CASPER SECURE™

SERVER EDITION

SMARTSTART™ GUIDE

v6.0

Future Systems SOLUTIONS

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Introduction

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 / Replacing the Windows System Disk** for complete details.

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

System Requirements

- Windows Server 2025, Windows Server 2022, Windows Server 2019, Windows Server 2016, Windows Server 2012 R2, Windows Server 2012, Windows Server 2008 R2, Windows Server 2008, Windows 11, Windows 10, Windows 8.x, Windows 7 or Windows Vista[1]
- 500MB available disk space
- 512MB RAM (1GB or more recommended)
- Backup device (additional internal or external hard disk drive)

[1] Casper Secure Server Edition is not designed for use with Windows Server for Itanium-based systems or Windows NT. Disk image file backups are supported only when running on Windows Server 2008 and later or when booting and running from the Casper Secure Server Edition Startup Disk. The VHDX image file format is supported only when running on Windows Server 2012 and later or when booting and running from a Casper Secure Server Edition Startup Disk created with the Windows 8.x ADK or later. Booting from a USB connected hard disk requires a computer with BIOS or UEFI firmware support for booting from USB hard disk drive (USB-HDD) devices. Not all computers support booting and running from USB hard disk type devices. Some computers equipped with both USB 3.0 and USB 2.0 ports will support booting only when the device is connected to a USB 2.0 port.

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Important Concepts

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 your 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 a good option.

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Restore-Point Backups

A restore-point backup represents a collection of separate backups stored on a single storage device that you can use to temporarily boot and run the server in an emergency, restore selected files and folders, or 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 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 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 documents, separate database backups, 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 the 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 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. For example, you must first boot the server from the restore-point backup, the Casper Secure Startup and Recovery Environment or a Casper Secure Startup Disk to perform the restore. When bootable image recovery has been configured for the backup device, you can temporarily boot the server directly from the restore-point backup and perform the restore. Alternatively, when the Casper Secure 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. To create and use a separate Casper Secure Startup Disk, please see the **Casper Secure Startup Disk Creator Guide**.

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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 this may mean that maintaining two or more bootable backup disk devices in rotation might be 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?	Yes	Yes
Can be used to temporarily boot and run server if necessary?	Yes	Yes[2]
Can be used to permanently boot and run server?	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 Windows system disk	Free space equal to three times the amount of used space on current Windows system disk

[2] Due to limitations with Windows native boot functionality, only unencrypted restore-point backups may be booted through bootable image recovery at this time.

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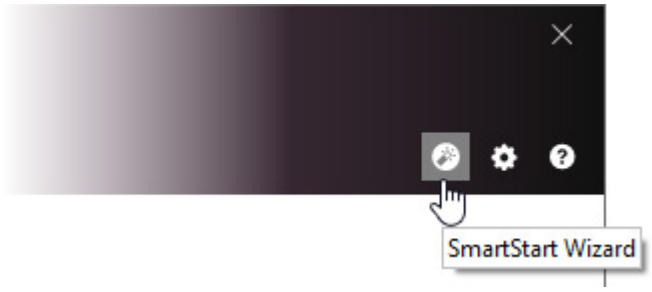
Casper SmartStart can be accessed at any time by selecting the SmartStart tab on the main Casper console screen:

If Casper is not currently running and you attach a new disk or existing backup disk to the server, the Casper SmartSense service will automatically start the Casper SmartStart Wizard to guide you.

Casper SmartStart Wizard

The Casper SmartStart Wizard will begin automatically whenever you attach a new disk or existing backup disk to the server. When you attach a new disk, the Casper SmartStart Wizard will guide you step-by-step through the process of preparing the new disk for use on the server. When you attach an existing backup disk, the Casper SmartStart Wizard will assist you with quickly updating or accessing the backup.

If the disk is already attached to the computer, or if Casper SmartSense is unable to detect the disk, you can access Casper SmartStart by selecting the SmartStart tab on the main Casper console screen. If you prefer the wizard driven approach, you can also manually start the Casper SmartStart Wizard by clicking the SmartStart Wizard icon appearing on the Casper console screen:



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

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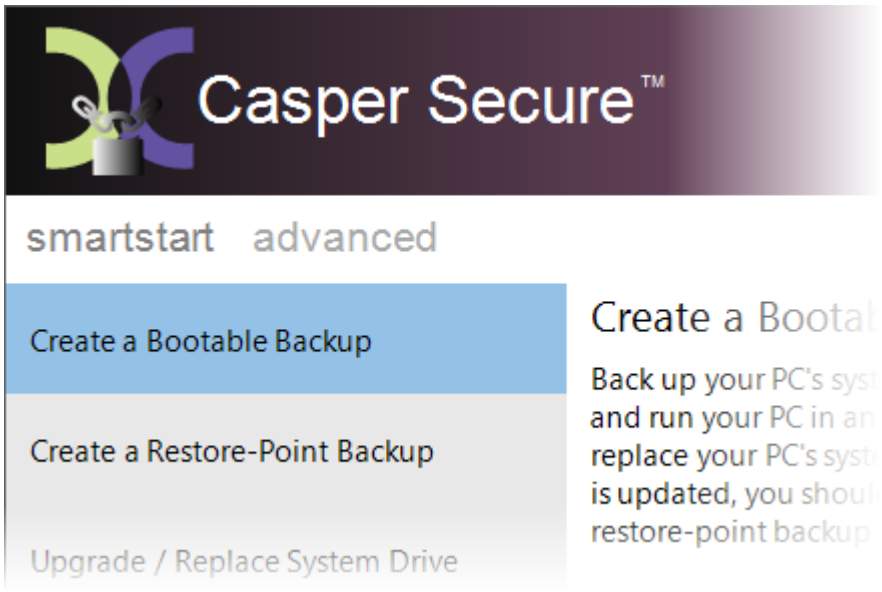
Creating and Maintaining a System Backup

Casper SmartStart can create bootable backups and restore-point backups for a server. Both provide unique recovery capabilities that you should consider before proceeding. Please refer to **Important Concepts** for complete details.

When you attach a new disk for the first time, the Casper SmartStart Wizard will prompt you to select the type of backup to create. If you are accessing Casper SmartStart from the SmartStart tab on the main Casper console screen, you choose which type of backup to create by selecting the appropriate menu option:



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 using the SmartStart Console. This example demonstrates how to create and automatically maintain a complete backup replacement for a server's system disk device.

Example 2: Creating a Bootable Backup using the SmartStart Wizard. This example demonstrates how to initialize a new disk for use as a complete backup replacement for a server's system disk device using the Casper SmartStart Wizard to guide you.

Example 3: Creating a Restore-Point Backup using the SmartStart Console. This example illustrates how to create and automatically maintain a restore-point backup for a server's system disk device.

