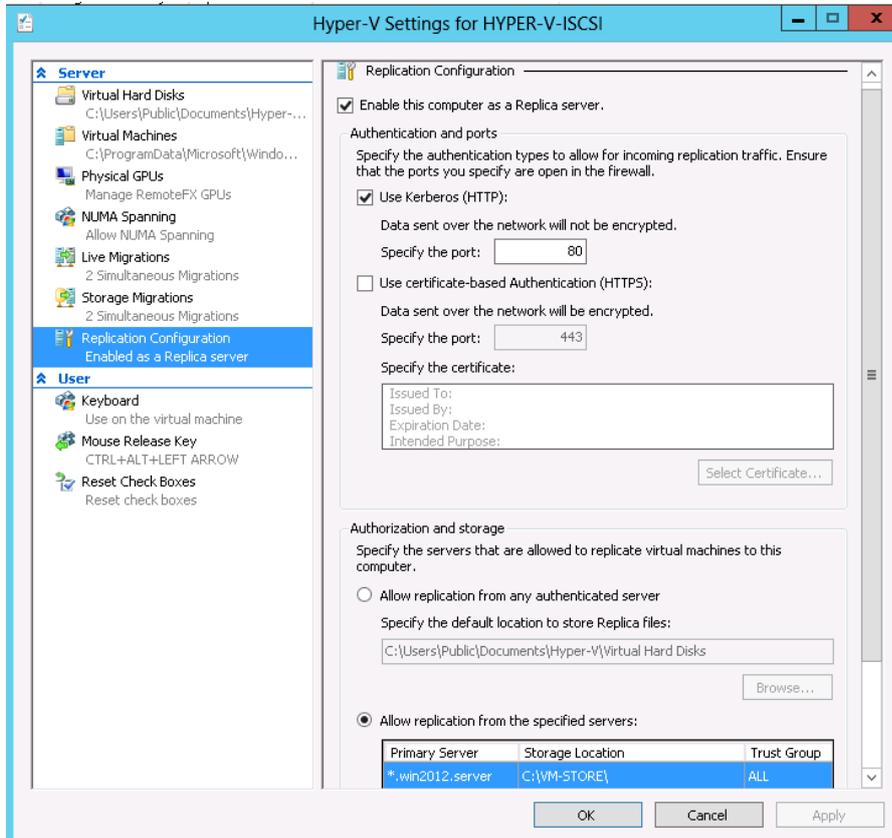
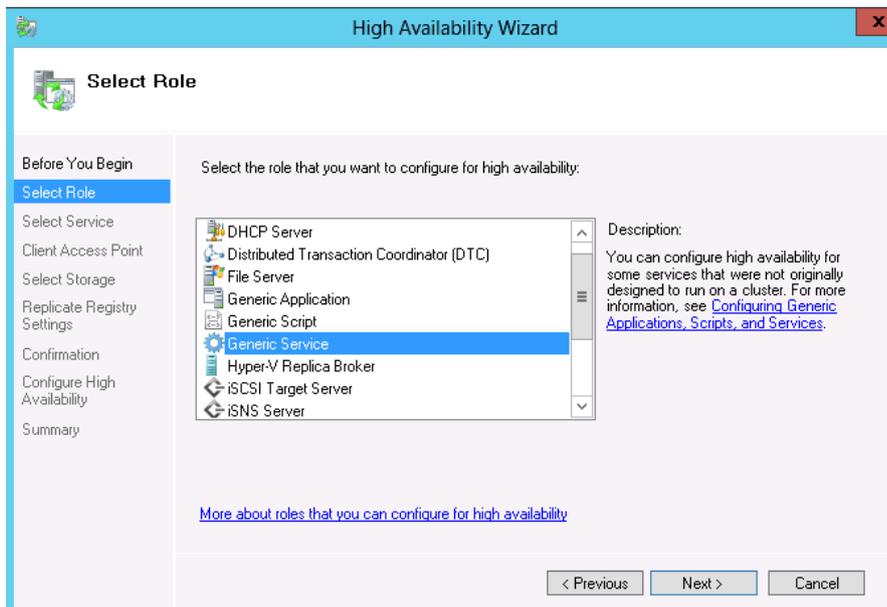


## Hyper-V 3.0 Failover Cluster und VM Replica

Standalone (non clustered) Hyper-V Server (Domaenenmitgliedschaft vorhanden) als Replica Server konfigurieren. Replikation fuer die Domaene\*.win2012.server erlauben (wenig sicher → Testumgebung). Es wird auch kein HTTPS verwendet, da Testumgebung, in Produktionsumgebungen PKI und Zertifikate einrichten!



