



CASPER™

USER GUIDE

VERSION 11



Future Systems
SOLUTIONS

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Introduction

Casper™ is a backup and recovery solution engineered from the ground up specifically for Windows PC's to make backup and recovery faster, easier, and more reliable. Casper provides these exclusive benefits:

- **Easy 1-Step Backup** — You choose where to save your backup and Casper does the rest automatically. With exclusive 1-Click SmartStart™, Casper is a true 1-click, *Set-it-and-Forget-it* solution.
- **Even Easier Recovery** — Recover *instantly* by booting to your backup. *All* Casper system backups are instantly bootable for immediate testing or complete recovery.
- **Worry-free Backup and Recovery** — If you ever experienced a data loss or a failed recovery, you will appreciate the peace of mind Casper offers by knowing that you can immediately boot and test your backup, any time, every time! In addition, advanced data verification technology ensures data has not been compromised during a backup by faulty RAM, a defective cable, failing disk or bad controller interface.

Getting Started

This User Guide is intended to provide you with an overview of the basic operations of Casper. Additional information regarding Casper can be found in the help file or in one of the following supplementary guides:

Casper SmartStart™ Guide: This guide provides an overview of Casper SmartStart. You should refer to this guide when you want to maintain a complete backup for your computer's system disk or when you want to replace your computer's system disk with a new disk to increase speed or storage capacity.

Casper SmartRestore™ Guide: This guide provides an overview of Casper SmartRestore. You should refer to this guide when you need to restore a backup.

Casper Startup Disk Creator Guide: This guide provides instructions for creating a Casper Startup Disk, which may be required to restore a backup to the primary system drive.

System Requirements

- Windows 11, Windows 10, Windows 8.x, Windows 7, Windows Vista, or Windows XP (SP3)¹
- 500MB available disk space
- 512MB RAM (1GB or more recommended)
- Backup device (additional internal or external hard disk drive)

¹ The Casper Restore-Point Backup and image file backup features are supported only when running on Windows 7 and later or when booting and running from the Casper Startup Disk. The VHDX image file format is supported only when running on Windows 8 and later or when booting and running from a Casper Startup Disk created with the Windows 8 or later ADK. Bootable image recovery is supported only on Windows 7 and later. Testing a restore-point backup within a virtual machine is supported only when running on Windows 10 and 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.

Installing Casper

The Casper installation process takes just a few minutes and an automated Wizard will guide you through the process. The instructions below outline the steps for installing Casper.

1. Start the **Casper Setup** program.
2. Read the **License terms and conditions** and then check **I agree to the License terms and conditions**
3. Click **Install**
4. Click **Finish** to close the Casper Setup program.

Starting Casper

In Windows 10 and later, follow this procedure:

1. Click the **Start** button.
2. Click **All apps**.
3. Click **Casper 11**.

In Windows 8, select **Casper 11** from the Windows **Start** screen. In Windows 7 and earlier versions, follow this procedure

1. Click the **Start** button.
2. Click **All Programs**.
3. Click **Casper 11**.

Getting Help

For additional assistance, including troubleshooting information, please refer to the help file included with the program. To access help when running Casper, select **Contents** from the **Help** menu, or press **F1**.

Additional support for Casper is also available on the Future Systems Solutions Web site at <https://support.fssdev.com>.

Using Casper

Casper makes it easy to upgrade or maintain a backup of your Windows system hard disk, as well as other hard disks used on your computer.

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

When you use Casper to create an image of a hard disk, Casper creates a snapshot of the disk and then copies it to a file. The result is a file representing a point-in-time image of the disk, which can be used later to restore the disk to the same state it was in when the image was created.

Casper SmartSense™ technology will begin the process of upgrading or creating a backup of your Windows system hard disk automatically when you attach a new hard disk to your computer. If the new disk is installed internally, or if Casper SmartSense is unable to detect the new disk, you can manually launch Casper SmartStart™ to begin the process. For more information about using Casper SmartStart to upgrade or maintain a backup of your Windows system disk, please refer to the **Casper SmartStart Guide**.

To upgrade or maintain a backup for another hard disk on your computer, or customize the upgrade or backup process of your Windows system hard disk, you should refer to this Casper User Guide or the Casper Help file included with the Casper program. See **Getting Help** for more information.

You can use Casper to maintain bootable backups and restore-point backups for your computer. 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 your computer in an emergency or that you can use as an immediate and permanent replacement for your computer's Windows system disk. A bootable backup is sometimes referred to as a clone backup because it maintains a duplicate copy ("clone") of your Windows system disk.

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

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

Because a bootable backup is a copy of your entire system hard disk made to another disk, 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 your Windows system disk 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 your Windows system disk.

Using two or more separate disks 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 your computer, it is good practice to rotate the backup disk between each successive backup. For example, if you update your bootable backup weekly, you might use two separate disks to maintain two independent bootable backups for your computer. On the first week, you would back up your computer to your first backup disk. On the second week, you would back up your computer to your second backup disk. On the third week, you would back up your computer to your 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 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 removable (mobile) drive bay 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 is also ideal. For a notebook computer, a secondary media bay or external USB, Firewire, or eSATA hard disk enclosure designed specifically for a 2.5" notebook hard disk is recommended to mount and attach the 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.

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 your computer in an emergency, restore selected files and folders, or restore your computer's entire system drive 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 Windows system disk 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 your Windows system disk fails or becomes corrupted, you can restore your Windows system disk 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 your computer system requires a storage device with free space that is at least several times greater than the amount of used space on your Windows system hard disk. 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 your Windows system hard disk 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 your Windows system disk, 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 your computer, 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 your computer from the restore-point backup, the Casper Startup and Recovery Environment or a Casper Startup Disk to restore the Windows system disk from the restore-point backup. When bootable image recovery has been configured for the backup device, you can temporarily boot your computer directly from the restore-point backup and perform the restore. Alternatively, when the Casper Startup and Recovery Environment has been added to the backup device, you can boot your computer 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 and using 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.

If minimizing downtime is of utmost importance, maintaining two or more bootable backup disks in rotation will be preferable to a restore-point backup. On the other hand, if you frequently create or update content on your system, maintaining a restore-point backup might be a better choice.

Your travel habits may also influence your decision. For example, if you frequently travel with your computer, you may find it difficult to carry multiple backup disks. In this case, a restore-point backup might be the better choice because it can maintain multiple recovery points on a single backup disk.

The following table summarizes the differences between the two backup types.

Comparison of Bootable Backups and Restore-Point Backups

	Casper Bootable Backup	Casper Restore-Point Backup
Contains a complete backup of your Windows system disk?	Yes	Yes
Can be used to temporarily boot and run computer if necessary?	Yes	Yes
Can be used to permanently boot and run computer?	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

Creating and Maintaining a Bootable System Backup

Using Casper 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 is also ideal. For a notebook computer, a secondary media bay or external USB, Firewire, or eSATA 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.

The following examples illustrate various ways to create and maintain a bootable backup of your Windows system disk.

Example 1: Creating a Bootable Backup. This example demonstrates how to initialize a new disk for use as a complete backup replacement for your Windows system disk.

Example 2: Updating a Bootable Backup. This example shows how to manually update an existing bootable backup of your Windows system disk.

Example 3: Automating a Bootable Backup. This example illustrates how to fully automate a bootable backup.

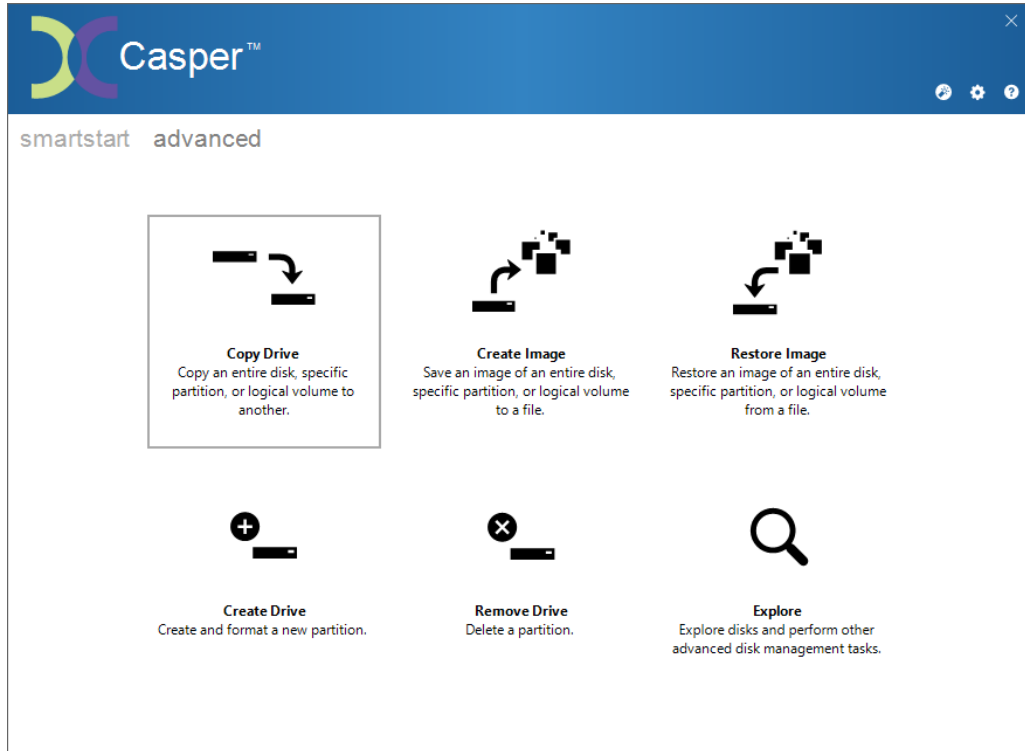
Example 4: Automating a Bootable Backup to a Portable Device. This example shows how to automate a bootable backup maintained on a portable device such as a USB, Firewire, or eSATA connected disk.

Example 5: Performing a Bootable Backup On-Demand. This example demonstrates how to create a desktop shortcut to maintain a bootable backup on-demand.

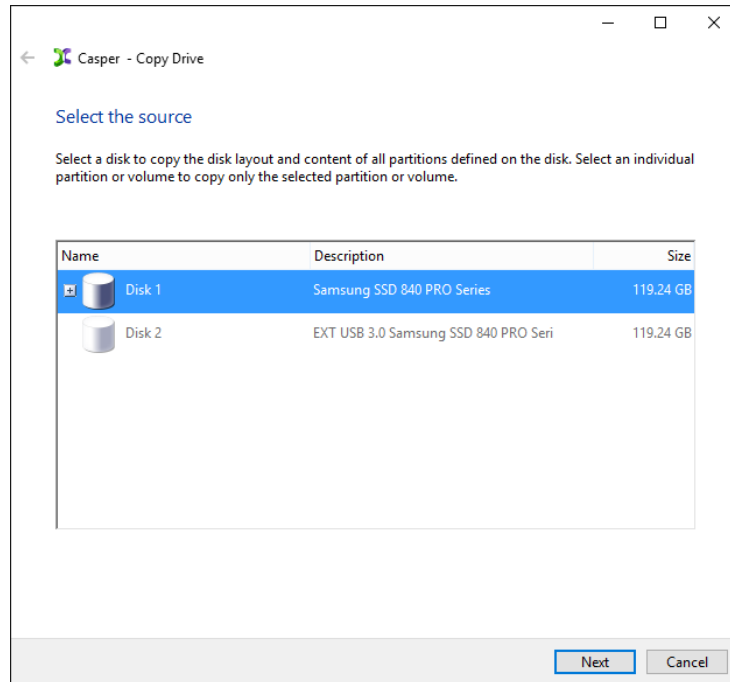
Example 1: Creating a Bootable Backup

Assuming the backup hard disk is currently installed or attached to the system, the following procedure illustrates how to clone the Windows system hard disk to the backup hard disk to produce a bootable backup on either a desktop or notebook system.

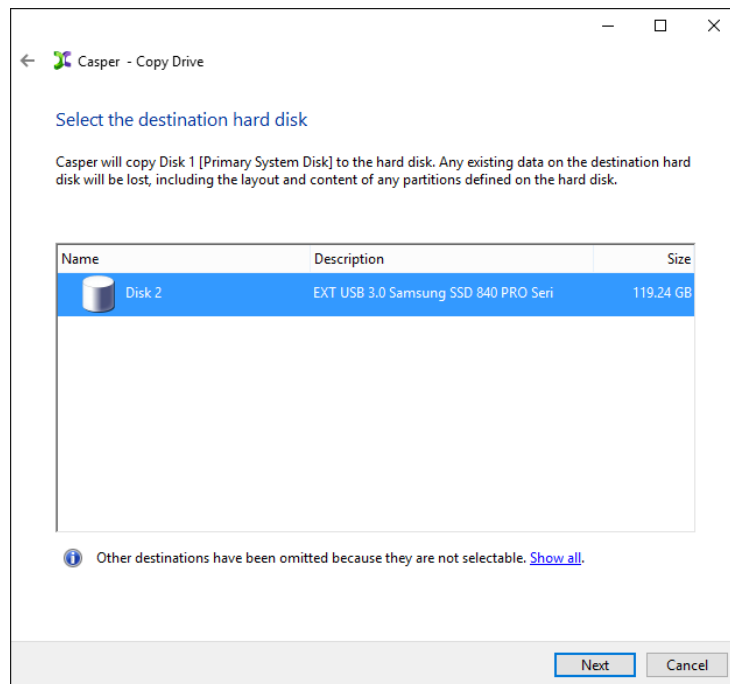
1. From the Casper console, select the **Advanced** tab and then click **Copy Drive**.



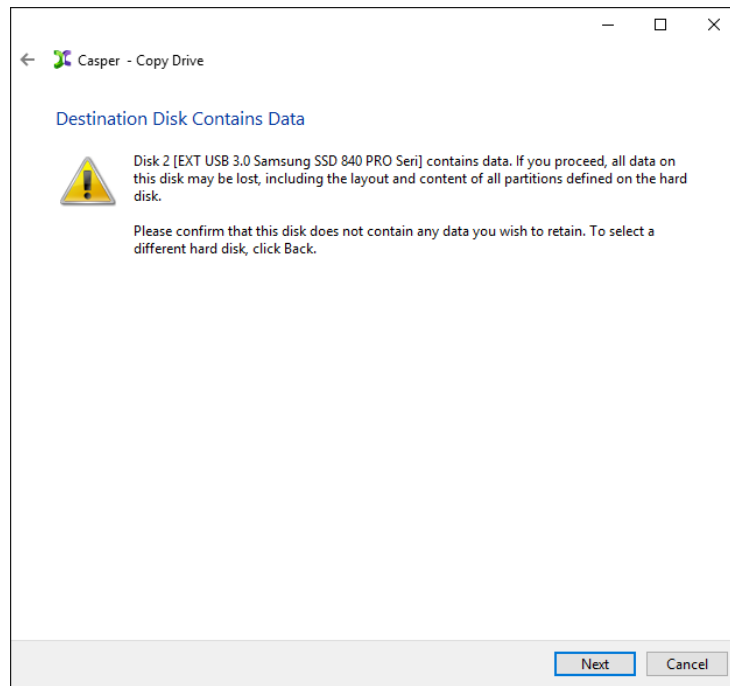
2. Select the hard disk to backup (e.g., the hard disk on which Windows is installed) as the source, and click **Next**.



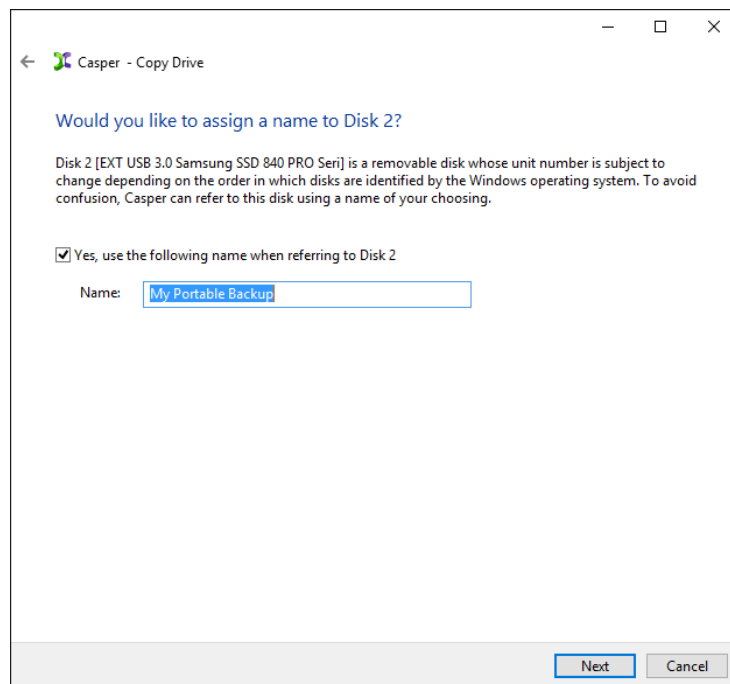
3. Select the backup hard disk as the destination, and click **Next**.



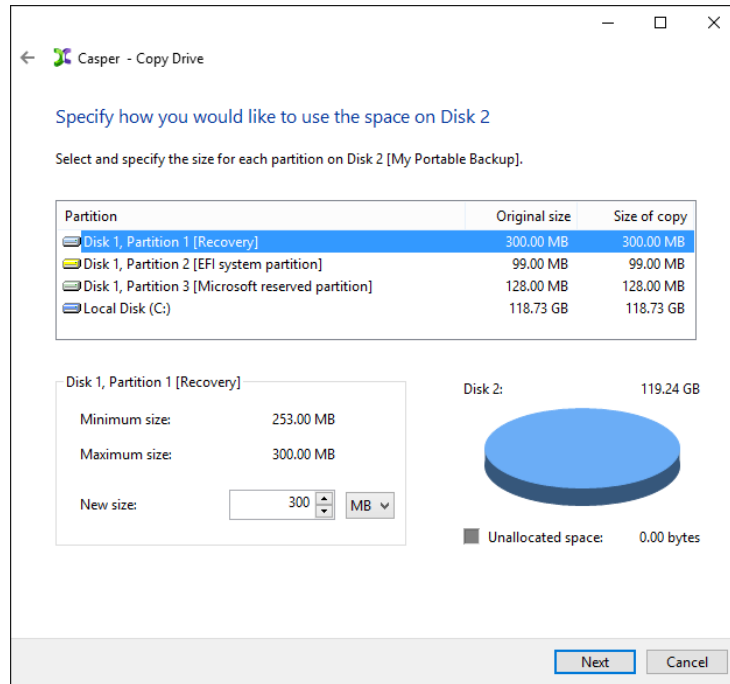
4. If the selected destination hard disk defines a partition or contains data, Casper will warn you that the contents will be overwritten. Confirm you have selected the correct hard disk to receive the backup, and click **Next** to proceed.



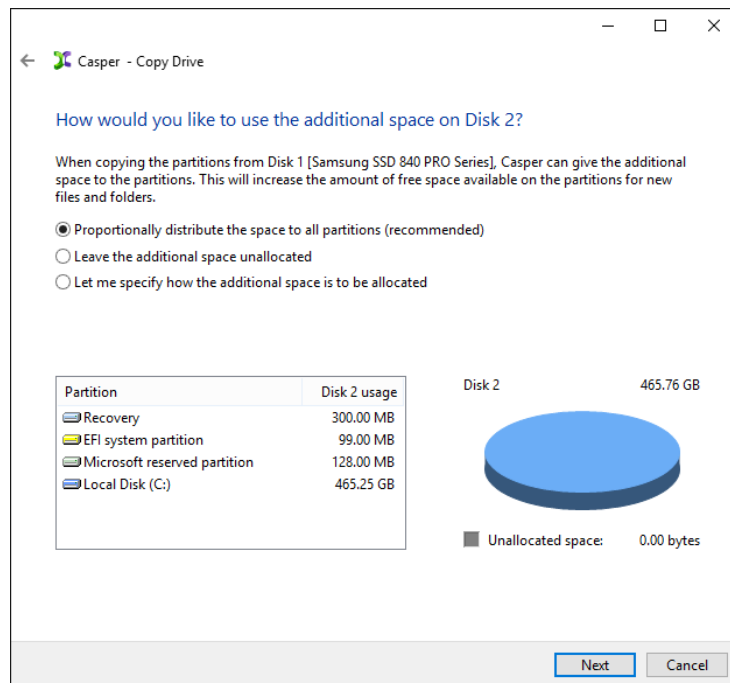
5. When selecting an external hard disk as the destination, Casper will prompt you to assign a name to the disk. A name is optional. If you use multiple external hard disks, a name can make it easier to identify which external hard disk is being used for a Casper backup. Click **Next** to proceed.



- 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.

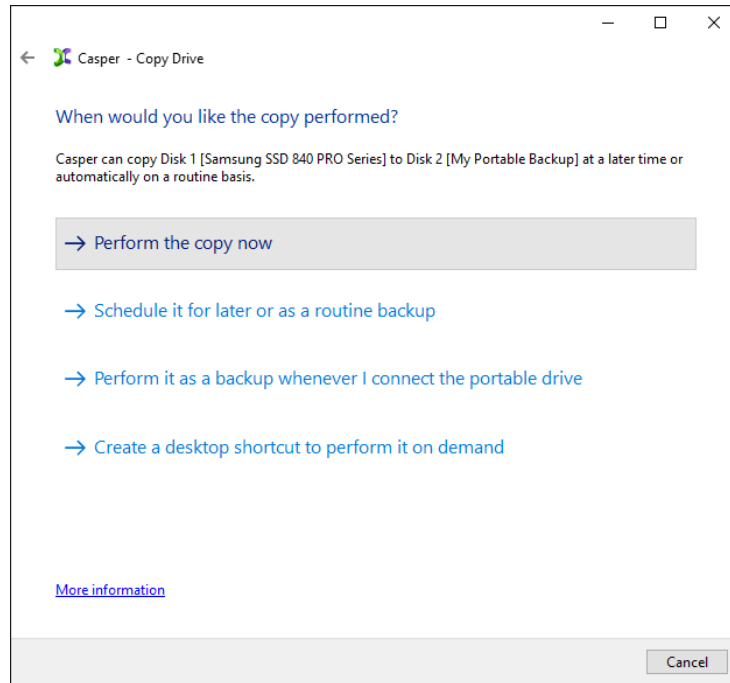


When the destination hard disk is larger than the source, the default option will be *Give all of the space to the partition*, or *Proportionally distribute the space to all partitions* when there is more than one partition defined on the source disk.

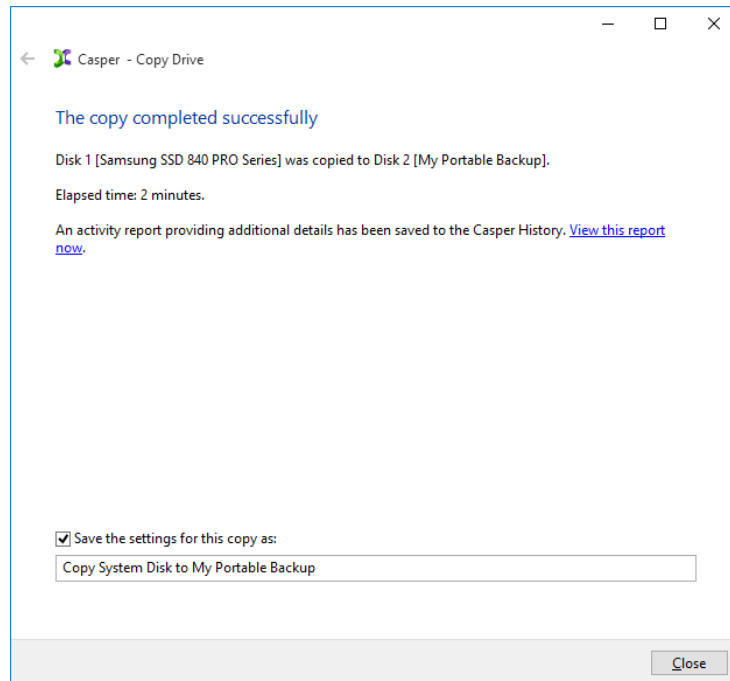


Simply clicking **Next** to accept the default selection or value is generally best. For additional help with making a selection, press **F1**.

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



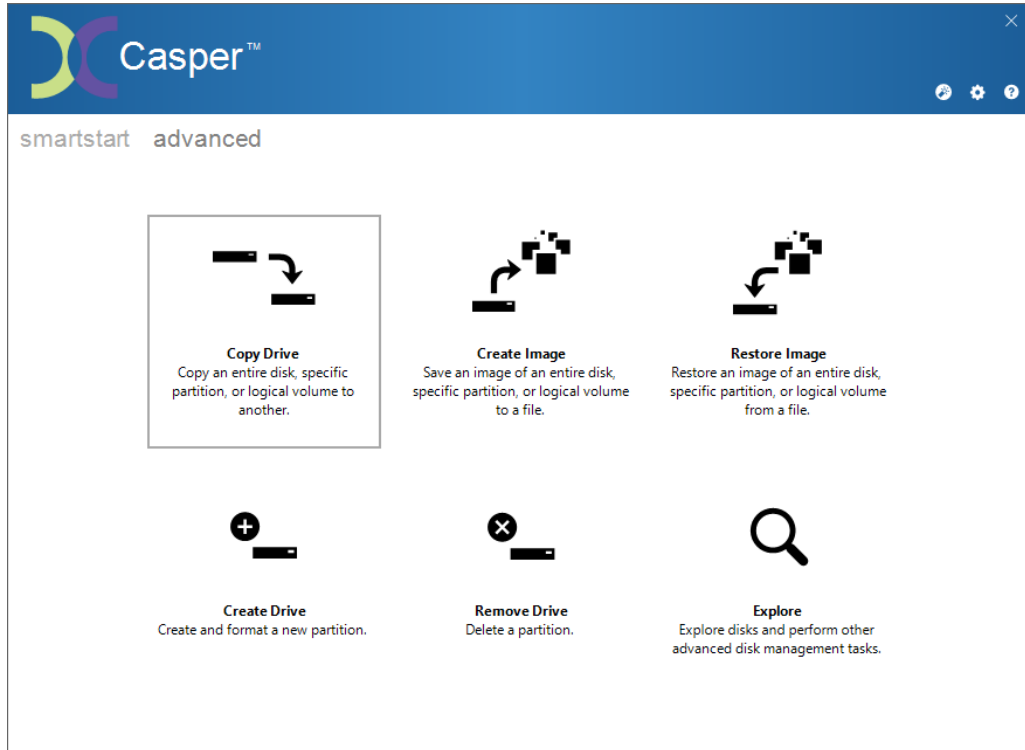
8. When Casper has completed the cloning process, click **Close**.