Example 4: Creating a Restore-Point Backup using the SmartStart Wizard. This example illustrates how to create a restore-point backup for a server's system disk device using the Casper SmartStart Wizard to guide you.

Example 5: Updating a Backup using the SmartStart Wizard. 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.

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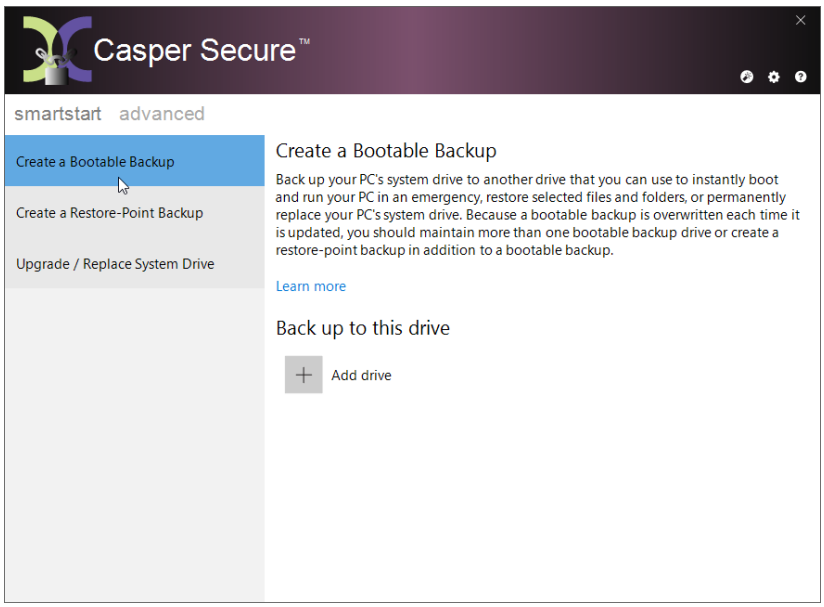
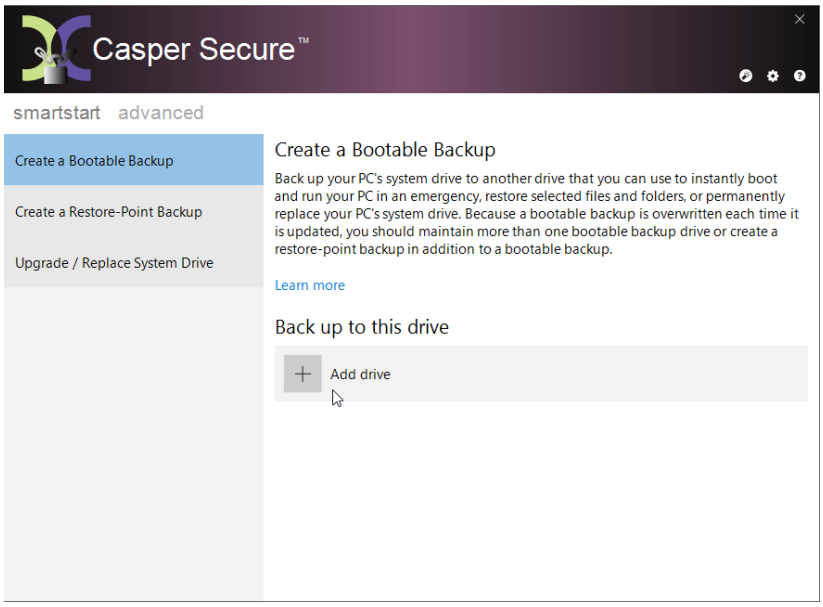
Example 1: Creating a Bootable Backup using the SmartStart Console

When creating a bootable backup, Casper SmartStart will automatically make all of the necessary selections within Casper to create and maintain the back up for you.

1. From the Casper console, select the **SmartStart** tab and then click **Create a Bootable Backup**.



2. Click **Add drive**.



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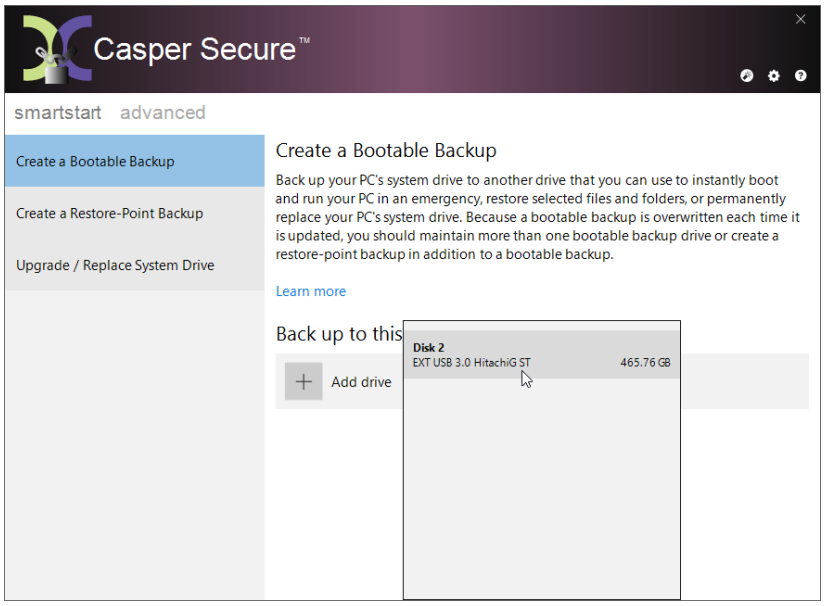
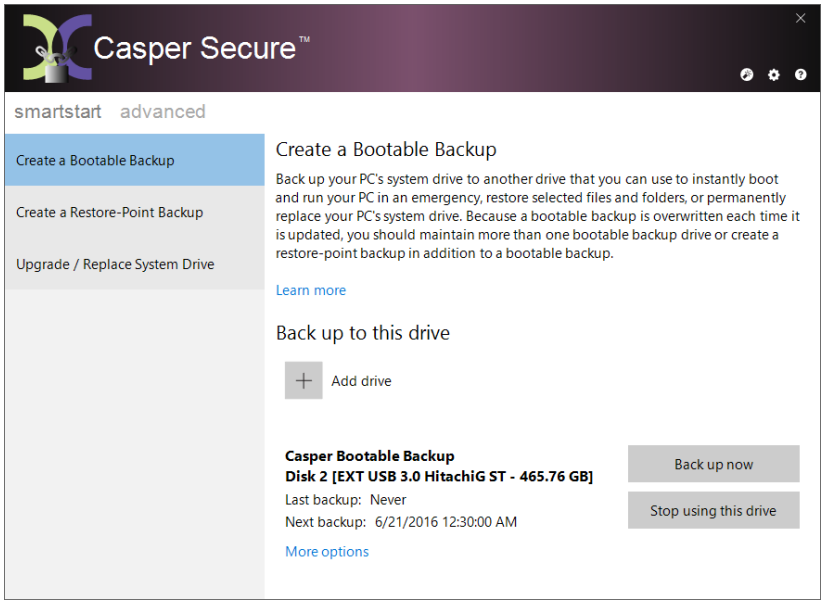
3. Select the drive you want to use for your bootable backup from the list presented. Only drives that can be used for a bootable backup will appear in the list. For example, drives that cannot be used to boot and run the server or drives that are too small to accommodate all of the data currently stored on the server's system drive will be omitted from the list.



