# Hoofdstuk 6

Schijvenbeheer

Brinkman Uitgeverij Specialist in educatieve uitgaven

#### In dit hoofdstuk

- Fysieke serverschijf inrichten
- Bestandsreplicatie installeren en configureren
- Kennis
- Vaardigheden





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# Begrippen

- Partities:
- Primaire partities
- De extended partitie
- Totaal maximaal 4 waarvan 1 de extended partitie
- Logische stations in de extended partitie
- Volume
- Basic disk
- Dynamic disk
- Fouttolerantie
- RAID
- NAS
- SAN

# Disk Management; bij aanvang

🛃 Computer Ma	inagement				- 🗆	$\times$
File Action V	ïew Help					
🔶 🏟 🔁 🖬	? 🖬 🔎 🖾					
Volume		File System Status		Canacity	Eree Space	% Free
- (C;)	Simple Basic	NTFS Healthy (Boot, Page File, Crash Dum	p. Primary Partition)	97.17 GB	87.42 GB	90 %
System Reserve	d Simple Basic	NTFS Healthy (System, Active, Primary Par	tition)	500 MB	169 MB	34 %
	NS_5. (D:) Simple Basic	CDFS Healthy (Primary Partition)		57 MB	0 MB	0 %
- Disk 0						
Basic	System Reserved	(C:)				
500,00 GB Online	500 MB NTFS	97,17 GB NTFS 402,34 GB				
onine	Healthy (System, Active	realithy (Boot, Page File, Crash Dump, Primary Challocated				
		1	1			
- Disk 1						
Basic 500.00 GB	500.00 CP					
Online	Unallocated					
OCD DOMA						
CD-ROM 0	VBOXADDITIONS 5 (D	1				
57 MB	57 MB CDFS					
Online	Healthy (Primary Partition	ו)				
	<u>  </u>					
		_				
Unallocated	Primary partition					

# Een volume aanmaken (1)

- Start de New Simple Volume Wizard
- Geef de volumegrootte in

lew Simple Volume Wizard		×
Specify Volume Size Choose a volume size that is betwe	en the maximum and minimum sizes.	
Maximum disk space in MB:	411997	
Minimum disk space in MB:	8	
Simple volume size in MB:	411997	

< Back

Next >

Cancel

#### Een volume aanmaken (2)

• Ken een driveletter toe

New Simple Volume Wizard		
	w Simple Volume Wizard	×
Assign Drive Letter or Path For easier access, you can assign a drive letter or drive path to your partition.	Assign Drive Letter or Path For easier access, you can assign a drive letter or drive path to your partition.	
Assign the following drive letter:     Mount in the following empty NTFS folder:     Browse     Do not assign a drive letter or drive path	Assign the following drive letter:     Assign the following empty NTFS folder:     Browse     Do not assign a drive letter or drive path	

< Back

Next >

Cancel

# Een volume aanmaken (3)

- Formatteer:
- File system
- FAT32
- NTFS
- ReFS
- Allocation unit size
- Volume label
- Perform a quick format
- Enable file and folder compression

New Simple Volume Wizard		×
Format Partition To store data on this partition, you m	ust format it first.	
Choose whether you want to format t	this volume, and if so, what settings you want to use.	
O Do not format this volume		
Format this volume with the fol	llowing settings:	
File system:	NTFS ~	
Allocation unit size:	Default ~	
Volume label:	New Volume	
Perform a quick format		
Enable file and folder co	ompression	
		_



#### De volumegrootte aanpassen

- Onder condities:
- Uitbreiden
- Inkrimpen

		Total size before sh
_		Size of available sh
	_	Enter the amount o
		You cannot share See the "defire operation whe See "Shrink a
		-
		VVV

nk G:	×
al size before shrink in MB:	110000
e of available shrink space in MB:	106878
er the amount of space to shrink in MB:	106878
al size after shrink in MB:	3122
You cannot shrink a volume beyond the point where any See the "defrag" event in the Application log for detailed operation when it has completed.	unmovable files are located. information about the
See "Shrink a basic volume" in Disk Management help fo	or more information
5	Shrink Cancel

