



C A S P E R<sup>TM</sup>

SERVER EDITION 8.0

SMARTSTART<sup>TM</sup> GUIDE



Future Systems  
SOLUTIONS

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# Table of Contents

- Introduction ..... 1**
  - System Requirements ..... 1**
- Important Concepts ..... 2**
  - Bootable Backups ..... 2**
  - Restore-Point Backups ..... 3**
  - Comparison of Bootable Backups and Restore-Point Backups ..... 4**
- Getting Started ..... 5**
  - Manually Starting Casper SmartStart ..... 5**
- Creating and Maintaining a System Backup..... 6**
  - Example 1: Creating a Bootable Backup ..... 7**
  - Example 2: Creating a Restore-Point Backup..... 9**
  - Example 3: Updating a Backup ..... 12**
  - Example 4: Automating an Internal Backup ..... 14**
  - Example 5: Automating an External Backup..... 17**
    - Configuring a SmartSense Backup..... 17**
    - Starting a SmartSense Backup..... 20**
- Upgrading the Windows System Disk..... 21**
  - Example 6: Upgrading the Windows System Disk ..... 21**

# Introduction

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Whether you need to replace a Windows server's system disk device with a new disk or RAID array for increased speed or storage capacity, or simply maintain a complete backup for quick recovery, Casper SmartStart makes the process a snap.

When you use Casper SmartStart to create a backup for a Windows server, you choose the backup device and type of backup that will provide you with the recovery capabilities you require and Casper does the rest. When choosing a new disk for the backup, Casper will also initialize the disk for you automatically. For complete details, see **Creating and Maintaining a System Backup**.

When upgrading a server to equip it with a faster or larger capacity system disk device, Casper SmartStart will automatically initialize the replacement disk or RAID array and then copy everything from the existing system disk device to the new disk device. See **Upgrading the Windows System Disk** for complete details.

**NOTE:** This guide provides an overview of Casper SmartStart. For additional assistance, please refer to the **Casper User Guide** or help file included with the program.

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## System Requirements

- Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2, Windows Server 2008, Windows Server 2003 R2, Windows Server 2003, Windows 8.x, Windows 7, Windows Vista, or Windows XP (SP3)
- 500MB available disk space
- 512MB RAM (1GB or more recommended)
- Backup device (additional internal or external hard disk drive)

# Important Concepts

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Casper SmartStart can create bootable backups and restore-point backups for a server. Both provide unique recovery capabilities that you should consider before proceeding.

## ***Bootable Backups***

A bootable backup represents a separate backup device that you can use to temporarily boot and run the server in an emergency or that you can use as an immediate and permanent replacement for the server's system disk device. A bootable backup is sometimes referred to as a clone backup because it maintains a duplicate copy ("clone") of the system disk device.

Bootable backups provide the advantage of instant recovery because a separate data restoration process is unnecessary. Recovery is simply a matter of restarting the server from the bootable backup. For example, if the server's system disk device fails or becomes corrupted, you can permanently replace it with the bootable backup or temporarily change the server's boot sequence to designate the bootable backup as the preferred boot device.

Bootable backups also provide you with immediate access to all of the files and data. For example, you can use Windows File Explorer to retrieve a specific file or folder directly from the backup without having to separately mount the backup or extract files or folders from the backup.

Because a bootable backup represents a single, point-in-time copy of the Windows system disk device, it provides you with the ability to recover only a single point-in-time. For example, the backup will contain only those files and folders that were present on the server's system disk device when the backup was created or last updated. Each time you update a bootable backup, the prior contents of the backup are replaced with the current contents of the system disk device.

Using two or more separate disk devices to maintain additional bootable backups in a backup rotation is necessary when additional point-in-time backups are desired. This practice is also recommended to provide redundancy from backup corruption, which can occur when a bootable backup is interrupted during an update.

When relying strictly on a bootable backup to protect a server, it is good practice to rotate the backup disk device between each successive backup. For example, if you update the bootable backup weekly, you might use two separate disks to maintain two independent bootable backups for the server. On the first week, you would back up the server to the first backup disk. On the second week, you would back up the server to the second backup disk. On the third week, you would back up the server to the first backup disk again, and so on. In this way, should a problem develop with one of the backups, you can still fall back to the older backup to recover.

Using Casper to create and maintain a bootable backup for a server requires another disk device large enough to accommodate all of the data on the server's current system disk device. A second internal hard disk, or one mounted in a removable (mobile) drive bay is ideal. If the server supports booting from eSATA or USB hard disk type devices, using an external hard disk for the backup is also ideal.

## ***Restore-Point Backups***

A restore-point backup represents a collection of separate backups stored on a single storage device that you can use to restore the server's system disk device to a previous point-in-time. A restore-point backup is also known as an image backup because it consists of one or more image files, each corresponding to the state of the server's system disk device at the time the image was created.

Because multiple restore-points may be maintained on a single backup device, restore-point backups provide additional recovery options that are not available when using a bootable backup. For example, if the server's system disk device fails or becomes corrupted, you can restore the system disk device to any one of the restore-points you have created. Likewise, when only a specific file or folder needs to be restored, you can choose a specific restore-point from which to retrieve the file or folder.

Unlike a bootable backup, a restore-point backup will not overwrite or replace any other data stored on the backup device. For example, the backup device for a restore-point backup can be almost any disk, including a disk that already contains other data such as photos, documents, music, etc.

Using Casper to create and maintain a restore-point backup for a server requires a storage device with free space that is at least several times greater than the amount of used space on the server's system disk device. An external USB or eSATA connected storage device with the prerequisite amount of free space is often ideal for maintaining restore-point backups. While the exact amount of free space depends on several factors, usually about three times the amount of used space on server's system disk device is enough free space for Casper to create and maintain multiple restore-points for a restore-point backup. For example, if 150GB represents the current amount of used space on the server's system disk device, using a storage device with approximately 450GB of free space is generally sufficient to maintain a restore-point backup with a good variety of restore-points.