Once the drive has been selected, Casper automatically schedules the initial backup and subsequent updates to maintain the backup on a routine basis. No further action is required on your part to create or maintain the bootable backup. To begin the initial backup immediately, click **Back up now**.



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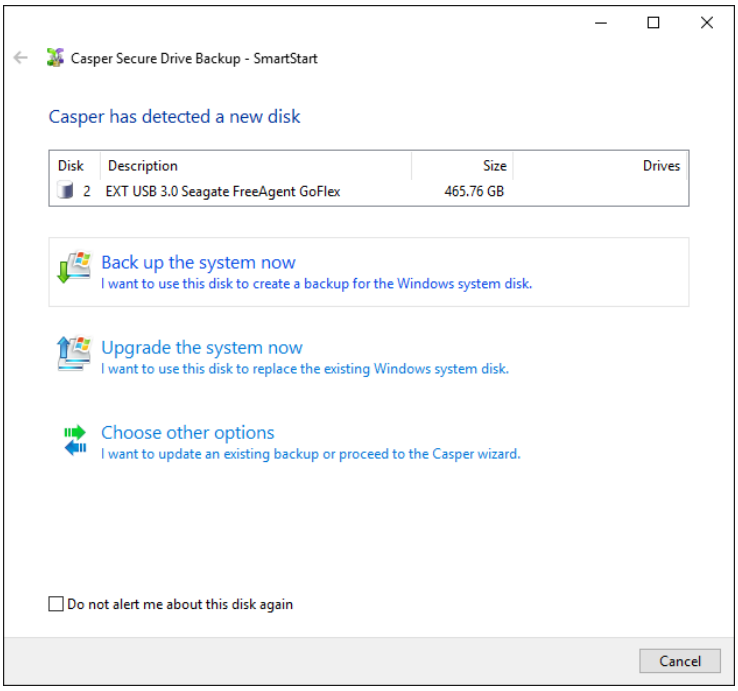
Example 2: Creating a Bootable Backup using the SmartStart Wizard

When you attach a new hard disk to the server using an external USB, Firewire, or eSATA interface, the Casper SmartStart Wizard will begin automatically and prompt you to back up the system disk device. If the new disk is already attached to the server, or if Casper SmartSense is unable to detect the disk, you can manually start the Casper SmartStart Wizard by clicking the SmartStart Wizard icon appearing on the Casper console. See Getting Started for details.

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

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



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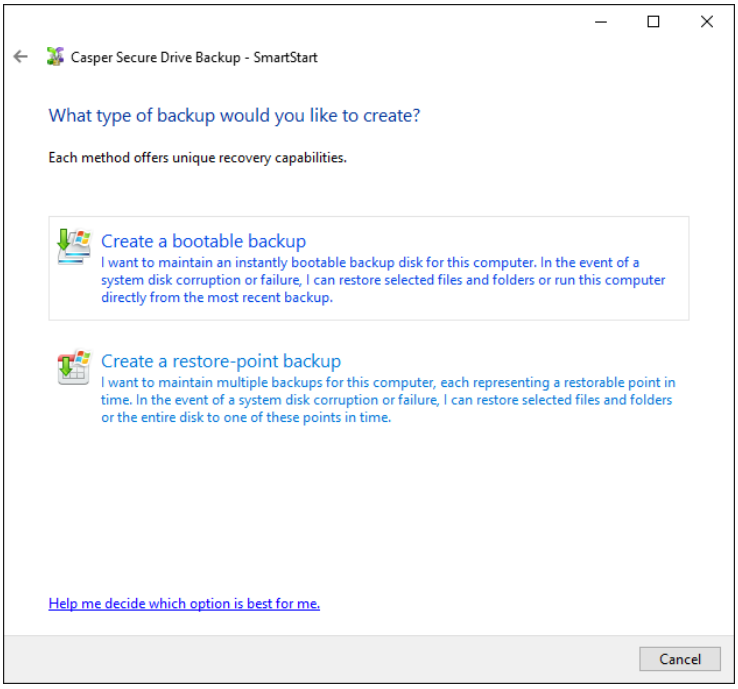
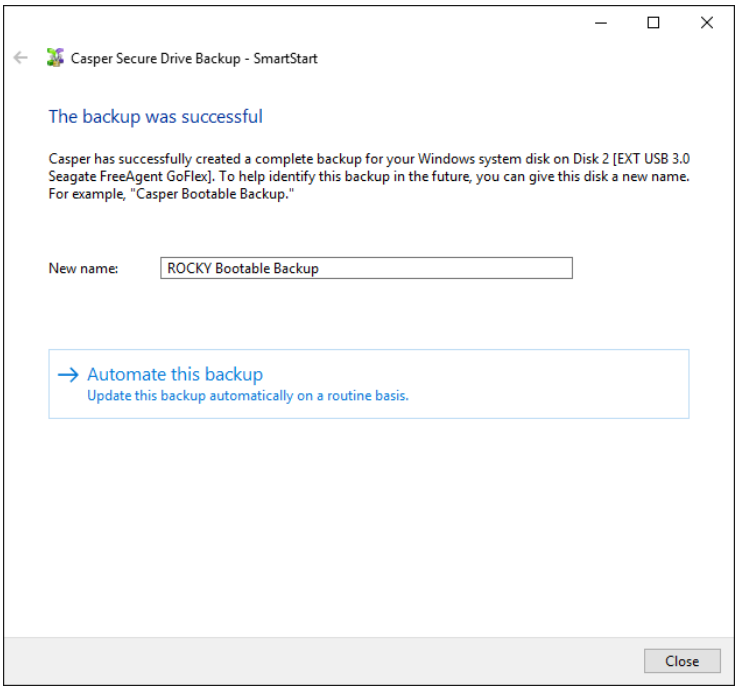
2. Select **Create a bootable backup.** Unless Casper detects data on the new disk, the backup will begin immediately.



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** to exit the wizard or click **Automate this backup** to have the backup automatically updated on a routine basis.



