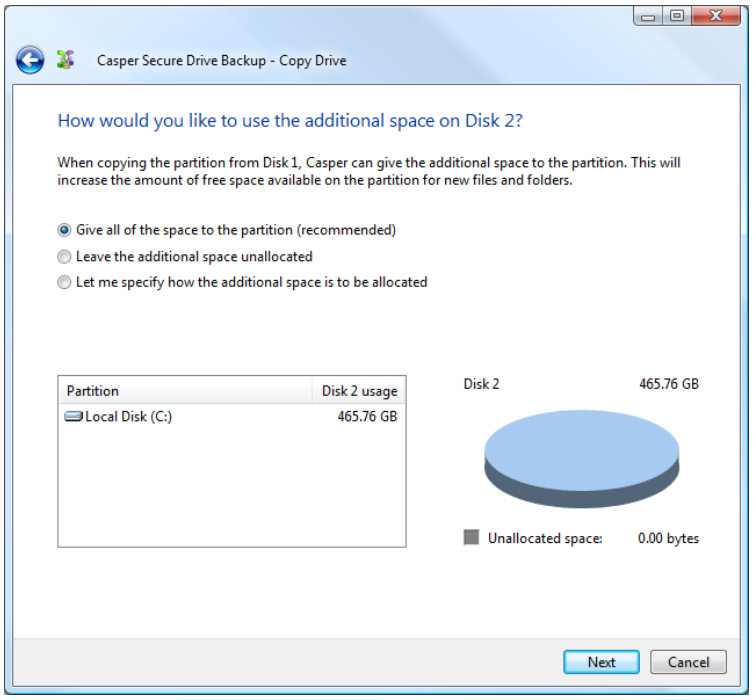

4. Select the new hard disk as the destination, and click **Next**.



5. If the source hard disk is encrypted using PGP whole disk encryption, Casper will offer the option of creating an unencrypted copy. Click **Create an encrypted copy**.



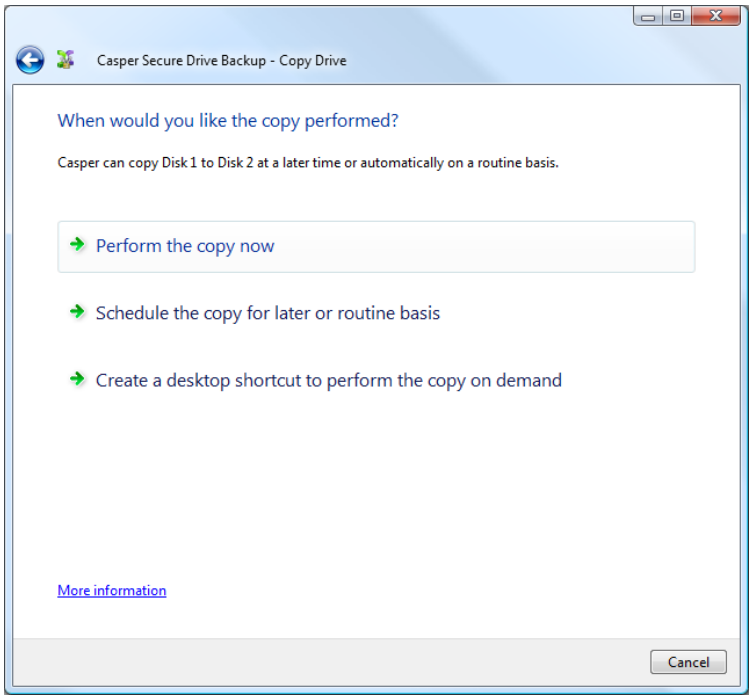

6. When prompted to specify how the additional space on the new hard disk is to be used, retain the default selection and click **Next**.



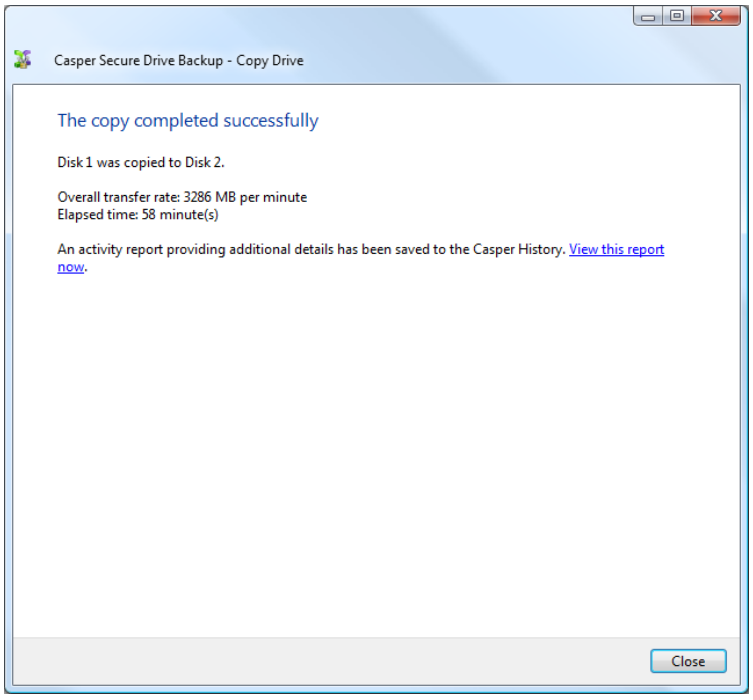

When the destination hard disk is larger than the source, the default option will be *Give all of the space to the partition*, or *Proportionally distribute the*

*space to all partitions* when there is more than one partition defined on the source disk. For additional help with making a selection, press **F1**.

7. Click **Perform the copy now** to begin the copy.




8. When Casper has completed the cloning process, click **Close**.



9. Shutdown and power-off the computer.
10. Reconfigure the computer to replace the original hard disk with the new hard disk.

    If the new hard disk is installed in a secondary media bay of a notebook, or installed in an external USB, Firewire, eSATA, or PCMCIA enclosure, simply remove the hard disk from its enclosure and exchange it with the original hard disk.

    For a new hard disk that has been temporarily mounted as a secondary internal hard disk, change the hard disk jumpers and cable connection as required to make the new hard disk the master on the primary IDE or SATA controller.

    For detailed instructions on how to replace a hard disk in a desktop system, see **Replacing a hard disk** under **Additional Resources** in the online **Casper Secure Help and Documentation.**

## Creating and Maintaining a Bootable System Backup

Using Casper Secure Drive Backup to create and maintain a bootable backup for your computer system requires a hard disk large enough to accommodate all of the data on the current Windows system hard disk.

For a desktop system, using a second internal hard disk, or one mounted in a mobile drive rack for the backup hard disk is ideal. If the desktop system supports booting from eSATA or USB hard disk type devices, using an external hard disk for the backup also is ideal. For a notebook computer, a secondary media bay or external USB, Firewire, eSATA, or PCMCIA hard disk enclosure designed specifically for a 2.5" notebook hard disk is recommended to mount and attach the second (backup) hard disk to the notebook. Using a 3.5" external desktop hard disk as the backup for a notebook is not recommended unless the notebook supports booting from eSATA or USB hard disk type devices.

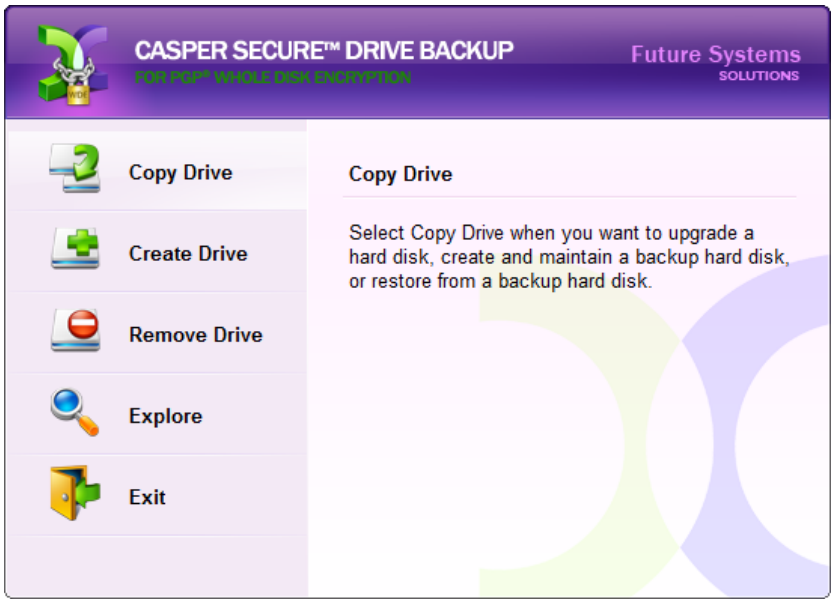
Assuming the backup hard disk is currently installed or attached to the system, the following procedures illustrate how Casper Secure Drive Backup may be used to clone the Windows system hard disk to the backup hard disk on either a desktop or notebook system. The first procedure, **Creating a Backup Hard Disk**, describes how to manually create a backup by cloning one hard disk to another. The second procedure, **Automatically Maintaining a Backup Hard Disk**, illustrates how to create a copy schedule to maintain the backup automatically. The third procedure, **Using 1-Click Cloning to Maintain a Backup Hard Disk** shows how to create a 1-Click Cloning desktop shortcut to maintain the backup on demand.

For help with installing a hard disk, see **Installing a new hard disk** under **Additional Resources** in the online **Casper Secure Help and Documentation**.