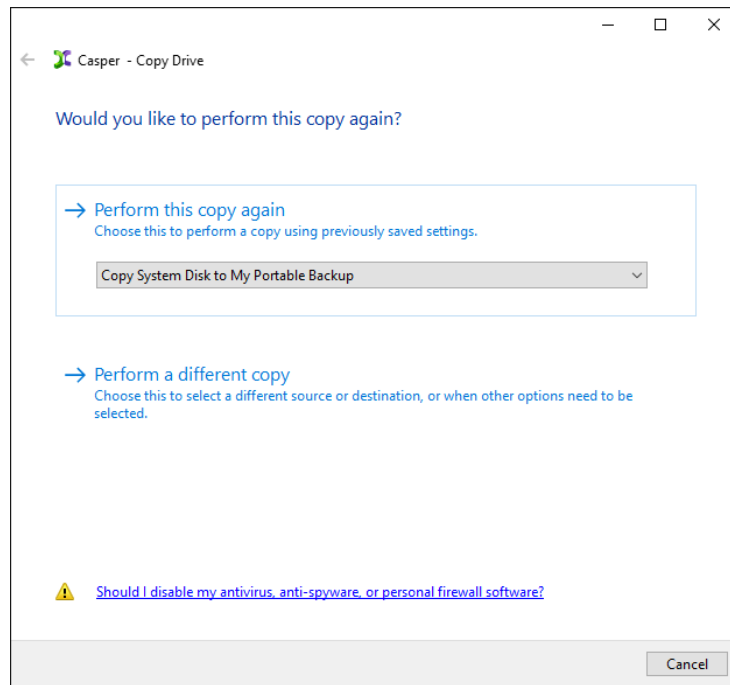
Example 2: Updating a Bootable Backup

You can manually update a bootable backup by repeating the procedure used to create the backup. When the settings for the copy have been saved as shown in the final step of the preceding example, Casper makes this process even easier. Assuming the backup hard disk is currently installed or attached to the system, the following two procedures illustrate how a prior copy may be quickly repeated to update an existing bootable backup.

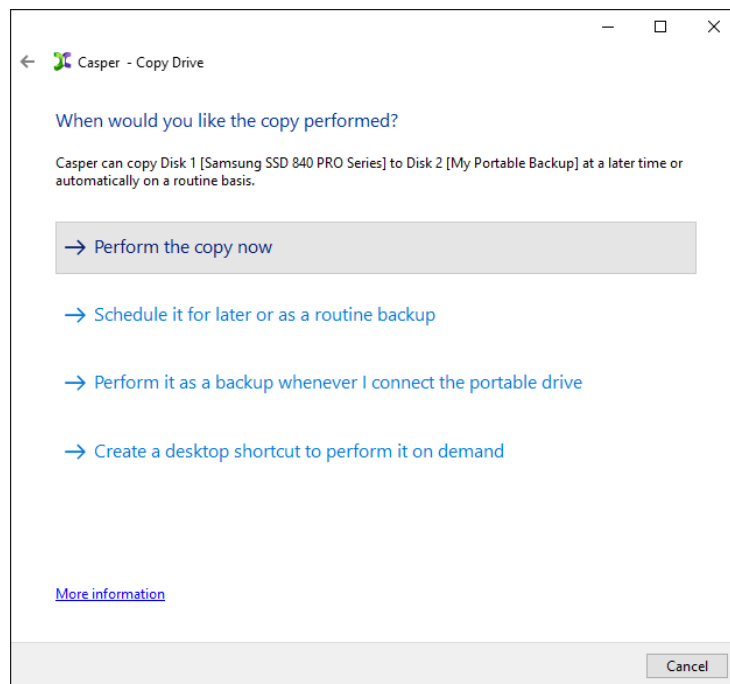
1. From the Casper console, select the **Advanced** tab and then click **Copy Drive**.



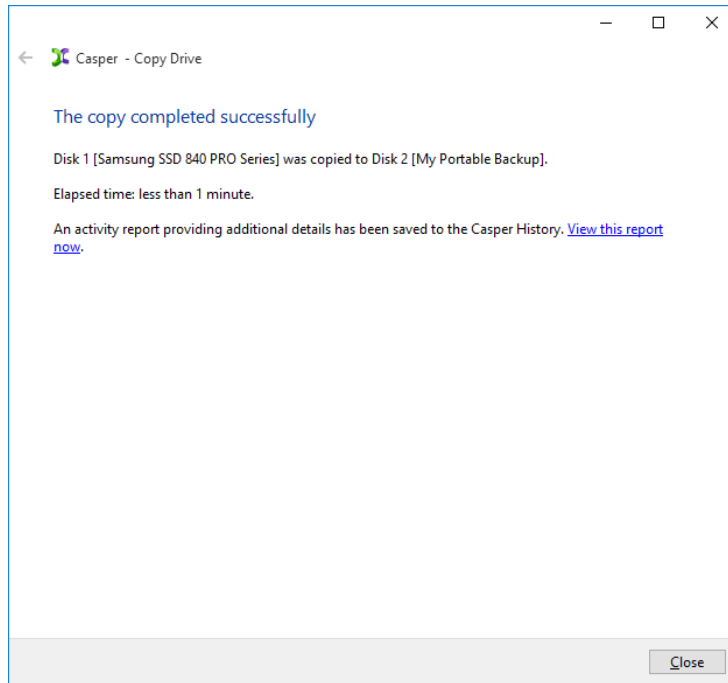
2. Select the copy to be repeated from the list provided and click **Perform this copy again**.



3. Click **Perform the copy now** to begin the cloning process.



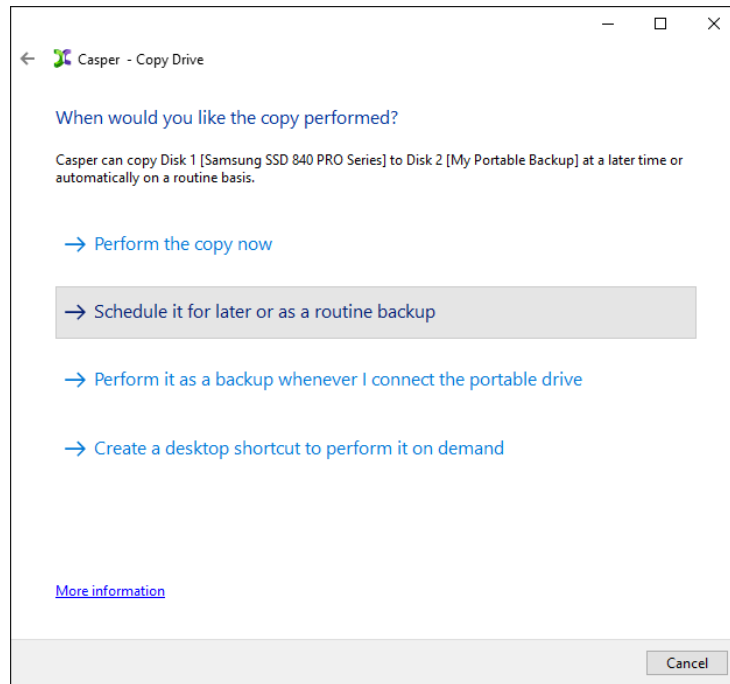
4. When Casper has completed the cloning process, click **Close**.



Example 3: Automating a Bootable Backup

You can fully automate the process of creating and maintaining a bootable backup for your computer by scheduling Casper to run on a routine basis. The procedure outlined below is the same whether you are performing an initial backup as demonstrated in Example 1 or updating an existing backup as demonstrated in Example 2.

1. When prompted by the Copy Drive wizard, click **Schedule it for later or as a routine 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 a window titled "Casper - Copy Drive" with a back arrow icon. The main heading is "How often would you like the backup performed?". Below this, there is a label "Select how often you want the backup performed:" followed by a dropdown menu set to "Weekly".

Underneath is a section titled "Weekly Backup Schedule" containing three fields: "Every:" with a dropdown set to "Friday", "At:" with a time selector set to "02:00 AM", and "Beginning:" with a date selector set to "Thursday, June 23, 2016".

Below the schedule section is a "Power Management" section with a checkbox labeled "Wake the computer to perform the backup" which is checked.

At the bottom right of the window are two buttons: "Next" and "Cancel".

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

The screenshot shows a window titled "Casper - Copy Drive" with a back arrow icon. The main heading is "Select completion options".

There is a checked checkbox "Notify me when completed:" followed by a dropdown menu set to "Always".

Below this is a section titled "Additional notification options" containing a checkbox "Send a SmartAlert". Underneath are two fields: "Email address:" with a dropdown menu and a "New" button, and "Description:" with a text box containing "JETSON System Disk Backup".

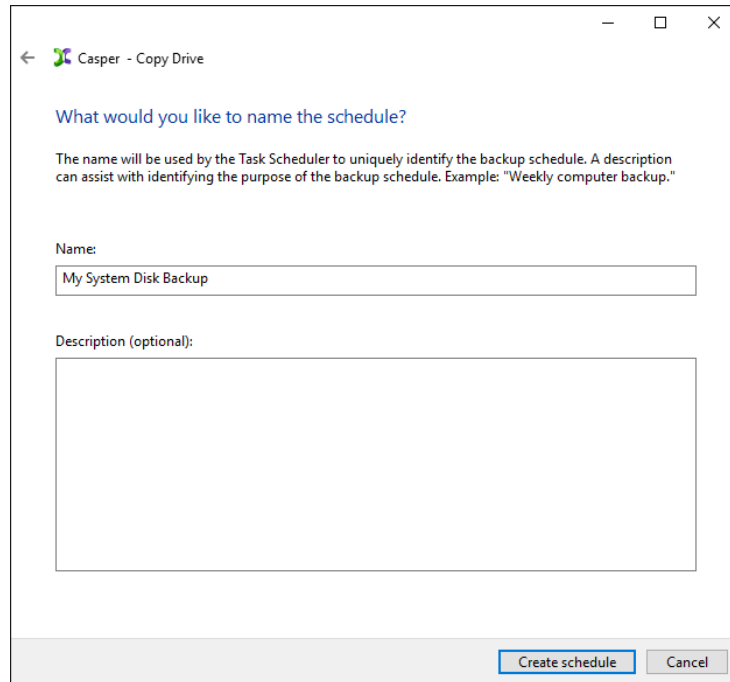
Below the notification options is a checkbox "Turn off computer:" followed by a dropdown menu set to "Hibernate". Underneath is another checkbox "Turn off computer even if user activity detected".

Below that is a checkbox "Prepare Disk 2 [My Portable Backup] for safe removal".

At the bottom left of the window is a link "Help me decide".

At the bottom right of the window are two buttons: "Next" and "Cancel".

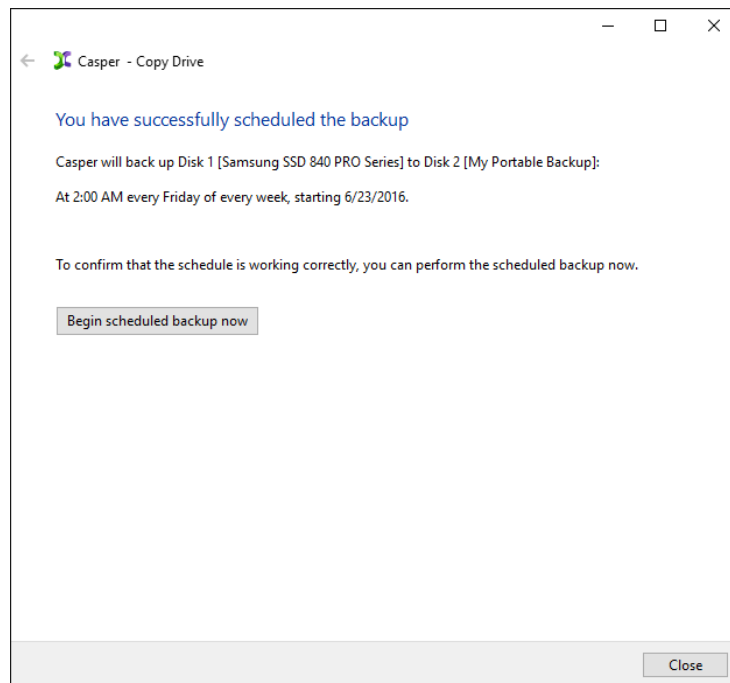
4. Enter a name for the schedule, or retain the name suggested by Casper, and then click **Create schedule** to add the copy schedule to your Windows Scheduled Tasks.



The screenshot shows a dialog box titled "Casper - Copy Drive". It contains the following text and elements:

- Header: "Casper - Copy Drive" with a back arrow icon.
- Question: "What would you like to name the schedule?"
- Instruction: "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.'" (Note: The original text incorrectly says 'copy' schedule).
- Form: A text input field labeled "Name:" containing the text "My System Disk Backup".
- Form: A larger text input field labeled "Description (optional):" which is currently empty.
- Buttons: "Create schedule" and "Cancel" at the bottom right.

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



The screenshot shows a dialog box titled "Casper - Copy Drive" with the following content:

- Header: "Casper - Copy Drive" with a back arrow icon.
- Message: "You have successfully scheduled the backup"
- Details: "Casper will back up Disk 1 [Samsung SSD 840 PRO Series] to Disk 2 [My Portable Backup]:
At 2:00 AM every Friday of every week, starting 6/23/2016."
- Instruction: "To confirm that the schedule is working correctly, you can perform the scheduled backup now."
- Button: "Begin scheduled backup now" (disabled)
- Button: "Close" at the bottom right.

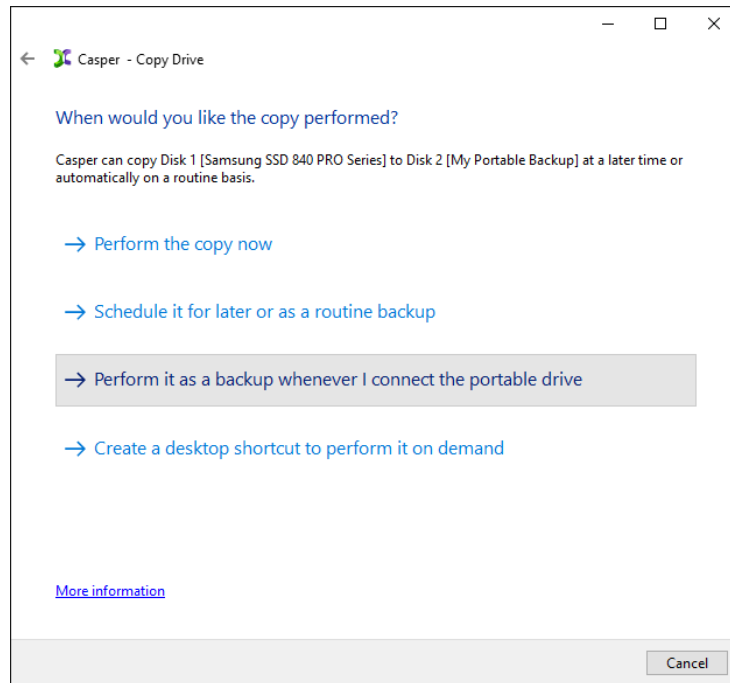
Example 4: Automating a Bootable Backup to a Portable Device

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

Configuring a SmartSense Backup

The procedure outlined below is the same whether you are performing an initial backup as demonstrated in Example 1 or updating an existing backup as demonstrated in Example 2.

1. When prompted by the Copy Drive wizard, click **Perform it as a backup whenever I connect my portable drive**.



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

The screenshot shows a dialog box titled "Casper - Copy Drive" with a back arrow and window control buttons. The main heading is "Select completion options". There are three main sections of options:

- Notify me when completed:** A dropdown menu is set to "Always".
- Additional notification options:** A sub-section containing:
 - Send a SmartAlert:** Includes an "Email address:" dropdown with a "New" button and a "Description:" text field containing "JETSON System Disk Backup".
- Turn off computer:** A dropdown menu is set to "Hibernate".
- Prepare Disk 2 [My Portable Backup] for safe removal**

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

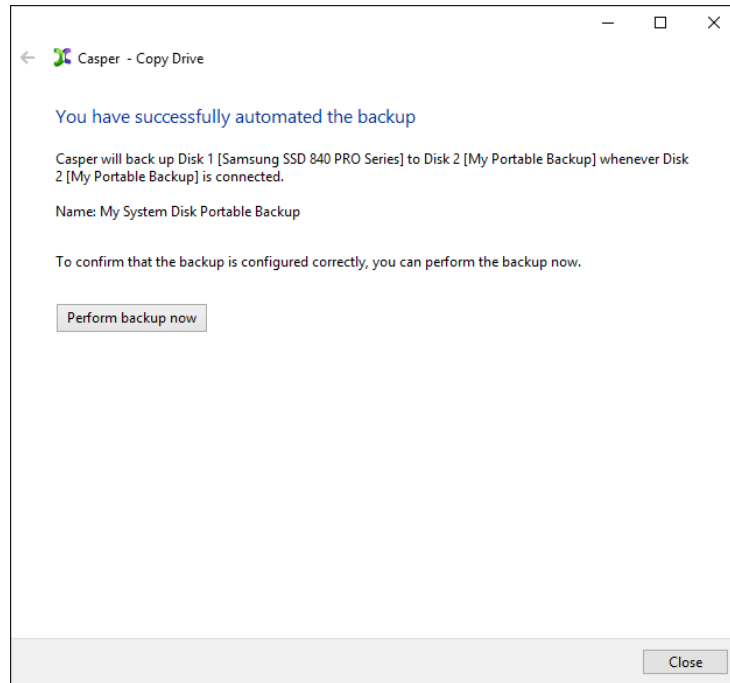
The screenshot shows a dialog box titled "Casper - Copy Drive" with a back arrow and window control buttons. The main heading is "How would you like to identify this backup?". Below the heading is explanatory text: "The name will be used by the Casper SmartSense Service to identify the backup. A description can assist with identifying the purpose of the backup. Example: 'Secondary backup for offsite storage.'"

There are two input fields:

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

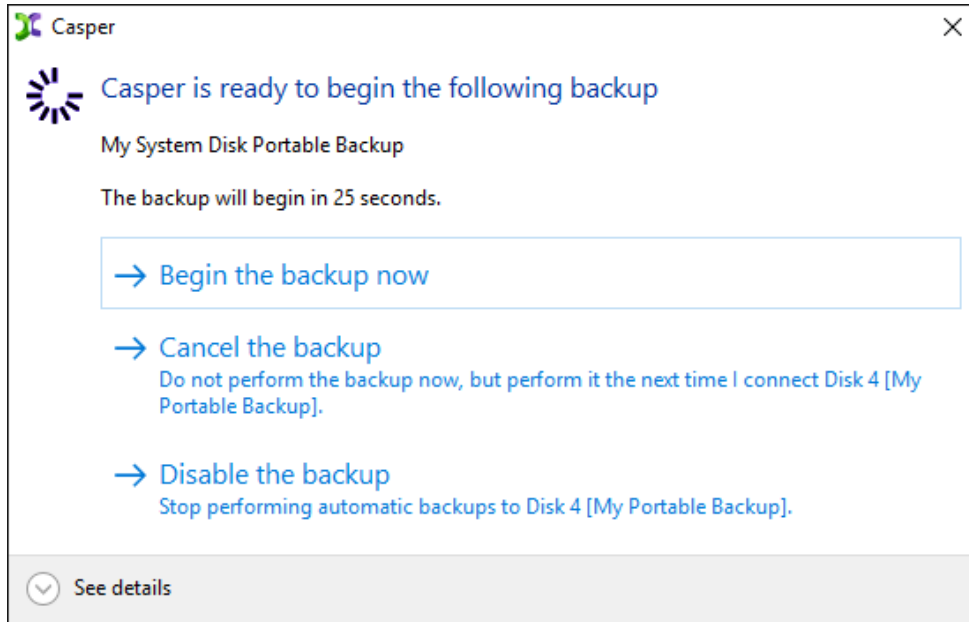
At the bottom right, there are two buttons: "Save" (highlighted) and "Cancel".

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



Starting a SmartSense Backup

Once your 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.

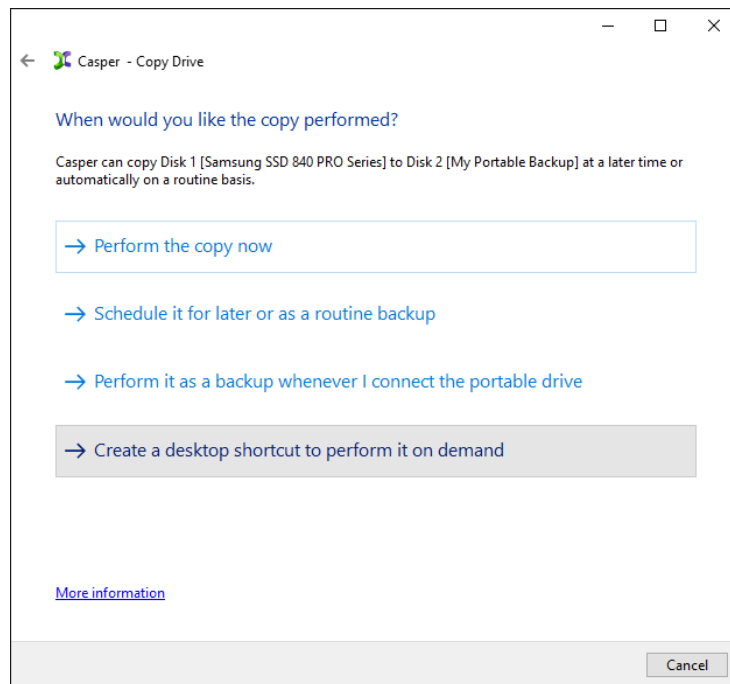
Example 5: Performing a Bootable Backup On-Demand

You can create a desktop shortcut to perform a bootable backup on-demand.

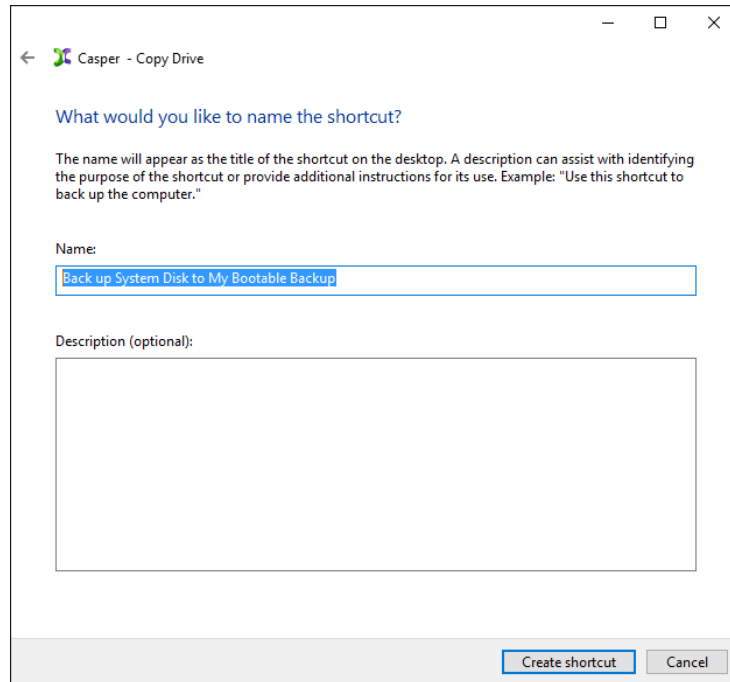
Creating a Desktop Shortcut for a Bootable Backup

The procedure outlined below is the same whether you are performing an initial backup as demonstrated in Example 1 or updating an existing backup as demonstrated in Example 2.

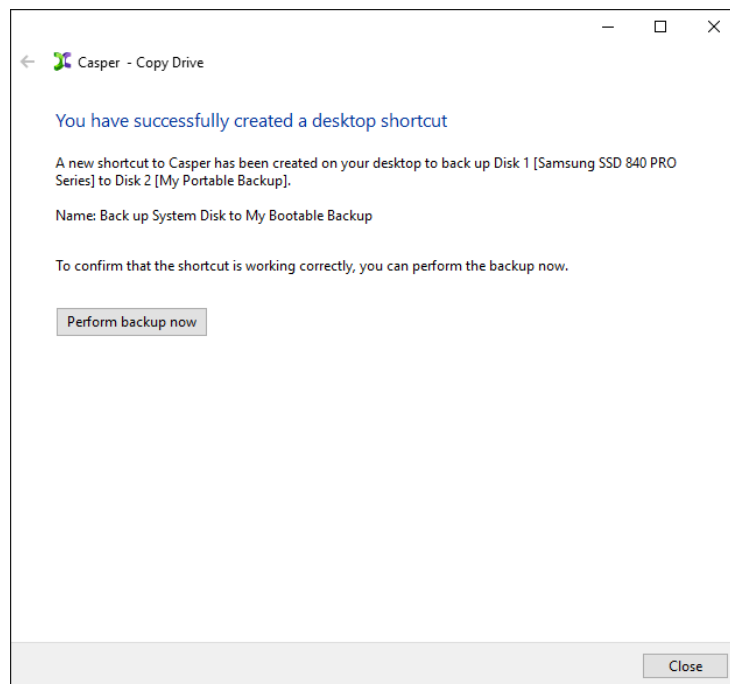
1. When prompted by the Copy Drive wizard, click **Create a desktop shortcut to perform it on demand**.