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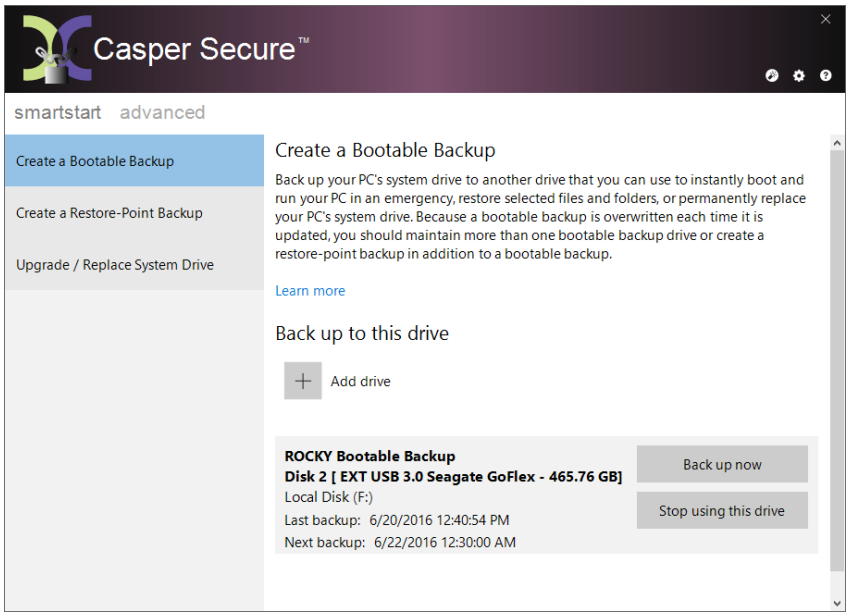
If you choose to automate the backup, Casper will create a scheduled task to update the bootable backup and then display the Casper console.



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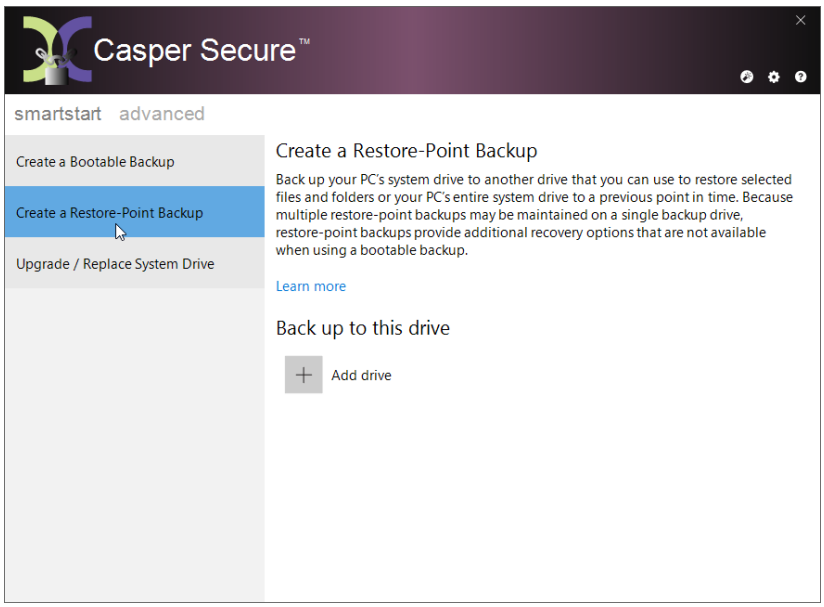
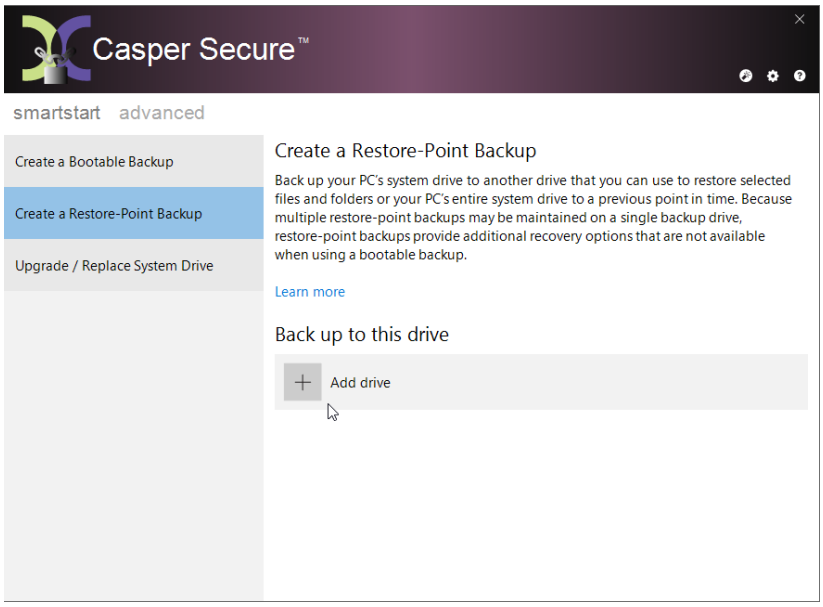
Example 3: Creating a Restore-Point Backup using the SmartStart Console

When creating a restore-point backup, Casper SmartStart will automatically make all of the necessary selections within Casper to create and maintain the back up for you.

