

Backing Up and Restoring Files Made Easy

Using the information given in this article you will be able to:

- ✓ Automatically create backups of folders and files at regular intervals,
- ✓ Choose from different file snapshots to switch back to earlier document versions,
- ✓ Quickly solve problems when restoring files from shadow copies.

Microsoft first introduced the Volume Shadow Copy Service in Windows XP, to keep an eye on system files and make sure they are not modified or damaged. In Windows 10, 8.1 and 7 this has been expanded, to protect your personal files too. VSS provides you with a quick and easy way to restore files following their accidental deletion, or if you want to undo changes you have made and switch to a previous version.

If you've made changes to a file and then saved it, you can't use the undo feature to switch back. If you want to get back to your old version, VSS may be your only hope.

In this article, I'll show you how to use shadow copies to securely back up and restore data in 10, 8.1 and 7.

• Protect Your Data Using Shadow Copies.....	D 150/2
• What are Shadow Copies?.....	D 150/3
• How to Activate and Configure VSS on Your PC.....	D 150/3
• Restore Old Versions of Files Using Shadow Copies.....	D 150/5
• Control Shadow Copies from the Command Prompt with VSSADMIN.....	D 150/9
• Solve Problems with Shadow Copies.....	D 150/12

Protect Your Data Using Shadow Copies

VSS is a key component of Microsoft Windows

You can use shadow copies to quickly and easily restore files that have been accidentally deleted. You can also use them to create a fast backup of a complete hard drive or even a shared folder.

In Windows 10, 8.1 and 7, shadow copies works in a similar way to the Recycle Bin for accidentally altered files, or files that have been deleted.

However, VSS provides you with the following benefits when compared with running a standard backup.

Advantages of shadow copies

- Snapshots of a file can be created even while a file is open (e.g. while a document is open in Word). This means that backups can be made while you are using your PC.
- If you accidentally delete data, you can easily restore the data yourself. All you need to do is set up the service and make sure your hard drive has sufficient space available to store the snapshots.
- Thanks to the incremental data backup mechanism used, snapshots needn't take up a lot of room and even older file versions can be backed up.

How shadow copies work

Versions of the backed up files (called 'snapshots') are backed up into shadow copies on your hard drive.

This makes it possible to restore files that have already been deleted, assuming you have enough hard drive space allocated to shadow copies (usually 10%). If you want to restore modified or deleted data, select the file version to be restored in the **Previous Versions** tab of the Properties window.

That sounds easy but there are a few requirements that have to be fulfilled first.

What are Shadow Copies?

The Microsoft Software Shadow Copy Provider is the Windows component that manages shadow copies and is created by the Volume Shadow Copy service. Shadow copies are snapshot copies of your hard drive, that contain a write-protected image of the drive at a particular point in time. This snapshot then remains unchanged so that, for example, Windows can restore files from the backup whenever they are needed.

The Software Shadow Copy Provider system service

How to Activate and Configure VSS on Your PC

The basic requirement to use shadow copies is that your hard drive is formatted using the NTFS file system. If it is (and Windows uses this file system by default), then you can set up shadow copies on your system. By default, shadow copies only contain the files used by System Restore to protect your Windows configuration, such as DLLs and drivers. Once System Restore is activated, copies of these files will be generated automatically, whenever Windows makes a system change. If you restore your computer to an earlier configuration using System Restore, then these files will be restored from the shadow copy. If you have multiple hard drives then you need to configure the setup for each hard drive.

NTFS required

Note: Windows only makes one copy of a file per day. So, if you are working on a document which is a shadow copy, Windows will only create a backup of the file when the daily automatic restore point is created.



For example, if you are working on a Word document over a period of one working week (Monday to Friday), Windows will create a restore point every day, meaning that you have five versions of the Word document as shadow copies at

Example

your disposal, taken at the time when the restore point was created. If you save the file several times during the day, these copies of the file will not be included in the shadow copy. Only the version of the file that was present on your system, when Windows made the backup, will be stored in the shadow copy.

