

DECUS IT-Symposium 2004

3A06



Optimierung und Fehleranalyse einer Windows Server 2003 Clusterumgebung

Josef Beeking

Hewlett-Packard GmbH

Agenda



- Installation - Optimierung und Fehleranalyse
 - Cluster Configuration Wizard (GUI)
 - Cluster.exe (Kommandozeile)
- Systemstatus- und Wiederherstellungsszenarien
 - Cluster Diagnostic Utility
 - Confdisk.exe
 - Clusterrecovery.exe
 - Logdateianalyse

- Installation, Optimierung und Fehleranalyse

Cluster Konfiguration Schritt für Schritt Shared Storage Umgebung



Schritt	Knote n1	Knoten 2	Storage	Kommentar
Konfiguration Netzwerk	An	An	Aus	Shared Storage aus
Konfiguration Shared Disk	An	Aus	An	Herunterfahren aller Knoten. Einschalten des Shared Storage und danach Einschalten des 1.
Überprüfung der Platten- konfiguration	Aus	An	An	Knoten einschalten des 1. Knoten und dann einschalten des 2. Knoten (eventuelle Wiederholung für
Konfiguration des 1. Knoten	An	Aus	An	weiteren Knoten). Einschalten des 1. Knoten
Konfiguration des 2. Knoten	An	An	An	Einschalten des 2. Knoten nach erfolgreicher Installation des

- Cluster Configuration Wizard
- Cluster.exe Kommandos
- Troubleshooting



- Cluster Configuration Wizard

Installation bei allen Server Versionen

Neue Dateien

Clusocm.log

%windir%\cluster\clusocm.log

Clcfgsrv.inf

%windir%\cluster\cfgsrv.inf

Clcfgsrv.log

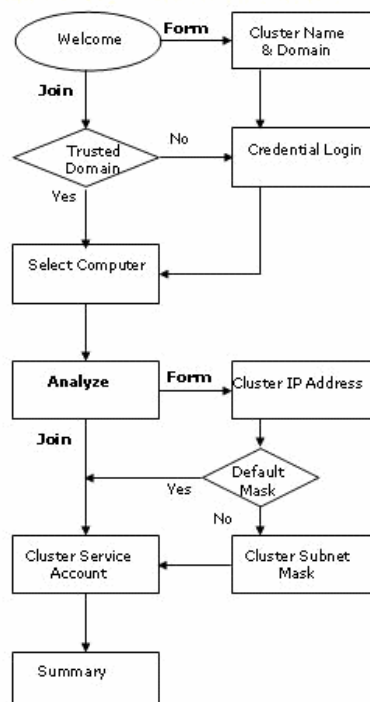
%windir%\cluster\cfgsrv.log

Clcfgsrv.dll

Cluster Configuration Wizard



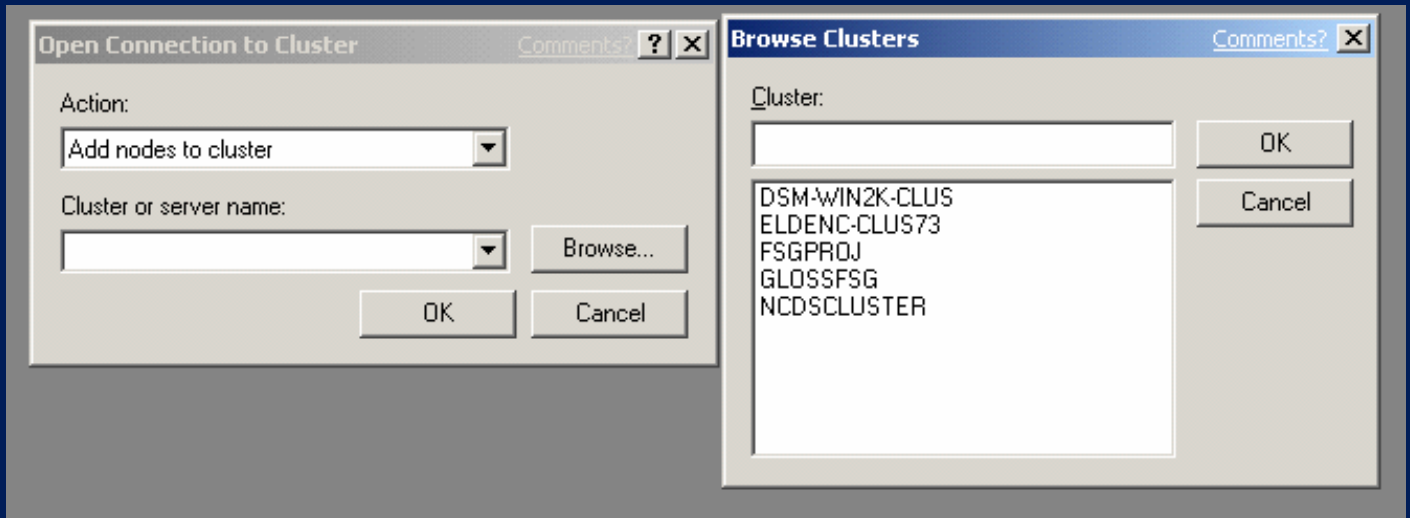
Basic Flow of the Cluster Configuration Wizard



- Cluster Configuration Wizard
 - DEMO

Start über Clusteradministrator





Cluster Configuration Wizard



New Server Cluster Wizard Comments? X

Cluster Name and Domain
Specify the name of the new server cluster and the domain in which it will be created.

Select or type the name of the domain in which the cluster will be created. Only computers in this domain can be members of the cluster.

Domain:

Type a cluster name that is unique in the domain. This must be a valid computer name.

Cluster name:

Account-Informationen



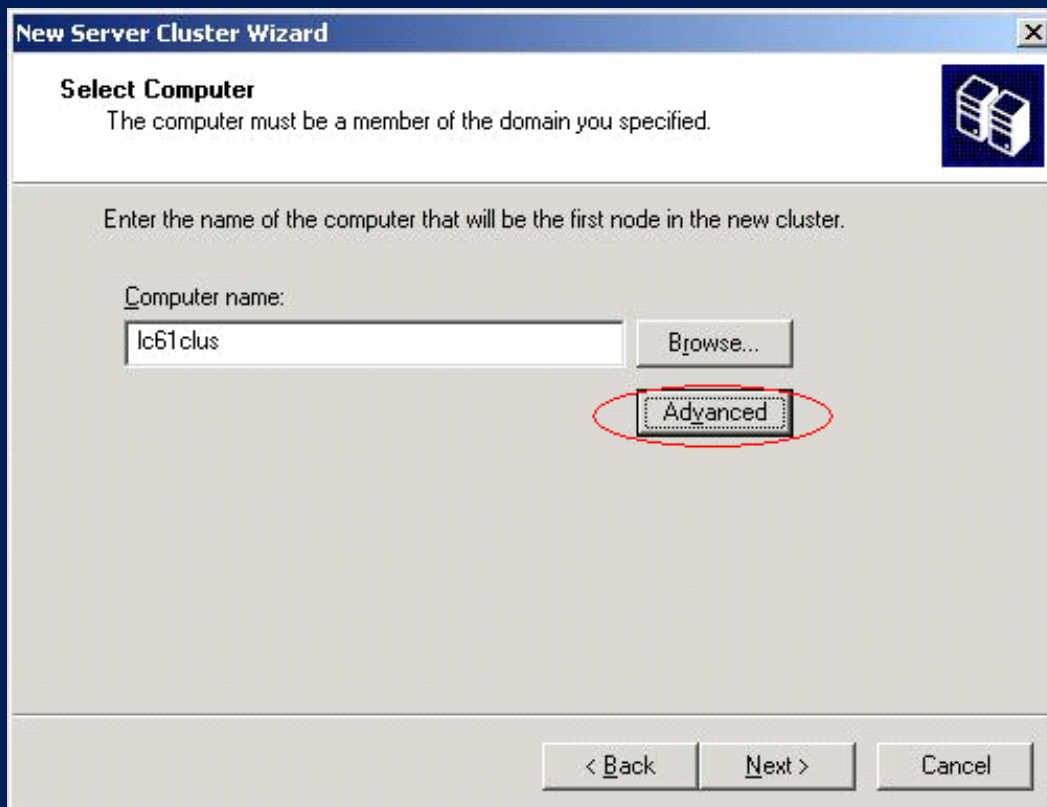
New Server Cluster Wizard Comments? X

Domain Access Denied
Access to the domain was denied. You must enter logon information for accessing the domain you specified.

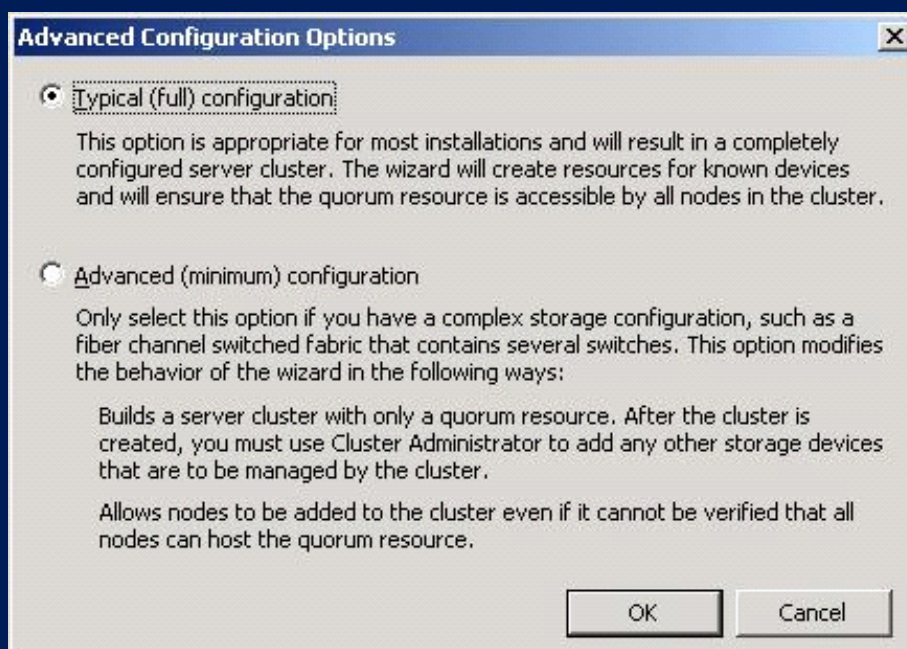
User name:

Password:

Domain:



Konfigurationsauswahl



Analyzing Configuration

Please wait while the wizard determines the cluster configuration.



- Checking for existing cluster**
 - ✓ Iclus2: Requesting a remote connection to "vclus7" with binding string "vclus7.d"
- Establishing node connection(s)**
 - ✓ Iclus2: Connecting to server...
 - ✓ LCLUS2: The cluster configuration server has been started.
- Checking node feasibility**
 - ✓ Iclus2: Checking the node's cluster feasibility...
 - ✓ LCLUS2: Validating operating system version on this node...
- Finding common resources on nodes**
 - Iclus2: Collecting managed resources...
 - LCLUS2: Looking for disks on the same storage bus as the boot disk...
 - ✓ LCLUS2: The physical disk "Disk C: D:" cannot be managed because it is o
 - ✓ Iclus2: The wizard found a quorum-capable resource.
 - ✓ Iclus2: Marking the quorum-capable resource "SCSI Tid 0, SCSI Lun 6" as the q
- Checking cluster feasibility**
 - vclus7: Checking cluster membership...
 - ✓ vclus7: Comparing the processor architecture between the cluster and the node:
 - ✓ vclus7: Looking for drive letter collisions between the nodes in the cluster...
 - ✓ vclus7: Comparing the resources between the cluster and the nodes being adde
 - ✓ vclus7: Comparing the networks in the cluster with the networks on the nodes...
 - vclus7: Checking that all nodes have access to the quorum resource...
 - ✓ vclus7: The wizard found a resource common to all nodes that can be used

Tasks completed.



[View Log...](#)

[Details...](#)

[Re-analyze](#)

Click Next to continue. Click Back to change the configuration.

Cluster IP Adresse



New Server Cluster Wizard Comments? X

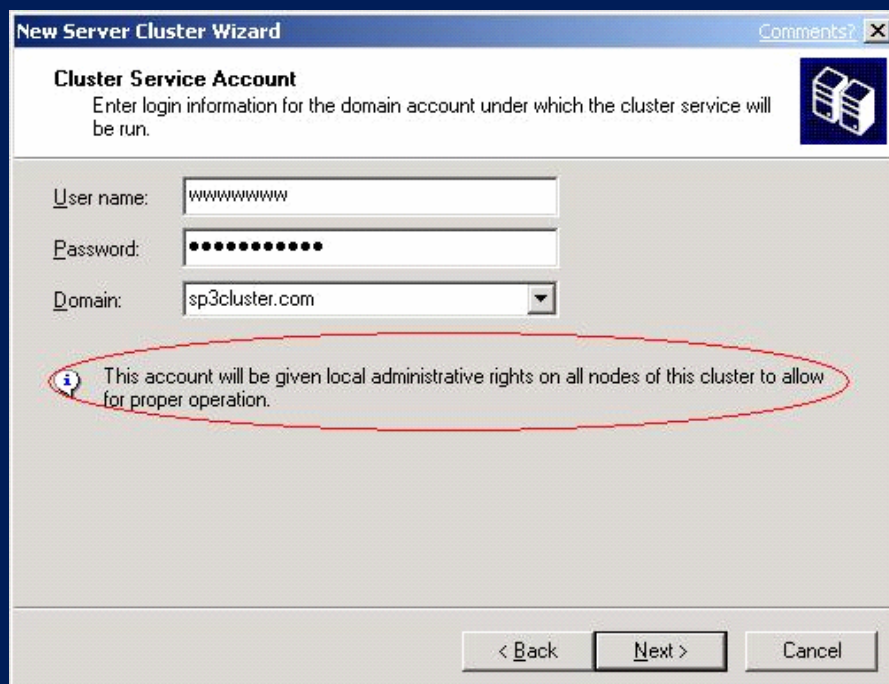
IP Address
Enter an IP address that cluster management tools will use to connect to the cluster.