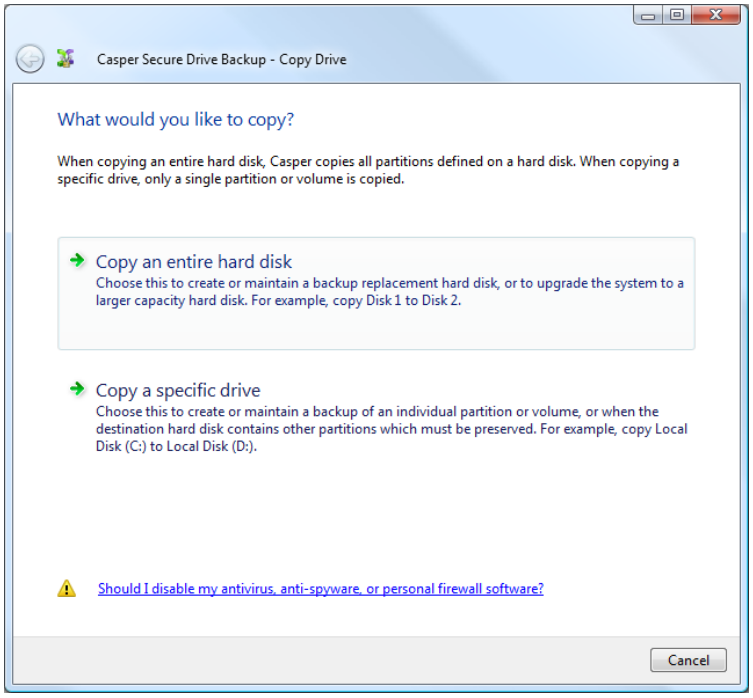
**NOTE:** For a hard disk attached as an external USB device, booting from the backup hard disk may require the selection of additional BIOS options to completely enable booting. By default, some BIOS implementations disable USB boot support, or have it configured for floppy or ZIP drive emulation rather than hard disk drive (HDD) emulation. *If the computer's BIOS does not support booting from external USB hard disk type devices, the backup hard disk must be removed from its external enclosure and installed as a replacement for the internal hard disk in order to boot from it.* Alternatively, a restore may be performed by using the Casper Secure Startup Disk to copy the external backup hard disk to the computer's internal hard disk.

## Example 2: Creating a Backup Hard Disk

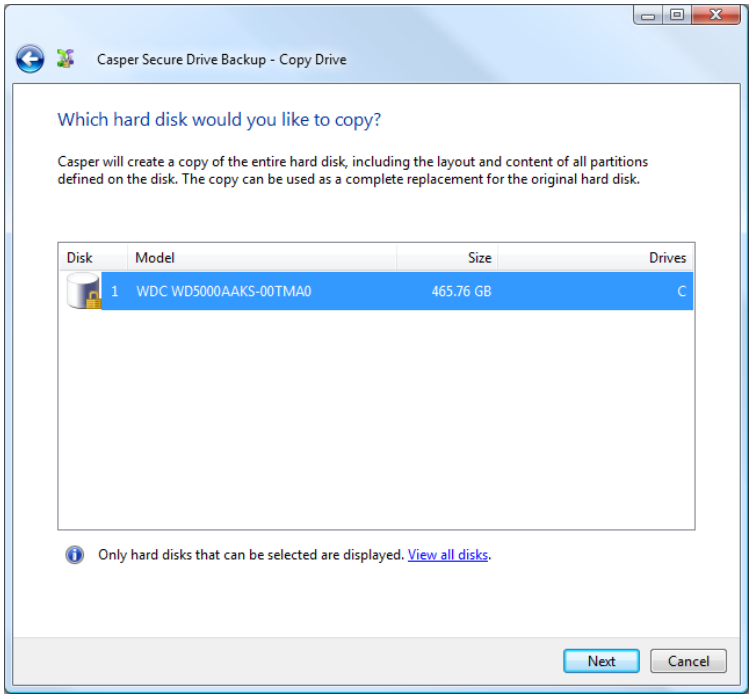
1. Select **Copy Drive**.



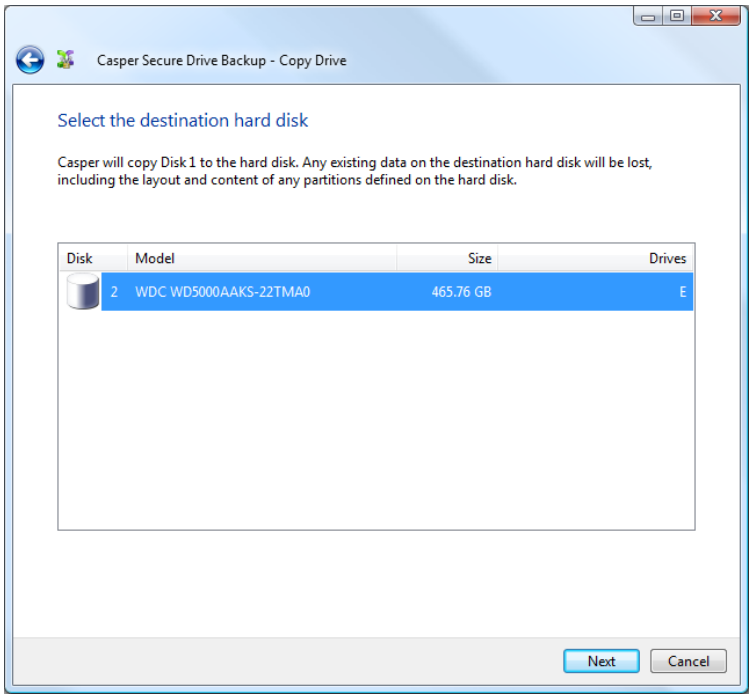

2. Select **Copy an entire hard disk**.



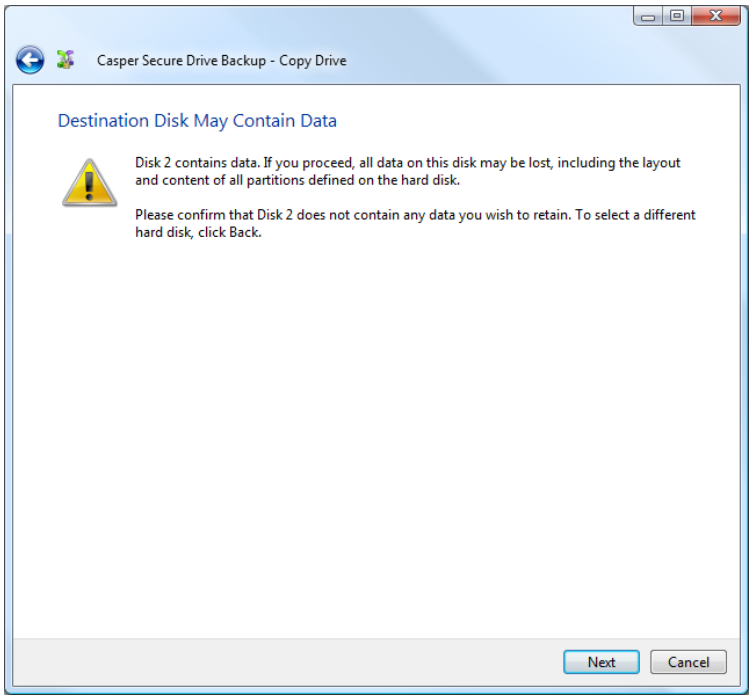
3. Select the hard disk to backup (e.g. the hard disk on which Windows is installed) as the disk to copy, and click **Next**.



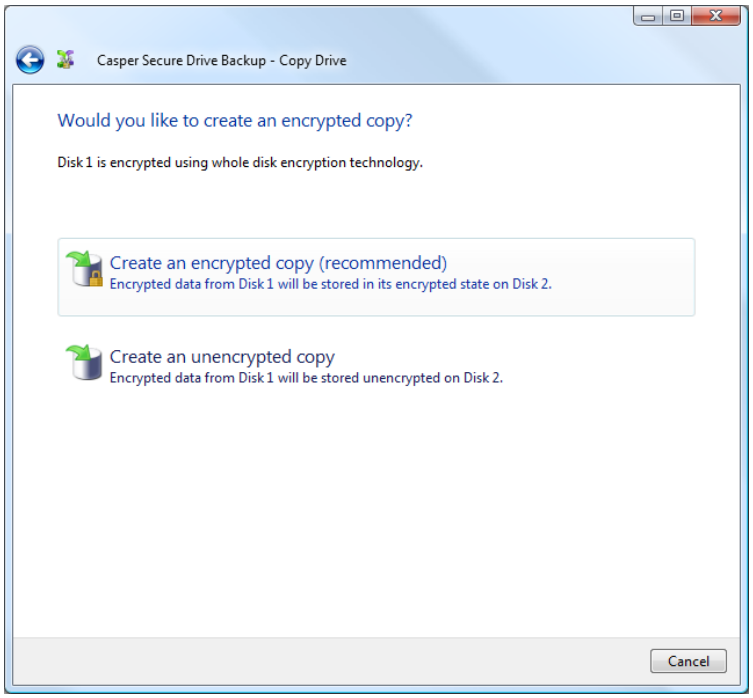

4. Select the backup hard disk as the destination, and click **Next**.



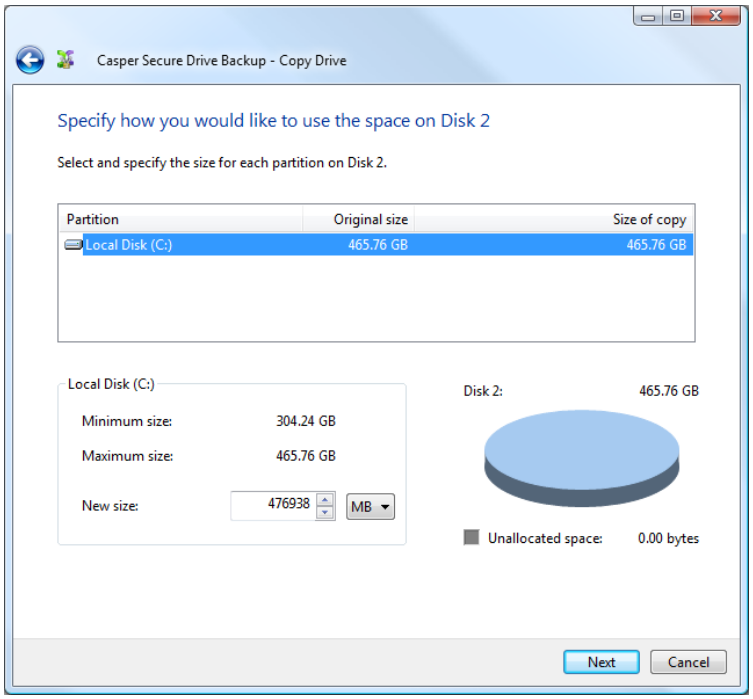
5. If the selected destination hard disk defines a partition or contains data, Casper will warn you that the contents will be overwritten. Confirm you have selected the correct hard disk to receive the backup, and click **Next** to proceed.



