How to backup Hyper-V Cluster Shared Volumes

Please ensure that you are running **Macrium Reflect v6.1.1309 or later.**

Disk images cannot be used to backup Hyper-V Cluster Shared Volumes.

Server 2012R2 Hyper-V Cluster Shared Volumes (CSV) can be backed up using the **File and Folder backup** functionality in Macrium Reflect. **Earlier versions of Windows are not supported.**

You must use the **File and Folder restore functionality** to restore VHD and VHDX files. You cannot mount/browse backup files and use Copy and Paste to restore files larger than 4GB

To ensure that you have correctly backed up the CSV folders please check the backup log.

Successful CSV snapshot Example.
Note the lines 'CSV - Volume n' and the snapshot line:

```
        Folder:                 C:\ClusterStorage\Volume1\VHD\
        Include File Filter:    *.vhdx
        Exclude File Filter:    *.temp; *.tmp; *.bak; *.~*
        Include Sub Folders:    Y
        Exclude Folder Filter:
        Exclude Hidden Files:   N
        Exclude System Files:   N
-------------------------------------------------------------------------
        Folder:                 C:\ClusterStorage\Volume2\
        Include File Filter:    *.*
        Exclude File Filter:    *.temp; *.tmp; *.bak; *.~*
        Include Sub Folders:    Y
        Exclude Folder Filter:
        Exclude Hidden Files:   N
        Exclude System Files:   N
-------------------------------------------------------------------------
        Email On Success:       N
        Email On Failure:       N
-------------------------------------------------------------------------
        Creating Cluster Shared Volume Snapshot - Please Wait
Volume Snapshots Created
        CSV - Volume1           \\?\GLOBALROOT\Device\CSV{46542b53-ba80-4231-b971-5a0e6bd517cd}
        CSV - Volume2           \\?\GLOBALROOT\Device\CSV{1b3332c3-b1ba-4198-8142-53c48e59e8e7}
Starting backup - Thursday, May 12, 2016 11:11:23
        Destination Drive:      Backup Location (D:) - Free Space 87.50 GB
        Free space threshold:   Delete oldest backup sets when free space is less than 5.00 GB
        Determining files to copy
        Total Number of Files:  4
        Total Size:             8.49 GB
Copying files
        Gathering Windows Events - Please Wait
```

The successful VSS log will also indicate 'C:\ClusterStorage\Volume*' added to the snapshot:

```
Discover explicitly included components ...
Verifying explicitly specified writers/components ...
Select explicitly included components ...
* Writer 'Microsoft Hyper-V VSS Writer':
  - Add component \6FA1E0B1-72D8-4687-BAD8-C7BBC29E8338
Creating shadow set {e72a35c8-eefc-4fe9-bd50-35e95a123fe5} ...
- Adding volume \\?\Volume{12f7f3d3-b552-4a05-b948-da5ba054f7fd}\ [C:\ClusterStorage\Volume1\] to the shadow
set...
- Adding volume \\?\Volume{2cd57d04-80b0-4d12-ac10-406e9f121b09}\ [C:\ClusterStorage\Volume2\] to the shadow
set...
```