Auf dem Hyper-V 3.0 Failovercluster den Hyper-V Replica Broker als Clusterressource hinzufuegen.



## IP Adresse fuer CNO vergeben

The screenshot shows the Failover Cluster Manager interface. On the left, a tree view shows the cluster structure: W2012CLUS.win2012.server > Roles > HYP-BROK. The main pane displays the 'Roles (3)' list:

Name	Status	Type	Owner Node	Priority	Information
HYP-BROK	Running	Hyper-V Replica Broker	HYP2K12-SILVER	Medium	
VM8	Off	Virtual Machine	HYP2K12-SILVER	Medium	
W8-VM	Off	Virtual Machine	HYP2K12-BLACK	Medium	

Below the roles list, the configuration for the selected 'HYP-BROK' role is shown:

Name	Status	Information
<b>Server Name</b>		
Name: HYP-BROK	Online	
IP Address: 10.80.16.162	Online	
<b>Hyper-V Replica Broker</b>		
Hyper-V Replica Broker HYP-BROK	Online	

## Hyper-V Replika Broker als Replica Server konfigurieren.

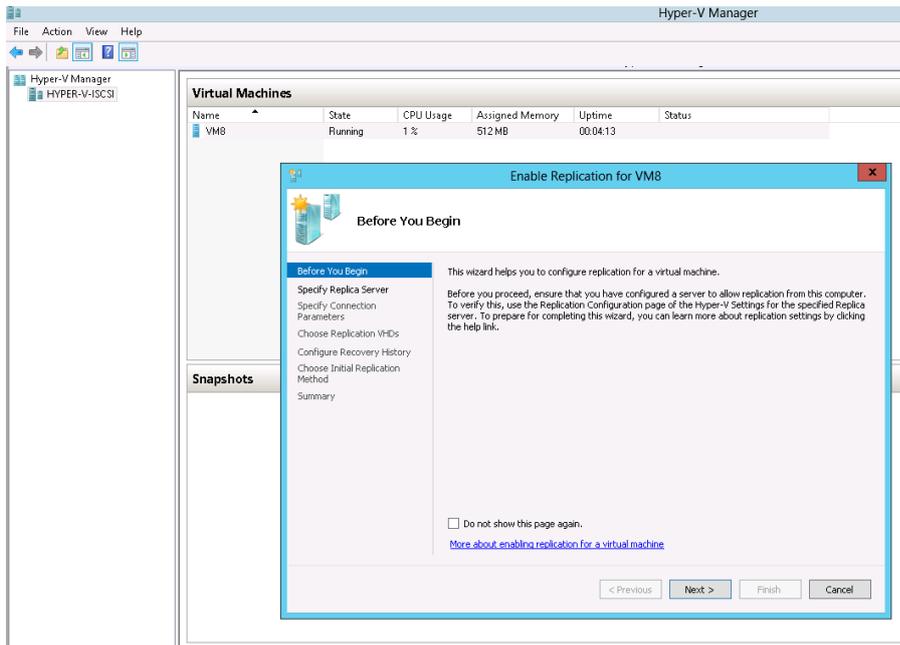
The screenshot shows the 'Hyper-V Replica Broker Configuration' dialog box. The 'Replication Configuration' section is expanded, showing the following settings:

- Enable this cluster as a Replica server.
- Authentication and ports**
  - Specify the authentication types to allow for incoming replication traffic. Ensure that the ports you specify are open in the firewall.
  - Use Kerberos (HTTP):
    - Data sent over the network will not be encrypted.
    - Specify the port:
  - Use certificate-based Authentication (HTTPS):
    - Data sent over the network will be encrypted.
    - Specify the port:
    - Specify the certificate:
      - Issued To:
      - Issued By:
      - Expiration Date:
      - Intended Purpose:
    - Select Certificate...
- Authorization and storage**
  - Specify the servers that are allowed to replicate virtual machines to this cluster.
  - Allow replication from any authenticated server
  - Specify the default location to store Replica files:
    - 
    - Browse...
  - Allow replication from the specified servers:

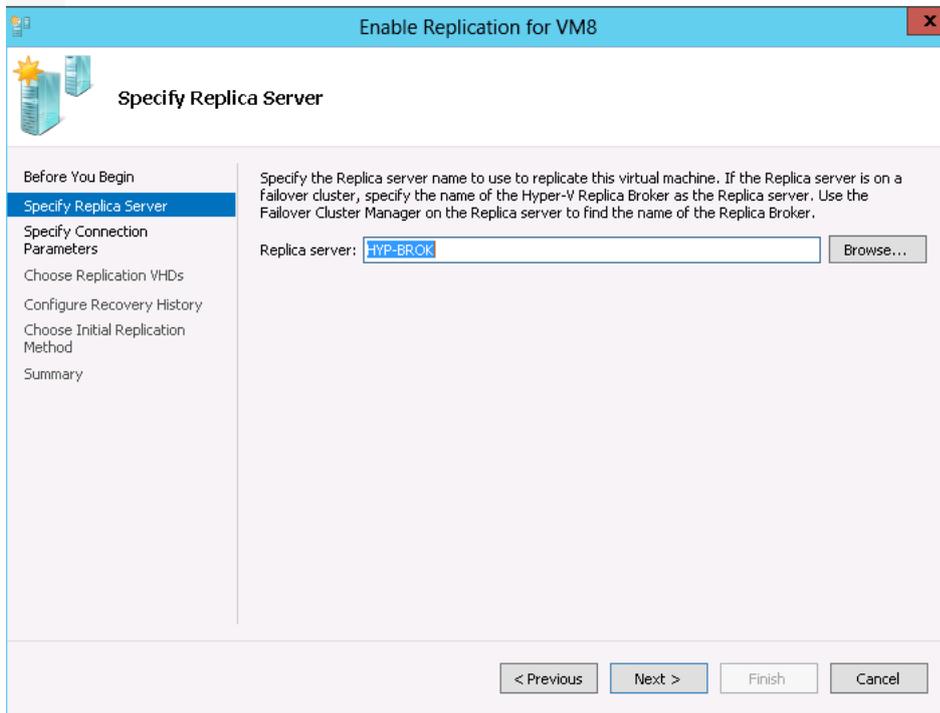
Primary Server	Storage Location	Trust Group
*.win2012.server	C:\ClusterStorage\Volume2\HYP-REP\	ALL

Buttons: OK, Cancel, Apply

Auf dem non clustered Hyper-V Server eine VM fuer VM-Replica einrichten.



Als Replica Server den Hyper-V Replika Broker auswahlen oder einen Cluster Node, der sucht dann selbst den Replika Broker.



## Replika Server Authentifizierung festlegen, Datenkomprimierung.

The screenshot shows the 'Specify Connection Parameters' step of the 'Enable Replication for VM8' wizard. The left sidebar contains a list of steps: 'Before You Begin', 'Specify Replica Server', 'Specify Connection Parameters' (highlighted), 'Choose Replication VHDs', 'Configure Recovery History', 'Choose Initial Replication Method', and 'Summary'. The main area contains the following fields and options:

- Replica server: .typ-brok.win2012.server
- Replica server port: 80
- Authentication Type:
  - Use Kerberos authentication (HTTP)  
Data will not be encrypted while being transmitted over the network.
  - Use certificate-based authentication (HTTPS)  
Data will be encrypted while being transmitted over the network.  
Issued To:  
Issued By:  
Expiration Date:  
Intended Purpose:
- Compress the data that is transmitted over the network.

At the bottom, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

## Welche VHDX soll repliziert werden

The screenshot shows the 'Choose Replication VHDs' step of the 'Enable Replication for VM8' wizard. The left sidebar contains a list of steps: 'Before You Begin', 'Specify Replica Server', 'Specify Connection Parameters', 'Choose Replication VHDs' (highlighted), 'Configure Recovery History', 'Choose Initial Replication Method', and 'Summary'. The main area contains the following text and list:

Clear the check boxes of any virtual hard disks (VHDs) that you do not want to replicate (for example, a VHD used for a dedicated paging file).