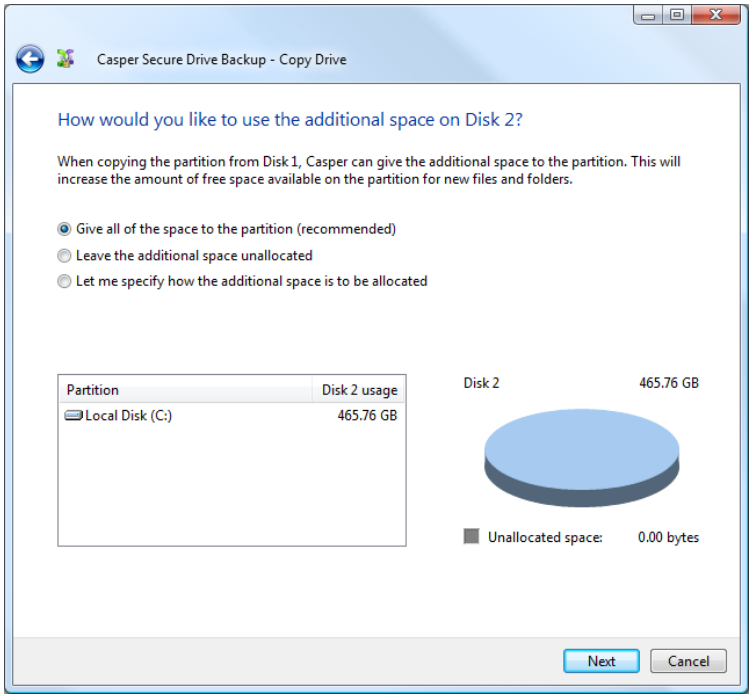

6. If the source hard disk is encrypted using PGP whole disk encryption, Casper will offer the option of creating an unencrypted copy. Click **Create an encrypted copy**.



7. When prompted to specify how the space on the backup hard disk is to be used, retain the default selection and click **Next**. If the destination hard disk is the same size or smaller than the source hard disk, Casper will ask you to manually configure how the space is to be used.

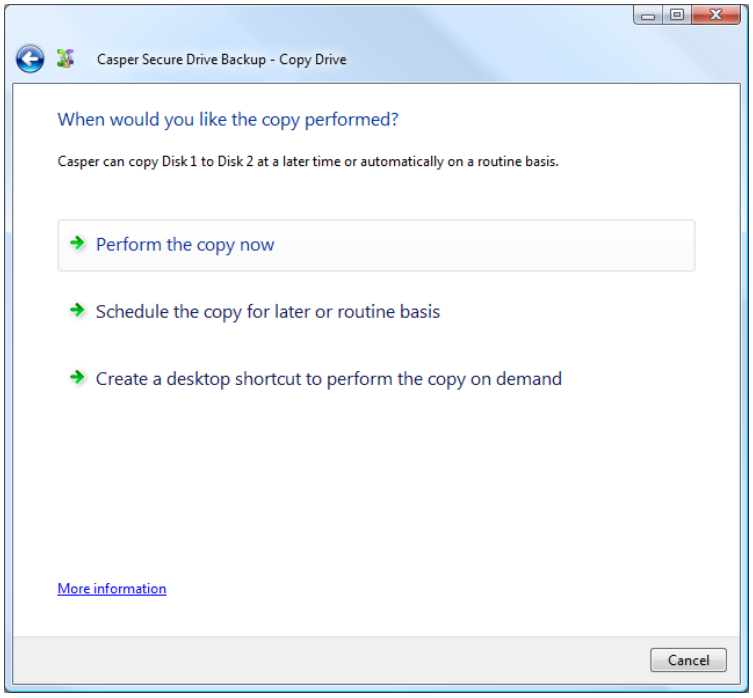



When the destination hard disk is larger than the source, the default option will be *Give all of the space to the partition*, or *Proportionally distribute the space to all partitions* when there is more than one partition defined on the source disk.

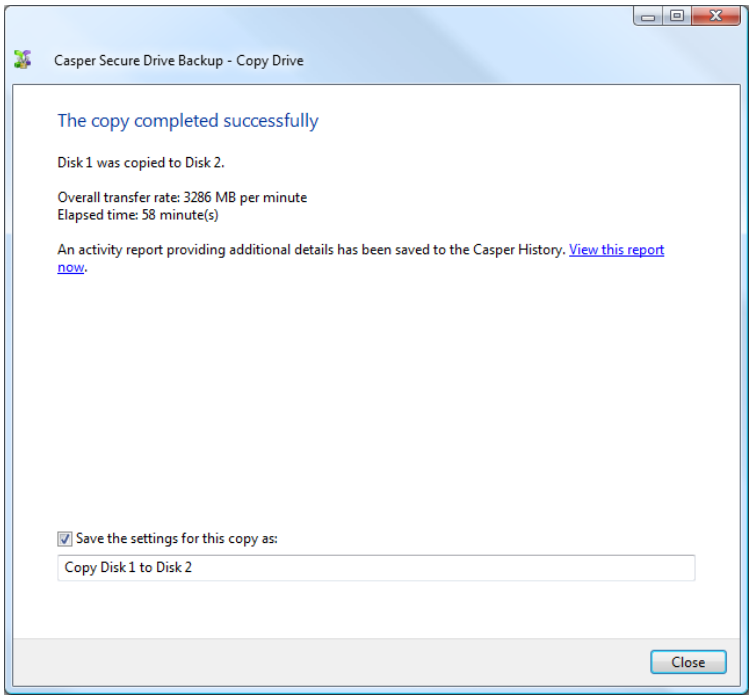


Simply clicking **Next** to accept the default selection or value is generally best. For additional help with making a selection, press **F1**.