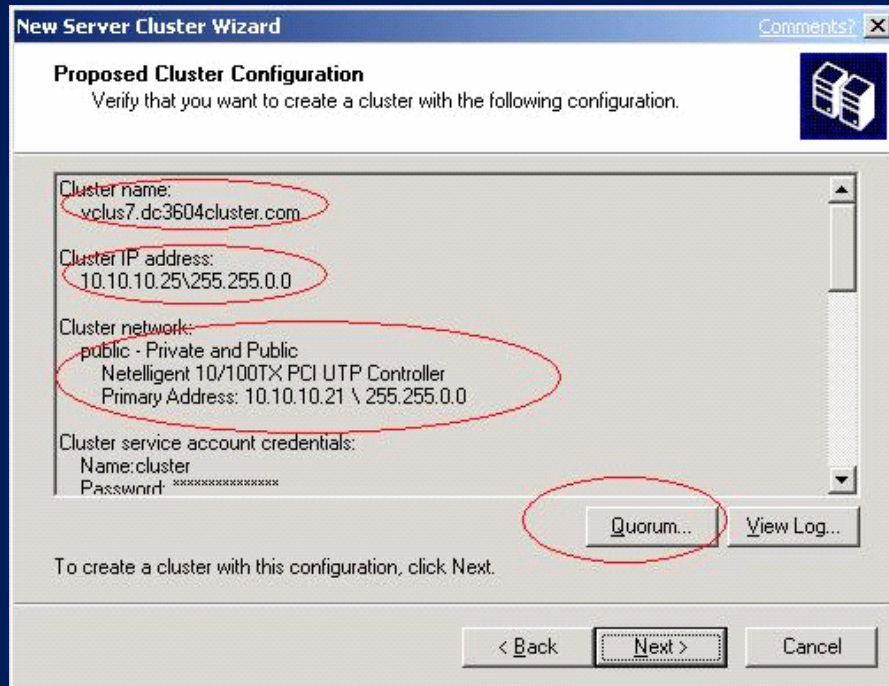
IP Address:



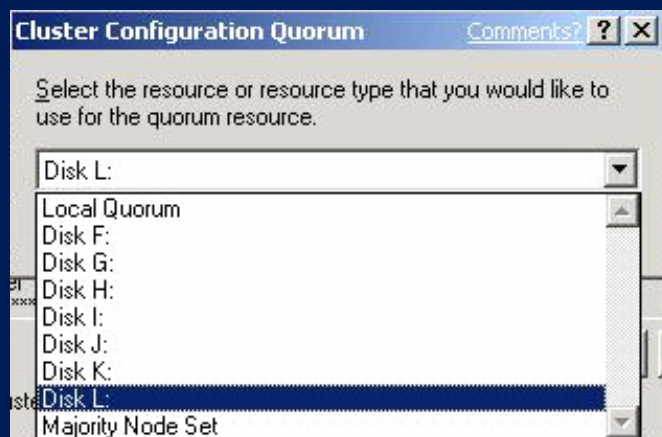
Netzwerkparameter müssen gültig sein

Service-Informationen





Auswahl der Quorum-Ressource





- ☐ ✓ Reanalyzing cluster
 - ✓ Iclus2: Validating credentials...
 - ✓ Iclus2: Collecting managed resources...
- ☐ ✓ Finding common resources on nodes
 - ☐ ✓ LCLUS2: Looking for disks on the same storage bus as the boot disk...
 - ✓ LCLUS2: The physical disk "Disk C: D:" cannot be managed because it
- ☐ ✓ Configure cluster services
 - ✓ Iclus2: Creating a cluster
 - ✓ Iclus2: Initializing a cluster create operation
 - ✓ Iclus2: Configuring the cluster service account
 - ✓ Iclus2: The cluster service account was already a member of the local Administrators group
 - ✓ Iclus2: Creating the cluster network provider service
 - ✓ Iclus2: Starting the cluster network provider service
 - ✓ Iclus2: Configuring the ClusDisk service
 - ✓ Iclus2: Starting the ClusDisk service
 - ✓ Iclus2: Cleaning up the cluster database
 - ✓ Iclus2: Creating the cluster database
 - ✓ Iclus2: Customizing the cluster database
 - ✓ Iclus2: Performing miscellaneous configuration steps
 - ✓ Iclus2: Creating the cluster service
 - ✓ Iclus2: Starting the cluster service
- ☐ ✓ Configure resource types
 - ✓ LCLUS2: Configuring the 'Majority Node Set' resource type.
 - ✓ LCLUS2: Configuring the 'Generic Script' resource type.
- ☐ ✓ Configure resources
 - ✓ LCLUS2: Locating existing quorum resource.
 - ☐ ✓ LCLUS2: Determining the resource dependencies...
 - ✓ LCLUS2: Setting resource 'Disk L:' to be the quorum device.
 - ✓ LCLUS2: Creating the physical disk resource "Disk L:"...
 - ✓ LCLUS2: Figuring out dependency tree to determine grouping.
 - ✓ LCLUS2: Creating groups.
 - ✓ LCLUS2: Creating resources.