1. From the Casper console, select the **SmartStart** tab and then click **Create a Restore-Point Backup**.



2. Click **Add drive**.



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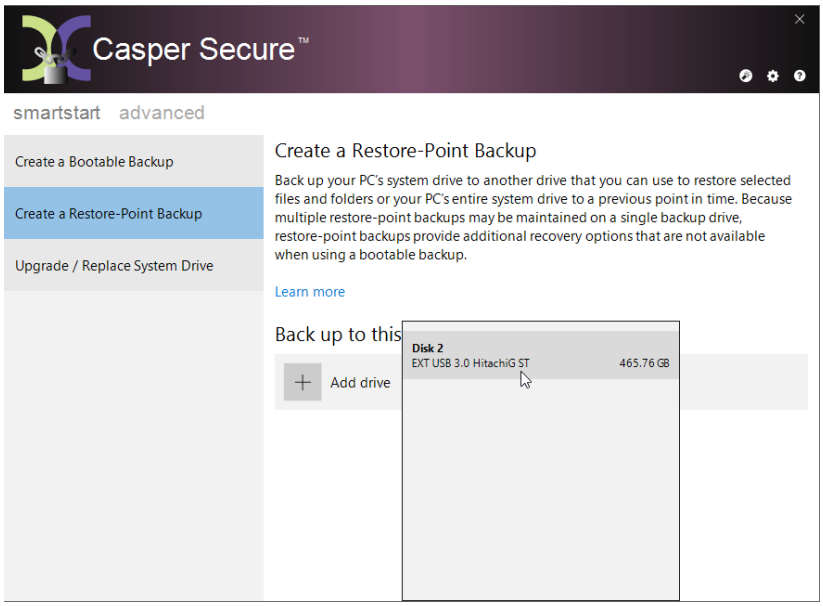
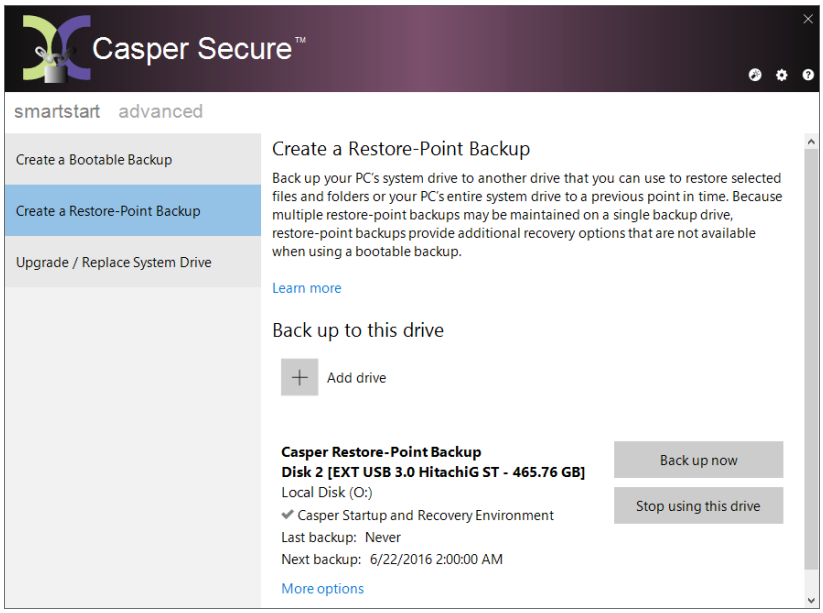
3. Select the drive you want to use for your restore-point backup from the list presented. Only drives that can be used for a restore-point backup will appear in this list. For example, drives that that are too small to accommodate all of the data currently stored on the server's system drive will be omitted from the list.



Once the drive has been selected, Casper automatically schedules the initial backup and subsequent updates to maintain the backup on a routine basis. No further action is required on your part to create or maintain the restore-point backup. To begin the initial backup immediately, click **Back up now**.



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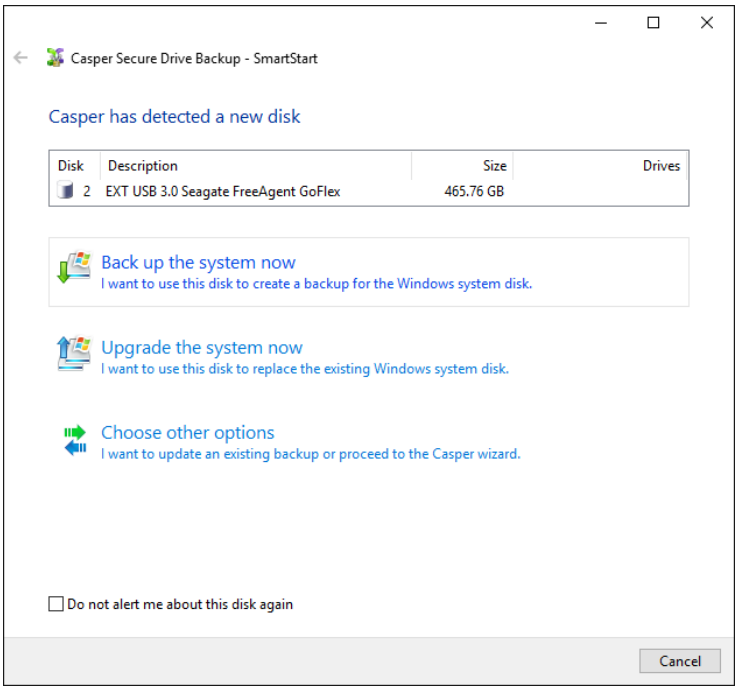
Example 4: Creating a Restore-Point Backup using the SmartStart Wizard

When you attach a new hard disk to the server using an external USB, Firewire, or eSATA interface, the Casper SmartStart Wizard will begin automatically and prompt you to back up the system disk device. If the new disk is already attached to the server, or if Casper SmartSense is unable to detect the disk, you can manually start the Casper SmartStart Wizard by clicking the SmartStart Wizard icon appearing on the Casper console. See Getting Started for details.

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

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



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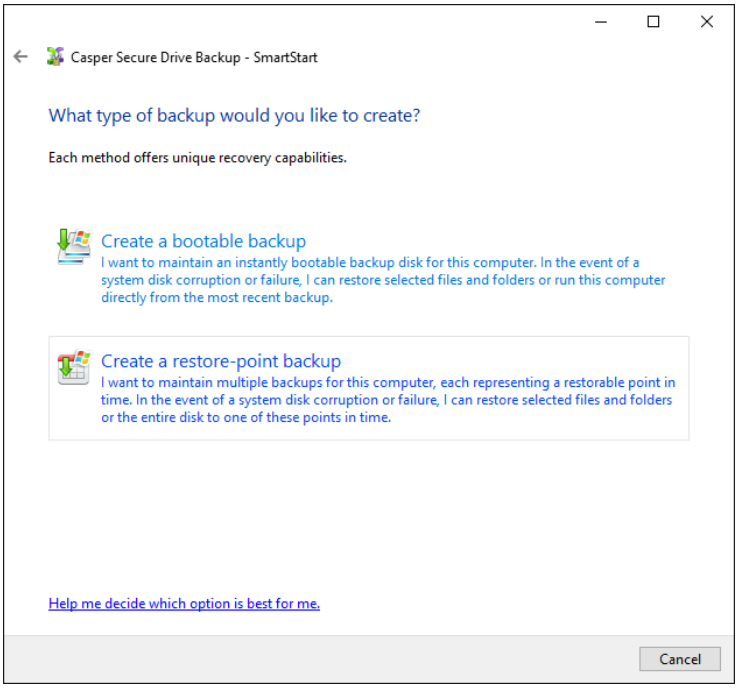
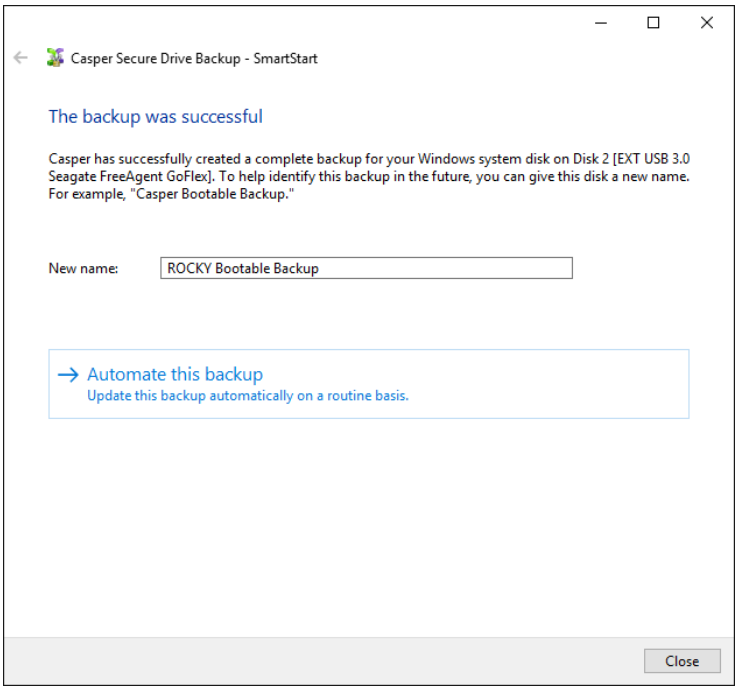
2. Select **Create a restore-point backup.** Casper will begin creating the backup immediately.