8. Click **Perform the copy now** to begin the copy.

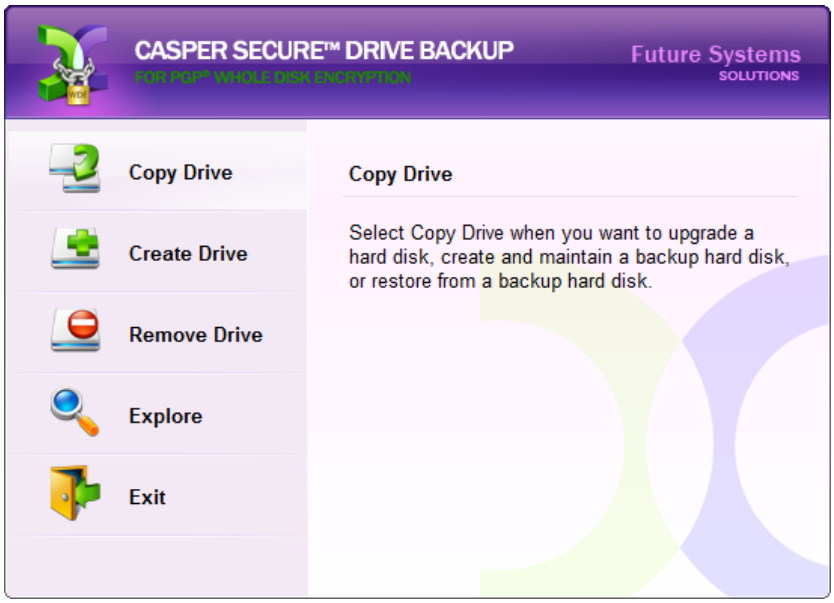



9. When Casper has completed the cloning process, click **Close**.

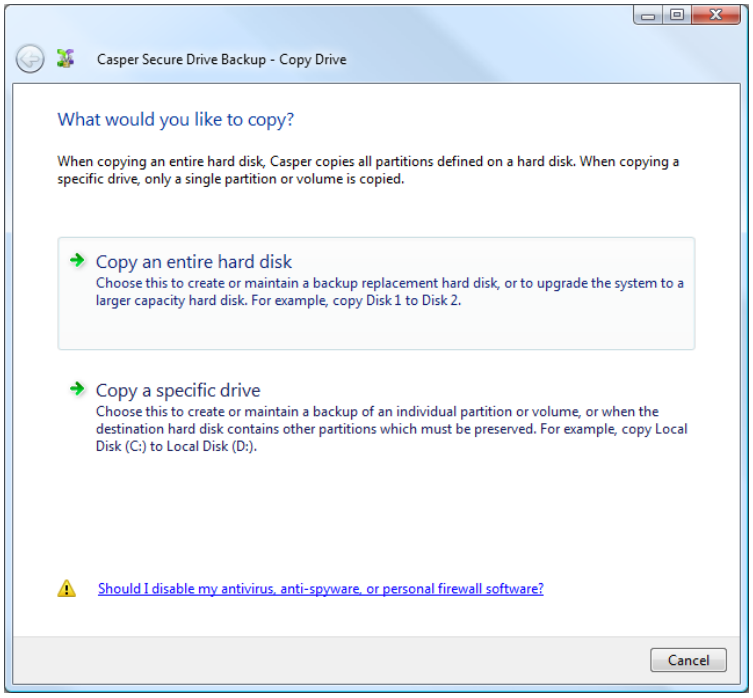


## Example 3: Automatically Maintaining a Backup Hard Disk

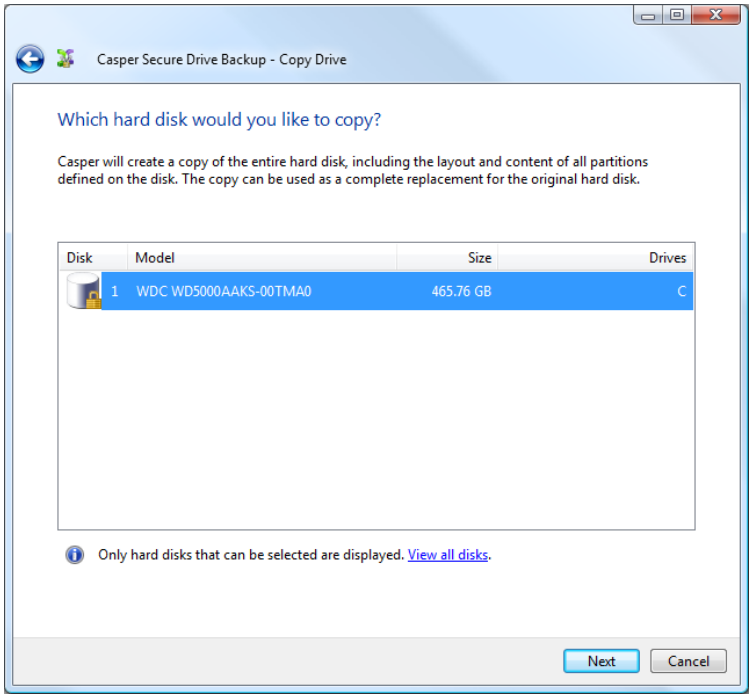
1. Select **Copy Drive**.



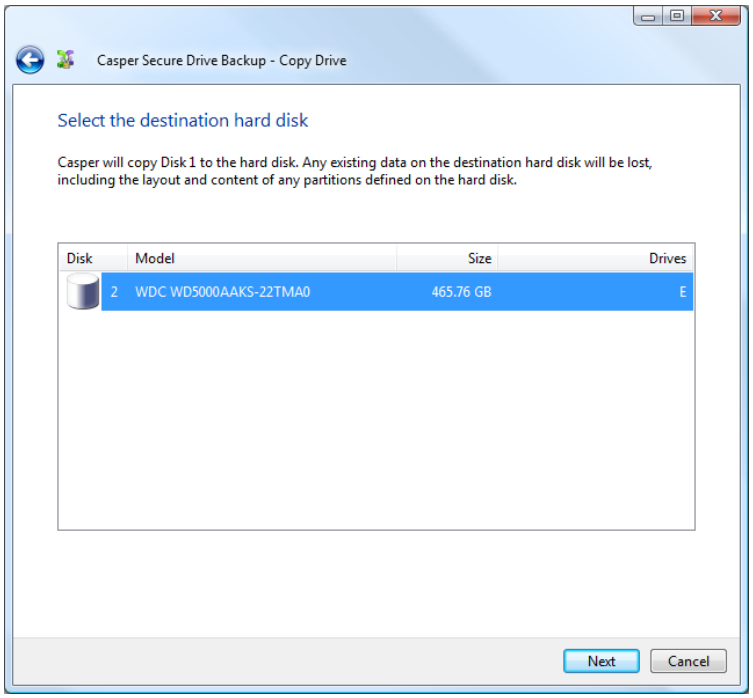

2. Select **Copy an entire hard disk**.



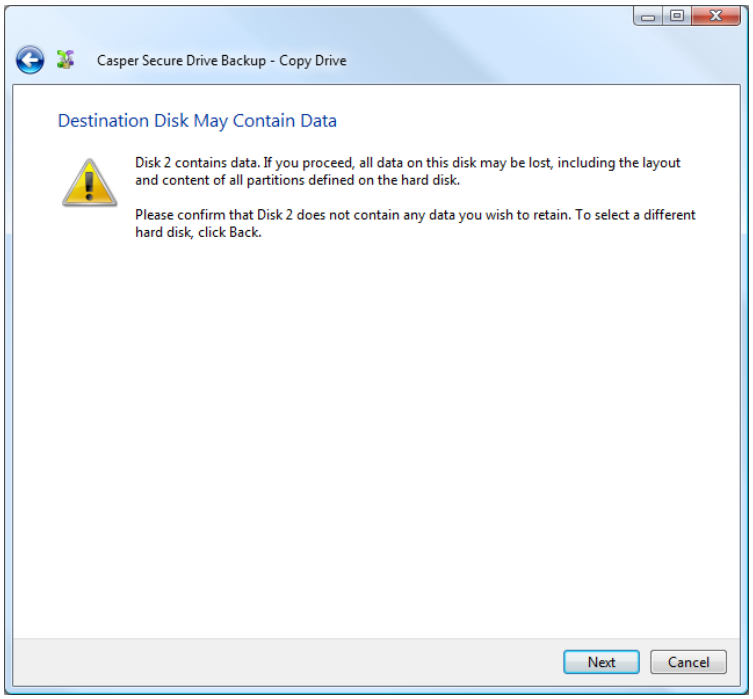
3. Select the hard disk to backup (e.g. the hard disk on which Windows is installed) as the disk to copy, and click **Next**.



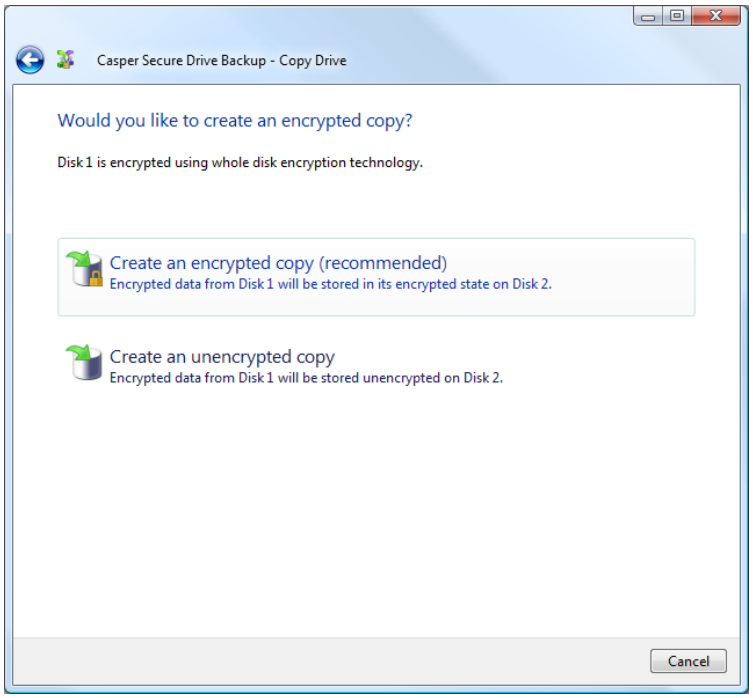

4. Select the backup hard disk as the destination, and click **Next**.



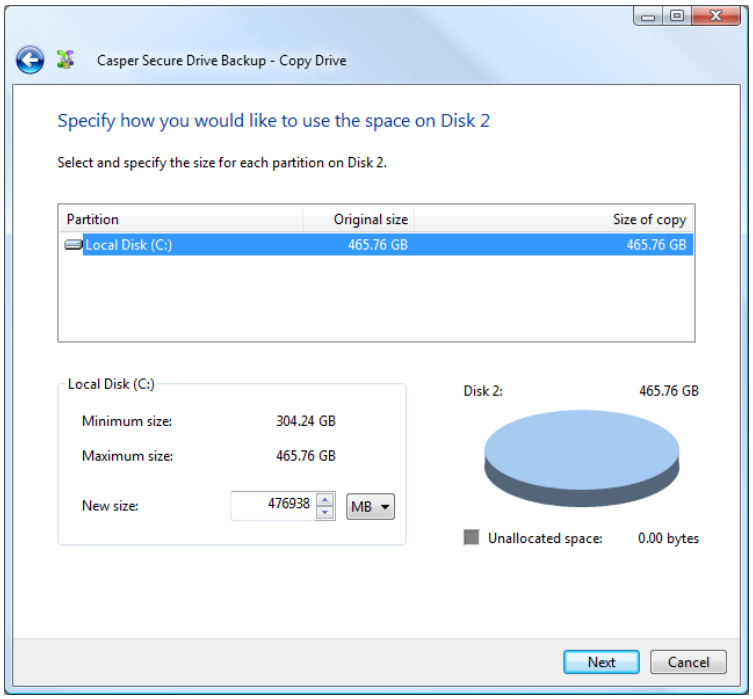
5. If the selected destination hard disk defines a partition or contains data, Casper will warn you that the contents will be overwritten. Confirm you have selected the correct hard disk to receive the backup, and click **Next** to proceed.



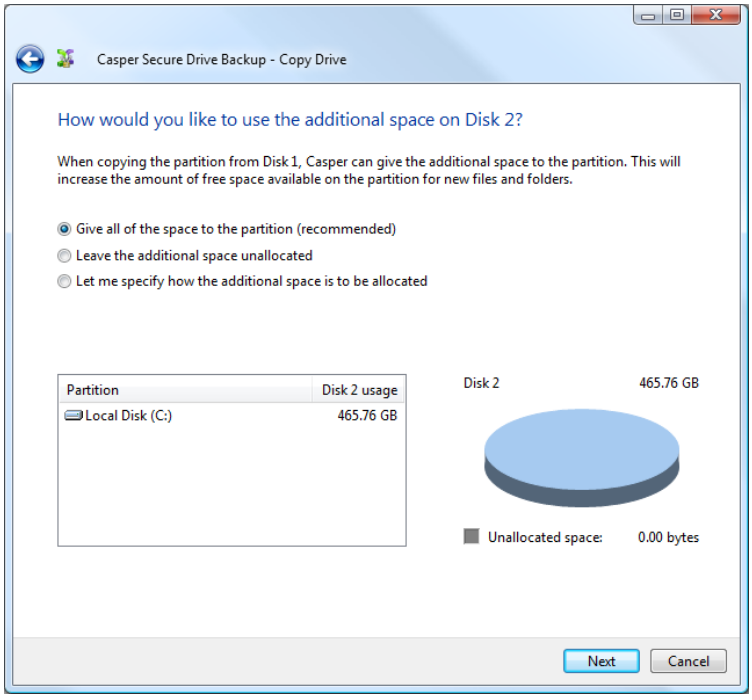

6. If the source hard disk is encrypted using PGP whole disk encryption, Casper will offer the option of creating an unencrypted copy. Click **Create an encrypted copy**.



