
Troubleshooting VSS

<https://campus.barracuda.com/doc/96021372/>

This article addresses backups failing with VSS related issues.

What is VSS

Developed by Microsoft, Volume Shadow Copy Service (VSS) enables backup applications to safely back up locked and open files. It captures and creates snapshots of your system called shadow copies. A shadow copy is a snapshot of a volume that duplicates all the data that is held on that volume at any point in time. A shadow copy set is a collection of shadow copies of various volumes all taken at the same time. This includes copies of MS Exchange, SharePoint, and Hyper-V data.

There are four primary parts of the VSS framework:

- **Coordinator** – Acts as a director and ensures the other components can communicate with each other.
- **Provider** – Creates and maintains shadow copies.
- **Requester** – Is an application that uses VSS to create and/or manage shadow copies. Requesters can also communicate with the writers to collect system information as well as initiate the writers to prepare for backup.
- **Writer** – Is an application/service that notifies VSS writers to alert the application to prepare for snapshotting. This ensures that the data contained within the shadow copies is in a consistent state.

VSS Admin Tools

The `vssadmin` utility and VSS are bundled with the Microsoft operating system. `Vssadmin` is used to create, delete, and list information about shadow copies.

The `vssadmin` command line tool can only be used within an administrator command prompt and includes commands such as:

- `vssadmin list providers` – Lists all registered VSS providers
- `vssadmin list writers` – Lists all subscribed VSS writers
- `vssadmin create shadow` – Creates a new shadow copy
- `vssadmin delete shadows` – Deletes shadow copies
- `vssadmin list shadows` – Lists existing volume shadow copies
- `vssadmin list shadowstorage` – Lists volume shadow copy storage associations

- `vssadmin add shadowstorage` - Adds a volume shadow copy storage association
- `vssadmin delete shadowstorage` - Deletes volume shadow copy storage associations
- `vssadmin resize shadowstorage` - Changes the maximum size of the shadow copy storage area or the volume in which the shadow copies are stored

Troubleshooting Steps

Note: These steps may vary depending on the operating system.

1. Reboot the server. Often times, that will resolve basic VSS issues and correct writer related problems without further interaction. Keep in mind that rebooting a server in a production environment is often not a viable option and downtime must be scheduled.
2. Ensure that the Volume Shadow Copy service (VSS service) and Microsoft Software Shadow Copy Provider services are not disabled in **services.msc**.
3. Check the status of the VSS Writers and VSS Providers using the following syntax in an admin command prompt. It is also important to check Event Viewer for additional error information.
 1. `vssadmin list providers` - Lists the currently registered shadow copy providers. Check the permissions on the VSS and on any third party VSS providers and ensure that the account is valid.
 2. `vssadmin list writers` - Lists the writers and their current state. Ensure that all of the VSS writers are **stable** and that they are not reporting an error. Take note of any writer that is not in a **stable** state and restart the respective service related to that writer. Run the same command again to ensure the writer has returned to a stable state.
Note: Services often have dependencies and when a service is reset it will be required to reset them as well. This process can momentarily result in loss of service while being reset.
4. Verify that there is sufficient space on the volume to create a shadow copy. Free up disk space on the volume(s) being backed up or increase the limit allowed for shadow copies on the volume. Often times, setting the shadow copy space to unbound within the volume properties is sufficient. However, it may also be necessary to reconfigure the Volume Shadow Copy settings to save the shadow copy to a volume with sufficient free disk space that is not the volume that is being backed up.

Note that when changing the location of the shadow copy storage area, all previous shadow copies are deleted.

Resizing the shadow storage can be done one of two ways:

- Through the volume's properties interface: From My Computer, right click a **volume** > **Properties** > **Shadow Copies** > select **Volume** > select **Settings**.
 - Through an admin command prompt. Some examples include:
`vssadmin Resize ShadowStorage /For=C: /On=C: /MaxSize=20%`
`vssadmin Resize ShadowStorage /For=C: /On=C: /MaxSize=10GB`
`vssadmin Resize ShadowStorage /For=C: /On=C: /MaxSize=UNBOUNDED`
`vssadmin Resize ShadowStorage /For=C: /On=D: /MaxSize=900MB`
5. Remove all orphaned or lingering shadow copies from a system.

- Open an administrator command prompt and enter the following syntax to remove the shadow copies: `vssadmin delete shadows /all`
- 6. Ensure the latest VMware Tools or Hyper-V Integration Services are installed if the system is a virtual machine. Outdated services can lead to various VSS errors.

Common VSS Issues

Error opening object

Error during backup selection

Error during backup initialization

VSS snapshot was released by an external source

The shadow copy provider timed out

The writer experienced a non-transient error

The backup could not access the specified file because it is being used by another process

Microsoft VSS Troubleshooting Resources

These tools can be found in the Microsoft Windows Software Development Kit (SDK). The latest version of the SDK can be found [here](#).

[VSS Diagnostics](#) – Vsdiagview and Vssagent are tools that can be used to troubleshoot VSS applications.

[BETEST](#) – BETest is a VSS requester that tests advanced backup and restore operations. This tool can be used to test an application's use of complex VSS features.

[VSDIAGVIEW](#) – Vsdiagview and Vssagent are tools that can be used to troubleshoot VSS applications.

[VSHADOW](#) – VShadow is a command-line tool that can be used to create and manage volume shadow copies.

[VSTORCONTROL](#) – Used for creating sample disks and shadow store testing.

[VSSAGENT](#) – Vsdiagview and Vssagent are tools that you can use to troubleshoot VSS applications.

[VSWRITER](#) – The Test Writer is a utility that can be used to test VSS requester applications. This writer can be configured to perform almost all of the actions that a VSS writer can perform. In addition, the Test Writer performs extensive checks to ensure that the requester has dealt with these writer actions correctly.

[VSSTRACE](#) - To collect tracing information for the VSS infrastructure, you can use the VssTrace tool, the Logman tool, or the Tracelog tool. Logman is a trace controller for trace events and performance counters. Tracelog is included in the Windows Driver Kit (WDK).

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