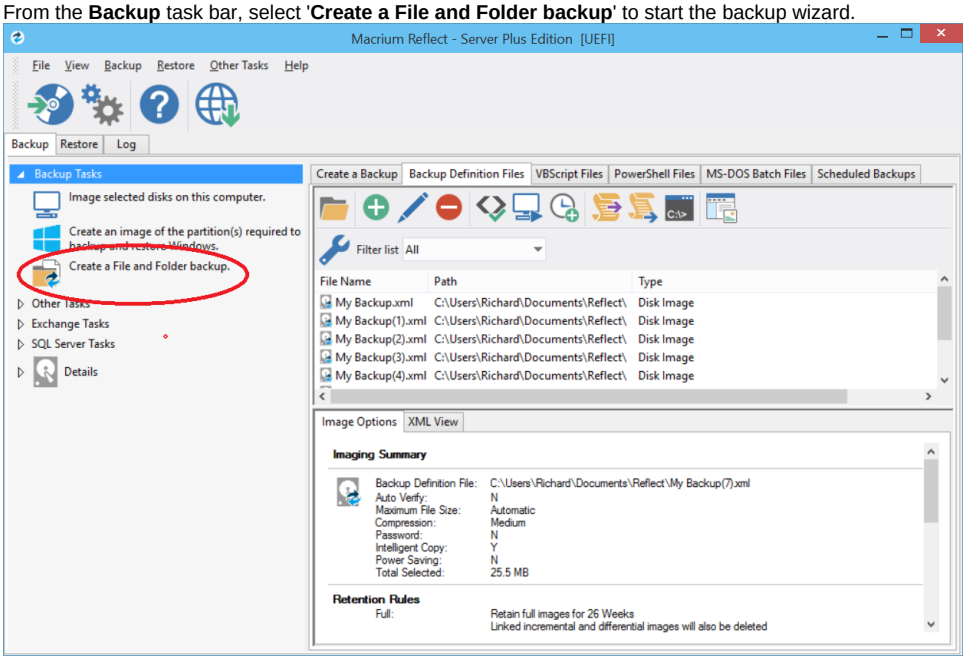
Failed Snapshot Example.

Note the Error message: **VSS failed for Cluster Shared Storage. Ensure that no folders outside of CSV mount points are included in this backup**

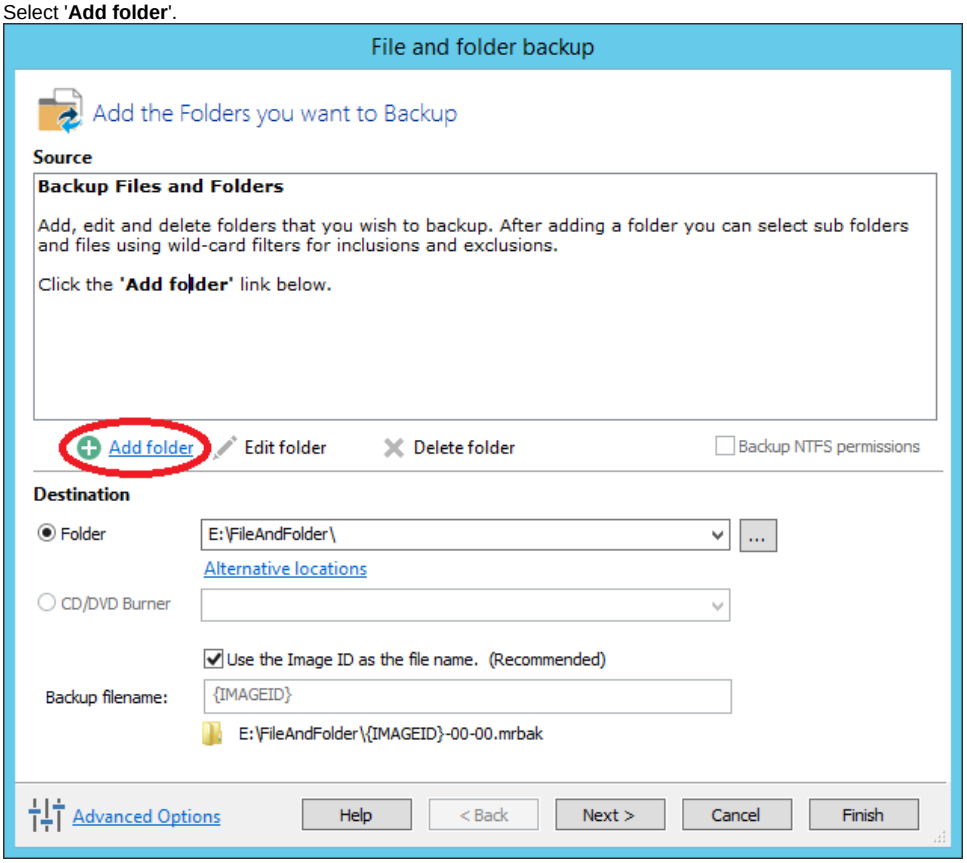
```
Folder:                 C:\ClusterStorage\Volume1\VHD\
Include File Filter:    *.vhdx
Exclude File Filter:    *.temp; *.tmp; *.bak; *.~*
Include Sub Folders:    Y
Exclude Folder Filter:
Exclude Hidden Files:   N
Exclude System Files:   N

Folder:                 C:\boot\
Include File Filter:    *.*
Exclude File Filter:    *.temp; *.tmp; *.bak; *.~*
Include Sub Folders:    Y
Exclude Folder Filter:
Exclude Hidden Files:   N
Exclude System Files:   N

Folder:                 C:\ClusterStorage\Volume2\
Include File Filter:    *.*
Exclude File Filter:    *.temp; *.tmp; *.bak; *.~*
Include Sub Folders:    Y
Exclude Folder Filter:
Exclude Hidden Files:   N
Exclude System Files:   N

Email On Success:       N
Email On Failure:       N

Creating Cluster Shared Volume Snapshot - Please Wait
Failed To Create Volume Snapshot. Result Code: 0x80042313
VSS failed for CLuster Shared Storage. Ensure that no folders outside of CSV mount points are included in this backup
```