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

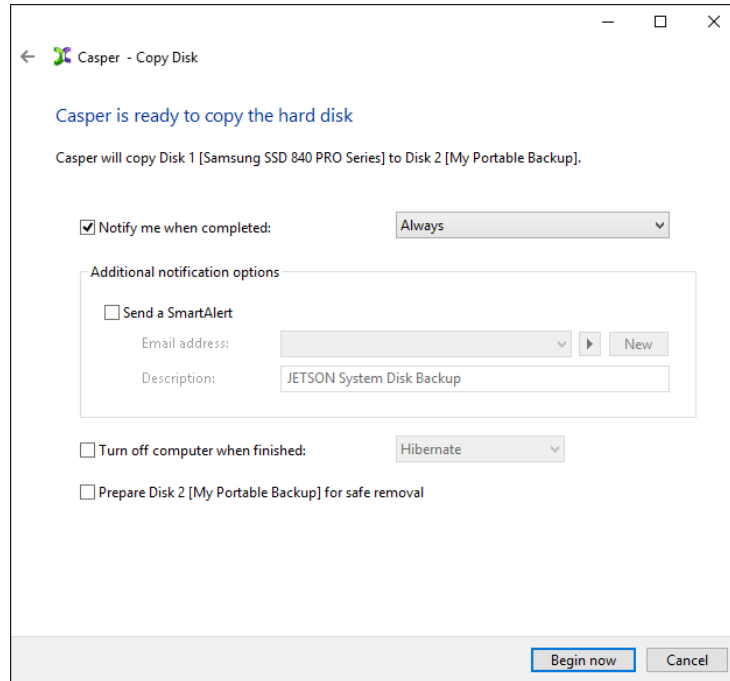


3. Click **Close** to return to the Casper console.



Performing a Bootable Backup On-Demand

After creating a desktop shortcut, you can use the Casper shortcut appearing on your desktop to begin the backup. Click **Begin now** to start the backup.



Creating and Maintaining a Restore-Point System Backup

Using Casper to create and maintain a restore-point backup for your computer system requires a storage device with free space that is at least several times greater than the amount of used space on your Windows system hard disk. 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 your Windows system hard disk 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 your Windows system disk, 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.

The following examples illustrate various ways to create and maintain a restore-point backup of your Windows system disk.

Example 6: Creating a Restore-Point Backup. This example demonstrates how to create a restore-point backup for your Windows system disk.

Example 7: Updating a Restore-Point Backup. This example shows how to manually update an existing restore-point backup by creating a new restore point.

Example 8: Automating a Restore-Point Backup. This example illustrates how to fully automate a restore-point backup.

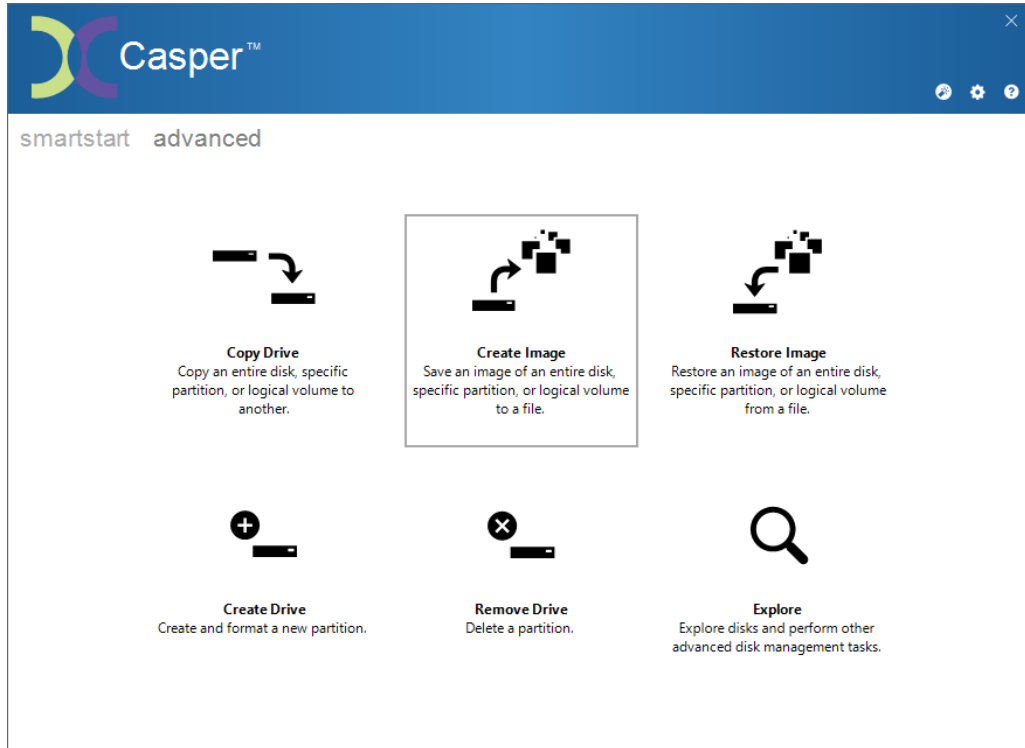
Example 9: Automating a Restore-Point Backup to a Portable Device. This example shows how to automate a restore-point backup maintained on a portable device such as a USB, Firewire, or eSATA connected disk.

Example 10: Performing a Restore-Point Backup On-Demand. This example demonstrates how to create a desktop shortcut to maintain a restore-point backup on-demand.

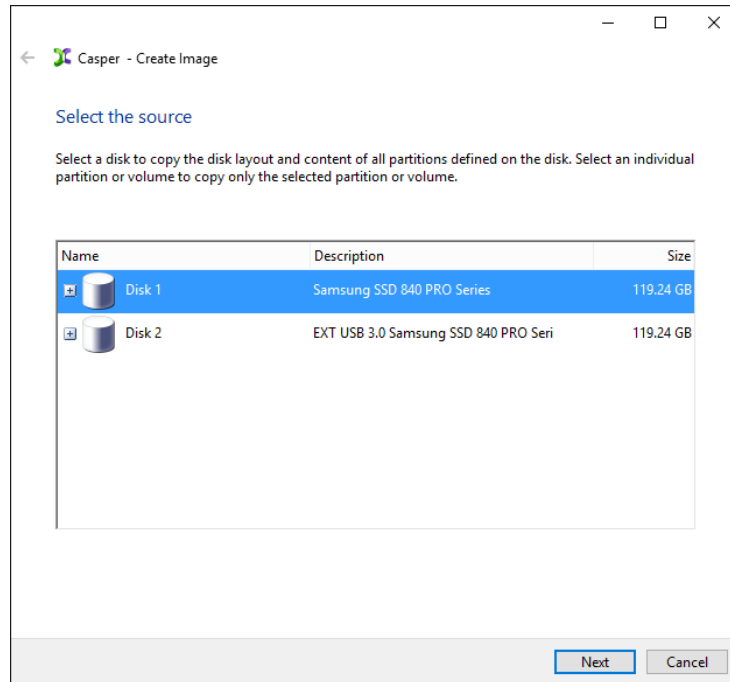
Example 6: Creating a Restore-Point Backup

Assuming the backup hard disk is currently installed or attached to the system, the following procedure illustrates how to create an image of the Windows system hard disk to produce a restore-point backup on either a desktop or notebook system.

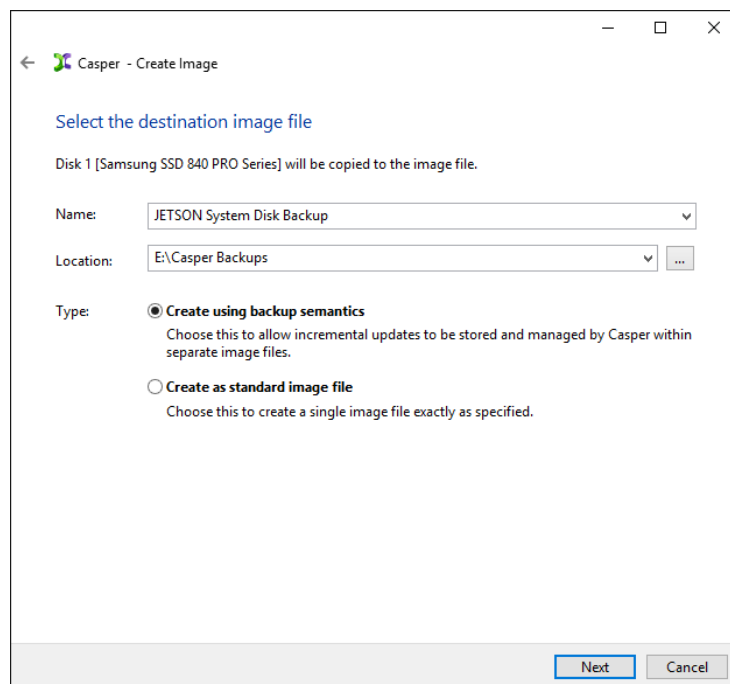
1. From the Casper console, select the **Advanced** tab and then click **Create Image**.



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

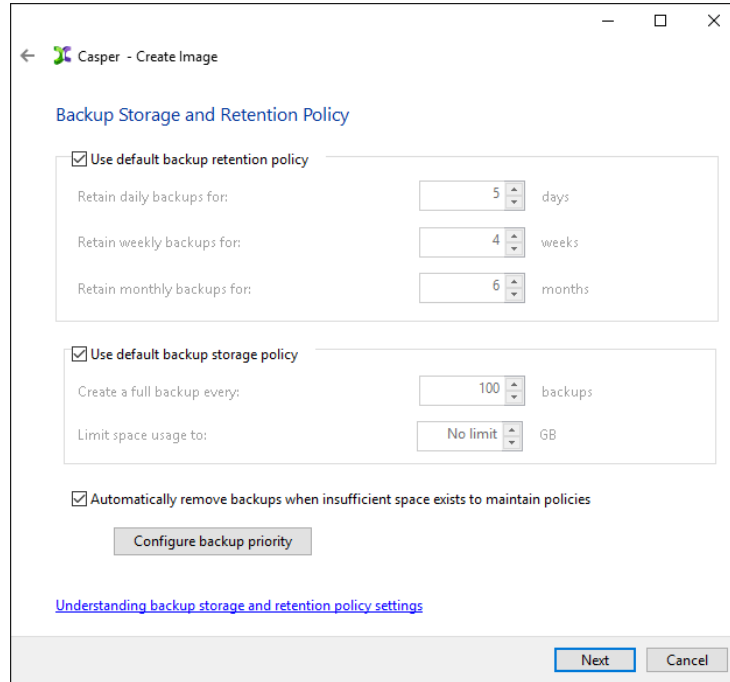


3. Enter a name for the restore-point backup, or retain the name suggested by Casper, and then select the location where the image file(s) will be stored. To allow future restore-points to be managed by Casper, choose **Create using backup semantics** and click **Next**. For additional help, press **F1**.

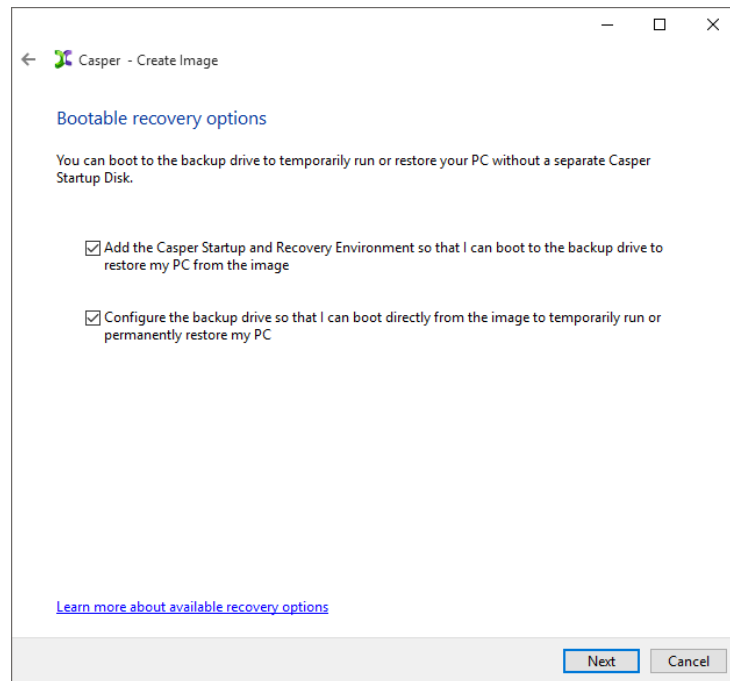


4. When using backup semantics, Casper will prompt you to specify the storage and retention policy for the backup. This policy governs how restore-points are created and managed. It

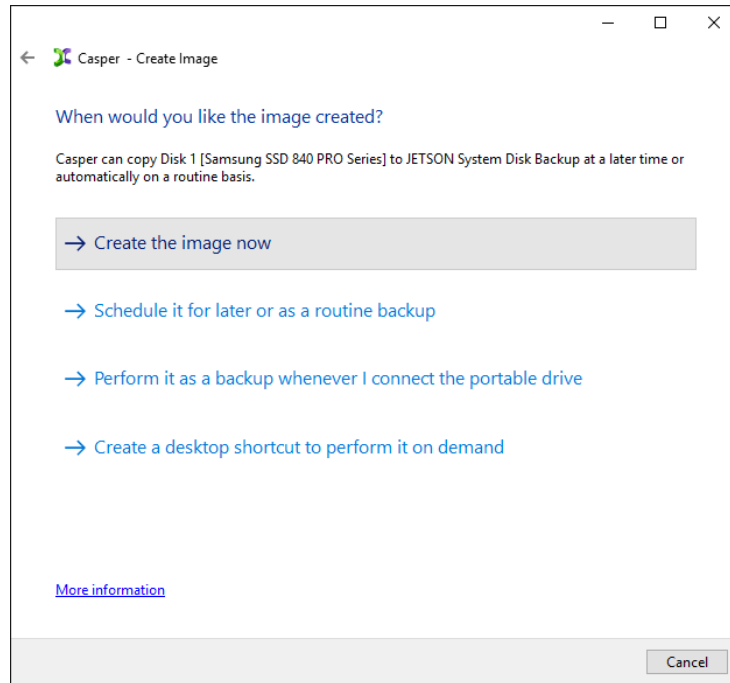
also defines what happens when additional storage space is needed to create a new restore-point. Click **Next** to proceed.



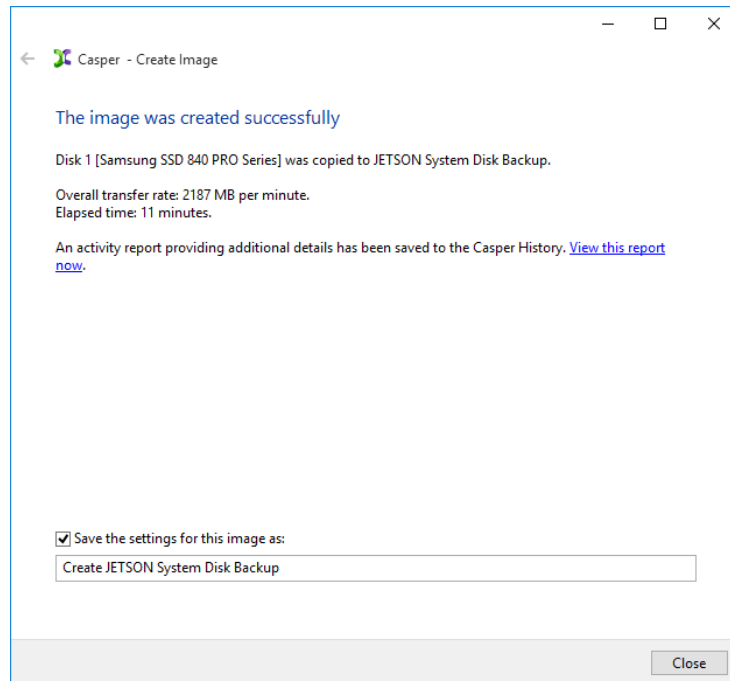
5. When creating a restore-point backup for the Windows system disk on a bootable device, Casper will offer to add the Casper Startup and Recovery Environment and make the restore-point bootable. These options eliminate the need to create and use a separate Casper Startup Disk to restore the image. Choose the desired bootable recovery options and click **Next**.



6. Click **Create the image now** to begin the imaging process.



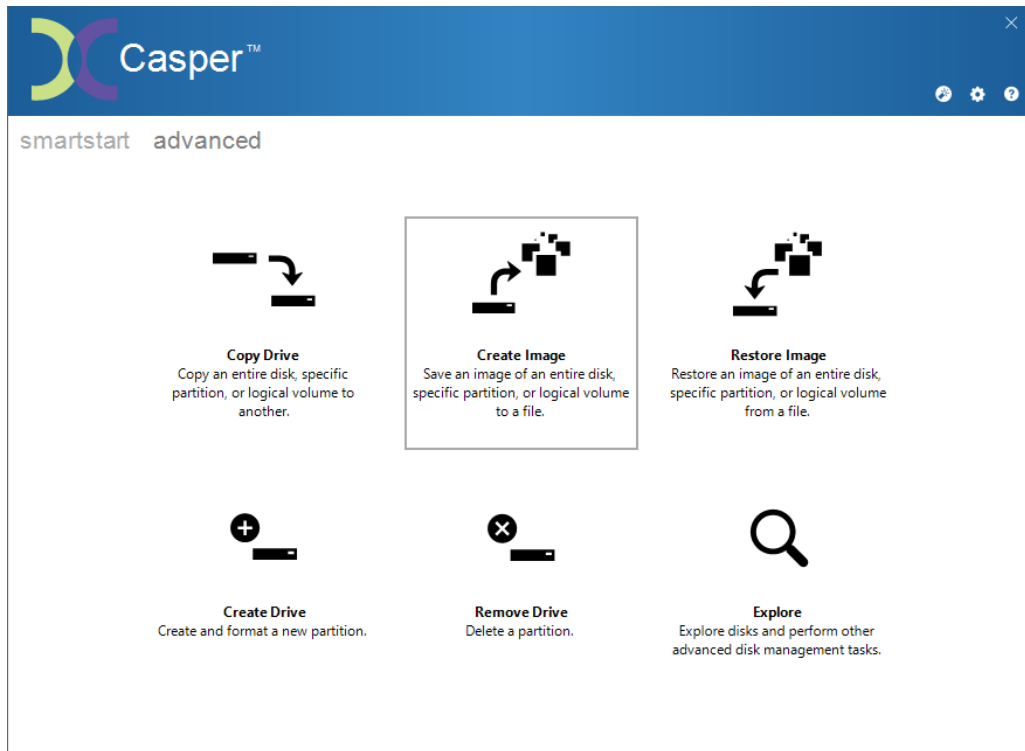
7. When Casper has completed the imaging process, click **Close**.



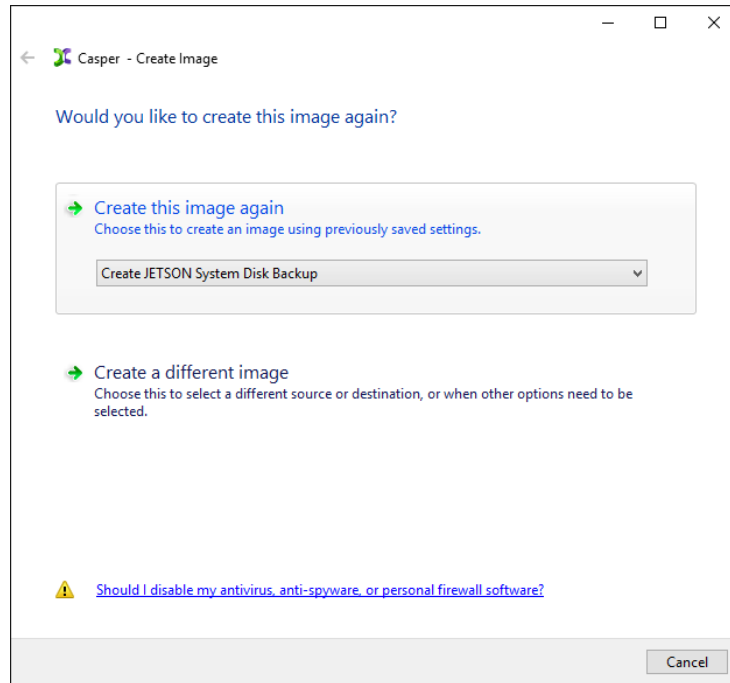
Example 7: Updating a Restore-Point Backup

You can manually update a restore-point backup with a new restore-point by repeating the procedure used to create the initial restore-point backup. When the settings for the image have been saved as shown in the final step of the preceding example, Casper makes this process even easier. Assuming the backup hard disk is currently installed or attached to the system, the following two procedures illustrate how to quickly create the image again to produce a new restore-point.

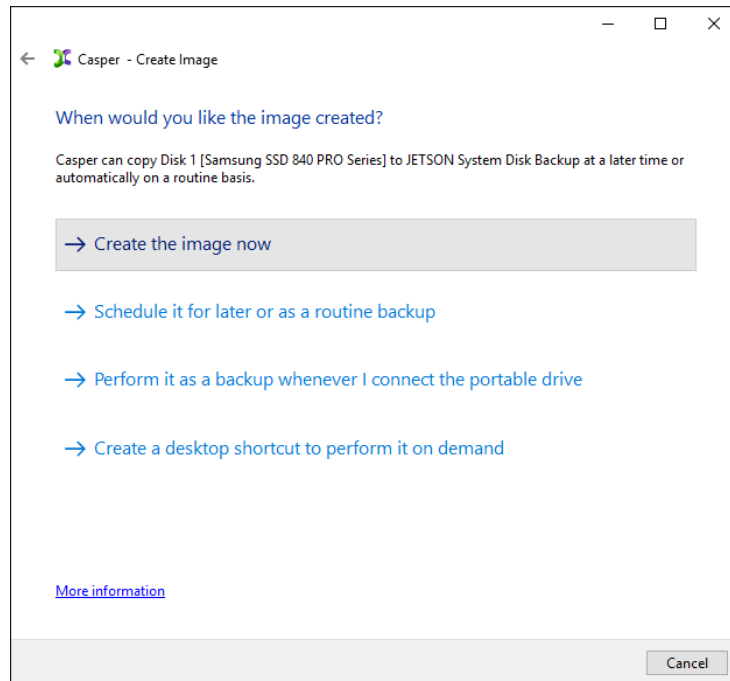
1. From the Casper console, select the **Advanced** tab and then click **Create Image**.



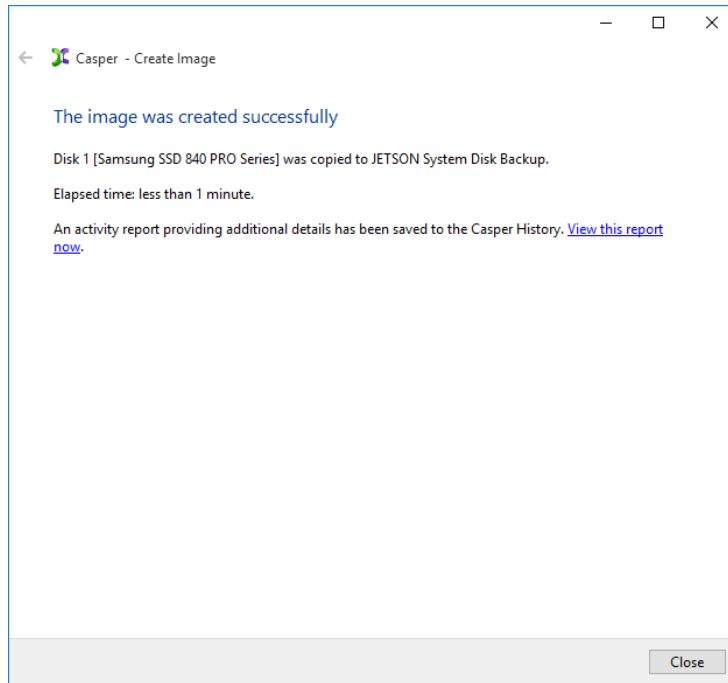
2. Select the image from the list provided and click **Create this image again**.



3. Click **Create the image now** to begin the imaging process.



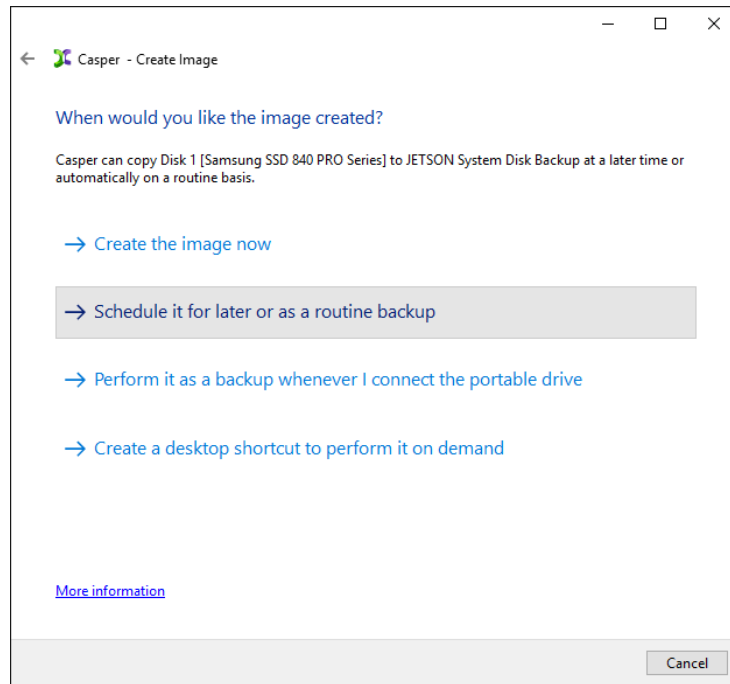
4. When Casper has completed the imaging process, click **Close**.



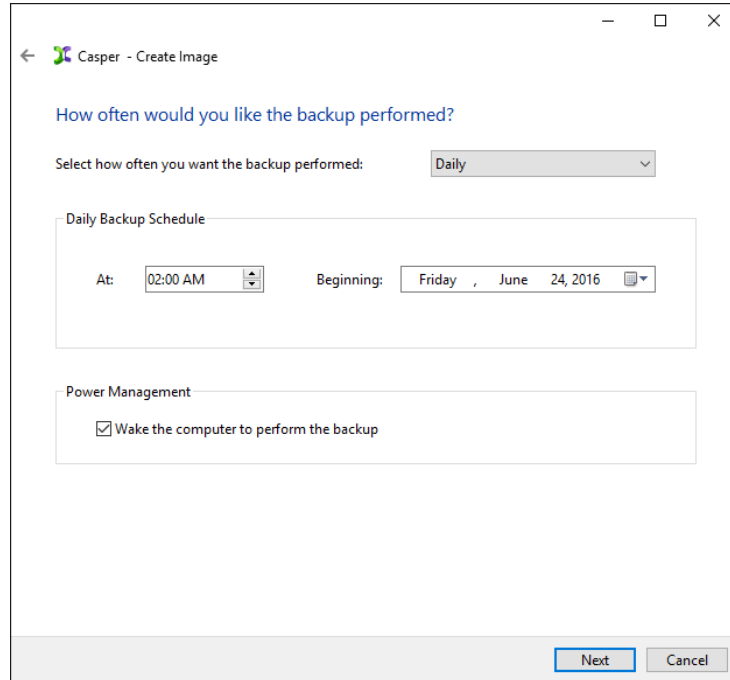
Example 8: Automating a Restore-Point Backup

You can fully automate the process of creating and maintaining a restore-point backup for your computer by scheduling Casper to run on a routine basis. The procedure outlined below is the same whether you are performing an initial backup as demonstrated in Example 6 or updating an existing backup as demonstrated in Example 7.