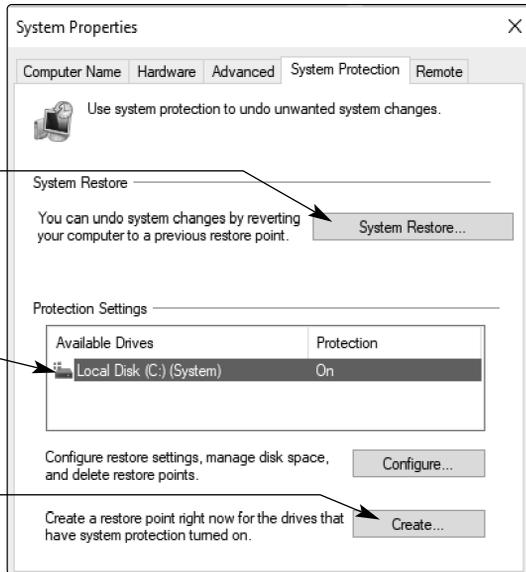
How to activate System Protection

To configure Shadow copies, in Windows click on the **System protection** link. In Windows 7, go to **Start > Control Panel > System > System protection**. The System Properties window will open with the **System Protection** tab open.

Use System Restore to reset your whole PC to a previous configuration

Select the drive that you'd like to create shadow copies on

Click Create to create a new shadow copy of your drive



How to set up the shadow copies on your hard drive



Do not set up the VSS service on an SSD (Solid State Disk) hard drive. Doing this can reduce the lifespan of the SSD drive, due to the increased number of read/write cycles.

Next you need to configure the amount of space allocated to VSS and also to include normal files, as well as Windows System files in the backup. To do so, click on **Configure**.

Reserve enough memory for VSS



Select the top option to protect both your system files and your documents

If you only have a small amount of storage space available you can delete older backups

Use the slider to configure how much hard drive space is allocated to System Protection

Restore Old Versions of Files Using Shadow Copies

Once you have set up the shadow copies, there will no doubt come a time when you need to retrieve a backup that has previously been created in the shadow copy. For example, if you are working on an important file, such as a Word document or Excel spreadsheet, and have opened and edited the file, you may find that you want to keep the original version and then save a new version containing your edits.

Shadow copies in practice

This is easy to do using the Save as menu option but, of course, it is easy to click the wrong menu item and end up

overwriting the file. When this happens, you lose the first version of the file.

Backup made easy

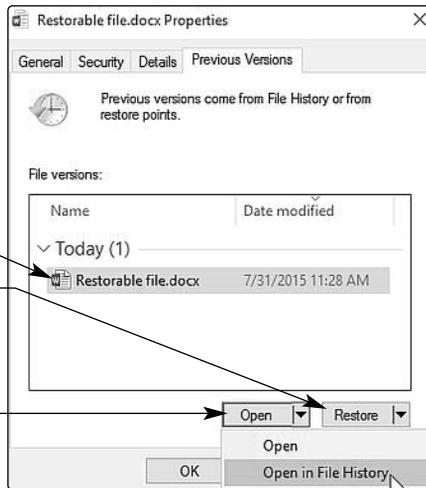
This is where shadow copies come into play, since the previous version of the file will be automatically saved in a restore point.

If you want to restore a previous version of a file on your system, open Windows Explorer and right-click on the file in question. Select **Properties**, then click on the **Previous Versions** tab, and you will see a list of the available versions of the file. Select the version you would like to switch to from the list.