As with a bootable backup, when relying strictly on restore-point backups to protect a server, it is good practice to rotate the backup device between successive backups. This will help to ensure a viable backup exists in the event one of your backup devices suffers an untimely mechanical failure or data corruption, which might otherwise prevent you from restoring a backup.

Unlike a bootable backup, recovery using a restore-point backup requires a separate restoration step from the Casper Startup and Recovery Environment. For example, to restore the server's system disk device from a restore-point backup, you must boot the server from a Casper Startup Disk to perform the restore. Alternatively, when the Casper Startup and Recovery Environment has been added to the backup device, you can boot the server directly from the backup device to perform the restore. In most instances, Casper's SmartRestore™ technology will fully automate the restoration process for you. For details on creating a separate Casper Startup Disk, please see the **Casper Startup Disk Creator Guide**.

## ***Choosing a Backup Type***

For the greatest level of protection, maintaining a combination of bootable backups and restore-point backups on multiple devices in rotation is ideal. When this is not possible, the type of backup you choose to maintain will depend greatly on your specific situation and recovery

needs. For a server whereby minimizing downtime is of utmost importance, maintaining two or more bootable backup disk devices in rotation is often preferable to a restore-point backup.

### Comparison of Bootable Backups and Restore-Point Backups

	Casper Bootable Backup	Casper Restore-Point Backup
Contains a complete backup of the server's system disk device?	Yes	Yes
Can be used to boot and run the server if necessary?	Yes	No
Can be used to recover just one or more files?	Yes	Yes
Provides multiple restore points?	No	Yes
Type of storage device required	Dedicated internal or external hard disk device	Internal or external storage device
Other data can be stored on the backup storage device	No. Backup completely replaces existing content of storage device.	Yes. Backups can coexist with other new and existing files and folders on storage device.
Size of storage device required	Large enough to accommodate all of the data currently on server's system disk device	Free space equal to three times the amount of used space on server's current system disk device

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**NOTE:** For a hard disk attached as an external USB device, booting from the backup hard disk may require the selection of additional BIOS or EFI Firmware 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 or EFI Firmware does not support booting from external USB hard disk type devices, a bootable backup hard disk must be removed from its external enclosure and installed as a replacement for the internal system disk device in order to boot from it.* Alternatively, a restore may be performed by using the Casper Startup Disk to copy the external backup hard disk to the computer's internal system disk device.

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# Getting Started

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Casper SmartStart will begin automatically whenever you attach a new disk or existing backup disk to the server. When the disk is already installed or attached, you can manually launch Casper SmartStart.

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## Manually Starting Casper SmartStart

In Windows 8, select **Casper SmartStart** from the Windows **Start** screen. In Windows 7 and earlier versions, follow this procedure:

1. Click the **Start** button.
2. Click **All Programs**.
3. Point to the **Casper 8.0 Server Edition** menu.
4. Click **Casper 8.0 SmartStart**.

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**NOTE:** By default, Casper SmartSense will ignore new disks having a capacity less than 32GB. Please see *Configuring Casper SmartSense* in the Casper Help file for additional information.

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# Creating and Maintaining a System Backup

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Casper SmartStart can create bootable backups and restore-point backups for a server. When creating a backup on a hard disk for the first time, Casper SmartStart will prompt you to select the type of backup to create. Both provide unique recovery capabilities that you should consider before proceeding. Please refer to **Important Concepts** for complete details.

For the greatest level of protection, maintaining a combination of bootable backups and restore-point backups on multiple devices in rotation is ideal. When this is not possible, the type of backup you choose to maintain will depend greatly on your specific situation and recovery needs.

The following examples illustrate the various ways to create and maintain a complete backup of a server's system disk device using Casper SmartStart.

**Example 1: Creating a Bootable Backup.** This example demonstrates how to initialize a new disk for use as a complete backup replacement for a server's system disk device.

**Example 2: Creating a Restore-Point Backup.** This example illustrates how to create a restore-point backup for a server's system disk device.

**Example 3: Updating a Backup.** This example shows how to manually update an existing backup of a server's system disk device. The process is the same whether updating a bootable backup or a restore-point backup.

**Example 4: Automating an Internal Backup.** This example illustrates how to fully automate a backup maintained on a disk that is mounted internally within the server.

**Example 5: Automating an External Backup.** This example shows how to fully automate a backup maintained on a portable device such as a USB, Firewire, or eSATA connected disk.

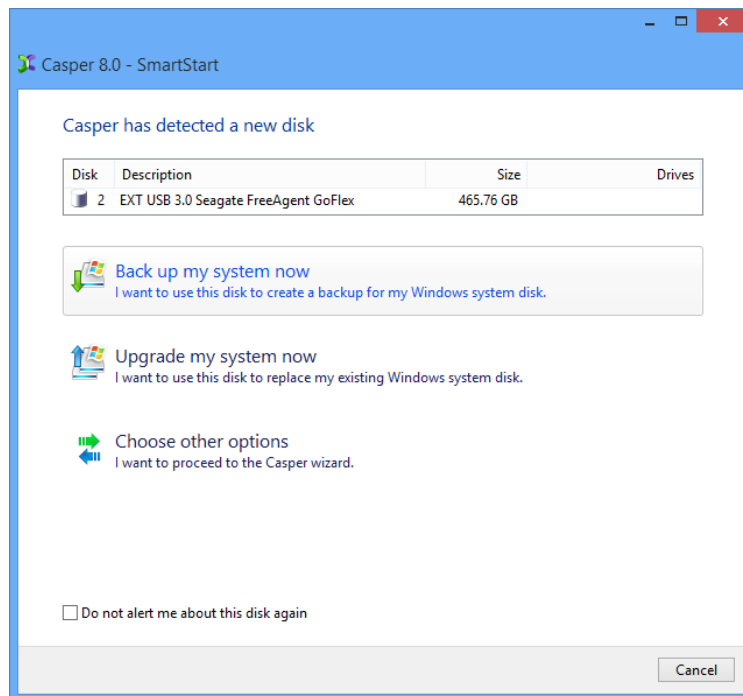
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## Example 1: Creating a Bootable Backup