#### Volume aanmaken kan ook via Server Manager

C	Manager								1
Server	Manager							- L	,
$\mathbf{\Theta}$	●	d Storage Services 🔸	Volumes 🕨		- ©	Manage	Tools	View	He
_		VOLUMES							
	Servers	All volumes   4 total						TASKS	•
	Volumes	Filter		•				(	
	Disks								
	Storage Pools	🗴 Volume 🛛 Status File	e System Label Provisio	ning Capacity	Free Space	Deduplication Rate	Deduplica	ation Savi	ngs
	Shares	▲ PFSV1 (4)							
	iSCSI	G: PF:	SV2Repl Fixed	97,7 GB	97,6 GB				
⊳	Work Folders	C:	Fixed	97,2 GB	86,6 GB				
		\\?bef Sys	stem Reserved Fixed	500 MB	169 MB				
		F: PF	SV1Data Fixed	97,7 GB	97,6 GB				
		< Last refreshed on 30-11-2016 15:17	7:19						>
		SHARES		DISK					
		No volume is selected.	TASKS	<ul> <li>No vol</li> </ul>	ume is selecte	ed.		TASKS	•
		Select a volume to display	y the related shares.		Select a	n volume to display its	related disk	ć.	

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#### **Converteren naar NTFS**

- Alleen van FAT32 naar NTFS en niet omgekeerd
- Via een commando

Administrator: C:\Windows\system32\cmd.exe Microsoft Windows [Version 10.0.14393] (c) 2016 Microsoft Corporation. All rights reserved. C:\Users\Administrator>Convert i: /fs:ntfs The type of the file system is FAT32. Enter current volume label for drive I: pfsv1test Volume PFSV1TEST created 30-11-2016 15:31 Volume Serial Number is E464-DF77 Windows is verifying files and folders... File and folder verification is complete. Windows has scanned the file system and found no problems. No further action is required. 10.227.712 KB total disk space. 10.227.704 KB are available. 8.192 bytes in each allocation unit. 1.278.464 total allocation units on disk. 1.278.463 allocation units available on disk. Determining disk space required for file system conversion... Total disk space: 10240000 KB Free space on volume: 10227704 KB Space required for conversion: 27128 KB Converting file system Conversion complete C:\Users\Administrator>

X

### De eigenschappen (General)

- Volume label ingeven of aanpassen
- Bestandssysteem
- Gebruikte en vrije ruimte
- Compressie in- of uitschakelen
- Alleen voor het volume
- Voor het volume en alle files en folders die er op voorkomen

PFSV1TES	T (I:) Prop	erties			
Shadow Cop	ies Pr	evious Versions	Quota	Customize	
General Tools		Hardware	Sharing	Security	
<b>\$</b>	PFSV1	TEST			
Туре:	Local Di	isk			
File system:	NTFS				
Used sp	ace:	43.028.4801	bytes 41,	.0 MB	
Free spa	ce:	10.442.727.424 bytes 9,72 GB			
Capacity:		10.485.755.904	bytes 9,7	9,76 GB	
0					
		Drive I:	Dis	sk Cleanup	
Compress Allow files file proper	this drive t on this driv ties	to save disk space ve to have conten	ts indexed in	addition to	
		01/	0		

#### Veranderen van driveletter

• Alleen als het niet anders kan

Change Drive Letter and Paths for I: (PFSV1TEST)						
Allow access to this volume by using the following drive letter and paths:						
		-				
		-				
Add Change Remove						
OK Cancel						

Change Drive Letter or Path	×
Enter a new drive letter or path for I: (PFSV1TEST). Assign the following drive letter: Mount in the following empty NTFS folder:	I ~
	Browse
ОК	Cancel

#### Een volume verwijderen

- Alles op het volume gaat verloren
- De vrijkomende ruimte wordt toegevoegd aan:
  - De ruimte *Unallocated* als het volume een primaire partitie was
  - De ruimte *Free space* in de extended partitie als het volume een logisch station was