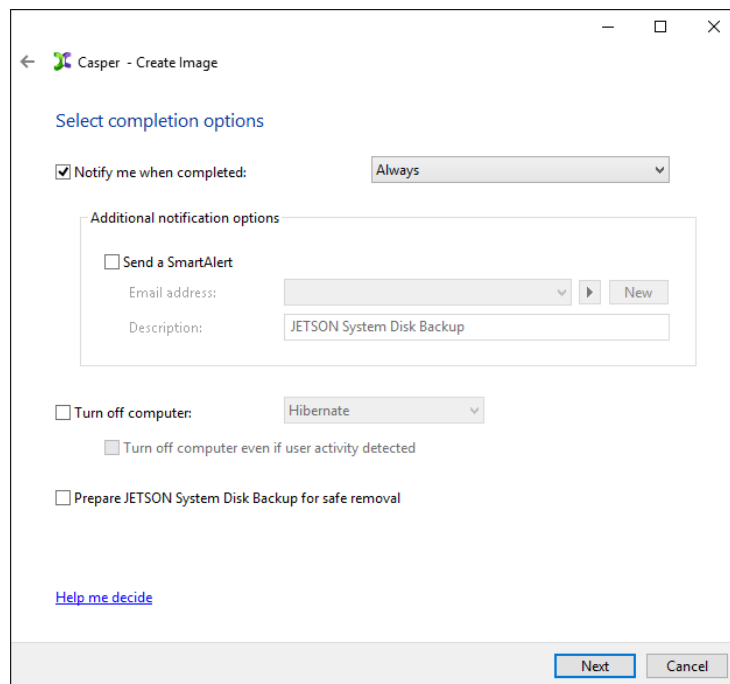
1. When prompted by the Create Image wizard, click **Schedule it for later or as a routine backup**.



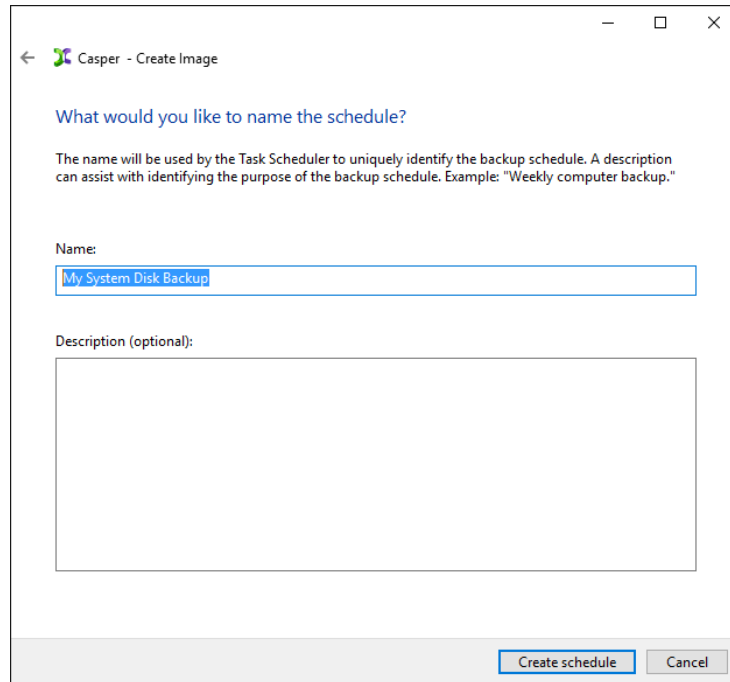
2. Select the schedule you would like Casper to follow to maintain the backup, and click **Next**. For help with the schedule, press **F1**.



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



4. 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.



Casper - Create Image

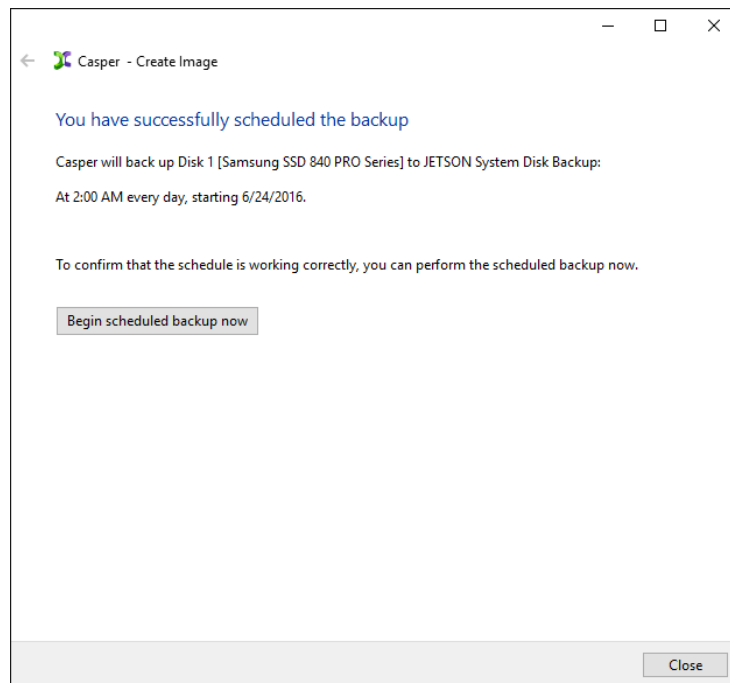
What would you like to name the schedule?

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."

Name:

Description (optional):

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



Casper - Create Image

You have successfully scheduled the backup

Casper will back up Disk 1 [Samsung SSD 840 PRO Series] to JETSON System Disk Backup:
At 2:00 AM every day, starting 6/24/2016.

To confirm that the schedule is working correctly, you can perform the scheduled backup now.

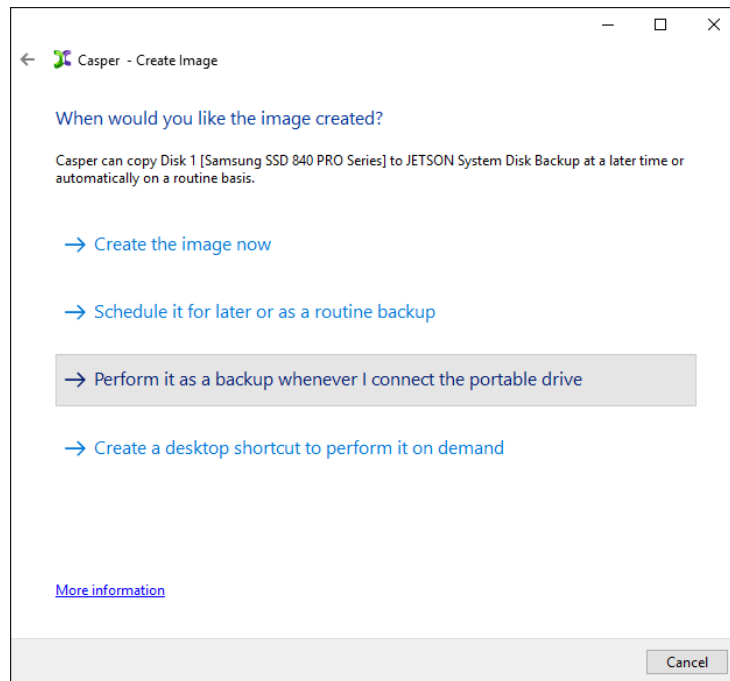
Example 9: Automating a Restore-Point Backup to a Portable Device

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

Configuring a SmartSense Backup

The procedure outlined below is the same whether you are performing an initial backup as demonstrated in Example 6 or updating an existing backup as demonstrated in Example 7.

1. When prompted by the Create Image wizard, click **Perform it as a backup whenever I connect my portable drive**.



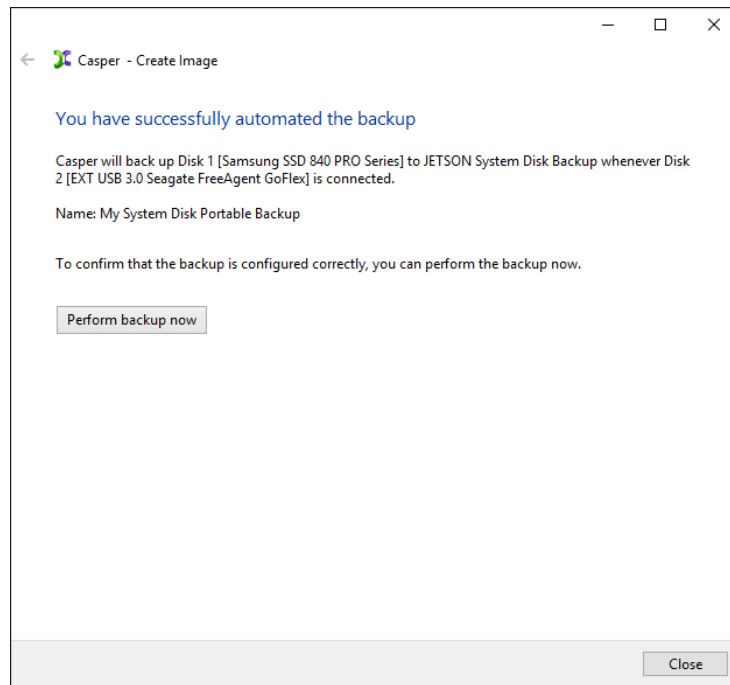
2. Select the desired completion options, and click **Next**.

The screenshot shows the 'Casper - Create Image' dialog box with the 'Select completion options' screen. The 'Notify me when completed' checkbox is checked, and the dropdown menu is set to 'Always'. Under 'Additional notification options', the 'Send a SmartAlert' checkbox is unchecked. The 'Email address' dropdown is empty, and the 'Description' field contains 'JETSON System Disk Backup'. The 'Turn off computer' dropdown is set to 'Hibernate'. The 'Prepare JETSON System Disk Backup for safe removal' checkbox is unchecked. A 'Help me decide' link is visible. At the bottom, there are 'Next' and 'Cancel' buttons.

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.

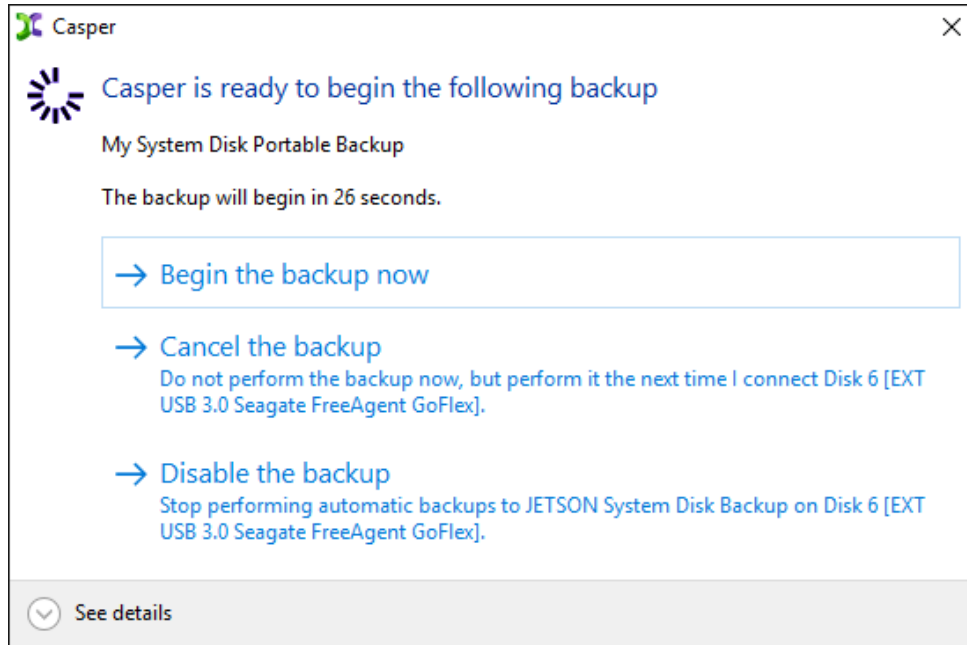
The screenshot shows the 'Casper - Create Image' dialog box with the 'How would you like to identify this backup?' screen. The text reads: 'The name will be used by the Casper SmartSense Service to identify the backup. A description can assist with identifying the purpose of the backup. Example: "Secondary backup for offsite storage."' The 'Name' field contains 'My System Disk Portable Backup'. The 'Description (optional)' field is empty. At the bottom, there are 'Save' and 'Cancel' buttons.

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



Starting a SmartSense Backup

Once your 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.

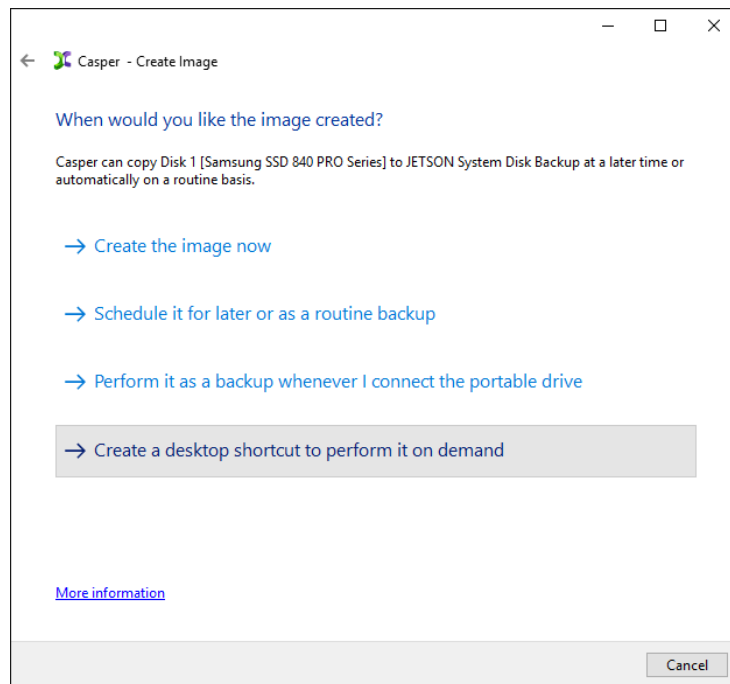
Example 10: Performing a Restore-Point Backup On-Demand

You can create a desktop shortcut to perform a restore-point backup on-demand.

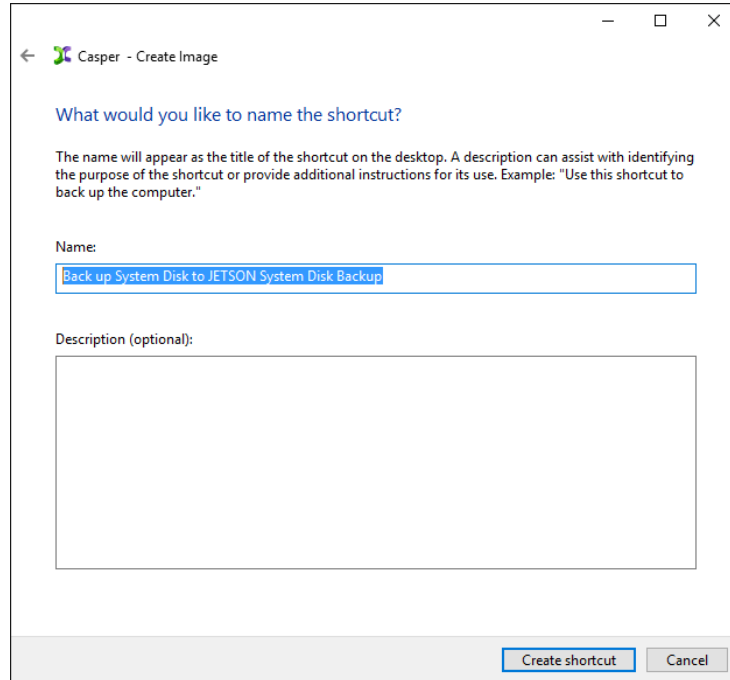
Creating a Desktop Shortcut for a Restore-Point Backup

The procedure outlined below is the same whether you are performing an initial backup as demonstrated in Example 6 or updating an existing backup as demonstrated in Example 7.

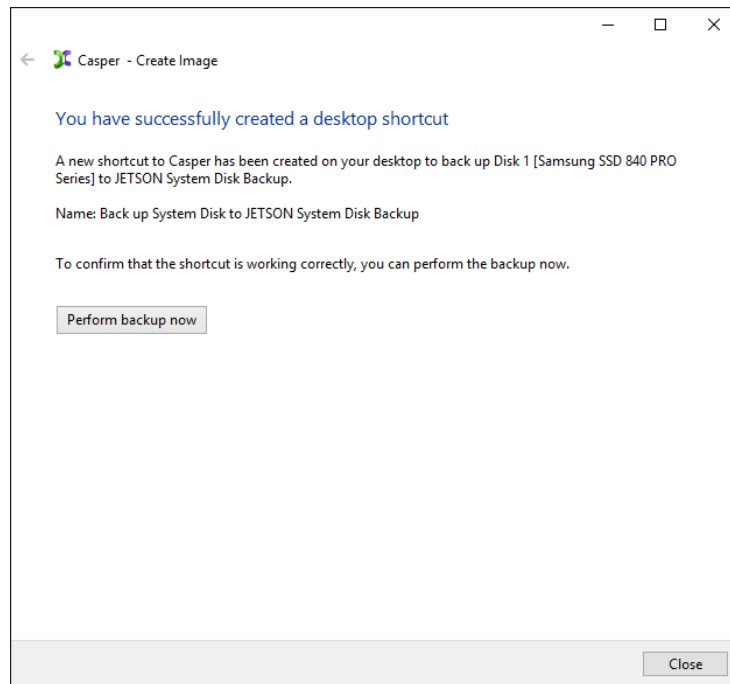
1. When prompted by the Create Image wizard, click **Create a desktop shortcut to perform it on demand**.



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

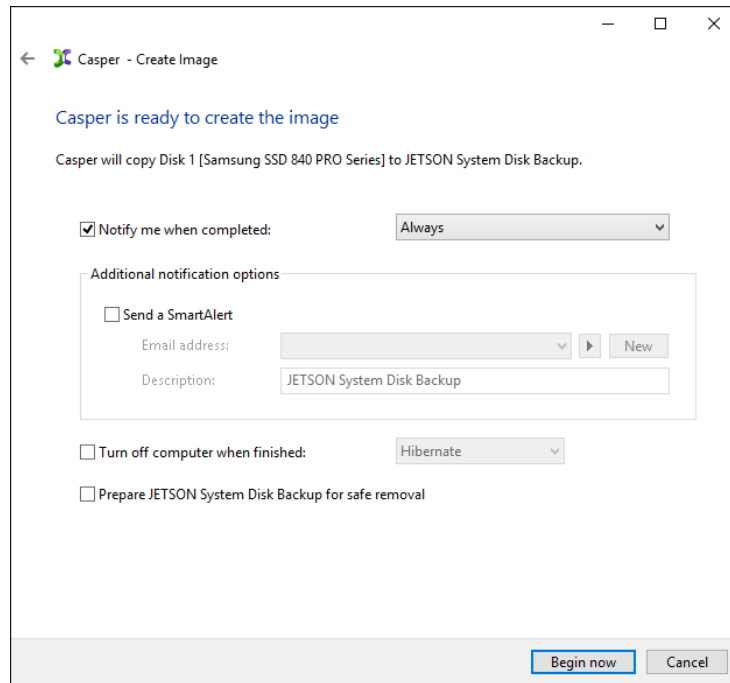


3. Click **Close** to return to the Casper console.



Performing a Restore-Point Backup On-Demand

After creating a desktop shortcut, you can use the Casper shortcut appearing on your desktop to begin the backup. Click **Begin now** to start the backup.



Testing a System Disk Backup

Having confidence in your backup is important. After all, a backup is useless if it cannot be used to facilitate recovery within a crisis. Casper performs rigorous testing during the creation of a backup to ensure a backup is not corrupted by faulty hardware or errant software. Once a backup has been created, periodic testing will help to ensure your backup will be there when you need it. If you have created a backup of your computer's Windows system disk, you can test your backup at any time.

Testing a Bootable Backup

You can test a bootable backup by temporarily reconfiguring your computer to boot from the backup disk. See **Booting from a System Backup** for more information.

When booting directly to the backup, it will take on the identity of the original Windows system disk, and the original system disk, if left attached, will take on the identity of the backup. For example, if your computer's system disk normally boots and appears as Local Disk (C:) and your backup appears as Local Disk (F:), your backup will boot and appear as Local Disk (C:) and your original system disk will appear as Local Disk (F:). All of your programs, settings, and data will run and appear just as they did on the original Windows system disk when your backup was created.

Once you are satisfied that your computer is operating as expected from the backup, you can resume normal operation of your computer by restarting from the original Windows system disk.

Testing a Restore-Point Backup

There are two ways to test a restore-point backup of the Windows system disk. If you created the restore-point backup with bootable image recovery enabled, you can temporarily boot your computer directly from the restore-point. If Windows Hyper-V is available for your computer, you can temporarily boot and test the backup within a virtual machine.

Testing with Bootable Image Recovery

You can test a restore-point backup with bootable image recovery by temporarily reconfiguring your computer to boot from the backup disk and then selecting the desired restore-point from which to boot. See **Booting from a System Backup** for more information.

When booting to the backup, it will take on the identity of the original Windows system disk, and the original system disk, if left attached, will take on the identity of the backup. For example, if your computer's system disk normally boots and appears as Local Disk (C:) and your backup appears as Local Disk (F:), your backup will boot and appear as Local Disk (C:) and your original system disk will appear as Local Disk (F:). All of your programs, settings, and data will run and appear just as they did on the original Windows system disk when your backup was created.

Once you are satisfied that your computer is operating as expected from the backup, you can resume normal operation of your computer by restarting from the original Windows system disk.

Testing within a Virtual Machine

If Windows Hyper-V functionality is available, you can quickly test a restore-point backup within a temporary Hyper-V virtual machine (VM) without restarting your computer.

By default, the temporary VM is created without network access. This will ensure programs like Microsoft Outlook, which may be configured to run automatically at startup, will not inadvertently download data while running within the temporary virtual machine. You can enable network access by adding a network switch to the VM in Casper Settings, Test Boot, Virtual Machine Settings.

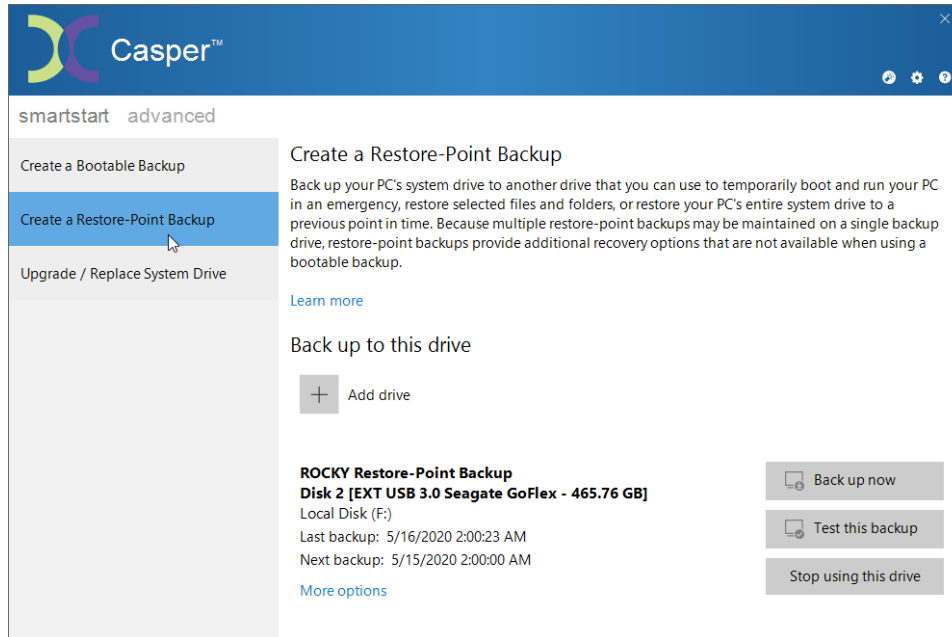


Changes made to files contained in the restore-point backup while running within the VM will be lost when the virtual machine connection window is closed.

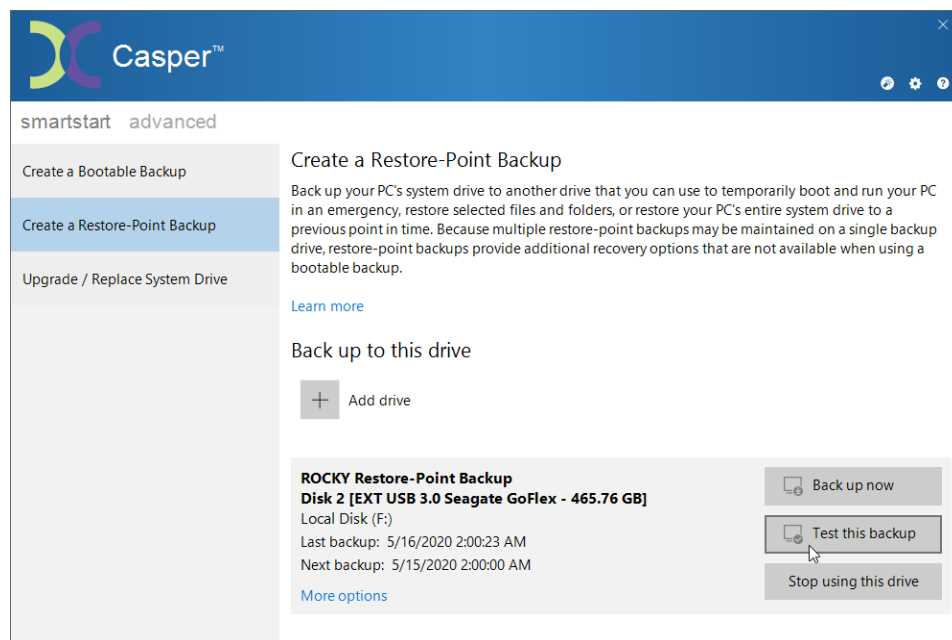
Example 11: Testing the Latest Restore-Point within a VM

If you created a restore-point backup using Casper SmartStart and the hard disk containing the backup is currently installed or attached to the computer, the following procedure illustrates how to boot and test the latest restore-point within a Windows Virtual Machine.