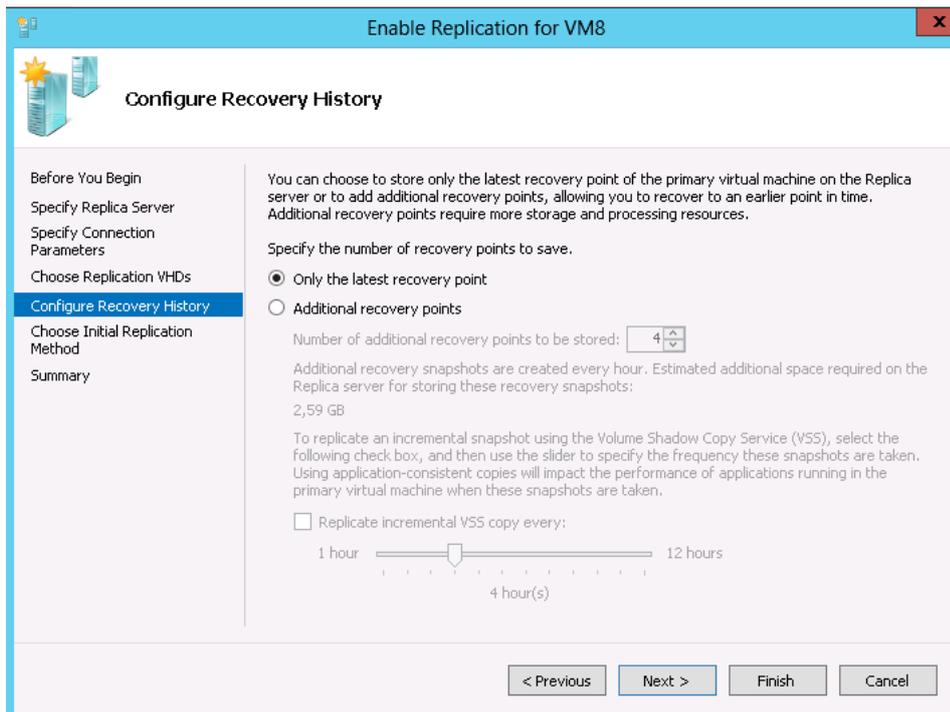
Not replicating certain VHDs, such as the operating system VHD, could result in the Replica virtual machine not starting up properly.

Virtual Hard Disks:

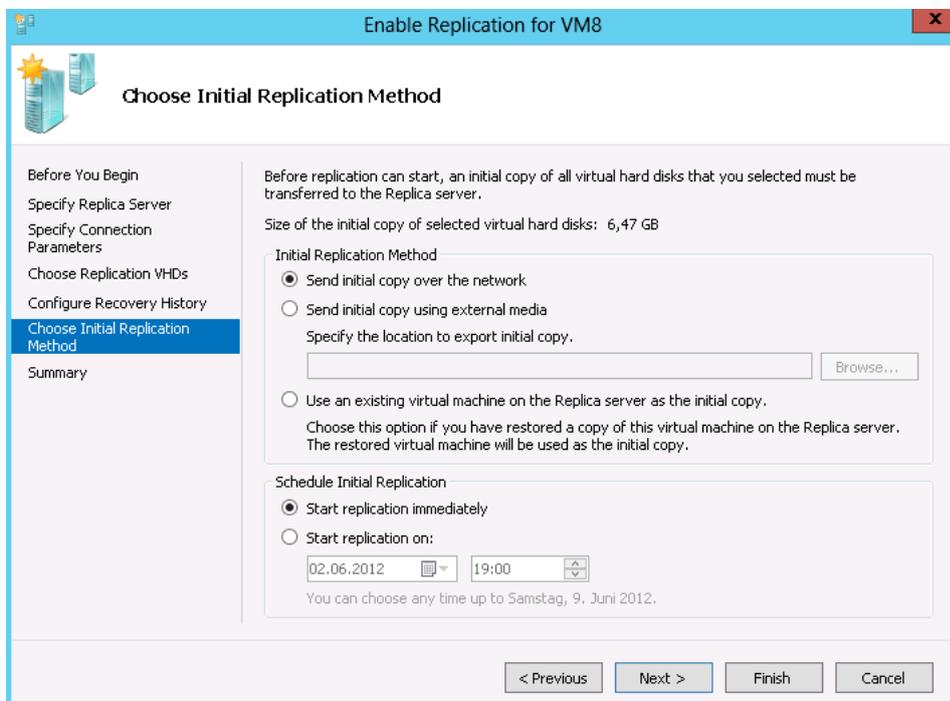
- C:\VM\VM8\Virtual Hard Disks\VM8.vhdx

At the bottom, there are four buttons: '< Previous', 'Next >', 'Finish', and 'Cancel'.

