

# Backup Exec 12.5 Agent for Microsoft Virtual Servers FAQ

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## Overview

### 1. What is the Backup Exec 12.5 Agent for Microsoft Virtual Servers?

#### Answer-

The new Agent for Microsoft Virtual Servers is being introduced with Backup Exec 12.5 to protect Microsoft Virtual Servers and their hosted virtual machines, including both Microsoft Hyper-V and Microsoft Virtual Servers 2005 R2R2 SP1.

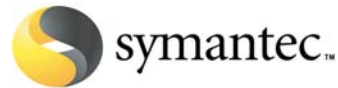
This new Agent allows both physical and virtual systems to finally be protected from a single backup and recovery solution, Backup Exec for Windows Servers 12.5.

### 2. Can Backup Exec 12.5's Agent for Microsoft Virtual Servers (AMVS) backup virtual machines while they are online and running?

#### Answer-

Yes, Windows virtual machines (VM's) running Windows 2003 or later can be protected while they are online and running. This can be done without any downtime of a running virtual machine using Backup Exec's Agent for Microsoft Virtual Server's (AMVS) integrated support of the Microsoft Volume Shadow Copy Service (VSS) infrastructure built into both Hyper-V and Microsoft Virtual Server 2005 R2 SP1.

Virtual machines that are not VSS compatible such as Linux, Windows 2000, and Windows NT 4.0 must be placed briefly into a saved state during the backup. Additionally, just being VSS compatible does not guarantee that the virtual machine will be backed up online. For example, Hyper-V temporarily takes virtual machines offline that have dynamic disks. This option can be configured to be done automatically by Backup Exec during the backup of these types of virtual machines.



Please see the [Supported Configurations](#) section of this document for additional details on off-line and on-line supported configurations.

### **3. Can offline virtual machines also be protected?**

**Answer-**

Yes, both offline and online virtual machines can be protected together in a single backup.

### **4. Do I have to install a Backup Exec Agent inside each of my virtual machines?**

**Answer-**

No, Backup Exec Agents such as the Agent for Windows Systems (AWS) and the Agent for Remote Linux and Unix Servers (RALUS) are not required to be installed in each virtual machine to perform backups of them. However, there are circumstances where it may be desired to have these Agents installed inside of virtual machines such as restoring data directly to a virtual machine, or incremental/differential file level backups.

Please see the [Licensing](#) section of this document for information on how these Agents are licensed.

### **5. Do I have to install any agent on my Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host server(s)?**

**Answer-**

Yes, AMVS can be activated with a single license key per Hyper-V or Virtual Server 2005 R2 host within the Backup Exec 12.5 console. The AMVS license key activates the Hyper-V or Microsoft Virtual Server 2005 R2 SP1 support in the Backup Exec Agent for Windows Systems component. The Backup Exec Agent for Windows Servers must then be installed on the Hyper-V or Microsoft Virtual Server 2005 R2 SP1 host server to perform backups of the virtual machines.

### **6. Can I protect applications like Microsoft Exchange, SQL and SharePoint running inside of virtual machines?**

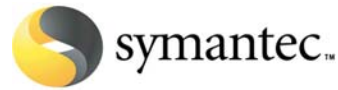
**Answer-**

Yes, there are multiple methods that can be used to protect applications inside of virtual machines depending on the recovery needs. Please see the [Database and Application Protection](#) section of this document for complete details on how to protect applications inside of virtual machines.

### **7. Do I have to restore my entire Guest virtual machine to recover just an individual file or folder?**

**Answer-**

No, Backup Exec 12.5 AMVS allows for the recovery of individual files and folders from a complete **single-pass** backup of a Windows Guest virtual machine using Backup Exec's Granular Recovery Technology (GRT). This means that a single backup can be done of a Windows Guest virtual machine that allows two different ways to restore it at either the individual file/folder level or complete virtual machine. Linux virtual machines must be recovered in their entirety at the .vhd level.



