BackupAssist[™]v9

Hyper-V recovery

User Guide

backupassist.com



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1. Introduction



Microsoft Hyper-V Server allows you to create virtual machines, called guests. A guest runs an operating system and performs different roles, the same way a physical server does. The roles include providing network services, sharing resources and running applications such as Exchange. This guide explains how to perform a recovery of a Hyper-V guest.

BackupAssist has two Hyper-V guest recovery solutions. **Full VM Recovery**, which will recover a guest to a Hyper-V host, and **Rapid VM Recovery**, which will start and run a guest from its backup. This is a temporary solution that provides business continuity, until a Full VM Recovery can be performed.

Documentation

This guide documents BackupAssist's Full VM and Rapid VM recovery solutions. The documentation for BackupAssist's physical system recovery and Hyper-V granular restore features are linked below.

- To learn how to perform a physical server recovery, see the <u>System Recovery guide</u>
- To learn how to restore data from inside of a Hyper-V guests, see the Hyper-V Protection guide

Licensing

RecoverAssist is a standard feature included with the BackupAssist license, and requires a BackupAssist license once the initial trial period has expired.

Full VM Recovery is a standard feature that is included with the base BackupAssist license, and requires a BackupAssist license once the initial trial period has expired.

Rapid VM Recovery is part of **Hyper-V Advanced** add-on and requires a *Hyper-V Advanced license*. Contact your BackupAssist reseller or distributor for pricing information, or visit <u>BackupAssist.com</u>.

Requirements

Supported Backup types:

- Full VM Recovery supports System Protection, File Protection and File Archiving backups.
- Rapid VM Recovery supports System Protection backups.
- Rapid VM Recovery does not support RDX or Data Container backup destinations.

To learn more about creating backups for Hyper-V, see our Hyper-V guest backup article.

Host requirements

- The host server the guest is being recovered to must have at least 4GB of memory available which will be used by the recovered guests.
- A guest can only be recovered to a Hyper-V Host that runs the same version of Windows Server (or higher) as the original Hyper-V host.

Recovery reference sheet

BackupAssist has a dedicated reference sheet to explain the BIOS, O/S and hardware requirements for both physical and virtual system recoveries. We recommend you review the <u>Recovery Reference sheet</u>.

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2. Recovery Solutions

This section explains how the Hyper-V guest recovery solutions work and when they should be used.

Full VM Recovery

A **Full VM Recovery** recovers a guest to a Hyper-V host. You can recover the guest to its original location, overwriting the existing guest, or to a different location on the host. You can also recover the guest's VHD (virtual hard drive) to a different Hyper-V host and use that VHD to create a new guest.

Rapid VM Recovery

A **Rapid VM Recovery** creates a guest from its backup destination. The guest is treated as a regular guest by the Hyper-V host, but the guest data is located on the backup media. The backup is not modified in this process.

A Rapid VM Recovery can be performed in just a few minutes so that the critical functions performed by the guest can be resumed with minimal interruption. This temporary solution provides business continuity until a suitable time can be found to perform a *Full VM Recovery*, which could take many hours. You can perform a Full VM Recovery at a time that has minimal impact on the business. For example in the evening or on the weekend.

How Rapid VM Recovery works

A rapidly recovered guest is created on the Hyper-V Host using the backups VHD(X) file. Any data changes are stored by the host in a temporary location. No data is changed in the backup. The data changes made to the rapidly recovered guest can be incorporated into the Full VM Recovery process.

Important considerations

Before rapidly recovery a VM, you should be aware of these considerations and limitation:

- While a VM is rapidly recovered, it cannot be backed up.
- While a VM is rapidly recovered, the destination it is running from cannot be used for backups.
- Only one guest can be rapidly recovered at a time.
- Any Hyper-V host can rapidly recover a guest using a backup that was created by another host.
- If you want to retain any data changes that occurred during the rapid recovery, you must perform a *Full VM Recovery* using the host that was used for the *Rapid VM recovery*.

When to use Rapid VM Recovery

There are many reasons why a Hyper-V guest may require a recovery. For example, the guest's VHD may have been corrupted or deleted, the guest could be infected with a virus or ransomware, or you may want to move the guest to another Hyper-V Server.

Full VM Recovery is ideal for a guest that is not business critical and the time taken to perform the recovery is available.

Rapid VM Recovery is ideal for a guest that provides essential functions, such as a Domain Controller or an Exchange Server, and will have a significant impact if it became unavailable.

3. Starting a recovery

Full VM and Rapid VM recoveries can be initiated using the Recover tab or the Hyper-V tab.