Installationsablauf



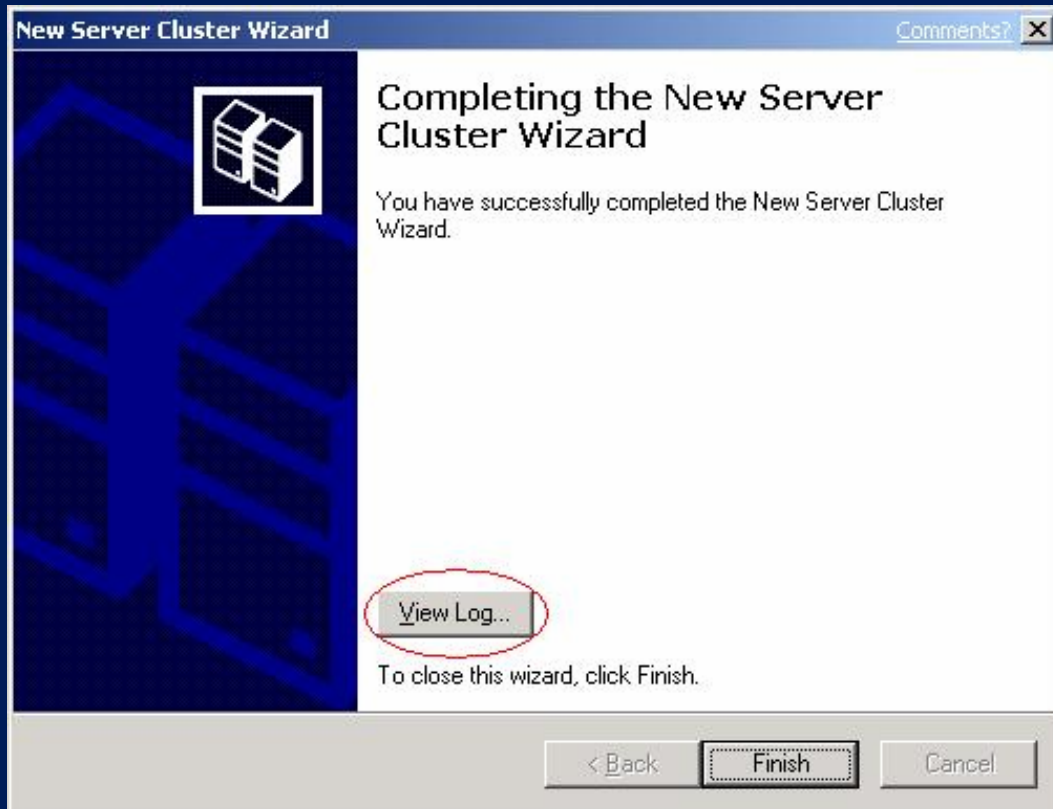
- ✓ Iclus2: Setting private properties on resources...
- ☐ ✓ LCLUS2: Starting cluster resources.
 - ✓ LCLUS2: Resource 'Cluster IP Address' brought online successfully.
 - ✓ LCLUS2: Resource 'Cluster Name' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk L:' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk F:' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk G:' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk H:' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk I:' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk J:' brought online successfully.
 - ✓ LCLUS2: Resource 'Disk K:' brought online successfully.
- ✓ LCLUS2: Setting quorum resource to 'Disk L:'.
- ✓ LCLUS2: Deleting the local quorum resource.

Tasks completed.

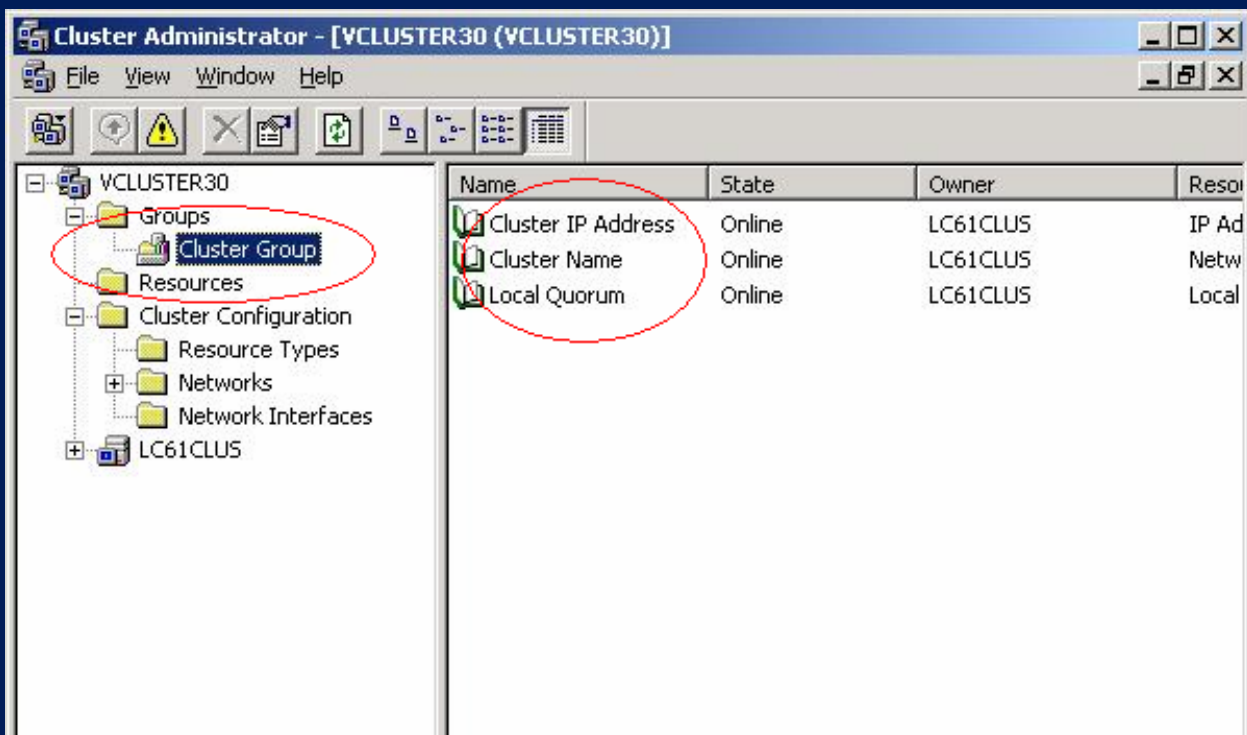
View Log...

Details...

Retry



Administration des installierten Clusters



	1 Node Cluster			N Node Cluster		
Neue Quorum	Physical Disk	Local Quorum	MNS	Physical Disk	Local Quorum	MNS
Physical Disk	x	x	x	x	x	x
Local Quorum	x	x	x			
MNS	x	x	x	x	x	x



• Cluster.exe

Cluscfg.exe aus Windows 2000 nicht mehr vorhanden

- Cluster /create and /add
- /Verbose option und Clcfgsrv.log
- schreibt alle Ereignisse in die Cluster.Log Datei
- Cluster /evict

entfernt Registry-Einstellungen und Services
muss lokal auf der Maschine gestartet werden