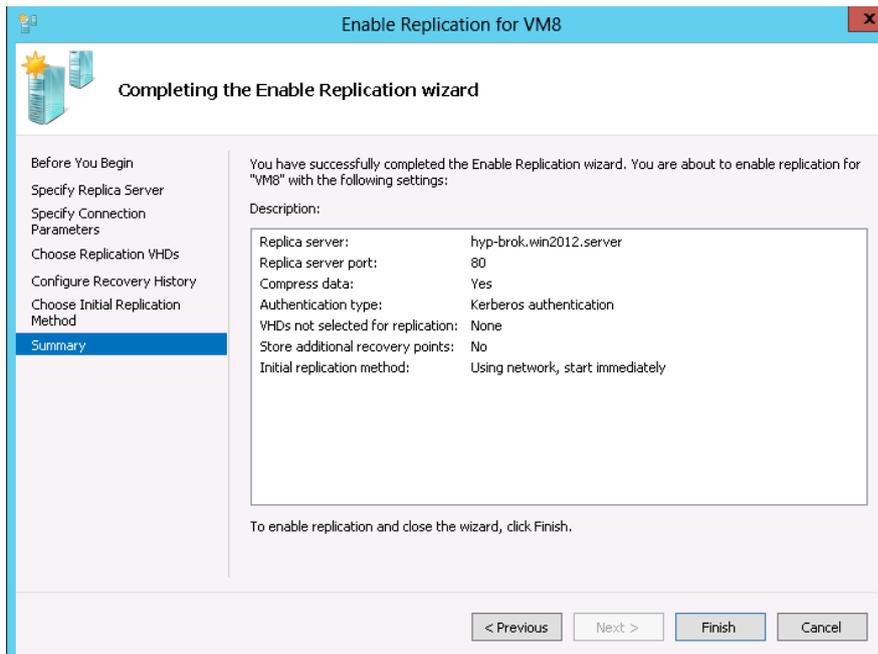
Anzahl aufzubewahrender Snapshots festlegen.



Initial-Replication ueber das Netzwerk, External Media oder VM auf dem Cluster wo der Hyper-V Replika Broker liegt.



## Summary



Initial Replication starten. Hat bei mir bei einer 5,5 GB VHDX ueber eine 1 Gbit Leitung ca. 9 Minuten gedauert. Man sieht das Snapshots erstellt werden.

Name	State	CPU Usage	Assigned Memory	Uptime	Status
VM8	Running	3%	512 MB	00:06:53	Sending Initial Replica (4%)

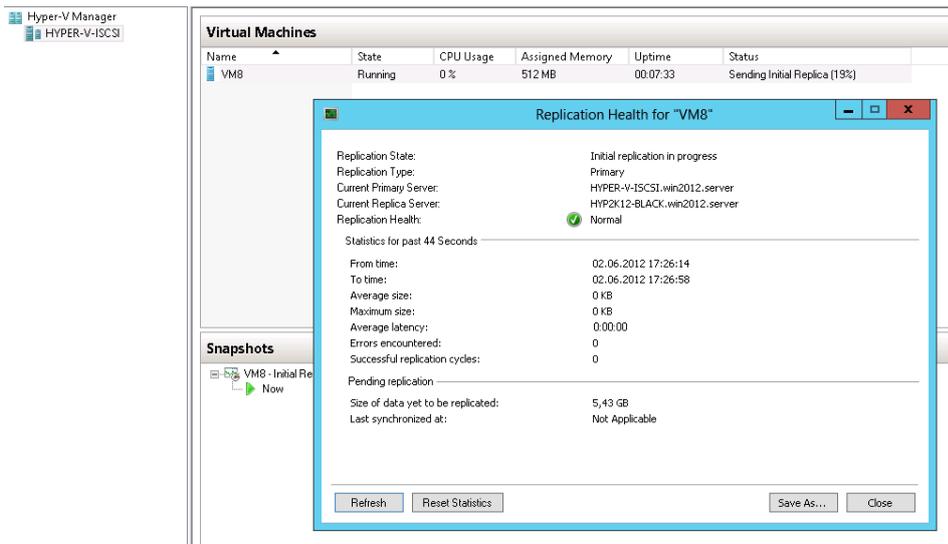
Snapshots	
VM8 - Initial Replica - (02.06.2012 - 17:26:15)	Now