3. 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** to exit the wizard or click **Automate this backup** to have additional Casper restore-points automatically created on a routine basis.



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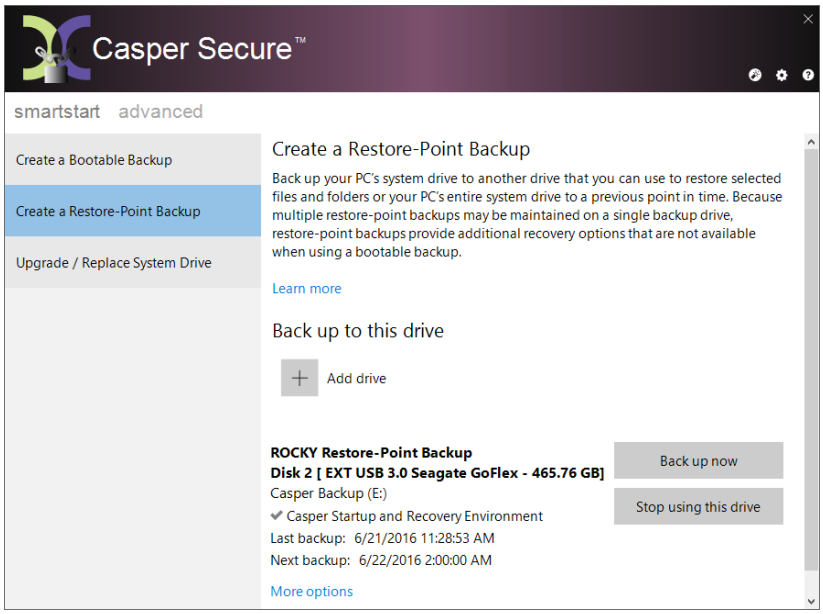
If you choose to automate the backup, Casper will create a scheduled task to update the restore-point backup and then display the Casper console.



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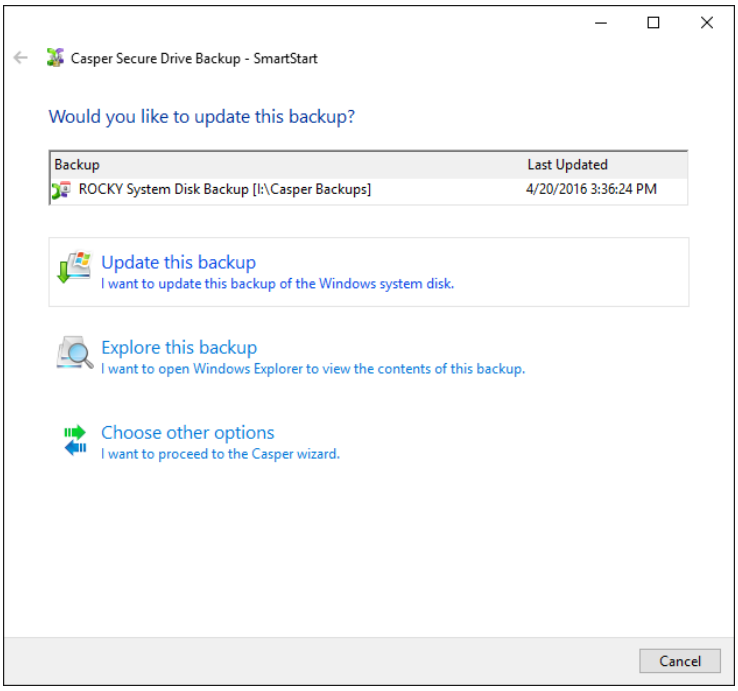
Example 5: Updating a Backup using the SmartStart Wizard

When you attach an existing backup disk to the server using an external USB, Firewire, or eSATA interface, the Casper SmartStart Wizard will begin automatically and prompt you to update your backup. If the disk containing your backup is already attached to the server, or if Casper SmartSense is unable to detect the backup disk, you can manually start the Casper SmartStart Wizard by clicking the SmartStart Wizard icon appearing on the Casper console. See Getting Started for details.

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

1. Select **Update this backup**. Casper will begin updating the backup immediately.



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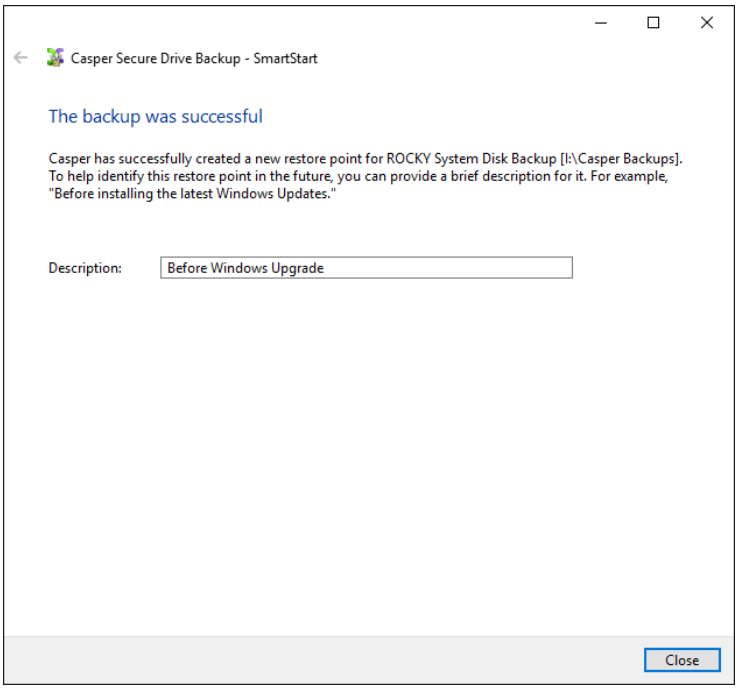
2. When Casper has completed the new backup, provide a brief description (or new name) for the backup, and then click **Close**. When updating a restore-point backup, a brief description can make it easier to identify the newly created restore-point in the future. When updating a bootable backup, a new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



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Upgrading / Replacing the Windows System Disk

The procedure for upgrading and replacing a server's system disk device 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 device using an external USB, Firewire, or eSATA enclosure or bridge adapter.