From the Recover tab

The Recover tab displays BackupAssist's recovery tools. The top two options are used to make bootable media for physical systems. The bottom two options are for **Full VM Recovery** and **Rapid VM Recovery**. This is the starting point used in this Hyper-V recovery guide.

BackupAss	sist™	Help 🤗
	Rome	
S	Recover with RecoverAssist	Powered by RecoverAssist 😥
Backup Restore	Create a bootable media using the installed version of Windows This media will start your machine and load a RecoverAssist environment	Create a bootable media using a Windows installation disk This media will start your machine and load a RecoverAssist environment
Recover	Recover a virtual machine	
F -	Full VM Recovery	Rapid VM Recovery
	Completely recover a virtual machine to this Hyper-V server	Rapidly start up a virtual machine from a backup
Remote		
Settings	You may not be able to recover your system from a backup if you use file: recovering.	s from a version of Windows which is different to the one you are

Figure 1: Recover tab

From the Hyper-V tab

When you install BackupAssist on a Server with the Hyper-V role installed, a Hyper-V tab will appear. The tab displays all guests on the server and provides a centralized location from which the guests can be monitored. The Hyper-V Tab's menu has **Full VM Recovery** and **Rapid VM Recovery** buttons.



The **Full VM Recovery** button will take you directly into the *Full VM Recovery* process with the highlighted guest already selected.

The Rapid VM Recovery button will start a Rapid VM Recovery of the selected guest.

4. Full VM Recovery

A Full VM Recovery uses a VSS backup of a guest to recover that guest to a Hyper-V host. This will return the guest and its operating system, applications, data and services, to a previous working state.

There are two ways to perform a Full VM Recovery:

Recover the guest to its original location

This will overwrite the existing guest and replace it with the recovered guest. The existing guest will shut down if a recovery starts.

Recover the guest VHD to another location

This will recover the Hyper-V guest to another location. The recovered VHD(X) file can then be used to create a new guest. This method can be used if you do not want to overwrite an existing guest, or if you want to recover the guest to another Hyper-V host.

To perform a Full VM Recovery, follow the steps below:

- 1. Select BackupAssist's Recover tab.
- 2. Select Full VM Recovery.

The Full VM Recovery screen will open and display the guests backed up by this installation of BackupAssist. It can also show guests backed up from other machines added using the **Discover Backups** button. *Discover Backups* allows you to browse for backup catalogs created by deleted jobs and other servers. Selecting those backups will add them to the list of available backups.

BackupAss	sist™	Help	?
	C Home		
S	Recover > Full VM Recovery		
Backup	Recover TECH-SRV2012R2	32 backup(s)	
	Recover TECH-SVR12EX13	18 backup(s)	
	Recover Tech-Win2008	2 backup(s)	
Restore			
Recover			
Remote			
Hyper-V			
* Settings	Discover Backups 47 backup(s) in total.		

Figure 2 Hyper-V guest selection

If you have a non-VSS guest backup, use the *Restore* tab's *Hyper-V Host Files* option to restore the guest VHD to the host, and use the VHD to create a new guest.

3. Click on the guest that you want to recover

The screen will reload and display all available backups of that guest. The tabs above the list can be used to help locate the backup required.

- The Last 7 days and Last 30 days tabs display the backups within those ranges.
- The *Custom* tab allows you to select a specific date range and display backups for that period.

BackupAss	sist™			Help	?
	HomeFull VM Reco	overy →TECH-S	RV2012R2		
R Backup	TECH-SRV2012R2 28 backu	ip(s)			^
Restore	Last 7 days Last 30 days All Cus Show backups between 3/30/2015 [] Job	and 8/12/2015	Backup location		
	다 <u>Guest backup</u> 다 <u>Guest backup</u> 다 <u>Guest backup</u> 다 <u>Guest backup</u>	3/30/2015 10:00 PM 3/31/2015 10:00 PM 4/1/2015 10:00 PM 4/2/2015 10:00 PM			
Recover	다 <u>Guest backup</u> 다 <u>Guest backup</u> 다 <u>Guest backup</u> 다 <u>Guest backup</u>	4/6/2015 10:00 PM 4/7/2015 10:00 PM 4/8/2015 10:00 PM 4/9/2015 10:00 PM			=
Hyper-V	다이 Guest backup 다이 Guest backup 다이 Guest backup	4/13/2015 4:28 PM 5/6/2015 10:00 PM 5/7/2015 10:00 PM	G()		
Remote					
Kemole					