### VM8

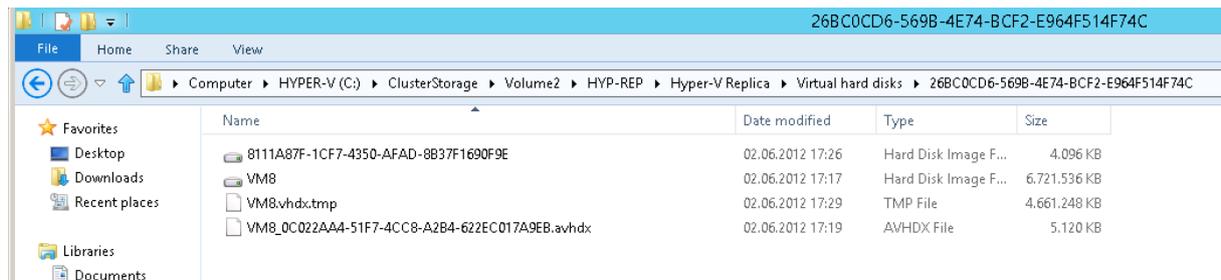
**Replication Type:** Primary  
**Replication State:** Initial replication in progress  
**Replication Health:** Normal

**Current Primary Server:** HYPER-V-1SCSI1.win2012.server  
**Current Replica Server:** HYP2K12-BLACK.win2012.server  
**Last synchronized at:** Not Applicable

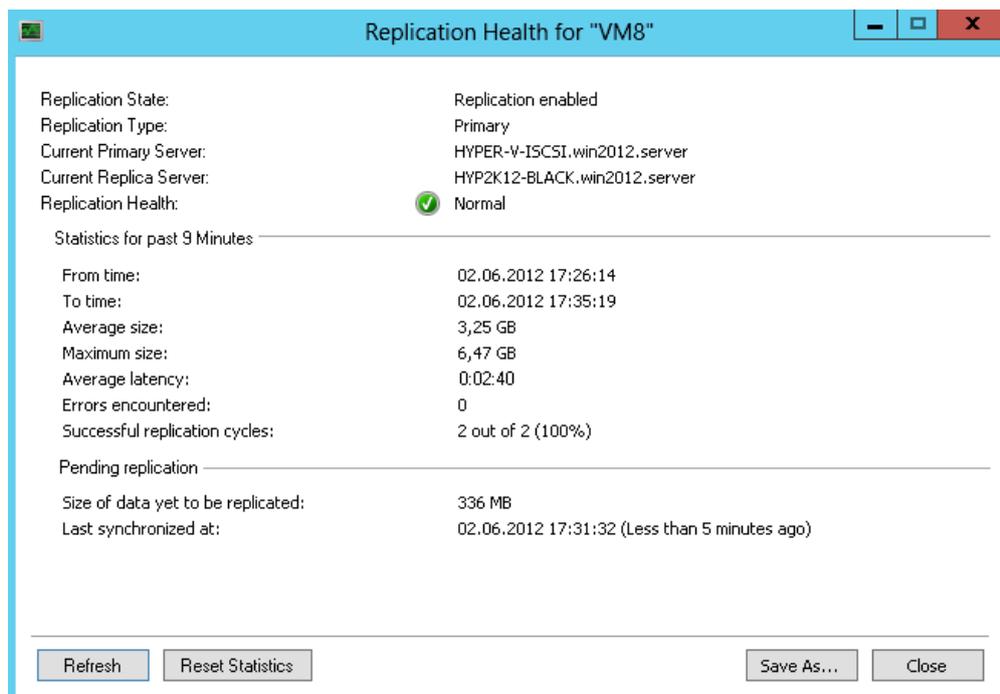
## Replication Health der VM



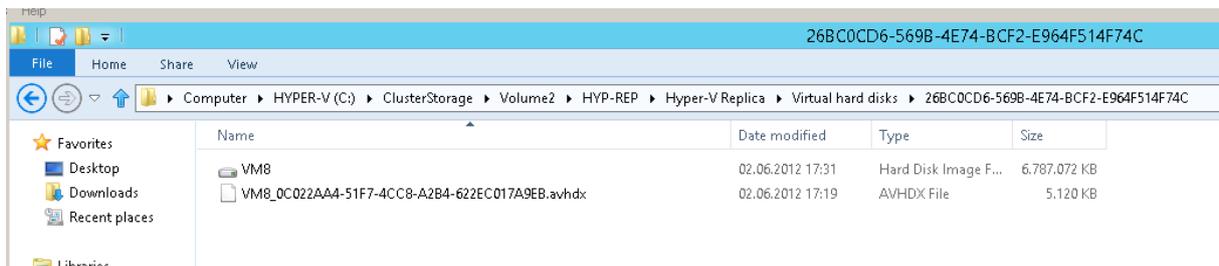
Auf dem CSV des Hyper-V Clusters sieht man die Veranderungsdaten.