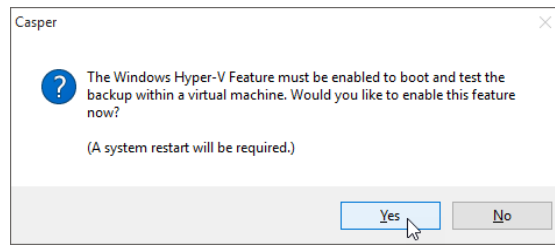
1. From the Casper console, select the **SmartStart** tab and then click **Create a Restore-Point Backup** to display your existing restore-point backups.



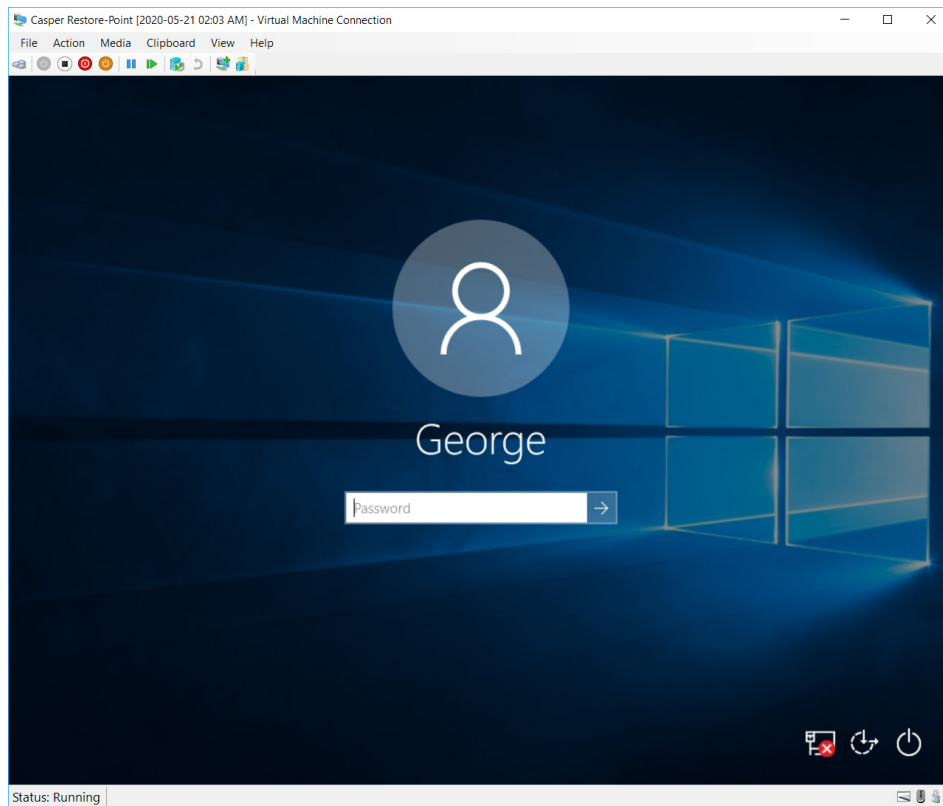
2. Select **Test this backup**.



If the Hyper-V feature is not currently enabled, Casper will offer to enable it for you.



3. Once the temporary virtual machine has been configured it will boot to the latest restore-point backup image. This process can take several minutes.

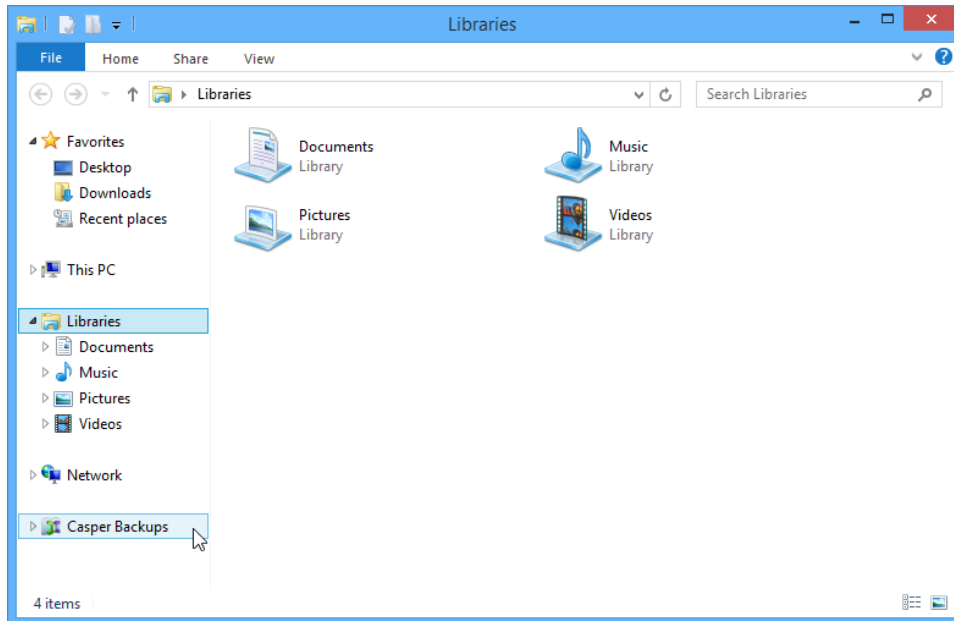


When you have finished testing, simply close the virtual machine connection window to shut down and destroy the temporary virtual machine.

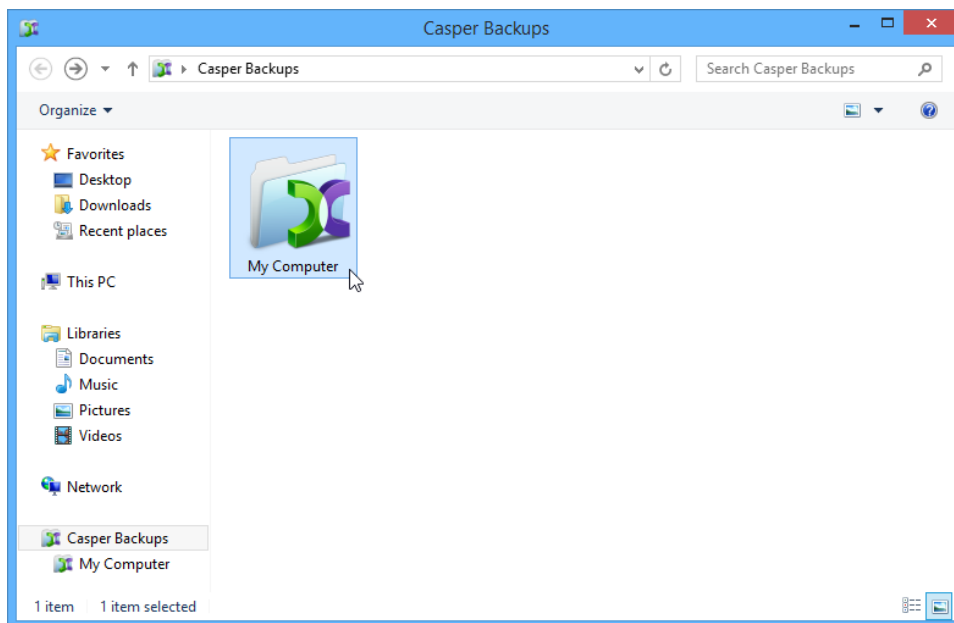
Example 12: Testing a Specific Restore-Point within a VM

If you created a restore-point backup of the Windows system disk with bootable image recovery enabled and the hard disk containing the backup is currently installed or attached to the computer, the following procedure illustrates how to boot and test a selected restore-point within a Windows Virtual Machine.

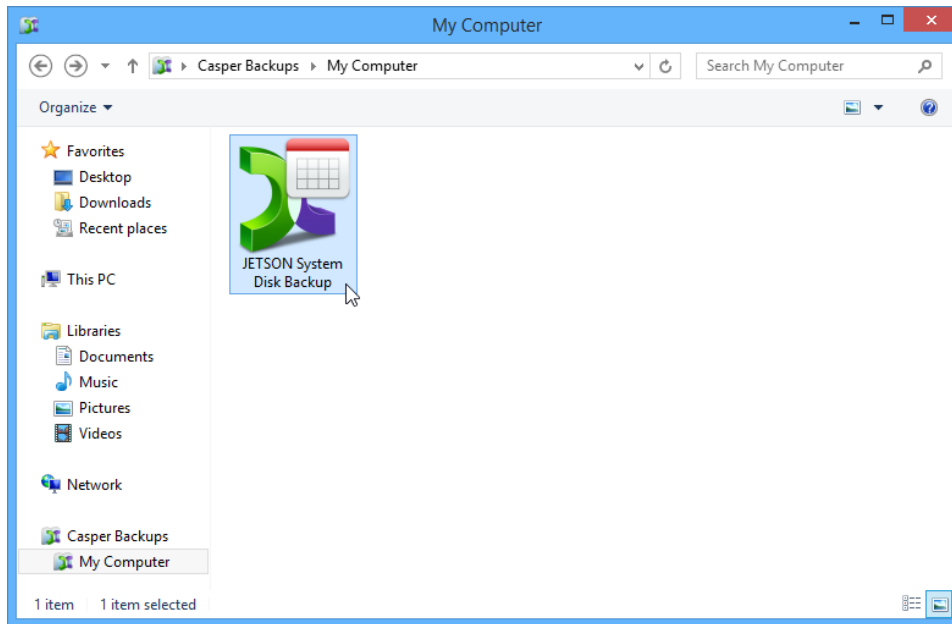
1. Open the **Casper Backups** folder. On Windows 8 or later, start **Windows File Explorer** and then click **Casper Backups**. On Windows 7, open **Windows Explorer** and click **Casper Backups**.



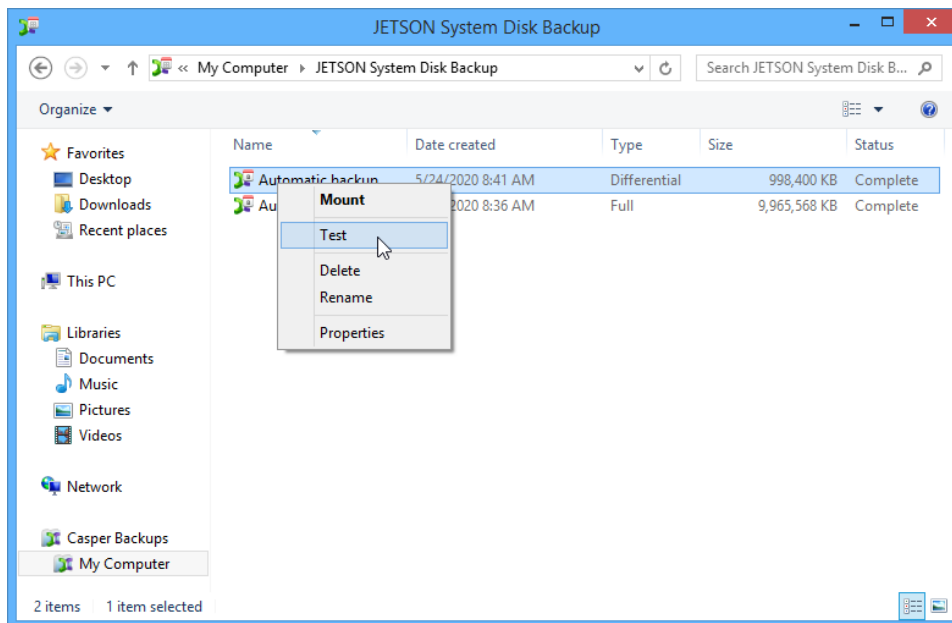
2. Double-click the **My Computer** folder to browse all of the restore-point backups discovered for your computer.



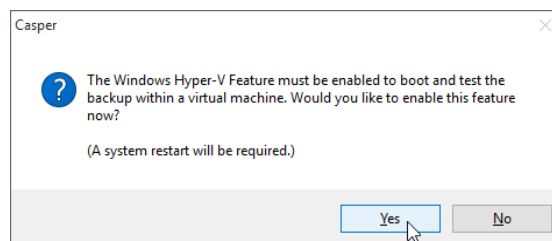
3. Double-click the backup containing the restore-point you want to boot and test.



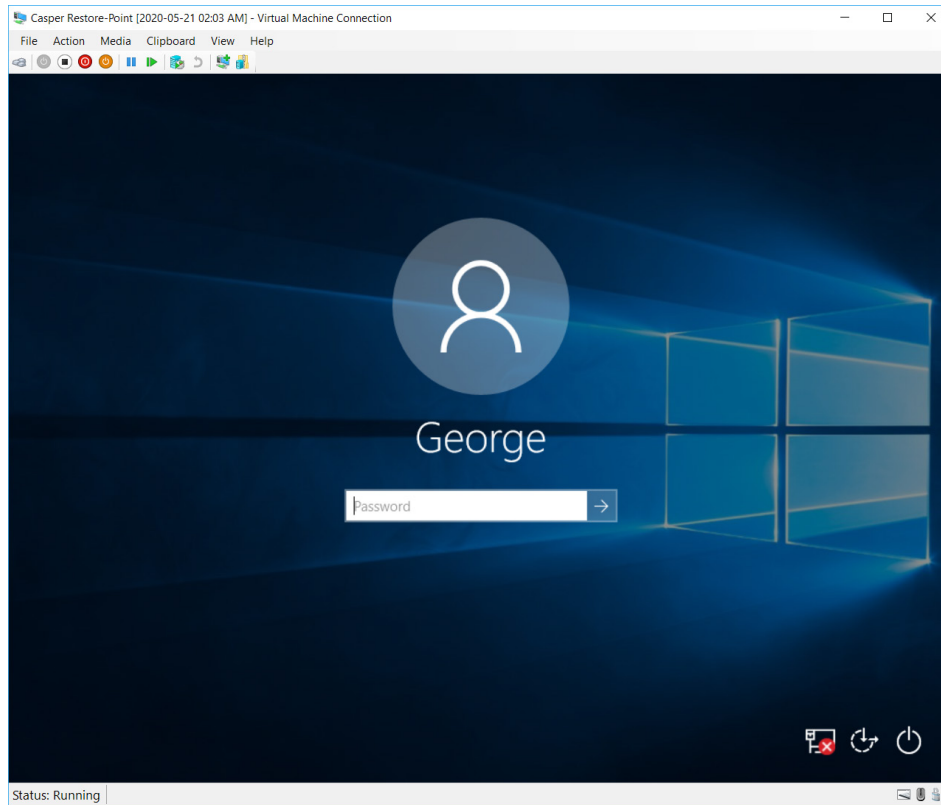
4. Right-click on the desired restore-point and then click **Test**.



If the Hyper-V feature is not currently enabled, Casper will offer to enable it for you.



5. Once the temporary virtual machine has been configured it will boot to the selected restore-point backup image. This process can take several minutes.



When you have finished testing, simply close the virtual machine connection window to shut down and destroy the temporary virtual machine.

Recovering from a System Disk Failure

If you have used Casper to create a backup of your computer's Windows system disk, and the disk fails or its contents become corrupted, you can restore your computer to working order by using your Casper backup.

Booting from a backup

If you have a bootable backup, or a restore-point backup created with bootable image recovery enabled, you can get your computer running again in just a few minutes.

For a bootable backup simply reconfigure your computer to boot from the backup disk. For a restore-point backup, first reconfigure your computer to boot from the backup disk that contains the restore-point backup and then select the desired restore-point from which to boot.

For details, please see **Booting from a System Backup**.

Restoring from a backup

If you are unable to boot directly from a backup, you can restore your computer's Windows system disk from a backup. Restoration may be made to either the original Windows system disk or a replacement disk (e.g., when the original disk is no longer operable).

If you have a restore-point backup and the Casper Startup and Recovery Environment was added to the backup disk, you can boot your computer directly from the backup disk to perform a restore. If you are unable to boot your computer from the backup disk, you can use a Casper Startup Disk to manually restore a backup.

For details, please see **Restoring a System Backup**.

System Recovery Options at a Glance

Casper Bootable Backup Recovery Options	Casper Restore-Point Backup Recovery Options
Boot computer from backup disk to temporarily run computer or restore backup.	If bootable image recovery was enabled, boot computer directly from selected restore-point to temporarily run computer or restore selected backup.
Permanently replace existing system disk with backup disk.	If Casper Startup and Recovery Environment was added to backup disk, boot computer from backup disk and restore selected backup.
Boot computer from Casper Startup Disk and restore backup from backup disk.	Boot computer from Casper Startup Disk and restore selected backup from backup disk.

Booting from a System Backup

If you have a bootable backup, you can run your computer directly from your backup simply by reconfiguring your computer to boot from the backup disk. Similarly, if you have a restore-point backup created with bootable image recovery enabled, you can run your computer directly from your backup by first reconfiguring your computer to boot from the backup disk that contains the restore-point backup and then selecting the desired restore-point from which to boot.

When booting directly to a backup, the backup will take on the identity of the original Windows system disk. For example, if your computer's system disk normally boots and appears as Local Disk (C:), your backup will boot and appear as Local Disk (C:) whenever your computer has been configured to boot and run from it. In addition, all of your programs, settings, and data will run and appear just as they did on the original Windows system disk when your backup was created.

Booting from a 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 boot priority setting in the computer's BIOS or EFI Firmware to designate the backup hard disk as the preferred boot device. The exact process depends on the manufacture of the computer, but typically pressing F12 or F2 when starting your computer will allow you to change the boot device order or temporarily select a specific device from which to boot the computer.

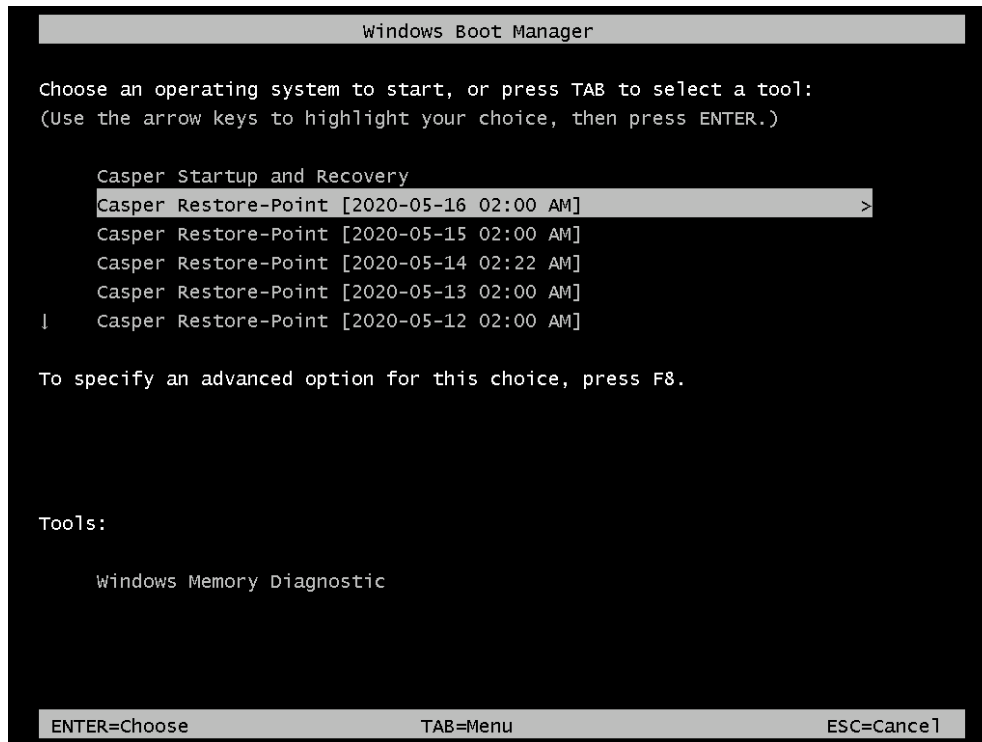
If the computer's BIOS or EFI Firmware does not offer an option to select the designated backup hard disk as the preferred boot device, or if the original hard disk fails completely, the backup hard disk must be reconfigured to replace the original hard disk. For an internally mounted backup hard disk,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



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 hard disk 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 or restore-point to the computer's internal hard disk.

Booting from a restore-point

When starting your computer from the backup disk that contains the restore-point backup, you can choose the specific restore-point from which to boot.



Restoring a System Backup

If you created a restore-point backup, or if you are unable to boot your computer to your bootable backup, a system backup can be restored by booting your computer to the Casper Startup and Recovery Environment.

If the Casper Startup and Recovery Environment was added to your backup disk, you can boot your computer directly from the backup disk to perform the restore. When restoring a bootable backup, or when the Casper Startup and Recovery Environment is not present on the backup disk, a Casper Startup Disk can be used to boot the computer to perform the restore. For more information on creating and using a Casper Startup Disk, please see the **Casper Startup Disk Creator Guide**.

Booting a computer from the Casper Startup and Recovery Environment may take several minutes. Once it has completed the boot process, Casper SmartRestore™ will attempt to automatically identify your backup and prompt you to begin the restore. If SmartRestore is unable to locate your backup, the Casper console will display. For more information on using Casper SmartRestore to perform a restore, please see the **Casper SmartRestore Guide**.

The following examples illustrate how to manually restore a system backup when Casper SmartRestore is unable to locate your backup.

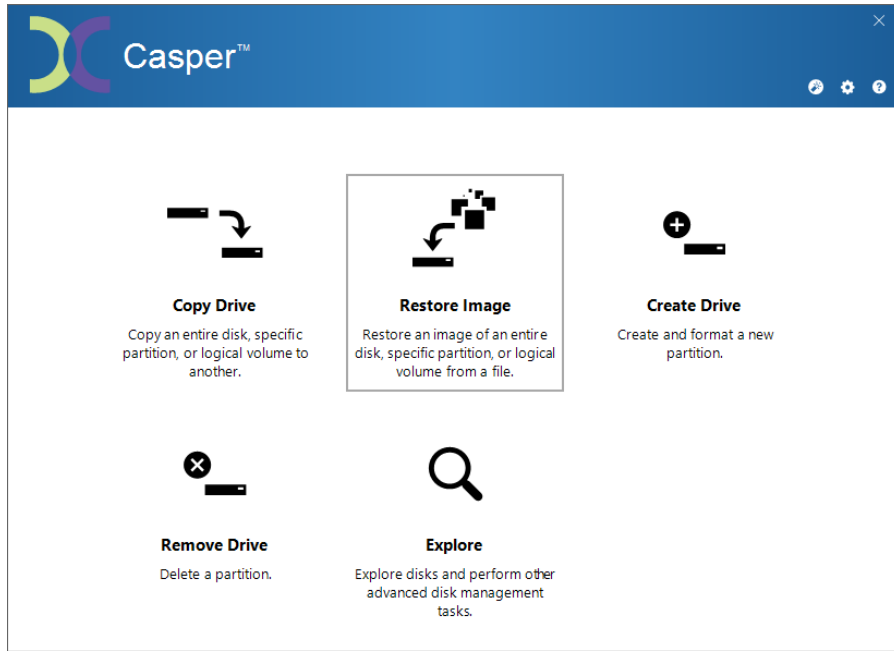
Example 13: Manually Restoring a Restore-Point Backup. This example shows how to manually restore a backup using the **Restore Image** wizard.

Example 14: Manually Restoring a Bootable Backup. This example demonstrates how to manually restore a bootable backup using the **Copy Drive** wizard.

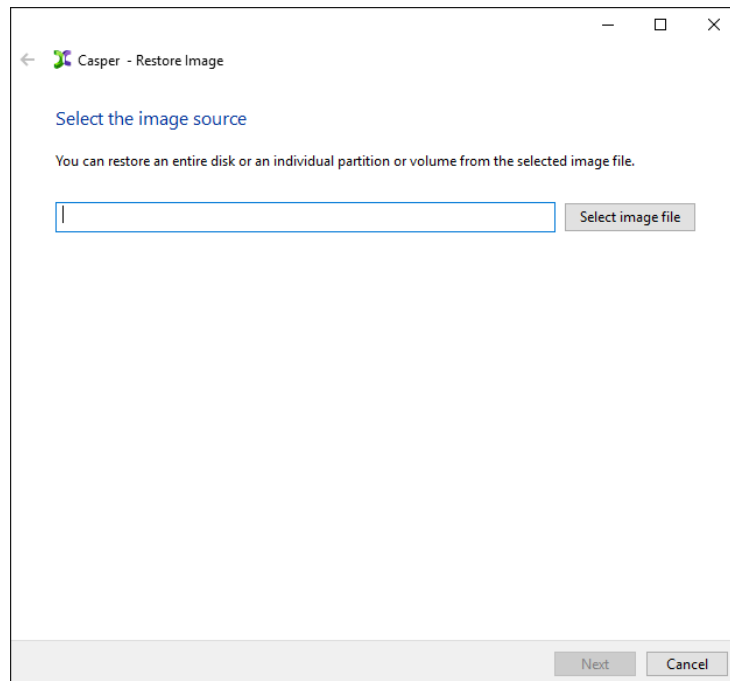
Example 13: Manually Restoring a Restore-Point Backup

Assuming the computer is presently booted to the Casper Startup and Recovery Environment and SmartRestore was unable to locate your backup, the following procedure illustrates how to manually restore an image of the Windows system hard disk to either the original Windows system disk or a replacement disk.

