

BackupAssist™

Data Containers

User Guide

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1. Overview

The backup

BackupAssist *System Protection* creates image backups that can be used to restore and recover your data. These backups can be full or incremental, and the Windows Volume Shadow copy Service (VSS) maintains historical information so that each backup can be restored from.

Key points:

- If you have Windows VSS on the data source, data can be backed up incrementally.
- Incremental backups overwrite the data in the image backup that has changed.
- Windows can create shadow copies (snapshots) of the data that was changed.
- Data that was overwritten by previous backups can be restored using a VSS snapshot.

The problem

On RDX drives and Network destinations (e.g. NAS), shadow copies are not supported so Windows cannot maintain a backup history (snapshots of data that changed). This means restores can only be done from the last backup. A work around has been to put each backup into a different folder but this requires a full back up each time the backup jobs runs, which requires additional disk space.

Key points:

- Windows VSS cannot maintain historical information (snapshots) on a NAS or RDX device.
- Data can only be restored from the last backup.

The solution

BackupAssist overcomes these Network/RDX destination limitations, by implementing *Data containers*. A Data container is a VHD file that *System Protection* backups can be stored inside of. The Data container is created on the destination media and each time the backup jobs runs, the container is mounted and treated as a local disk. Because the Data container is seen as a local disk, Windows can maintain shadow copies of data that changed (was overwritten), so that it can still be restored from.

When using a Data container for System Protection backups to Network and RDX destinations:

- Data (in the backup) that has changed can still be restored, because snapshots are maintained.
- Folders are not needed to provide different restore points, saving valuable disk space and time.

Other advantages

RDX granular restore: When Windows detects an RDX drive, it will compress the data that is being backed up. This compression means that individual files cannot be restored. By using a Data container, Windows will see the destination as a local drive and not compress the data. BackupAssist will therefore be able to restore individual files from an image backup stored on an RDX drive.

Portable backups: Enable portable backups for RDX, Network location, External disk and Local drive destinations.

On Windows Server 2008R2 and later, you can copy a backup image to another device, but only the last backup can be restored because you cannot copy the shadow copy (snapshot). If the backup is in a Data container, the snapshot can be moved and all backups can be restored from.

Supported systems

Data containers are supported on Window Server 2008 R1/R2 and SBS 2008/2011 and later operating systems.

2. Creating a Data container backup



Data containers are only available for *System Protection* backups to the following *Destination media*: *RDX drive*, *Network location*, *Local hard drive* and *External disk*. The Data container will be mounted automatically by BackupAssist and appear as a local disk.

Creating a backup job

Destination media: This step will show the *Enable Data container* option.

Set up destination: This step will include fields for the Data container's settings.

The size of the Data container is set using this screen. It is important to review the settings to ensure they are appropriate because the size of a Data container cannot be changed once the backup job has run. The *Use all available space* selection will use all available space, up to 2TB.

- For an *RDX* or *External disk* destination, *Use all available space* will be selected by default.
- For a *Local hard drive* and *Network location*, set the size manually by using the field provided, or select the *Use all available space* option.

You also need to provide the destination path - the location where the Data container will be created. The backups will go inside the container.

- The first time the backup job runs, it will create the Data container.
- The backup job will automatically mount the Data container and back up the data into the container each time the job runs.

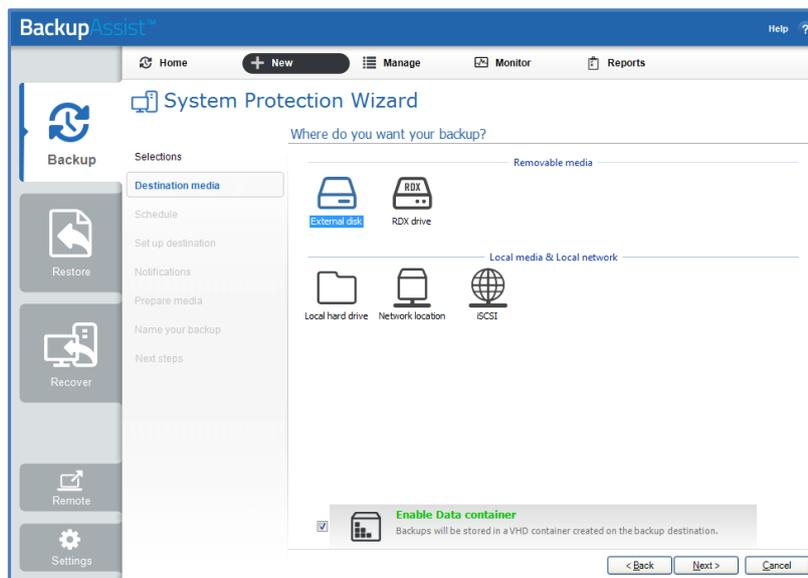


Figure 1: System Protection backup – Destination media

Data Container schedules

The backup schemes available will change with the destination selected for the Data Container. A fixed media selection such as Local hard drive, Network Location or iSCSI device, will provide a schedule option where each successive backup is automatically incrementally merged with the previous backup to provide one single backup with different restore points.