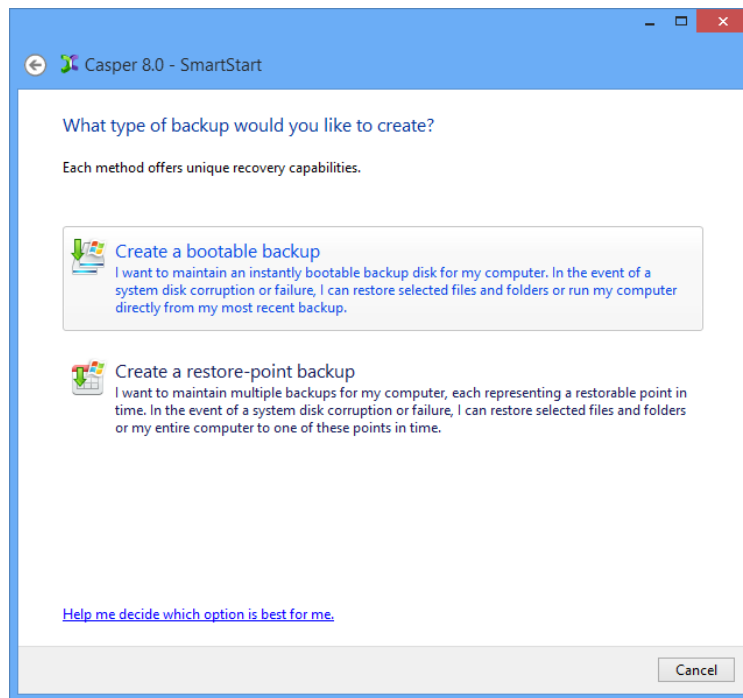
When you attach a new hard disk to the server using an external USB, Firewire, or eSATA interface, Casper SmartStart will begin automatically and prompt you to back up the system. If the new disk device is installed internal to the computer, or if Casper SmartSense is unable to detect the new disk, you must manually launch Casper SmartStart to begin the process.

When creating a system backup, Casper SmartStart will automatically make all of the necessary selections within Casper to immediately perform the back up of the server's system disk device.

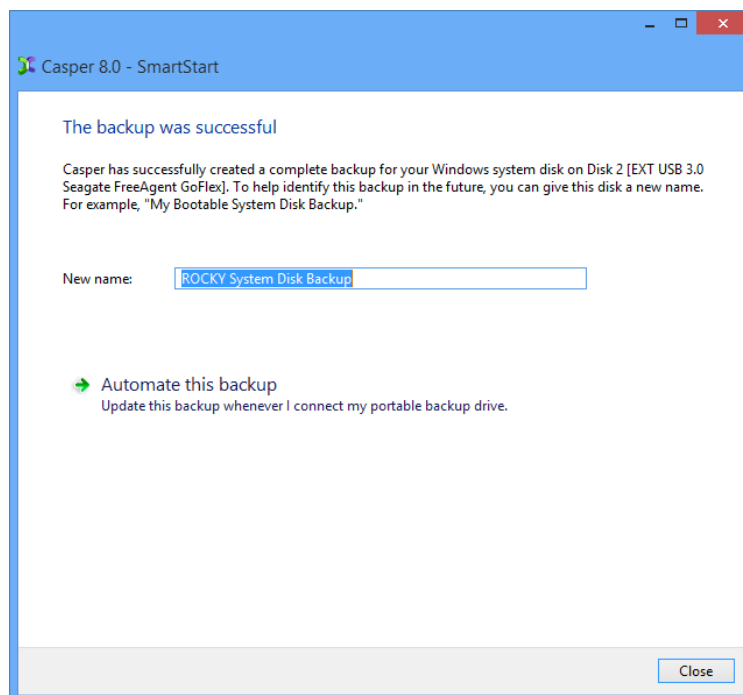
1. Select **Back up my system now**.



2. Select **Create a bootable backup**. Unless Casper detects data on the new disk, the backup will begin immediately.



3. When Casper has completed the backup, you can choose a new name for the disk. This can help you to identify the disk in the future. When you are finished, click **Close**.



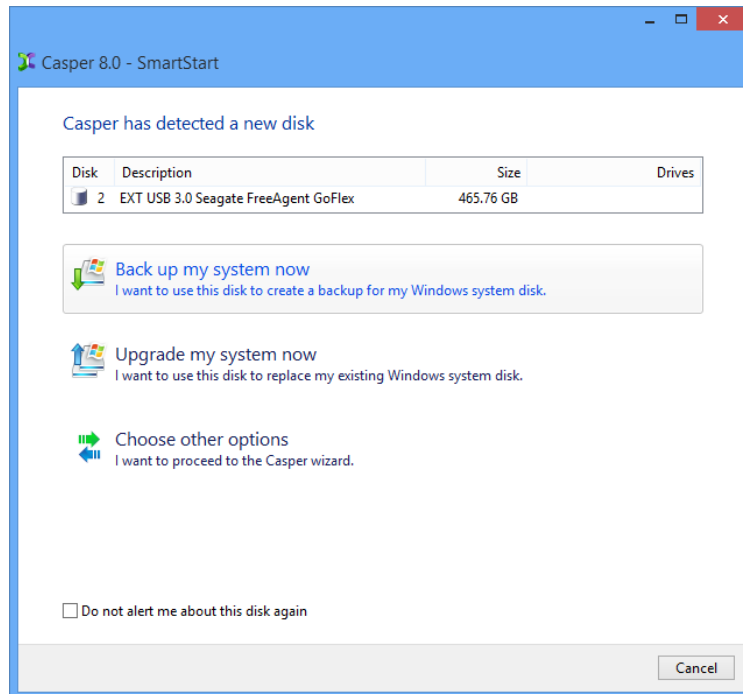
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## Example 2: Creating a Restore-Point Backup