7. When prompted to specify how the space on the backup hard disk is to be used, retain the default selection and click **Next**. If the destination hard disk is the same size or smaller than the source hard disk, Casper will ask you to manually configure how the space is to be used.

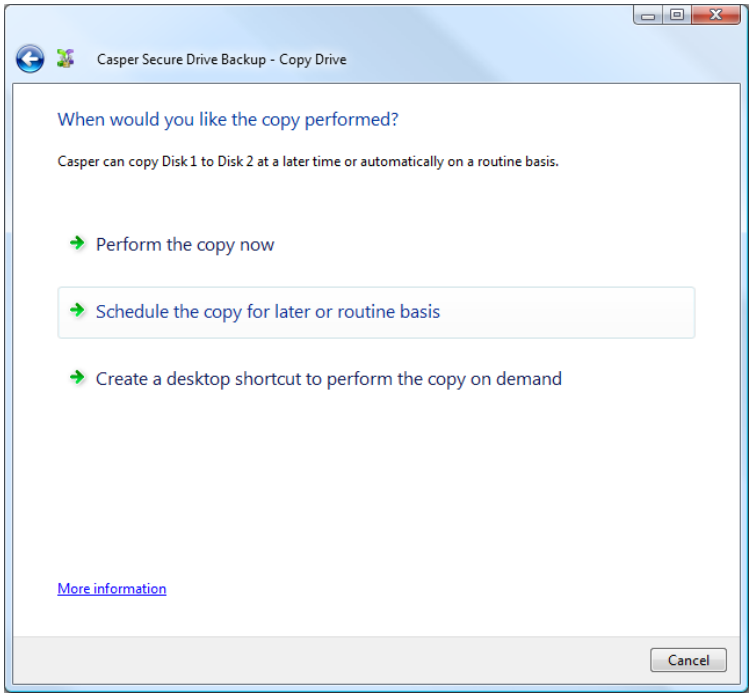



When the destination hard disk is larger than the source, the default option will be *Give all of the space to the partition*, or *Proportionally distribute the space to all partitions* when there is more than one partition defined on the source disk.

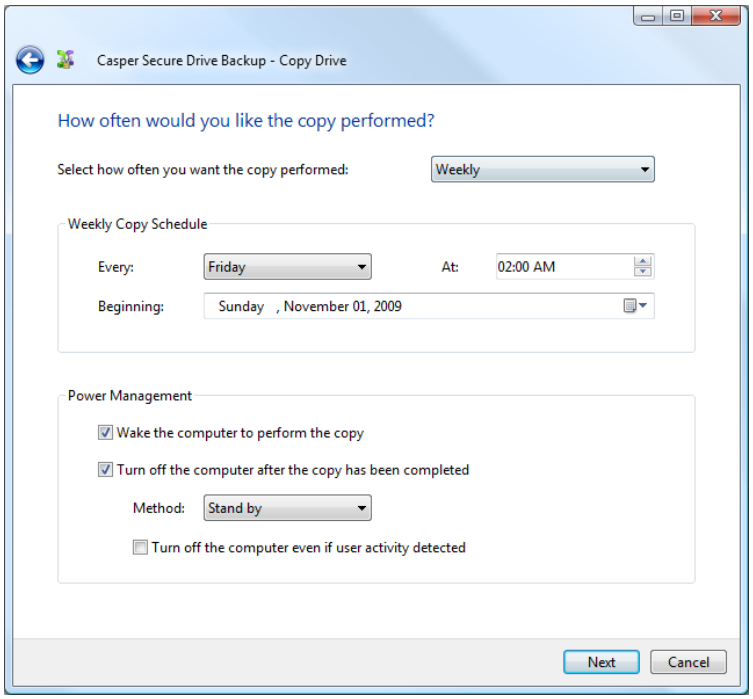


Simply clicking **Next** to accept the default selection or value is generally best. For additional help with making a selection, press **F1**.

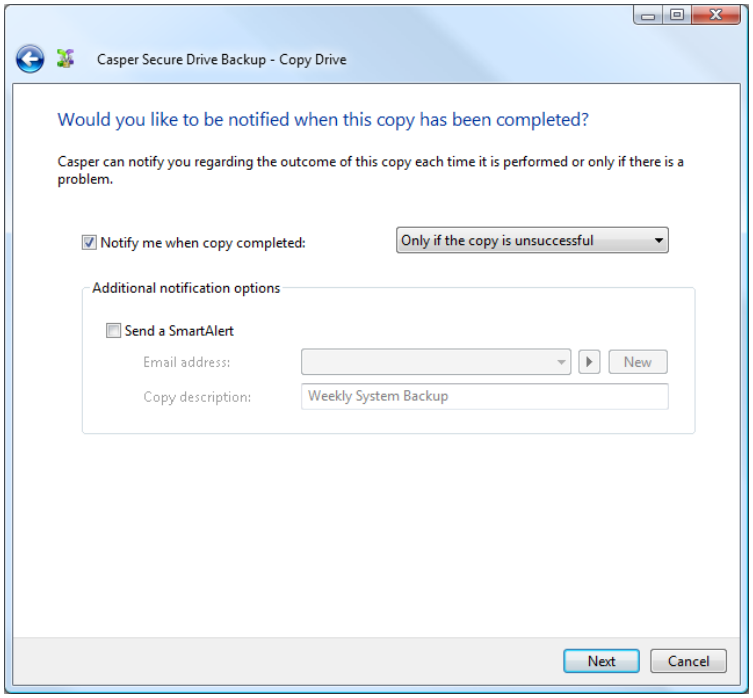
8. Click **Schedule the copy for later or routine basis**.



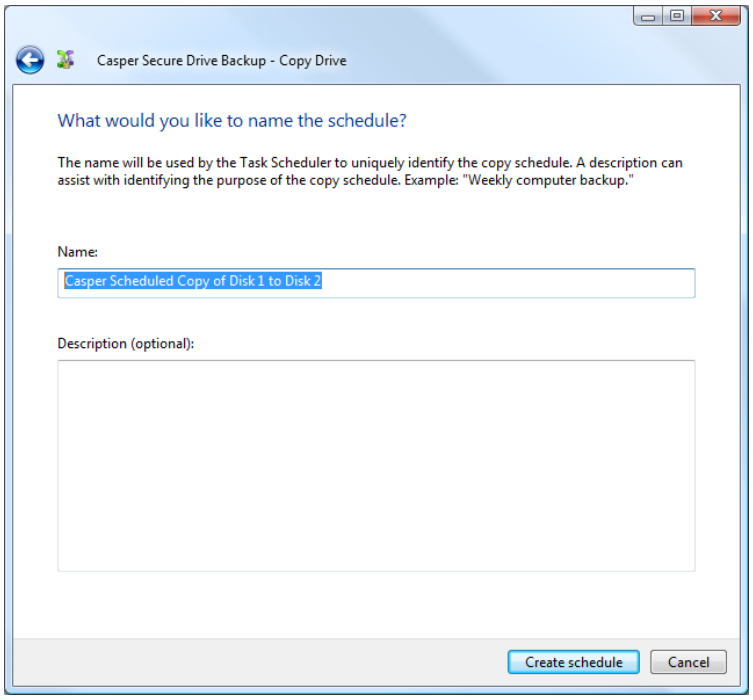

9. Select the schedule you would like Casper to follow to maintain the backup, and click **Next**. For help with the schedule, press **F1**.



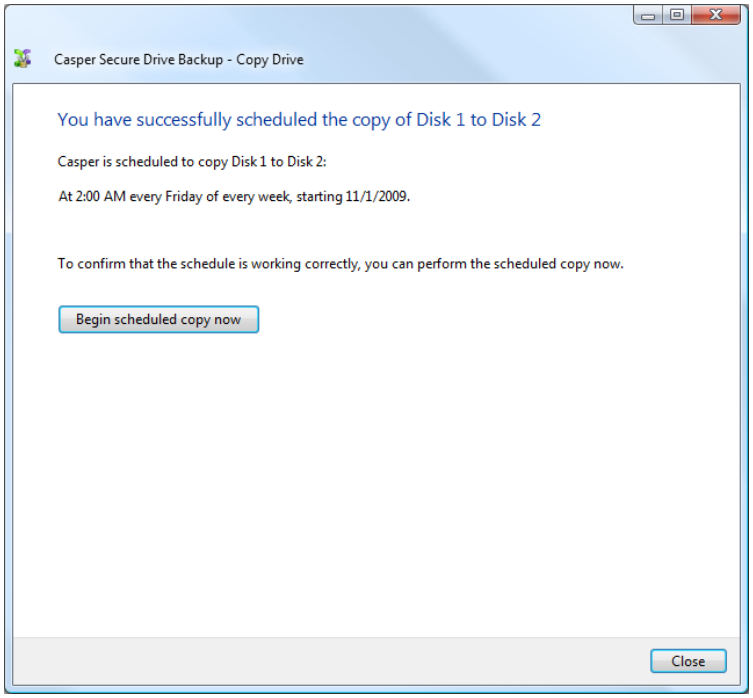
10. Select the desired notification options, and click **Next**.




11. Enter a name for the schedule, or retain the name suggested by Casper, and then click **Create schedule** to add the copy schedule to your Windows Scheduled Tasks.