## 8. What are the other main features of Backup Exec 12.5 AMVS?

### Answer-

Backup Exec 12.5 Agent for Microsoft Virtual Servers includes a number of features designed to solve the major problems affecting virtual machine backup and recovery today including:

- Physical and virtual system protection from a single application
- Integrated support of Microsoft's VSS snapshot technology for online virtual machine backup
- Granular recovery of individual files from within a Windows Guest virtual machine
- Automatically powering off a running virtual machine to overwrite it before a restore
- Automatically powering on a virtual machine after restore
- Redirected restore of a virtual machine to an alternate host system
- Option to automatically skip running virtual machines that must be taken off-line during backup

## Supported Configurations

### 1. What versions of Microsoft Hyper-V and Virtual Server are supported with Backup Exec 12.5 AMVS?

#### Answer-

Backup Exec 12.5 AMVS supports both Microsoft Hyper-V and Virtual Server 2005 R2 SP1 from a single agent. Hyper-V can be supported as both a standalone Windows 2008 *Core Server* role as well as a full Windows 2008 Server installation. Please see the official Backup Exec 12.5 Software Compatibility List for the latest detailed information on specific versions supported and limitations, please see the Backup Exec 12.5 Software Compatibility List <http://seer.support.veritas.com/docs/307063.htm>

### 2. What Guest virtual machine OS's are supported for backup?

#### Answer-

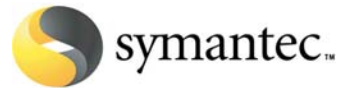
Any Guest OS supported by Microsoft Hyper-V or Virtual Server 2005 R2 SP1 is also supported by Backup Exec 12.5 Agent for Microsoft Virtual Servers. For the latest detailed information on specific versions supported and limitations, please see the Microsoft Hyper-V Guest OS support list <http://www.microsoft.com/windowsserver2008/en/us/hyperv-supported-guest-os.aspx>

### 3. What types of storage and network types can AMVS support?

#### Answer-

Almost all storage types and network transports are supported with AMVS including:

- Direct-attached storage
- Fibre Chanel SAN's
- iSCSI SAN's



iSCSI-based storage is supported for backup by the Microsoft Hyper-V or Virtual Server 2005 R2 SP1 VSS writer when the storage is connected through the parent partition and the storage is used for virtual hard disks

#### **4. What disk configurations of virtual machines are supported?**

**Answer-**

Most common disk configurations of virtual machines are supported for online backup including:

- Fixed disks
- Dynamically Expanding disks
- Differencing disks

However, both Microsoft Hyper-V and Virtual Server 2005 R2 SP1 currently have several important limitations that prevent online backup of virtual machines per Microsoft documentation <http://technet.microsoft.com/en-us/library/cc754747.aspx> including:

- Remote iSCSI disks
- Physical or pass-through disks
- Dynamic disks

For virtual machines configured with these disk types, Backup Exec Remote Agents can be installed in the Guest virtual machine to backup their data using traditional backup methods as if they were physical machines.

#### **5. Are both tape and disk-based backup devices are supported with AMVS?**

**Answer-**

Yes, both tape and disk devices are supported with Backup Exec 12.5 AMVS. Disk-based backups work best and are generally recommended to be done as part of a disk-to-disk-to-tape (D2D2T) backup strategy. Please ensure the tape device is a supported device on the Backup Exec 12.5 Hardware Compatibility List at <http://seer.support.veritas.com/docs/306831.htm>

#### **6. Can Backup Exec 12.5 Media Servers be installed directly on the Microsoft Hyper-V or Virtual Server 2005 R2 host system?**

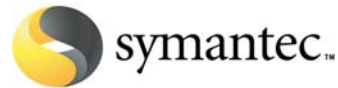
**Answer-**

Yes, Backup Exec 12.5 Media Servers can be installed directly on the Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host system and may provide best performance in this configuration since virtual machine data will be local to the Backup Exec server.

Please note that Backup Exec Media Servers cannot be directly installed on a Microsoft Windows 2008 *Core Server* installation of Hyper-V.

#### **7. Can Backup Exec 12.5 Media Servers be installed on a Guest virtual machine running on a Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host?**

**Answer-**



Yes, Backup Exec 12.5 media servers can be installed in a supported guest virtual machine OS running to protect the entire Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host server. Ensure the tape device is a supported device on the Backup Exec Hardware Compatibility List at <http://seer.support.veritas.com/docs/306831.htm>

## Backup

### 1. What is the difference between an online and offline virtual machine backup?

#### Answer-

An online backup can be performed with no downtime on a running virtual machine when all of the following conditions are met:

- The virtual machine is running a VSS capable OS including Windows 2003, Vista, and Windows 2008
- Microsoft virtual machine integration services are installed and the backup integration service has not been disabled.
- All disks being used by the virtual machine are configured within the guest operating system as NTFS-formatted basic disks. Virtual machines that use dynamic disks or the FAT32 file system prevent an online backup from being performed.
- Volume Shadow Copy Service must be enabled on all volumes used by the virtual machine with a specific configuration. Each volume must itself as the storage location for its shadow copies and that mapping must be available to the Hyper-V VSS writer. The shadow copy storage of C: should be located on C:, the shadow copy storage of D: should be on D:, etc, etc

If an online backup cannot be performed, then an offline backup is taken. An offline backup can result in some downtime of the virtual machine. A variety of factors can affect the time required to take an offline backup. If the virtual machine is running or paused, it is put into a saved state as part of the offline backup process. After the backup is completed, the virtual machine is returned to its existing state.

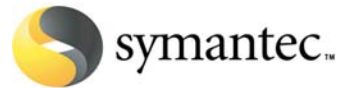
### 2. How are virtual machines protected?

#### Answer-

AMVS provides Full backups of virtual machines through Microsoft's VSS snapshot backup framework while they are online and running. The data included in such a backup includes the configuration of virtual machines and virtual networks, snapshots associated with the virtual machines, and virtual hard disks used by the virtual machines. As a result, using this method can make it easier to recover the server if the need arises, because you will not have to recreate virtual machines or system-wide settings.

All backups are performed at a complete image-level of the Guest virtual machine and include all necessary files of the Guest virtual machine including:

- .vhd files
- .vmc files
- .bin files
- .xml files
- .vsv files



### **3. What methods of backup are currently supported with Backup Exec 12.5's AMVS?**

**Answer-**

Backup Exec 12.5 AMVS supports all of these current methods including:

- FibreChannel SAN-based backups
- iSCSI SAN-based backups
- Direct-attached storage backups

### **4. Can I perform incremental or differential backups of virtual machines?**

**Answer-**

No, Microsoft's VSS snapshot technology does not currently provide any means to perform incremental or differential backups of online virtual machines. Currently, incremental or differential backups of virtual machines can only be performed using traditional file-level backup methods of using a Backup Exec Remote Agent for Windows Systems or Remote Agent for Linux/Unix Servers inside of the virtual machine.

### **5. How are Backup Exec Remote Agents for Windows Systems or Remote Agent for Linux/Unix Servers licensed with AMVS for incremental or differential file-level backups inside a Guest virtual machine?**

**Answer-**

Please see the [Licensing](#) section of this document for complete details.

### **6. Are the .vhd files space optimized or compressed during a backup?**

**Answer-**

The size of a .vhd file represents the approximate size of the backup. For example, if a 50GB .vhd that contains only 20GB of actual data is being backed up, the 50GB .vhd file will be sent to the backup location by Backup Exec. Dynamically Expanding disks provide better storage utilization by expanding as space is needed. For compression, if the backup target device supports compression, Backup Exec can further compress the data being protected to provide additional space savings of a virtual machine backup.

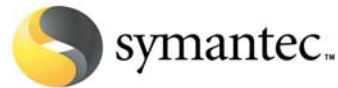
### **7. Does the Continuous Protection Agent (CPA) support Microsoft virtual environments?**

**Answer-**

Yes, the Backup Exec 12.5 Continuous Protection Agent is tested and supported running in Windows virtual machines as part of the Backup Exec Agent for Windows Systems (AWS). The CPA can be installed on the Windows virtual machines, assuming the guest OS is supported. Continuous Protection is not supported for running directly on Linux. Please see the Backup Exec 12.5 Continuous Protection Software Compatibility List for details and any limitations <http://seer.support.veritas.com/docs/307063.htm>

### **8. What type of backup performance should I expect?**

**Answer-**



Backup performance will be largely determined by the slowest component of the entire backup data path from the Microsoft Hyper-V or Virtual Server 2005 R2 SP1 system to the Backup Exec storage location (i.e Tape or Disk backup device). These components are:

- Microsoft Hyper-V or Virtual Server 2005 R2 SP1 system resources: CPU (Ghz)
- System I/O Performance (Gbps)
- Network type (FibreChannel, iSCSI, Ethernet, etc)

Here are some basic guidelines that should be followed:

- Strongly consider placing your Backup Exec Media Server on the same system as your Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host to avoid the additional time required to move the backup data from the virtual host server to a remote Backup Exec server across a network.
- Consider a disk-to-disk-to-tape backup strategy to enable fast backups to disk locations for quick recovery and longer term storage to tape.
- Consider staggering your virtual machine backups over a period of time. Be advised that all backup i/o occurs on the Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host system. Backup performance impacts on any virtual machine will have an effect on all other virtual machines on the virtual host system.
- Avoid place Backup Exec backup-to-disk (B2D) folders on the same physical drive as the source .vhd files being protected to it

## Database and Application Protection

### 1. Do I still need to use separate Backup Exec database or application Agents for backups?

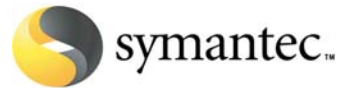
#### Answer-

Yes, it is extremely important that Backup Exec database or application Agents continue to be installed inside of virtual machines and separate regular database or application level backups be performed of virtualized applications such as Microsoft SQL, Exchange, SharePoint, Oracle, Active Directory, Lotus Domino, etc. These applications and databases require regular log truncation, database maintenance, consistency checks, etc that are performed only as part of a regular Backup Exec database or application Agent-level backup. If these separate database agent-level backups are not performed regularly, application log files could continue to accumulate, eventually fill the entire disk, and cause application or database failure.

Additionally, Backup Exec 12.5 database and application Agent backups allow granular recovery and point-in-time recovery of the application itself. For example, to recover an individual Microsoft Exchange mailbox, message, contact, calendar item, or database, the backup must have been performed separately with the Backup Exec Agent for Microsoft Exchange.

### 2. How do I protect and recover entire virtual machines that run applications or databases like Microsoft SQL, Exchange, SharePoint, etc?

#### Answer-



Applications that utilize the Microsoft Volume Shadow Copy Service (VSS) framework on Windows 2003 and 2008 can be protected as part of an image-level backup **of the entire Guest virtual machine**.

If your application is not “VSS aware”, this information does not apply. Check with your application or database vendor to confirm its VSS capabilities.

### **3. How are applications that are not VSS-compliant protected?**

#### **Answer-**

Applications installed in Windows or Linux virtual machines that are not VSS-compliant such as Lotus Domino, Oracle, SAP, DB2, etc cannot be properly quiesced using Microsoft’s VSS snapshot technology. It is recommended that specific Backup Exec database or application Agents be used inside of the Guest virtual machine to protect these applications.

Alternatively, Backup Exec pre-post job scripts can be created and used in conjunction with AMVS backup jobs to shut down these applications prior to backup.

### **4. How are Backup Exec 12.5 Database and Application Agents licensed in virtual machines?**

#### **Answer-**

Existing Backup Exec Database and Application Agent licensing for physical systems also applies to virtual environments. Please see the [Licensing](#) section of this document for specific information and examples.

### **5. Can other Backup Exec 12.5 Agents and Options be installed on a virtual machine?**

#### **Answer-**

Yes, all Backup Exec remote Agents and Options can be installed on the Guest virtual server, assuming the guest OS is supported. Please see the [Licensing](#) section of this document for specific information and examples.

## **Virtual Machine Recovery**

### **1. Do I have to recover the entire virtual machine?**

#### **Answer-**

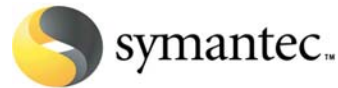
No, while backups of virtual machines are done at full image-level of the entire Guest virtual machine, restores can be done at multiple levels including:

- The entire Guest virtual machine including .vhd files, .xml files, .bin files, etc
- Individual files and folders **within** a .vhd file (Windows only)

### **2. How are individual files restored from within a .vhd file?**

#### **Answer-**

Backup Exec’s Granular Recovery Technology (GRT) allows the Agent for Microsoft Virtual Servers to catalog and open .vhd files directly for restore purposes from within the Backup Exec console. No separate consoles are required to do this.



### 3. How can I use GRT to recover individual files and folders directly to virtual machines?

#### Answer-

There are two possible methods for recovering individual files/folders directly to a Guest virtual machine with Backup Exec's GRT technology.