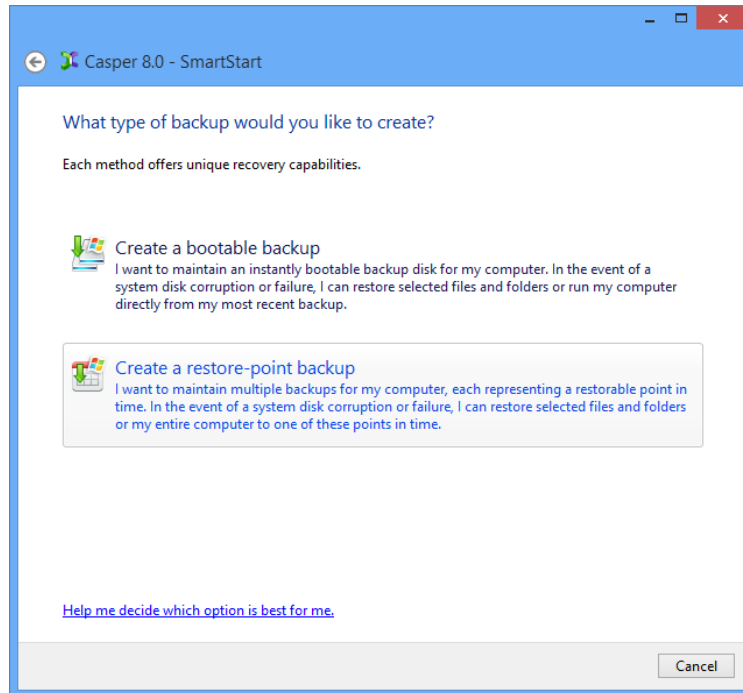
When you attach a new hard disk to the server using an external USB, Firewire, or eSATA interface, Casper SmartStart will begin automatically and prompt you to back up the system. If the new disk device is installed internal to the computer, or if Casper SmartSense is unable to detect the new disk, you must manually launch Casper SmartStart to begin the process.

When creating a system backup, Casper SmartStart will automatically make all of the necessary selections within Casper to immediately perform the back up of the server's system disk device.

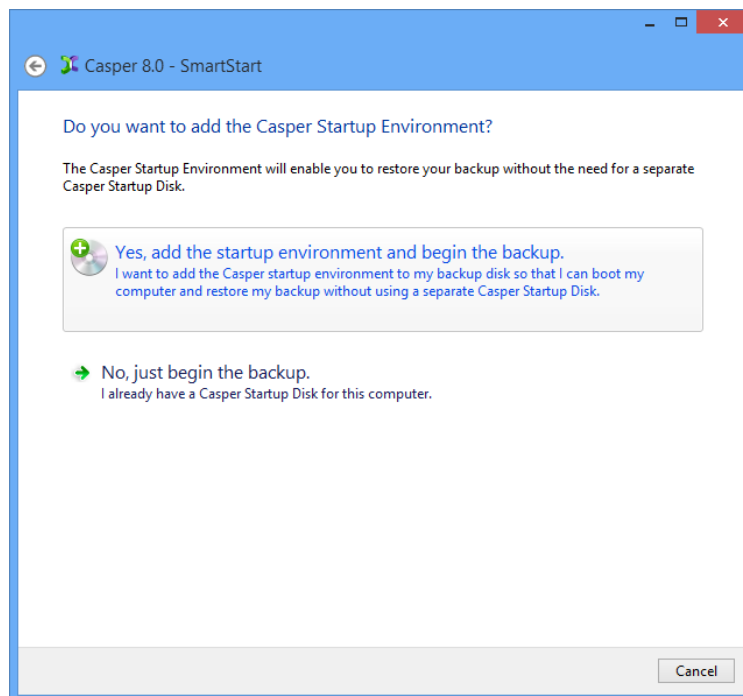
1. Select **Back up my system now**.



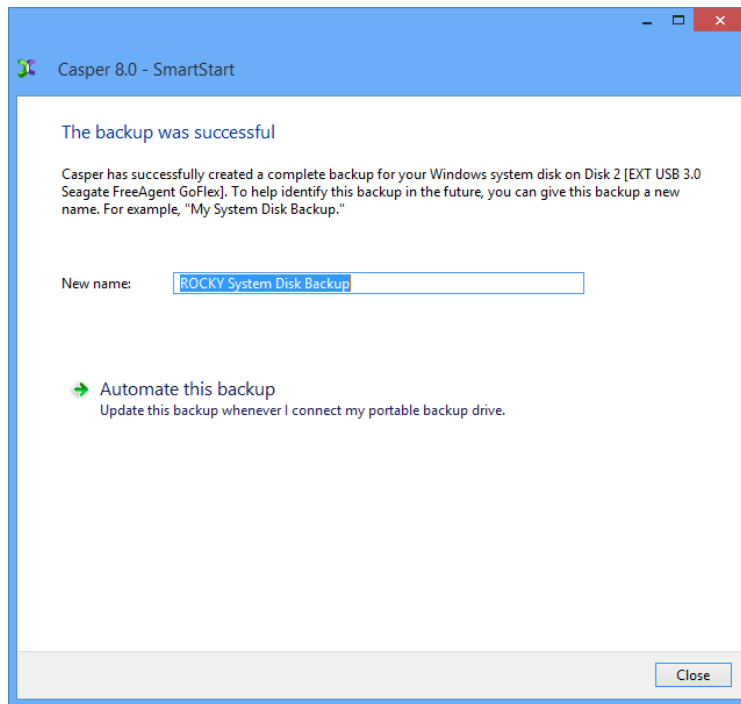
2. Select **Create a restore-point backup**.