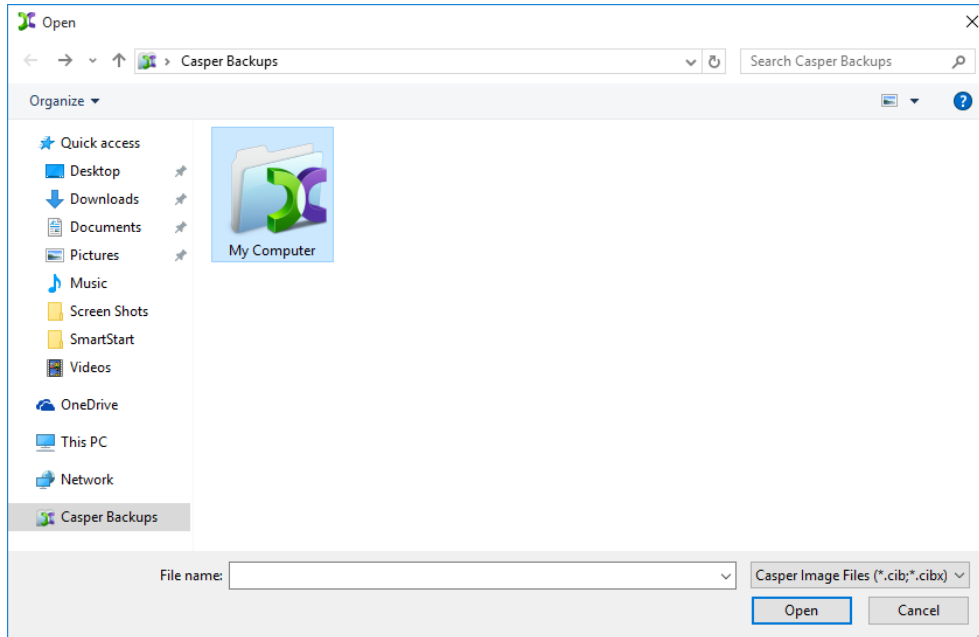
1. Select **Restore Image**.



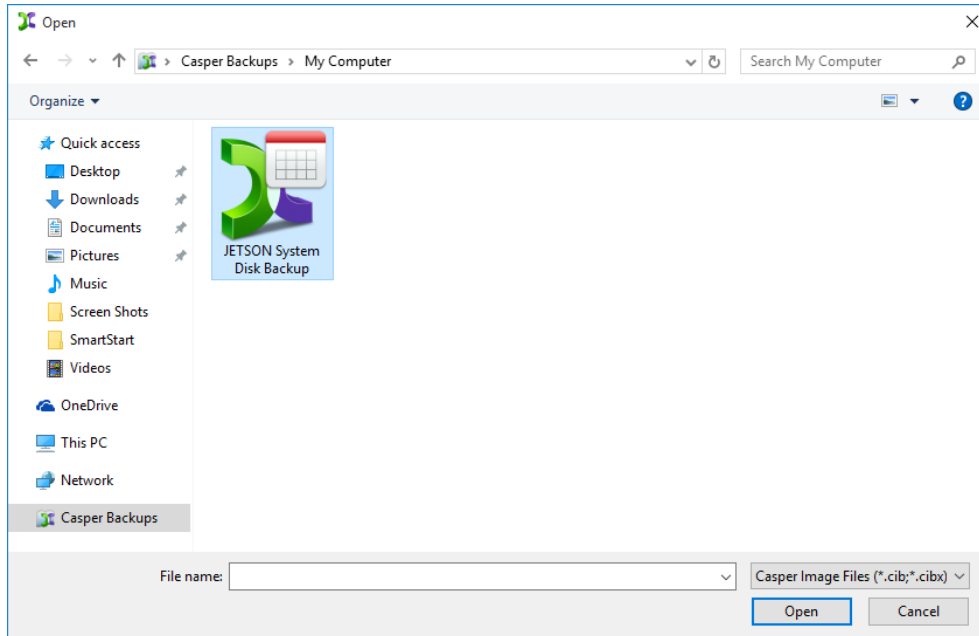
2. Click **Select image file**.



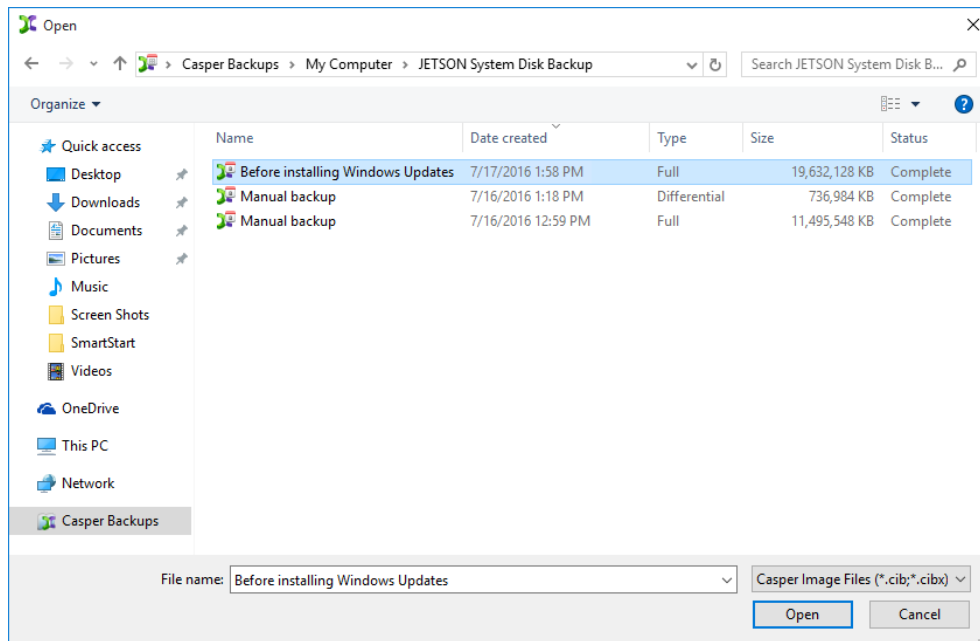
- In the Open dialog, navigate to the folder that contains the backup you want to restore. By default, the **Casper Backups** folder will be selected. This special folder provides direct access to all of the restore-point backups that were discovered. Double-click the **My Computer** folder to see all of the restore-point system backups that were located for your computer.



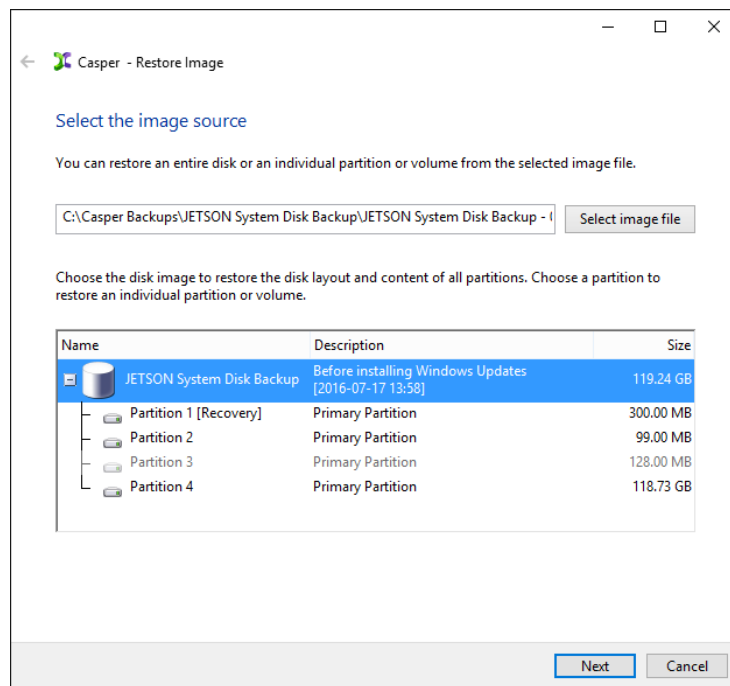
- Select the backup you want to restore and click **Open**.



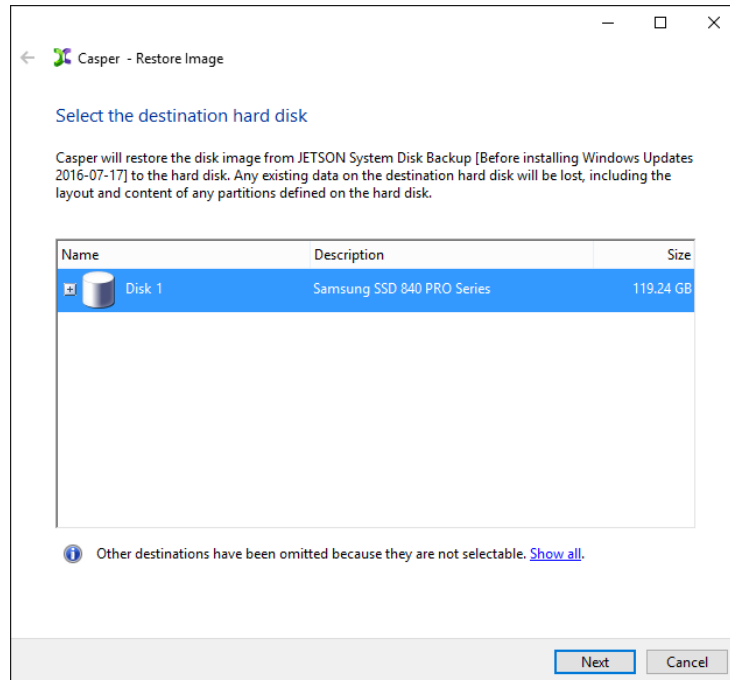
5. Select the image you want to restore and click **Open**.



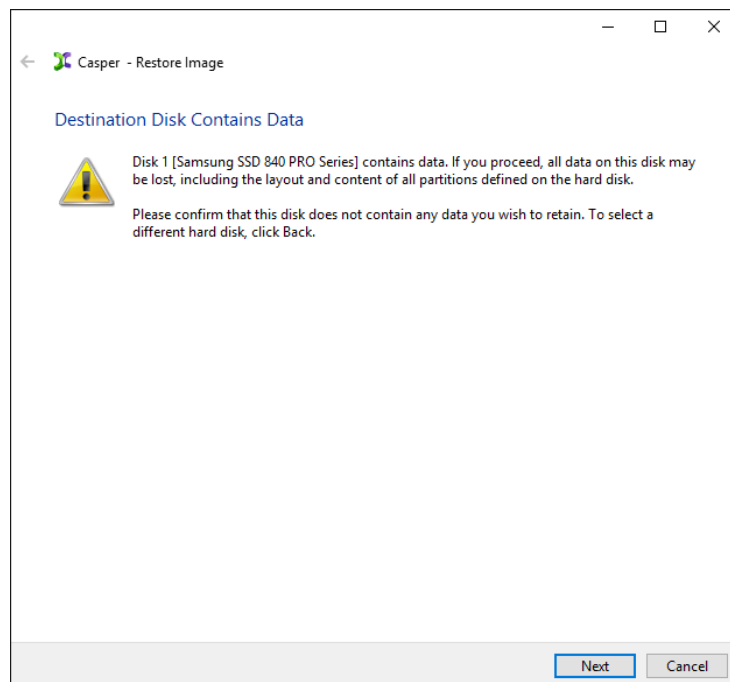
6. Once the selected image has loaded, click **Next**.



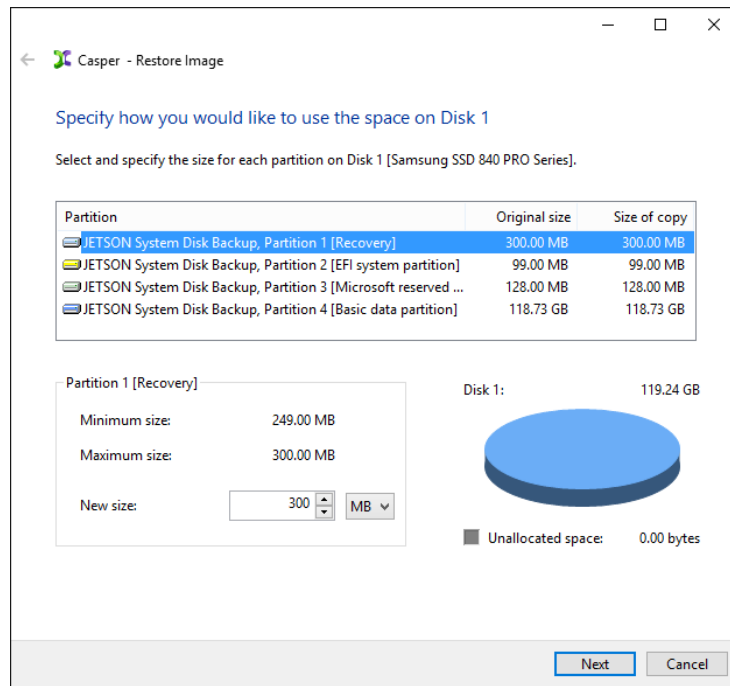
7. Select the hard disk that will become the restored Windows system disk as the destination, and then click **Next**.



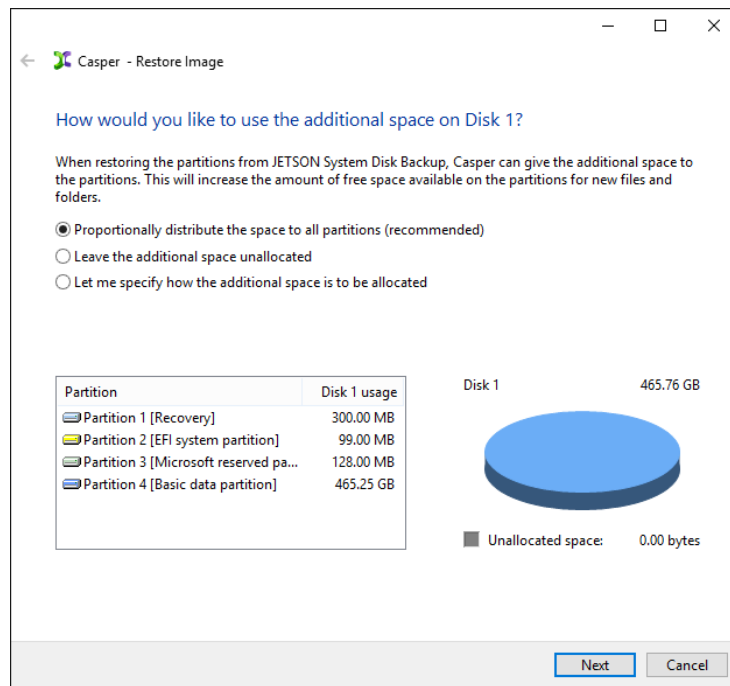
8. If the selected destination hard disk defines a partition or contains data, Casper will warn you that the contents will be overwritten. Confirm you have selected the correct hard disk to receive the restored image, and click **Next** to proceed.



- When prompted to specify how the space on the destination 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 original, Casper will ask you to manually configure how the space is to be used.

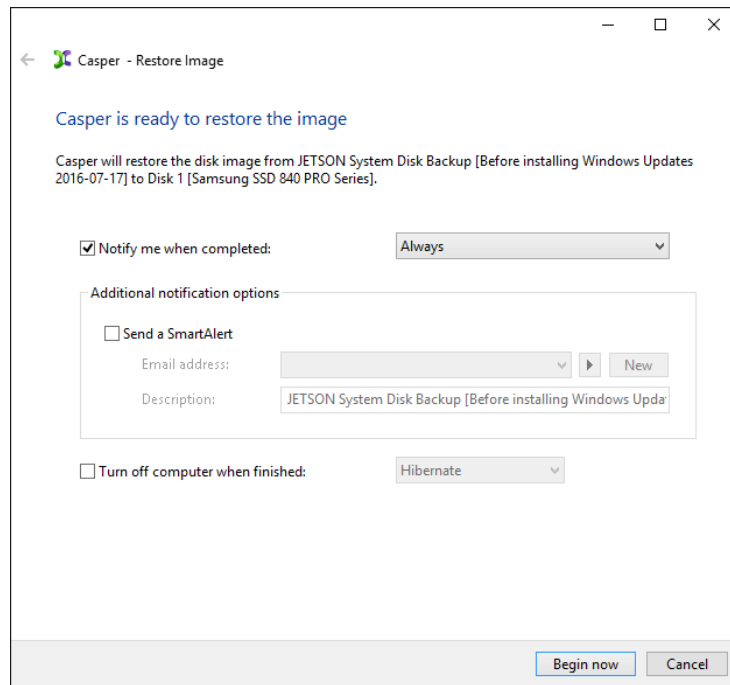


If restoring the image to a hard disk that is larger than the original, the default option will be *Give all of the space to the partition, or Proportionally distribute the space to all partitions* when there is more than one partition defined in the image.

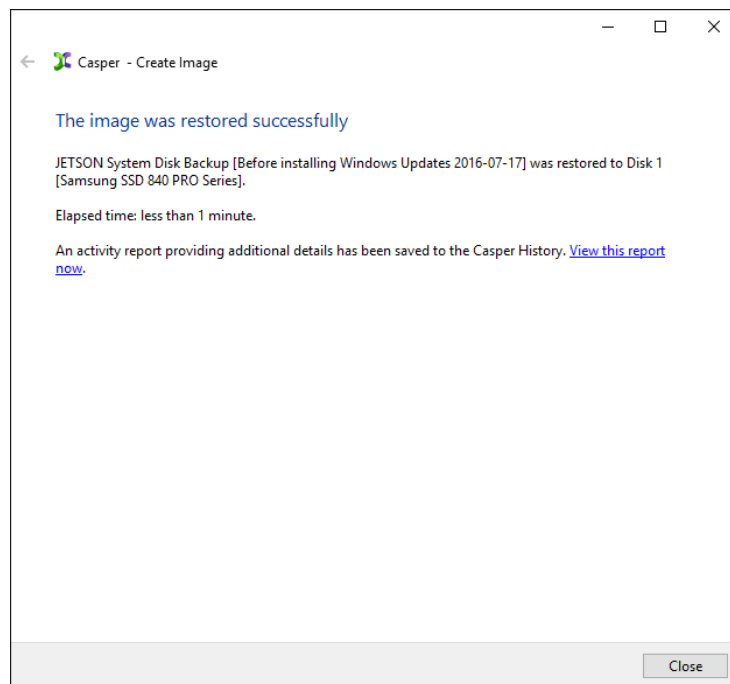


Simply clicking **Next** to accept the default selection or value is generally best.

10. Click **Begin now** to begin the image restoration process.



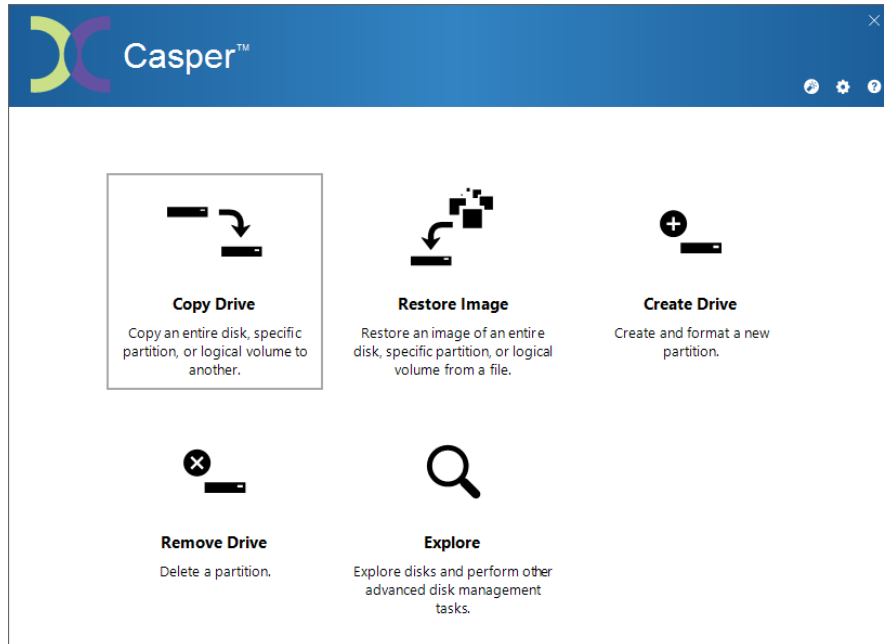
11. When Casper has completed the restoration process, click **Close**.



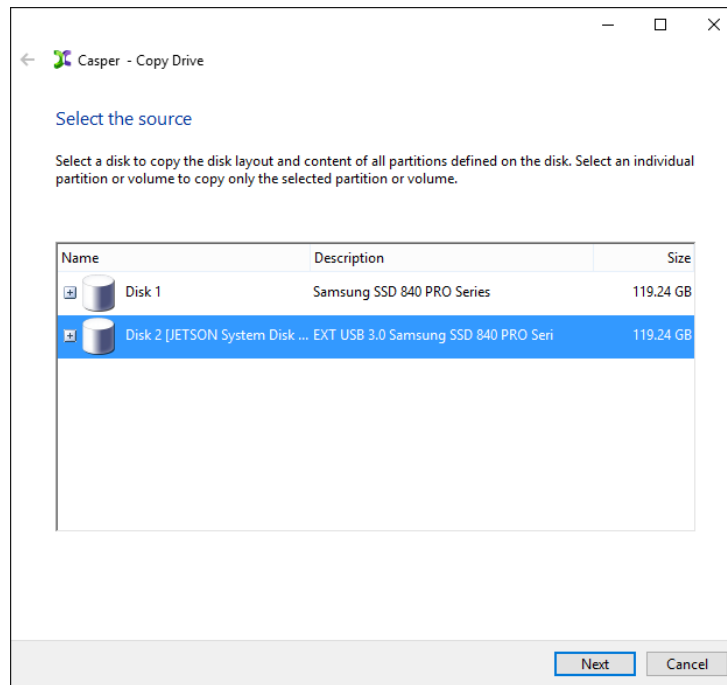
Example 14: Manually Restoring a Bootable Backup

Assuming the computer is presently booted to the Casper Startup and Recovery Environment and SmartRestore was unable to locate your backup, the following procedure illustrates how to manually restore a bootable backup of the Windows system hard disk to either the original Windows system disk or a replacement disk.

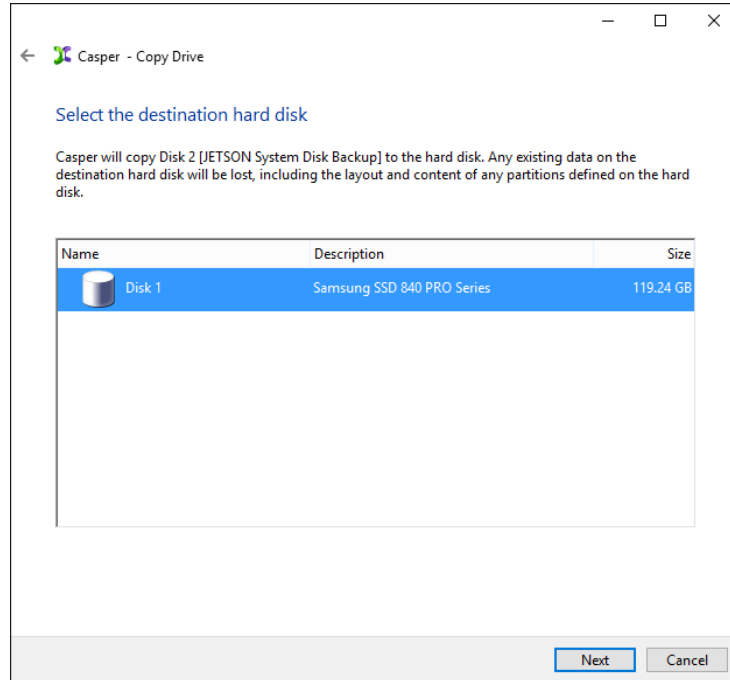
1. Select **Copy Drive**.



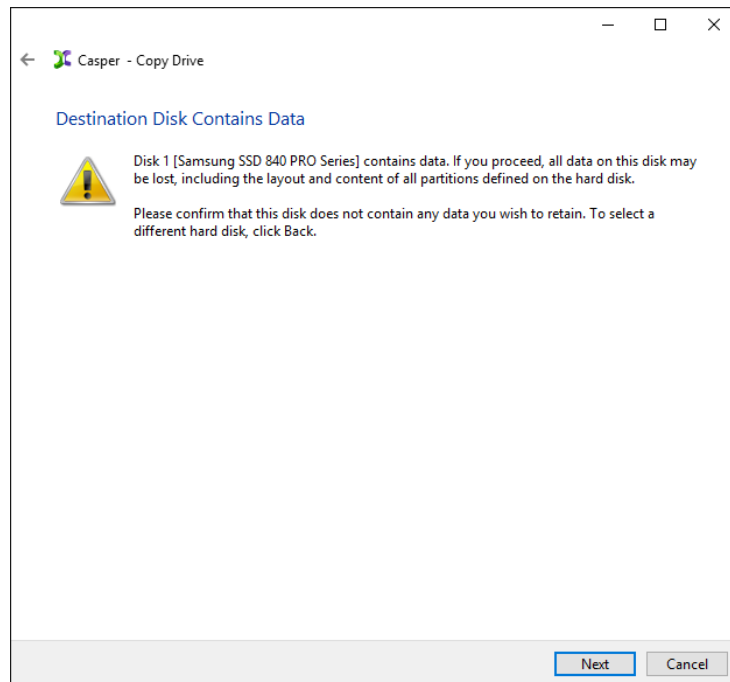
2. Select the hard disk containing the bootable backup to restore as the source, and click **Next**.



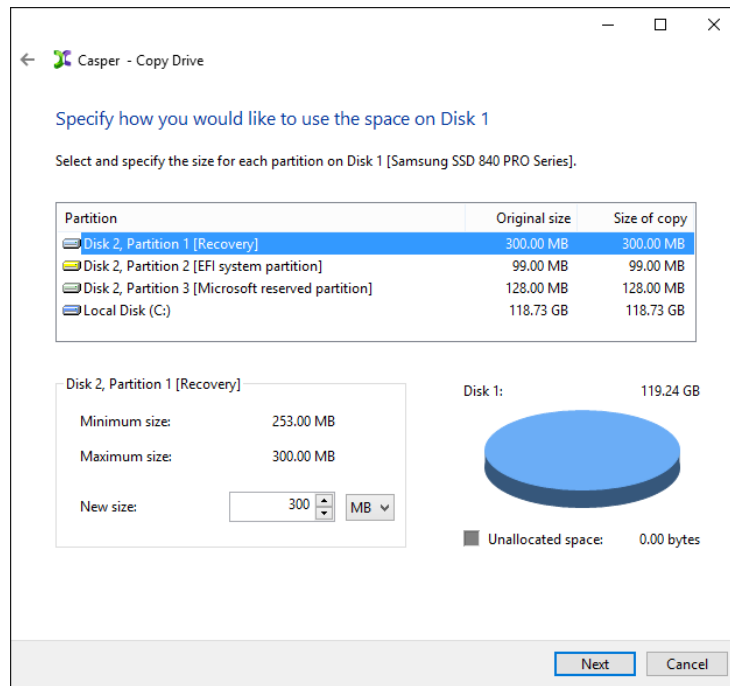
3. Select the hard disk that will become the restored Windows system disk as the destination, and then click **Next**.