Figure 3 backup selection

4. Select the backup that you want to recover from, and the Full VM Recovery console will open.

Backup details						
Job: 🛒 Full backup Me	edia: 🛛 🔒 Daily 1					
Date: 8/20/2015 3:00 AM Ba	ckup location: G:\					
1. What to recover						
Microsoft Hyper- V VSS TECH-SR12EX13 (Online TECH-SRV2012R2 (Online TECH-SRV2012R2 (Online Host Component	e Backup) e Backup)	Name C:\ProgramDat C:\ProgramDat E:\TECH-SRV20	a\Microsoft\Window:)12R2\TECH-SRV201)12R2\TECH-SRV201	s\Hyper-V\Virtual Mach 2R2_9F45C227-8D79- 2R2.vhdx	ines\C674446-B1B5-49 4977-A881-58534B2F7	
		< 1	II		>	
2. How to recover						
Recover guest into Hyper-V					Browse	
Recover guest into Hyper-V Export guest files	Recover guest into Hyper-V Export guest files V					
	✓ Restore NTFS security attributes					
	Take ownership of rest	ored files (as TECH-SVF	R2012\Administrator)			
				▶ <u>R</u> ecover	Close	

Figure 4: recovery tool.

- 5. Use the **What to recover** pane to select the guest that you want to recover.
- 6. Use the How to recover drop down box to make one of the following a selections:
 - Recover guest into Hyper-V this will recover the guest to its original location.
 - **Export guest files** this will copy a guest's files to a selected location. Use the *Browse* button to select the location and select the *Overwrite* conditions that should apply. Once the guest's files have been exported, you can use them to create a new guest on another host.

- 7. Select the **Recover** button and the recovery process will begin.
- 8. Complete the recovery, based on the *How to Recover* selection made.

If you selected Recover guest into Hyper-V, you will need to open the Hyper-V Manager and start the guest. Right click the guest and select *Start*, as shown in the screen shot below.

File Action View Help								
Hyper-V Manager	Virtual Machines						Actions	
	Name A	State	CPU Usage	Assigned Memory	v	Uptime	TECH-	SVR2012
	TECH.SBV2012B2	0#			,		Nev	v 🕨
	TECH-SVR12EX13	Running	11 %	4092 MB		Connect		rt Virtual Machine
						Settings		r-V Settings
						Start		al Switch Manager
						Snapshot		al SAN Manager
						Move		Disk
	<	ш				Export		ct Disk
	Spanshote				Rename			Service
	Sudances					Delete		ove Server
		The selected virtual	machine has no sn	apshots.		Enable Replication		sh
						Help		•
							🛛 🛛 Hel	p

Figure 5: Hyper-V Manager – starting a guest

If you selected Export guest files, you can create the new guest. When you create the new guest, select the recovered VHD in the *Connect Virtual Hard Disk* step, as shown in the screen shot below.

Connect Virt	ual Hard Disk					
Before You Begin Specify Name and Location Assign Memory Configure Networking Connect Virtual Hard Disk Summary	A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties. O <u>C</u> reate a virtual hard disk Use this option to create a dynamically expanding virtual hard disk with the default format (VHDX). Name: TECH-SVR2012 New.vhdx Location: C:\Microsoft\Windows\Hyper-V\TECH-SVR2012 New\Virtual Hard Di Browse Size: C:\Microsoft\Windows\Hyper-V\TECH-SVR2012 New\Virtual Hard Di C:\Microsoft\Windows\Hyper-V\TECH-SVR2012 New\Virtual Hard Di					
	Size: 127 GB (Maximum: GFTB) Use an existing virtual hard disk Use this option to attach an existing virtual hard disk, either VHD or VHDX format. Location: Enter the path and name of the VHD you restored Browse Attach a virtual hard disk later Use this option to skip this step now and attach an existing virtual hard disk later.					
	< Previous Next > Einish Cancel					

Figure 6 Hyper-V Manager – creating a guest

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5. Rapid VM Recovery

A Rapid VM Recovery is the process of creating a new guest from its backup. This temporary solution provides business continuity until the backup can be used to perform a Full VM Recovery.

As noted in the recovery solution's section, only one guest can be rapidly recovered at a time.

To perform a Rapid VM Recovery, follow the steps below:

- 1. Select BackupAssist's Recover tab
- 2. Select Rapid VM Recovery.

The Rapid VM Recovery screen will open and display the guests backed up by this installation of BackupAssist. It can also show guests backed up from other machines added using the **Discover Backups** button. *Discover Backups* allows you to browse for backup catalogs created by deleted jobs and other servers. Selecting those backups will add them to the list of available backups.



Figure 7 Hyper-V guest selection

3. Click on the guest that you want to recover.

The screen will reload and display all available backups of that guest. The tabs above the list can be used to help locate the backup required

- The Last 7 days and Last 30 days tabs display the backups within those ranges.
- The *Custom* tab allows you to select a specific date range and display backups for that period.