How to backup Cluster Shared Volumes

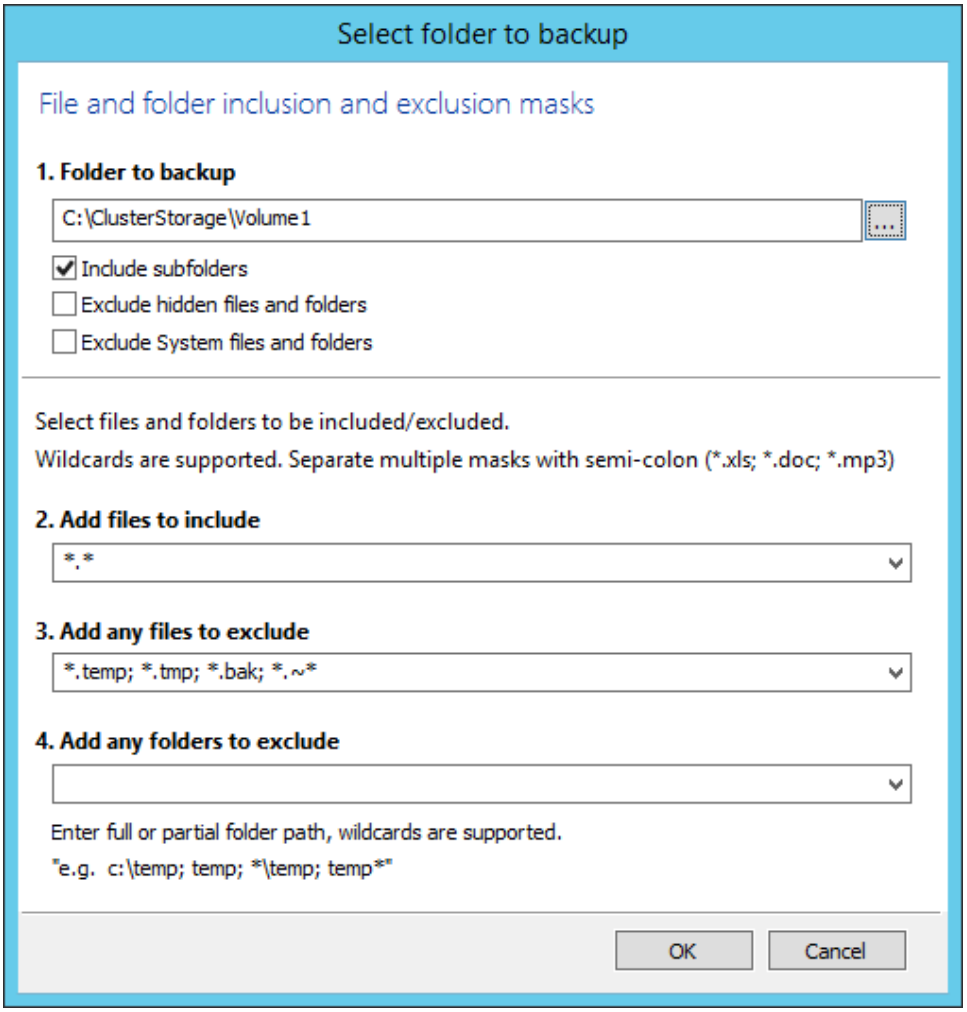
1. From the **Backup** task bar, select '**Create a File and Folder backup**' to start the backup wizard.