Nach und nach leert sich die Queue

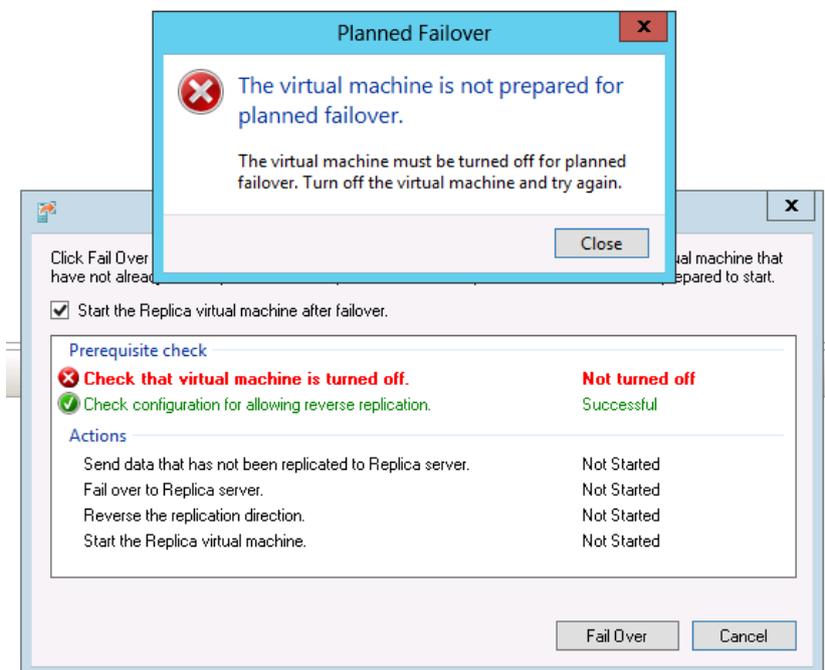


## VHDX auf dem CSV des Zielclusters

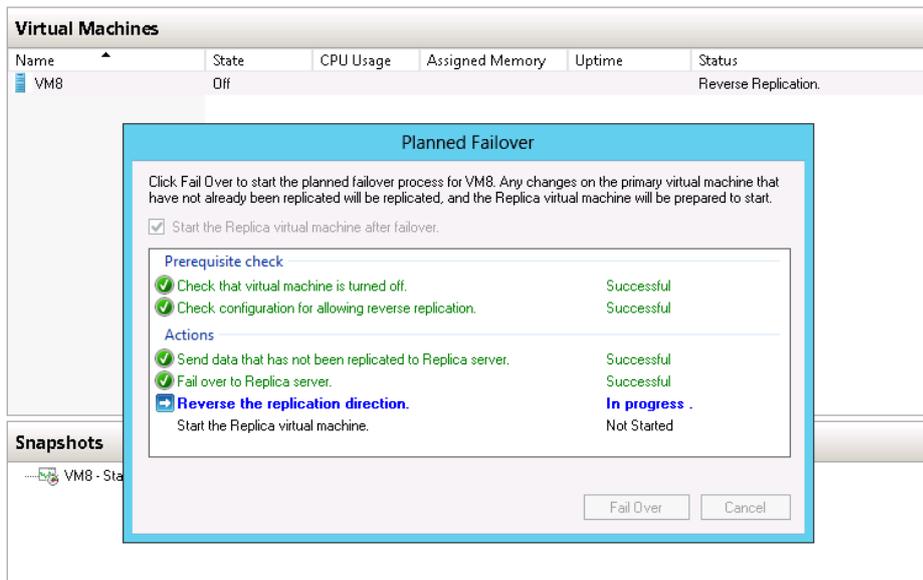


## Replication – Planned Failover

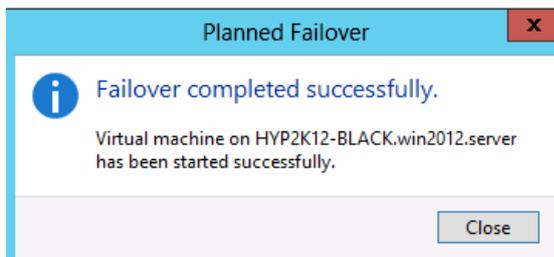
Source VM muss ausgeschaltet sein



## Failover in Progress



Erfolgreich



VM vom non clustered Hyper-V Server laeuft jetzt im Cluster auf dem Zielsystem

Name	State	Virtual Machine	Host	Priority
VM8	Running	Virtual Machine	HYP2K12-BLACK	Medium
W8-VM	Off	Virtual Machine	HYP2K12-BLACK	Medium

Virtual Machine VM8

Status: Running

CPU Usage: 39%

Memory Demand: 512 MB

Assigned Memory: 512 MB