BackupAss				Help ?
	🕞 Home			
S	🖪Rapid VM	Recovery → TE	CH-SRV2012R2	
Backup	TECH-SRV2012R2 8 b	ackup(s)		
	Last 7 days Last 30 days All	Custom		
	Job	Date/Time	Backup location	
Restore		8/5/2015 7:31 PM 8/11/2015 7:31 PM 8/11/2015 11:58 PM 9/12/2015 11:58 PM		
l car	ст) <u>зор</u>	8/12/2015 5:55 PM 8/12/2015 11:58 PM		
	<u>_1 Job</u> _1 Euli backup	8/18/2015 11:58 PM		
Recover	çî <u>Full backup</u>	8/20/2015 3:00 AM	🚍 G:\	
Remote				
F				
Hyper-∨				
÷				
Settings	Discover Backups	15 backup(s) in total. Backups	made by existing jobs are not shown.	

Figure 8 backup selection

4. Select the backup that you want to use for the Rapid VM Recovery.

A message will ask you to confirm that you want to perform a *Rapid VM Recovery*.

5. Select a location to store data changes for the rapidly recovered VM.

While the rapidly recovered VM is running, the Hyper-V host will store and manage changes to the data. Select a folder on a local host drive that can be used to store this data.

Last 7 days Last 30 days Job Please select a folder to store data changes for the recovered Hyper-V VM.
Job Please select a folder to store data changes for the recovered Hyper-V VM.
↓ Job Pull backup Pull backup Local Disk (C:) ⊡ New Volume (D:) ⊡ New Volume (E:) ⊡ DVD RW Drive (F:) RecoverAssist ⊡ Daily 1 (G:)

Figure 9: Select location for data changes

After you confirm the message, another message will advise that the guest has been rapidly recovered and what name it will use in the Hyper-V Manager.

6. Review the guest's configurations.

The configurations used for the guest, are the configurations that guest had when it was backed up. These configurations should be reviewed, especially if the host has changed since the backup was made or if you are recovering to a different host.

To review the guest's configurations:

- a) Open Windows Hyper-V Manager
- b) Select the guest
- c) Select Settings from the Action menu
- d) Review the settings, especially the Memory, Hard Drive and Network Adapter settings.

Check that the guest has the appropriate configurations for the host, and that it has the required resources to run. Make any required changes.

Hyper-V Manager								x			
File Action View Help											
🗢 🄿 🖄 🖬 🚺	ST.										
Hyper-V Manager	Hyper-V Manager										
TECH-SVR2012	Virtual Mach	ines		001111		11.2		TE	CH-SVR2012		•
	TECH-SBV201	282	State Off	CPU Usage	Assigned Memo	ory Uptime			New		•
	TECH-SRV201	2R2 · Recovered	Off						Import Virtual Machine		
	TECH-SVR12E	X13	Running	2 %	4092 MB	15.16:30:4	5	-	Hyper-V Settings		
								1	Virtual Switch Manager		
10 A	Settings for T	ECH-SRV2012R2	2 - Recovere	ed on TECH-SVI	R2012	_ 🗆 🗙		1	Virtual SAN Manager		
TECH-SRV2012R2 - Re	covered 🗸	4 Þ Q						1	Edit Disk		
A Hardware		Hard Drive							Inspect Disk		
Mdd Hardware		- Hard brive -					5		Stop Service		
BIOS Boot from CD		You can change h operating system	ow this virtual h is installed on th	ard disk is attached iis disk, changing the	to the virtual machin attachment might p	e. If an revent the	Ë	X	Remove Server		
Memory		virtual machine fro	om starting.	Location			2	0	Refresh		
2048 MB		IDE Controller 0		V 0 (in us	e)	~			View		•
1 Virtual proces	sor	Media							Help		
🖃 📰 IDE Controller 0		You can compa	You can compact or convert a virtual hard disk by editing the associated file.						CH-SRV2012R2 - Recovered		-
TECH-SRV2	012R2_9F45C2	Specing the rull part to the rile. Withus bard disk:						-	Connect		
🖃 📰 IDE Controller 1		C:\Program	nData\BackupAs	sist v9\VMRR\r0zdp	zhx\TECH-SRV2012F	21TECH-SRV		R	Settings		
en_windows	s_server_2012							() Start			
SCSI Controller	SCSI Controller			Edit	Inspect	🐌 Snapshot					
Network Adapte Broadcom NetLi	r pk (TM) Gigabit ■	Edit is not available because snapshots exist for this virtual machine. Do not use another method to edit the virtual hard disk when snapshots							Move		
1 COM 1		exist, such as the Edit Virtual Hard Disk Wizard, because data loss may occur.							Export		
None	None			O Physical hard disk:					Rename		
None			The physical hard disk you want to use is not listed, make size that the						Delete		
Diskette Drive		If the							Enable Replication		
A Management		disk is	offline. Use Dis	k Management on th	e physical computer	to manage		?	Help		
I Name	D2 Decouvered	priysic	arnara aisio.								
Integration Serv	rices	To remove the vir delete the associa	tual hard disk, c ited file.	lick Remove. This dis	connects the disk bu	it does not					
All services offe	red					Remove	H				
C:\ProgramData	a\Microsoft\Win						F				
Smart Paging File	e Location										
Automatic Start	Action										
Restart if previo	ously running 🗸 🗸										
			[ОК	Cancel	Apply					