Note: We are aware that the Network location (NAS) destination displays a scheme that says each backup overwrites the next but this is not what occurs. If a Network location is selected as the backup destination, each successive backup is automatically incrementally merged with the previous backup to provide one single backup with different restore points.

Note: System Protection backups on RDX drives cannot be used to restore individual files unless Data containers are used. This applies to Windows Server 2008R2 and later.

Data container modifications

You can modify the size settings of a Data container, if the container does not exist. For example, if the backup job has not been run or if the container has been manually deleted.

To modify the size of the Data container:

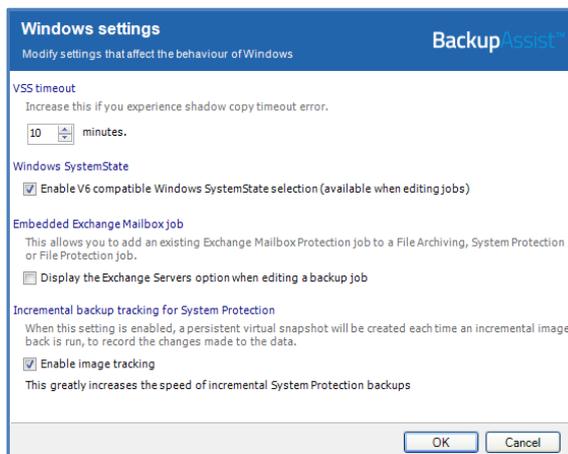
1. Select *Manage* from the *Backup* tab.
2. Select the backup job from the list.
3. Select *Edit* from the top menu.
4. Select *Destination* and go down to *Data container options*:
 - *Container size (GB)*: Use the up and down arrows to set the size of the Data container
 - *Use all available space*: Tick this box and all available space on the destination device will be used by the Data container, up to 2TB.



Considerations

- All Data containers are called datacontainer.vhd
- Data containers can be located anywhere on the destination media.
- Only one Data container can be created per destination / path.
- The Data container will be created the first time the backup job runs.
- If separate backup jobs use the same location, the first job to run will create the Data container and the next job will see a container and use that one (it will not try to create another).

The Windows Settings



Incremental image backups must be manually enabled. To review this setting select: *Settings* tab > *Windows settings* > *Enable image tracking*.

With this option selected, Windows will flag any data that changes so that when the System Protection job runs, it doesn't need to scan the data selection to know what has changed. This makes the backup a lot quicker, but there is a performance overhead between backups due to Windows keeping track of the changed data.

In some circumstances (changing the job's settings or destination) a full backup may be required.

3. Performing a Restore or Recovery

Restores from a Data container



The restore process does not change for backups stored in Data containers. Each backup will provide a restore point, as defined by the backup schedule used.

- System Protection backups to Data containers will appear in the *Restore Console*.
- BackupAssist will automatically mount the Data container when the backup is selected.

Recovery using a Data container



A recovery is the process by which a computer is recovered after hardware has been replaced or an operating system failure has occurred, and your computer can no longer start itself.

To perform a recovery you need a bootable media to start your computer, and an image backup that the bootable media can use to recover your operating system, data and applications. *System Protection* can create the image backup used in the recovery process. If your System Protection backup is in a Data container, RecoverAssist can be used to mount the Data container as part of the recovery process.

To use a Data container in a Recovery:

1. From the RecoverAssist menu, select *Recover from backup on a local drive* or *Recover from a backup located on a network drive*. The selection will depend on the backup media that the Data container is on.
2. During the backup selection step, use the *Search for Backups in Container* button.
3. Browse to the location of the Data container, and select it.
4. RecoverAssist will mount it and the recovery process will proceed.