Select the file version to restore here

Use **Restore** to replace the file on your hard drive with the backup

Use **Open** to view the older version of your file



Switch to a previous version of a file

Optimally Configure Shadow Copies

Important configuration steps

It doesn't take long to set up and configure shadow copies. However, there are some aspects that you need to keep an eye on in order to ensure trouble-free operation:

Setting	Description
Configure another hard drive partition or separate drive to store your shadow copies.	Using a separate drive partition to store your shadow copies has two advantages. Firstly, it means that you can allocate more space, so your shadow copies will not fill up too fast and delete old data. It also improves performance, since you are splitting file read and write operation between drives. This configuration is recommended for PCs and file servers with a high workload.
Determine the schedule when the shadow copies are to be created.	You can customise the schedule on which shadow copies are created to suit your working patterns. Create a schedule that means that backups are created at a time when they won't disturb you.
Shadow copies might not be created on multi-boot systems.	If you have multiple Windows versions installed on your system, and choose which to boot from when you start your PC, this can lead to damage to existing shadow copies.
Regularly back up your data.	Creating shadow copies of commonly used folders should not be a complete replacement for creating full regular backups of your system. You need to create backups in addition to using shadow copies, to ensure you can recover your PC from any eventuality.

Remove Shadow Copies You Don't Need to Save Hard Drive Space

Windows automatically creates backup copies (restore points) of the system at regular intervals. This makes it possible to recover your system to a working state, should it suffer a severe fault or major crash. Shadow copies also store your important files and documents. However, this means that they can soon take up lots of space on your hard drive, especially if you have upgraded from an earlier Windows

Delete old restore points

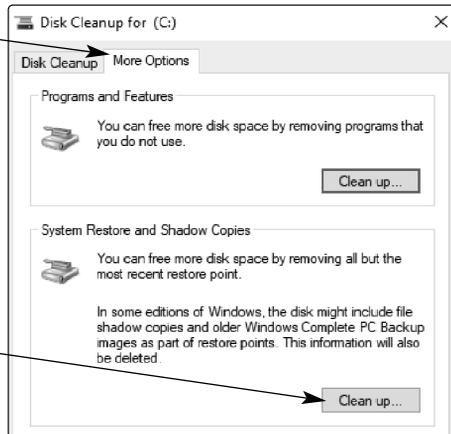
version to a more recent Windows system as they will contain all of the data which has been carried over from your old Windows installation.

You can delete your old restore points using the Disk Cleanup utility (but the most recent restore point will be retained):



1. Press **Windows** + **R**, type **CLEANMGR.EXE** and click **OK**. If prompted, select the drive to clean. If prompted to clean up files from all users on your PC or just your own files, choose the former option.
2. Click on **Clean up System Files**. Again, if prompted, select the drive to clean.
3. Click on **More Options**.
4. Under **System Restore and Shadow Copies**, click on **Clean up**.
5. Confirm the security request by clicking **Delete** to remove the files.

Click on the **More Options** tab



Click on the **Clean up** button

Delete old restore points and shadow copies using the Disk Cleanup tool

Control Shadow Copies from the Command Prompt with VSSADMIN

You can get full control over your system's shadow copies from the Command Prompt using the VSSADMIN command. You run this tool using various parameters to obtain summaries of all the available shadow copy backups, the components being used to store shadow copies and to configure the shadow copy services.

Open the Command Prompt to run VSSADMIN

Add shadow copies with VSSADMIN add shadowstorage

Using this command in Windows 8.1 you can add a shadow copy storage association on to a new storage volume, to store shadow copies on that drive. Simply use the following syntax:

Add storage space

```
vssadmin add shadowstorage/for=<For  
VolumeSpec> /on=<OnVolumeSpec>  
[/maxsize=<MaxSizeSpec>]
```

The maximum storage allocated to the new shadow copy is set with the parameter MaxSizeSpec. If you don't set a value for MaxSizeSpec, the storage will be unlimited up to the size of the drive. The value of MaxSizeSpec has to be at least 300 MB and you can specify the size using the following suffixes: KB, MB, GB, TB, PB and EB. If no suffix is stated, the MaxSizeSpec will be assumed to be given in bytes.