3. If the new disk can be used to boot the Casper Startup and Recovery Environment, Casper will offer the option of adding the Casper Startup and Recovery Environment to the disk. This eliminates the need to create and use a separate Casper Startup Disk to restore a backup when recovery is required. Even if you already have a Casper Startup Disk, you may find it useful to have the Casper Startup Environment added to the backup disk. Click **Yes, add the startup environment and begin the backup**.



4. When Casper has completed the backup, you can give it a new name. This can help you to identify the backup in the future. When you are finished, click **Close**.



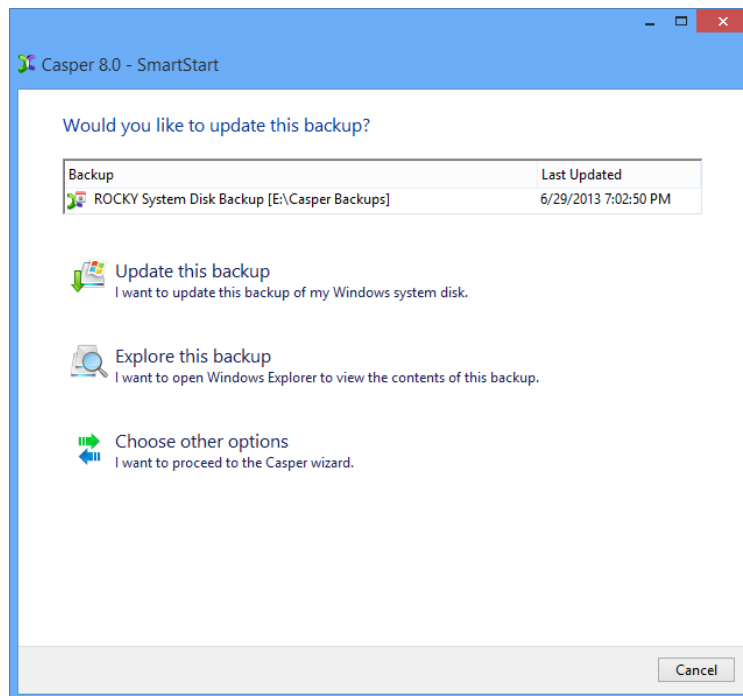
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## Example 3: Updating a Backup

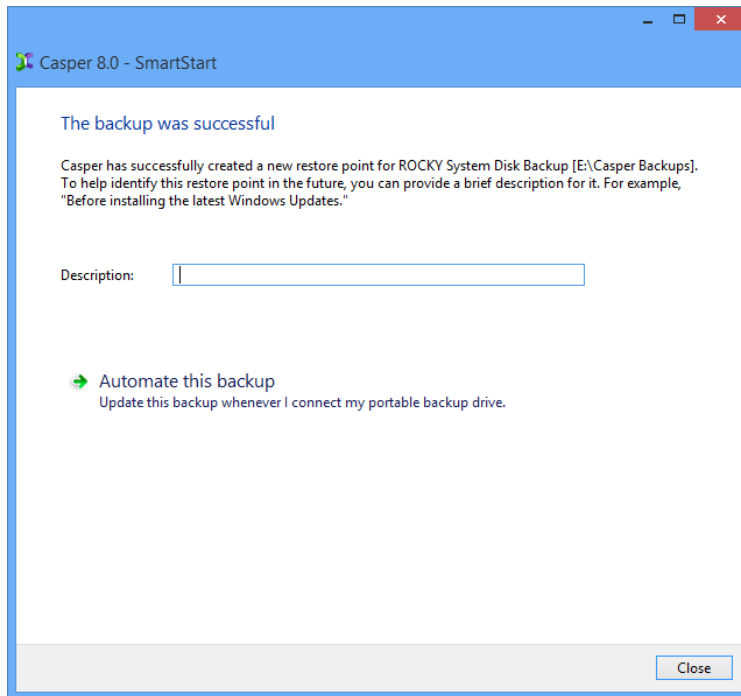
When you attach an existing backup disk to the server using an external USB, Firewire, or eSATA interface, Casper SmartStart will begin automatically and prompt you to update the backup. If the disk containing the backup is installed internally, or if Casper SmartSense is unable to detect the backup disk, you must manually launch Casper SmartStart to begin the process.

When updating a system backup, Casper SmartStart will automatically make all of the necessary selections within Casper to immediately perform the back up of the server's system disk device.

1. Select **Update this backup**.



2. When Casper has completed the new backup, provide a brief description (or new name) for the backup, and then click **Close**. When updating a restore-point backup, a brief description can make it easier to identify the newly created restore-point in the future. When updating a bootable backup, a new name can make it easier to identify when the backup was last updated.



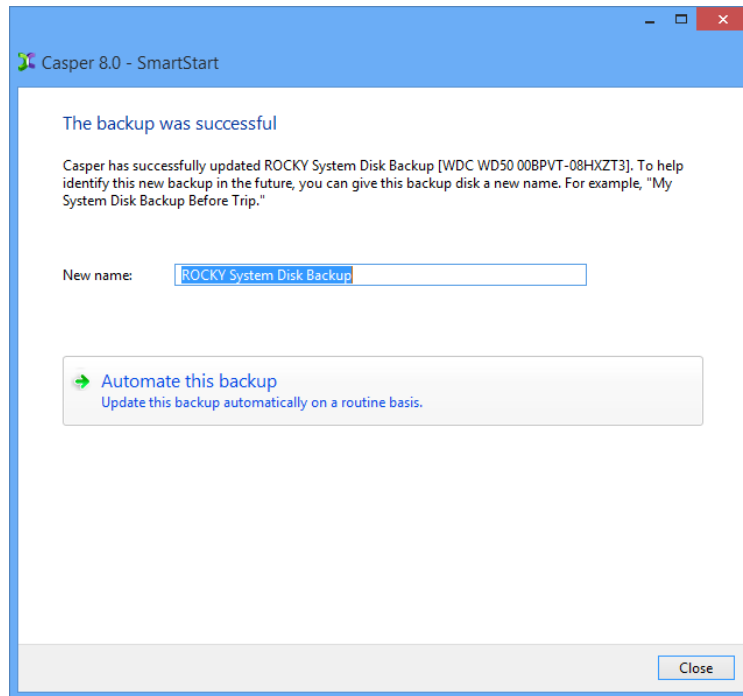


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## Example 4: Automating an Internal Backup