2. Select '**Add folder**'.



The '**Select Folder to backup**' dialog appears.

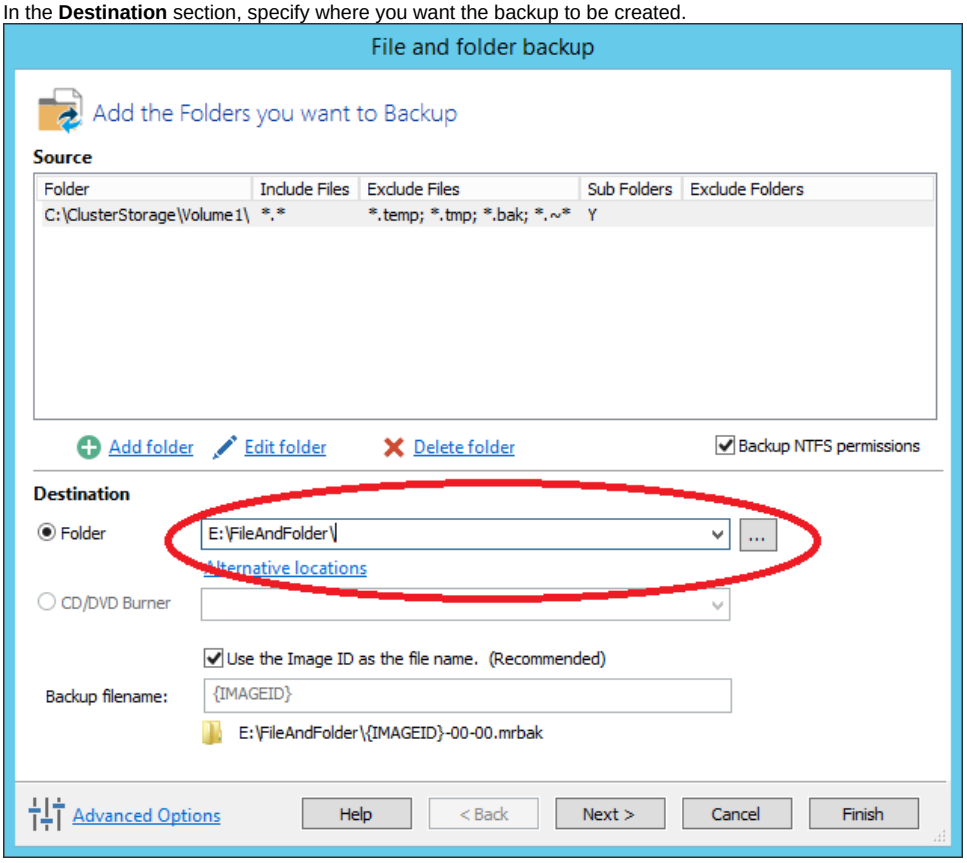


Select/Add only folder(s) **beneath** the **C:\ClusterStorage** in order for the Clustered Shared Volume contents to be included in your backup. Do not include folders outside of the '**C:\ClusterStorage**' mount point otherwise VSS will fail.

Several different masks and wildcards can be specified to include specific files within the given directory or exclude other files.