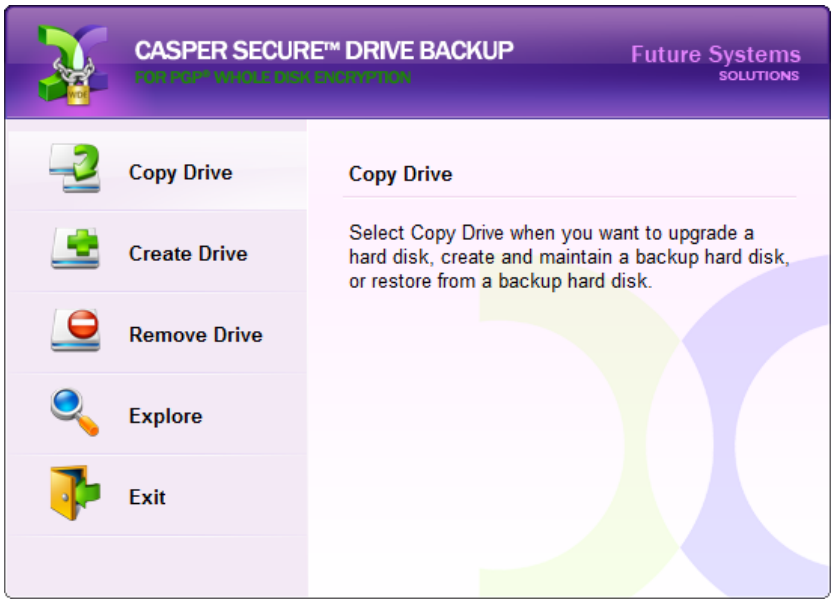


12. Click **Close** to return to the Casper console.

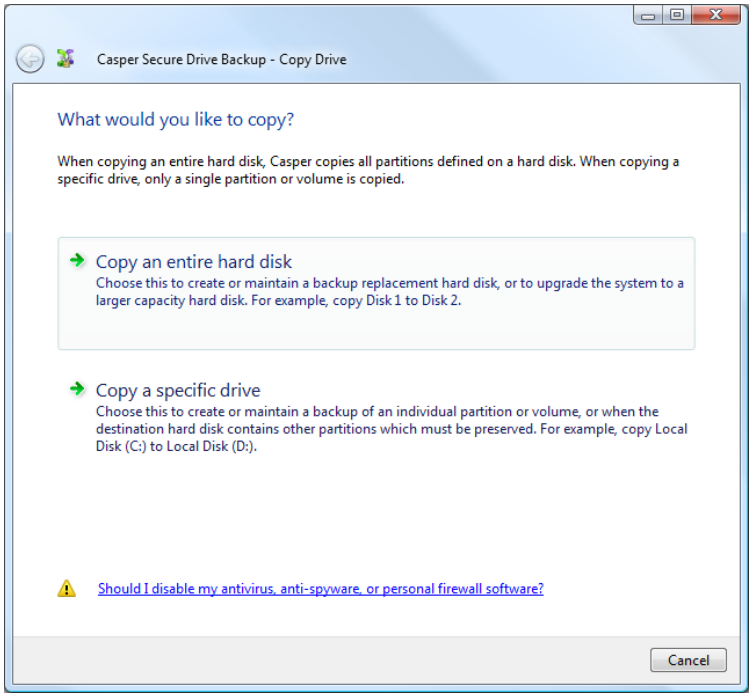


## Example 4: Using 1-Click Cloning to Maintain a Backup Hard Disk

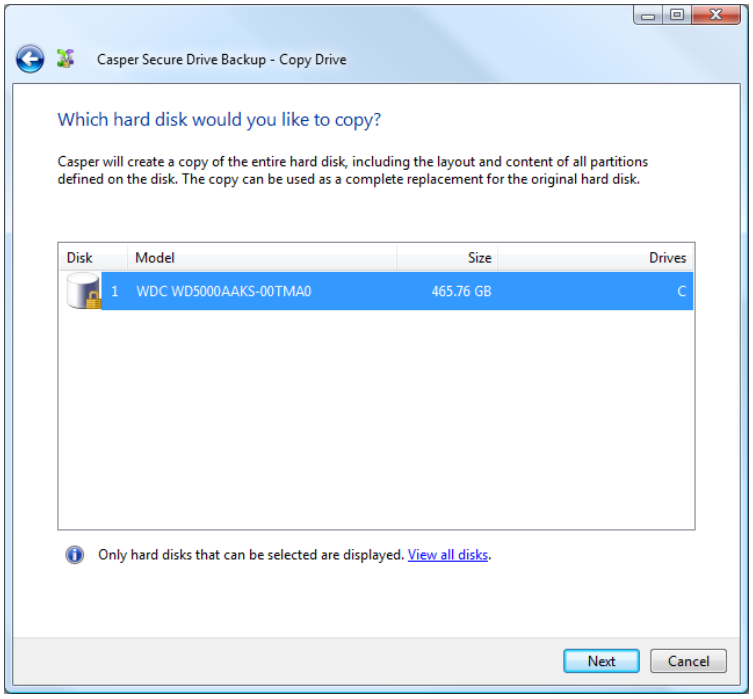
1. Select **Copy Drive**.



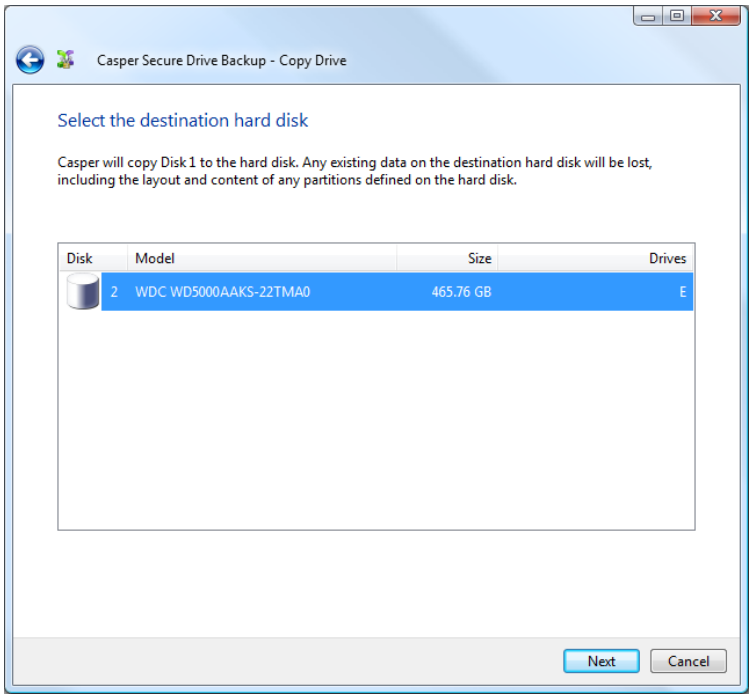

2. Select **Copy an entire hard disk**.



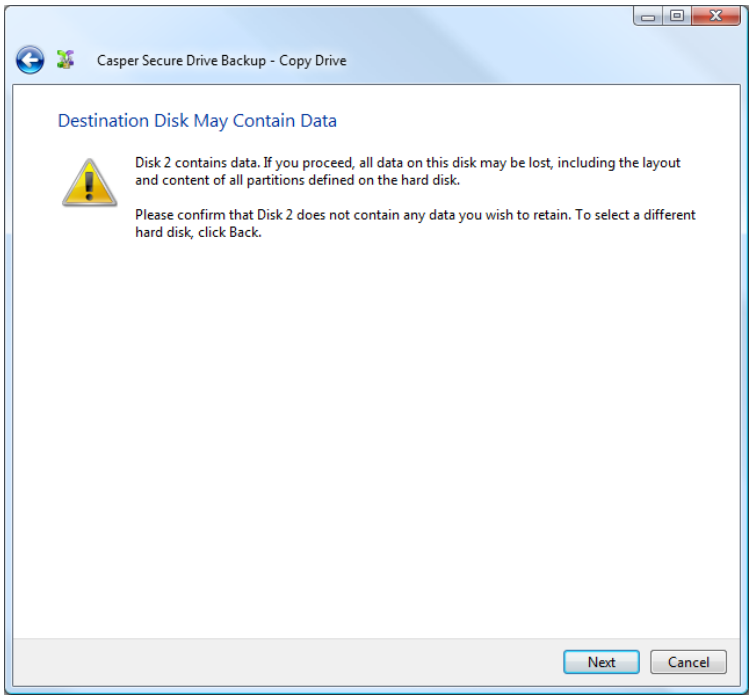
3. Select the hard disk to backup (e.g. the hard disk on which Windows is installed) as the disk to copy, and click **Next**.