The following examples illustrate how to upgrade and replace the server's system disk device with a new disk using Casper SmartStart.

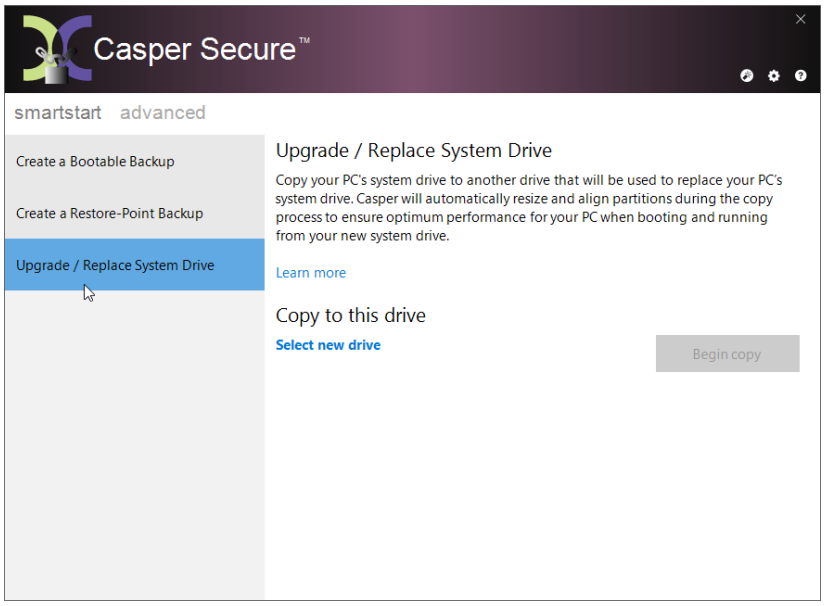
Example 6: Upgrading / Replacing the System Disk using the SmartStart Console. This example demonstrates how to copy the entire contents of the server's system disk device to a new disk from the Casper console.

Example 7: Upgrading / Replacing the System Disk using the SmartStart Wizard. This example demonstrates how to copy the entire contents of the server's system disk device to a new disk using the Casper SmartStart Wizard to guide you.

Example 6: Upgrading the Windows System Disk using the SmartStart Console

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

1. From the Casper console, select the **SmartStart** tab and then click **Upgrade / Replace System Drive**.



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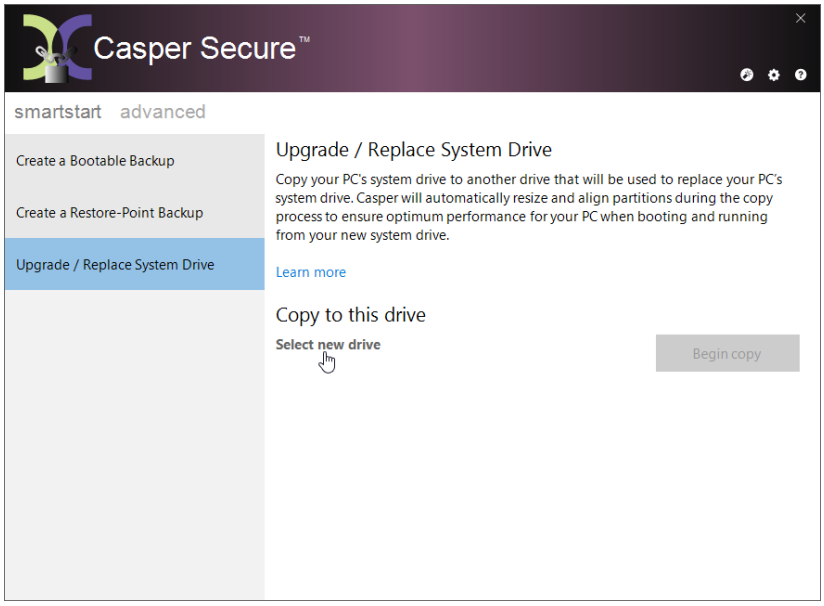
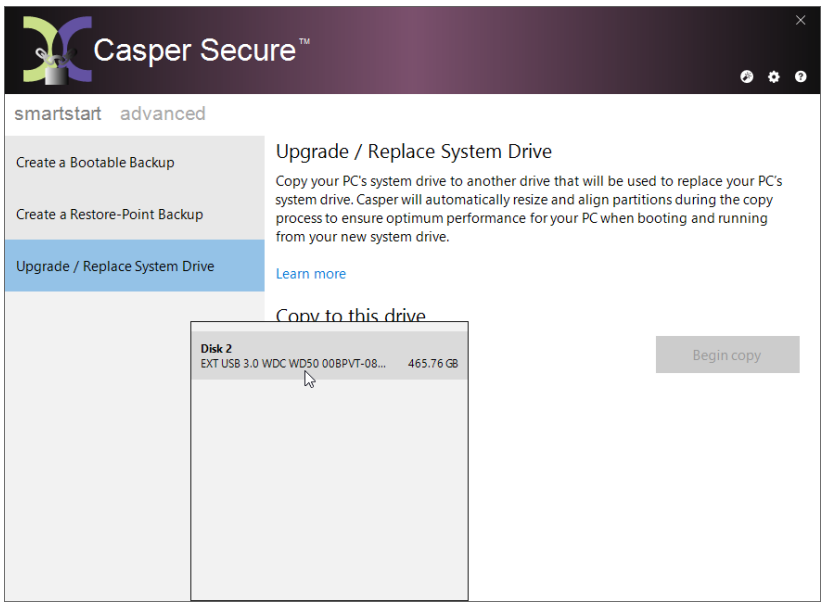
2. Click **Select new drive**.



3. Select the new drive from the list presented. Only drives that can be used as a replacement for the server's system drive will appear in this list. For example, drives that cannot be used to boot and run the server or drives that are too small to accommodate all of the data currently stored on the server's system drive will be omitted from the list.