- Cluster /force
 - kann remote gestartet werden



- Cluster.exe
 - DEMO

- Systemstatus und Wiederherstellungsszenarien

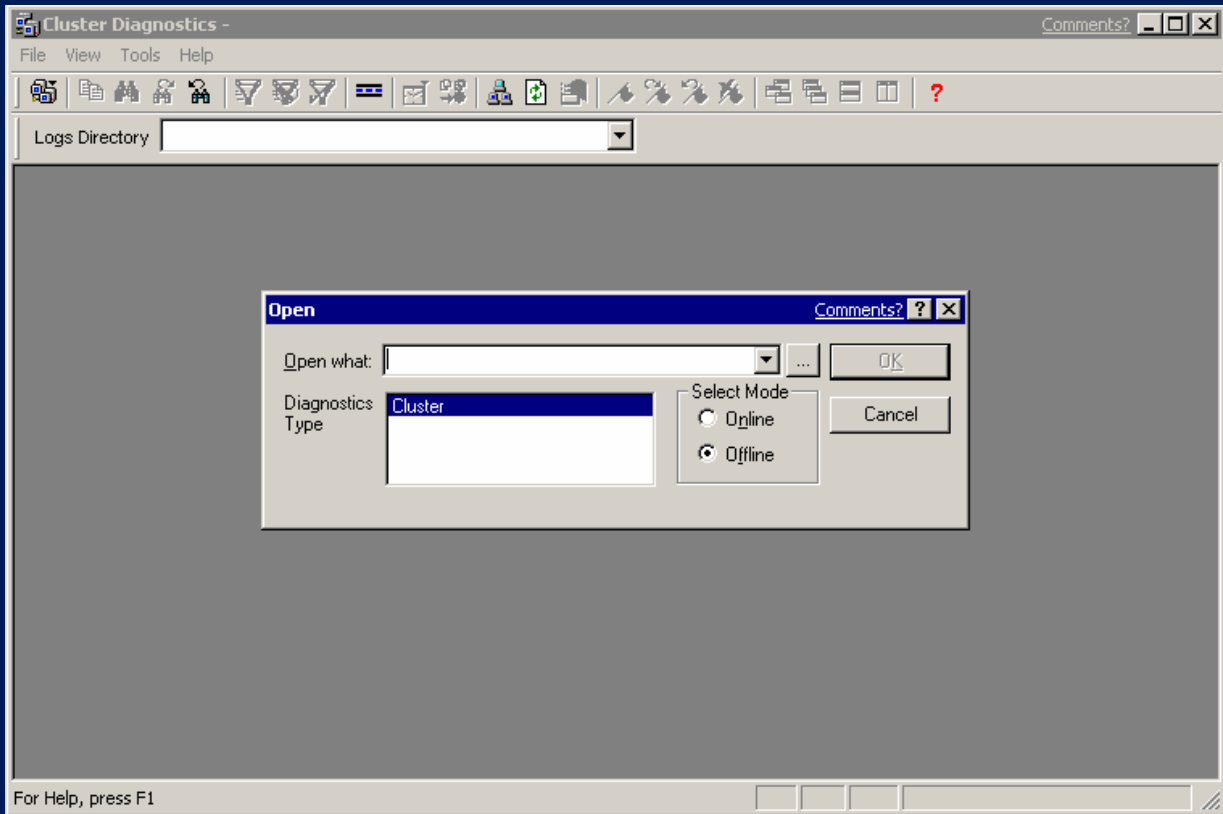


- Cluster Diagnostic Utility

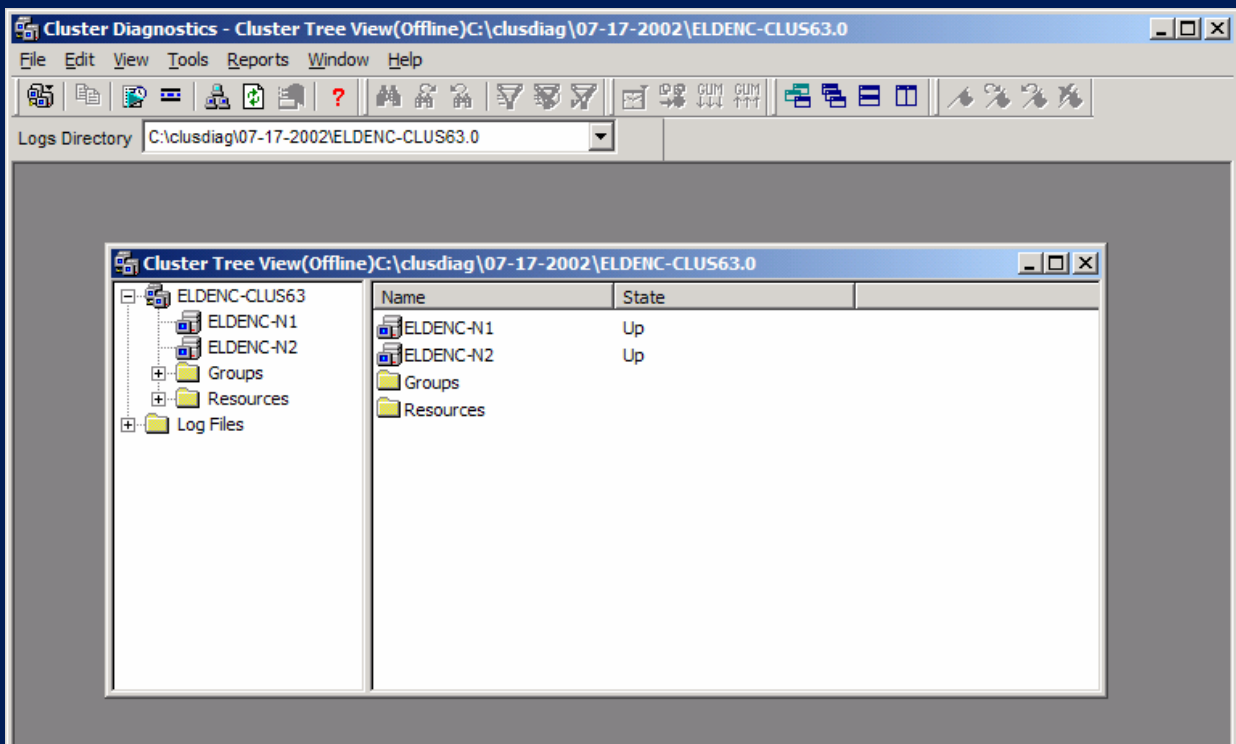
- Überprüfung einer neuen Clusterinstallation
 - Online
- Grafische Ansicht des Disk, Netzwerk und Resource Layouts
- Verwendung zur Analyse der Cluster-Logs
 - Offline