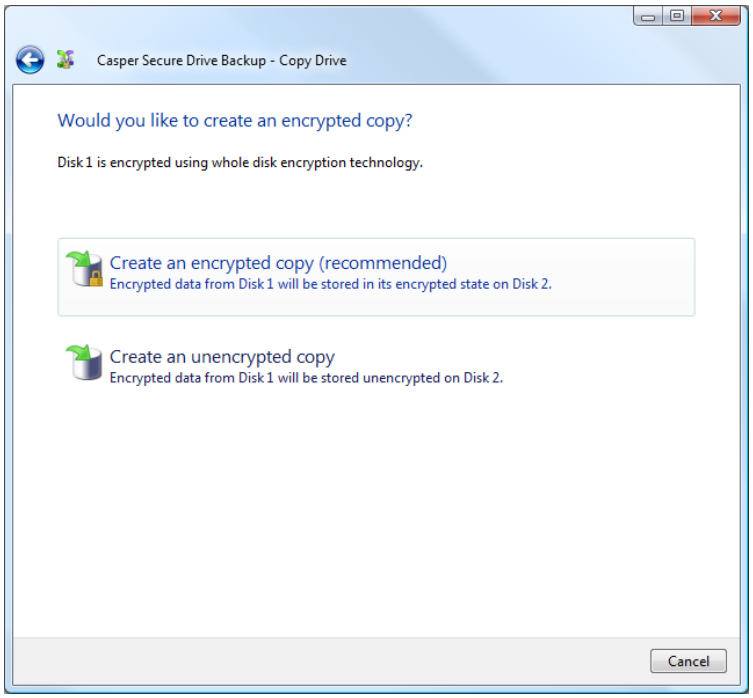

4. Select the backup hard disk as the destination, and click **Next**.



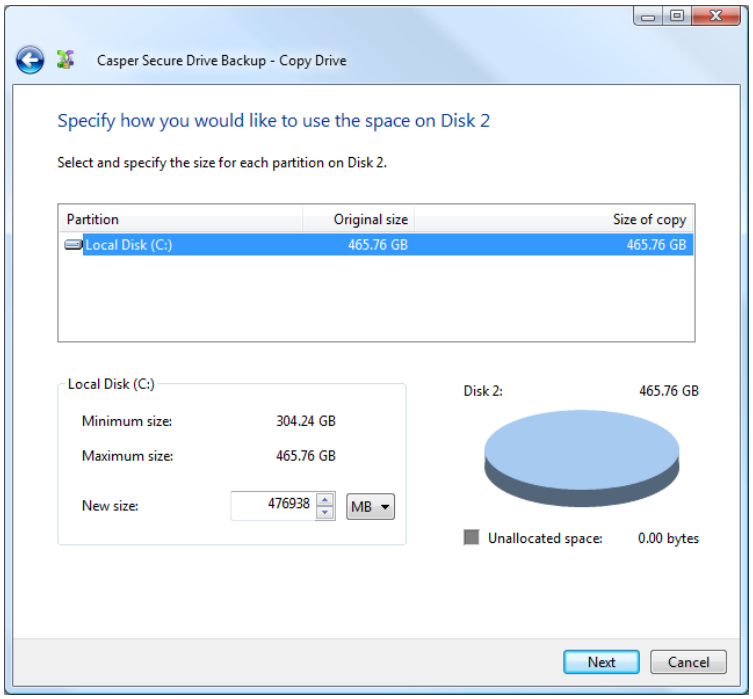
5. If the selected destination hard disk defines a partition or contains data, Casper will warn you that the contents will be overwritten. Confirm you have selected the correct hard disk to receive the backup, and click **Next** to proceed.



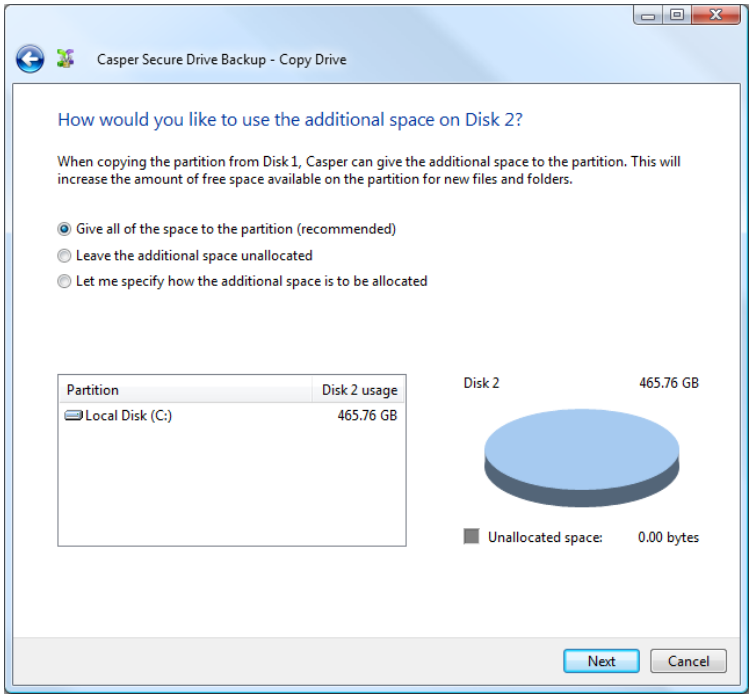

6. If the source hard disk is encrypted using PGP whole disk encryption, Casper will offer the option of creating an unencrypted copy. Click **Create an encrypted copy**.



7. When prompted to specify how the space on the backup hard disk is to be used, retain the default selection and click **Next**. If the destination hard disk is the same size or smaller than the source hard disk, Casper will ask you to manually configure how the space is to be used.

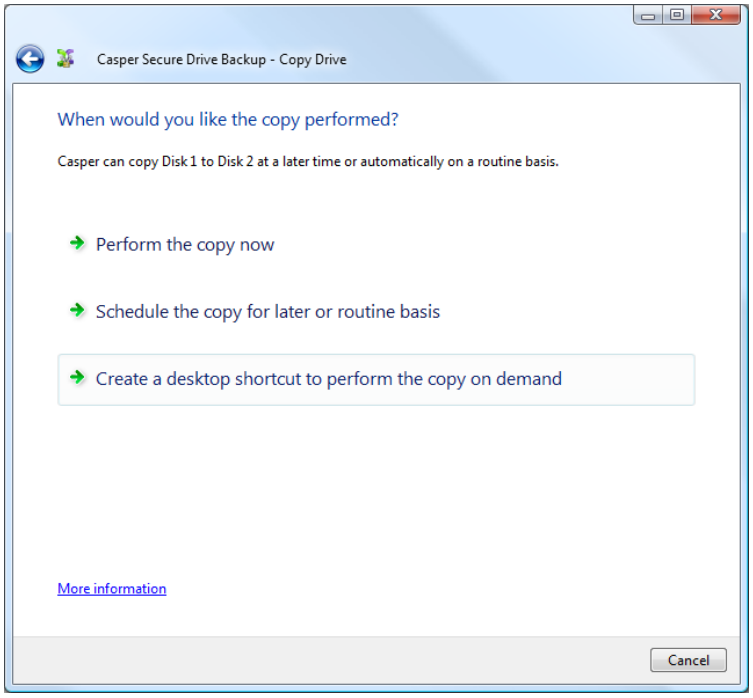



When the destination hard disk is larger than the source, the default option will be *Give all of the space to the partition*, or *Proportionally distribute the space to all partitions* when there is more than one partition defined on the source disk.

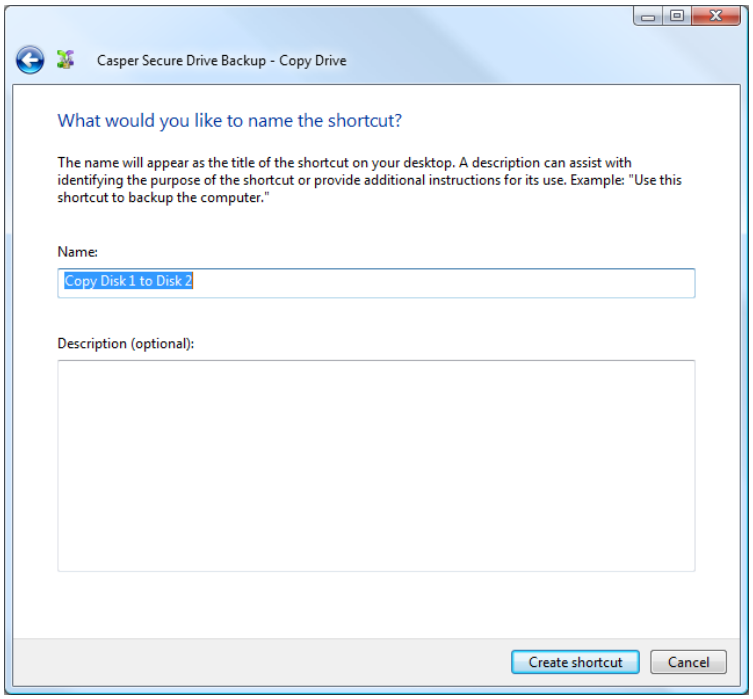


Simply clicking **Next** to accept the default selection or value is generally best. For additional help with making a selection, press **F1**.

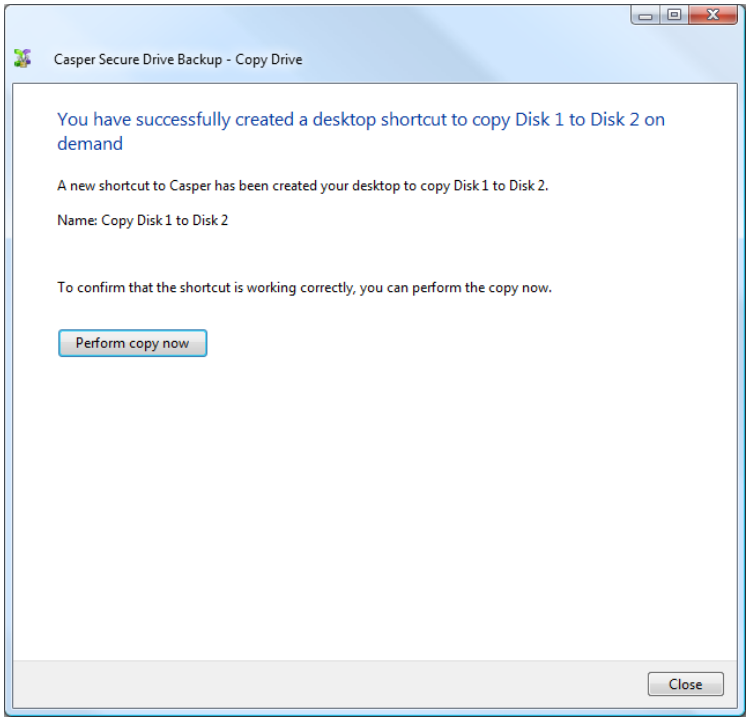
8. Click **Create a desktop shortcut to perform the copy on demand**.




9. Enter a name for the shortcut, or retain the name suggested by Casper, and click **Create shortcut**.



10. Click **Close** to return to the Casper console.



## Booting from a Backup Hard Disk

If you have used Casper Secure Drive Backup to create a bootable backup of your computer's primary hard disk, and your primary hard disk fails or its contents become corrupted, you can boot your computer from the backup hard disk.