- Install a Backup Exec Agent for Windows Systems (AWS) into the Guest virtual machine and perform the restore like any other Backup Exec restore operation
- If there is no desire to install a Backup Exec Agent for Windows Systems (AWS) into the Guest virtual machine just for restore purposes, files/folders can be redirected to be restored to the local Backup Exec server and copied manually to the Guest virtual machine using Windows Explorer

### 4. Does Backup Exec GRT work from tape and disk-based backups?

#### Answer-

Yes, both tape and disk-based backups are supported for GRT-enabled recoveries of Windows virtual machines. Tape-based backups will require the specific .vhd file will be automatically staged back to a temporary disk location by Backup Exec to recover the individual files/folders from within it and then deleted after the restore completes.

### 5. How are entire virtual machines recovered?

#### Answer-

Restores of virtual machines can be initiated from within the Backup Exec 12.5 console's Restore view along with your traditional physical system backups. With AMVS's restore flexibility, virtual machines can be restored to several different locations including:

- Original locations on the Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host
- Alternate Microsoft Hyper-V and Virtual Server 2005 R2 SP1 hosts
- To any directory location (e.g. f:\temp) as standalone files

## Licensing

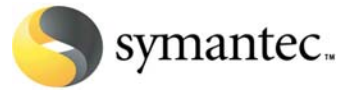
### 1. How is Backup Exec 12.5 AMVS licensed?

#### Answer-

Backup Exec 12.5 AMVS is licensed simply on a **per Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host** basis. There is **no "per CPU" or "per Guest virtual machine" licenses required**. Simply count the number of Microsoft Hyper-V or Virtual Server systems in the environment hosting virtual machines that need to be protected.

For example, three (3) Microsoft Hyper-V servers hosting ten (10) virtual machines each to be protected would require:

- One (1) Backup Exec 12.5 Media Server license
- Three (3) Backup Exec 12.5 Agent for Microsoft Virtual Servers licenses



## **2. How are Backup Exec Remote Agents for Windows Systems and Linux/Unix Systems licensed with AMVS if used?**

### **Answer-**

Each Backup Exec 12.5 AMVS license includes the licensed right to deploy an unlimited number of Backup Exec Agent for Windows Systems (AWS) and Backup Exec Agent for Linux/Unix Servers (RALUS) to virtual machines on a protected and licensed Microsoft Hyper-V or Virtual Server 2005 R2 SP1 host with AMVS.

For example, if there are 10 Windows virtual machines and 10 Linux Guest machines on a Hyper-V server licensed with AMVS, Backup Exec Agent for Windows Systems and Agent for Remote Linux and UNIX Servers can be installed in each Guest virtual machine for whatever purpose needed (i.e. Direct-to-Guest file/folder restores, file-level Incremental/Differential backups, etc.) without the need for additional AWS or RALUS license purchases.

## **3. How are Backup Exec 12.5 Database and Application Agents licensed in virtual machines?**

### **Answer-**

Existing Backup Exec Database and Application Agent licensing for physical systems also applies to virtual environments. Each Guest virtual machine running an application to be protected will require a separate Backup Exec Database or Application Agent licensed and installed in it.

For example, three (3) virtual machines each running Windows 2003 and Microsoft SQL 2005 R2 to be protected would require:

- One (1) Backup Exec 12.5 Media Server license
- Three (3) Backup Exec 12.5 Agent for Microsoft SQL Server licenses

## **Future Enhancements**

### **1. Will there be any future enhancements for Backup Exec regarding the Agent for Microsoft Virtual Servers?**

#### **Answer-**

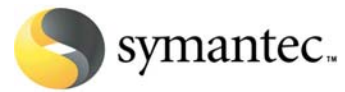
Yes, absolutely. If you have suggestions on what features and functionality you would like to see for future versions, please feel free to submit your requests for Backup Exec at <http://enhancement.symantec.com>

Also, for Physical to Virtual (P2V) and Virtual to Physical (including dissimilar hardware) system recovery and migration capabilities be sure to review Backup Exec System Recovery 8.5 at [www.backupexec.com/besr](http://www.backupexec.com/besr)

### **2. Where can I find additional information on Microsoft Hyper-V and Virtual Server 2005 R2 SP1 backup and recovery best practices?**

#### **Answer-**

These resources will assist you in becoming more familiar with Microsoft Hyper-V backup concepts and planning



- The “**Hyper-V Planning and Deployment Guide**”  
<http://technet.microsoft.com/en-us/library/cc794762.aspx>
- The “**Hyper-V FAQ**”  
<http://www.microsoft.com/windowsserver2008/en/us/hyperv-faq.aspx>