Figure 10: Hyper-V Manager

7. Start the rapidly recovered guest.

To start the guest:

- a) Open Windows Hyper-V Manager
- b) Select the guest
- c) Select Start from the Action menu

The Hyper-V guest is now rapidly recovered.

Rapid VM Recovery manager

When a guest has been rapidly recovered, the *Rapid VM Recovery* button on the *Recover* tab will display **Manage rapidly recovered VM**.

Selecting this button will	open the Rapid VM Recovery Manag	jer.

BackupAss		Help ?
	⊂\$ Home	
æ	Recover with RecoverAssist	Powered by RecoverAssist 🔊
Backi Rapic	MSSISE I VM Recovery Manager Backup Assist™	Create a bootable media
Resto Fro	: Win7 - Recovered ated: 8/25/2015 1:57 PM mbackup: "Job" 8/4/2015 7:08 PM	using a Windows installation disk This media will start your machine and load a RecoverAssist environment
Reco ^r	Turn off and perform a full recovery Turn off and perform a full recovery of the VM. Changes made to the Rapid VM will be retained.	
Hyper	Discard the Rapid VM Turn off and discard changes made to the Rapid VM.	Manage rapidly recovered VM
Remo	Close	
Settings	You may not be able to perform a RecoverAssist recovery of a physical m media is different to the version of Windows in the backup.	nachine, if the version of Windows used to create the bootable

Figure 11: Recover tab – Rapid VM Recovery Manager

The Rapid VM Recovery Manager has two functions:

Perform Full Recovery

This option allows you to turn the rapidly recovered VM into a fully recovered VM. It will copy the VHD from the backup to the Hyper-V host and reconfigure the VM to point to that VHD. Any data that changed while the VM was rapidly recovered will be included in the VHD.

Considerations:

- Before starting, ensure there is enough space on the host to recover the guest.
- This process will perform a full recovery to the rapidly recovered guest, not to the original guest.

To perform a full recovery of a rapidly recovered VM:

- 1. Select Perform Full Recovery.
- 2. Select OK to the confirmation message to start the full recovery.
- 3. Select a permanent storage location for the recovered VM, and create a folder in this location to recover the data to. For example, select a location where you store the other guests on the host.

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The VM's virtual disks and configuration files will be recovered to this location. The full recovery results in a clean copy of the guest data that includes all changes accumulated while the rapidly recovered guest was running.

BackupAssist™ nep ?		
	I Home	
	BackupAssist	Powered by RecoverAssist 😥
Backup	Rapid VM Recovery Manager Backup Assist**	
	VM: TECH-SRV2012R2 - Re Created: 9/3/2015 10:39 PM	le media allation disk
Restore	From backup: "Full backup" 8/20/2011	chine and load
Recover	Perform Full R Turn off and perform a f Changes made to the Ri New Volume (D:) New Volume (E:) OVD RW Drive (F:) RecoverAssist Daily 1 (G:)	
Hyper-V	Recov Discard the R: Turn off and discard cha OK Cance	recovered VM
Remote	Close	
Settings	You may not be able to perform a RecoverAssist recovery of a physical machine, if the version of Windows user bootable media is different to the version of Windows in the backup.	d to create the

Figure 12: Full recovery of a rapidly recovered VM

4. Select OK and the full recovery process will begin.

A progress bar will appear while the recovery is in progress, and a confirmation message will appear once the recovery has been completed.

Discard the Rapid VM

This will stop the rapidly recovered guest, discard any changes made to the guest's data since it was rapidly recovered, and remove the guest instance from the Hyper-V Manager.

When you select *Discard the Rapid VM*, you will be prompted to confirm that you want to delete the VM data.



After the rapidly recovered VM has been discarded, you still have the option to perform a <u>Full VM</u> <u>Recovery</u> using the backup.