# Disk Management; na afloop

🌆 Computer Ma	nagement							- 🗆	×
File Action Vi	iew Help								
🗢 🔿 🔽 📰	? 🖬 [	<b>5</b>							
Volume	La	yout Type	File Syste	m Status			Capacity	Free Space	% Free
PFSV1Appl (H:)	Si	mple Basic	NTFS	Healthy (Logical D	)rive)		50,00 GB	49,90 GB	100 %
= PFSV1Data (F:)	Si	mple Basic	NTFS	Healthy (Primary F	Partition)		97,66 GB	97,60 GB	100 %
= PFSV1Repl (G:)	Sir	mple Basic	NTFS	Healthy (Logical D	)rive)		97,66 GB	97,55 GB	100 %
PFSV1Syst (C:)	Sii	mple Basic	NTFS	Healthy (Boot, Pag	ge File, Crash Dump, Pi	rimary Partition)	97,17 GB	83,55 GB	86 %
System Reserve	d Si	mple Basic	NTFS	Healthy (System, A	Active, Primary Partitio	n)	500 MB	154 MB	31 %
	VS_5. (D:) Si	mple Basic	CDFS	Healthy (Primary F	Partition)		57 MB	0 MB	0 %
<u> </u>									
Dick 0			1						<u>^</u>
Basic	System F	PESV1Syst	(C·)	PESV1Data (E)	PESV1Repl (G)	PESV1Appl (H	57		
500,00 GB	500 MB N	97,17 GB N	TFS	97,66 GB NTFS	97,66 GB NTFS	50,00 GB NTFS	157,0	03 GB	
Online	Healthy (	Healthy (Bo	ot, Page	Healthy (Primary Pa	Healthy (Logical Dr	Healthy (Logica	I D Free	space	
			1						
Disk 1									
Basic 500.00 CP									
Online	500,00 GB	d							
onne	Unanocate	u							
	<u> </u>								
CD-ROM 0									
CD-ROM	VBOXADDITIONS 5. (D:)								
57 MB	57 MB CDF	s							
Online	Healthy (P	rimary Partitio	on)						
	Drimany part	ition 📕 Exte	nded nartit	ion Eree space 🗖 I	onical drive				Ť.
	ennary pan		nueu partit	ion and the space in t	cogical unive				

### Schijfcontrole

- Windows Server 2016 is voorzien van File System Check
- Kan altijd nog handmatig

#### You don't need to scan this drive

We haven't found any errors on this drive. You can still scan the drive for errors if you want.

#### $\rightarrow$ Scan drive

You can keep using the drive during the scan. If errors are found, you can decide if you want to fix them.

Cancel

 $\times$ 

### Defragmenteren

- Clusters die door een bestand worden gebruikt bij elkaar brengen
  - Analyseren
  - Defragmenteren
  - Geagendeerd defragmenteren

atus					
Drive	Media type	Last run	Current status		
PFSV1Sys (C:)	Hard disk drive	Running	Pass 1: 4% defragmented		
PFSV1Data (F:)	Hard disk drive	Never run	OK (0% fragmented)		
PFSV1Repl (G:)	Hard disk drive	Never run	OK (0% fragmented)		
PFSV1Appl (H:)	Hard disk drive	Never run	OK (0% fragmented)		
System Reserved	Hard disk drive	Never run	OK (0% fragmented)		
				Ch-	
				510	p
heduled optimization					
On				Change sett	ings
Drives are being opt	imized automatically.				
F 14					

### Diskquota

- Dwingt spaarzaam gebruik van schijfruimte af
- Tabblad Quota van het eigenschappenvenster
- Alleen op NTFS-volumes
- Beschikbaar gestelde ruimte
- Waarschuwingsniveau
- Gebeurtenissen schrijven