When the backup device is installed internal to the computer or installed in a removable (mobile) drive bay, you can fully automate the backup process by scheduling Casper to run on a routine basis. The process described below is the same whether you have just completed an initial backup as demonstrated in Examples 1 and 2, or updated an existing backup as demonstrated in Example 3.

1. After completing a backup as described in one of the preceding examples, click **Automate this backup**.



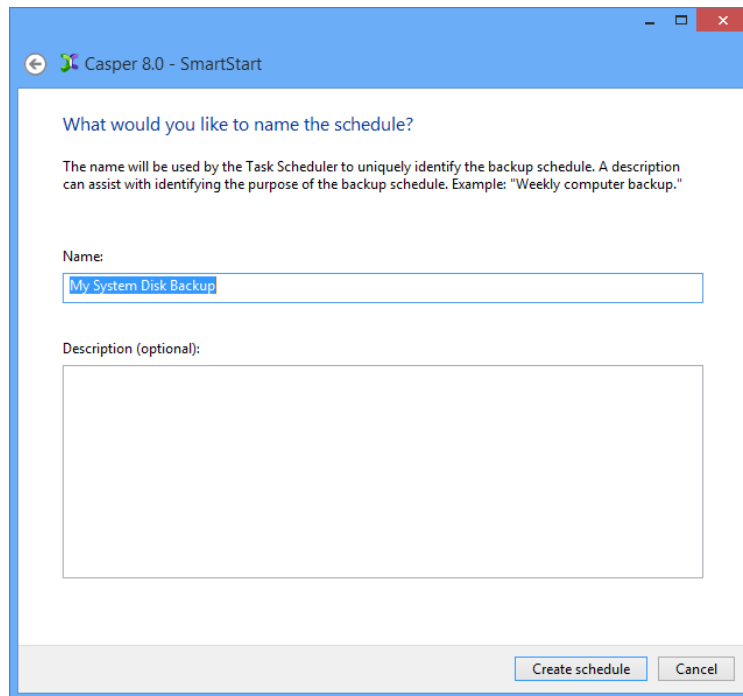
2. Select the schedule you would like Casper to follow to maintain the backup, and click **Next**. For help with the schedule, press **F1**.

The screenshot shows the 'Casper 8.0 - SmartStart' window with the title 'How often would you like the backup performed?'. The 'Select how often you want the backup performed:' dropdown is set to 'Weekly'. Below this, the 'Weekly Backup Schedule' section includes 'Every:' set to 'Wednesday, Friday', 'At:' set to '02:00 AM', and 'Beginning:' set to 'Monday, July 1, 2013'. The 'Power Management' section has a checked checkbox for 'Wake the computer to perform the backup'. 'Next' and 'Cancel' buttons are at the bottom right.

3. Select the desired completion options, and click **Next**.

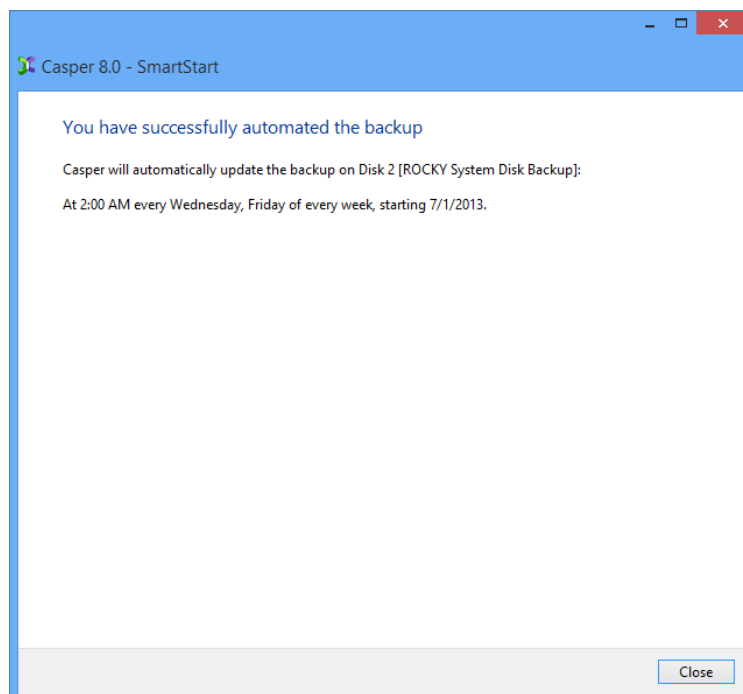
The screenshot shows the 'Casper 8.0 - SmartStart' window with the title 'Select completion options'. The 'Notify me when completed:' checkbox is checked, with a dropdown set to 'Only if unsuccessful'. The 'Additional notification options' section has an unchecked 'Send a SmartAlert' checkbox. Below it, the 'Email address:' dropdown is empty, followed by a right arrow and a 'New' button. The 'Description:' field contains 'ROCKY System Disk Backup'. The 'Turn off computer:' checkbox is checked, with a dropdown set to 'Stand by'. Below it, the 'Turn off computer even if user activity detected' checkbox is unchecked. A blue link 'Help me decide' is at the bottom left. 'Next' and 'Cancel' buttons are at the bottom right.