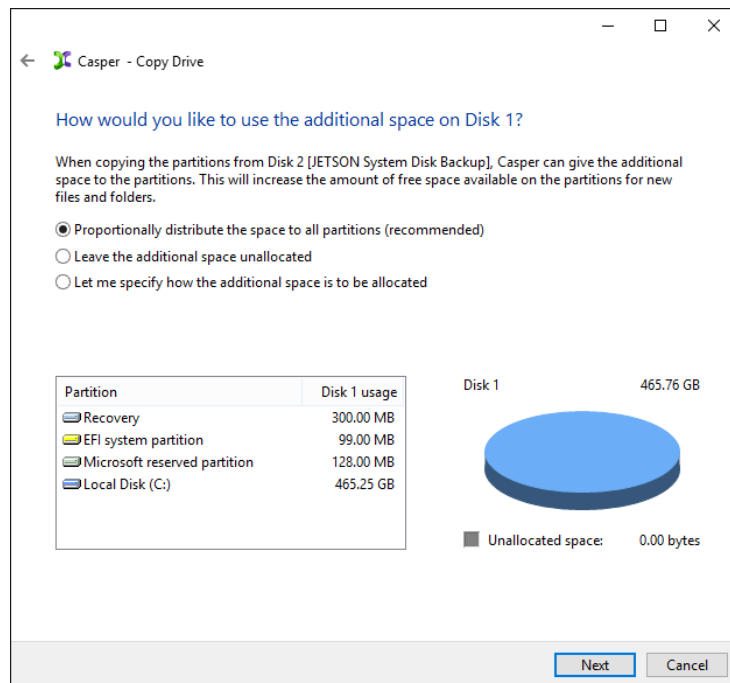
4. If the selected destination hard disk defines a partition or contains data, Casper will warn you that the contents will be overwritten. Confirm you have selected the correct hard disk to receive the restored backup, and click **Next** to proceed.



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

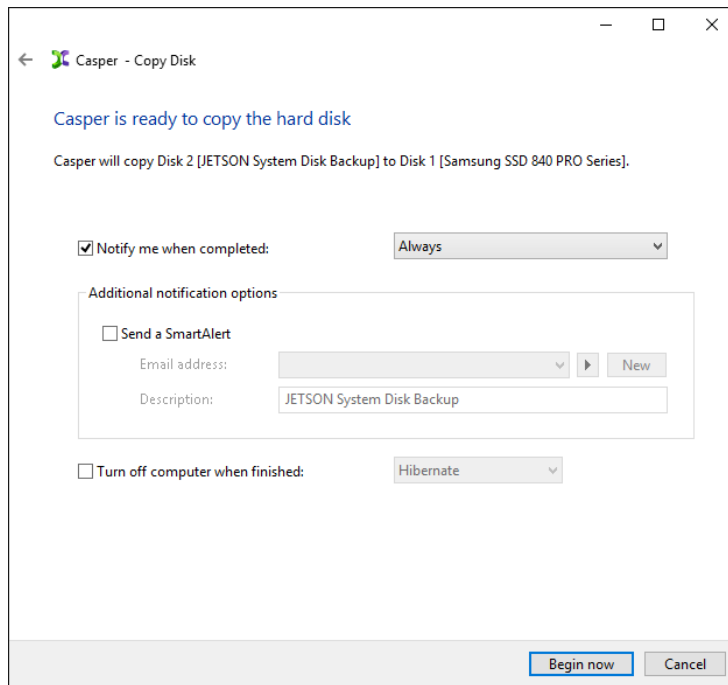


When the destination hard disk is larger than the backup source, the default option will be *Give all of the space to the partition, or Proportionally distribute the space to all partitions* when there is more than one partition defined on the backup source.

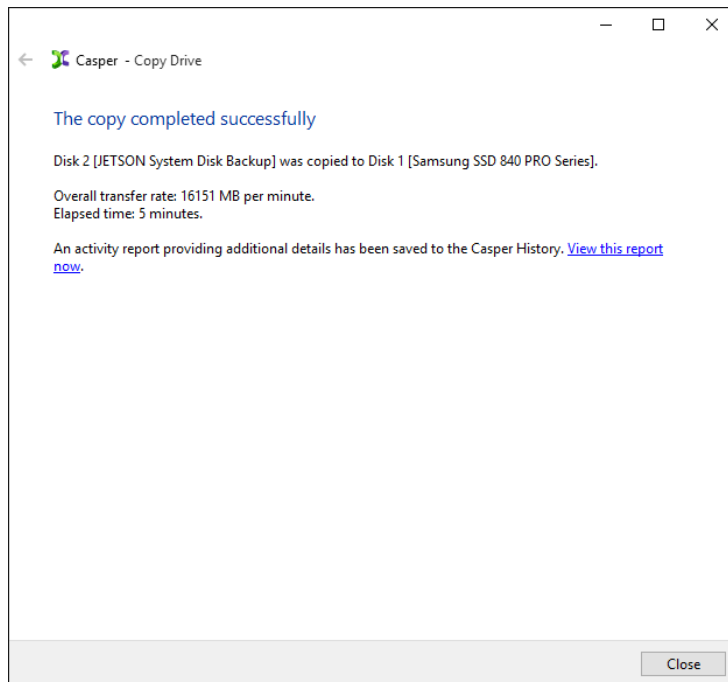


Simply clicking **Next** to accept the default selection or value is generally best.

- Click **Begin now** to begin the cloning process.



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



Retrieving Specific Files and Folders from a Backup

You can retrieve a specific file or folder from a backup without booting to the backup or performing a restore. Because a bootable backup is a clone of your Windows system disk, it can be accessed in the same manner as the Windows system disk whenever it is connected to the computer. Similarly, the contents of a restore-point backup can be accessed in the same manner as the Windows system disk whenever it has been mounted.

The following examples illustrate how to access the contents of a backup to retrieve specific files and folders without booting or restoring the entire backup.

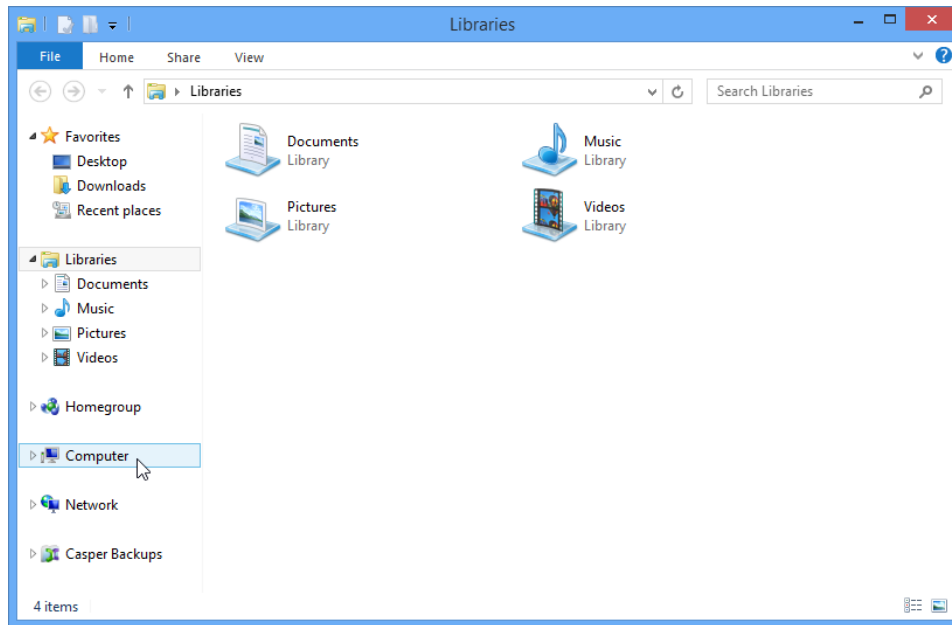
Example 15: Accessing the Contents of a Bootable Backup. This example shows how to browse a bootable backup using Windows Explorer to retrieve a file located in the [My] *Documents* folder.

Example 16: Accessing the Contents of a Restore-Point Backup. This example demonstrates how to use Windows Explorer to mount a specific restore-point within a restore-point backup and retrieve a file from the *Documents* folder of the backup.

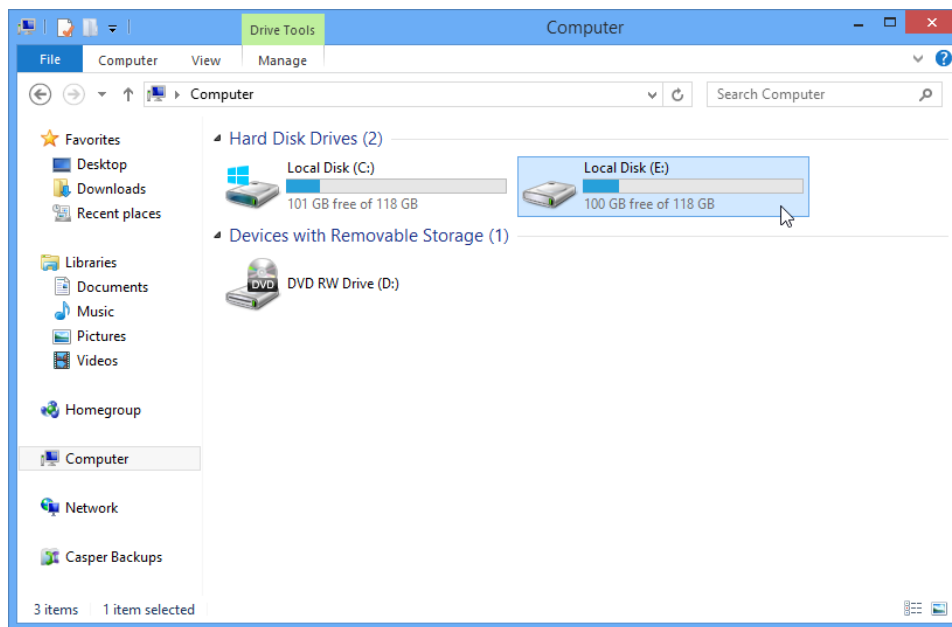
Example 15: Accessing the Contents of a Bootable Backup

Assuming the hard disk containing the bootable backup is currently installed or attached to the computer, the following procedure illustrates how to browse the contents of the backup to retrieve a specific file from the [My] *Documents* folder.

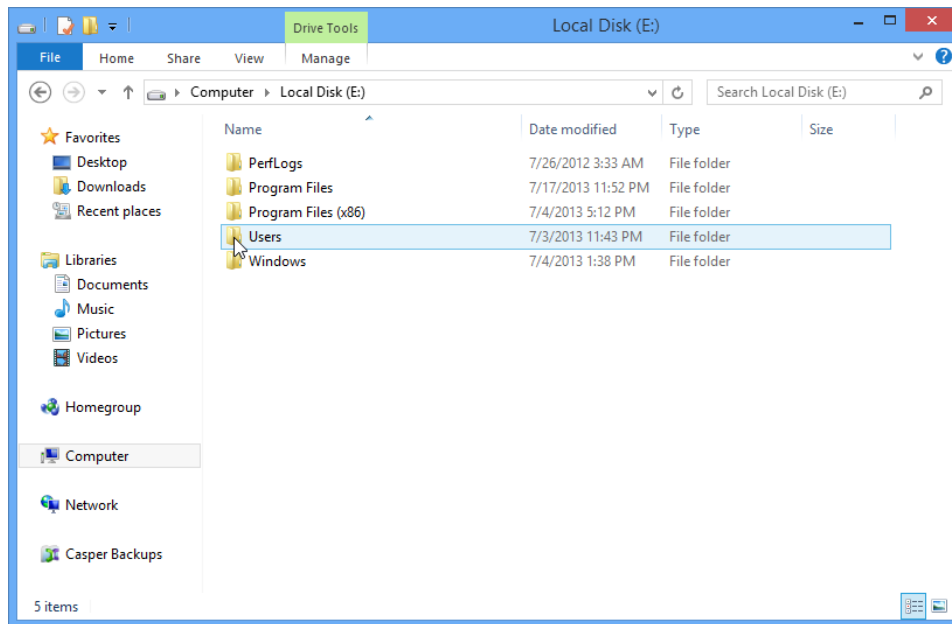
1. Open **[My] Computer / This PC**. On Windows 8.1 or later, start **Windows File Explorer** and then click **This PC**. On Windows 8, start **Windows File Explorer** and then click **Computer**. On Windows 7 and earlier, simply click **[My] Computer** on the *Start* menu.



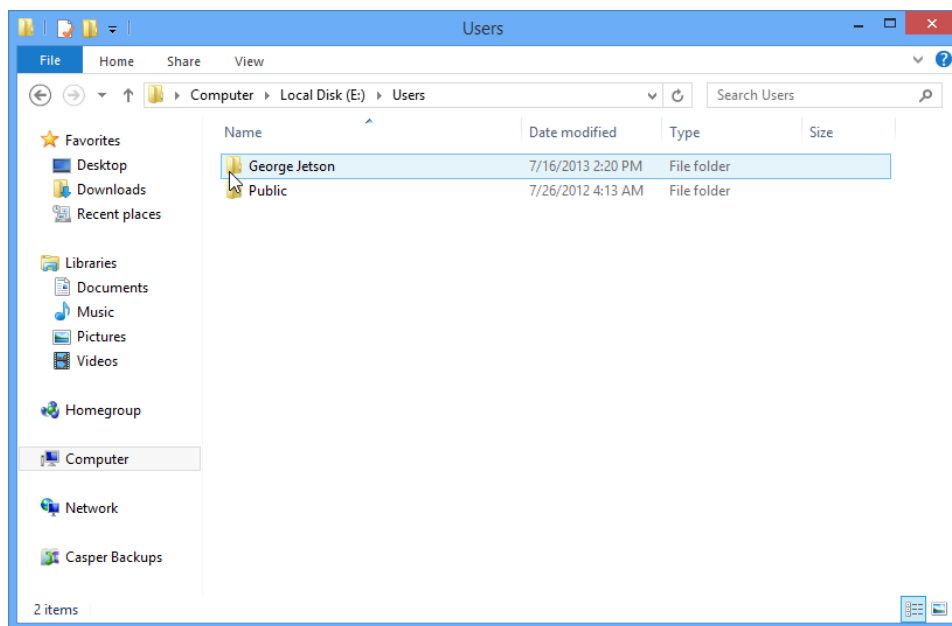
2. Double-click the drive containing your bootable backup. In this example, **Local Disk (E:)** represents the drive letter assigned by Windows to the backup drive.



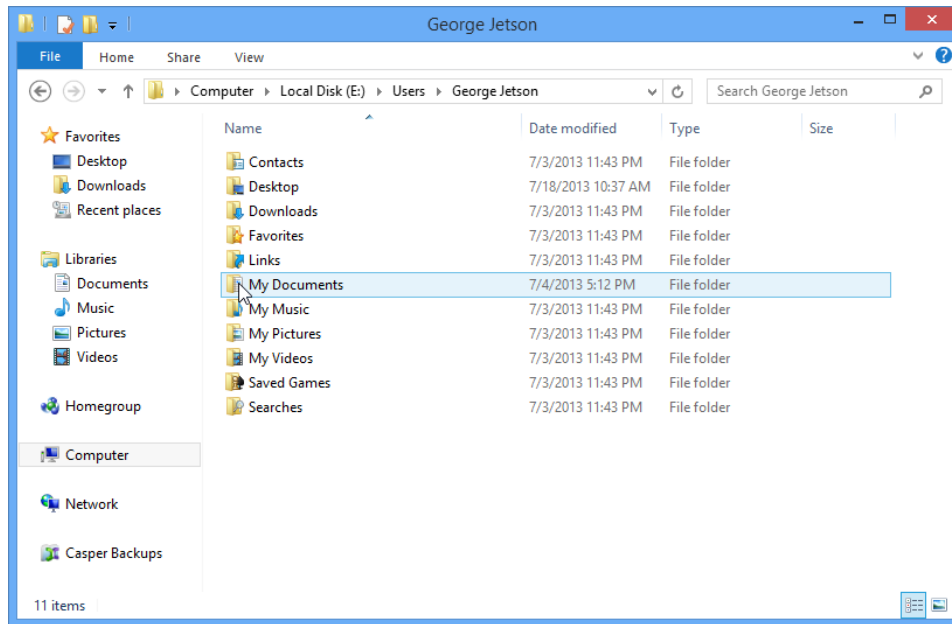
3. Double-click **Users** to open the Users folder.



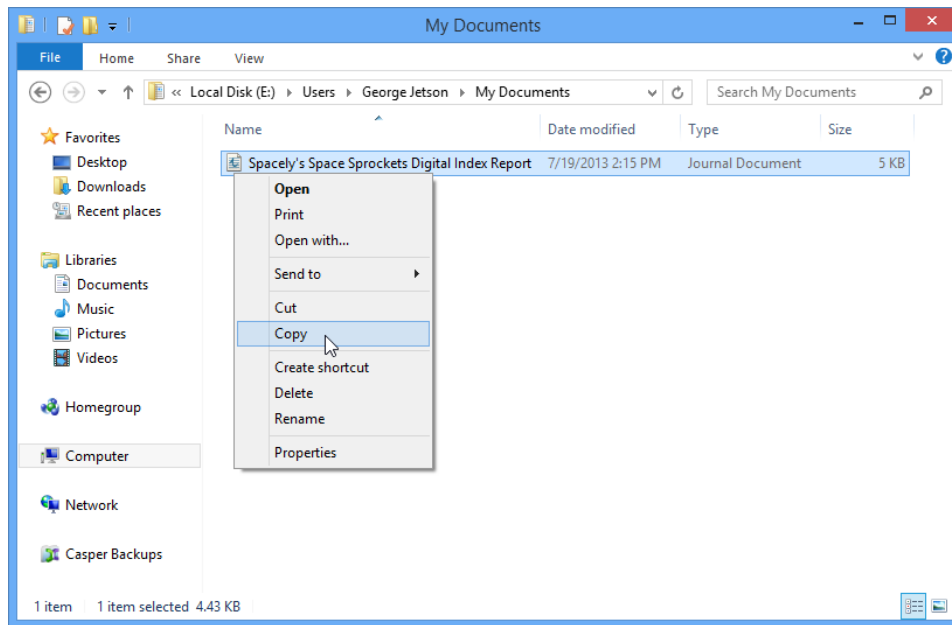
4. Double-click the folder that corresponds to the account name with which you normally log onto your computer. In this example, the user logs on as **George Jetson**.



5. Double-click the **[My] Documents** folder to access the contents of your account's *Documents* folder. The contents of this folder will represent the original contents of the *Documents* folder appearing on your system drive when you created your backup.



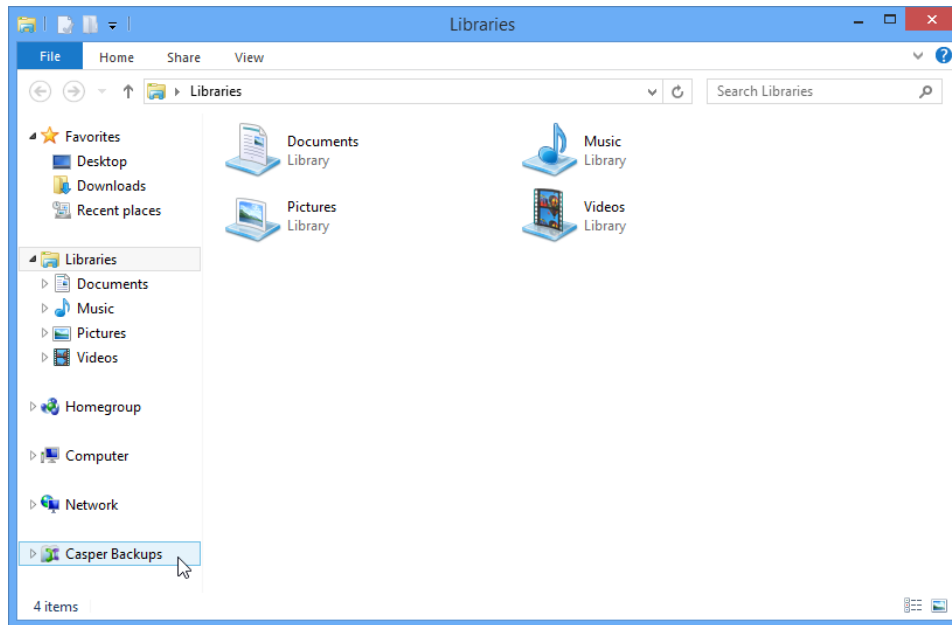
6. Once you have located the desired file or folder, you can access or copy it as you would any other file on your original Windows system drive.



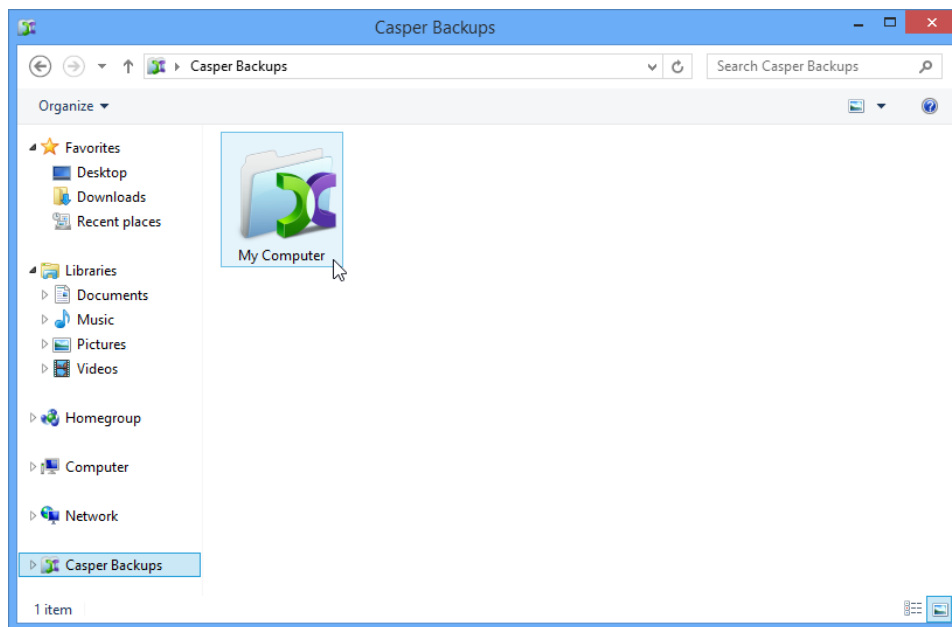
Example 16: Accessing the Contents of a Restore-Point Backup

Assuming the hard disk containing the restore-point backup is currently installed or attached to the computer, the following procedure illustrates how to mount a restore-point backup and retrieve a specific file from the *Documents* folder.

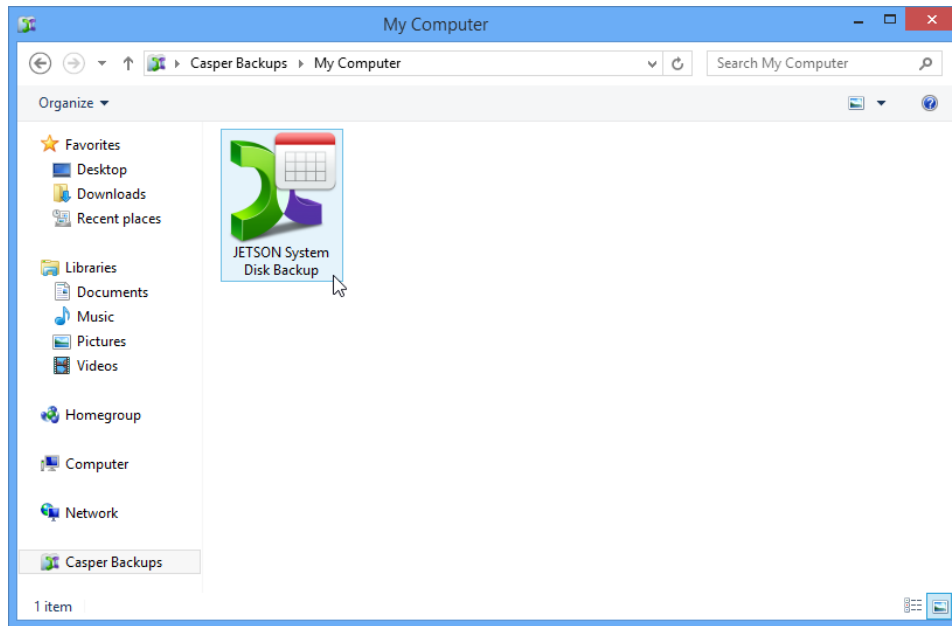
1. Open the **Casper Backups** folder. On Windows 8 or later, start **Windows File Explorer** and then click **Casper Backups**. On Windows 7, open **Windows Explorer** and click **Casper Backups**.



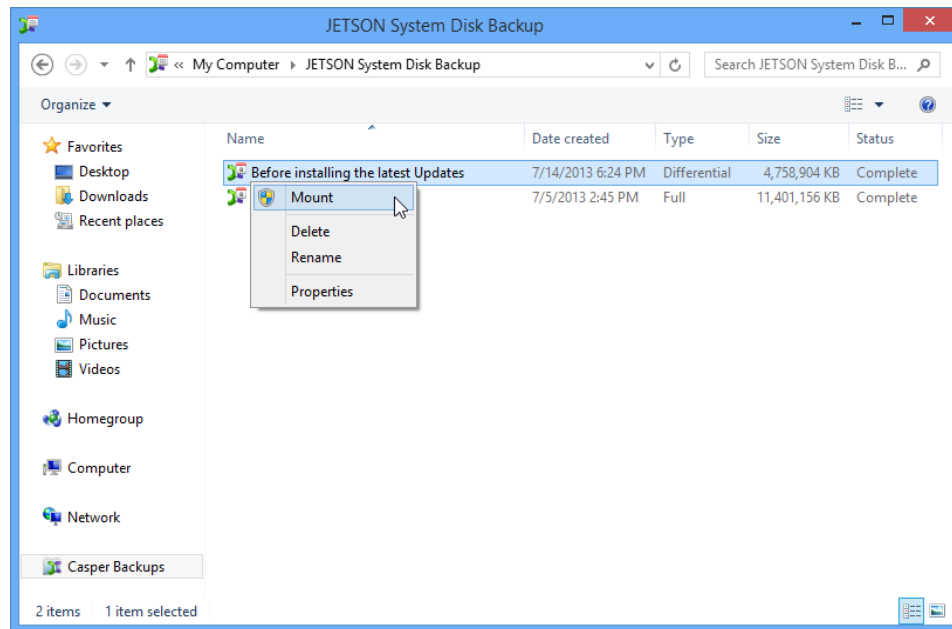
2. Double-click the **My Computer** folder to browse all of the restore-point backups discovered for your computer.