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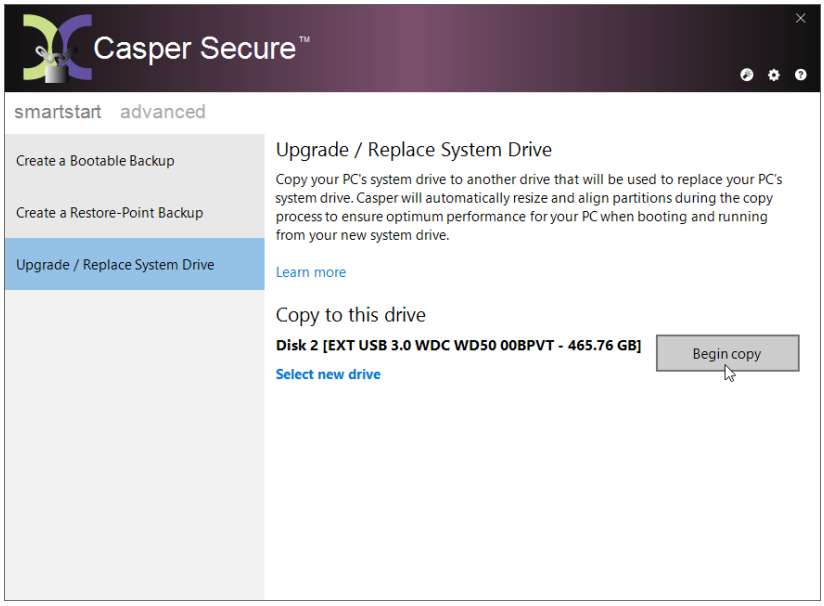
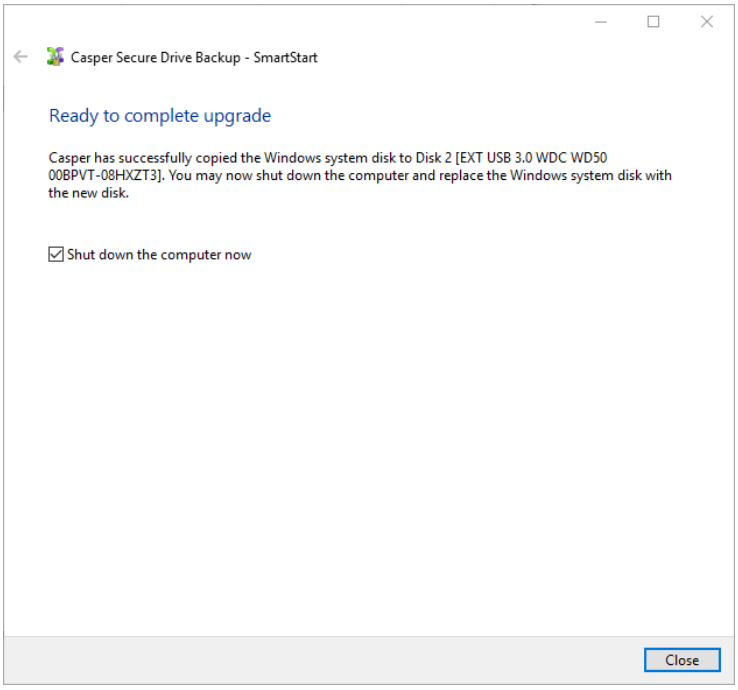
4. Click **Begin copy**.



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



6. Reconfigure the server to replace the original system disk or RAID array with the new disk or RAID array.

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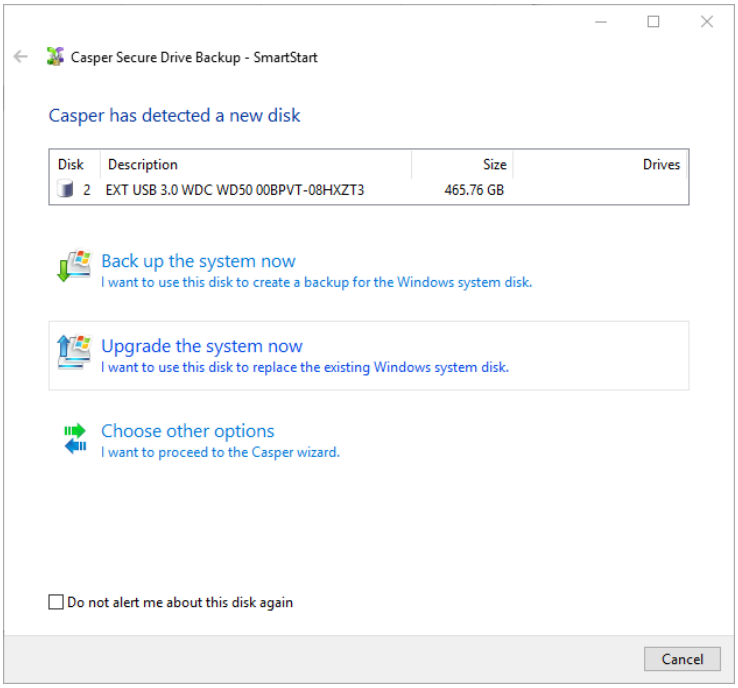
Example 7: Upgrading the Windows System Disk using the SmartStart Wizard

When you attach a new disk device to the server using an external USB, Firewire, or eSATA interface, the Casper SmartStart Wizard 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 can manually start the Casper SmartStart Wizard by clicking the SmartStart Wizard icon appearing on the Casper console. See Getting Started for details.

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

1. Select **Upgrade the system now**. Casper will begin cloning the disk immediately.



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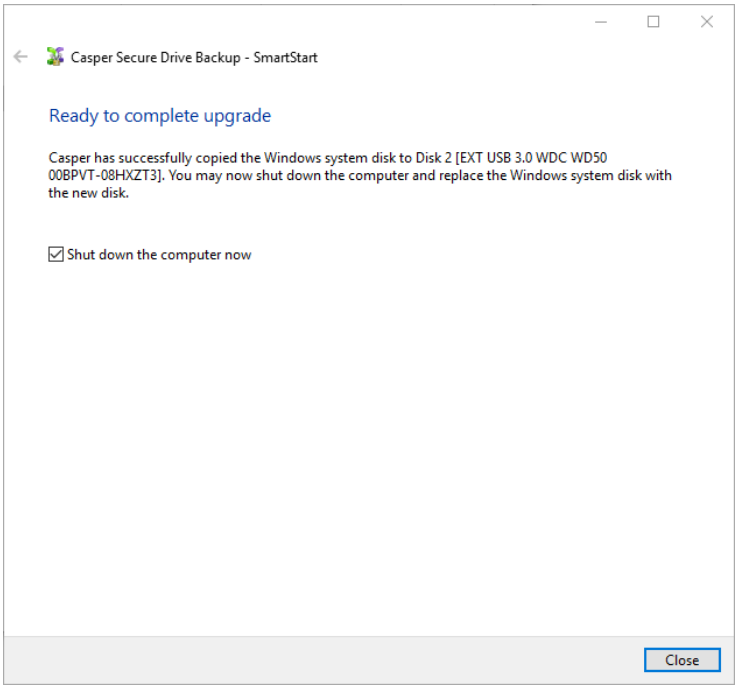
2. When Casper has completed the cloning process, click **Close**.



3. Reconfigure the server to replace the original system disk or RAID array with the new disk or RAID array.

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