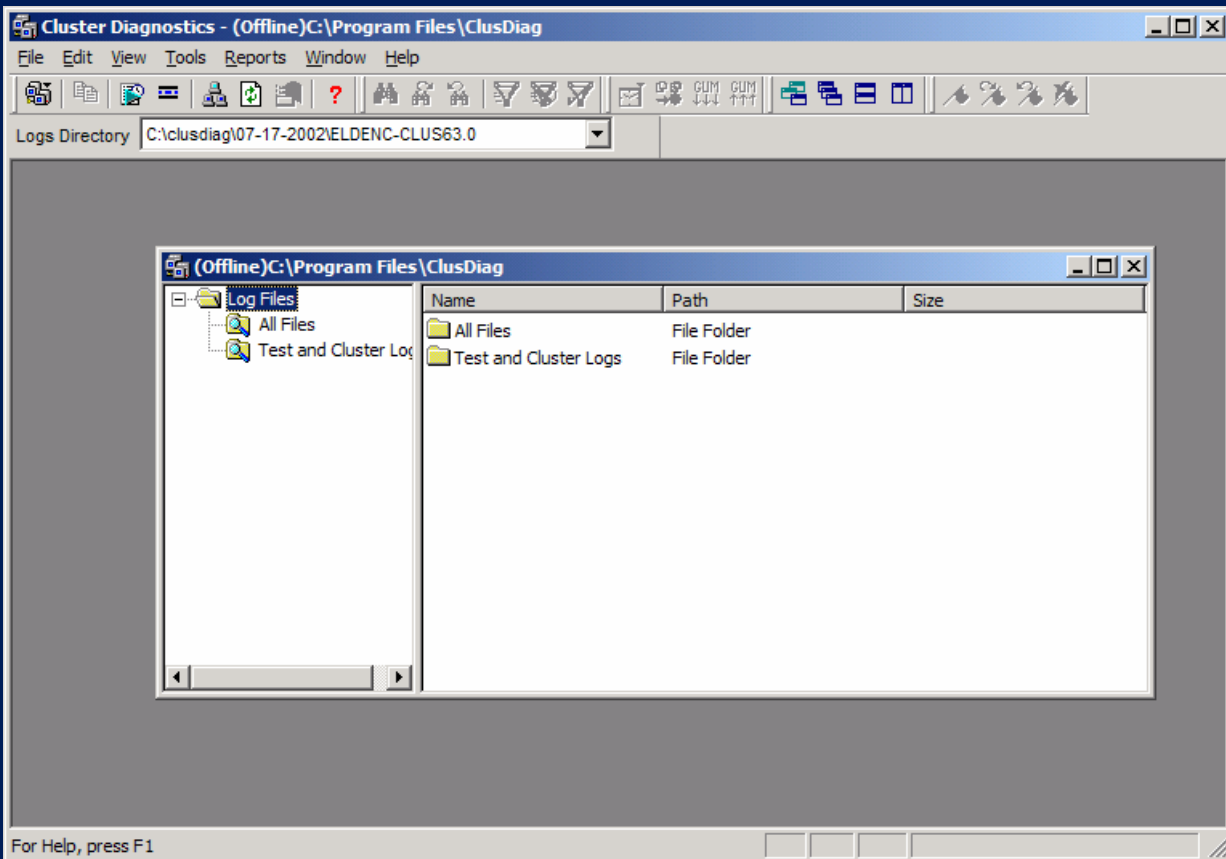


- Cluster Diagnostic Utility
Demo

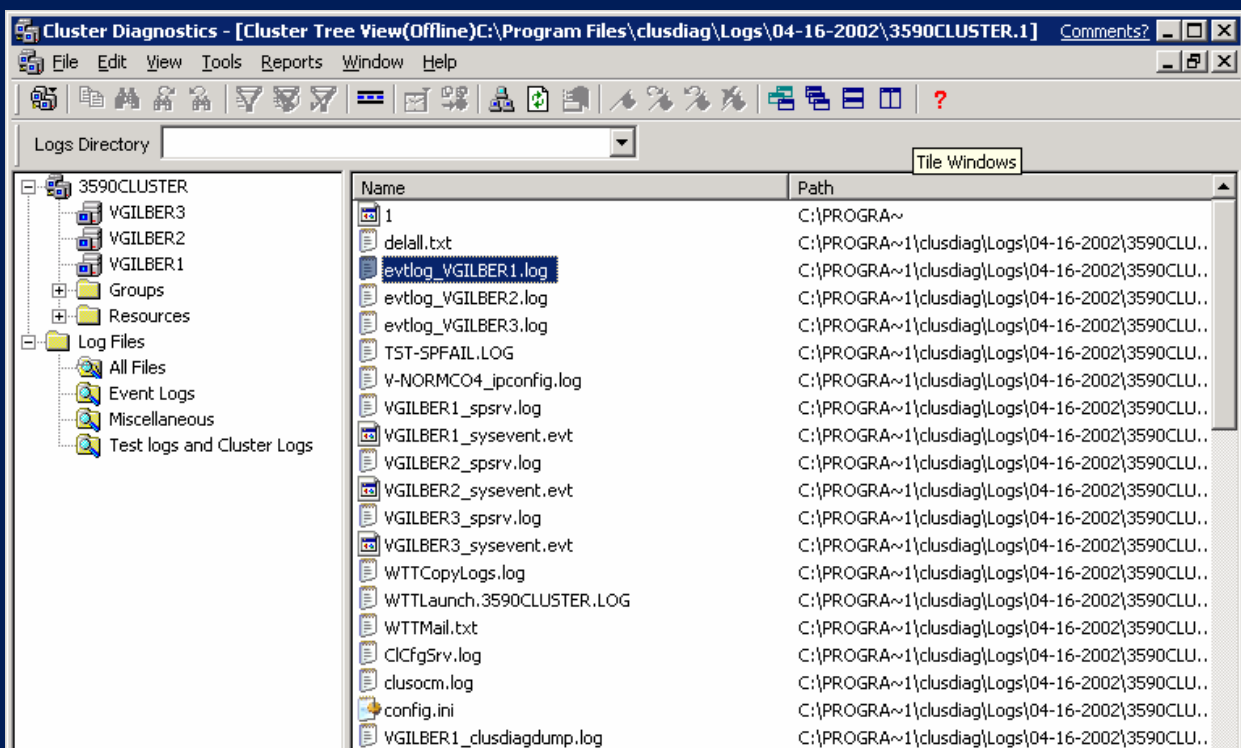


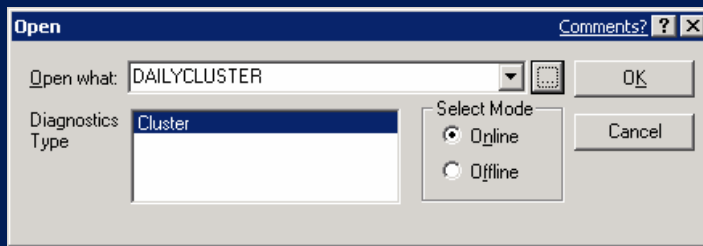
Offline Modus



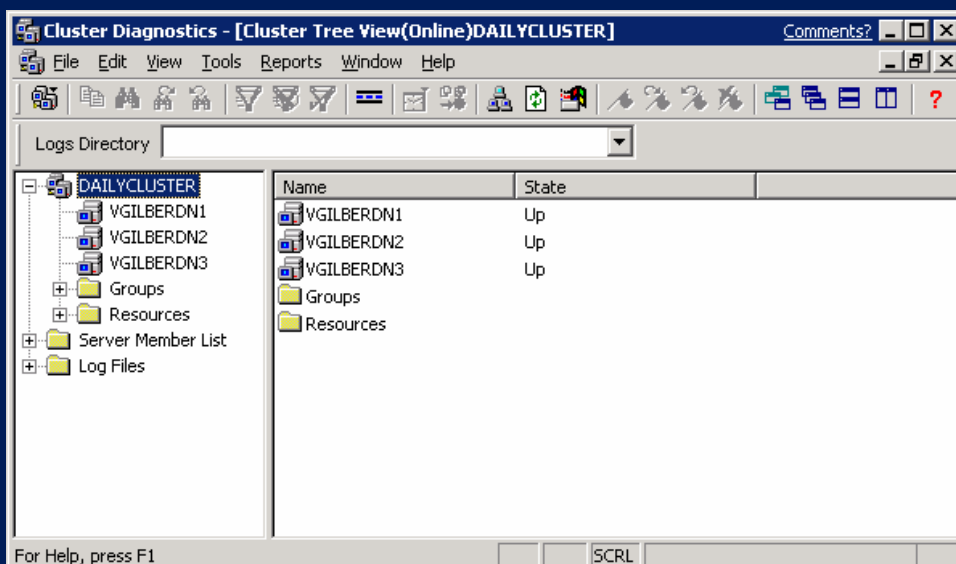


Logdateien





Online Modus



Cluster Diagnostics - [Cluster Tree View(Online)3590CLUSTER]