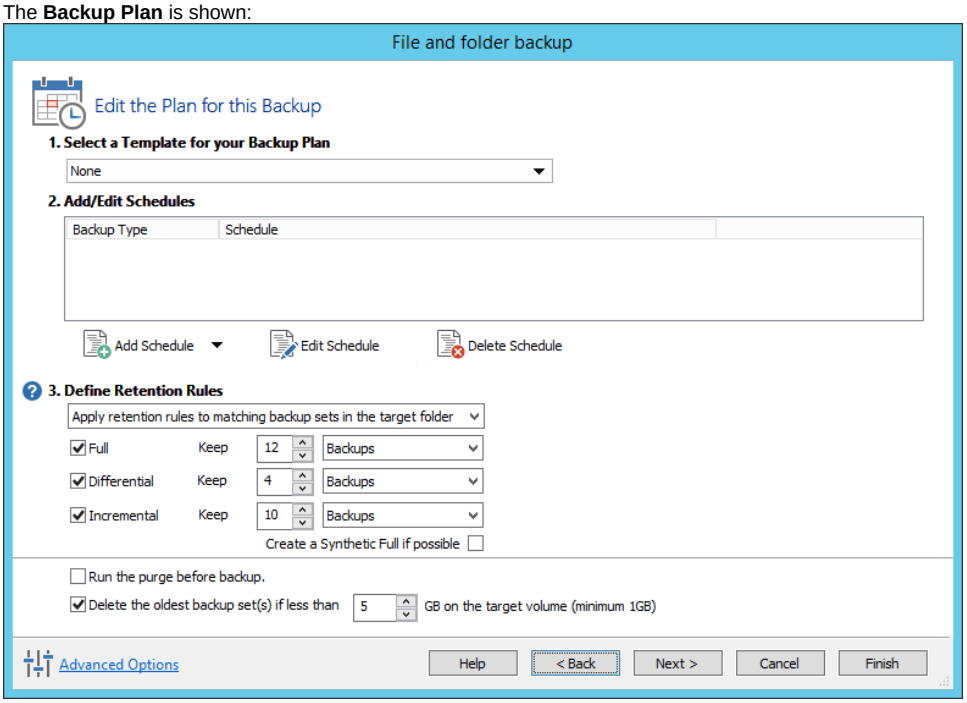
Option	Description
Include sub-folders	Recourse all folders below the backup folder using the specified filters
Exclude hidden files and folders	Do not backup files or folders that have the Hidden attribute
Exclude system files and folders	Do not backup files or folders that have the System attribute
Add files to include	Add a semi-colon separated list of file name filters to include in the backup. Use the asterisk * character as a wild card. For example; *.doc; *data*; *.xls
Add files to exclude	Add a semi-colon separated list of file name filters to exclude from the backup. Use the asterisk * character as a wild card. **Note**: Exclude filters take precedence over include filters
Add any folders to exclude	Add a semi-colon separated list of folder name filters to exclude from the backup. Use the asterisk * character as a wild card. Filter names can be full path and/or folder names. **For example:** *temp* will exclude all folders with the letters 'temp' anywhere in the folder name *\data\temp* will exclude all paths where the folder name begins with 'temp' that has a parent folder named 'data'

3. Click **OK**
4. Repeat to add further **CSV** directories if necessary.
5. In the **Destination** section, specify where you want the backup to be created.



Alternative Locations can be used to provide backup rotations or as a fail safe for temporary unavailability of the primary backup destination.

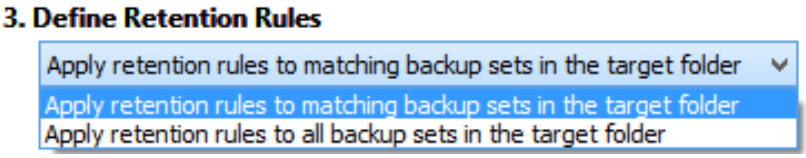
6. When you have finished adding folders and making all necessary changes, click **Next**.
7. The **Backup Plan** is shown:



The new Macrium Reflect retention rules provide a powerful and flexible way to manage the lifetime and storage space used by your backups.