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



The screenshot shows a dialog box titled "Casper 8.0 - SmartStart". The main heading is "What would you like to name the schedule?". Below this, a note states: "The name will be used by the Task Scheduler to uniquely identify the backup schedule. A description can assist with identifying the purpose of the backup schedule. Example: 'Weekly computer backup.'" There are two input fields: "Name:" with the text "My System Disk Backup" entered, and "Description (optional):" which is currently empty. At the bottom right, there are two buttons: "Create schedule" and "Cancel".

5. Click **Close**.



The screenshot shows a dialog box titled "Casper 8.0 - SmartStart" with a success message: "You have successfully automated the backup". Below this, it states: "Casper will automatically update the backup on Disk 2 [ROCKY System Disk Backup]: At 2:00 AM every Wednesday, Friday of every week, starting 7/1/2013." At the bottom right, there is a "Close" button.

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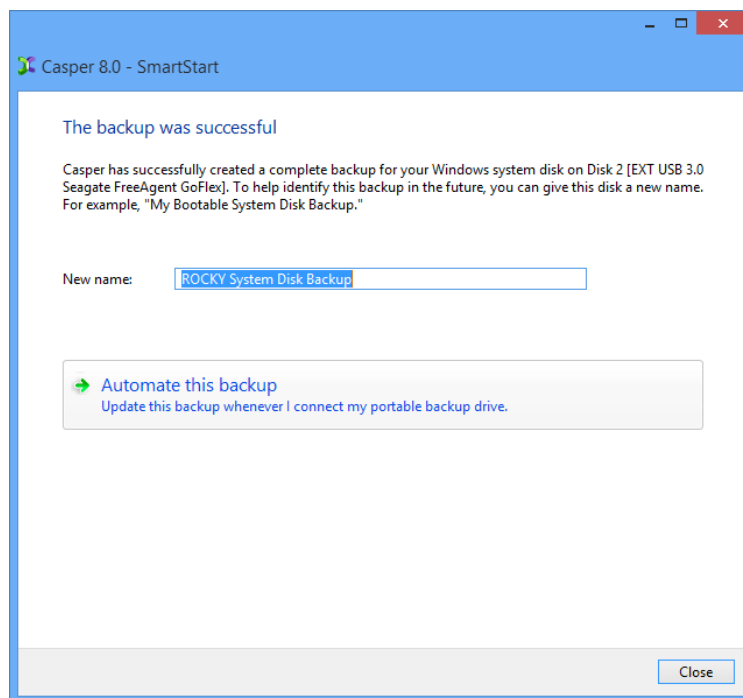
## Example 5: Automating an External Backup

When using a portable drive such as an external USB, Firewire, or eSATA drive for your backup, you can configure a Casper SmartSense Backup to perform the backup automatically whenever you attach the backup drive.

### ***Configuring a SmartSense Backup***

The process described below is the same whether you have just completed an initial backup as demonstrated in Examples 1 and 2, or updated an existing backup as demonstrated in Example 3.

1. After completing a backup as described in one of the preceding examples, click **Automate this backup**.



2. Select the desired completion options, and click **Next**.

The screenshot shows a window titled "Casper 8.0 - SmartStart" with a blue header. The main content area is titled "Select completion options". It contains several settings:

- Notify me when completed: Always (dropdown)
- Additional notification options:
  - Send a SmartAlert
  - Email address: (dropdown) [New]
  - Description: ROCKY System Disk Backup
- Turn off computer: Stand by (dropdown)
- Prepare Disk 2 [ROCKY System Disk Backup] for safe removal

At the bottom left, there is a link: [Help me decide](#). At the bottom right, there are two buttons: "Next" and "Cancel".

3. Enter a name to uniquely identify the backup, or retain the name suggested by Casper, and then click **Save** to register the backup with the Casper SmartSense Service.

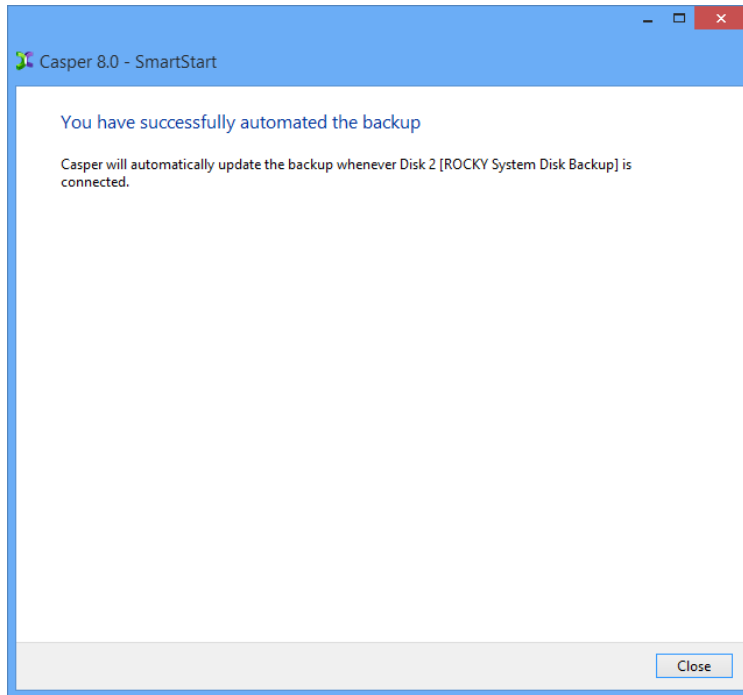
The screenshot shows a window titled "Casper 8.0 - SmartStart" with a blue header. The main content area is titled "How would you like to identify this backup?". Below the title, there is explanatory text: "The name will be used by the Casper SmartSense Service to identify the backup. A description can assist with identifying the purpose of the backup. Example: 'Secondary backup for offsite storage.'"