File Edit View Tools Reports Window Help

Logs Directory

Property Name	Value
ResourceVersion	60000
ResourceBuild	17F40000
DC	V-NORMCO4
DomainDN	/dc=local/dc=emc
OrgName	dailyexchange
AdminGroup	First Administrative Group
RoutingGroup	First Routing Group
AdminGroupContainingRoutingGroup	First Administrative Group
LogonAccount	EMC\Administrator
DSObjCreated	1
SSDirectoryPort	0
ProtocolInstanceId	1
ProtocolIP	10.10.10.31
ProtocolPort	0
ProtocolVSIInit	1
UseNetworkName	1

Clustertest



Run Test [?] [X]

Launch Options

Test: SPFAIL

Test Options

Server: eldenc-clus34 Max RunTime: 20 minutes

Enable Sniffing

Launch Cancel

WinDiag [Comments?] [X]

Warning !! Running tests on a production cluster may bring the cluster down. Are you sure you want to Run the Test?

Yes No

Report View [C:\PROGRA~1\ClusDiag\TestReport.html]

Test Report

Key	Description
Test Name	SPFAIL
Run Time	0:01 (Hr:Min)
Start Time	07\19-18:39:47 (Local: 07\19-14:39:47)
End Time	07\19-18:40:58 (Local: 07\19-14:40:58)
Result	FAIL
Exit Status	0 : The operation completed successfully.
Build	Unknown
Private	Not available
Logs Dir	C:\PROGRA~1\ClusDiag\Logs\07-19-2002\ELDENC-CLUS63.1

NODE NAME	PING	NETWORK
-----------	------	---------

Disk View



Cluster Diagnostics - Disk View

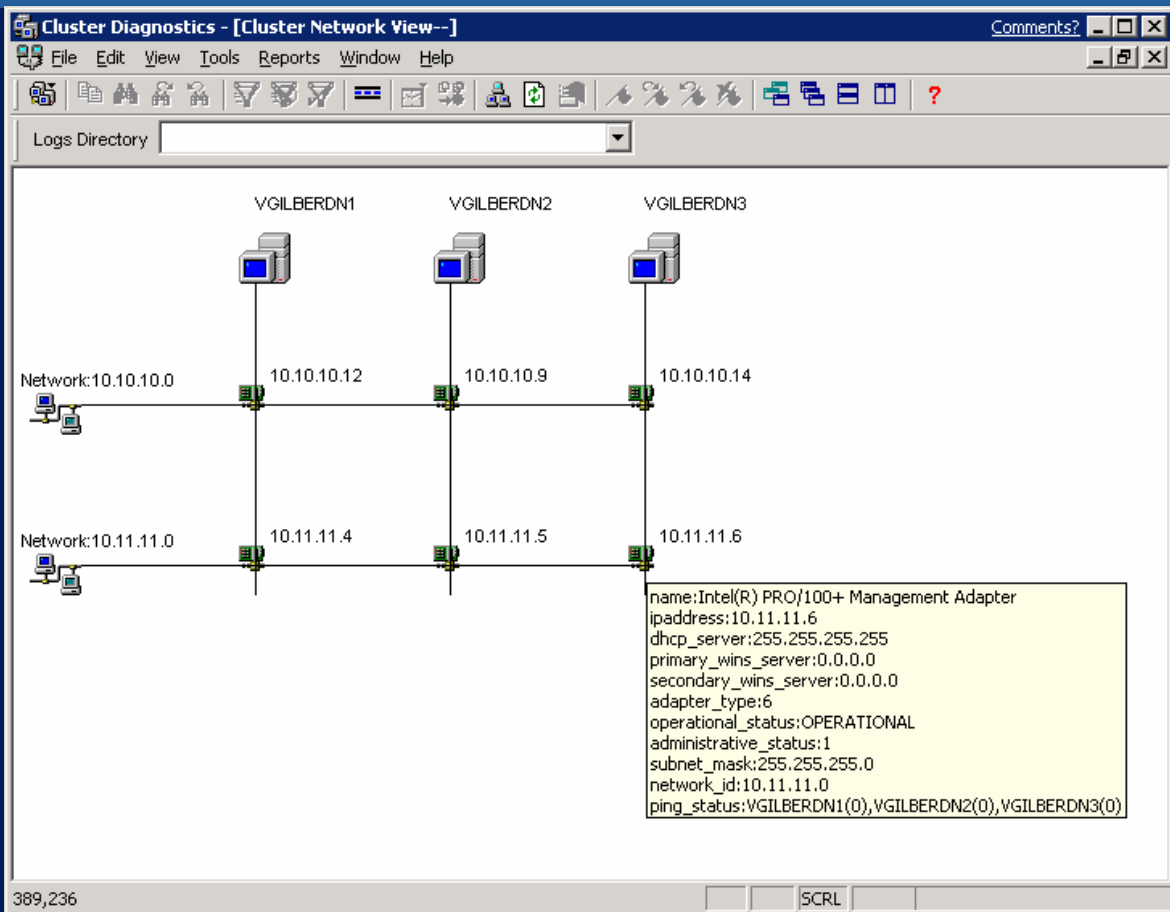
File Edit View Tools Reports Window Help

Logs Directory

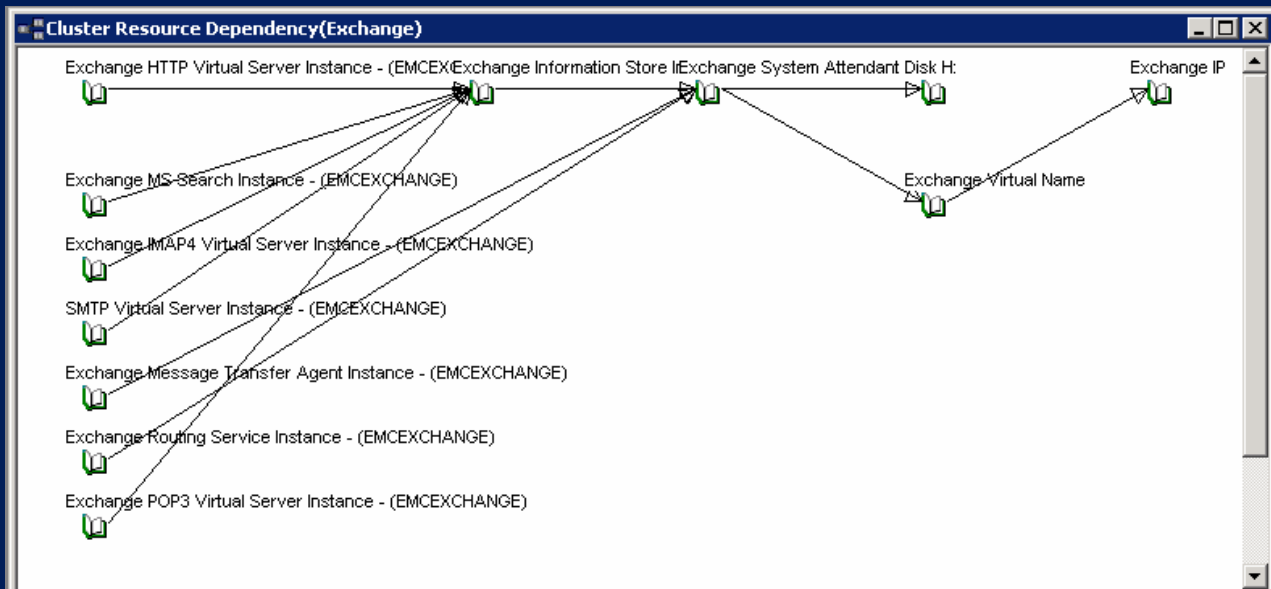
Cluster Tree View(Offline)C:\clusdiag\07-17-2002\ELDENC-CLUS63.0