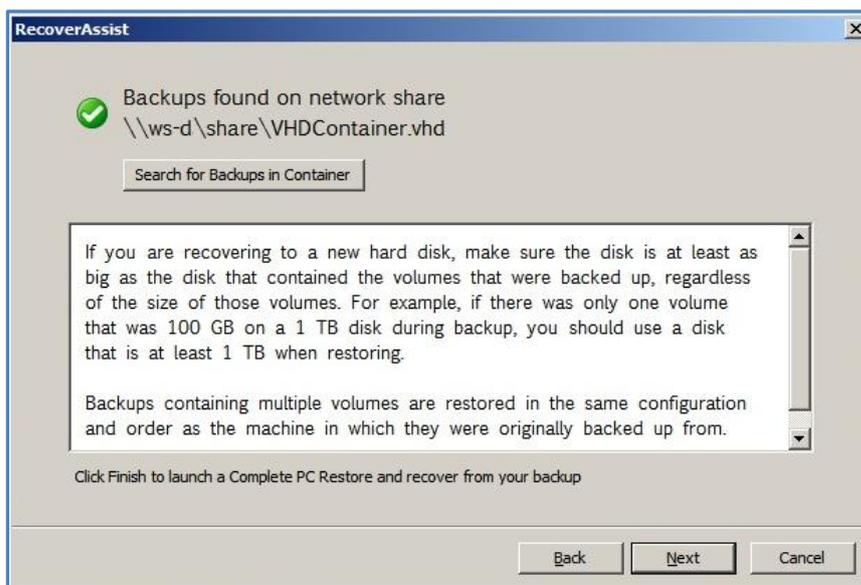


Figure 2: Data Container - RecoverAssist selection

For more information on data recovery, see the [Recover tab & RecoverAssist Whitepaper](#).

4. How to manually mount a Data container

Data containers are a destination option for System Protection backups. They overcome limitations associated with image backups and provide more flexibility.

BackupAssist automatically mounts Data containers when backups and restores are performed. However, there may be times when you want to do this manually. For example, if you want to check what is inside a Data container or have it available for a task.

To manually mount a Data container, follow these steps:

1. Open Disk Management.

For Windows Server 2008 R2, SBS 2011 and Windows 7:

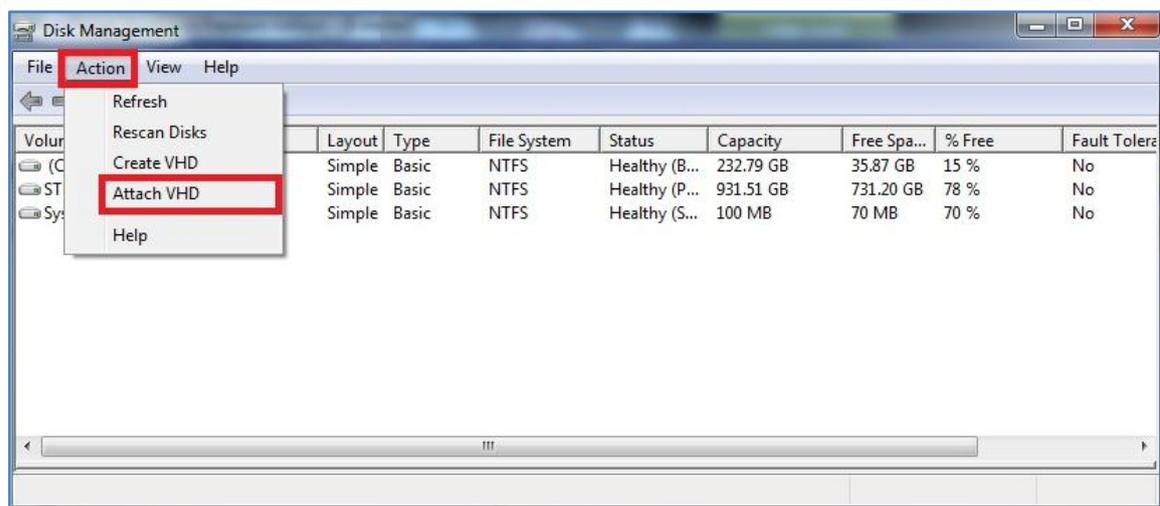
- a) Click the *Start* button.
- b) Type *diskmgmt.msc* into the *Search Programs and Files* text box.
- c) Press the *Enter* or click *OK*.

For Windows Server 2012 and Windows 8:

- a) Open *Run* from the *Apps* screen.
- b) Type *diskmgmt.msc* into the *Search Programs and Files* text box.
- c) Press the *Enter* key or click *OK* button.

The Disk Management console will open.

2. Select *Action* from the Disk Management menu.
3. Select the menu option *Attach VHD*.



4. Enter the path of the Data container that you want to mount, and Click *Ok*.
5. You will now have a drive named **BA_VHD_Container** in your list of available drives.
6. Right click *BA_VHD_Container* and select *Change Drive Letter and Paths*, and Select *Add*.
7. Select a drive letter for the Data container, using the drop down box, and Select *OK*.

You can now browse the Data container using Windows Explorer.