PFSV1Da	ta (F:) Prope	erties			Х			
General	Tools	Hardware	Sharin	g Se	curity			
Shadow Co	pies Pre	Quota	Cust	omize				
Status: Disk quotas are disabled								
🗌 Ena	able quota ma	nagement						
Der	ny disk space	to users excee	ding quota	limit				
Select	the default qu	uota limit for ne	v users on I	his volume	e -			
	)o not limit dis	k usage						
OL	imit disk spac	e to No	Limit	$\sim$				
S	et warning lev	vel to No	Limit	$\sim$				
Select	the quota log	ging options fo	this volume	9.				
L	og event whe	n a user excee	ds their qua	ota limit				
L	og event whe	n a user excee	ds their war	ning level				
			Q	uota Entrie	s			



#### Standaard quotumingangen

Quota Entries for PFSV1Data (F:)										
Quota Edit View Help										
Status	Status Name Logon Name		Amount Used	Quota Limit	Warning Level	vel Percent Used				
Фок		BUILTIN\Administrators	72 KB	No Limit	No Limit		N/A			
ОК		NT AUTHORITY\SYSTEM	10 MB	No Limit	No Limit		N/A			

2 total item(s), 1 selected.

#### Bestandsreplicatie

- Zorgt voor een fouttolerante bestandsopslag
- Op alle replicatiepartners DFS installeren
- Op de file server met het origineel aangeven wat u wilt repliceren
- Voldoende ruimte op de replicatiepartners
- Bij transport compressie via RDC

#### DFS installeren

• Installeer de role service *DFS Replication* van de service role *File and Storage Services* inclusief de beheertool

🐴 DFS Management	_		
🐴 File Action View Window	w Help	- 8 ×	
🗢 🔿 🙍 📆 🔂 🗊			-
🗞 DFS Management	Replication		
> 🚑 Namespaces	Name		
	💐 Domain System Volume		
			_

# Replicatiegroep (1)

- Wizard starten
- Type instellen

	🐴 New Replication Group W	-		×	
	Replication Gr	рир Туре			
	Steps:	Select the type of replication group to create.			
	Replication Group Type	Multipurpose replication group			
	Name and Domain	This option configures replication between two or more servers for publication, content sharing, and other scenarios.			
	Topology Selection				
	Hub Members	Heplication group for data collection     This ontion configures two-way replication between two servers, such as a			
	Hub and Spoke Connections	branch server and a hub (destination) server. This allows you to collect data at the hub server. You can then use backup software to back up the data on the			
	Replication Group Schedule and Bandwidth	hub server.			
	Primary Member				
	Folders to Replicate				
	Review Settings and Create Replication Group				
	Confirmation				
-					
-					
		< Previous Nex	t>	Cance	ł

# Replicatiegroep (2)

• Naam en domain

	New Replication Group W	ïzard	-		×	
	Name and Dor					
	Steps:	Type a name and domain for the replication group. The name of the replication group must be unique in the domain that hosts the replication group.				
	Replication Group Type					
1	Name and Domain	Name of replication group:				
	Replication Group Members					
	Topology Selection					
	Hub Members	Optional description of replication group:				-
	Hub and Spoke Connections	^				
	Replication Group Schedule and Bandwidth	~ ·				
	Primary Member	Domain:				
	Folders to Replicate	PoliForma.nl Browse				
	Review Settings and Create Replication Group					
	Confirmation					
						-
-						
-						
-						
		< Previous Next	>	Cance	el	

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# Replicatiegroep (3)

• Welke servers doen mee

🐴 New Replication Group V	Wizard			_		×				
Replication G	roup Members									
Steps:	Click Add and then se	elect two or more servers that	will become members of the							
Replication Group Type	replication group.									
Name and Domain	Members:									
Replication Group Members	Server	Domain								
Topology Selection										
Hub Members										
Hub and Spoke Connections										
Replication Group Schedule and Bandwidth										
Primary Member										
Folders to Replicate										
Review Settings and Create Replication Group										
Confirmation										
	Add	kemove								
			< Previous	Next >	Cano	el				

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#### Replicatiegroep (4)

• Een topologie kiezen



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# Replicatiegroep (5)