Name	State	Description
ELDENC-CLUS63		
Disk View		
0xea1aa9c7(E:\D:\C1)	0xabed4e92((null))	0x3afc7197((null))
0x6a22128(R1)	0x3afc7195(Q1)	

The diagram shows a cluster node labeled 'ELDENC-N1' connected to five disks. The disks are represented by yellow cylinders and are connected to the node via vertical lines. The disks have the following GUIDs: 0xea1aa9c7(E:\D:\C1), 0xabed4e92((null)), 0x3afc7197((null)), 0x6a22128(R1), and 0x3afc7195(Q1).



Ansicht der Abhängigkeiten



- Verlust einer Shared Disk (Signatur)
 - Hardware Fehler
 - Reformating ...
- Verlust eines Cluster-Knoten
 - Neuinstallation Betriebssystem
 - Restore
- Verlust des gesamten Cluster
 - Naturkatastrophen
- ..

Wiederherstellung Windows NT 4.0



Verlust einer Shared Cluster Disk

Registry-Änderungen, Austausch der Clusterdatenbank

FTEDIT oder Diskprobe

Siehe Q243195 "Event ID 1034 for MSCS Shared Disk After Disk Replacment"

Verlust eines Cluster-Knotens

NTBackup oder 3rd Party Backup. Cluster-Disk Signaturen und Konfiguration der Partitionen werden nicht wiederhergestellt.

Verlust des kompletten Clusters

Verlust einer Shared- Cluster- Disk

wesentlich einfacher als unter Windows NT 4.0, aber immer noch aufwendig

Dumpcfg.exe zum Ändern der Disk-Signature

Q224075 "Disk Replacement for Windows 2000 Server Cluster"

Verlust eines Cluster-Knotens

Neuinstallation OS, Reinstallation Service Packs, Full Restore des aktuellen Backups

Verlust des kompletten Clusters

Neuinstallation OS, Reinstallation Service Packs, Full Restore des aktuellen Backups

Wiederherstellung Windows Server 2003



Verlust einer Shared- Cluster- Disk

Confdisk.exe oder Clusterrecover.exe aus dem Windows Server 2003 Resourcekit.

Verlust eines Cluster-Knotens

ASR. Stellt das Betriebssystem und die Plattenkonfiguration wieder her.

Verlust des kompletten Clusters

ASR und Systemstatus-Restore auf jedem Knoten. Alle Plattenkonfigurationen werden wiederhergestellt

	Shared disk Fehler	Verlust eines Knoten	Verlust des Clusters	Application Checkpoint Wiederherstellung
ASR		XX	XX	
Confdisk	XX			
Clusterrecovery	XX			XX
NTBackup System State Recovery		XX	XX	
Ntbackup Data Restore	XX	XX	XX	XX

ASR (Automatic System Recovery)



- Stellt Disk-Signaturen und Plattenkonfigurationen (System, Boot und kritische Cluster-Disk und Partitionen) wieder her
- Quorum-Dateien müssen über einen System-State-Restore wiederhergestellt werden.

- Resource- Kit Kommandozeilen-Tool
- stellt Disk-Signaturen in 5 Sekunden wieder her.

```

C:\ Command Prompt

C:\>C:\temp\confdisk.exe /?

Usage:

    confdisk /save    <SIF file to save configuration to>
    confdisk /restore <SIF file to restore configuration from>

Example:

    confdisk /save c:\asr.sif

C:\>C:\temp\confdisk.exe /save A:\asr.sif

C:\>C:\temp\confdisk.exe /restore a:\asr.sif
[C:\WINDOWS\system32\asr_ldm.exe /restore /sifpath=a:\asr.sif ]
[C:\WINDOWS\system32\asr_fmt.exe /restore /sifpath=a:\asr.sif ]

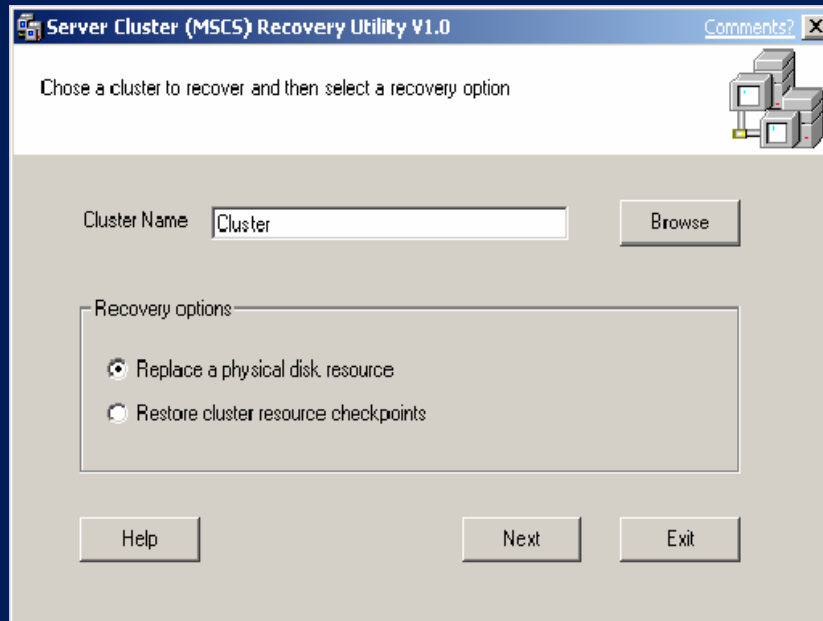
C:\>_

```

CLUSTERRECOVERY.EXE



- Stellt eine verlorene Disk-Resource mit Hilfe von Informationen der Registry wieder her.
- Kann verlorene application checkpoint files wiederherstellen
- Keine vorherige Sicherung erforderlich (im Gegensatz zu ASR und Confdisk.exe
- Die alten Disk-Informationen (Signatur usw.) werden auf die neue Disk übertragen
-



CLUSTERRECOVERY.EXE