Create new shadow copies with VSSADMIN create shadow

Using this command in Windows 8.1 you can create a new shadow copy of the given type for ForVolumeSpec. Use the following syntax:

Enter the number of retry attempts

```
vssadmin create shadow
/for=<ForVolumeSpec>
[/autoretry=<MaxRetryMinutes>]
```

As the ForVolumeSpec, type in the drive letter of a local volume or provisioning point. If you have typed in a value under MaxRetryMinutes and another process is currently creating a shadow copy, then VSSADMIN will keep trying to create the shadow copy for the specified number of minutes.

Deleting shadow copies with VSSADMIN

delete shadows

Important
deletion
parameters

Using this command, you delete all existing shadow copies for the given drive ForVolumeSpec. Use the following syntax:

```
vssadmin delete shadows
/for=<ForVolumeSpec> [/oldest | /all |
/shadow=<ShadowID>] [/quiet]
```



Applying the /oldest parameter means that only the oldest shadow copy is deleted. Using the /shadow=ShadowID parameter, you can enter the ID of the shadow copy that is to be deleted. The corresponding shadow copy ID can be found with the help of the list shadows command.

Delete storage locations with VSSADMIN delete shadowstorage

VSSADMIN list
options

This is the opposite to the VSSADMIN add shadowstorage command, allowing you to delete a volume shadow copy storage association in Windows 8.1, which you configure with the parameters ForVolumeSpec and OnVolumeSpec. Use the following syntax:

```
vssadmin delete shadowstorage
/for=<ForVolumeSpec>
[/on=<OnVolumeSpec>] [/quiet]
```

If you don't use the /on parameter, all the shadow copy storage associations for a particular drive, specified with ForVolume- Spec, are deleted.

Find more information with VSSADMIN list

Using the VSSADMIN list commands, you can get additional information to configure and manage your shadow copies.

VSSADMIN list options

Command	Description
VSSADMIN list providers	Lists registered volume shadow copy providers.
VSSADMIN list shadows	Lists all existing shadow copies of a specified volume.
VSSADMIN list shadowstorage	Lists all shadow copy storage associations on the computer.
VSSADMIN list volumes	Lists volumes that are eligible for shadow copies.
VSSADMIN list writers	Lists subscribed volume shadow copy writers.

Resize with VSSADMIN resize shadowstorage

Using this command, you change the maximum size allocated to a shadow copy storage association, which you configure with the parameters ForVolumeSpec and OnVolumeSpec. Use the following syntax:

```
vssadmin resize shadowstorage
/for=<ForVolumeSpec> /on=<OnVolumeSpec>
[/maxsize=<MaxSizeSpec>]
```



Warning: if you change the size of the storage association, shadow copies can get lost.

Solve Problems with Shadow Copies

Solve problems using this checklist

Although shadow copies are easy to set up and files/folders can quickly be restored, problems can occur when accessing previous versions of files and folders. Use the following table to fix these problems:

Problem	Solution
In the Properties tab of a file, no Previous Versions tab is displayed.	Shadow copies for the file types and storage areas in question have not yet been activated. Turn Shadow copies on.
No files are listed in the Previous Versions tab of the Properties window.	The file hasn't yet been altered. Previous versions of a file are only shown when you have made modifications to a file.
The previous version of the file that you need is no longer listed in the Previous Version tab in the Properties window.	Older versions of files are regularly deleted as the storage allocated to shadow copies on your hard drive becomes full. To avoid this you have to allocate more storage space on your hard drive to System Restore.
Problems arise when displaying the previous version of a file.	Previous file versions are write-protected. Some applications cause problems when working with write-protected files. Use the Copy or Open option to copy the file to another folder on your hard drive and open it from there.
Previous versions of files that are stored in the shared folder of another user account cannot be found.	The shared folder you are accessing has to be on a PC running Windows with shadow copies activated. Move the files from the shared folder to a Windows machine that has shadow copies activated.