Choose how backups are matched and retention rules are applied to the target folder

Retention rules are applied to the target folder of the backup by selecting one of two options:



a. **Apply retention rules to matching backup sets in the target folder.**

   Disk Images are purged if they contain **exactly the same Partitions** as the current Image. Partitions are identified using the unique **Disk ID** stored in sector 0 of the disk and the **Partition sector offset**.

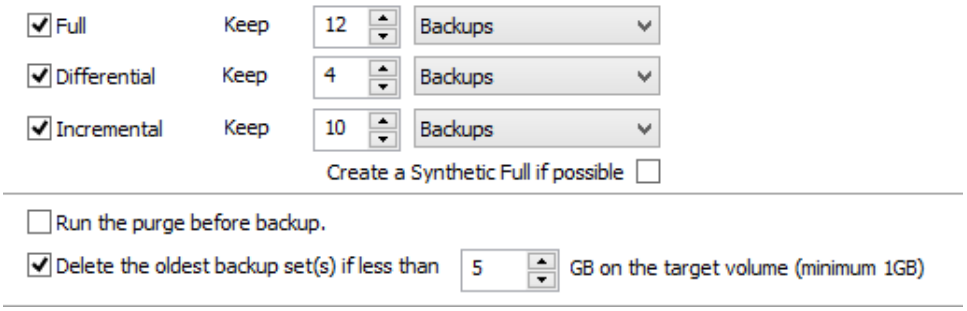
   Note: For GPT disks the unique GPT disk GUID is used instead of the Disk ID

   For **File and Folder** backups retention rules are applied according to the '**Backup Set Matching'** option select in the **'Advanced Properties'** for this backup.

b. **Apply retention rules to all backup sets in the target folder.** All backup sets in the target folder of the same type (Disk Image or File and Folder) are purged according the retention rules.

   Note: This option uses the same logic as Macrium Reflect v5

Select the age or number of backup types that you wish to keep



Option	Description
Full	When deleting Full backups all linked incremental and Differential backups in the same backup chain (set) are also deleted This operation will delete the entire backup set.
Differential	When deleting Differential backups all linked incremental backups in the same backup chain (set) are also deleted.
Incremental	When deleting Incremental backups the integrity of the backup set is maintained by ensuring that the chain is never broken. This is achieved by merging older Incremental backups when required. In the example below, before retention, there is **1 Full backup, 1 Differential backup** and **6 Incremental** backups. The retention rules are set to **retain 4 incremental** backups. After retention, the most recent 4 incremental backups are retained. **Deleting the oldest 2 incrementals would cause the backup chain to be invalid** as the oldest retained incremental requires the previous 2 incremental backups to complete the chain. To ensure backup integrity the **2 older incremental backups are consolidated** with it to create a new incremental backup. **F = Full** **D = Differential** **I = Incremental** M T W T F M T W T F M T W F D I I I I F I I -- -> I
Create a Synthetic Full if possible	When purging Incremental backups, if the backup set **only contains a Full backup followed by Incremental backups**, then this option causes the Full backup to be 'rolled forward' to **creat e a Synthetic Full backup**. This is also known as **Incremental Forever.**
Run the purge before the backup	Select this option to run the retention rules before the current backup. **Note:** in Macrium Reflect v5 the current backup set wasn't included in the purge calculation when purging before the current backup. In v6 the current backup set **IS** included. This means that if you set the retention count to 1 Full backup then all of your backups will be deleted and a new Full backup created.
Delete oldest backup set (s) if less than n GB	Automatically remove the oldest backup set(s) in the target folder if the free space on the drive drops below the GB threshold. **Note:** The free space threshold is actioned dynamically. If the free space available drops below the threshold then the running backup is temporarily paused while older backup sets are purged.

8. The next screen, **Summary**, gives the details of what is being backed up. Click **Finish**.