When the backup hard disk is installed as an internal hard disk, or attached externally as an eSATA or USB device, booting from the backup hard disk is accomplished by changing the computer's BIOS boot priority setting to designate the backup hard disk as the preferred boot device.

If the computer's BIOS does not offer an option to select the designated backup hard disk as the preferred boot device, or if the original hard disk fails completely, the backup hard disk must be reconfigured to replace the original hard disk. For an internally mounted backup hard disk, this is accomplished by changing the hard disk jumpers and cable connection as required to make the backup hard disk the master on the primary IDE or SATA controller. For a backup hard disk installed in a secondary media bay of a notebook, or installed in an external USB, Firewire, or PCMCIA enclosure, the backup hard disk is removed from its enclosure and exchanged with the original, internally mounted hard disk.

> **NOTE:** For a hard disk attached as an external USB device, booting from the backup hard disk may require the selection of additional BIOS options to completely enable booting. By default, some BIOS implementations disable USB boot support, or have it configured for floppy or ZIP drive emulation rather than hard disk drive (HDD) emulation. *If the computer's BIOS does not support booting from external USB hard disk type devices, the backup hard disk must be removed from its external enclosure and installed as a replacement for the internal hard disk in order to boot from it.* Alternatively, a restore may be performed by using the Casper Secure Startup Disk to copy the external backup hard disk to the computer's internal hard disk.

For detailed instructions on how to replace a hard disk in a desktop system, see **Replacing a hard disk** under **Additional Resources** in the online **Casper Secure Help and Documentation.**

# Creating and Using the Casper Secure Startup Disk

The Casper Secure Startup Disk is an optional component which enables you to boot and run Casper Secure Drive Backup directly from a CD-ROM disc with full access to external USB and Firewire hard disks*. The Casper Secure Startup Disk is required only if you need to clone an external hard drive to the primary system drive because Windows is unable to boot and run from the external hard drive.*

## Creating the Casper Secure Startup Disk

The Casper Secure Startup Disk is distributed as a compressed CD-ROM ISO image that must be decompressed and burned to a CD. Running the **Casper Secure CD-ROM ISO Image File Extraction Wizard** will extract and decompress the CD-ROM ISO image to a file named **CASPERSECUREPGP.ISO**. This file contains the exact sector-by-sector replication of the CD-ROM disc to create.

### Extracting the CASPERSECUREPGP.ISO Image File:

1. Start the **Casper Secure CD-ROM ISO Image File Extraction Wizard** program.

   The **Welcome to the CD-ROM ISO Image File Extraction Wizard** dialog will appear.

2. Click **Next**.

   The **License Agreement** will appear. In order to proceed with the extraction of Casper Secure Startup Disk ISO image file, you must agree to the terms of the license that is displayed.

3. Read the License Agreement, select **I accept the terms in the License Agreement**, and then click **Next**.

   The **Choose Image Location** dialog will appear.

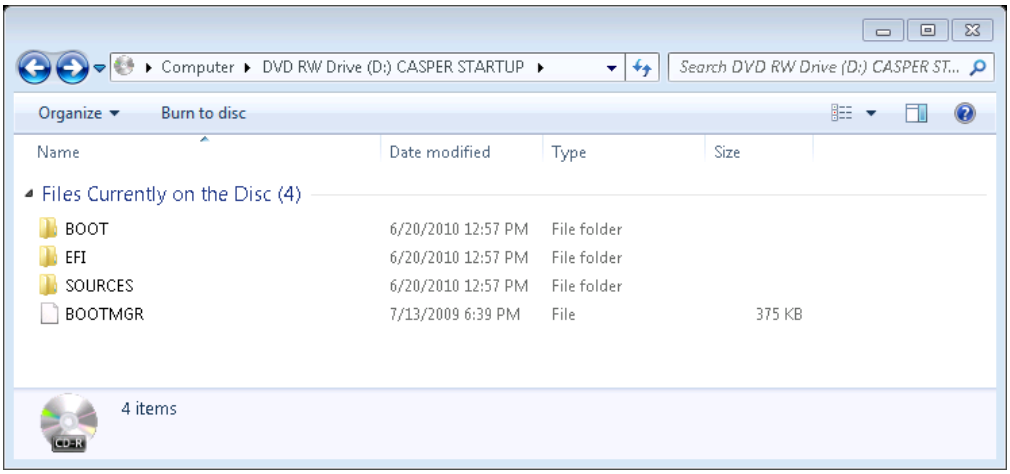
4. Choose the destination folder for the CASPERSECUREPGP.ISO file and click **Extract** to begin the file extraction and decompression process.

   The **Extracting** dialog will appear. When the extraction process has completed, the **Completing the CD-ROM ISO Image File Extraction Wizard** dialog will appear.

5. Click **Finish** to close the wizard.

## Burning the CASPERSECUREPGP.ISO Image to a CD-R Disc:

Once you have the CASPERSECUREPGP.ISO file extracted, it must be burned to a CD-R disc. In Windows 7, this is accomplished by right-clicking the extracted CASPERSECUREPGP.ISO file and selecting **Burn disc image** or **Open with -> Windows Disc Image Burner**. On other Windows platforms, you must select the option to create a CD from an image file in your CD-ROM burning software. Specific examples for Nero, Roxio, and ISO Recorder appear below. After the disc has been burned, the following directory structure should appear on the disc when it is viewed from My Computer or Windows Explorer:




## Using Nero to Create the Casper Secure Startup Disk:

You can use Nero to create a CD from an ISO image. For more information about this program, visit Nero online at http://www.nero.com.

1. From Nero StartSmart, click **Burn Image to Disc** from the **Copy and Backup** options. From Nero Express, select **Disc Image or Saved Project**.
2. Change the File type selection from **All Nero compilations** to **Image Files (*.nrg;*.iso;*.cue)**
3. Navigate to and select the **CASPERSECUREPGP.ISO** file and then click **Open**
4. For best results, change the **Writing speed** to *half the maximum* supported speed (e.g., 24x if your drive is capable of 48x or 52x)
5. Click **Next**

## Using Roxio to Create the Casper Secure Startup Disk:

You can use Roxio Disc Copier / Roxio Easy Media Creator 9 to create a CD from an ISO image. For more information about this program, visit Roxio online at http://www.roxio.com.

1. Open [My] Computer
2. Navigate to the folder containing the **CASPER.ISO** file
3. Right-click on the **CASPERSECUREPGP.ISO** file and select **Burn with Disc Copier** to start Disc Copier
4. For best results, click **Advanced** to display the advanced settings and change the **Write Speed** to *half the maximum* supported speed (e.g., 24x if your drive is capable of 48x or 52x)
5. Click **Copy Now**

## Using ISO Recorder to Create the Casper Secure Startup Disk:

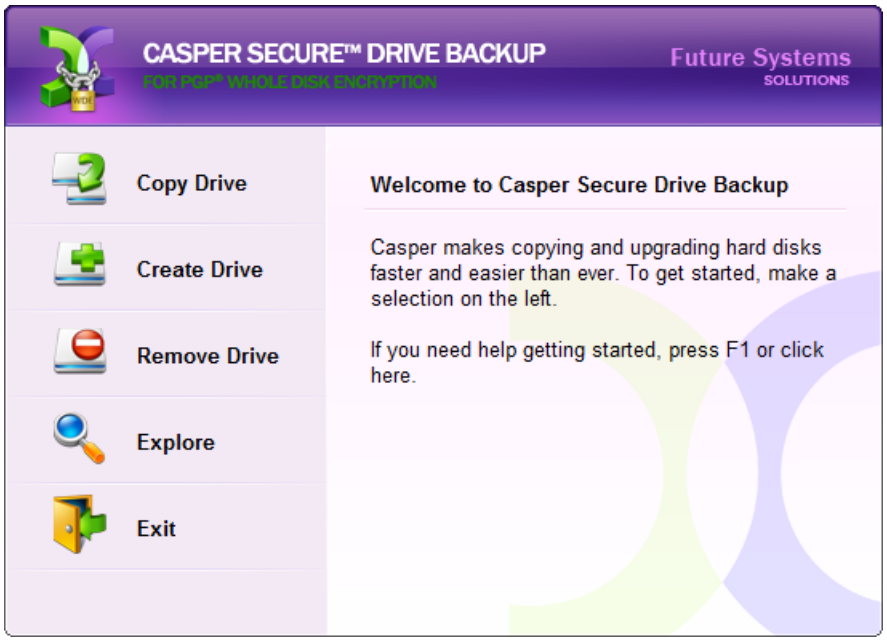
You can use the ISO Recorder program to create a CD from an ISO image. This utility is available free from the author's web site. For more information, visit the ISO Recorder web site at http://isorecorder.alexfeinman.com/isorecorder.htm.

1. Open [My] Computer
2. Navigate to the folder containing the **CASPER.ISO** file
3. Right-click on the **CASPERSECUREPGP.ISO** file and select **Copy image to CD**
4. Click **Properties** to open the Recorder Properties dialog
5. Change the **Recording speed** to *half the maximum* supported speed (e.g., 24x if your drive is capable of 48x or 52x) and click **Ok**
6. Click **Finish**

## Using the Casper Secure Startup Disk

If you are unable to boot your computer directly from the backup hard disk, the Casper Secure Startup Disk can be used to boot and run Casper Secure Drive Backup from a CD-ROM disc. For example, if you used an external hard disk for the backup, and your computer will not boot and run directly from the external hard disk, you can restore your computer by booting the Casper Secure Startup Disk and using Casper Secure Drive Backup to copy the external hard disk to your computer's internal hard disk.

Booting a computer from the Casper Secure Startup Disk may take several minutes. Once it has completed the boot process, the familiar Casper Secure Drive Backup console will display.




**CAUTION:** When running from the Casper Secure Startup Disk, temporary disk unit numbers and drive letters will be assigned, which may be different than those assigned by Windows when the system is running normally.