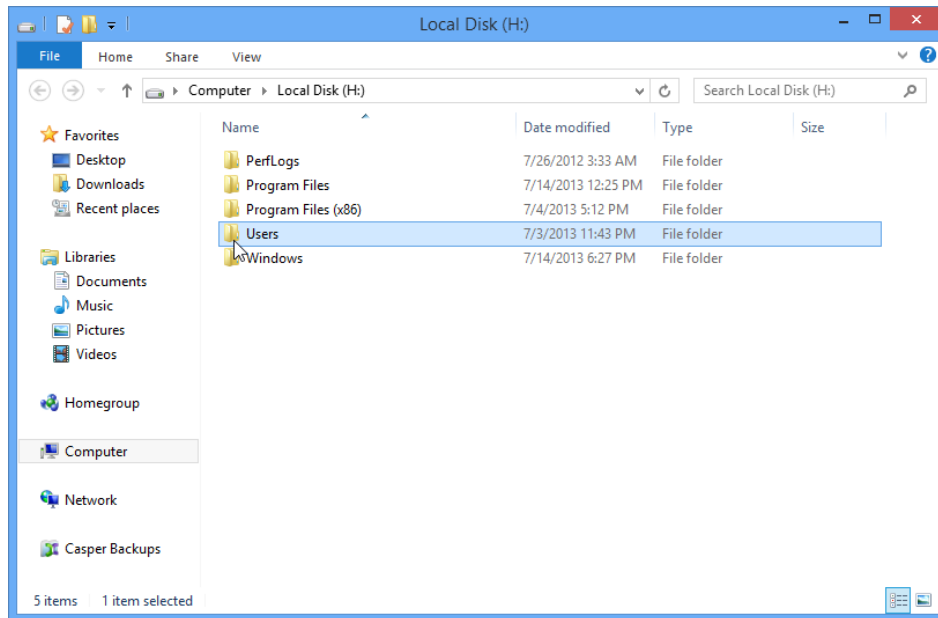
3. Double-click the backup containing the restore-point you want to access.



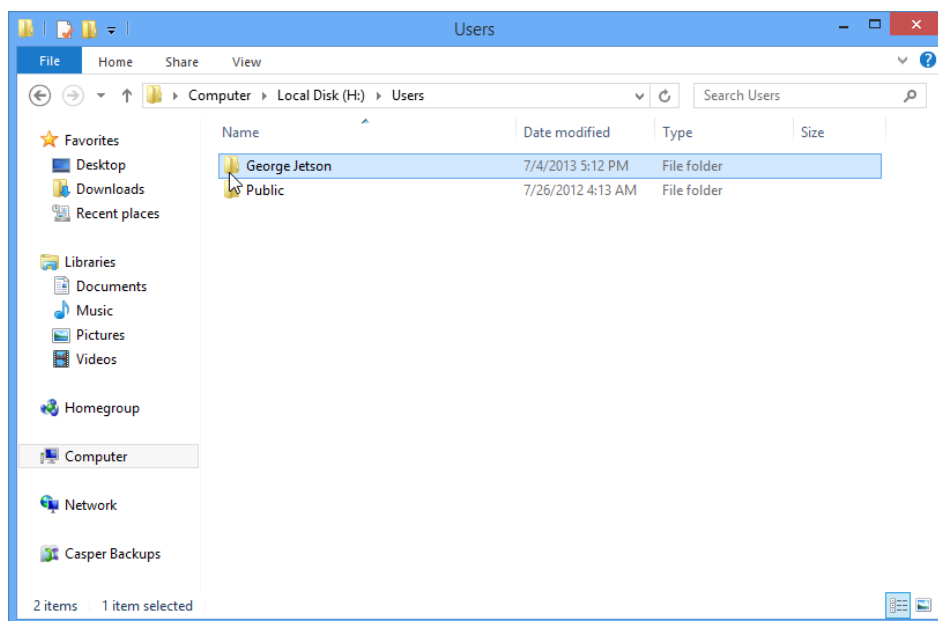
4. Right-click on the desired restore-point, and then click **M**ount.



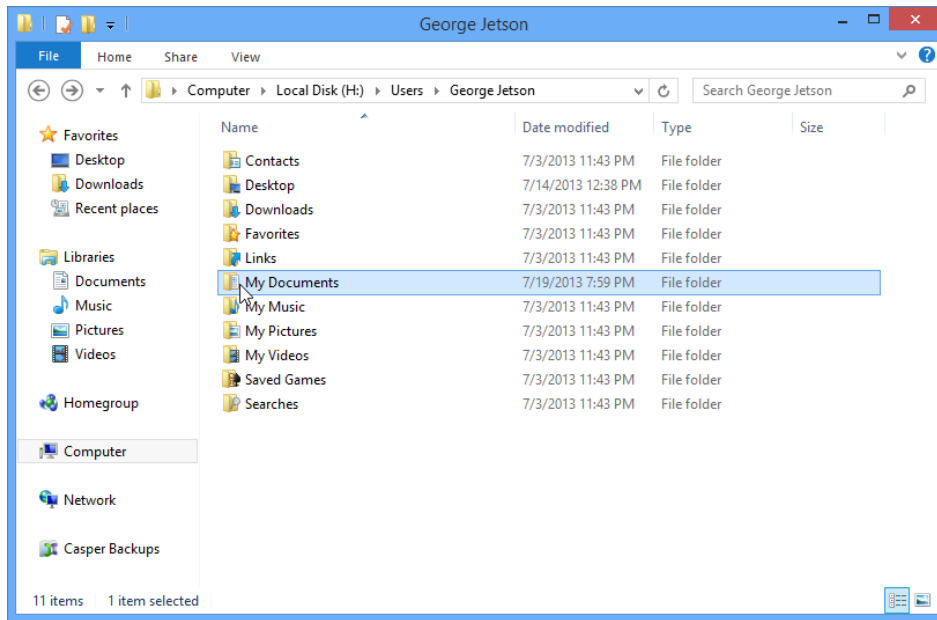
- After the restore-point has been mounted and a drive letter has been assigned, a new Explorer window will open to reveal its contents. In this example, **Local Disk (H:)** was assigned to the restore-point when it was mounted. Double-click **Users** to open the Users folder.



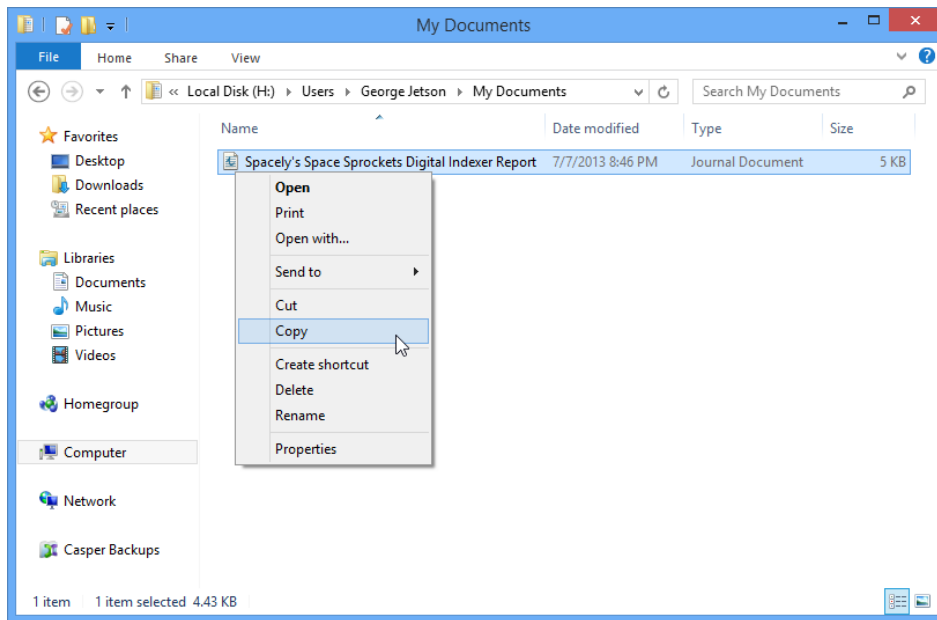
- Double-click the folder that corresponds to the account name with which you normally log onto your computer. In this example, the user logs on as **George Jetson**.



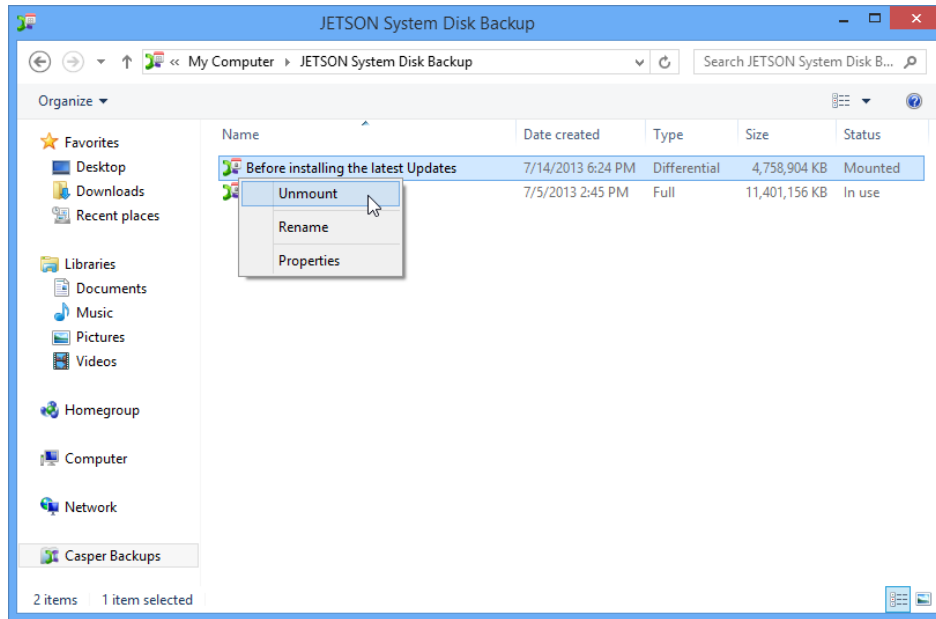
7. Double-click the **[My] Documents** folder to access the contents of your account's *Documents* folder. The contents of this folder will represent the original contents of the *Documents* folder appearing on your system drive when you created your backup.



8. Once you have located the desired file or folder, you can access or copy it as you would any other file on your original Windows system drive.



9. When you have finished accessing the contents of the restore-point, right-click on the restore-point and select **Unmount**.



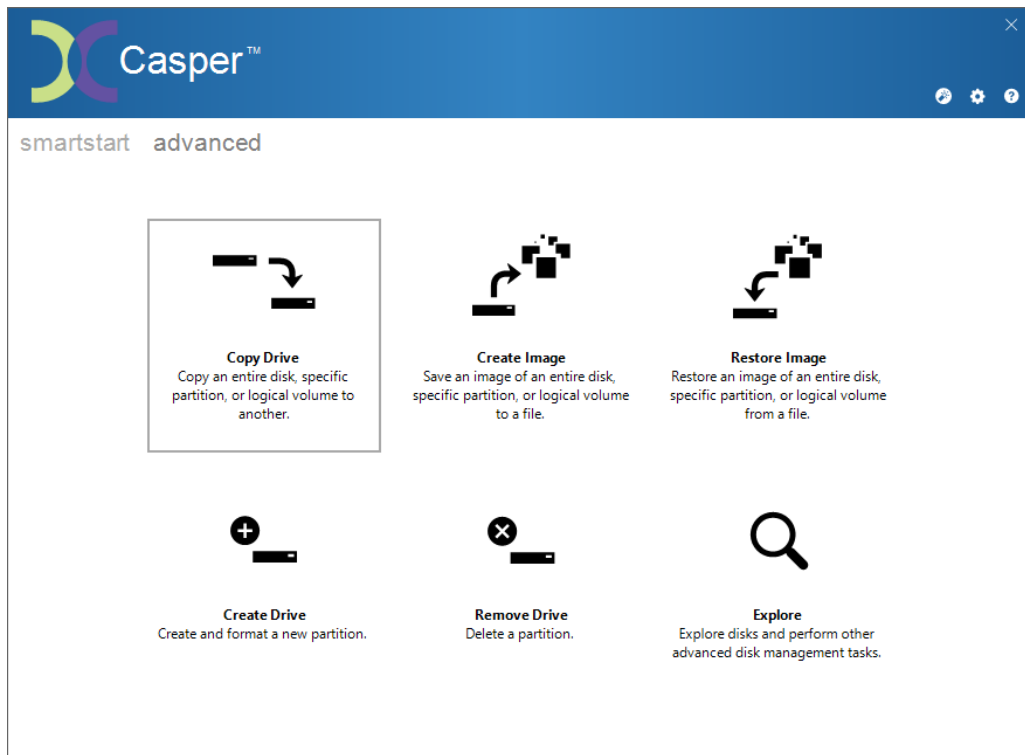
Upgrading a Hard Disk

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 or attached as an external hard disk using an external USB, Firewire, or eSATA hard disk enclosure or bridge adapter. For a notebook computer, a secondary media bay or external USB, Firewire, or eSATA hard disk enclosure or bridge adapter is required to connect the new hard disk to the notebook.

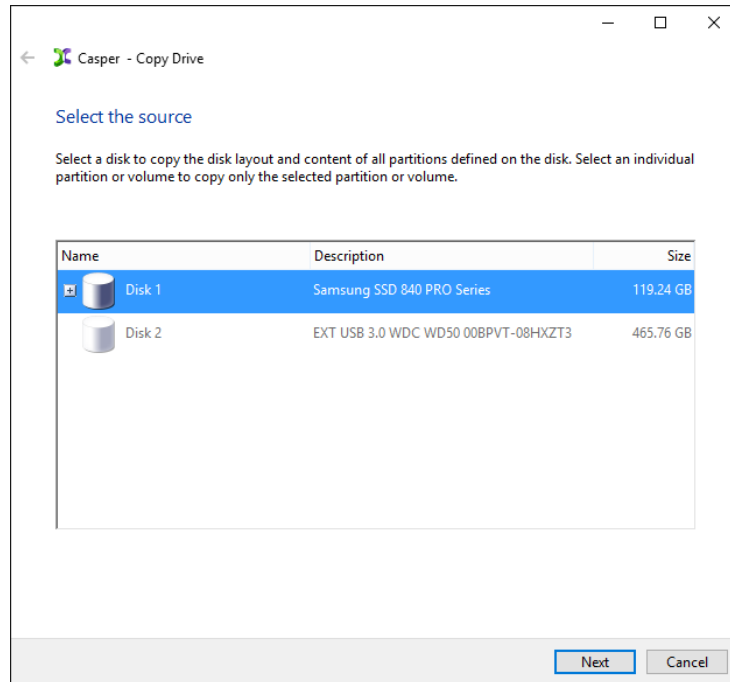
Example 17: Upgrading a Hard Disk

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

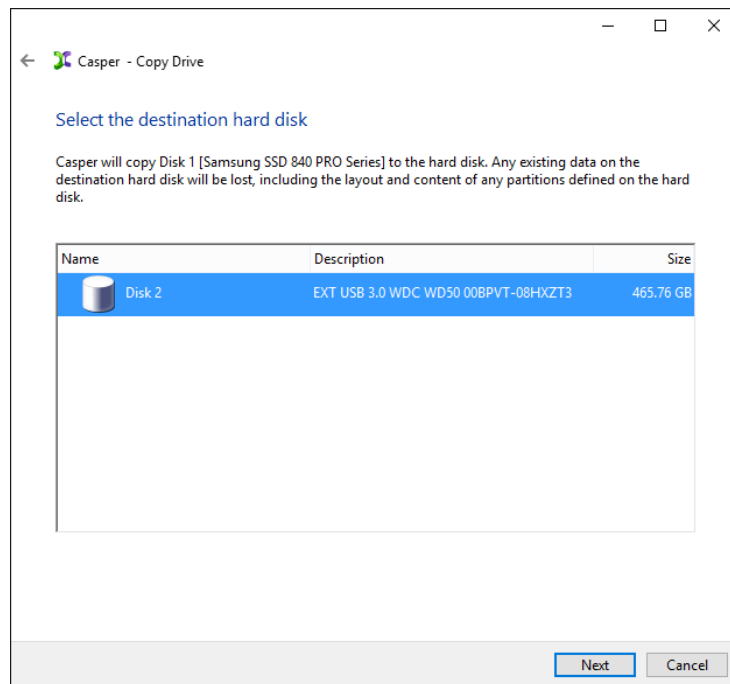
1. Select **Copy Drive**.



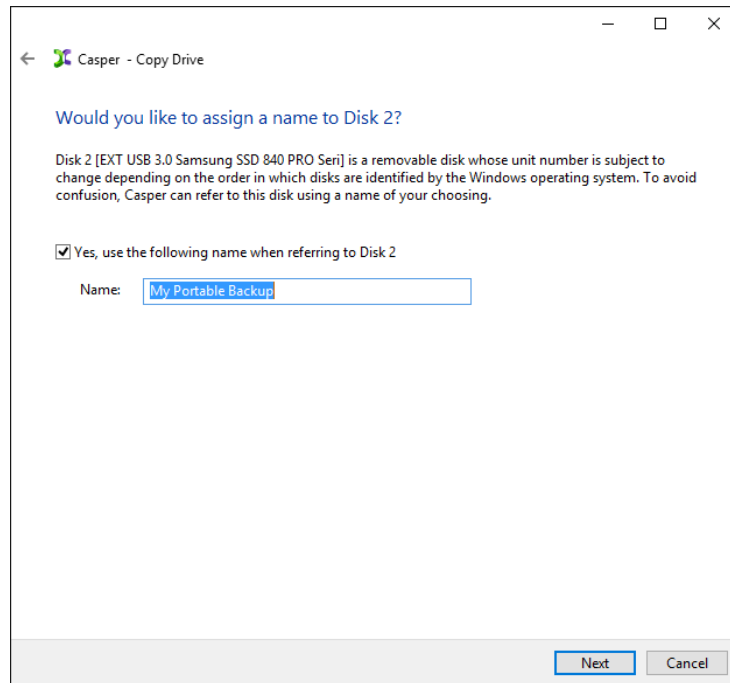
2. Select the hard disk to be upgraded (e.g., the hard disk on which Windows is installed) as the disk to copy, and click **Next**.



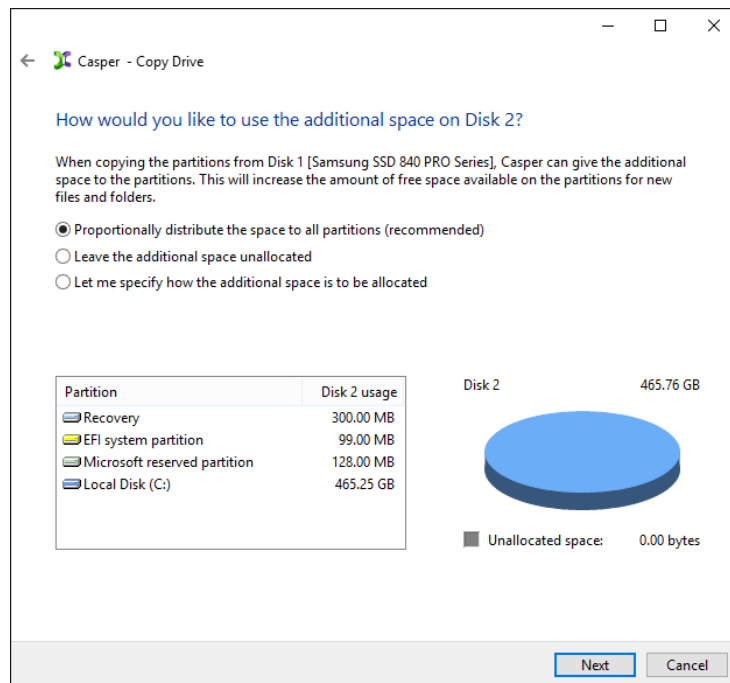
3. Select the new hard disk as the destination and click **Next**.



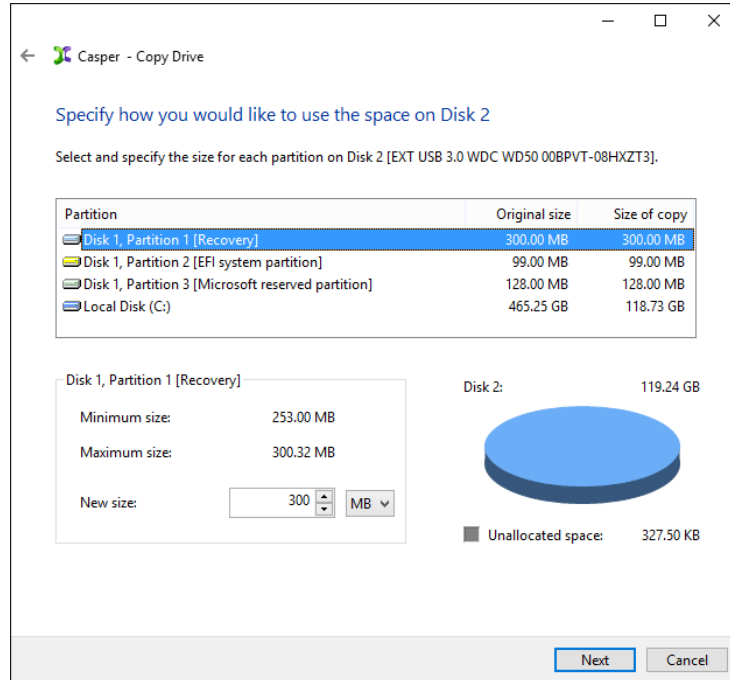
- When the new disk is attached as an external hard disk, Casper will prompt you to assign a name to the disk. A name is unnecessary because the new disk will soon become the new Windows system disk. Uncheck **Yes, use the following name when referring to Disk 2**, and then click **Next** to proceed.



- 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 new hard disk is larger than the original disk, 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.

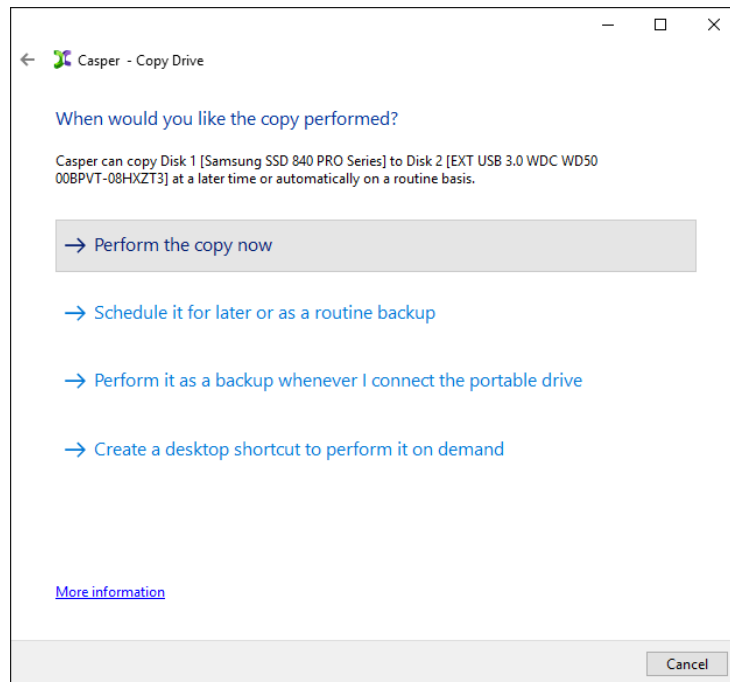


If the new hard disk is the same size or smaller than the original hard disk, Casper will ask you to manually configure how the space is to be used.

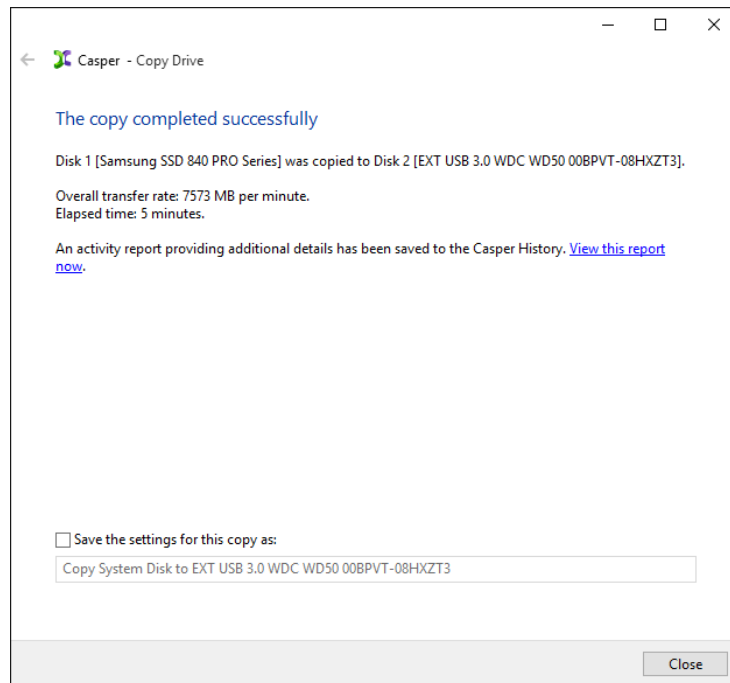


Simply clicking **Next** to accept the default selection or value is usually best. For additional help with making a selection, press **F1**.

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



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



8. Shutdown and power-off the computer.
9. 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, or eSATA 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, remove the original hard disk and replace it with the new hard disk.