Heartbeat: OK

Computer Name: WIN8CL2

Date Created: 02.06.2012 16:31:06

Monitored Services: VM Monitoring is only supported for Windows Server 2012 Release Candidate (and later) operating systems.

Up Time: 0:00:36.763

Available Memory: 0 MB

Integration Services: 6.2.8102.0

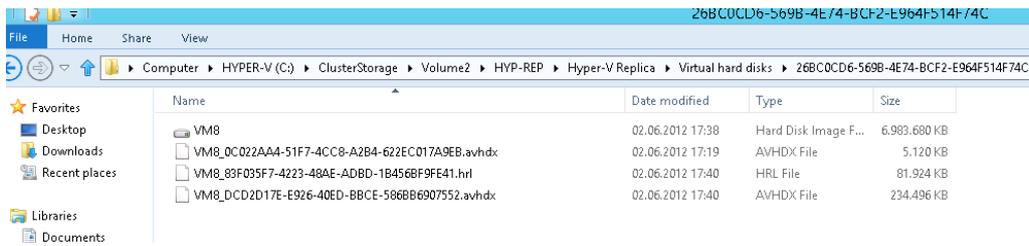
Operating System: Windows Developer Preview

Replication

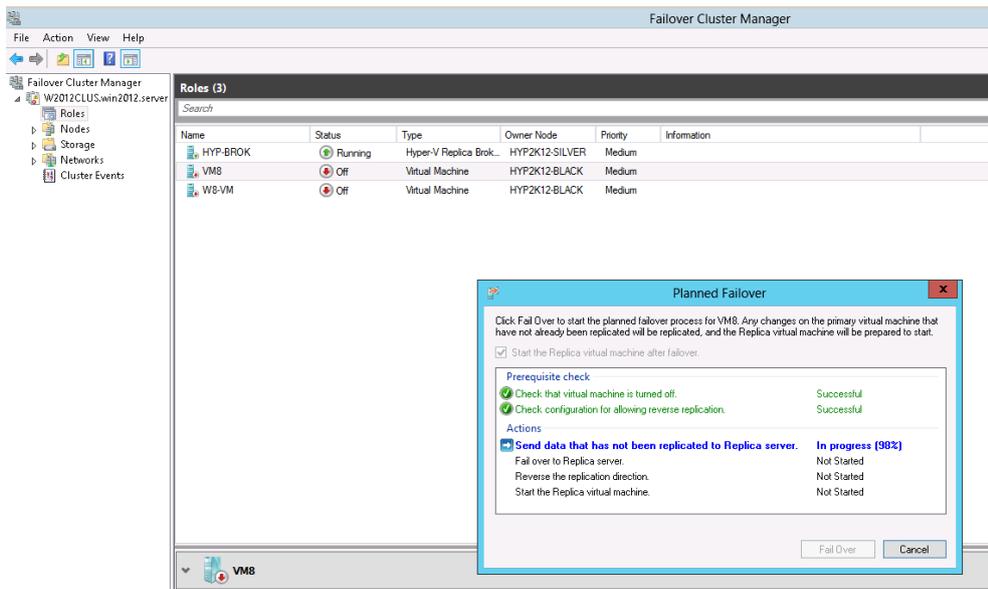
Replication Type: Primary

Current Primary Server: HYP2K12-BLACK.win2012.server

## Ziel CSV



## Failover zurueck



Nach kurzer Zeit ist alles wieder da, da nur noch Deltas repliziert werden