There are two input fields:

- Name:** A text box containing "My System Disk Portable Backup".
- Description (optional):** A large empty text area.

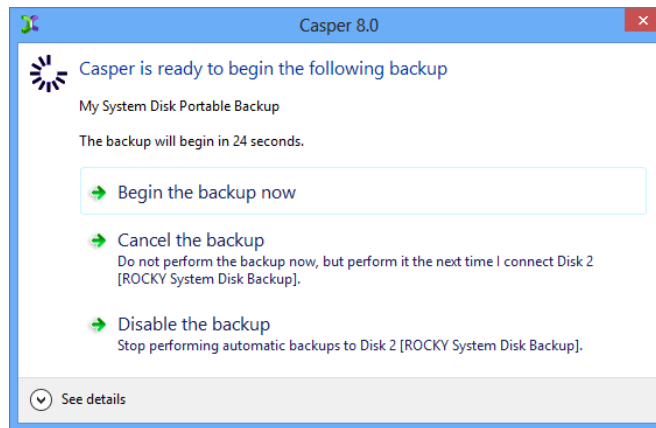
At the bottom right, there are two buttons: "Save" and "Cancel".

4. Click **Close**.



## Starting a SmartSense Backup

Once a portable backup drive has been registered with the Casper SmartSense Service, the backup can be started by simply attaching the portable drive to the computer.



The backup will start automatically after a short delay. You can begin the backup immediately by selecting **Begin the backup now**. Click **Cancel the backup** to skip the backup, or **Disable the backup** to skip the current backup and prevent future backups from beginning automatically.

# Upgrading the Windows System Disk

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The procedure for upgrading or replacing a hard disk in a server is basically the same whether you are upgrading a single hard disk or a RAID array configured through a hardware RAID controller. The new hard disk or RAID array must be temporarily installed or configured as a secondary disk device in the computer or attached as an external disk using an external USB, Firewire, or eSATA hard disk enclosure or bridge adapter.

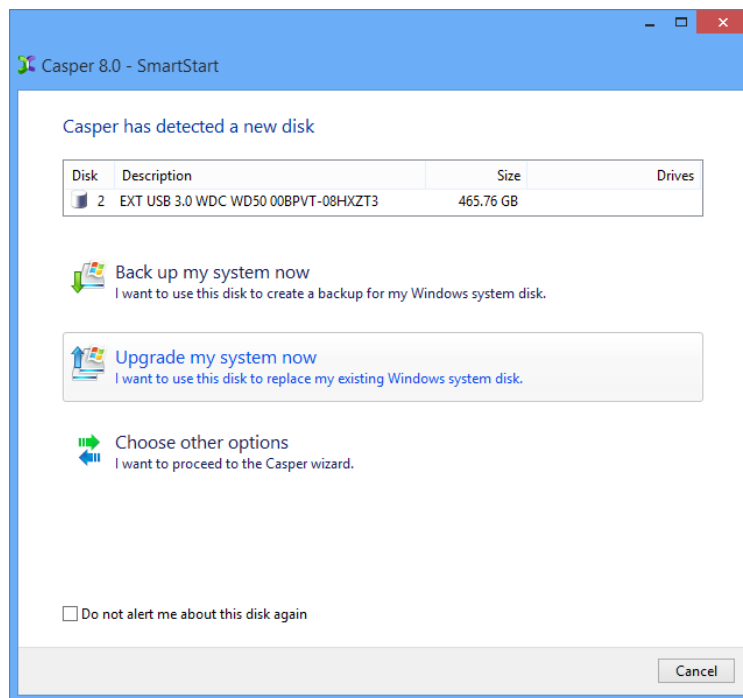
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## Example 6: Upgrading the Windows System Disk

When you attach a new hard disk to the computer using an external USB, Firewire, or eSATA interface, Casper SmartStart will begin automatically and prompt you to upgrade the system. If the new disk device is installed internally, or if Casper SmartSense is unable to detect the new disk, you must manually launch Casper SmartStart to begin the process.

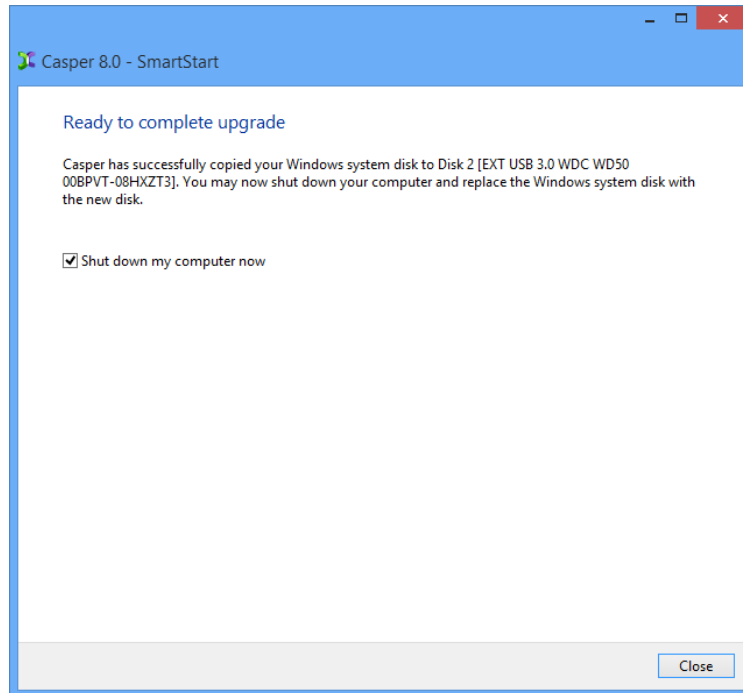
When performing an upgrade, Casper SmartStart will automatically make all of the necessary selections within Casper to immediately copy the server's system disk device to the new disk.

1. Select **Upgrade my system now**





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



3. Reconfigure the computer to replace the original hard disk or RAID array with the new disk device.