• Het tijdvak en de bandbreedte instellen

	New Replication Group W	izard	-		×
	Replication G				
N / / / / /	Steps: Replication Group Type Name and Domain Replication Group Group Members Topology Selection Replication Group Schedule and Bandwidth Primary Member Folders to Replicate Review Settings and Create Replication Group Confirmation	Select the replication schedule and bandwidth to be used by default for all new connections in the replication group.       Replicate continuously using the specified bandwidth     Use this option to enable replication 24 hours a day, seven days a week     using the following bandwidth:     Bandwidth:     Full     V     Replicate during the specified days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days and times     Use this option to specify the days     Use this option to specify the days     Use this option to specify the days     Use this option option     Use this option to the days     Use the days     Use this option to the days     Use the days     Use this option to the days     Use the days     Use this option to the days     Use the d			
		< Previous N	ext >	Cancel	

#### Replicatiegroep (6)

De server met het oorspronkelijke origineel aangeven (Primary member)

	🐴 New Replication Group W	ïzard	-		×
	Primary Memb	er			
A. C.	Steps: Replication Group Type Name and Domain Replication Group Members Topology Selection Replication Group Schedule	Select the server that contains the content you want to replicate to other members. This server is known as the primary member. Primary member:			
1 1 1	And Bandwidth Primary Member Folders to Replicate Review Settings and Create Replication Group Confirmation	Tiles on the primary member will be authoritative during initial replication.			
		< Previous Ner	xt >	Cancel	I

#### Replicatiegroep (6)

• De map aangeven op het oorspronkelijke origineel

	New Replication Group W	izard			_	П	~
	TIME W				<u> </u>		
	Folders to Rep	licate					
	Steps:	To select a folder on the primar members of the replication grou	y member that you want to repli p. click Add.	icate to other			
	Replication Group Type						
Name and Domain Replicated folders:							
	Replication Group Members	Local Path	Replicated Folder Name	NTFS Permissions			
	Topology Selection						
	Replication Group Schedule and Bandwidth						
	Primary Member						
	Folders to Replicate						
	Review Settings and Create Replication Group						
	Confirmation						
		Add Edit	Remove				
					_		
				< Previous Net	xt >	Cance	el

### Replicatiegroep (7)

• Op elke andere server inschakelen en aangeven waar op te slaan

🐴 New Replication Group W	ation Group Wizard		_		×		Edit ×	
Local Path of F	<sup>-</sup> on Other Men	nbers						General Member:
Steps: Replication Group Type Name and Domain	Steps:         To specify the local path of the replicated folder or whether the folder is read-only, select the appropriate member and then click Edit           Replication Group Type         Image: Primary member:         PFSV1           Name and Domain         Primary member local path:         F:\           Replication Group Members         Primary member local path:         F:\           Topology Selection         Member details:         Image: Primary member local path:			r is read-only,				PFSV2 Select the initial status of the replicated folder on this member.
Replication Group Members Topology Selection								<ul> <li>Disabled</li> <li>The replicated folder will not be stored on this member.</li> </ul>
Replication Group Schedule and Bandwidth Primary Member	PFSV2	<not set=""></not>	Membership Stat Disabled					<ul> <li>Enabled</li> <li>Keep the following folder synchronized with other members.</li> </ul>
Local Path of F on Other Members								Local path of folder:   Browse  Example: C^Data
Replication Group							×	Make the selected replicated folder on this member read-only.
							X	
	Edit							OK Cancel
			< Prev	vious Next >	Cance	4		

# Replicatiegroepen in bedrijf

🐴 DFS Management					- 🗆 ×
🐴 File Action View Window	Help				_ & ×
🗢 🔿 🞽 📰 🚺					
🐴 DFS Management	DataPFSV2 (PoliForma.nl	)			
> 2 Namespaces	Memberships Connections	Replicated Folders [	Delegation		
DataPFSV1	2 entries				
DataPFSV2 Domain System Volume	State Local Path	Membership St	Member	Replicated Fo	Staging Quota
	🗉 Replicated Folder: F	(2 items)			
	G:\	Enabled	PFSV1	F	4.00 GB
	F:\	Enabled	PFSV2	F	4.00 GB
					]